The Trustees of Columbia University in the City of New York

Report on Federal Awards in Accordance with OMB Uniform Guidance
June 30, 2018
Employer Identification Number 13-5598093

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Report of Independent Auditors

To The Trustees of Columbia University in the City of New York

Report on the Consolidated Financial Statements
We have audited the accompanying consolidated financial statements of The Trustees of Columbia University in the City of New York, which comprise the consolidated balance sheets as of June 30, 2018 and 2017 and the related consolidated statements of activities for the year ended June 30, 2018 and of cash flows for the years ended June 30, 2018 and 2017, and the related notes to the consolidated financial statements.

Management's Responsibility for the Consolidated Financial Statements
Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility
Our responsibility is to express an opinion on the consolidated financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to The Trustees of Columbia University in the City of New York's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of The Trustees of Columbia University in the City of New York's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion
In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of The Trustees of Columbia University in the City of New York at June 30, 2018 and 2017, and the changes in their net assets for the year ended June 30, 2018 and their cash flows for the years ended June 30, 2018 and 2017 in accordance with accounting principles generally accepted in the United States of America.

Other Matters
We have previously audited the consolidated balance sheet as of June 30, 2017, and the related consolidated statements of activities and cash flows for the year then ended (not presented herein), and in our report dated November 8, 2017, we expressed an unmodified opinion on those consolidated financial statements. In our opinion, the information set forth in the accompanying summarized financial information as of June 30, 2017 and for the year then ended is consistent, in all material respects, with the audited consolidated financial statements from which it has been derived.

Other Information
Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The accompanying schedule of expenditures of federal awards for the year ended June 30, 2018, is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the consolidated financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements as a whole.

Other Reporting Required by *Government Auditing Standards*
In accordance with *Government Auditing Standards*, we have also issued our report dated October 9, 2018 on our consideration of The Trustees of Columbia University in the City of New York's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters for the year ended June 30, 2018. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering The Trustees of Columbia University in the City of New York's internal control over financial reporting and compliance.

PricewaterhouseCoopers LLP

October 9, 2018

The Trustees of Columbia University in the City of New York
Consolidated Balance Sheets
At June 30, 2018 and 2017
(in thousands of dollars)

	June 2018	June 2017
Assets		
Cash and cash equivalents	$1,006,998	$1,145,566
Accounts receivable, net:		
Government agencies	124,545	143,855
Patient receivables	111,550	115,246
Other	321,735	320,389
Investment income receivable, net	5,384	4,029
Receivable for securities sold	112,837	8,249
Cash and securities held in trust by others	112,071	87,050
Pledges receivable, net	727,213	848,687
Student loans receivable, net	94,129	99,667
Investments, at fair value	11,194,432	10,038,376
Institutional real estate	888,559	894,395
Land, buildings, and equipment, net	4,475,642	4,345,547
Other assets	314,008	306,863
Net assets held by CPMC Fund, Inc.	34,921	35,051
Interest in perpetual trusts held by others	190,911	172,208
Total assets	**$19,714,935**	**$18,565,178**
Liabilities		
Accounts payable and accrued expenses	$329,030	$353,994
Liabilities for securities purchased	26,010	65,375
Prepaid tuition and other deferred credits	115,305	111,142
Deferred revenue	47,415	45,975
Refundable advances	111,879	101,948
Capital lease obligations	121,283	122,904
Conditional asset retirement obligations	119,249	116,272
Accrued employee benefit liabilities	342,731	325,743
Federal student loan funds	78,720	84,190
Actuarial liability for split-interest agreements	62,717	59,955
Bonds and notes payable (including bond premium and issuance costs of $250,334 and $199,125) (see Note 16)	2,084,285	1,955,923
Other long-term liabilities	480,967	483,215
Total liabilities	**3,919,591**	**3,826,636**
Net assets		
Unrestricted	7,192,615	6,908,365
Temporarily restricted	4,815,877	4,436,575
Permanently restricted	3,786,852	3,393,602
Total net assets	**15,795,344**	**14,738,542**
Total liabilities and net assets	**$19,714,935**	**$18,565,178**

See accompanying notes to the consolidated financial statements.

The Trustees of Columbia University in the City of New York
Consolidated Statements of Activities
For the Year Ended June 30, 2018, with Summarized Comparative 2017 Totals
(in thousands of dollars)

	Unrestricted	Temporarily Restricted	Permanently Restricted	June 2018	June 2017
Operating activities					
Revenues and support					
Tuition and fees	$1,582,550			$1,582,550	$1,480,468
Less financial aid grants	(432,690)			($432,690)	(395,016)
Net tuition and fees	1,149,860			1,149,860	1,085,452
Government grants and contracts:					
Direct	701,731			701,731	683,176
Indirect	230,733			230,733	217,881
Private gifts, grants and contracts:					
Direct	279,280	$341,288		620,568	555,294
Indirect	30,213			30,213	27,734
Revenue from other educational and research activities	228,462			228,462	230,608
Patient care revenue	1,235,032			1,235,032	1,199,364
Investment income and gains utilized	437,489	202,294		639,783	616,712
Sales and services of auxiliary enterprises	183,651			183,651	175,747
Other sources	342			342	286
Net assets released from restrictions	345,748	(345,748)			
Total operating revenues and support	**4,822,541**	**197,834**		**5,020,375**	**4,792,254**
Expenses					
Instruction and educational administration	1,792,465			1,792,465	1,693,396
Research	603,648			603,648	575,548
Patient care expense	1,025,611			1,025,611	969,856
Library	69,577			69,577	68,831
Operation and maintenance of plant	269,529			269,529	260,529
Institutional support	310,346			310,346	320,153
Auxiliary enterprises	157,564			157,564	143,724
Depreciation expense	278,897			278,897	271,379
Interest expense	54,878			54,878	60,838
Other	34,384			34,384	20,660
Total expenses	**4,596,899**			**4,596,899**	**4,384,914**
Change in net assets from operating activities	**225,642**	**197,834**		**423,476**	**407,340**
Nonoperating activities					
Endowment gifts			$331,954	331,954	354,909
Current year realized and unrealized capital gains (losses)	274,786	506,693	(71)	781,408	1,109,569
Endowment appreciation utilized	(172,216)	(338,006)		(510,222)	(483,592)
Change in net assets held by CPMC Fund, Inc.	(148)	(41)	59	(130)	(17,118)
Change in funds held by others in perpetuity			18,703	18,703	2,762
Present value adjustment to split-interest agreements	1,048	(9,028)	892	(7,088)	8,797
Changes in pension and post retirement obligations	21,852			21,852	56,211
Other	(4,501)	1,141	209	(3,151)	18,904
Reclassification	(62,213)	20,709	41,504		
Change in net assets from nonoperating activities	**58,608**	**181,468**	**393,250**	**633,326**	**1,050,442**
Change in net assets	**284,250**	**379,302**	**393,250**	**1,056,802**	**1,457,782**
Net assets at beginning of year	**6,908,365**	**4,436,575**	**3,393,602**	**14,738,542**	**13,280,760**
Net assets at end of year	**$7,192,615**	**$4,815,877**	**$3,786,852**	**$15,795,344**	**$14,738,542**

See accompanying notes to the consolidated financial statements.

The Trustees of Columbia University in the City of New York
Consolidated Statements of Cash Flows
For the Years Ended June 30, 2018 and 2017
(in thousands of dollars)

	June 2018	June 2017
Cash flows from operating activities		
(Includes adjustments to reconcile change in net assets to net cash provided by operating activities):		
Change in net assets	$1,056,802	$1,457,782
Depreciation expense	278,897	271,379
Interest on capital lease obligations and CARO	11,640	11,829
Institutional real estate depreciation	28,919	29,037
Realized and unrealized (gains) losses	(781,408)	(1,109,569)
Partnership distributions	506,183	512,261
Contributions restricted for permanent investment, plant, and split-interest agreements	(496,606)	(266,327)
Contributions other than cash	(3,461)	(52)
Present value adjustments and actuarial liability for split-interest agreements	7,088	(8,797)
Accreted interest on bonds	551	580
Change in unamortized bond premium and issuance costs	51,210	32,013
Change in fair value of net assets held by CPMC Fund, Inc.	130	17,118
Change in fair value of interest in perpetual trusts held by others	(18,703)	(2,762)
Change in operating assets and liabilities:		
Accounts receivable, net	21,660	(44,805)
Investment income receivable, net	(1,355)	(2,023)
Pledges receivable, net	121,474	(221,428)
Other assets	(8,632)	(52,125)
Accounts payable and accrued expenses	24,906	(22,940)
Prepaid tuition and other deferred credits	4,163	14,097
Deferred revenue and Refundable advances	11,371	(1,657)
Accrued employee benefit liabilities	16,988	115,617
CARO and other long-term liabilities	11,833	(12,045)
Net cash provided by operating activities	843,650	717,183
Cash flows from investing activities		
Proceeds from sales of investments	2,377,218	2,307,747
Purchases of investments	(3,420,997)	(2,679,246)
Collections from student notes	15,295	17,023
Student notes issued	(9,757)	(12,459)
Proceeds from / (Investment in) cash and securities held in trust by others	(25,021)	13,694
Purchases of institutional real estate	(24,307)	(29,632)
Purchases of plant and equipment	(450,597)	(469,793)
Net cash used by investing activities	(1,538,166)	(852,666)
Cash flows from financing activities		
Proceeds from contributions for:		
Investment in endowment	418,164	186,362
Investment in plant	51,990	73,175
Investment in split-interest agreements	26,452	6,790
Investment income on split-interest agreements	3,377	3,218
Payments on split-interest agreements	(5,347)	(4,897)
Payments on capital lease obligations	(9,819)	(10,670)
Repayment of bonds and notes payable	(248,584)	(64,049)
Proceeds from bond issuance	325,185	190,475
Net change in federal student loan funds	(5,470)	(849)
Net cash provided by financing activities	555,948	379,555
Net change in cash and cash equivalents	(138,568)	244,072
Cash and cash equivalents at beginning of year	1,145,566	901,494
Cash and cash equivalents at end of year	$1,006,998	$1,145,566
Supplemental disclosure of cash flow information:		
Equipment and space acquired through capital leases	$2,768	$5,217
Cash paid during the year for interest	$82,481	$78,987

See accompanying notes to the consolidated financial statements.

1. Organization

The Trustees of Columbia University in the City of New York (the "University") is a private, nonsectarian, nonprofit institution of higher education whose activities are concentrated at two locations in New York City and extend around the globe. The University provides instruction through sixteen undergraduate, graduate, and professional schools. It operates a variety of research institutes and a library system to support its teaching, learning, and research activities. The University performs research, training, and other services under grants and contracts with agencies of the federal government and other sponsoring organizations. The University enrolls approximately 32,429 full-time and part-time students and employs approximately 17,196 full-time employees, including 6,223 full-time faculty members and research staff. Of these, 1,556 hold positions in the arts and sciences, 3,668 hold health science positions, and the remainder hold positions in the other professional schools.

The University is a New York nonprofit corporation recognized as tax exempt under Section 501(c)(3) of the Internal Revenue Code.

2. Columbia University Irving Medical Center

Columbia University Irving Medical Center ("CUIMC"), a division of the University, located in the Washington Heights section of northern Manhattan, is one of the largest academic medical centers in the United States. It is composed of four schools: Vagelos College of Physicians and Surgeons, Mailman School of Public Health, College of Dental Medicine, and School of Nursing.

CUIMC has three primary areas of focus: patient care, scientific research, and education. CUIMC offers a wide variety of degrees, certifications, and continuing education in health sciences. Faculty patient care services, sponsored research, tuition, endowment income, patent royalties, and gifts provide the majority of CUIMC's revenues. Approximately 4,347 students are enrolled at CUIMC with a full-time faculty of 2,473, of whom approximately 309 are tenured. Additionally, CUIMC's staff includes 2,726 part-time faculty instructors, 1,140 full-time and 241 part-time researchers, 190 post-doctoral research trainees, and 1,165 post-doctoral clinical trainees. Approximately 64 percent of the full-time faculty and 23 percent of the part-time faculty hold clinical appointments and have admitting privileges at New York-Presbyterian ("NYP")/CUIMC Campus.

Patient care activities include patient visits performed by Columbia full-time faculty through its medical faculty practice plan, as well as clinical, educational and administration services provided to hospitals and other health care institutions through contractual agreements for services.

CUIMC maintains several clinical and education affiliation agreements with other organizations. The most significant affiliation agreements are with NYP, Lawrence Hospital, and Harlem Hospital. Certain faculty physicians also provide patient care and supervision of residents at NYP network hospitals and other affiliates. In addition, through interinstitutional professional service agreements and medical service agreements, CUIMC faculty provide patient care in specialty and subspecialty areas at hospitals in the tristate area and occasionally in other parts of the country and the world.

In fiscal 2018, the clinical faculty handled approximately 2.2 million outpatient and emergency room visits and participated in instruction and supervision of 664 University medical students and 969 residents and fellows at NYP. CUIMC physicians generated approximately 63,000 NYP hospital admissions during the year.

Payments for patient care services provided by the full-time faculty in both institutional and private office settings are derived mainly from third-party payers, including managed care companies (52 percent), Medicare (17 percent), Medicaid (15 percent), commercial insurance (6 percent), and other (1 percent). Direct patient payments comprise 9 percent of total payments.

3. Summary of Significant Accounting Policies

The significant accounting policies of the University are as follows:

Basis of Consolidation
The accompanying consolidated financial statements of the University include the accounts of all academic and administrative departments of the University. Additionally, the consolidated financial statements include the net assets and activities of the following entities, for which the University maintains managerial and financial control:

- Columbia Investment Management Company, LLC—Columbia Investment Management Company, LLC is a New York limited liability company formed by the University to manage the University's investment assets under the supervision of a Board appointed by the Trustees of the University and subject to the oversight of the Committee on Finance of the Trustees.
- Reid Hall, Inc.—Reid Hall, located in Paris, France, was donated to the University in 1964. Reid Hall, Inc., a corporation organized under New York membership corporation law as an educational and charitable organization, operates Reid Hall to promote, facilitate, and aid the educational, cultural, and social interests of students studying in France.
- The University holds a number of other limited liability companies, not-for-profit corporations, and international organizations, which are established to facilitate various program and research objectives.

The University provides investment custodial services and manages all of the assets of Columbia Presbyterian Medical Center Fund, Inc. ("CPMC Fund, Inc."), a not-for-profit corporation that was created to hold and receive gifts for the University and NYP. The consolidated financial statements reflect the University's interest in the net assets of CPMC Fund, Inc. as well as the assets and amounts due to NYP.

The University is also the sole corporate member of a not-for-profit practice entity, Columbia University Healthcare, Inc., and two professional corporations, Columbia Doctors of New Jersey, P.C, and Columbia Doctors of Bergen County, P.C. and as such, consolidates these entities into the University's consolidated financial statements.

All significant intercompany accounts have been eliminated in consolidation.

Accrual Basis
The consolidated financial statements of the University have, in all material respects, been prepared on an accrual basis.

Basis of Presentation
The University maintains its accounts in accordance with the principles of fund accounting. Under this method of accounting, resources for various purposes are classified into funds that are consistent with activities or objectives specified by donors. Separate accounts are maintained for each fund.

For reporting purposes, the University prepares its consolidated financial statements in accordance with accounting principles generally accepted in the United States of America ("GAAP") that requires resources be classified for reporting purposes based on the existence or absence of donor-imposed restrictions. This is accomplished by classification of fund balances into three categories of net assets – unrestricted, temporarily restricted, and permanently restricted. Periodically, donor redesignations may result in reclassifications of net assets. Descriptions of the three net asset categories and the type of transactions affecting each category follow.

Unrestricted—Net assets that are not subject to donor-imposed restrictions. This category includes unrestricted gifts, certain endowment income balances, certain board-designated endowment principal balances, including capital appreciation on such balances, certain plant funds, University-designated loan funds, and other unrestricted designated and undesignated current funds.

Temporarily restricted—Net assets that are subject to legal or donor-imposed stipulations that will be satisfied either by actions of the University, the passage of time, or both. These net assets include gifts donated for a particular purpose, certain other balances with donor-imposed restrictions, amounts subject to time restrictions such as funds pledged for future payment, or amounts subject to legal restrictions, such as the portion of a donor-restricted permanent endowment fund that is not classified as permanently restricted net assets, as required by the New York Prudent Management of Institutional Funds Act ("NYPMIFA"). Once the time and purpose restriction are satisfied, or have been deemed to have been satisfied, those temporarily restricted net assets are released from restrictions.

Permanently restricted—Net assets that are subject to donor-imposed stipulations that will be invested to provide a perpetual source of income to the University. Donors of these assets require the University to maintain an endowment fund in perpetuity. The University classifies as permanently restricted net assets (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment, and (c) realized and unrealized gains and losses to the permanent endowment when stipulated by the donor gift instrument.

Revenues and Expenses
Revenues are reported as increases in unrestricted net assets unless the use of those assets is limited by donor-imposed restrictions. Expenses are reported as decreases in unrestricted net assets. Gains and losses on investments are reported as increases or decreases in unrestricted net assets, unless their use is restricted by explicit donor stipulation or by law.

Tuition and Fees and Financial Aid
Tuition and fees are derived from degree programs as well as executive and continuing education programs. Tuition and fee revenue is recognized as operating income in the period in which it is earned. Tuition and fee receipts received in advance are recorded as deferred revenue. Net tuition and fees are computed after deducting certain scholarships and fellowships awarded to students. In order to assist students in meeting tuition and other costs of attendance, the University administers a variety of federal, state, institutional, and private aid programs. Financial aid packages to students may include direct grants, loans, and employment.

Contributions and Pledges Receivable
Contributions for University operations and plant, including unconditional promises to give ("pledges"), are recognized as operating revenue in the period earned. Contributions to endowment are recognized as nonoperating revenue in the period earned. Pledges are recorded net of an allowance for uncollectable pledges. Amounts expected to be collected in future years are recorded at the present value of estimated future cash flows, net of an allowance for uncollectable pledges. The discounts on those pledges are computed using an interest rate for the year in which the promise was received and considers market and credit risk as applicable. Subsequent years' accretion of the discount is included in contribution revenue. Conditional promises to give are not recognized as revenue until such time as the conditions are substantially met.

Patient Care Revenue and Expense
Patient care activities relate to three distinct areas: medical faculty practice plans, affiliation agreements, and medical and professional service agreements.

Patient care expenses include direct expenses associated with providing patient care services, as well as administrative functions within the University's faculty practice organization. Patient care expense does not include rent or utilities in clinical space, as those costs are aggregated with all University space costs within "Operations and maintenance of plant".

The University provides medical care to patients via its faculty practice through CUIMC, primarily under agreements with third-party payors. Agreements with third-party payors, including health maintenance organizations, provide payment for medical services at amounts different from rates established by the University. Medical faculty practice plan revenue is reported net of two items: (a) contractual allowances from third-party payors for services rendered and (b) estimates of uncollectible amounts. Included within the faculty practice revenues and expenses are financial arrangements associated with two physician professional corporations.

The University maintains several clinical and education affiliation agreements with other organizations. The University provides medical, professional, and supervisory staff as well as other technical assistance. Revenues and expenses from these agreements are accounted for in patient care and education categories of the operating activity in the Consolidated Statements of Activities.

Grant and Contract Income
The University receives grant and contract income from governmental and private sources. The University recognizes revenue associated with the direct costs of sponsored programs as the related costs are incurred. Recovery of facilities and administrative costs of federally sponsored programs are at reimbursement rates negotiated with the University's cognizant agency, the Department of Health and Human Services. The University and the federal government operated under a provisional agreement that provided for facilities and administrative (F&A) cost rates under federal

grants and contracts through October 24, 2017 The provisional rates were based on the agreement that was in place through June 30, 2014. In the fall 2017, the University entered into a new agreement with the federal government which defines the rate at which the University can be reimbursed for F&A costs applicable to federal on-campus research. This agreement will remain in place until such time a new agreement is reached.

Research and Development
The University engages in numerous research and development projects, which are partially or fully sponsored by governmental and private funds. These costs are charged to operating expense as incurred. The University periodically funds and develops patents for certain technologies, then licenses the usage of these patents to companies for a specified period of time. The revenue, net of payments due to third parties, is recorded in "Revenue from other educational and research activities" in the Consolidated Statements of Activities. Costs incurred with developing and maintaining these patents are expensed as incurred.

Institutional Support
Institutional support expense includes central administrative functions and expenses that support the management of the University. This category also includes any net operating surplus or deficit of the University's benefit pool, as recoveries from units across the University may be less than or greater than benefits paid in a given year.

Cash and Cash Equivalents
Cash and cash equivalents are recorded at fair value and include several depository accounts, checking accounts, institutional money market funds, and similar temporary investments with maturities of three months or less at the date of purchase.

Investments
The University's investments, consisting primarily of publicly traded fixed income and equity securities, alternative investments, and cash held for reinvestment, are stated at fair value as of June 30, 2018 and 2017. Alternative investments include investments in absolute return strategy funds, private equity funds, and real asset funds. The management of each respective fund provides the fair value of the investment. The University reflects its share of the partnerships or corporations in the consolidated financial statements.

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The University believes that the net asset value of its alternative investments is a reasonable estimate of fair value as of June 30, 2018 and 2017. Because alternative investment funds are not marketable, the estimated value is subject to uncertainty and, therefore, may differ from the value that would have been used had a ready market for the investment existed. Such differences could be material. The amount of gain or loss associated with these investments is reflected in the accompanying consolidated financial statements based on the University's proportionate share in the net assets of these investments.

The University's presentation in the Consolidated Statements of Cash Flows for limited liability partnerships, limited liability corporations, and other similarly structured investments is consistent with the accounting for equity method investments as it represents the underlying nature of these investments in which the University has a capital account.

The University records purchases and sales of securities on a trade-date basis. Realized gains and losses are determined on the basis of average cost of securities sold and are reflected in the Consolidated Statements of Activities. Dividend income is recorded on the ex-dividend date, and interest income is recorded on an accrual basis.

Split-Interest Agreements
The University's split-interest agreements with donors consist primarily of charitable gift annuities, pooled income funds, and irrevocable charitable remainder trusts for which the University serves as custodian and trustee. Assets are invested and payments are made to donors and/or other beneficiaries in accordance with the respective agreements. In the case of irrevocable split-interest agreements whose assets are held in trusts not administered by the University (third-party charitable trusts), the University will recognize its beneficial interest when it receives sufficient reliable information and documentation that establishes the trust's existence, the University's beneficial interest, and the value of that interest.

Contribution revenues for split-interest agreements are recognized at the dates the agreements are established net of the present value of the estimated future payments to be made to the beneficiaries, if applicable, under these agreements. The discounts on those agreements are computed using an interest rate for the year in which the contribution was received and considers market and credit risk as applicable. Assets related to these agreements are recorded in "Investments, at fair value". The liability for the present value of the estimated future payments to be made to the beneficiaries is recorded in "Actuarial liability for split-interest agreements". Adjustments to the fair value of these agreements are recorded in the Consolidated Statements of Activities under "Present value adjustment to split-interest agreements".

Institutional Real Estate
Institutional real estate consists primarily of properties proximate to the University's Morningside and Washington Heights campuses, the primary purpose of which is to house faculty, staff, and graduate students. The income earned on this investment is used primarily to finance operating expenditures. The properties are valued at cost and depreciated over useful lives ranging from twelve and one half to fifty years.

Land, Buildings, and Equipment
Land, buildings, and equipment are stated at cost net of accumulated depreciation. Depreciation is calculated on a straight-line basis over useful lives ranging from ten to one hundred years for buildings and improvements and three to twenty years for equipment, consistent with the method used for government cost reimbursement purposes. Capitalized software costs are amortized over seven years. Upon disposal of assets, the costs and accumulated depreciation are removed from the accounts, and the resulting gain or loss is included in operations.

Collections
Collections at the University include works of art, literary works, historical treasures, and artifacts that are maintained in the University's galleries, libraries, and buildings. These collections are protected and preserved for public exhibition, education, research, and the furtherance of public service and, therefore, are not recognized as assets on the Consolidated Balance Sheets. Costs associated with purchasing additions to and maintaining these collections are recorded as operating expenses in the period in which the items are acquired.

Interest in Perpetual Trusts Held by Others
The University is the beneficiary of certain perpetual trusts administered by others. These trusts are recognized as permanently restricted contributions upon receipt of documentation evidencing that the trust has been established and a statement of its assets, and adjusted to fair value each year. The fair value of the interest in the perpetual trust is based on the University's share of the income generated by the trust, ascribed to the fair value of assets reported by the trust. Gains and losses resulting from the change in fair value of trust assets are reported as "Change in funds held by others in perpetuity" in nonoperating activity in the Consolidated Statements of Activities.

Capital Lease Obligations
Capital lease obligations are recognized for equipment and space where substantially all of the risks of ownership have been transferred to the University. The obligations extend up to seven years for equipment and up to fifty years for space.

Conditional Asset Retirement Obligations
Conditional asset retirement obligations ("CARO") are recognized for remediation or disposal of asbestos, underground storage tanks, soil, and radioactive sources and equipment as required by law. The fair value of the liability for a conditional asset retirement obligation is recognized in the period in which it occurred, provided that it can be reasonably estimated.

Other Long Term Liabilities
Other long term liabilities are obligations that extend beyond one year, or operating cycle, whichever is longer. The obligations for the medical malpractice liabilities, self-insurance reserves, the fixed payor swap agreement, and other commitments are categorized in other long term liabilities.

Use of Estimates
The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates. The most significant estimates include valuation of investments without readily determinable public markets, estimated useful life of land, buildings and equipment, actuarially determined costs associated with split-interest agreements, pension, postemployment and postretirement benefits, contractual allowances for patient receivables, allowances for doubtful accounts, insurance obligations and conditional asset retirement obligations.

2017 Presentation
While comparative information is not required under GAAP, the University believes that this information is useful and has included comparative financial information from the consolidated financial statements for 2017. Within the Consolidated Statements of Activities, prior year presentation of restricted asset categorization has been condensed for comparative purposes. There has been no change in total by net asset class. This summarized information is not intended to be a full presentation in conformity with GAAP, which would require certain additional information. Accordingly, such information should be read in conjunction with the University's audited consolidated financial statements for the year ended June 30, 2017.

New Authoritative Pronouncements

In May 2014, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2014-09, Revenue from Contracts with Customers (Topic 606) and Other Assets and Deferred Costs - Contracts with Customers (Subtopic 340-40). This ASU implements a single framework for revenue recognition ensuring that revenue is recognized in a manner which reflects the consideration to which the entity expects to be entitled to in exchange for goods and services. The ASU is effective for fiscal years beginning after December 15, 2017. The ASU permits two methods of adoption: retrospectively to each prior reporting period presented (full retrospective method) or retrospectively with the cumulative effect of initially applying the guidance recognized at the date of initial application (modified retrospective method). The University is evaluating method of adoption as well as the impact of the new standard on the University consolidated financial statemnets.

In February 2016, the FASB issued ASU No. 2017-02, Leases (Topic 842). The new ASU establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. The ASU is effective for fiscal years beginning after December 15, 2018 with early adoption permissible. The University is evaluating the impact of the new standard on the University consolidated financial statements.

In August 2016, the FASB issued ASU 2017-14, Presentation of Financial Statements for Not-for-Profit Entities. The ASU amends the financial reporting requirements in Topic 958, Not-for-Profit Entities. Changes include revisions to the classification of net assets and expanded liquidity disclosures. The ASU is effective for fiscal years beginning after December 15, 2017 with early adoption permissible. The University is evaluating the impact of the new standard on the University consolidated financial statements.

In August 2016, the FASB issued ASU 2017-15, Classification of Certain Cash Receipts and Cash Payments. The ASU amends the financial reporting requirements in Topic 230, Statement of Cash Flows. Changes include revisions to the presentation of cash flows related to the settlement of debt instruments with coupon rates that are insignificant in relation to the effective interest rate of the borrowing and distributions received from equity method investees. The ASU is effective for fiscal years beginning after December 15, 2017 with early adoption permissible. The University is evaluating the impact of the new standard on the University consolidated financial statements.

In March 2017, the FASB issued ASU 2018-07, Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. The ASU requires that in instances where an operating measure is included in the Consolidated Statement of Activities, the service cost component of the net periodic cost be included as a component of the operating measure and other components of net periodic costs be presented separately in the nonoperating section of the Consolidated Statement of Activities. The ASU is effective for fiscal years beginning after December 15, 2017 with early adoption permissible. The University is evaluating the impact of the new standard on the University consolidated financial statements.

In June 2018, the FASB issued ASU No. 2018-08, Not-for-Profit Entities (Topic 958), Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made. The ASU provides additional guidance for evaluating whether transactions should be accounted for as contributions (nonreciprocal transactions) or as exchange (reciprocal) transactions subject to other guidance and for determining whether a contribution is conditional or unconditional. The ASU is

effective for fiscal years beginning after December 15, 2017. The University is evaluating the impact of the new standard on the University consolidated financial statements.

4. Operating Measurement

The University divides its Consolidated Statements of Activities into operating and nonoperating activities. The operating activities of the University include all income and expenses related to carrying out its educational and research mission. Operating revenues include investment income and endowment appreciation utilized to fund current operations, the largest portion of which is the distribution of funds budgeted in accordance with the endowment spending rule.

Nonoperating activities include current year realized and unrealized gains and losses on investments, including realized gain distributions from fund investments, less amounts withdrawn from endowment appreciation to fund operations. Nonoperating activities also include new gifts to permanently restricted endowments, changes in net assets held by CPMC Fund, Inc., changes in funds held by others in perpetuity, present value adjustments to split-interest agreements, changes in pension and postretirement obligations, other items, and reclassifications.

5. Patient Care Revenue

The University's affiliation agreements with area hospitals generated $349.7 million and $337.2 million of revenue for the years ended June 30, 2018 and 2017, respectively. As of June 30, 2018 and 2017, Accounts receivable, net - other includes $91.4 million and $96.0 million, respectively, relating to these agreements.

Medical faculty practice revenue is reported at the estimated net realizable amounts from patients, third-party payors, and others for services rendered. Medical faculty practice revenues are $795.6 million and $797.4 million for the years ended June 30, 2018 and 2017, respectively. As of June 30, 2018 and 2017, patient accounts receivable amounts to $111.6 million and $115.2 million, respectively. Medical service agreements generated $25.5 million and $22.3 million of revenue for the years ended June 30, 2018 and 2017, respectively and other patient care activities generated $64.2 million and $42.5 million of revenue for the years ended June 30, 2018 and 2017, respectively.

6. Long-Term Investments and Fair Value

The University values its investments in accordance with GAAP and consistent with the FASB official pronouncement on *Fair Value Measurements* for financial assets and liabilities. The pronouncement defines fair value as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. GAAP establishes a hierarchy of valuation inputs based on the extent to which the inputs are observable in the marketplace. Observable inputs reflect market data obtained from sources independent of the reporting entity. Unobservable inputs reflect the entities own assumptions about how market participants would value an asset or liability based on the best information available. Valuation techniques used to measure fair value utilize relevant observable inputs and minimize the use of unobservable inputs.

The University follows a fair value hierarchy based on three levels of inputs, described below:

Fair value for Level 1 is based on quoted prices in active markets that the University has the ability to access for identical assets and liabilities. Market price data is generally obtained from exchange or dealer markets. The University does not adjust the quoted price for such assets and liabilities.

Fair value for Level 2 is based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, or inputs other than quoted prices that are observable.

Fair value for Level 3 is based on valuation techniques that use significant inputs that are unobservable as they are not actively traded.

A financial instrument's categorization within the valuation hierarchy is based upon the lowest level of input that is significant to the fair value measurement. In determining the categorization of the University's investments within the fair value hierarchy, the University has considered market information including observable net asset values and the length of time until the investment will become redeemable. Investments for which fair value is measured using net asset values (NAV) as a practical expedient are excluded from the hierarchy and have been reported separately within the table below. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of that instrument and does not necessarily correspond to the University's perceived risk of that instrument.

From time to time, the University may hold direct real estate investments. These investments are categorized as Level 3 within the fair value hierarchy. Valuation for material directly held real estate investments is determined from periodic valuations prepared by independent appraisers or broker opinions.

The University holds certain investments for which fair value is determined by using the unadjusted net asset value per share (NAV) as provided by the fund management as a practical expedient. Investments categorized as NAV include the University's ownership in funds that invest in alternative assets (i.e. absolute return strategy funds, private equity funds, and real asset funds) and funds that invest in equity and fixed income strategies for which observable net asset values are not available. The value of the University's investments in these funds represents the University's ownership interest in the net asset value of the respective fund. Items classified as NAV do not have a quoted price in an active market place. As a practical expedient, the University is permitted under GAAP to estimate the fair value of an investment at the measurement date using the NAV reported by the fund manager without further adjustment, provided the NAV has been calculated in accordance with or in a manner consistent with GAAP, and provided further that the University does not expect to sell the investment at a value other than NAV. The University has various processes and controls in place to ensure investment fair value is reasonable and performs various due diligence procedures of its investments including an assessment of applicable accounting policies, a review of the valuation procedures employed, and consideration of redemption features and price transparency.

The following tables present assets and liabilities measured at fair value and NAV at June 30, 2018 and June 30, 2017.

	2018				
Assets	**Level 1**	**Level 2**	**Level 3**	**NAV**	**Total**
Investments:					
Cash and cash equivalents	$ 554,073	$ 328,231			$ 882,304
Global equities	1,400,143	81,788	$ 1,520	$ 876,462	2,359,913
Fixed income	3,203	1,078	11	287,343	291,635
Absolute return strategies	60,447	7,314		3,494,651	3,562,412
Private equity	1,340		86,055	1,972,357	2,059,752
Real assets	5,004	2,684	27,697	2,003,031	2,038,416
Investments, at fair value	2,024,210	421,095	115,283	8,633,844	11,194,432
Interest in perpetual trusts held by others			178,956	11,955	190,911
Total assets at fair value	$ 2,024,210	$ 421,095	$ 294,239	$ 8,645,799	$ 11,385,343
Liabilities					
Swaps payable		$ 57,107			$ 57,107
Total liabilities at fair value		$ 57,107			$ 57,107

	2017				
Assets	**Level 1**	**Level 2**	**Level 3**	**NAV**	**Total**
Investments:					
Cash and cash equivalents	$ 77,731	$ 586,932			$ 664,663
Global equities	932,083	65,023	$ 1,726	$ 940,126	1,938,958
Fixed income	22,677	36	30	287,639	310,382
Absolute return strategies	102,247	16,028		3,039,484	3,157,759
Private equity	21,669		92,436	1,980,967	2,095,072
Real assets	98,303	2,122	13,008	1,758,109	1,871,542
Investments, at fair value	1,254,710	670,141	107,200	8,006,325	10,038,376
Interest in perpetual trusts held by others			160,732	11,476	172,208
Total assets at fair value	$ 1,254,710	$ 670,141	$ 267,932	$ 8,017,801	$ 10,210,584
Liabilities					
Swaps payable		$ 71,962			$ 71,962
Total liabilities at fair value		$ 71,962			$ 71,962

Cash and cash equivalents
Cash and cash equivalents includes government securities and money market instruments and are valued at amortized cost, which approximates fair value.

Global Equities and Fixed Income
Global equities and fixed income consist of investments in publicly traded U.S. and foreign common and preferred equities, funds that invest in equity and fixed income based strategies, and cash held in separate accounts committed to these strategies. The fair value of these investments is based on quoted market prices. Investments that are listed on an exchange are valued, in general, at the last reported sale price (or, if there is no sales price, at the last reported bid price, or, in the absence of reported bid prices, at the mean between the last reported bid and asked prices thereof). Fund investments in equity and fixed income based strategies are valued in accordance with NAV provided by the investment managers of the underlying funds. If the University has valued the investment based on NAV as a practical expedient, the investment has been excluded from the fair value hierarchy and will be categorized as NAV. If the valuation does not meet the practical expedient criteria and the University has the ability to redeem from a fund up to 180 days beyond the measurement date, the investment is categorized as Level 2. If the redemption period extends beyond 180 days, the investment is categorized as Level 3.

Alternative Investments
Alternative investments include interests in absolute return strategy funds, private equity funds, and real asset funds. Private equity funds include large market, leveraged buyout, and venture capital based strategies. The University values these investments in accordance with valuations provided by the investment managers of the underlying funds. These funds may make investments in securities that are publicly traded, which are generally valued based on observable market prices, unless a restriction exists. In addition, interests in a private equity fund may be publicly traded and valued based on observable market prices.

As a general rule, managers of funds invested in alternative investments value those investments based upon the best information available for a given circumstance and may incorporate assumptions that are the investment manager's best estimates after consideration of a variety of internal and external factors. If no public market exists for the investments, the fair value is determined by the investment manager taking into consideration, among other things, the cost of the investment, prices of recent significant placements of similar investments of the same issuer, and subsequent developments concerning the companies to which the investments relate. The University's management may consider other factors in assessing the fair value of these investments. If the University has valued these alternative investments based on NAV as a practical expedient, the investment is excluded from the fair value hierarchy and will be categorized as NAV. For absolute return funds, if the valuation does not meet the practical expedient criteria and the University has the ability to redeem from an absolute return strategy fund up to 180 days beyond the measurement date, the investment is categorized as Level 2. If the redemption period extends beyond 180 days, the investment is categorized as Level 3. For private equity funds and real asset funds, if the valuation does not meet the practical expedient criteria the investments are categorized as Level 3 given that the University does not have discretion for timing of withdrawal.

The fair value of the alternative investment funds in the table above represents the amount the University would expect to receive at June 30, 2018 and 2017, if it had liquidated its investments in the funds on these dates. The University has performed due diligence around these investments and believes that the NAV of its alternative investments is a reasonable estimate of fair value as of June

30, 2018 and 2017. Alternative investments may allocate a high percentage of their assets in specific sectors of the market in order to achieve a potentially greater investment return. As a result, the investments may be susceptible to economic, political, and regulatory developments in a particular sector of the market, positive or negative, and may experience increased volatility in net asset values.

Absolute return strategies also include separate accounts with direct investments in fixed income (which include mortgage back securities, collateralized mortgage obligations, and convertible bonds) and cash committed to these strategies. The fair value of these investments is based on the last reported bid price obtained from pricing sources or broker quotes and is categorized as Level 2.

Perpetual Trusts
The fair value of interest in perpetual trusts held by others is based on the University's share of the income generated by the trust, ascribed to the fair value of the assets reported by the trust.

Derivatives
Investment fund managers may invest in derivatives, and the value of these positions is reflected in the NAV of the respective funds. Separately, the University employs derivatives primarily to hedge its risks and to rebalance its market exposures. Derivatives used may include futures, swaps, options, and forward contracts and are reflected at fair value following the definition of Level 1 and Level 2 assets as described above. Certain derivative positions held within the endowment portfolio are subject to master netting agreements included within an International Swap and Derivatives Association, Inc. ("ISDA") master agreement with each of the counterparties.

The following positions are reflected on a net basis within Investments, at fair value on the Consolidated Balance Sheets and are summarized below.

	Notional Exposure		Gross		Net	Collateral
Derivative Instruments	Long	Short	Asset	Liability	Fair Value	Posted
June 30, 2018						
Equity	$ 284,922		$ 15,907	$ (7,015)	$ 8,892	$ 8,180
Currency*			4,580	(28,034)	(23,454)	
June 30, 2017						
Equity	$ 478,462	$ (21,737)	$ 49,897	$ (4,506)	$ 45,391	
Commodity		(307,458)	89,301		89,301	
Currency*			3,830	(30,849)	(27,019)	

*The University held currency derivative contracts with an aggregate notional amount of $721.6 million and $1,620.4 million as of June 30, 2018 and 2017, respectively.

Outside of the endowment portfolio, the University entered into a fixed payor interest rate swap as described in Note 16. The estimated fair value of the agreement were liabilities of $57.1 million and $72.0 million at June 30, 2018 and 2017, respectively, and is included in "Swaps payable" in the preceding tables. The derivatives are reflected as a receivable or payable, as appropriate, on the Consolidated Balance Sheets. Unrealized gain or loss from derivative investments is a component of the current year realized and unrealized capital gains (losses) in the Consolidated Statements of Activities.

The methods described above may produce a fair value calculation that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the University believes its

valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different estimate of fair value at the reporting date.

The following table is a rollforward of the amounts reported in the Consolidated Balance Sheets for financial instruments classified by the University within Level 3 of the fair value hierarchy defined above at June 30, 2018 and 2017.

	June 30, 2017	Transfers In/Out	Purchases	Sales	Realized gain/loss	Unrealized gain/loss	June 30, 2018
Global equities	$ 1,726		$ 3			$ (209)	$ 1,520
Fixed income	30		1	(20)			11
Private equity	92,436		25,941	(27,364)	15,213	(20,171)	86,055
Real assets	13,008	(141)	12,281	(1,474)		4,023	27,697
Total level 3 investments	$ 107,200	$ (141)	$ 38,226	$ (28,858)	$ 15,213	$ (16,357)	$ 115,283

	June 30, 2017	Transfers In/Out	Disburse-ments	Realized/ Unrealized gain/loss, net	June 30, 2018
Interest in perpetual trusts held by others	$ 160,732	$ (199)	$ (7,101)	$ 25,524	$ 178,956

	June 30, 2016	Transfers In/Out	Purchases	Sales	Realized gain/loss	Unrealized gain/loss	June 30, 2017
Global equities	$ 1,047	$ 2	$ 700			$ (23)	$ 1,726
Fixed income	51			(21)			30
Private equity	79,311		2,875	(5,291)	1,219	14,322	92,436
Real assets	13,462		1,474	(2,148)	(8,762)	8,982	13,008
Total level 3 investments	$ 93,871	$ 2	$ 5,049	$ (7,460)	$ (7,543)	$ 23,281	$ 107,200

	June 30, 2016	Transfers In/Out	Disburse-ments	Realized/ Unrealized gain/loss, net	June 30, 2017
Interest in perpetual trusts held by others	$ 158,704	$ (7,206)	$ (7,021)	$ 16,255	$ 160,732

All net realized and unrealized gains (losses) in the tables above are reflected in the Consolidated Statements of Activities. Net unrealized gains (losses) relate to those financial instruments held by the University at June 30, 2018 and 2017. The University's policy is to recognize transfers in and transfers out as of the end of the period. Transfers between Level 3 and Level 1, Level 3 and Level 2 as well as between Level 3 and NAV are reported at gross, due to the criteria described above. There were no significant transfers between Level 1 and Level 2 for the years ended June 30, 2018 and 2017.

Certain investments in global equities and alternative investments may be subject to restrictions that i) limit the University's ability to withdraw capital after such investment and ii) limit the amount that may be withdrawn as of a given redemption date. The redemption terms of the University's

investments in absolute return strategy funds vary from daily to triennial, with a portion of these investments designated as "illiquid" in "sidepockets" and that portion may not be available for withdrawal until liquidated by the investing fund and redemption notice periods range from 0 days to 180 days. Generally, as noted above, the University has no discretion as to withdrawal of its investment in private equity and real asset funds; distributions are made when sales of assets are made within the funds. The remaining life of these private equity and real asset funds is up to 12 years.

The University is obligated under certain investment fund agreements to advance additional funding up to specified levels over a period of several years. These commitments have fixed expiration dates and other termination clauses. At June 30, 2018, the University had unfunded commitments of approximately $2.3 billion as displayed in the table below.

Asset class ($ in millions)	**Remaining life of fund**	**Unfunded commitments**	**Timing to draw commitments**
Global equities	N/A	$ 37	1 to 8 years
Absolute return strategies	N/A	186	1 to 5 years
Private equity	1 to 12 years	970	1 to 12 years
Real assets	1 to 12 years	1,121	1 to 12 years
Total		$ 2,314	

The University's estimate of the lives of the funds could vary significantly depending on the investment decisions of the external fund managers, changes in the University's portfolio, and other circumstances. Furthermore, the University's obligation to fund the commitments noted above may be waived by the fund manager for a variety of reasons including market conditions and/or changes in investment strategy.

The University has various sources of internal liquidity at its disposal, including cash, cash equivalents, marketable debt and equity securities, and lines of credit, which are available to fund the committed drawdowns.

Investment Return

Investment income and gains utilized on the Consolidated Statements of Activities contains interest and dividend income net of fees, institutional real estate revenue net of operating expenses and depreciation, other investment income, and endowment appreciation utilized to fund the spending rule. Endowment appreciation utilized was $510.2 million and $483.6 million during 2018 and 2017, respectively. The nonoperating section of the Consolidated Statements of Activities contains realized and unrealized gains reduced by endowment appreciation utilized to fund the spending rule.

7. Endowment Funds

The University's endowment consists of approximately 5,500 separate funds established over many years for a wide variety of purposes. The endowment includes permanent endowments, term endowments, and funds designated by the Board of Trustees to function as endowments. As required by GAAP, net assets associated with endowment funds, including funds designated by the Board of Trustees to function as endowments, are classified and reported based on the existence or absence of donor-imposed restrictions.

The University employs a market value unit method of accounting for pooled general investments. Each participating fund enters and withdraws from the pooled investment account based on monthly unit market values. Changes in the market value of investments are distributed proportionately to each fund that participates in the investment pool. Net investment income distributed during the year is allocated on a per unit basis to each participating fund.

Relevant Law
Under NYPMIFA, the University may appropriate so much of an endowment fund as it deems prudent, considering the specific factors set forth in NYPMIFA and subject to the intent of the donor as expressed in the gift instrument. Unless stated otherwise in the gift instrument, the earnings in an endowment fund are donor-restricted assets until appropriated.

The University continues to classify as permanently restricted net assets (a) the original value of gifts donated to the permanent endowment, (b) the original value of subsequent gifts to the permanent endowment, and (c) realized and unrealized gains and losses to the permanent endowment when stipulated by the donor gift instrument. In accordance with NYPMIFA and authoritative guidance, the remaining portion of the donor-restricted endowment funds not classified in permanently restricted net assets is classified as temporarily restricted net assets.

The composition and changes in the University's endowment net assets as of June 30, 2018 and 2017, are as follows:

Changes in University endowment net assets	Unrestricted Net Assets	Temporarily Restricted Net Assets	Permanently Restricted Net Assets	Total
Opening balance - June 30, 2017	$ 3,428,651	$ 3,679,663	$ 2,888,282	$ 9,996,596
Investment return:				
Investment income	65,933	1,649		67,582
Net appreciation / (depreciation)	227,763	507,792	18,900	754,455
Total investment return	293,696	509,441	18,900	822,037
New gifts	27,380	70,583	416,445	514,408
Appropriation for expenditure	(254,728)	(334,702)		(589,430)
Other Changes:				
Transfers to create endowments	104,144	20,845	646	125,635
Other / Reclassifications	(51,602)	10,097	41,504	(1)
	52,542	30,942	42,150	125,634
Closing balance - June 30, 2018	$ 3,547,541	$ 3,955,927	$ 3,365,777	$ 10,869,245
University endowment composition				
Endowment funds		$ 3,590,103	$ 3,156,470	$ 6,746,573
Funds functioning as endowment:				
Departmental funds	$ 1,423,926	349,299		1,773,225
University funds	1,524,762			1,524,762
Institutional real estate, net	598,853			598,853
CPMC Fund, Inc.		16,525	18,396	34,921
Interests in perpetual trusts held by others			190,911	190,911
University's endowment value	$ 3,547,541	$ 3,955,927	$ 3,365,777	$ 10,869,245

Note: The tables above do not include split-interest agreements, net of $106,460 and pledges receivable, net of $378,919.

Reconciliation to *Investments, at fair value*		
Investments, at fair value		$ 11,194,432
Add:		
Interests in perpetual trusts held by others	190,911	
CPMC Fund, Inc.	34,921	
Institutional real estate, net	598,853	
Investment receivables and payables	118,279	942,964
Subtract:		
Other long-term investments	(1,000,797)	
Split-interest agreements	(169,177)	
Funds held on behalf of others	(98,177)	(1,268,151)
University's endowment value		$ 10,869,245

	2017			
Changes in University endowment net assets	**Unrestricted Net Assets**	**Temporarily Restricted Net Assets**	**Permanently Restricted Net Assets**	**Total**
Opening balance - June 30, 2016	$ 3,060,780	$ 3,273,674	$ 2,706,573	$ 9,041,027
Investment return:				
Investment income	65,909	1,497		67,406
Net appreciation / (depreciation)	333,274	695,635	3,172	1,032,081
Total investment return	399,183	697,132	3,172	1,099,487
New gifts	1,483	26,807	164,017	192,307
Appropriation for expenditure	(228,660)	(327,116)		(555,776)
Other Changes:				
Transfers to create endowments	207,115	13,120	2,436	222,671
Other / Reclassifications	(11,250)	(3,954)	12,084	(3,120)
	195,865	9,166	14,520	219,551
Closing balance - June 30, 2017	$ 3,428,651	$ 3,679,663	$ 2,888,282	$ 9,996,596
University endowment composition				
Endowment funds		$ 3,396,369	$ 2,697,737	$ 6,094,106
Funds functioning as endowment:				
Departmental funds	$ 1,352,893	266,580		1,619,473
University funds	1,488,658			1,488,658
Institutional real estate, net	587,100			587,100
CPMC Fund, Inc.		16,714	18,337	35,051
Interests in perpetual trusts held by others			172,208	172,208
University's endowment value	$ 3,428,651	$ 3,679,663	$ 2,888,282	$ 9,996,596

Note: The tables above do not include split-interest agreements, net of $91,289 and pledges receivable, net of $468,280.

Reconciliation to *Investments, at fair value*		
Investments, at fair value		$ 10,038,376
Add:		
Interests in perpetual trusts held by others	172,208	
CPMC Fund, Inc.	35,051	
Institutional real estate, net	587,100	
Investment receivables and payables	(47,238)	747,121
Subtract:		
Other long-term investments	(555,416)	
Split-interest agreements	(151,511)	
Funds held on behalf of others	(81,974)	(788,901)
University's endowment value		$ 9,996,596

Return Objectives and Risk Parameters
Endowment assets include those assets of donor-restricted funds that the University must hold in perpetuity or for a donor-specified period(s) as well as Board-designated funds. Under the University's investment policies, as approved by the Board of Trustees, the endowment assets are invested in a manner that is intended to produce performance which exceeds that of relevant indices for each asset class while assuming a moderate level of investment risk.

Strategies Employed for Achieving Objectives
The University relies on a total return strategy in which investment returns are achieved through both capital appreciation (realized and unrealized) and current yield (interest and dividends). The University targets a diversified asset allocation to achieve its long-term return objectives within prudent risk constraints.

Endowment Spending Rule
The endowment spending rule utilized by the University is designed to be directly responsive to both investment returns and the current level of price inflation. Its long-term objectives are:

- To protect the corpus of the endowment by spending no more than the real investment return;
- To cushion spending against market volatility; and
- To provide specific spending instructions and multiyear spending projections based on explicit future investment return assumptions.

The current endowment spending rule is based on two factors: first, the market value multiplied by a target spending rate that may range from 4.5 to 5 percent, which provides a response to investment market conditions; and second, the prior year's spending plus inflation, which ties spending increases to operating needs and cushions spending against market volatility. This allows the University to maintain the purchasing power of the endowment assets held in perpetuity or for a specified term as well as to provide additional real growth through new gifts and investment return.

As a general policy, each fiscal year's distribution is calculated by adding together the following:

a. The market value of the endowment at a point twelve months prior to the beginning of the given fiscal year, multiplied by the target spending rate, multiplied by a 40 percent weighting; and

b. Endowment spending in the year immediately preceding the given fiscal year, grown or reduced by an inflation factor, which is defined as the Higher Education Price Index ("HEPI"), multiplied by a 60 percent weighting.

The Trustees conduct a special review in any year in which either projected endowment distributions are 0.5 percent higher or lower than the target spending rate, or if the increase in endowment distributions over the previous year is more than 3 percentage points higher or lower than HEPI. Additionally, from time to time, management may recommend, and the Trustees may approve, a temporary override of the spending rule to ensure the University's ability to sustain the permanent nature of the endowment.

In addition to the base spending rate described above, two additional payout components were approved as temporary measures by the Trustees in 2008. The first is an increase in annual

spending of up to 1.75 percent of the prior year beginning market value of endowments that are designated for undergraduate financial aid support. This increase began in fiscal 2009 and will be phased out as new endowments substitute for this funding source. The amount of the incremental payout for the coming year is approved annually by the Trustees' Committee on Finance as part of the budget process. The second component is 0.70 percent of the prior year beginning market value for certain endowments in categories key to the University's current development efforts, primarily unrestricted endowment and endowments for financial aid and faculty support. This second component is reviewed by the Trustees regularly and has currently been extended through the end of fiscal year 2019.

8. Accounts Receivable

Accounts receivable, net, consists of the following as of June 30:

	2018	2017
Patient receivables, net of contractual allowances	$ 171,926	$ 186,073
Government agencies	134,573	153,774
NewYork-Presbyterian Hospital	107,131	114,283
Patent and licensing	9,379	8,459
Student receivables	68,174	64,308
Other receivables, gross	152,215	148,347
	643,398	675,244
Less: Allowance for doubtful accounts	(85,568)	(95,754)
Accounts receivable, net	$ 557,830	$ 579,490

Patient receivables for medical services are net of an allowance for contractual reserves in the amount of $192.0 million and $195.9 million at June 30, 2018 and 2017, respectively.

9. Student Loans Receivable and Financial Aid

The University participates in various federal loan programs, in addition to administering institutional loan programs. Loans receivable from students as of June 30 are as follows:

	2018	2017
Government revolving loans	$ 65,583	$ 72,485
Institutional loans	31,225	29,726
Gross student loans	96,808	102,211
Less: Allowance for doubtful collections	(2,679)	(2,544)
Student loans receivable, net	$ 94,129	$ 99,667

Government revolving loans are funded principally with federal advances to the University under the Perkins Loan Program and certain other programs. Advances under the Perkins Loan Program totaled $64.8 million and $70.1 million and advances under the other federally sponsored loan programs are $13.9 million and $14.0 million as of June 30, 2018 and 2017, respectively. These advances are classified as liabilities on the Consolidated Balance Sheets. Interest earned on the revolving and institutional loan programs is reinvested to support additional loans. The repayment and interest rate terms of the institutional loans vary considerably.

Management regularly assesses the adequacy of the allowance for credit losses by performing ongoing evaluation of the student loan and student accounts receivable portfolios. Loans receivable under federally guaranteed student loan programs are subject to significant restrictions.

In addition to the loans identified above, the University processes and authorizes loans to students through the William D. Ford Federal Direct Loan Program. The amounts due under this loan program are not recorded in the University's consolidated financial statements since the University does not guarantee any federal loan funds related to this program. The amount of loans issued under this program was $306.1 million and $312.5 million for the years ended June 30, 2018 and 2017, respectively.

Undergraduate financial aid represents packages for all or part of a student's tuition, fees, room, and board. Graduate financial aid represents packages for all or part of a student's tuition and fees. Funding from external sources is obtained through government and private grants and contracts as well as private gifts and payout from certain endowment funds.

	2018			2017		
	University Sources	External Sources	Total Financial Aid	University Sources	External Sources	Total Financial Aid
Undergraduate	$ 131,207	$ 55,025	$ 186,232	$ 114,716	$ 53,779	$ 168,495
Graduate	166,722	79,736	246,458	152,979	73,542	226,521
Total financial aid grants	$ 297,929	$ 134,761	$ 432,690	$ 267,695	$ 127,321	$ 395,016

Agency activities such as tuition aid grants and federal Pell grant program are not included in the University's consolidated financial statements. Both receipts and disbursements for these agency transactions were $11.5 million and $10.9 million in fiscal years 2018 and 2017, respectively.

10. Pledges Receivable

Unconditional promises to give appear as pledges receivable and revenue of the appropriate net asset category. Pledges are recorded net of an allowance for uncollectible contributions and a discount to reflect the net present value based on projected cash flows. Periodically unconditional promises to give are reviewed for collectability. As a result, the allowance for uncollectible contributions may be adjusted and some contributions may be adjusted or cancelled. Such changes will be reflected in the consolidated financial statements.

The June 30 balances of unconditional promises to give are:

Unconditional promises to give expected to be collected in:	**2018**	**2017**
Less than one year	$ 207,717	$ 244,432
One to five years	488,678	563,018
More than five years	171,850	200,719
Total unconditional promises	868,245	1,008,169
Less: Allowance for doubtful contributions	(30,414)	(37,235)
Less: Net present-value discount	(110,618)	(122,247)
Net pledges receivable	$ 727,213	$ 848,687

New pledges recorded in 2018 and 2017 were discounted at an average annual rate of 3.22 percent and 2.41 percent, respectively, using a rate that considers market and credit risk. Credit risk is also considered in the allowance for doubtful contributions.

Pledges receivable are intended for the following purposes:

	2018	2017
Endowment for educational and general purposes	$ 378,919	$ 468,280
New construction and modernization of plant	158,583	201,247
Support of University operations	189,711	179,160
Net pledges receivable	$ 727,213	$ 848,687

The University also has other outstanding pledges of $247.6 million as of June 30, 2018. These pledges represent either conditional gifts for which the probability of meeting the conditions is uncertain, verbal pledges, or other pledges that have not met the requirements for recognition.

11. Land, Buildings, and Equipment

Investments in land, buildings, and equipment, net, consisted of the following at June 30:

	2018			2017		
	Total Assets	Accumulated Depreciation	Net Assets	Total Assets	Accumulated Depreciation	Net Assets
Land	$ 459,919		$ 459,919	$ 459,366		$ 459,366
Building and building improvements	6,130,428	$ 2,811,457	3,318,971	5,889,827	$ 2,587,274	3,302,553
Construction in progress	488,606		488,606	372,060		372,060
Equipment	533,389	325,243	208,146	499,225	287,657	211,568
	$ 7,612,342	$ 3,136,700	$ 4,475,642	$ 7,220,478	$ 2,874,931	$ 4,345,547

The University uses componentized depreciation to calculate depreciation expense for buildings and building improvements for research facilities included in operations. The costs of research facilities are separated into the building shell, building service systems, and fixed equipment, and each component is separately depreciated.

Equipment includes physical assets owned by the University as well as capitalized software costs and moveable equipment acquired through capitalized leases.

Building and building improvements include physical assets owned by the University as well as leasehold improvements, capitalized space leases, and construction in progress. Capitalized space leases at June 30, 2018 and 2017 were $73.3 million and $75.8 million, respectively.

12. Accrued Employee Benefit Liabilities

Accrued employee benefit liabilities arise from employment at the University. These include liabilities for pension, postretirement benefits, postemployment benefits, unused vacation, and deferred compensation.

Postemployment benefits relating to workers' compensation, short-term disability, and continuation of medical benefits for those on long-term disability are provided to former or inactive employees after employment but before retirement. The University records the costs of such benefits on an

accrual basis if the employee has provided the services from which those benefits are derived. In 2018 and 2017, the University recognized actuarially computed liabilities of $56.4 million and $54.2 million, respectively.

13. Pension and Other Postretirement Benefit Costs

Pension Plan Benefits

The University has five non-contributory pension plans (the "pension plans") for supporting staff employees. Four of the pension plans are subject to collective bargaining agreements. The fifth pension plan covers former employees of the Arden Conference Center, which closed in 2005. Three of the plans include defined benefits for past service, and in the case of two plans, defined benefits for past and future service. Two of the pension plans provide defined benefits for service prior to 1976 (January 1 and July 1, 1976, respectively). For these two pension plans, future benefits are provided by defined contribution plans. Charges to expenditures for the defined contribution segments of the plans amounted to $5.4 million and $5.6 million for the years ended June 30, 2018 and 2017, respectively.

In addition, the University provides retirement benefits for full-time faculty, officers, and certain other employees under a separate defined contribution plan (the "officer plan"). University contributions for the officer plan reported in operating expenses were $137.3 million and $129.6 million for the years ended June 30, 2018 and 2017, respectively.

Postretirement Health Care and Life Insurance Benefits

The University provides postretirement health care and life insurance benefits for certain employees. The University accrues the estimated cost of these benefits over the years that eligible employees render service.

Obligations and Funded Status

The University follows authoritative guidance, which requires recognition on the Consolidated Balance Sheets of the difference between benefit obligations and any plan assets of the University's defined benefit and other postretirement benefit plans. In addition, the authoritative guidance requires unamortized amounts (e.g., net actuarial gains or losses and prior service cost or credits) to be recognized as changes to unrestricted net assets and that those amounts be adjusted as they are subsequently recognized as components of net periodic pension cost.

Amounts recognized in unrestricted net assets are as follows:

	Pension Plan Benefits		Other Postretirement Benefits	
	2018	2017	2018	2017
Net actuarial (gain) / loss	$ 45,398	$ 56,635	$ (34,094)	$ (23,545)
Prior service (credit) / cost	311	377		
Total amount recognized	$ 45,709	$ 57,012	$ (34,094)	$ (23,545)

The components of accrued benefit costs for pension benefits and other postretirement benefits are as follows:

	Pension Plan Benefits		Other Postretirement Benefits	
	2018	2017	2018	2017
Change in benefit obligation:				
Benefit obligation, beginning of year	$ 210,284	$ 213,770	$ 146,708	$ 165,449
Service cost	8,220	7,924	6,713	6,990
Interest cost	8,514	8,131	5,724	5,830
Plan participants' contributions			6,050	5,510
Actuarial (gain) / loss	(10,877)	(12,826)	(8,421)	(25,619)
Federal subsidy			200	233
Net disbursements and transfers	(7,095)	(6,715)	(11,822)	(11,685)
Benefit obligation, end of year	$ 209,046	$ 210,284	$ 145,152	$ 146,708
Change in plan assets:				
Fair value of assets, beginning of year	$ 165,710	$ 151,593	$ 192,340	$ 171,619
Actual return on plan assets	6,571	11,624	14,237	22,489
Employer contributions	11,720	9,208		4,407
Plan participants' contributions			6,050	5,510
Net disbursements and transfers	(7,095)	(6,715)	(11,822)	(11,685)
Fair value of assets, end of year	$ 176,906	$ 165,710	$ 200,805	$ 192,340
Net amount recognized	$ (32,140)	$ (44,574)	$ 55,653	$ 45,632

Weighted-average assumptions used to determine end of year benefit obligation	**2018**	**2017**
Discount rate	3.95% to 4.25%	3.35% to 3.95%
Rate of compensation increase	3.25%	3.00% to 3.25%

The accumulated benefit obligations for the two underfunded pension plans at June 30, 2018 and 2017 were $182.4 and $182.7 million, respectively.

At the end of 2018 and 2017, the projected benefit obligation exceeded the pension plan assets for three of the five plans. The projected benefit obligation for the pension plans with a benefit obligation in excess of plan assets were as follows:

End of year	**2018**	**2017**
Projected benefit obligation	$ 202,488	$ 202,767
Fair value of plan assets	166,497	154,512

The accumulated postretirement benefit obligation for the other postretirement benefit plan and the fair value of plan assets with plan assets in excess of the accumulated postretirement benefit obligation was as follows:

End of year	2018	2017
Accumulated postretirement benefit obligation	$ 145,152	$ 146,708
Fair value of plan assets	200,805	192,340

A 6.5 percent annual rate of increase in the per capita cost of covered health care benefits for the other postretirement benefit plan was assumed for 2018. The rate was assumed to decrease gradually to 5 percent for FY2025 and remain at that level thereafter. Assumed health care cost trend rates have a significant effect on the amounts reported for the health care plans. A one-percentage-point change in assumed health care cost trend rates would have the following effect:

	1-%-point increase	1-%-point decrease
Effect on accumulated postretirement benefit obligation	$ 17,930	$ (14,490)

The asset allocation for the two defined benefit plans for both past and future service at June 30, 2018 and 2017, and the target allocation for 2019, by asset category, follows:

	Target allocation	Percentage of plan assets at year end	
	2019	2018	2017
Asset category			
U.S. large cap equity and global equity funds	24%	18%	22%
International equities (non-U.S.)	14%	21%	18%
High yield fixed income securities	10%	10%	15%
U.S. core fixed income	50%	51%	45%
Other assets	2%		
	100%	100%	100%

The asset allocation for the two defined benefit plans for prior service only at June 30, 2018 and 2017, and the target allocation for 2019, by asset category, follows:

	Target allocation	Percentage of plan assets at year end	
	2019	2018	2017
Asset category			
U.S. large cap equity	10%	4%	4%
International equities (non-U.S.)	5%	9%	8%
High yield fixed income securities	5%	11%	11%
U.S. core fixed income	80%	76%	77%
	100%	100%	100%

The retirement plan for the employees of Arden Conference Center was invested in equity securities, including mutual funds, 35 percent, and debt securities, 65 percent as of June 30, 2018.

The following presents investments of the pension plans as of June 30, 2018. The Plans' investments in mutual funds are included as Level 1 because fair value is based on quoted prices. The Plans' investments in common collective trusts are valued at NAV as a practical expedient and are therefore excluded from the fair value hierarchy and are reported as NAV. Level 3 assets represent fixed income related investment contracts with a major life insurance company.

	Level 1	Level 2	Level 3	NAV	Total
Common collective trust funds					
Global equity				$ 64,406	$ 64,406
Fixed income				109,229	109,229
Mutual funds	$ 1,158				1,158
Fixed income investment contracts			$ 2,113		2,113
Investments, at fair value	$ 1,158		$ 2,113	$ 173,635	$ 176,906

The following table is a roll forward of the amounts for investments classified within Level 3 as described above.

	June 30, 2017	Purchases (Gross)	Sales (Gross)	Investment gain/(loss)	June 30, 2018
Investment contracts	$ 2,158	$ 46	$ (154)	$ 63	$ 2,113
Total level 3 investments	$ 2,158	$ 46	$ (154)	$ 63	$ 2,113

The following presents investments of the pension plans as of June 30, 2017.

	Level 1	Level 2	Level 3	NAV	Total
Common collective trust funds					
Global equity				$ 61,787	$ 61,787
Fixed income				100,715	100,715
Mutual funds	$ 1,050				1,050
Fixed income investment contracts			$ 2,158		2,158
Investments, at fair value	$ 1,050		$ 2,158	$ 162,502	$ 165,710

The following table is a roll forward of the amounts for investments classified within Level 3 as described above.

	June 30, 2016	Purchases (Gross)	Sales (Gross)	Investment gain/(loss)	June 30, 2017
Investment contracts	$ 2,187	$ 46	$ (141)	$ 66	$ 2,158
Total level 3 investments	$ 2,187	$ 46	$ (141)	$ 66	$ 2,158

The asset allocation for the other postretirement benefit plan at June 30, 2018 and 2017, and the target allocation for 2019, by asset category, follows:

	Target allocation	Percentage of plan assets at year's end	
	2019	2018	2017
Asset category			
U.S. large cap equity and global equity funds	52%	49%	59%
International equities (non-U.S.)	16%	19%	16%
U.S. fixed income	32%	32%	25%
	100%	100%	100%

The following presents investments of the other postretirement benefit plan as of June 30, 2018. The Plans' investments in common collective trusts are valued at NAV as a practical expedient and are therefore excluded from the fair value hierarchy and reported as NAV.

	Level 1	Level 2	Level 3	NAV	Total
Common collective trust funds					
Global equity				$ 136,370	$ 136,370
Fixed income				64,435	64,435
Investments, at fair value				$ 200,805	$ 200,805

The following presents investments of the other postretirement benefit plan as of June 30, 2017.

	Level 1	Level 2	Level 3	NAV	Total
Common collective trust funds					
Global equity				$ 144,418	$ 144,418
Fixed income				47,922	47,922
Investments, at fair value				$ 192,340	$ 192,340

Net Periodic Benefit Cost

The components of net periodic benefit cost for pension benefits and other postretirement benefits are as follows:

	Pension Plan Benefits		Other Postretirement Benefits	
	2018	**2017**	**2018**	**2017**
Components of net periodic benefit cost				
Service cost	$ 8,220	$ 7,924	$ 6,713	$ 6,990
Interest cost on projected benefit obligation	8,514	8,131	5,724	5,829
Expected return on assets	(9,357)	(8,561)	(11,816)	(10,646)
Amortization of prior service cost/(credit)	65	65		(1,911)
Amortization of unrecognized net losses/(gain)	3,145	4,500	(459)	
Net periodic benefit cost	10,587	12,059	162	262
Other changes in plan assets and benefit obligations recognized in the Consolidated Statements of Activities				
Current year actuarial (gain)/loss	(8,092)	(15,889)	(11,009)	(37,668)
Amortization of actuarial gain/(loss)	(3,145)	(4,500)	459	
Amortization of prior service credit/(cost)	(65)	(65)		1,911
Total recognized in nonoperating	(11,302)	(20,454)	(10,550)	(35,757)
Total recognized in net periodic benefit cost and nonoperating	$ (715)	$ (8,395)	$ (10,388)	$ (35,495)

Amounts in net unrestricted assets expected to be recognized in net periodic benefit cost in fiscal 2019 are as follows:

	Pension Plan Benefits	Other Postretirement Benefits
Actuarial (gain)/loss	$ 1,833	$ 1,072
Prior service (credit)/cost	65	
	$ 1,898	$ 1,072

Weighted-average assumptions used to determine net periodic pension cost	**2018**	**2017**
Discount rate	3.35% to 3.95%	2.95% to 3.75%
Expected return on plan assets	3.75% to 6.50%	3.75% to 6.50%
Rate of compensation increase	3.25%	3.00% to 3.25%

To arrive at assumptions for expected long term rates of return on assets in the pension plans and the postretirement benefit plan, the University considered historical returns and future expectations for returns in each asset class in the asset allocation for the previously described pension and postretirement benefit portfolios.

Assumed health care cost trend rates have a significant effect on the amounts reported for the other postretirement benefit plan. A one-percentage-point change in the assumed health care cost trend rates would have had the following effect:

	1-%-point increase	1-%-point decrease
Effect on total service and interest cost	$ 2,378	$ (1,826)

Expected Cash Flows

Information about the expected cash flows for the plans is as follows:

	Pension Plan Benefits	Other Postretirement Benefits
Expected University contributions		
2019	$ 10,562	
Expected benefit payments		
2019	7,077	$ 6,733
2020	7,510	6,740
2021	7,990	6,978
2022	8,509	7,200
2023	9,068	7,403
2024-2028	50,014	39,287
Total	$ 90,168	$ 74,341

Total benefits expected to be paid include both the University's share of the benefit cost net of Medicare subsidies and the participants' share of the cost, which is funded by participant contributions to the other postretirement benefit plan. The University receives a Medicare Part D subsidy from the federal government as reimbursement for certain retiree health benefits paid to plan participants, which was approximately $0.4 million in fiscal 2018.

14. Lease Obligations

The University is the lessee of various equipment and space under noncancelable operating and capital leases. Capital lease obligations at June 30, 2018 and 2017 were $121.3 million and $122.9 million, respectively. Operating lease rental expense for the years ended June 30, 2018 and 2017 was $40.4 million and $42.4 million, respectively. Space leases contain customary escalation clauses, which are included in annual aggregate minimum rentals.

Future aggregate minimum rental payments under operating and capital leases are as follows:

	Operating	Capital
Future minimum rental payments:		
2019	$ 43,807	$ 9,022
2020	33,552	7,695
2021	29,504	7,177
2022	27,733	6,699
2023	23,716	6,002
Thereafter	248,838	222,271
Less: Interest at 1.45 percent to 5.31 percent		(137,583)
Capital lease obligations at June 30, 2018		$ 121,283

15. Conditional Asset Retirement Obligations

Conditional asset retirement obligations are a legal obligation to perform an asset retirement activity in which the timing and/or method of settlement are conditioned on a future event that may or may not be within the control of the University. GAAP requires that the fair value of a liability be recognized in the period in which it occurred if a reasonable estimate of fair value can be made. Uncertainty with respect to the timing and/or method of settlement of the asset retirement obligation does not defer recognition of a liability.

Conditional asset retirement obligations related to remediation or disposal of asbestos, underground storage tanks, soil, radioactive sources, equipment, and miscellaneous other items were $119.2 million and $116.3 million at June 30, 2018 and 2017, respectively.

16. Bonds and Notes Payable

Bonds and notes payable outstanding at June 30, 2018 and 2017 are as follows:

	2018	2017
Dormitory Authority of the State of New York, tax exempt revenue bonds, Columbia University issues		
Series 2018 A, 2.45% to 3.41%, maturing FY2029 to FY2049	$ 150,000	
Series 2018 B, 2.98%, maturing FY2039	175,185	
Series 2017 A, 2.40% to 3.49%, maturing FY2028 to FY2048	150,000	$ 150,000
Series 2017 B, 1.96% to 2.61%, maturing FY2025 to FY2030	40,475	40,475
Series 2016 A-1, 1.67%, maturing FY2027	50,000	50,000
Series 2016 A-2, 1.35% to 2.89%, maturing FY2024 to FY2047	130,000	130,000
Series 2016 B, 0.66% to 2.04%, maturing FY2018 to FY2032	189,715	209,705
Series 2015 A, 1.95% to 3.00%, maturing FY2026 to FY2046	92,535	92,535
Series 2015 B, 0.93% to 1.88%, maturing FY2018 to FY2025	37,930	42,930
Series 2012 A, 1.07% to 1.92%, maturing FY2019 to FY2023	137,935	137,935
Series 2011 A, 2.67% to 4.88%, maturing FY2018 to FY2042	285,000	300,000
Series 2009 A, variable rate, 1.20%, maturing FY2039	117,000	117,000
Series 2008 A, 4.72%, maturing FY2038		200,000
Series 2003 B, variable rate, 1.20%, maturing FY2028	30,000	30,000
Series 2002 C, variable rate, 1.60%, maturing FY2027	23,300	23,300
Taxable Series 2015, 3.46%, maturing FY2046	75,000	75,000
Taxable Series 2012, 3.83%, maturing FY2043	100,000	100,000
New Jersey Economic Development Corporation, tax exempt		
Series 2002, variable rate, 1.50%, maturing FY2028	5,110	5,545
Medium-Term Notes, Taxable Series C 6.53% to 7.36%, maturing FY2021 to FY2022	20,567	27,826
Empire State Development Corporation issues		
9.00%, maturing FY2029	6,099	6,447
Interest-free, maturing FY2020	8,100	8,100
Economic Development Corporation		
Interest-free, maturing FY2020	10,000	10,000
Subtotal, principal payments	1,833,951	1,756,798
Unamortized bond premium	255,863	204,718
Unamortized cost of issuance	(5,529)	(5,593)
Subtotal, bond premium and cost of issuance	250,334	199,125
Total bonds and notes payable	$ 2,084,285	$ 1,955,923

Estimated principal payments on bonds and notes payable are summarized below:

Fiscal Year	Principal
2019	$ 60,829
2020	81,933
2021	73,326
2022	78,347
2023	81,692
Thereafter (through 2049)	1,457,824
Total	$ 1,833,951

The University issues most of its tax-exempt debt through the Dormitory Authority of the State of New York ("DASNY"). On May 16, 2018, the University issued $150 million of Series 2018A and $175.2 million of Series 2018B, all tax-exempt fixed rate bonds. Series 2018A was issued at a premium of $41.5 million which will be amortized over 10 and 30 years based on the maturity of the underlying bonds. Series 2018B was issued at a premium of $30.1 million which will be amortized over 10 years based on the optional redemption date. The proceeds from Series 2018A will be used to finance various construction and renovation projects. The proceeds from Series 2018B were used to redeem outstanding Series 2008A Bonds. The redeemed bonds were legally defeased and, as such, are not reflected in "Bonds and notes payable" at June 30, 2018.

On March 1, 2017, the University issued $150 million of Series 2017A and $40.5 million of Series 2017B, all tax-exempt fixed rate bonds. Series 2017A was issued at a premium of $41.3 million which will be amortized over 10 and 30 years based on the maturity of the underlying bonds. Series 2017B was issued at a premium of $9.1 million which will be amortized between 7 and 10 years based on the maturities and optional redemption date. The proceeds from Series 2017A will be used to finance various construction and renovation projects. The proceeds from Series 2017B were used to redeem outstanding Series 2004C Bonds. The redeemed bonds were legally defeased and, as such, are not reflected in "Bonds and notes payable" at June 30, 2017.

The University recorded amortization of bond premium and issuance costs, net, of $19.3 million and $17.6 million for the fiscal years ended June 30, 2018 and 2017, respectively, as a reduction to interest expense.

The University has a $150 million taxable commercial paper program. As of June 30, 2018 and 2017 there was no commercial paper outstanding under this program.

As of June 30, 2018, the University had a $200 million operating line of credit, which expires in October, 2019, as well as $100 million operating line of credit, which expires in November, 2020. Additionally, as of June 30, 2018, the University had two $100 million standby lines of credit supporting self-liquidity for variable rate debt outstanding, one that expires in January, 2019 and a second that expires in January, 2020. Each of the lines is with a different lending institution and, as of June 30, 2018, no balances were outstanding on the lines of credit.

The University has administrative covenants on its tax-exempt debts and lines of credit, with which it was in compliance as of June 30, 2018 and 2017.

On October 1, 2008, the University entered into a $200 million notional value fixed payor interest rate swap agreement to protect against the risk of interest rate changes. The estimated fair value of the swap liability was $57.1 million and $72.0 million at June 30, 2018 and 2017, respectively. The fair value of the swap is obtained by taking the present value of all future cash flows on the swap implied by the forward curve.

17. Insurance

In connection with managing financial risks through various third-party insurance programs, the University is self-insured in certain areas. Funded self-insurance liabilities primarily cover deductibles on general liability and property insurance claims. Self-insurance liabilities are actuarially calculated on an annual basis. The University's core liability coverage is purchased through Pinnacle RRG, a Vermont-based risk retention group with sixteen other universities.

The University obtains medical malpractice insurance through MCIC and MLMIC. MCIC is a group-captive insurance company owned by the University, The Johns Hopkins Hospital, The Johns Hopkins University, University of Rochester Medical Center, Weill Cornell Medical College, Yale New Haven Health, Yale University School of Medicine, and NYP. MLMIC is a mutual company where policyholders are owners with full voting rights to elect the company's Board of Directors, thereby having direct input into vital areas of operation. The governing Board is comprised primarily of practicing physicians, dentists, and hospital administrators. More than 1,847 of the University's faculty physicians and dentists are enrolled in MCIC or MLMIC. The University has recorded self-insurance and medical malpractice liabilities of approximately $289.0 million and $285.1 million as of June 30, 2018 and 2017, respectively. The medical malpractice liabilities of approximately $176.2 million and $177.2 million as of June 30, 2018 and 2017, respectively, are reported gross with an offsetting receivable for anticipated recoveries of $119.5 million and $120.6 million, respectively, recorded in Other assets.

18. Related Party Transactions

The University maintains several clinical and education affiliation agreements with other organizations. Revenues and expenses from these agreements are accounted for in the operating activities segment of the Consolidated Statements of Activities. The most significant affiliation agreement is with NYP.

The University has an alliance dating back to 1921 with Presbyterian Hospital, which merged with New York Hospital effective January 1, 1998, and formed the new corporate entity now called New York-Presbyterian. The University receives reimbursement from NYP for the provision of medical, professional, and supervisory staff services as well as other technical assistance. NYP provides funding to clinical departments for specific purposes, including administration, supervision, and teaching of the NYP resident staff and salary support for faculty and staff providing services to NYP. In addition, NYP provides funding for clinical programs that the University and NYP would like to see developed or expanded. NYP also provides the departments with certain facilities and services (outpatient faculty practice offices, nursing, telecommunications, etc.) for which the University is invoiced on a monthly basis. Finally, the University and NYP collaborate and fund joint projects for which specific agreements are negotiated.

In addition, the University and NYP negotiate a joint budget, which forms the basis for the affiliation agreement. The fiscal year 2018 joint budget was approximately $345.9 million. The

payments to NYP for goods and services were $86.7 million. The majority of revenues received pursuant to this agreement are reflected in the consolidated financial statements as a portion of "Patient care revenue" and the majority of the expenses related to this agreement are reflected in "Patient care expense".

The University records both receivables from and payables to NYP on the Consolidated Balance Sheets. The University has no liability for obligations and debt incurred by NYP.

In fiscal 2018 and 2017, the University had a financial arrangement with a physician professional corporation ("PC"), whereby the University provides facilities and other services to the PC for a negotiated fee. This PC provides clinical services to patients and is owned and controlled by physicians who are also faculty members of the University. The non-controlled PC generated revenue of approximately $40.3 million and $42.1 million during fiscal year 2018 and 2017, respectively, which has not been consolidated into the University's consolidated financial statements.

The University controls a not-for-profit practice entity and two professional corporations and as such, consolidates these entities into the University's consolidated financial statements.

Pursuant to the consent of the Trustees of the CPMC Fund, Inc., during fiscal 2018 the CPMC Fund, Inc. transferred to the University six endowments previously held by CPMC Fund, Inc. for the University. The value of the endowments at the time of transfer was $1.3 million, with $0.2 million being permanently restricted.

19. Contingencies and Commitments

From time to time, various claims and suits generally incident to the conduct of normal business are pending or may arise against the University.

In the opinion of counsel and management of the University, after taking into account insurance coverage, losses, if any, from the resolution of pending litigation should not have a material effect on the University's financial position or results of operations.

All funds expended in connection with government grants and contracts are subject to audit by government agencies. While the ultimate liability, if any, from audits of government grants and contracts by government agencies, claims, and suits is presently not determinable, it should not, in the opinion of counsel and management, have a material effect on the University's financial position or results of activities.

The University is subject to laws and regulations concerning environmental remediation and will, from time to time, establish reserves for potential obligations that management considers probable and for which reasonable estimates can be made. As of June 30, 2018, the University has recorded $119.2 million for conditional asset retirement obligations. These estimates may change depending upon the nature and extent of contamination, appropriate remediation technologies, and regulatory approvals. The University is not aware of any existing conditions that it currently believes are likely to have a material adverse effect on the University's financial position, changes in net assets, or cash flows.

The University's capital improvement program and related commitments includes projects that address the major strategic objectives of the University. As part of the capital improvement program, the University has entered into contracts to purchase properties with an aggregate value of $3.3 million. As of June 30, 2018 approximately $1.7 million is still outstanding.

The University has made commitments related to its expansion in Manhattanville, certain of which are based upon events in the future which would result in cash and in-kind payments from the University. Those that are estimatable have been recorded as liabilities.

The University has performed an evaluation of subsequent events through October 9, 2018, which is the date the consolidated financial statements were issued.

20. Expense Allocation by Program

Expenses are reported for the University's primary program activities. The consolidated financial statements also report certain categories of expenditures that support more than one major program of the University. These expenses include operation and maintenance of plant, depreciation expense, and interest expense.

These costs are allocated to the applicable program activities as indicated in the following chart:

	2018			2017		
	Expenses per Statement of Activities	Allocation	Final Allocated Expenses	Expenses per Statement of Activities	Allocation	Final Allocated Expenses
Instruction and educational administration	$ 1,792,465	$ 217,519	$ 2,009,984	$ 1,693,396	$ 220,122	$ 1,913,518
Research	603,648	114,794	718,442	575,548	93,174	668,722
Patient care expense	1,025,611	101,235	1,126,846	969,856	103,823	1,073,679
Library	69,577	48,448	118,025	68,831	53,007	121,838
Operation and maintenance of plant	269,529	(269,529)		260,529	(260,529)	
Institutional support	310,346	24,966	335,312	320,153	25,144	345,297
Auxiliary enterprise	157,564	96,342	253,906	143,724	97,476	241,200
Depreciation expense	278,897	(278,897)		271,379	(271,379)	
Interest expense	54,878	(54,878)		60,838	(60,838)	
Other	34,384		34,384	20,660		20,660
	$ 4,596,899		$ 4,596,899	$ 4,384,914		$ 4,384,914

The allocation of operation and maintenance of plant is based on square footage occupancy with the exception of certain rent costs directly attributable to patient care expense. Depreciation expense includes depreciation of buildings, building improvements, and equipment. The allocation of depreciation on buildings and building improvements is based on square footage occupancy. Depreciation on equipment is allocated to the programs for which the equipment was purchased. Interest expense is allocated according to the same methodologies used for building depreciation.

Supplemental Schedule

The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Research & Development Cluster					
Department of Health & Human Services					
Direct Awards					
Centers for Disease Control and Prevention/DHHS					
Tuberculosis Trials Consortium	93	CDC 200-2009-32593		0	290,860
A Prospective Comprehensive Epidemiologic Study in a Large Cohort in the National ALS Registry: Identifying ALS Risk Factors	93	CDC 200-2013-56886		0	197,655
Barriers and Facilitators for NHSN Adoption in Nursing Homes	93	CDC 200-2016-91952		44,242	127,986
Tuberculosis Trials Consortium	93	CDC 200-2009-32593		0	76,117
Columbia University CISA Center	93	CDC 200-2012-53665/0002		0	23,404
CISA Clinical Vaccine Safety Evaluation - Contributing Contractor	93	CDC 200-2012-53665 TASK-05		0	21,897
CISA Clinical Vaccine Safety Evaluation - Contributing Contractor	93	CDC 200-2012-53665 TASK-05		0	1,955
Promising Practices in OSH for Healthy Aging in the Workplace	93	200-2016-M-91030		0	1,857
				$44,242	$741,732
Training in General, Pediatric, and Public Health Dentistry					
Advanced Clinical Training in Oral Health Networking (ACTION)	93.059	6D88HP20109-09-02		0	780,569
Predoctoral Training in General, Pediatric & Public Health Dentistry & Dental Hygeine	93.059	5D85HP20031 -09- 00		0	311,302
Faculty Development in General, Pediatric & Public Health Dentistry & Dental Hygiene	93.059	6D86HP24475-05-02		0	133,278
Advanced Clinical Training in Oral Health Networking (ACTION)	93.059	6D88HP20109-09-02		0	3,060
Predoctoral Training in General, Pediatric & Public Health Dentistry & Dental Hygeine	93.059	5D85HP20031 -09- 00		0	2,228
				$0	$1,230,437
Food and Drug Administration Research					
Phase 2b Study of Denosumab to Prevent bone Loss in Idiopathic Osteoporosis in Premenopausal Women Treated with Teriparatide	93.103	5R01FD005114-02		64,789	472,553
Teriparatide for Idiopathic Osteoporosis in Premenopausal Women: A Phase 2 Study	93.103	5R01FD003902-06		72,444	246,599
Phase 2 study of combination therapy with PLX3397 and sirolimus to target tumor-associated macrophages in malignant peripheral nerve sheath tumors	93.103	1R01FD005745-01		0	215,111

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The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Teriparatide for Idiopathic Osteoporosis in Premenopausal Women: A Phase 2 Study	93.103	5R01FD003902-06		0	181,652
Pregnancy and lactation associated osteoporosis: Bone microstructure and metabolism, genotypic characteristics, natural history and biomarkers of disease severity.	93.103	5R01FD006007 02		0	170,603
Phase 1 a/1 b Study of 11-1 F4 mAb for the Treatment of AL Amyloidosis	93.103	5R01FD005110-03		0	164,929
Phase 2b Study of Denosumab to Prevent bone Loss in Idiopathic Osteoporosis in Premenopausal Women Treated with Teriparatide	93.103	5R01FD005114-02		6,593	6,593
Phase 1 a/1 b Study of 11-1 F4 mAb for the Treatment of AL Amyloidosis	93.103	5R01FD005110-03		0	488
Phase 2b Study of Denosumab to Prevent bone Loss in Idiopathic Osteoporosis in Premenopausal Women Treated with Teriparatide	93.103	5R01FD005114-02		0	-3,162
				$143,826	$1,455,366
Centers for Research and Demonstration for Health Promotion and Disease Prevention					
Category I: Technology and Community-Based Approaches to Improve Health in Harlem	93.135	5U48DP001916-05		0	-30,783
				$0	$-30,783
Injury Prevention and Control Research and State and Community Based Programs					
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	131,040
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	109,001
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	108,931
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	49,531
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		2,305	31,424
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	15,509
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	14,581
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	14,442
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	13,134
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	12,441
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	12,107
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	11,177
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	5,097
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	4,620
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	3,237

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The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Columbia Injury Control Research Center	93.136	6R49CE002096-05-06		0	272
				$2,305	$536,544
HIV-Related Training and Technical Assistance					
Global HIV/AIDS Nursing Capacity Initiative: NY Core	93.145	6 U92 HA12772-03-04		0	-2,198
				$0	$-2,198
Health Program for Toxic Substances and Disease Registry					
Case-Control Studies Nested in National ALS Registry to Evaluate Environmental Risks	93.161	5R01TS000243-03		0	283,258
Case-Control Studies Nested in National ALS Registry to Evaluate Environmental Risks	93.161	5R01TS000243-03		0	103,336
				$0	$386,593
National Research Service Award in Primary Care Medicine					
NRSA for Primary Medical Care	93.186	5T32HP10260 -11- 00		0	197,187
NRSA for Primary Medical Care	93.186	5T32HP10260 -11- 00		0	18,134
				$0	$215,321
Research on Healthcare Costs, Quality and Outcomes					
Infection Control in Home Care and Predictive Risk Modeling	93.226	5R01HS024723-03		243,010	377,519
Nursing Intensity of Patient Care Needs and Rates of Healthcare-associated Infections (NIC-HAI)	93.226	5R01HS024915-02		11,807	355,325
Topical Vancomycin for Craniotomy Wound PRophylaxis	93.226	5R01HS022903-05		224,583	303,313
The Wise App Trial for Improving Health Outcomes in PLWH	93.226	5R01HS025071-03		14,939	287,312
TRANSFORM DEPCARE: A Theoretical approach to improving patient engagement and shared decision making for minorities in collaborative depression care	93.226	5R01HS025198-02		0	232,114
Develop and Validate Health IT Safety Measures to Capture Violations of the 5 Rights of Medication Safety	93.226	5R01HS024538-02		49,993	199,351
Increasing the Uptake of the USPSTF Hypertension Screening Guidelines in Primary Care	93.226	5R01HS024262 04		0	171,072
PRISM: Personalized Reminders for Immunization using Short Messaging systems	93.226	5R01HS022677-04		0	146,784
SINC: Synchronized Immunization Notifications	93.226	5R01HS023582-03		0	135,536
Anesthesia Exposure and Risk of Behavioral or Developmental Disorder	93.226	5K08HS022941-05		0	122,593
Addressing Hospital Patient Information Needs Using a PHR Portal	93.226	5R01HS021816-04		0	102,170

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The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Providing Evidence and Developing a Toolkit to Accelerate the Adoption of Patient Photographs in Electronic Health Records	93.226	5R01HS024713-02		13,700	87,142
Improving Diagnosis of Cardiovascular Disease in the Emergency Department Using Cognitive Informatics Tools	93.226	5K08HS024598-02		0	86,529
Nursing Intensity of Patient Care Needs and Rates of Healthcare-associated Infections (NIC-HAI)	93.226	5R01HS024915-02		6,900	70,267
The Wise App Trial for Improving Health Outcomes in PLWH	93.226	5R01HS025071-03		13,673	67,482
Assess Risk of Wrong Patient Errors in an EMR that Allows Multiple Records Open	93.226	7R21HS023704-04		37,480	64,352
Further Psychometric Testing and Validation of the Errors of Care Omission Survey (EoCOS)	93.226	5R03HS024758-02		0	53,561
Developing ICD-11: Coding of Quality and Patient Safety Data to support health services and outcomes research in the US and internationally	93.226	5R13HS024891-03		0	31,000
Develop and Validate Health IT Safety Measures to Capture Violations of the 5 Rights of Medication Safety	93.226	5R01HS024538-02		21,053	29,574
Increasing the Uptake of the USPSTF Hypertension Screening Guidelines in Primary Care	93.226	5R01HS024262 04		0	26,937
Improving Diagnosis of Cardiovascular Disease in the Emergency Department Using Cognitive Informatics Tools	93.226	5K08HS024598-02		0	24,231
Infection Control in Home Care and Predictive Risk Modeling	93.226	5R01HS024723-03		0	12,300
Use of mHealth Technology for Supporting Symptom Management in Underserved Persons Living with HIV	93.226	5R21HS023963-02		0	9,917
SINC: Synchronized Immunization Notifications	93.226	5R01HS023582-03		3,900	9,344
Topical Vancomycin for Craniotomy Wound PRophylaxis	93.226	5R01HS022903-05		0	5,601
TRANSFORM DEPCARE: A Theoretical approach to improving patient engagement and shared decision making for minorities in collaborative depression care	93.226	5R01HS025198-02		0	4,042
Further Psychometric Testing and Validation of the Errors of Care Omission Survey (EoCOS)	93.226	5R03HS024758-02		0	1,166
PRISM: Personalized Reminders for Immunization using Short Messaging systems	93.226	5R01HS022677-04		0	328
Keep It Clean for Kids: The KICK Project	93.226	4R01HS021470-04		0	-1,977
				$641,039	$3,014,884
Occupational Safety and Health Program					
Impact of Patient Safety Climate on Infection Prevention Practices and Healthcare Worker and Patient Outcomes	93.262	5K01OH011186-02		0	88,720
Impact of Patient Safety Climate on Infection Prevention Practices and Healthcare Worker and Patient Outcomes	93.262	5K01OH011186-02		0	17,591
				$0	$106,311
Centers for Disease Control and Prevention Investigations and Technical Assistance					
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-05		0	653,026
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-04		0	250,000

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The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-05		0	-250,000
				$0	$653,026
Nurse Education, Practice Quality and Retention Grants					
Nurse Education, Practice, Quality, and Retention Interprofessional Collborative Practice	93.359	6UD7HP29872 02 04		47,254	550,226
Nurse Education, Practice, Quality, and Retention Interprofessional Collborative Practice	93.359	6UD7HP29872 02 04		12,408	15,377
				$59,661	$565,603
CDC Undergraduate Public Health Scholars Program (CUPS): A Public Health Experience to Expose Undergraduates Interested in Minority Health to Public Health and the Public Health Professions					
CDC Undergraduate Public Health Scholars Program	93.456	5NU50MN000003-02-00		0	298,966
				$0	$298,966
Health Care Innovation Awards (HCIA)					
MySmileBuddy: Demonstrating the Value of Technology-assisted Non-surgical Caries Management in Young Childre	93.610	1C1CMS331347-02-00		97,544	537,302
				$97,544	$537,302
Social Services Research and Demonstration					
Examining the Impact of Policy Changes on Child Care Subsidy Receipt and Child Care Stability among Low-Income Families with Young Children in Illinois	93.647	90PD0274-05-02		0	75,677
Examining the Impact of Policy Changes on Child Care Subsidy Receipt and Child Care Stability among Low-Income Families with Young Children in Illinois	93.647	90PD0274-05-02		0	25,189
				$0	$100,866
Cooperative Agreements to Support State-Based Safe Motherhood and Infant Health Initiative Programs					
Male Teen Pregnancy Prevention Project (Male TPP Project)	93.946	5U01DP006109-03		230,000	509,564
Male Teen Pregnancy Prevention Project (Male TPP Project)	93.946	5U01DP006109-03		0	415,282
				$230,000	$924,845
Primary Care Medicine and Dentistry Clinician Educator Career Development Awards Program					
Primary Care Medicine and Dentistry Clinician Educator Career Development Program	93.976	1K02HP30811 01 00		0	138,753
				$0	$138,753
Sexually Transmitted Diseases (STD) Prevention and Control Grants					

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
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For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Region II PTC	93.977	5NU62PS924513-03-00		0	358,607
Region II PTC	93.977	5NU62PS924513-03-00		0	74,794
				$0	$433,401
Total Direct Award Programs				**$1,218,619**	**$11,306,970**
Pass-through Awards					
Biomedical Advanced Research and Development Authority					
Biodosimetry After Radiologic and Nuclear Events	93	ASELL PO 20170003.	PO 20170003	0	300,755
Integrated Biodosimetry System (IBiS) for High Throughput Medical Care After Radiologic and Nuclear Events	93	ASU 10-378	HHSO100201000008C	0	11,584
Centers for Disease Control and Prevention/DHHS					
Tuberculosis Trials Consortium	93	DVAMC CU16-2550	15FED1511233-0003	0	490,385
MicroRNAs and Mitochondriomics in ALS Patients Enrolled in the National ALS Registry	93	CU-01-6240	200-2015-88187	0	161,426
Department of Health & Human Services					
High-Throughput Biodosimetry After Radiological and Nuclear Events	93	NGC 8140000727	HHSO100201000002C	0	139,426
Alternative Dosing of Exemestane in Postmenopausal Women with Stage 0-II ER-Positive Breast Cancer a Randomized Presurgical Trial	93	UTMDA 00004054	HHSN261201200034I	0	11,039
Alternative Dosing of Exemestane in Postmenopausal Women with Stage 0-II ER-Positive Breast Cancer a Randomized Presurgical Trial	93	UTMDA 00004054	HHSN261201200034I	0	10,331
Food & Drug Administration					
FDA BEST: Blood and Blood Product Safety Surveillance	93	2017-IMS-SC-C001	HHSF223201750065A	0	212,873
FDA BEST: Develop New, Innovative Methods for Automation of Blood Product Adverse Event Reporting	93	2017-IMS-SC-C002	HHSF223201750070A	0	205,432
Health Resources and Services Administration/DHHS					
HRSA MCHB Support to the ACHDNC TO2	93	DUKEU 203-8326	HHSH250201500002I	0	19,283
HRSA MCHB Support to the ACHDNC TO2	93	DUKEU 203-8326	HHSH250201500002I	0	11,841
NATIONAL CENTER FOR EMERGING AND ZOONOTI					
Influenza and other respiratory viral disease in pediatric chronic care facilities infection contro	93	HPHC 2011-N-13526	200-2011-42037	0	61,696
				$0	$1,636,070

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The Trustees of Columbia University in the City of New York
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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Special Programs for the Aging, Title IV, and Title II, Discretionary Projects					
Addressing Oral Health and Effectiveness of Home Delivered Meals	93.048	LIVEON CU17-2560	90INNU0004-01-00	0	37,733
				$0	$37,733
Chronic Diseases: Research, Control, and Prevention					
RENYC, Rare epilepsies in New York City: Epidemiology and health outcomes	93.068	CUMC 15081290-02	1U01DP006089-01	0	58,355
RENYC, Rare epilepsies in New York City: Epidemiology and health outcomes	93.068	CUMC 15081290-02	1U01DP006089-01	0	14,919
				$0	$73,274
Public Health Emergency Preparedness					
Emergency Response Group Assessment Pilot Project (OEPR 20/RD 1)	93.069	PUBHS 17-CU-02	NU90TP921922	0	33,501
				$0	$33,501
Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) Aligned Cooperative Agreements					
NYC DOHMH - PMDP SOARS Inventory	93.074	PHS 16-CU-03	NU90TP000546	0	-10,160
				$0	$-10,160
Prevention of Disease, Disability, and Death by Infectious Diseases					
Northeast Regional Center for Excellence in Vector Borne Diseases	93.084	CU 81477-10822	1U01CK000509-01	0	73,405
Northeast Regional Center for Excellence in Vector Borne Diseases	93.084	CU 81477-10822	1U01CK000509-01	0	70,096
				$0	$143,502
Food and Drug Administration Research					
Phase 3 Trial of DCA in PDC Deficiency IND 028,625(02/04/15)	93.103	UFOCR00012069	1R01FD005407-01	0	65,261
				$0	$65,261
Centers for Research and Demonstration for Health Promotion and Disease Prevention					
Healthy Youth Development Prevention Research Center - SIP07-005	93.135	UMINN N006894501	3U48DP005022-04S5	0	24,684
				$0	$24,684
Injury Prevention and Control Research and State and Community Based Programs					

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The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Michigan Youth Violence Prevention Center (MI-YVPC) Community Engagement and Revitalization	93.136	UMICHG 3004386942	5U01CE002698-02	0	143,619
Michigan Youth Violence Prevention Center (MI-YVPC) Community Engagement and Revitalization	93.136	UMICHG 3004386942	5U01CE002698-02	0	95,025
Anti-bullying laws and youth in the United States: Alongitudinal evaluation of efficacy and implementation	93.136	UMINN PO06360101	1R01CE002913-01	0	47,890
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	UPENN 572095	5R49CE002474-03	0	27,060
THE PENN VIOLENCE AND INJURY CONTROL RESEARCH CENTER	93.136	UPENN 572095	5R49CE002474-03	0	26,133
WVU Injury Control research Center (ICRC) Research project: Poisonings, Coroners and Differential Suicide Undercounting:Evidence from Suicide Notes	93.136	WVU 04-441-CU	5R49CE002109-03	0	6,834
				$0	$346,561
Research on Healthcare Costs, Quality and Outcomes					
Preventing Wrong Drug and Wrong Patient Errors with Indication Alerts in CPOE Systems	93.226	NWU SP0037488-PROJ0010282	R01HS024945	5,412	99,521
Generalizability and Spread of an Evidenced-based Fall Prevention Toolkit: Fall TIPS (Tailoring Interventions for Patient Safety)	93.226	BWH 116930	1R18HS025128-01	0	38,361
Pediatric Ambulatory Healthcare Associated Infections: Incidence Rates, Risk Factors, Outcomes, Costs and Algorithms for Detection	93.226	AECM 310939/311103	1R01HS024432-01	0	29,159
The effects of state sepsis mandates on hospital mortality, health care utilization, and costs	93.226	UPMC O0057761 (130289-1)	1R01HS025146-01A1	0	19,088
SMINET: Applying Evidence to Improve Care and Outcomes in Severe Mental Illness	93.226	RUTGER 6191	1R18HS023258-01	0	14,339
Pediatric Ambulatory Healthcare Associated Infections: Incidence Rates, Risk Factors, Outcomes, Costs and Algorithms for Detection	93.226	AECM 310939/311103	1R01HS024432-01	0	6,064
Reducing Diagnostic Errors in Primary Care Pediatrics	93.226	AECM 310809	6R01HS023608-02	0	6,037
Reducing Diagnostic Errors in Primary Care Pediatrics	93.226	AECM 310809	6R01HS023608-02	0	2,951
				$5,412	$215,519
Policy Research and Evaluation Grants					
Supporting the Development of the Poverty Research Center at the University of Wisconsin	93.239	UWIMAD 703K802	1H79AE000103-01	0	62,290
Supporting the Development of the Poverty Research Center at the University of Wisconsin	93.239	UWIMAD 703K802	1H79AE000103-01	0	38,659
Poverty among Children of Immigrants: Understanding State-Level Variation and the Impact of SNAP Policy	93.239	UWM 745K463	1H79AE000103-01	0	19,835
				$0	$120,784
Substance Abuse and Mental Health Services Projects of Regional and National Significance					
WORTH (Women on the Road to Health) Transitions Program	93.243	ROCHSTR 41701BG/URFAO	1H79TI080055-01	0	65,772
Providers Clinical Support System for Medication Assisted Treatment (PCSS-MAT) - Training and Implementation	93.243	AAAP PCSSMAT-16-4	1U79TI026556-01	0	58,682

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Providers Clinical Support System for Medication Assisted Treatment (PCSS-MAT) - Training and Implementation	93.243	AAAP PCSSMAT-16-4	1U79TI026556-01	0	49,472
Integrated Healthcare + Housing	93.243	P2PPA CU62310-01	1H79SM062310-01	0	29,960
Developing Innovative Teaching Resources for PCSS-MAT	93.243	AAAP PCSS-MAT-NCE-9	5U79TI024697-03	0	13,202
Providers Clinical Support System for Medication Assisted Treatment (PCSS-MAT) - Training and Implementation	93.243	AAAP PCSSMAT-16-4	1U79TI026556-01	0	6,842
WORTH (Women on the Road to Health) Transitions Program	93.243	ROCHSTR 41701BG/URFAO	1H79TI080055-01	0	5,164
Providers Clinical Support System for Opioid Therapies	93.243	AAAP PCSSO14-12	5H79TI025595-02	0	1,892
				$0	$230,985
Occupational Safety and Health Program					
Prenatal WTC Chemical Exposures, Birth Outcomes and CardiometabolicRisks	93.262	NYU 108364	U01OH011299	0	183,619
				$0	$183,619
Centers for Disease Control and Prevention Investigations and Technical Assistance					
Wills Eye Community Intervention to Improve Glaucoma Detection and Follow-Up Care	93.283	WILLS CDC14086	U01DP005127	0	61,666
				$0	$61,666
State and Local Public Health Actions to Prevent Obesity, Diabetes, Heart Disease and Stroke (PPHF)					
Cardio Vascular Disease Cost Modeling	93.757	FPHNY 80873	NU58 DP005465-02.	0	3,731
				$0	$3,731
Opioid STR					
FY 2018 Opioid State Targeted Response Technical Assistance (STR TA)	93.788	AAAP States 16-2	1H79TI080816-01	0	34,059
				$0	$34,059
National Bioterrorism Hospital Preparedness Program					
Performance Measure and Dashboard Development for NYC Healthcare System (HPP 44)	93.889	PUBHS 17-CU-01	NU90TP921922	0	86,501
				$0	$86,501
HIV Emergency Relief Project Grants					
RYAN WHITE PART A CONTRACT 93-EVL-4645 FOR PLANNING AND EVALUATION (BASE)	93.914	93-EVL-4645	H89HA00015	0	626,130
RYAN WHITE PART A CONTRACT 93-EVL-4645 FOR PLANNING AND EVALUATION (BASE)	93.914	93-EVL-4645	H89HA00015	0	225,901

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				$0	$852,031
Total Pass-through Programs				**$5,412**	**$4,139,320**
Total: Department of Health & Human Services (Excluding NIH)				**$1,224,031**	**$15,446,290**
National Institute of Health					
Direct Awards					
National Cancer Institute/NIH/DHHS					
Large-scale research on clinical data for treatment pathways in cancer patients	93	HHSN261201700469P		0	107,411
National Heart, Lung, and Blood Institute/NIH/DHHS					
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		-128	-128
National Human Genome Research Institute/NIH/DHHS					
Functional Analysis for NHGRI Undiagnosed Disease Patients	93	HHSN268201500052P		0	42,531
National Institute of Allergy and Infectious Diseases/NIH/DHHS					
High throughput biodosimetry using a fully automated dicentric assay on commercial high content screening platforms.	93	HHSN272201600040C		47,006	415,690
National Institute of Child Health and Human Development/NIH/DHHS					
Clinical Evaluation of Long-Acting Reversible Contraceptives	93	HHSN275201300010I		0	135,201
A Multi-Center, Randomized Study to Evaluate the Pharmacokinetic and Pharmacodynamic Profile, Contraceptive Efficacy and Safety of Daily Oral Low Dose Ulipristal Acetate	93	HHSN2752013000101		0	123,495
A Multicenter, Open Label Randomized Study on the Efficacy, Cycle Control and Safety of a Contraceptive Vaginal Ring Delivering a Daily Dose of Nestorone and Estradiol (NES E2 CVR)	93	HHSN275201400010I		0	63,798
A Multi-Center, Randomized Study to Evaluate the Pharmacokinetic and Pharmacodynamic Profile, Contraceptive Efficacy and Safety of Daily Oral Low Dose Ulipristal Acetate	93	HHSN2752013000101		0	13,045
				$46,878	$901,044
Family Smoking Prevention and Tobacco Control Act Regulatory Research					
Ventilation and Pulmonary Endothelium Toxicities (VaPE-Tox) of E-cigarettes: A Randomized Crossover Pilot Study	93.077	5R03HL132590-02		0	86,317
				$0	$86,317
Environmental Health					
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		95,227	611,651

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Arsenic Exposure, Impaired Respiratory Function, and Immunosuppression	93.113	5R01ES023888-04		207,898	476,750
Arsenic, Epigenetics and Incident Cardiovascular Disease in American Indian Communities	93.113	5R01ES025216-05		264,365	439,594
Prenatal Factors and Risk of Autism in a Finnish National Birth Cohort	93.113	5R01ES019004-05		176,677	367,823
CEHNM - Admin Core	93.113	5P30ES009089-19		0	326,732
Understanding Adoption of Clean Cookstoves	93.113	5R01ES024489-05		23,204	320,205
Multiparametric: Prediction of Vasospasm after Subarachnoid Hemorrhage	93.113	5K01ES026833-04		0	315,745
Training Program in Environmental Life Course Epidemiology	93.113	5T32ES023772-04		0	302,883
Potential Inhaled Dose of Particulates, Biking and Cardiovascular Indicators	93.113	5R33ES024734-04		50,400	292,986
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	290,591
BPA, Phthalates & Stress: Mechanisms and Interactions for Childhood Obesity	93.113	7R01ES021357-05		150,989	265,678
Interdisciplinary Training in Climate and Health	93.113	5T32ES023770-05		0	242,115
Molecular and Epigenetic Mitochondriomics of Air Particles, Lead and Cognition	93.113	7R01ES021733-05		0	226,447
CEHNM - Admin Core	93.113	5P30ES009089-19		0	225,172
Interdisciplinary Training in Environmental Health	93.113	2T32ES007322-16		0	223,091
Prenatal Factors in Autism and Other Psychiatric Outcomes in a National Birth Cohort	93.113	1R01ES028125-01		92,824	217,082
Circulating microRNAs in Extracellular Vesicles, Air Particulate Pollution, and Lung Function in an Aging Cohort	93.113	5R01ES025225-04		82,887	202,267
Cytoplasmic Damage and Genotoxicity	93.113	4R01ES012888-10		0	182,739
Potential Inhaled Dose of Particulates, Biking and Cardiovascular Indicators	93.113	5R33ES024734-04		0	182,594
Supplement (S1)	93.113	5P50ES009600-19		0	181,093
CEHNM - Admin Core	93.113	5P30ES009089-19		0	169,823
Supplement (S1)	93.113	5P50ES009600-19		163,444	163,444
CEHNM - Admin Core	93.113	5P30ES009089-19		0	158,399
Effects of Prenatal Exposure To Environmental Tobacco Smoke on Brain Function and Academic Skills	93.113	5K23ES026239-03		0	158,339
Supplement (S1)	93.113	5P50ES009600-19		0	154,612
Early Exposure to Persistent Organic Pollutants, Breast Milk Extracellular Vesicles and Abnormal Cardiometabolic Programming	93.113	5R21ES027087-02		24,297	126,703
Supplement (S1)	93.113	5P50ES009600-19		0	121,283

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R&D Cluster

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Supplement (S1)	93.113	5P50ES009600-19		20,792	120,053
Air Pollution and Risk of Placental Abruption in New York City	93.113	5R21ES025845-02		0	106,620
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	106,008
Child Lung Development Following a Cookstove Intervention: Evidence from GRAPHS	93.113	5R01ES026991-02		0	102,465
Arsenic Exposure, GeneticDeterminants and Diabetes Risk in a Family Study	93.113	7R01ES021367-05		93,264	100,744
CEHNM - Admin Core	93.113	5P30ES009089-19		60,174	99,511
CEHNM - Admin Core	93.113	5P30ES009089-19		0	92,730
Undergraduate Research Program to Promote Diversity in EHS	93.113	5R25ES025505-04		22,295	91,132
Black Carbon Exposure, DNA Methylation, Airway Inflammation in Pediatric Asthma	93.113	4R01ES013163-10		0	90,368
Pre- and Postnatal PBDE Exposure, Thyroid Hormones, and Neurodevelopment	93.113	4R01ES021806-05		0	89,959
CEHNM - Admin Core	93.113	5P30ES009089-19		0	88,798
Supplement (S1)	93.113	5P50ES009600-19		0	78,196
Telomere Dynamics as Indicators of Social Adversity in Environmental Epidemiology	93.113	5R03ES026416-02		0	75,510
Flame retardants, thyroid function, and psychomotor skills in children	93.113	7R21ES024841-02		37,905	71,543
Child Lung Development Following a Cookstove Intervention: Evidence from GRAPHS	93.113	5R01ES026991-02		0	71,368
CEHNM - Admin Core	93.113	5P30ES009089-19		0	70,218
Arsenic, Epigenetics and Incident Cardiovascular Disease in American Indian Communities	93.113	5R01ES025216-05		47,506	61,762
Principal Component Pursuit to Assess Exposure to Environmental Mixtures in Epidemiologic Studies	93.113	1R01ES028805-01		0	55,965
CEHNM - Admin Core	93.113	5P30ES009089-19		0	53,804
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	48,652
Supplement (S1)	93.113	5P50ES009600-19		0	42,648
CEHNM - Admin Core	93.113	5P30ES009089-19		0	42,269
Mechanism-based abrogation of BCC pathogenesis	93.113	4R01ES020344-05		0	40,760
CEHNM - Admin Core	93.113	5P30ES009089-19		0	38,693
CEHNM - Admin Core	93.113	5P30ES009089-19		0	34,839
Supplement (S1)	93.113	5P50ES009600-19		0	31,690

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CEHNM - Admin Core	93.113	5P30ES009089-19		0	30,523
Potential Inhaled Dose of Particulates, Biking and Cardiovascular Indicators	93.113	5R33ES024734-04		0	29,753
CEHNM - Admin Core	93.113	5P30ES009089-19		0	28,454
Understanding Adoption of Clean Cookstoves	93.113	5R01ES024489-05		0	27,960
Supplement (S1)	93.113	5P50ES009600-19		0	26,506
Effects of Flame Retardants on brain function and attentional deficits in school-age children brain imaging, neurobehavioral, and gut microbiome studies in a longitudinal birth cohort	93.113	1R01ES027845-01A1		0	26,421
Potential Inhaled Dose of Particulates, Biking and Cardiovascular Indicators	93.113	5R33ES024734-04		0	25,688
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	24,711
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	24,526
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	20,449
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	18,762
CEHNM - Admin Core	93.113	5P30ES009089-19		14,914	14,914
CEHNM - Admin Core	93.113	5P30ES009089-19		0	14,871
CEHNM - Admin Core	93.113	5P30ES009089-19		0	13,444
Assessing the Impact of Clean Heat Policy Intervention in New York City	93.113	5R21ES024108-02		0	12,000
Air Pollution Exposure and Risk of Amyotrophic Lateral Sclerosis (ALS)	93.113	1R21ES028472-01A1		0	11,906
Prenatal pyrethroid exposure and child mental, motor and behavioral development	93.113	4R01ES021482-04		0	11,676
Effects of Arsenic Exposure on 5-methylcytosine and 5-hydroxymethylcytosine, and Effect Modification by Nutritional Status	93.113	1F31ES029019-01		0	10,198
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	9,990
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	9,420
CEHNM - Admin Core	93.113	5P30ES009089-19		0	8,151
Supplement (S1)	93.113	5P50ES009600-19		6,980	6,980
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	6,408
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	6,354
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	6,229
CEHNM - Admin Core	93.113	5P30ES009089-19		0	5,528

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Black Carbon Exposure, DNA Methylation, Airway Inflammation in Pediatric Asthma	93.113	4R01ES013163-10		0	5,034
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	3,882
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	3,498
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	2,691
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	2,400
BPA, Phthalates & Stress: Mechanisms and Interactions for Childhood Obesity	93.113	7R01ES021357-05		0	1,966
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	1,578
Interdisciplinary Training in Climate and Health	93.113	5T32ES023770-05		0	1,339
Supplement (S1)	93.113	5P50ES009600-19		0	464
Supplement (S1)	93.113	5P50ES009600-19		0	381
Training Program in Environmental Life Course Epidemiology	93.113	5T32ES023772-04		0	323
Center for Environmental Health in Northern Manhattan	93.113	2P30ES009089-20		0	320
Supplement (S1)	93.113	5P50ES009600-19		0	128
Supplement (S1)	93.113	5P50ES009600-19		0	-11
CEHNM - Admin Core	93.113	5P30ES009089-19		0	-260
Validating particulate matter monitors for multiple parameters	93.113	5R01ES020424-02		-327	-327
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-04		0	-1,413
				$1,635,714	$9,305,957

Oral Diseases and Disorders Research

Continuous root formation in developing teeth by molecular cues	93.121	5R01DE025643-03		0	600,146
Craniofacial Tissue Engineering	93.121	5R01DE016525-10		161,470	511,805
Pre-clinical Models of Odontic Analogs by Endogenous Stem Cells	93.121	5R01DE023112-04		0	500,645
MicroRNA-based prognostic model for early-stage oral cancer patients	93.121	5R01DE026801-02		0	334,709
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	4R01DE013094-15		0	275,578
Oral immune activation and alveolar bone loss in HIV-infected postmenopausal women	93.121	5R01DE026924-02		0	247,448
Multidisciplinary Training in TMJ Disorders/Pain: Integrating Basic, Translational and Clinical Science	93.121	5K12DE023583-05		0	247,324

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NIDCR Dentist Scientist K99:Improve TMJ Fibrocartilage Regeneration Strategies	93.121	5R00DE022060-06		0	226,688
Oral immune activation and alveolar bone loss in HIV-infected postmenopausal women	93.121	5R01DE026924-02		0	189,399
A combined genetic/epigenetic approach to study periodontitis susceptibility and pathobiology	93.121	1R56DE026487-01A1		0	113,776
TMJ Disc Regeneration by 3D-Printed Bioscaffolds in a Pre-Clinical Animal Model	93.121	5R03DE026794-02		0	102,232
Genomic approaches to the pathobiology andclassification of periodontitis	93.121	5R03DE024735-02		0	96,426
Role of Estrogen via Estrogen Receptor Alpha on TMJ Chondrogenesis and Homeostasis	93.121	5F32DE026366-02		0	17,956
Role of Estrogen via Estrogen Receptor Alpha on TMJ Chondrogenesis and Homeostasis	93.121	5F32DE026366-02		0	12,354
Mechanism of F. Nucleatum in Intrauterine Infection	93.121	5R01DE023332-04		0	5,721
Role of Estrogen Receptor Alpha and Beta in Regulating Mandibular Condylar Growth	93.121	2R56DE020097-06		0	2,700
ORAL INFECTIONS, CAROTID ATHEROSCLEROSIS AND STROKE	93.121	5 R01 DE013094-09		0	-1
Multidisciplinary Training in TMJ Disorders/Pain: Integrating Basic, Translational and Clinical Science	93.121	5K12DE023583-05		0	-4,651
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	4R01DE013094-15		-16,555	-16,555
				$144,915	$3,463,701
NIEHS Superfund Hazardous Substances Basic Research and Education					
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		378,823	378,823
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		274,018	289,018
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	190,903
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		27,311	157,038
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		6,000	109,907
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		25,500	108,283
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		13,865	105,957
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	64,890
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	63,760
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	51,492
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	50,855
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	38,532

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Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	35,608
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	34,209
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	30,509
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	30,205
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		8,314	24,883
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	21,171
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		-315	17,193
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	13,551
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	12,990
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	11,785
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	11,739
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	11,038
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	10,618
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	7,815
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	7,135
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	6,576
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	5,217
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	4,327
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	2,006
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	1,046
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	959
Health Effects and Geochemistry of Arsenic	93.143	2P42ES010349-16		0	495
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	470
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	-2,428
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	-4,271
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	-14,277

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	-16,003
				$733,517	$1,874,024
Human Genome Research					
Single Molecule Real Time Electronic Sequencing	93.172	5R01HG006882-04		345,130	1,302,754
An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		737,342	1,115,331
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-04		16,341	1,015,050
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-05		105,818	933,908
Massively parallel mapping of all molecular interactions in a single tube	93.172	5R01HG009065-04		0	760,041
Inferring gene regulatory circuitry from functional genomics data	93.172	5R01HG003008-13		27,354	563,739
Enzyme-less DNA base discrimination using solid-state nanopores with highfrequency integrated detection electronics	93.172	5R01HG009189-03		434,189	456,811
Develop quantile analysis tools for sequencing and eQTL studies	93.172	5R01HG008980-03		50,627	316,805
Comprehensive Single Molecule Enhanced Detection of Modified Cytosines in Mammalian Genomes	93.172	5R21HG009187-02		0	197,793
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-05		11,737	159,844
Comprehensive Single Molecule Enhanced Detection of Modified Cytosines in Mammalian Genomes	93.172	5R21HG009187-02		0	114,707
Integrated Variation Detection Annotation and Analysis	93.172	7R01HG006465-06		0	106,274
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-05		77,878	77,878
: CLIP Tool Kit (CTK): pipeline, user interface and tutorials for CLIP data analysis	93.172	5R03HG009528-02		0	75,390
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-04		0	27,069
Integrated, multiplexed high-frequency electronic analysis of DNA in nanopores	93.172	5R01HG006879-03		0	21,920
Inferring gene regulatory circuitry from functional genomics data	93.172	5R01HG003008-11		21,816	21,816
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-04		2,062	6,756
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-05		1,163	1,163
Inferring gene regulatory circuitry from functional genomics data	93.172	5R01HG003008-11		0	176
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-04		0	-4,608
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-05		0	-12,760
An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		0	-29,810

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Inferring gene regulatory circuitry from functional genomics data	93.172	5R01HG003008-11		0	-110,035
An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		0	-374,837
				$1,831,456	$6,743,174
Research Related to Deafness and Communication Disorders					
Neurophysiology of robust speech perception in human superior temporal gyrus	93.173	5R01DC014279-04		0	545,269
Deciphering the molecular principles of olfactory receptor gene choice	93.173	5R01DC015451-03		0	530,880
Understanding the Role of Nuclear Architecture in Olfactory Receptor Choice	93.173	5R01DC013560-05		0	525,316
The Unfolded Protein Response as an Organizer of Chemosensory Response	93.173	5R01DC014144-05		0	463,968
Auditory Mechanics and Cochlear Amplification	93.173	5R01DC015362-03		0	391,913
Mechanisms for cancelling self-generated sounds in the mouse dorsal cochlear nucleus	93.173	5R01DC015449-03		0	355,391
Intracochlear Delivery of Therapeutics Across RWM via Microneedle Array	93.173	5R01DC014547-03		0	352,311
A Medicinal Chemistry Approach to Understanding the Basis of Olfactory Perception	93.173	5R01DC013553-05		0	345,331
Neural Coding and Perception of Learned Vocalizations	93.173	5R01DC009810-08		0	285,926
Intracochlear Delivery of Therapeutics Across RWM via Microneedle Array	93.173	5R01DC014547-03		0	166,073
Regeneration in the olfactory system	93.173	5R01DC012567-05		0	148,586
Integrative Structural and Functional Characterization of Tip-Link Cadherins Deafness	93.173	1R01DC016960-01		0	58,891
Developmentally dynamic chromatin architecture during neurogenesis	93.173	5F31DC016785-02		0	49,044
Circuit Mechanisms for the Cancellation of Self-Generated Sounds in the Dorsal Cochlear Nucleus	93.173	5F31DC016816-02		0	44,044
Observing Auditory Mechanics with Pressure and Motion Measurements	93.173	5R01DC003130-21		0	27,731
Auditory Mechanics and Cochlear Amplification	93.173	5R01DC015362-03		0	14,000
Interactions between piriform cortex and amygdala in a model of associative learning in the mammalian offactory system	93.173	5F32DC014387-03		0	3,939
Adaptive Sensory Processing in the dorsal cochlear nucleus of the mouse	93.173	5F30DC014174-03		0	3,896
Interactions between piriform cortex and amygdala in a model of associative learning in the mammalian offactory system	93.173	5F32DC014387-03		0	90
Observing Auditory Mechanics with Pressure and Motion Measurements	93.173	5R01DC003130-21		0	-3,378
				$0	$4,309,220
Research and Training in Complementary and Integrative Health					

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Acupuncture of Armotase Inhibitor Related Arthralgias in Breast Cancer Patients	93.213	5R01AT006376-05		27,595	218,826
				$27,595	$218,826
National Center on Sleep Disorders Research					
Effect of long-term sleep restriction on energy balance	93.233	5R01HL128226-03		132,339	563,299
Vascular Endothelial Activation in Sleep Apnea	93.233	5R01HL106041-07		0	453,482
				$132,339	$1,016,781
Mental Health Research Grants					
1/3-Identifying regulatory mutations that influence neuropsychiatric disease	93.242	5U01MH105670-05		89,324	1,349,025
Neurobiology and dynamics of Active Sensing	93.242	5P50MH109429-02		810,070	1,128,363
Zero Suicide Implementation and Evaluation in Outpatient Mental Health Clinics	93.242	5R01MH112139-03		536,004	827,298
A Trial of Opening Doors to Recovery for Persons with Serious Mental Illnesses	93.242	5R01MH101307-06		522,623	759,148
The Role of Place and Grid Cells in Human Spatial navigation and Memory	93.242	5R01MH104606-04		172,715	649,145
Identifying de novo mutations causing OCD in trios by whole exome sequencing	93.242	5R01MH099216-06		127,954	558,171
MicroRNA Dysregulation in Pyschiatric Disorders and Cognitive Dysfunction	93.242	5R01MH097879-07		77,415	520,238
Neurobiological Underpinnings of Two Suicidal Subtypes	93.242	5R01MH109326-03		57,672	516,985
Role of the protocadherin alpha gene cluster in serotonergic circuitry formation and its implications in depressive disorders	93.242	5R01MH108579-03		0	482,364
Deciphering the role of histone methyltransfe	93.242	5R01MH112860-02		0	472,842
Predicting Heterogeneous Neurodevelopmental Outcomes in School-age Children with Early Caregiving Adversities	93.242	5R01MH091864-07		33,434	445,468
Focused ultrasound for noninvasive brain stimulation	93.242	5R01MH112142-02		0	428,015
Vitamin-D- PRODH- &DTNBP1-Induced Hyperprolinemia:Schizophrenia Risk & Treatment	93.242	5R01MH100219-05		77,136	420,632
Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.242	5T32MH015144-41		0	399,606
Decoding the neural basis of resting-state functional connectivity mapping	93.242	1RF1MH114276-01		0	392,379
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patients	93.242	5T32MH018870-31		0	390,683
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-29		0	385,734
Temporal dynamics of neurophysiological patterns as treatment targets in Sz	93.242	5R01MH109289-03		168,958	376,032
Advancing PrEP for Black MSM: Community-Based Ethnography and Clinic-Based Intervention - ICAP (Colson/Hirsch)	93.242	4R01MH098723-05		0	370,721

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Research Training Program in Psychiatric Epidemiology	93.242	5T32MH013043-47		0	358,489
Identifying treatment targets: exploring and exploiting neural mechanisms of cognitive deficits in the 22q11.2 microdeletion	93.242	5R01MH096274-06		0	357,188
Development of fluorescent false neurotransmitters	93.242	5R01MH108186-04		0	354,760
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	5R01MH067068-15		0	346,391
Cellular and humoral immune mechanisms underlying neurovascular dysfunction in autoimmune encephalitis	93.242	5R01MH112849-02		0	342,622
Understanding the functional impacts of genetic variants in mentaldisorders	93.242	7R01MH108728-02		32,439	336,236
Neurophysiology underlying neural representations of value	93.242	5R01MH082017-12		0	335,816
Structural Stigma and HIV Prevention Outcomes	93.242	5R01MH112384-02		117,273	331,969
Glutamate reducing interventions in schizophrenia	93.242	5R61MH112800-02		44,687	327,924
Two-photon optical control of astrocytic function	93.242	5R01MH101218-05		0	313,406
Stigma Associated with a High-Risk State for Psychosis among Adolescents and Young Adults: Impacts on Identity and Social Integration	93.242	4R01MH096027-05		291,672	311,609
Novel Methods for Evaluation and Implementation of Behavioral Intervention Technologies for Depression	93.242	5R01MH109496-03		62,158	298,573
Building Schizophrenia Research in Macedonia	93.242	4R01MH098786-05		72,871	296,310
Hippocampal inhibitory control of contextual fear learning	93.242	5R01MH100631-05		0	296,007
IPrEP: A Combination Strategy for HIV Prevention among Young Female Sex Workers, Kisumu, Kenya	93.242	5R01MH110051-03		277,149	294,007
Translational Research Training in Child Psychiatry	93.242	5T32MH016434-39		0	288,246
Exploring the pathophysiology of anxiety: the role of the hippocampus, amygdala and medial prefrontal cortex	93.242	5R01MH081968-10		0	284,602
Genetic targeting of hippocampal CA2 pyramidal neurons	93.242	5R01MH104602-05		0	280,239
Translational Neuroscience Training Grant	93.242	5T32MH015174-42		0	275,834
The role of the locus coeruleus in mediating pupil-linked arousal	93.242	5R01MH112267-02		0	268,316
Research Training in Late-Life Neuropsychiatric Disorders	93.242	5T32MH020004-20		0	263,505
Identification of Rare Variants of OCD	93.242	5R01MH097971-06		0	255,305
The structural basis of cis and trans protocadherin interactions	93.242	5R01MH114817-06		0	249,540
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		203,977	244,363
1/3 - Genomics of Schizophrenia in the South Africa Xhosa	93.242	5U01MH096756-05		115,678	237,971
The role of the hippocampal CA2 region in neuropsychiatric disease	93.242	5R01MH106629-03		0	237,623

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
e-Connect: a service system intervention for justice youth at risk for suicide	93.242	5R01MH113599-02		70,394	226,183
Serotonin 1A Receptor PET Imaging and SSRI Outcome in Bipolar Depression	93.242	5K23MH105688-05		0	202,585
Efficacy Trial of a Brief Health Enhancement Intervention for Newly Diagnosed Men	93.242	4R01MH097651-05		71,096	198,129
Identifying de novo mutations causing OCD in trios by whole exome sequencing	93.242	5R01MH099216-06		0	182,901
Mitochondrial Regulation of Stress Reactivity in Humans	93.242	5R21MH113011-02		0	173,704
tDCS Augmentation of Cognitive Remediation in Schizophrenia	93.242	5R33MH099265-05		37,343	170,066
Integrative methods for the identification of causal variants in mental disorder	93.242	5R01MH106910-03		20,596	158,842
Building Multistage Treatment Regimens for Depression after Acute Coronary Syndrome	93.242	5R21MH108999-02		0	151,894
The structural basis of cis and trans protocadherin interactions	93.242	5R01MH114817-06		0	144,644
Research Training in Biobehavioral Disturbances of Eating Disorders	93.242	5T32MH096679-05		0	143,966
Cognitive control mechanisms in human prefrontal cortex	93.242	5R01MH106700-03		0	137,880
The neurophysiological basis of serial learning	93.242	5R01MH081153-09		0	136,906
1/3-Identifying regulatory mutations that influence neuropsychiatric disease	93.242	5U01MH105670-05		85,203	126,548
Mitochondrial dysfunction due to aberrant mTor-regulated mitophagy in autism	93.242	4K01MH096956-04		0	112,867
Novel Statistical Methods for DNA Sequencing Data, and Applications to Autism	93.242	5R01MH095797-04		0	108,009
The role of the hippocampal CA2 region in neuropsychiatric disease	93.242	5R01MH106629-03		0	102,714
Fronto-sensory circuit mechanisms of perceptual novelty processing	93.242	1K99MH115082-01		0	102,596
Neurophysiology underlying neural representations of value	93.242	5R01MH082017-10		0	100,419
Early Adversity and Human Microbiome-Hippocampal Development: Anxiety Associations	93.242	5K99MH113821-02		0	95,710
Advancing PrEP for Black MSM: Community-Based Ethnography and Clinic-Based Intervention - ICAP (Colson/Hirsch)	93.242	4R01MH098723-05		0	95,285
Applications of Novel Statistical Methods to CNVs in Autism and Schizophrenia	93.242	5R21MH106888-02		0	93,007
IPrEP: A Combination Strategy for HIV Prevention among Young Female Sex Workers, Kisumu, Kenya	93.242	5R01MH110051-03		0	89,213
HIV Dissemination Science Training Program for Underrepresented Investigators	93.242	4R25MH080665-08		0	87,694
Ca2+-regulation of Ca2+ channels	93.242	7R01MH065531-16		0	74,036
Integrative methods for the identification of causal variants in mental disorder	93.242	5R01MH106910-03		0	59,402
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	5R01MH067068-15		0	57,677

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					R&D Cluster
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The neurophysiological basis of serial learning	93.242	5R01MH081153-09		0	57,252
Stigma Associated with a High-Risk State for Psychosis among Adolescents and Young Adults: Impacts on Identity and Social Integration	93.242	4R01MH096027-05		30,311	53,371
Dissection of mediodorsal thalamic circuitry underlying flexible behavior	93.242	5F31MH106278-04		0	49,044
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	47,300
Genomic Approaches to Deciphering Memory Circuits	93.242	4R01MH097062-05		24,606	47,168
Genetic analyses of complete circuit formation in Caenorhabditis elegans	93.242	5F32MH115438-02		0	44,959
Th17 cell-mediated CNS damage in response to recurrent S. pyogenes intranasal infections	93.242	1R56MH109987-01A1		0	44,954
Optical imaging of dopamine kinetics in prefrontal cortex of normal and schizophrenia model mice	93.242	5F31MH109293-03		0	44,044
Regulation of striatal maturation by dopamine and macroautophagy: implications for neuropsychiatric disorders	93.242	5F30MH114390-02		0	41,503
Functional mapping of arginine vasopressin receptor 1A circuits thatpromote anorexic behavior	93.242	1R01MH113353-01A1		0	41,382
Role of dentate granule cell birth date in determining stress-related function	93.242	5F30MH111209-02		0	40,091
Personalized and Scalable Cognitive Remediation Approaches	93.242	5R34MH100317-03		0	36,197
Network Dynamics in Learning and Memory in Humans	93.242	5F31MH109247-02		0	33,109
Development of fluorescent false neurotransmitters	93.242	5R01MH108186-04		0	32,715
Attentional Control by Uncertainty and Reward: Parietal and Frontal Mechanisms	93.242	4R01MH098039-05		0	31,522
Discovery of small molecule cofactors of neurotrophin BDNF	93.242	1R21MH116275-01		1,684	30,593
Elucidating the Effect of Disc 1 on Neurodevelopment and Synaptic Transmission	93.242	4R01MH080234-09		0	30,409
The Effects of Prenatal Stress & Poor Nutrition on Brain and Cognition	93.242	5R01MH093677-05		4,691	28,391
Ventral hippocampal regulation of hypothalamic circuits in learned andinnate threat processing	93.242	1F32MH114306-01A1		0	19,153
Research Training Program in Psychiatric Epidemiology	93.242	5T32MH013043-47		0	17,513
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patients	93.242	5T32MH018870-31		0	15,914
Two-photon analysis of circuit-level mechanisms of schizophrenia biomarkers	93.242	5F32MH106265-03		0	14,284
Prenatal stress: the epigenetic basis of maternal and perinatal effects	93.242	5R01MH092580-05		0	7,950
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-29		0	6,591
Predicting Internet-Based Treatment Response for Major Depression Disorder	93.242	7R56MH109566-03		0	5,004
Translational Research Training in Child Psychiatry	93.242	5T32MH016434-39		0	4,978

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Dissection of mediodorsal thalamic circuitry underlying flexible behavior	93.242	5F31MH106278-04		0	3,896
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	3,063
HIV Dissemination Science Training Program for Underrepresented Investigators	93.242	4R25MH080665-08		0	2,520
Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.242	5T32MH015144-41		0	2,164
High-throughput screening platform for discovery of fluorescent synaptic markers	93.242	5R21MH104803-02		0	1,476
Network Dynamics in Learning and Memory in Humans	93.242	5F31MH109247-02		0	1,345
Developing drivers for neuron type-specific gene expression	93.242	5U01MH105924-03		0	5
Implementing Health Care Interventions for Hispanics with Serious Mental Health	93.242	5K01MH091118-06		0	-1
Ketamine vs Midazolam: Testing Rapid Relief of Suicide Risk in Depression	93.242	5R01MH096784-04		-293	-293
A School-Based Intervention to Reduce Stigma and Promote Mental-Health Service Use (Link/Painter)	93.242	5R01MH095254-04		-854	-854
Translational Neuroscience Training Grant	93.242	5T32MH015174-42		0	-1,694
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-25		0	-4,608
A Research Training Program in Psychiatric Epidemiology	93.242	3T32MH013043-45S1		0	-6,884
Stigma Associated with a High-Risk State for Psychosis	93.242	4R01MH096027-05		-214,591	-214,591
				$4,021,394	$22,603,510
Alcohol Research Programs					
Neural and Mobile Assessment of Behavior Change Among Problem Drinkers	93.273	5R01AA023653-02		269,828	429,170
Targeting DAMPs in Alcoholic Hepatitis	93.273	5U01AA021912-05		42,680	260,101
Prefrontal cortex and adolescent binge drinking: Role of HCN channels	93.273	5R01AA023531-04		0	248,048
Prefrontal cortex and adolescent binge drinking: Role of HCN channels	93.273	5R01AA023531-04		0	151,555
Race, Alcohol Consumption and Vehicle Crashes: An Epidemiologic Paradox	93.273	5K01AA021511-05		0	128,423
2/2 Multisite Study: Varenicline for Alcohol Dependent Smokers	93.273	5R01AA020389-04		20,936	79,347
Testing associations among sexual identity, race/ethnicity, relationship characteristics, and hazard	93.273	5F32AA025816-02		0	51,200
Prefrontal Pathways Engaged in Excessive Alcohol Consumption	93.273	1K99AA024507-01A1		0	43,027
Structural Intervention for Adolescent Alcohol Use and HIV Risk in Tanzania	93.273	5R21AA022868-02		0	41,491
Targeting DAMPs in Alcoholic Hepatitis	93.273	5U01AA021912-05		28,891	30,276

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The Role of Maternal Nutrition in the Teratogenesis of Alcohol in Humans	93.273	5K23AA020516-05		0	19,200
				$362,335	$1,481,837
Drug Abuse and Addiction Research Programs					
Enhanced Access to HIV Care for Drug Users in San Juan, Puerto Rico (Metsch/Santana-Bagur)	93.279	5R01DA035280-05		1,399,000	1,722,128
Non-Metabolized Pregnenolone Derivatives:New Treatment for Cannabis Use Disorder	93.279	5R01DA038875-02		1,256,843	1,400,503
A Cluster RCT to Increase HIV Testing in Substance Use Treatment Programs	93.279	5R01DA043130-03		690,558	1,102,462
Improving HIV Service Delivery for People who Inject Drugs in Kazakhstan	93.279	5R01DA041063-04		0	947,990
A Multimedia HIV/STI Intervention for Black Drug-involved Women on Probation	93.279	5R01DA038122-05		0	926,504
Evaluating a Microfinance Intervention for High Risk Women in Kazakhstan	93.279	5R01DA036514-05		0	826,518
Project RETAIN: Providing Integrated Care for HIV-Infected Crack Cocaine Users (Metsch/Del Rio)	93.279	5R01DA032098-06		302,251	786,588
Translational research to increase service access for NYS juvenile probationers	93.279	5U01DA036226-05		28,040	775,908
Increasing Involvement of MSM in the Continuum of Care in Kazakhstan	93.279	5R01DA040513-03		0	567,661
Substance Abuse Epidemiology Training Program (SAETP) at Columbia University	93.279	5T32DA031099-07		0	452,508
Probing mechanisms of amphetamine action at plasma membrane and vesicular transporters in vitro and in vivo	93.279	5R01DA041510-02		255,197	433,799
Prescription Drug Use in the US Population:Gateway Effects and Family Patterns	93.279	5R01DA036748-04		0	425,851
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-04		231,332	407,327
State Medical Marijuana Laws and NSDUH Marijuana Use and Consequences Since 2004	93.279	5R01DA037866-05		26,495	388,005
Research Fellowship in Substance Abuse Disorder	93.279	5T32DA007294-25		0	377,324
Training Program on HIV and Substance Use in the Criminal Justice System	93.279	5T32DA037801-05		0	346,827
Preventing Drug Abuse among Hispanic Adolescents	93.279	4R01DA031477-05		0	323,600
Brain Circuits Mediating Motivated Behaviors	93.279	5R01DA035025-05		0	315,432
Health Care Policy and Substance Abuse Treatment Access	93.279	5R01DA039137-02		152,481	282,040
Controlling epigenetic states and nuclear architecture in the brain	93.279	5R01DA036894-05		94,979	276,277
Presynaptic Mechanisms in Dopamine Neurotransmission	93.279	5R01DA007418-23		0	193,390
A Web-Based Intervention to Prevent Drug Abuse among Adolescent Girls	93.279	5R01DA031782-05		0	180,299
A Bundled Rapid HIV/HCV Testing Intervention to Increase Receipt of Test Results	93.279	5R34DA038530-02		101,654	171,862

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Assessing the Impact of State-Level Policies on Drug Use and HIV Risk for YMSM	93.279	5K01DA039804-03		0	169,439
Substance abuse history, mental health and firearm violence: from evidence to action	93.279	5R21DA041154-02		28,364	166,868
Substance Abuse Treatment Development and Clinical Research Mentoring	93.279	5K24DA029647-09		0	166,034
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-04		86,438	160,352
Couple HIV prevention for drug-involved male offenders: An Effectiveness Trial	93.279	4R01DA033168-05		0	140,440
Using PET to Image the Neurochemistry of Addiction	93.279	5K02DA026525-10		0	126,647
Contextualizing & responding to HIV risk behaviors among Black drug offenders	93.279	5K01DA036411-05		0	119,905
Social Stress and Substance Use Disparities in Sexual Minority Youth	93.279	4K01DA032558-05		0	115,922
State Medical Marijuana Laws and NSDUH Marijuana Use and Consequences Since 2004	93.279	5R01DA037866-05		0	79,066
Drug Abuse Treatment Development and Research Mentoring	93.279	4K24DA022412-10		0	76,492
The epigenetic impact of in utero opioid exposure on Generation Z	93.279	5R03DA040887-02		0	63,913
A Multi-site Multi-Setting RCT of Integrated HIV Prevention and HCV Care for PWID	93.279	5R01DA045713-02		0	55,369
Couples-Based HIV/STI Prevention for Drug-Involved, African American MSM	93.279	5R01DA030296-05		0	43,570
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-04		0	39,697
Effects of Cannabis on Neuronal Translation	93.279	5R03DA039440-02		0	37,870
Training Program on HIV and Substance Use in the Criminal Justice System	93.279	5T32DA037801-05		0	37,785
Effects of Cannabis on Neuronal Translation	93.279	5R03DA039440-02		0	37,074
Mapping dopamine neuron cotransmission by proximity detection	93.279	5R21DA040443-02		35,190	35,190
Molecular Determinants for the Action of Psychostimulants	93.279	4K05DA022413-10		0	26,317
The impact of criminal justice involvement on retention in a behavioral HIV prevention intervention for couples who use drugs in Almaty, Kazakhstan	93.279	1F31DA044794-01A1		0	24,324
Translational research to increase service access for NYS juvenile probationers	93.279	5U01DA036226-05		23,041	23,491
Substance Abuse Epidemiology Training Program (SAETP) at Columbia University	93.279	5T32DA031099-07		0	17,527
A Multimedia HIV/STI Intervention for Black Drug-involved Women on Probation	93.279	5R01DA038122-05		0	15,442
Substance Use and Sexual Risk Behavior Among MSM in South African Townships	93.279	5F31DA037128-03 REVISED		0	14,912
The Family as Recovery Capital for HIV Infected Male Injection Drug Users in Vietnam	93.279	5R03DA037783-02		0	12,666
Effects of Cannabis on Neuronal Translation	93.279	5R03DA039440-02		0	12,339

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Research Fellowship in Substance Abuse Disorder	93.279	5T32DA007294-25		0	7,791
Epidemiology of Substance Use Disorders Training Program at Columbia University	93.279	3T32DA031099-05S1		0	1,800
Translational research to increase service access for NYS juvenile probationers	93.279	5U01DA036226-05		0	1,107
An Experimental Model of Human Language and Cognition in Drug Dependence	93.279	5K23DA021850-05		0	-716
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-04		0	-5,667
Mapping dopamine neuron cotransmission by proximity detection	93.279	5R21DA040443-02		0	-6,515
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-04		0	-23,930
				$4,711,863	$15,423,322
Discovery and Applied Research for Technological Innovations to Improve Human Health					
Multi-tissue platform for modeling systemic pathologies	93.286	5UG3EB025765-02		133,406	1,000,381
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-22		0	968,717
Optimization of ultrasound-faciliated blood-brain barrier opening	93.286	5R01EB009041-09		0	586,183
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		468,203	473,094
Early Detection and Mapping of Ischemia Using Myocardial Elastography	93.286	5R01EB006042-11		13,898	385,907
Monitoring Particulate, PAH, Allergen and Microbial Exposures in Asthmatic Kids	93.286	1U01EB021983-01		139,168	356,205
Optical Imaging of small bio-molecules in living cells and tissues by nonlinear Raman microscopy cou	93.286	5R01EB020892-04		0	269,612
Advanced Modeling Techniques for Brain Imaging Data with PET	93.286	5R01EB024526-02		36,499	258,883
Monitoring Particulate, PAH, Allergen and Microbial Exposures in Asthmatic Kids	93.286	1U01EB021983-01		0	185,334
Intranasal delivery through the blood-brain barrier using focused ultrasound	93.286	5R21EB021103-02		20,776	124,404
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-22		0	93,980
Next-Generation Calcium Imaging Analysis Methods	93.286	5R01EB022913-03		0	69,412
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-22		0	64,127
Monitoring Particulate, PAH, Allergen and Microbial Exposures in Asthmatic Kids	93.286	1U01EB021983-01		0	54,120
Multi-tissue platform for modeling systemic pathologies	93.286	5UG3EB025765-02		0	49,805
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	37,776
Generalized, multilevel functional response models applied to accelerometer data.	93.286	5R21EB018917-02		0	37,761

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Monitoring Particulate, PAH, Allergen and Microbial Exposures in Asthmatic Kids	93.286	1U01EB021983-01		15,073	27,522
A Microfluidic System for Image-Guided RNA-Seq of Single Cells in Glioblastoma	93.286	4K01EB016071-05		0	21,986
Multi-tissue platform for modeling systemic pathologies	93.286	5UG3EB025765-02		0	13,897
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	8,621
Intranasal delivery through the blood-brain barrier using focused ultrasound	93.286	5R21EB021103-02		0	5,342
Graft Engineering of Allogeneic Hematopoietic Stem Cell Products with Molecular Cascades	93.286	1R01EB025221-01		0	5,150
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-22		0	5,029
Graft Engineering of Allogeneic Hematopoietic Stem Cell Products with Molecular Cascades	93.286	1R01EB025221-01		0	4,576
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-22		0	1,818
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	882
Optimization of ultrasound-faciliated blood-brain barrier opening	93.286	5R01EB009041-09		0	480
				$827,024	$5,111,003
Minority Health and Health Disparities Research					
A Pragmatic Clinical Trial of MyPEEPS Mobile to Improve HIV prevention Behaviors in Diverse Adolescent MSM	93.307	5U01MD011279-03		533,164	1,276,865
Impact of breast density information disclosure in racially diverse populations	93.307	5R01MD011506-03		0	676,914
Racial and Ethnic Disparities in Chronic Disease Outcomes and Nurse Practitioner Practice	93.307	5R01MD011514-02		74,936	584,456
Ancestry, Genetic Risk and Health Disparities in Immune-Mediated Nephritis	93.307	5R01MD009223-05		0	484,673
Cultural Script Interpretation and HIV Risk in a Diverse Sample of Young Urban MSM	93.307	5R01MD010529-04		83,446	445,785
Exchange Sex and HIV Risk among MSM Online	93.307	5R01MD011587-02		0	166,093
Racial Disparities, Influenza Like Illness and the Association between Short-term Exposure to Ambient Air Pollution and Cardiovascular Outcomes	93.307	5R21MD012451-02		0	134,619
Next Generation	93.307	5T37MD008637-05		0	125,560
Next Generation	93.307	5T37MD008637-05		0	120,887
A Pragmatic Clinical Trial of MyPEEPS Mobile to Improve HIV prevention Behaviors in Diverse Adolescent MSM	93.307	5U01MD011279-03		0	110,258
Ancestry, Genetic Risk and Health Disparities in Immune-Mediated Nephritis	93.307	5R01MD009223-05		0	74,218
A Pragmatic Clinical Trial of MyPEEPS Mobile to Improve HIV prevention Behaviors in Diverse Adolescent MSM	93.307	5U01MD011279-03		46,352	61,352
A Pragmatic Clinical Trial of MyPEEPS Mobile to Improve HIV prevention Behaviors in Diverse Adolescent MSM	93.307	5U01MD011279-03		0	192

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
				$737,898	$4,261,872
Trans-NIH Research Support					
Columbia/Cornell/Harlem Hospital Precision Medicine Initiative HPO	93.310	1UG3OD023183-01		3,324,899	5,382,144
Identifying Newborns at Risk of Adverse Neurodevelopmental Outcomes and Obesity from Air Pollution.	93.310	5UG3OD023290-02		41,475	1,292,009
New York City Consortium for Precision Medicine	93.310	1OT2OD026556-01		0	710,724
Foundational tools to study the impacts of sympathetic activity on the neuroanatomy and function of brown adipose tissue	93.310	1OT2OD023853-01		147,029	526,412
Identifying Newborns at Risk of Adverse Neurodevelopmental Outcomes and Obesity from Air Pollution.	93.310	5UG3OD023290-02		158,942	465,704
The internal states of neural circuits: data analysis, modeling and disease	93.310	5DP5OD019897-05		0	396,670
Functional connectomics of the neocortical microcircuit	93.310	5DP1EY024503-05		0	388,589
Geographic variation in the diverse tobacco retail environment and its impact on tobacco use disparities	93.310	5DP5OD023064-04		0	387,859
International MTCT - Plus Mothers and Children Cohort Study (IMACS)	93.310	OAR 1B01NIAIDCU52002		0	386,397
Re-engineering Precision Therapeutics Through N-of-1 Trials	93.310	5R01LM012836-02		0	368,879
Novel sub-cellular chemical and mechanical nanoimaging	93.310	1DP2EB018657-01		0	364,350
Theranostic Nano-objects: Basic Principles and Initial Applications	93.310	4R01GM104960-05		114,656	349,083
Studying human dendritic cells and DC-SIGN in HIV transmission in vivo using an improved humanized mouse model	93.310	5R21OD023291-02		0	284,977
Multi-platform Educational Program in Innovative Methods for the Behavioral and Social Sciences	93.310	3R25GM111757-04S1		0	214,216
Foundational tools to study the impacts of sympathetic activity on the neuroanatomy and function of brown adipose tissue	93.310	1OT2OD023853-01		34,026	186,199
Hacking Epidemics: Unlocking The Drivers of Transmission Seasonality to Battle Vaccine-Preventable Diseases	93.310	5DP5OD023100-04		0	184,652
Generation and integration of new CNS neurons by in vivo directed conversion	93.310	4R01NS081701-05		0	99,831
New York City Consortium for Precision Medicine	93.310	1OT2OD026556-01		0	98,017
New York City Consortium for Precision Medicine	93.310	1OT2OD026556-01		0	77,051
Isolation and System-Level Characterization of Persistent Bacteria	93.310	5DP5OD019792-04		0	63,287
Columbia/Cornell/Harlem Hospital Precision Medicine Initiative HPO	93.310	1UG3OD023183-01		0	16,759
TOP2A effects on transcription in gliomas: implications for personalized therapy	93.310	5DP5OD021356-02		0	3,761
				$3,821,026	$12,247,569
National Center for Advancing Translational Sciences					

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	1,566,676
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	1,236,355
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	937,920
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	809,367
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	806,235
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	793,758
Biomedical Data Translator Technical Feasibility Assessment and Architecture Design	93.350	1OT3TR002027-01		305,322	777,148
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	710,137
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	665,088
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	400,369
Bioprinting 3D skin for patient-specific drug discovery in inflammatory skin diseases.	93.350	5U18TR002305-02		0	282,770
Preclinical Evaluation of Vorinostat in Alopecia Areata	93.350	5UH2TR002090-02		0	224,215
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	199,123
Biomedical Data Translator Technical Feasibility Assessment and Architecture Design	93.350	1OT3TR002027-01		0	191,882
Institutional Career Development Core	93.350	5KL2TR001874-03		0	147,506
Institutional Career Development Core	93.350	5KL2TR001874-03		0	147,049
Institutional Career Development Core	93.350	5KL2TR001874-03		0	141,488
Institutional Career Development Core	93.350	5KL2TR001874-03		0	130,663
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	125,547
Institutional Career Development Core	93.350	5KL2TR001874-03		0	124,206
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	120,008
Institutional Career Development Core	93.350	5KL2TR001874-03		0	115,852
Institutional Career Development Core	93.350	5KL2TR001874-03		0	113,320
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	113,271
Institutional Career Development Core	93.350	5KL2TR001874-03		0	106,883
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	98,886

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	71,624
NRSA Training Core	93.350	5TL1TR001875-03		0	71,550
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	68,542
NRSA Training Core	93.350	5TL1TR001875-03		0	65,757
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	64,000
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	63,963
Institutional Career Development Core	93.350	5KL2TR001874-03		0	61,780
NRSA Training Core	93.350	5TL1TR001875-03		0	61,741
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	60,922
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	60,333
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	57,829
NRSA Training Core	93.350	5TL1TR001875-03		0	57,120
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	56,634
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	56,283
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	55,186
NRSA Training Core	93.350	5TL1TR001875-03		0	52,687
Integrated Microphysiological System of Cerebral Organoid and Blood Vessel for Disease Modeling and Neuropsychiatric Drug screening	93.350	1UG3TR002151-01		0	52,190
NRSA Training Core	93.350	5TL1TR001875-03		0	49,144
NRSA Training Core	93.350	5TL1TR001875-03		0	48,347
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	48,236
NRSA Training Core	93.350	5TL1TR001875-03		0	47,029
NRSA Training Core	93.350	5TL1TR001875-03		0	43,160
NRSA Training Core	93.350	5TL1TR001875-03		0	43,050
NRSA Training Core	93.350	5TL1TR001875-03		0	41,752
NRSA Training Core	93.350	5TL1TR001875-03		0	39,457
NRSA Training Core	93.350	5TL1TR001875-03		0	37,523

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Institutional Career Development Core	93.350	5KL2TR001874-03		0	35,303
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	31,696
Institutional Career Development Core	93.350	5KL2TR001874-03		0	28,716
NRSA Training Core	93.350	5TL1TR001875-03		0	28,645
NRSA Training Core	93.350	5TL1TR001875-03		0	28,406
NRSA Training Core	93.350	5TL1TR001875-03		0	28,114
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	26,516
Institutional Career Development Core	93.350	5KL2TR001874-03		0	25,270
NRSA Training Core	93.350	5TL1TR001875-03		0	24,338
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	24,000
Institutional Career Development Core	93.350	5KL2TR001874-03		0	23,981
NRSA Training Core	93.350	5TL1TR001875-03		0	23,258
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	23,196
NRSA Training Core	93.350	5TL1TR001875-03		0	20,370
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	19,008
NRSA Training Core	93.350	5TL1TR001875-03		0	18,520
Integrated Microphysiological System of Cerebral Organoid and Blood Vessel for Disease Modeling and Neuropsychiatric Drug screening	93.350	1UG3TR002151-01		0	16,107
Integrated Microphysiological System of Cerebral Organoid and Blood Vessel for Disease Modeling and Neuropsychiatric Drug screening	93.350	1UG3TR002151-01		561	15,818
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	12,592
Institutional Career Development Core	93.350	5KL2TR001874-03		0	11,936
Institutional Career Development Core	93.350	5KL2TR001874-03		0	11,357
Institutional Career Development Core	93.350	5KL2TR001874-03		0	10,789
Institutional Career Development Core	93.350	5KL2TR001874-03		0	10,555
Institutional Career Development Core	93.350	5KL2TR001874-03		0	10,554
Institutional Career Development Core	93.350	5KL2TR001874-03		0	10,471
Institutional Career Development Core	93.350	5KL2TR001874-03		0	10,471

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
NRSA Training Core	93.350	5TL1TR001875-03		0	9,704
Institutional Career Development Core	93.350	5KL2TR001874-03		0	9,187
NRSA Training Core	93.350	5TL1TR001875-03		0	7,665
NRSA Training Core	93.350	5TL1TR001875-03		0	7,612
NRSA Training Core	93.350	5TL1TR001875-03		0	7,515
NRSA Training Core	93.350	5TL1TR001875-03		0	7,343
NRSA Training Core	93.350	5TL1TR001875-03		0	7,276
Institutional Career Development Core	93.350	5KL2TR001874-03		0	5,153
Institutional Career Development Core	93.350	5KL2TR001874-03		0	4,986
NRSA Training Core	93.350	5TL1TR001875-03		0	4,378
NRSA Training Core	93.350	5TL1TR001875-03		0	4,378
NRSA Training Core	93.350	5TL1TR001875-03		0	4,378
NRSA Training Core	93.350	5TL1TR001875-03		0	4,378
NRSA Training Core	93.350	5TL1TR001875-03		0	4,306
NRSA Training Core	93.350	5TL1TR001875-03		0	4,301
NRSA Training Core	93.350	5TL1TR001875-03		0	4,292
NRSA Training Core	93.350	5TL1TR001875-03		0	4,292
Institutional Career Development Core	93.350	5KL2TR001874-03		0	3,198
Institutional Career Development Core	93.350	5KL2TR001874-03		0	2,530
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	2,457
Institutional Career Development Core	93.350	5KL2TR001874-03		0	1,728
NRSA Training Core	93.350	5TL1TR001875-03		0	1,255
Institutional Career Development Core	93.350	5KL2TR001874-03		0	822
Institutional Career Development Core	93.350	5KL2TR001874-03		0	168
NRSA Training Core	93.350	5TL1TR001875-03		0	49
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	-1,456

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Clinical and Translational Science Award	93.350	5UL1TR001873-03		0	-7,094
				$305,884	$13,156,348
Research Infrastructure Programs					
Robust allograft tolerance in non-human primates	93.351	5R01OD017949-04		0	1,268,960
475 MHz NMR Spectrometer	93.351	1S10OD023499-01		0	555,000
				$0	$1,823,960
Nursing Research					
Study of Infection Management and Palliative Care at End-of-Life (SIMP-EL)	93.361	5R01NR013687-06		173,756	714,015
New York City Hispanic Dementia Caregiver Research Program (NHiRP)	93.361	5R01NR014430-05		47,485	505,107
Infection Prevention in Home Health Care (InHOME)	93.361	5R01NR016865-02		109,938	431,306
Video Information Provider for HIV-Associated Non-AIDS (VIP-HANA) Symptoms	93.361	5R01NR015737-04		63,834	421,070
Reducing Health Disparities Through Informatics	93.361	5T32NR007969-16		0	381,461
iPhone helping evaluated Atrial Fibrillation Rhythm through Technology (iHEART)	93.361	5R01NR014853-04		0	352,869
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	158,912
Comparative and Cost-Effectiveness Research Training for Nurse Scientists	93.361	5T32NR014205-05		0	158,402
Self-care decision-making: Feasibility or the BREATHE asthma intervention trial	93.361	5R21NR016507-02		53,988	157,613
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	150,825
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	142,247
Hydroxyurea Adherence for Personal Best in Sickle Cell Treatment	93.361	5R01NR017206-02		0	135,693
New York City Hispanic Dementia Caregiver Research Program (NHiRP)	93.361	5R01NR014430-05		21,151	95,113
mHealth for Heart Failure Symptom Monitoring	93.361	5K99NR016275-02		0	85,678
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	79,314
Communicating narrative Concerns entered by RNs (CONCERN)	93.361	7R01NR016941-02		0	56,416
Hydroxyurea Adherence for Personal Best in Sickle Cell Treatment	93.361	5R01NR017206-02		0	53,341
Video Information Provider for HIV-Associated Non-AIDS (VIP-HANA) Symptoms	93.361	5R01NR015737-04		0	52,665
Factors Associated with Sustained Engagement with ECG mHealth Technology in a Post-Intervention Atrial Fibrillation Population	93.361	1F31NR017313-01		0	44,044

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Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	30,081
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		3,170	29,944
Training in Interdisciplinary Research to Prevent Infections (TIRI)	93.361	4T32NR013454-05		0	17,095
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	14,749
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	10,649
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		0	7,282
Advancing Chronic Condition Symptom Cluster Science Through Use of Electronic Health Records and Data Science Techniques	93.361	1K99NR017651-01		0	5,805
Comparative and Cost-Effectiveness Research Training for Nurse Scientists	93.361	5T32NR014205-05		0	5,131
Precision in Symptom Self-Management (PriSSM) Center	93.361	5P30NR016587-03		2,595	4,152
Reducing Health Disparities Through Informatics	93.361	4T32NR007969-15		0	-1,417
Prevention of Nosocomial Infections and Cost Effectiveness in Nursing Homes	93.361	5R01NR013687-04		0	-7,647
				$475,918	$4,291,913
Cancer Cause and Prevention Research					
Genes, Environment and Breast Cancer Risk: The 15 Year Follow-up of the Prof-SC (Terry/Hopper)	93.393	5R01CA159868-05		291,454	940,227
From pathogenesis to new therapeutic targets in Diffuse Large B cell Lymphoma	93.393	5R35CA210105-03		0	920,251
DNA Repair and Genomic Instability in Cancer Development and Therapy	93.393	5R35CA197606-04		0	872,588
Systematic Identification and Pharmacological Targeting of Tumor Dependencies for Precision Cancer Medicine	93.393	5U01CA217858-02		0	755,669
Molecular pathways and targeted therapies in human leukemia	93.393	5R35CA210065-02		0	741,960
HMGB1 as Link Between Hepatocellular Injury and HCC	93.393	5R01CA200597-03		0	488,132
The Role of Stem Cells and the Microenvironment in Gastrointestinal Cancers	93.393	5R35CA210088-02		7,211	473,910
The Role of Stem Cells and the Microenvironment in Gastrointestinal Cancers	93.393	5R35CA210088-02		58,904	462,058
Fusobacterium nucleatum-mediated stimulation of colorectal cancer: mechanistic studies	93.393	5R01CA192111-04		0	452,919
Genomics and Mechanisms of Esophageal Carcinogenesis	93.393	5R01CA208711-03		0	446,195
A Prospective, Randomized Study to Compare Effects of Ulipristal Acetate with a Combined Oral Contraceptive on Breast Epithelial Cell Proliferation	93.393	5R01CA200795-03		80,789	445,271
DNA-PKCS Phosphorylation in DNA Repair and Chromosomal Translocations	93.393	5R01CA184187-05		0	410,895
The role of ATM in suppression of lymphomas	93.393	5R01CA158073-07		0	405,296

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Increasing breast cancer chemoprevention in the primary care setting	93.393	5R01CA177995-05		0	384,238
Methylation and mutations in RB1 and variants of synthetic folic acid metabolism	93.393	5R01CA192662-04		33,344	380,954
The mechanisms driving brain oncogenesis by FGFR-TACC gene fusions	93.393	5R01CA178546-05		14,212	376,604
The structural function of ATR in development, oncogenesis and cancer therapy	93.393	5R01CA215067-02		0	343,966
The role of butyrate-producing bacteria in CIMP colorectal cancer tumorigenesis	93.393	5R01CA205028-02		110,418	336,594
The epigenetic mechanisms of high-grade pedia	93.393	5R01CA204297-02		42,683	334,430
Increasing breast cancer chemoprevention in the primary care setting	93.393	5R01CA177995-05		0	312,114
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	308,112
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	278,786
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	255,119
Replication fork remodeling and genomic stability	93.393	5R01CA197774-03		0	239,680
The Influence of Hospital Variability on the Management of Cancer-Associated Complications	93.393	5R01CA169121-05		0	237,698
Integrating Mammograms in Analyses of Genes and Environment in Sisters (IMAGES)	93.393	5U01CA203993-02		0	226,220
Integrating Mammograms in Analyses of Genes and Environment in Sisters (IMAGES)	93.393	5U01CA203993-02		0	192,458
CONSTRUCTION AND ANALYSIS OF RETROVIRUS MUTANTS	93.393	5R01CA030488-38		0	165,864
Role of MLL2 Gene inactivation in B cell non-Hodgkin lymphoma	93.393	5R01CA172492-05		0	158,512
The role of a histone H4 phosphorylation in drug resistance	93.393	7R01CA157489-05		0	155,539
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	150,525
Training Program in Cancer-Related Population Sciences	93.393	4R25CA094061-15		0	144,859
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	140,332
NSD1 Inactivation in Head and Neck Cancer	93.393	4R00CA212257-03		0	135,141
Systematic Identification and Pharmacological Targeting of Tumor Dependencies for Precision Cancer Medicine	93.393	5U01CA217858-02		0	131,009
Mechanisms of Radioresistance and Cell Cycle Progression	93.393	4R01CA130536-22		0	129,359
DNA Repair and Genomic Instability in Cancer Development and Therapy	93.393	5R35CA197606-04		0	124,885
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	121,521
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	108,760

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Breast Cancer Family Registry Cohort	93.393	2U01CA164920-06		0	92,985
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	92,201
Systematic Identification and Pharmacological Targeting of Tumor Dependencies for Precision Cancer Medicine	93.393	5U01CA217858-02		0	92,122
Modeling human prostate cancer by cellular reprogramming	93.393	5R21CA191757-02		0	85,872
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	85,505
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	79,469
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	62,603
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	62,094
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	40,984
Fusobacterium nucleatum-mediated stimulation of colorectal cancer: mechanistic studies	93.393	5R01CA192111-04		0	30,620
Randomized Placebo-Controlled Trial of a Gastrin Receptor Antagonist in Barretts Esophagus	93.393	5R03CA186218-02		0	29,196
Regulation of Mdmx Stability and Subcellular Localization by Ubiquitination	93.393	4R01CA166294-05		0	27,044
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	26,465
The catalytic and non-catalytic functions of PARP1 in cancer biology	93.393	1R01CA226852-01		0	20,032
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	17,184
Systematic Identification and Pharmacological Targeting of Tumor Dependencies for Precision Cancer Medicine	93.393	5U01CA217858-02		0	15,911
From pathogenesis to new therapeutic targets in Diffuse Large B cell Lymphoma	93.393	5R35CA210105-03		0	11,162
DNA double-strand break repair, chromosome translocations and cancer	93.393	5P01CA174653-05		0	9,887
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	2,374
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	684
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	-1
				$639,016	$14,573,039

Cancer Detection and Diagnosis Research

Cook For Your Life: Maintaining Dietary Change among Breast Cancer Survivors	93.394	5R01CA186080-04		211,207	610,476
Validating Rapid Microfluidic Isolation of Personalized Aptamers for Monitoring Minimal Residual Disease in Multiple Myeloma	93.394	5R33CA196470-03		0	332,833
Early Detection of Ovarian Cancer Through Epigenetic Factors in the WHI	93.394	5R01CA204119-03		30,441	282,459

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Large-Scale Integration of Single Cell RNA-Seq and High-Content Imaging for Analyzing Drug Response in Cancer	93.394	5R33CA202827-03		0	256,568
Automated Microfluidic Selection of Aptamers against Carbohydrates	93.394	5R21CA199849-02		0	149,073
Novel Protein Risk Markers for Lung Cancer	93.394	5R21CA195110-02		48,844	142,015
Validating Rapid Microfluidic Isolation of Personalized Aptamers for Monitoring Minimal Residual Disease in Multiple Myeloma	93.394	5R33CA196470-03		0	110,316
Automated Microfluidic Selection of Aptamers against Carbohydrates	93.394	5R21CA199849-02		0	74,330
Identifying leptomeningeal metastasis from breast cancer utilizing a novel immunocytochemical microfluidic device	93.394	5R03CA208547-02		0	69,416
Cook For Your Life: Maintaining Dietary Change among Breast Cancer Survivors	93.394	5R01CA186080-04		0	62,080
Validating Rapid Microfluidic Isolation of Personalized Aptamers for Monitoring Minimal Residual Disease in Multiple Myeloma	93.394	5R33CA196470-03		0	47,702
Cook For Your Life: Maintaining Dietary Change among Breast Cancer Survivors	93.394	5R01CA186080-04		0	42,833
Studying measurement variability in tumor volume and volume change on MDCT	93.394	4R01CA149490-06		0	38,922
Quantitative Volume and Density Response Assessment Sarcoma and HCC as a Model	93.394	5U01CA140207-05		0	9,315
An Integrated Theranostic System for Breast Cancer	93.394	1R01CA228275-01A1		0	741
Systems Biology of Tumor Progression and Drug Resistance	93.394	4U01CA168426-05		98	98
Systems Biology of Tumor Progression and Drug Resistance	93.394	4U01CA168426-05		0	-178
Systems Biology of Tumor Progression and Drug Resistance	93.394	4U01CA168426-05		0	-1,304
				$290,591	$2,227,696
Cancer Treatment Research					
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		2,000	620,573
Analysis of drug response in organoids and mouse models	93.395	5R01CA196662-03		0	404,162
HAUSP inhibitors in p53-wild type and p53-mutant tumors	93.395	5R01CA193890-04		0	396,580
Elucidating genetics of response to immune checkpoint blockade in lung cancer	93.395	5R01CA205426-02		225,690	376,875
Analysis of drug response in organoids and mouse models	93.395	5R01CA196662-03		0	336,597
Preclinical analyses of advanced prostate cancer in genetically-engineered mice	93.395	5R01CA173481-05		0	265,167
Molecular characterization and targeting of NT5C2 mutations in acute lymphoblastic leukemia	93.395	5R01CA216981-02		0	263,022
Using SWOG-Medicare database to evaluate long-term toxicities of cancer survivors	93.395	4R01CA166084-04		28,097	197,063
CHRONIC CONVECTION ENHANCED DELIVERY (CED) OF TOPOTECAN FOR GLIOBLASTOMA	93.395	5R01CA161404-06		0	183,618

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Programmable Probiotics for Cancer	93.395	5R00CA197649-04		0	167,745
Non-melanoma skin cancer: A model for impact of aging on an environmental disease	93.395	5UH2CA213384-02		0	143,354
Preclinical analyses of advanced prostate cancer in genetically-engineered mice	93.395	2R01CA173481-06		0	134,926
Elucidating genetics of response to immune checkpoint blockade in lung cancer	93.395	5R01CA205426-02		0	123,609
Elucidating genetics of response to immune checkpoint blockade in lung cancer	93.395	5R01CA205426-02		0	114,755
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		0	114,531
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		0	94,304
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		2,000	85,932
Therapeutically Exploiting a Newly Isolated Neural-Like Stem Cell Against GBM	93.395	5R01CA179072-04		0	80,395
Molecular characterization and targeting of NT5C2 mutations in acute lymphoblastic leukemia	93.395	5R01CA216981-02		0	66,924
Non-melanoma skin cancer: A model for impact of aging on an environmental disease	93.395	5UH2CA213384-02		0	48,955
Therapeutic potential of enhanced mitochondrial biogenesis for paclitaxel-induced peripheral neuropathy	93.395	1R21CA226672-01		0	39,673
Enhancing the vaccinal effect of antitumor antibodies	93.395	4R01CA164309-05		0	38,351
: Pre-Surgical trial of Metformin and Atorvastatin in Operable Breast Cancer	93.395	5R03CA186931-02		0	31,237
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		0	25,493
The role of fibroblasts in the activities of tissue penetrating peptides	93.395	5R01CA167174-06		0	23,097
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		0	7,475
State of the Science: Healthy Weight Maintenance During Pediatric,Adolescent, and Young Adult Cancer Treatment	93.395	1R13CA213937-01A1		0	574
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-05		0	-899
				$257,787	$4,384,087
Cancer Biology Research					
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		1,075,625	1,160,883
Defining the functions and translational potential of ferroptosis	93.396	5R35CA209896-03		0	877,481
Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-04		0	758,668
Improving specificity of HPV Screen-and-Treat in South Africa	93.396	5UH3CA189908-05		407,952	667,491
The Role of wild-type Kras in the context of tumor progression and metastasis	93.396	5R01CA178445-03		0	474,082

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Targeting cysteine import to induce ferroptotic cell death in pancreatic cancer	93.396	5R01CA215607-02		47,964	473,998
Understanding the role of B-Ras proteins in tumorigenesis	93.396	5R01CA206556-03		0	465,961
Analysis of cancer cell metabolism in diverse environmental conditions	93.396	5R01CA201276-03		179,212	431,751
The role of the LZTR1 ubiquitin ligase in stem cells and cancer	93.396	5R01CA190891-04		0	416,494
The Development And Progression Of IPMN To PDA In The Context Of Inactivated Activin Signaling	93.396	5R01CA217207-02		0	409,769
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		0	373,452
Hepatic Stellate Cells and Liver Cancer	93.396	5R01CA190844-04		-22,409	362,547
Regulation of SLC7A11 by p53 in cancer metabolism	93.396	5R01CA190477-04		0	355,501
An innate system for detection of aberrant tissue growth	93.396	5R01CA192838-04		0	343,765
The role of RHOA G17V Mutation on Peripheral T-cell Lymphomas	93.396	5R01CA197945-04		0	341,273
Mechanisms of targeting oncoprotein SET in tumor suppression	93.396	5R01CA216884-02		0	339,400
Structure and function of Transient Receptor Potential channels	93.396	5R01CA206573-02		0	339,368
Role of autophagy in normal and transformed hematopoietic stem cells	93.396	5R01CA184014-05		0	337,770
Regulation of the p53 tumor suppressor protein	93.396	5R01CA058316-25		0	336,661
(PQB5) Reconstruction of Evolutionary Networks using Cross-Sectional Genomic Data	93.396	5R01CA185486-04		0	322,124
Investigating the cell of origin of bladder cancer	93.396	5R01CA193442-04		0	319,150
Molecular mechanisms of prostate cancer metastasis	93.396	5R01CA183929-04		0	290,938
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		0	289,179
The BARD1 tumor suppressor and breast cancer	93.396	5R01CA172272-05		0	262,979
(PQB5) Reconstruction of Evolutionary Networks using Cross-Sectional Genomic Data	93.396	5R01CA185486-04		0	254,710
Role of MMP13 in Multiple Myeloma Bone Disease	93.396	5R01CA175313-05		12,133	236,456
Regulation of P53 acetylation and deacetylation in tumorigenesis	93.396	5R01CA085533-15		0	233,132
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		0	230,154
Identification and modeling of driver genetic modules in glioblastoma	93.396	5R01CA179044-05		0	219,934
Mechanism of action of Prdm16 in hematopoietic stem cells	93.396	5R01CA167289-05		0	218,873
Improving specificity of HPV Screen-and-Treat in South Africa	93.396	5UH3CA189908-05		126,773	208,995

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Integrative Cancer Genomics: Drivers, Pathways and Drugs	93.396	4R01CA164729-05		0	193,802
p53 acetylation in ferroptosis and tumor suppression	93.396	5R01CA224272-02		0	179,143
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		0	173,636
Investigating the cell of origin of bladder cancer	93.396	5R01CA193442-04		0	158,121
Identification and modeling of driver genetic modules in glioblastoma	93.396	5R01CA179044-05		0	153,946
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	5R01CA177319-05		0	103,550
The role of ETV6 in T-cell acute lymphoblastic leukemia.	93.396	5R01CA172398-05		0	96,017
Mechanisms of Novel Cancer Targets in ARF-mediated Tumor Suppression	93.396	4R01CA169246-05		0	95,167
Understanding the role of B-Ras proteins in tumorigenesis	93.396	5R01CA206556-03		0	83,129
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	5R01CA177319-05		0	79,614
Role of p53-mediated unconventional functions in tumor suppression	93.396	4R01CA172023-05		0	79,045
Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-04		0	71,600
Integrating Radiomics into S0819 and Lung-MAP, Biomarker Driven Clinical Trials for Lung Cancer	93.396	1U01CA225431-01		0	47,107
Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-04		0	42,192
Integrative Cancer Genomics: Drivers, Pathways and Drugs	93.396	4R01CA164729-05		0	22,387
Roles and Regulations of wild-type and mutant forms of p53	93.396	5P01CA087497-17		0	17,318
Role of Cancer-Associated Fibroblasts in Cholangiocarcinoma	93.396	1R01CA228483-01A1		0	10,402
Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-04		0	4,444
Targeting non-classical oncogenes as therapy for T-ALL	93.396	4R01CA169162-05		0	117
Mouse Model for Human Pancreatic Ductal Adenocarcinoma	93.396	5R01CA109525-11		0	-731
Roles and Regulation of P53	93.396	5P01CA087497-15		0	-18,806
Defining the functions and translational potential of ferroptosis	93.396	5R35CA209896-03		0	-51,064
				$1,827,250	$13,893,075

Cancer Centers Support Grants

Cancer Center Support Grant	93.397	5P30CA013696-44		0	363,846
Cancer Center Support Grant	93.397	5P30CA013696-44		0	350,908

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The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		45,447	340,682
Cancer Center Support Grant	93.397	5P30CA013696-44		0	332,544
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		217,101	291,051
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	279,384
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	259,124
Cancer Center Support Grant	93.397	5P30CA013696-44		0	258,140
Cancer Center Support Grant	93.397	5P30CA013696-44		0	247,401
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		120,053	240,676
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		78,736	211,291
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	199,176
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	198,324
Cancer Center Support Grant	93.397	5P30CA013696-44		0	197,587
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		105,056	189,182
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	171,817
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	165,643
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	162,099
Cancer Center Support Grant	93.397	5P30CA013696-44		0	158,333
Cancer Center Support Grant	93.397	5P30CA013696-44		0	156,846
Cancer Center Support Grant	93.397	5P30CA013696-44		0	138,954
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	138,899
Cancer Center Support Grant	93.397	5P30CA013696-44		0	123,742
Cancer Center Support Grant	93.397	5P30CA013696-44		0	120,942
Cancer Center Support Grant	93.397	5P30CA013696-44		0	119,357
Cancer Center Support Grant	93.397	5P30CA013696-44		0	118,139
Cancer Center Support Grant	93.397	5P30CA013696-44		0	112,887
Cancer Center Support Grant	93.397	5P30CA013696-44		0	106,330

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Cancer Center Support Grant	93.397	5P30CA013696-44		0	100,487
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	96,756
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	92,846
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	91,047
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	90,724
Cancer Center Support Grant	93.397	5P30CA013696-44		0	90,645
Cancer Center Support Grant	93.397	5P30CA013696-44		0	90,273
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	89,427
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		81,417	86,053
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	84,648
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	84,395
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	83,694
Stem Cells And The Origins Of Barrett s Esophagus	93.397	5U54CA163004-05		81,109	81,109
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	78,875
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	78,528
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	78,293
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		0	76,363
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		0	74,440
Cancer Center Support Grant	93.397	5P30CA013696-44		0	74,254
Cancer Center Support Grant	93.397	5P30CA013696-44		0	70,684
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		24,256	65,686
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	64,718
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	64,000
Cancer Center Support Grant	93.397	5P30CA013696-44		0	60,345
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	60,089
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	60,000

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Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	59,112
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	58,534
Cancer Center Support Grant	93.397	5P30CA013696-44		0	58,478
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	57,874
Cancer Center Support Grant	93.397	5P30CA013696-44		0	56,881
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	56,717
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		52,282	52,282
Cancer Center Support Grant	93.397	5P30CA013696-44		0	51,728
Cancer Center Support Grant	93.397	5P30CA013696-44		0	50,588
Cancer Center Support Grant	93.397	5P30CA013696-44		0	48,267
Cancer Center Support Grant	93.397	5P30CA013696-44		0	48,000
Cancer Center Support Grant	93.397	5P30CA013696-44		0	47,309
Cancer Center Support Grant	93.397	5P30CA013696-44		0	46,618
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	40,948
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	40,077
Cancer Center Support Grant	93.397	5P30CA013696-44		0	35,200
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		21,323	34,118
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	30,670
Cancer Center Support Grant	93.397	5P30CA013696-44		0	30,595
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	29,849
Cancer Center Support Grant	93.397	5P30CA013696-44		0	27,026
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	26,169
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	25,772
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	24,843
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	22,535
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	22,499

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Cancer Center Support Grant	93.397	5P30CA013696-44		0	17,994
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	17,514
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	17,389
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		10,763	17,221
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	16,927
Cancer Center Support Grant	93.397	5P30CA013696-44		0	16,925
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	15,857
Cancer Center Support Grant	93.397	5P30CA013696-44		0	15,452
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		8,882	14,211
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	13,855
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	13,068
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	12,035
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		0	11,891
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	11,867
Cancer Center Support Grant	93.397	5P30CA013696-44		9,357	11,110
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	9,294
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	9,238
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	9,187
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	9,016
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		8,422	8,422
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	8,297
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	8,228
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	6,764
The role of the micro environment in Barrett s Esophagus	93.397	5U54CA163004-07		0	6,419
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	5,781
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	5,630

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Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	5,382
Cancer Center Support Grant	93.397	5P30CA013696-44		0	3,909
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	3,061
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	1,737
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	1,242
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		387	778
Cancer Center Support Grant	93.397	5P30CA013696-44		0	704
Cancer Center Support Grant	93.397	5P30CA013696-44		0	-5
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		0	-162
Cancer Center Support Grant	93.397	5P30CA013696-44		0	-609
Cancer Center Support Grant	93.397	5P30CA013696-44		0	-653
Cancer Center Support Grant	93.397	5P30CA013696-44		0	-993
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	-1,485
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-04		-1,979	-1,979
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		0	-2,457
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	-2,517
Centers for Cancer Systems Therapeutics (CaST)	93.397	5U54CA209997-03		0	-5,111
Cancer Center Support Grant	93.397	5P30CA013696-44		0	-14,554
				$862,611	$9,200,251
Cancer Research Manpower					
Training Program in Cancer-related Population Sciences	93.398	5T32CA094061-17		0	218,137
Cancer Biology Training Grant	93.398	4T32CA009503-30		0	129,647
Childhood Infection and Pubertal Timing	93.398	5K01CA186943-04		0	117,929
A Novel Protein Complex Controls Homologous Recombination Repair in Breast Cancer	93.398	5K22CA178317-03		0	117,327
Molecular Oncology Training Program	93.398	5T32CA203703-03		0	89,772
TLR4 in obesity-driven liver cancer Ms. Ross,	93.398	5K22CA178098-03		0	63,342

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Evaluating Notch Signaling as a Therapeutic Target in Ovarian Cancer	93.398	5F31CA192891-05		0	49,044
Mechanical regulation of breast cancer cell nuclei by the LINC complex	93.398	5F32CA221320-02		0	48,322
The Role of Androgens on Breast Cancer Susceptability Across the Lifecourse	93.398	1K07CA218166-01A1		0	45,209
Evolutionary Heterogeneity of High Grade Glioma	93.398	5F99CA212478-02		0	40,760
Characterization of mTOR signaling during early stages of gliomagenesis	93.398	5F31CA200375-03		0	40,728
Understanding the Basis of Fidelity in Eukaryotic Recombinases	93.398	5F31CA210663-03		0	40,148
Discovery of pathogenic germline variants in pediatric cancers using genomics.	93.398	5F31CA210607-03		0	40,106
The role of PRDM16 in Leukemia David F31	93.398	5F31CA196045-03		0	37,174
Role of Nuclear Actin Polymerization in Double-Strand Break Mobility and Repair	93.398	1F30CA217049-01A1		0	25,402
The role of a novel fusion oncogene FYN-TRAF3IP2 in peripheral T-cell lymphoma	93.398	1F30CA225052-01		0	22,738
Engineering of bacterial probiotics for the detection and treatment of hepatocellular carcinoma	93.398	1F32CA225145-01		0	17,033
Evolutionary Heterogeneity of High Grade Glioma	93.398	5F99CA212478-02		0	15,546
Effects of genetic, pharmacological modulation of system Xc- in pancreatic cancer	93.398	5F31CA180738-04		0	14,426
Investigation of luminal stem cells and castration resistance in prostate cancer	93.398	5K99CA194287-02		0	10,801
Lymphocyte trafficking blockade in allogeneic stem-cell transplantation	93.398	7K23CA178202-03		0	9,352
Evaluating Notch Signaling as a Therapeutic Target in Ovarian Cancer	93.398	5F31CA192891-05		0	6,469
Molecular Oncology Training Program	93.398	5T32CA203703-03		0	6,378
				$0	$1,205,790
Trans-NIH Recovery Act Research Support					
ARRA -5 RC1 GM091804-02	93.701	5 RC1 GM091804-02		0	-1
ARRA -1 R56 DE020093-01 R2	93.701	1 R56 DE020093-01 R2		0	-14
				$0	$-14
Cardiovascular Diseases Research					
Enhancing Inflammation Resolution in Atherosclerosis via Targeted Nanoparticle-Mediated Delivery of Biologics	93.837	5R01HL127464-03		351,439	946,455
Red blood cells from iron-deficient donors: recovery and storage quality	93.837	5R01HL133049-03		58,887	908,045
Invivo high resolution imaging of the myocard	93.837	1DP2HL127776-01		0	754,522

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Immune privilege of the hematopoieitic stem cell niche	93.837	5R01HL129506-03		0	748,654
MerTK Cleavage and Signaling in Atherosclerosis	93.837	5R01HL132412-03		68,668	686,306
Chronic obstructive pulmonary disease in non-smokers	93.837	5R01HL130506-02		450,830	671,060
Impact of Prolonged Sedentary Behavior on Cardiac Outcomes and Mortality in Acute Coronary Syndrome Patients	93.837	5R01HL134985-02		0	627,701
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	624,877
Optical Tomographic Imaging of Peripheral Arterial Disease	93.837	5R01HL115336-05		0	623,513
Impact of PTSD on cardiovascular risk in survivors of stroke and transient ischemic attack	93.837	5R01HL132347-03		50,935	620,144
Model Based Approach to improving Hypertension Control in Populations	93.837	5R01HL130500-03		244,664	597,063
Mechanisms linking LNK genetic variation to atherothrombosis	93.837	5R01HL137663-02		0	571,957
Insulin action, reverse cholesterol transport, and HDL function	93.837	5R01HL125649-04		0	536,028
Impact of Social-Interpersonal Factors in the ER on PTSD/Cardiac Outcomes	93.837	5R01HL117832-05		0	533,521
Phenotyping Genetic Disorders of Hepatic Lipid and Lipoprotein Metabolism in Cells, Mice, and Men	93.837	5R35HL135833-02		0	517,006
Phenotyping Genetic Disorders of Hepatic Lipid and Lipoprotein Metabolism in Cells, Mice, and Men	93.837	5R35HL135833-02		0	516,742
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-04		60,857	510,713
Human LincRNAs in Macrophage Biology and Related Cardiometabolic Diseases	93.837	5R01HL132561-02		0	509,863
In vivo imaging of destructive processes in COPD	93.837	5R01HL131960-03		0	503,176
District Protein Kinase C-Delta Signaling Modes in Cariomyocytes	93.837	5R01HL123061-04		208,843	501,611
Novel Cardioprotective sGC/cGMP Microdomains: Therapeutic Targets in Medically Treated HF	93.837	5R01HL138528-02		30,692	497,447
Depression Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-05		113,985	488,296
HDL, platelet progenitors, atherosclerosis and trombosis	93.837	5R01HL118567-05		0	484,782
The Trinucleotide Repeat Containing 6a-Mediated miRNA Activities in the Ciliogenesis of Airway Epithelium	93.837	5R01HL131422-03		0	473,407
ABCA1/G1 and LXRs in Atherogenesis	93.837	5R01HL107653-08		0	459,834
Postdoctoral Training in Arteriosclerosis Research	93.837	5T32HL007343-40		0	454,629
Testing biopsychosocial mechanisms of the posthospital syndrome model ofearly rehospitalization in acute coronary syndrome patients	93.837	5R01HL128497-03		0	439,095
Novel Therapy for Diabetic PAD Monitored With Dual Isotope Multimodality Imaging	93.837	5R01HL130056-03		0	438,890
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-23		0	437,530

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Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-10		0	432,324
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	429,881
Single molecules studies of titin elasticity	93.837	5R01HL061228-20		0	425,577
Mechanisms Of Long QT Syndrome 1 In Heart	93.837	5R01HL122421-03		0	421,085
Lung Barrier Protection by Tatylated Proteins	93.837	5R01HL036024-31		0	415,568
Testing biopsychosocial mechanisms of the posthospital syndrome model ofearly rehospitalization in acute coronary syndrome patients	93.837	5R01HL128497-03		0	408,159
Engineering vascularized cardiac muscle	93.837	5R01HL076485-11		61,524	395,104
Cardiac Lipotoxicity and Ceramide Metabolism in Heart Failure	93.837	5R01HL114813-05		96,390	383,617
PTSD, Medication Adherence, and Prognosis after Acute Coronary Syndromes	93.837	5R01HL123368-04		0	379,260
TTC39B in Metabolism	93.837	5R01HL119830-04		0	373,556
Elucidating the mechanisms of vascular dysfunction in heart failure	93.837	5R01HL126735-03		0	368,479
Carotid plaque assessment using Pulse Wave Imaging	93.837	5R01HL135734-02		0	352,789
Molecular mechanisms underlying cardiac sodium channelopathy	93.837	5R01HL138486-02		0	349,480
Mechanisms of second heart field development regulated by Nkx genes	93.837	5R01HL131438-02		0	323,536
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-10		0	305,052
Columbia University Training Program in Lung Science	93.837	5T32HL105323-08		0	301,670
Potential future benefits of cardiovascular risk factor control in today s young adults	93.837	5R01HL107475-06		105,786	296,487
Role of angiogenic Notch in uterine decidualization and placentation	93.837	5R01HL127013-02		0	296,301
CNS angiogenesis and blood-brain barrier regulation by the Wnt inhibitor Apcdd1	93.837	5R01HL116995-05		0	288,542
L-type calcium channel trafficking and modulation in heart	93.837	5R01HL121253-04		0	281,205
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-23		0	280,678
Investigation of Calcium Channel Modulation in Cardiomyocytes by Novel Methods	93.837	4R01HL113136-04		225,549	261,616
HDL-mediated cholesterol efflux and plaque inflammation in MESA	93.837	5R01HL127637-03		196,545	255,071
L-type calcium channel trafficking and modulation in heart	93.837	5R01HL121253-04		0	242,170
Molecular Basis of Heart Failure	93.837	4R01HL061503-18		0	235,368
Mechanisms and Consequences of Stress-Induced Macrophage Death in Atherosclerosis	93.837	5R01HL075662-14		0	233,457

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Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-10		0	232,925
Exploring the molecular physiology of atrial fibrillation	93.837	5R01HL140934-02		0	212,123
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	210,309
Patient Level Prediction of Clinical Outcomes and Cost-Effectiveness inSPRINT (Optimize-SPRINT)	93.837	5R01HL139837-02		38,088	207,201
Training in Cardiovascular Translational Research	93.837	5T32HL120826-05		0	201,020
Cell-type Specificity of Heritable Channelopathies: Role of the Purkinje Fiber	93.837	5K08HL116790-05		0	193,850
Identification and functional analysis of novel infantile cardiomyopathygenes	93.837	5K23HL138231-02		0	186,740
Impact of PTSD on cardiovascular risk in survivors of stroke and transient ischemic attack	93.837	5R01HL132347-03		0	183,745
Training in Cardiovascular Translational Research	93.837	5T32HL120826-05		0	183,646
Identifying Novel Behavioral Targets for Improving Sleep: A Self-Regulation Model	93.837	5K23HL125748-04		0	182,491
NOVEL MECHANISMS OF ALVEOLAR INFLAMMATION	93.837	5R01HL057556-20		0	178,470
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-10		0	173,635
Macrophage-specific function of GWAS CAD-associated LIPA alleles in atherosclerosis	93.837	5K99HL130574-02		0	172,390
Posttraumatic Stress and Cardiovascular Risk in Women: Tests of Biological Mechanisms	93.837	5K01HL130650-04		0	165,847
Role of Vascular Ion Channels in Heart Failure and Cardiovascular Diseases	93.837	5K08HL122526-04		0	161,246
Genetic analysis of structural birth defects by integration of multiple diseases with epigenomic data and cancer mutations	93.837	5R03HL138352-02		0	158,532
HDL-mediated cholesterol efflux and plaque inflammation in MESA	93.837	5R01HL127637-03		0	148,694
The Congenital Heart Technical Skill Study: Improving Outcomes forInfants and Children with Congenital Heart Disease	93.837	5K23HL133454-02		0	147,553
Hormonal regulation of airway diameter by bone and its implication to asthma	93.837	5K01HL133333-02		0	146,286
Injectable microtissues to promote rapid host re-perfusion of ischemic tissues	93.837	1R01HL141935-01		0	144,074
Patient health information preference and statin therapy	93.837	5K23HL121144-05		0	140,724
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	5R01HL116470-05		0	138,251
CaMKII/MK2 Signaling in Cardiometabolic Disease	93.837	1R01HL140554-01		0	136,514
Noninvasive arrhythmia mapping using Electromechanical Wave Imaging	93.837	4R01HL114358-05		0	131,758
Short Term Training Grant	93.837	5T35HL007616-38		0	131,081
Molecular mechanisms of arrhythmia caused by high-fat diet	93.837	5R01HL136758-02		0	128,210

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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					R&D Cluster
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PROMISE Trial: Substudy to Assess for Effective Dose of Radiation	93.837	5R01HL109711-05		71,719	127,619
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-04		0	123,752
The STK25 Signaling Pathway in Human Cardiac Cells	93.837	1K08HL140201-01		0	118,175
Translational Studies of ADAMTS7 a Novel GWAS Locus for Coronary Atherosclerosis	93.837	7R01HL111694-05		0	116,721
Midcareer Investigator Award in Patient-Oriented Research in Human Hypertension	93.837	5K24HL125704-04		0	111,217
Exploring the molecular physiology of atrial fibrillation	93.837	5R01HL140934-02		0	107,366
Testing biopsychosocial mechanisms of the posthospital syndrome model ofearly rehospitalization in acute coronary syndrome patients	93.837	5R01HL128497-03		0	106,592
Regulation of lipoprotein metabolism by adipose-specific Tribbles-	93.837	1R01HL141745-01		0	106,411
In vivo imaging of destructive processes in COPD	93.837	5R01HL131960-03		0	106,306
Mentored Patient Oriented Research in Cardiometabolic Disease	93.837	5K24HL107643-08		0	104,858
Testing biopsychosocial mechanisms of the posthospital syndrome model ofearly rehospitalization in acute coronary syndrome patients	93.837	5R01HL128497-03		0	104,240
Therapeutic Potential of Myocardial Soluble Guanylyl Cyclase Signaling in Right Ventricular Dysfunction	93.837	5R03HL133706-02		0	92,420
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-10		0	88,532
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	81,599
Depression Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-05		50,455	73,912
Modeling Marfan Syndrome with iSMC-based Tissue-engineered Blood Vessel	93.837	5R21HL140275-02		0	71,499
Impact of Prolonged Sedentary Behavior on Cardiac Outcomes and Mortality in Acute Coronary Syndrome Patients	93.837	5R01HL134985-02		0	68,052
An Information tecHnology approach to implEmenting depression treAtment in caRdiac patienTs: iHeart Trial	93.837	1R01HL141609-01		0	66,154
HDL-mediated cholesterol efflux and plaque inflammation in MESA	93.837	5R01HL127637-03		0	65,335
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	64,254
Albuminuria and Incident chronic lung disease exacerbations in five population-based cohorts	93.837	5R21HL129924-02		0	57,759
Short Term Training Grant	93.837	5T35HL007616-38		0	56,857
BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program (BEGG/BOWMAN/MARCH)	93.837	5R25HL096260-10		0	56,199
Modeling, pathogenesis and treatment of idiopathic pulmonary fibrosis	93.837	5U01HL134760-03		0	54,824
HDL-mediated cholesterol efflux and plaque inflammation in MESA	93.837	5R01HL127637-03		35,563	50,563
Characterization of Cardiac Behavior as a Function of Topology	93.837	5F30HL131383-03		0	50,145

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Exploring Mechanisms of Atrial Fibrillation through use of Transgenic Mouse Models	93.837	5F30HL129628-03		0	49,044
Role of Rage in Bicuspid Aortic Valve Symdrome	93.837	5R01HL122805-04		0	48,810
Molecular Regulation of Titin Elasticity by Post-Translational Modification	93.837	5F30HL129662-03		0	48,576
The role of impaired endothelium-dependent vasoactivity in neurodegeneration	93.837	5F30HL128023-04		0	48,421
Arrhythmia mapping using electromechanical wave imaging	93.837	1R01HL140646-01		0	48,238
Postdoctoral Training in Arteriosclerosis Research	93.837	5T32HL007343-40		0	44,131
Functional Implications of Caveolae Localized Myocardial sGC in Heart Failure	93.837	5K08HL109159-05		0	40,570
Insulin Regulation of Reverse Cholesterol Transport	93.837	5F31HL132484-03		0	39,953
Comparing the value of intensive systolic blood pressure treatment implementation strategies	93.837	1K01HL140170-01		0	36,938
Chronic obstructive pulmonary disease in non-smokers	93.837	5R01HL130506-02		10,143	34,688
Psychological stress, and circadian patterns of sodium excretion and blood pressure	93.837	1R01HL137818-01A1		0	33,934
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-23		0	29,845
Columbia University Training Program in Lung Science	93.837	5T32HL105323-08		0	29,623
Poor Sleep, Sedentary Behavior, and Secondary Cardiovascular Risk in Stroke and TIA Patients	93.837	1R01HL141494-01		0	28,258
Blood Pressure Measurement and Hypertension in Pregnancy	93.837	1K23HL136853-01A1		0	23,453
Retail Outlet Health Kiosk Hypertension Trial	93.837	1R34HL137659-01A1		0	19,688
Role of FoxO1 in Lipid Metabolism	93.837	5R00HL111206-05		0	19,448
Pregenancy as a Window to Future Cardiovascular Health	93.837	4U10HL120034-04		19,387	19,387
Depression Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-05		0	18,836
Gentrification, food environment, and risk for obesity: A mixed methods approach	93.837	5F31HL131441-03		0	17,564
ENACTING THE BEHAVIORAL AND SOCIAL SCIENCES IN THE CLINICAL SETTING: INSTITUTION	93.837	5R25HL108014-05		1,781	16,626
Ubiquitin Regulation of K Channels in Health and Disease	93.837	1R01HL142111-01		0	13,688
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	5R01HL116470-05		0	13,599
Depression Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-05		0	12,858
PKD Isoforms in Heart	93.837	5R01HL112388-04		0	11,821
Retail Outlet Health Kiosk Hypertension Trial	93.837	1R34HL137659-01A1		0	11,370

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BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program (BEGG/BOWMAN/MARCH)	93.837	5R25HL096260-10		0	10,809
Characterization of Cardiac Behavior as a Function of Topology	93.837	5F30HL131383-03		0	9,696
Insulin action, reverse cholesterol transport, and HDL function	93.837	5R01HL125649-04		0	8,148
Frailty related risk: Poor physiologic reserve during and after valve replacement	93.837	5K23HL121142-03		0	6,474
Insulin Regulation of Reverse Cholesterol Transport	93.837	5F31HL132484-03		0	5,961
Blood Pressure Measurement and Hypertension in Pregnancy	93.837	1K23HL136853-01A1		0	5,486
Injectable microtissues to promote rapid host re-perfusion of ischemic tissues	93.837	1R01HL141935-01		0	5,119
Molecular Regulation of Titin Elasticity by Post-Translational Modification	93.837	5F30HL129662-03		0	4,054
Exploring Mechanisms of Atrial Fibrillation through use of Transgenic Mouse Models	93.837	5F30HL129628-03		0	3,896
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-23		0	3,057
HDL-mediated cholesterol efflux and plaque inflammation in MESA	93.837	5R01HL127637-03		0	1,391
Columbia University Training Program in Lung Science	93.837	5T32HL105323-08		0	1,154
Gentrification, food environment, and risk for obesity: A mixed methods approach	93.837	5F31HL131441-03		0	893
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-23		0	500
Understanding Molecular Basis of Cardiac Calcium Channelopathy	93.837	5F31HL131087-02		0	234
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	-322
Impact of PTSD on cardiovascular risk in survivors of stroke and transient ischemic attack	93.837	5R01HL132347-03		0	-652
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	-1,288
				$2,552,731	$32,871,549
Lung Diseases Research					
Pulmonary microvascular perfusion in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-12		541,238	896,113
Innate Immune Clearance of Host-Adapted Pulmonary Pathogens	93.838	5R35HL135800-03		0	501,218
Mechanisms Controlling Expansion and Lineage Specification of Airway Progenitors in Development and Disease	93.838	5R35HL135834-02		0	491,846
Lung resident niches for memory CD4 T cells	93.838	5R01HL116136-04		0	473,739
Pulmonary Microvascular Blood Flow and Cor Pulmonale Parvus in Emphysema/COPD	93.838	5R01HL093081-08		332,832	469,855
Subclinical Interstitial Lung Disease in MESA and FAR-ILD	93.838	5R01HL103676-06		101,831	453,019

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Mechanisms Controlling Expansion and Lineage Specification of Airway Progenitors in Development and Disease	93.838	5R35HL135834-02		0	446,969
Mechanism of Respiratory SystemEsophageal Separation	93.838	5R01HL132996-02		41,927	412,736
Innate Immune Clearance of Host-Adapted Pulmonary Pathogens	93.838	5R35HL135800-03		5,212	387,638
Mitochondrial dynamics in acute lung injury	93.838	5R01HL122730-04		0	372,891
Smoke Induced Airway Injury in the Lung	93.838	4R01HL086936-08		62,367	357,400
Pulmonary microvascular perfusion in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-12		212,287	326,844
Bioengineering a chimeric human lung	93.838	5R01HL120046-05		0	326,594
Targeting airway smooth muscle chloride fluxes for bronchorelaxation	93.838	5R01HL122340-04		0	320,330
Role of type III interferons in Staphylococcus aureus respiratory tract infection	93.838	1R01HL134870-01A1		0	256,285
PVDOMICS Defining the Future Fingerprints of Pulmonary Vascular Disease	93.838	5U01HL125218-05		91,923	241,445
Smoke induced alterations in ion channel function	93.838	5K08HL126071-04		0	200,062
Bioengineering a chimeric human lung	93.838	5R01HL120046-05		0	182,442
Vascular Endothelial Activation in Sleep Apnea	93.838	2R56HL106041-06		0	169,450
Novel Quantitative Emphysema Subtypes in MESA and SPIROMICS	93.838	5R01HL121270-04		20,372	161,387
Translating an Evidence-based Urban Asthma Program for Rural Adolescents: Testing Effectiveness & Cost-effectiveness and Understanding Factors Associated with Implementation	93.838	1R01HL136753-01		8,354	152,880
Hypercoagulability and Chronic Lung Disease in Older Adults	93.838	5K23HL130627-03		0	145,170
Host-pathogen interactions that promote carbapenem-resistantKlebsiella pneumoniae pulmonary infection	93.838	5K08HL138289-02		0	136,161
Pulmonary Complications in a Birth Cohort after a Randomized Trial of Antenatal Corticosteroids: the ALPS Follow-Up Study - Clinical Coordinating Center (ALPS-FS: CCC)	93.838	5R01HL098554-05		0	131,775
Antagonism of the Calcium -Activated Chloride Channel TMEM16A Beneficial Therapeutic Effects on Airway Epithelium and Smooth Muscle	93.838	5K08HL132203-02		0	107,086
Obstructive sleep apnea and subclinical lung injury in health and disease	93.838	1R01HL137234-01A1		47,479	95,204
Mentored Patient Oriented Research in Pulmonary Fibrosis and Lung Transplantation	93.838	5K24HL131937-03		0	89,807
Regulation of the Ciliated Cell Program in Airway Progenitors	93.838	5R01HL119836-03		2,632	85,462
Role of High Density Lipoproteins in Interstitial Lung Disease	93.838	1K23HL140199-01		0	76,778
Novel Quantitative Emphysema Subtypes in MESA and SPIROMICS	93.838	5R01HL121270-04		0	73,747
A novel molecular determinant of the cardiac beta1-adrenergic receptor response	93.838	1R01HL138468-01A1		0	70,367
Subclinical Interstitial Lung Disease in MESA and FAR-ILD	93.838	5R01HL103676-06		6,382	65,121

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PVDOMICS Defining the Future Fingerprints of Pulmonary Vascular Disease	93.838	5U01HL125218-05		44,884	57,391
GABAA Receptor-Mediated Modulation of Lung Inflammation	93.838	1K08HL140102-01		0	49,671
TASK-1 Mutation as a Cause of Pulmonary Arterial Hypertension	93.838	5F30HL129656-03		0	45,172
Physical Activity and Dose of Air Pollution in Pediatric Urban Asthma:Impact of Minute Ventilation	93.838	1K01HL140216-01		0	42,929
Subclinical Interstitial Lung Disease in MESA and FAR-ILD	93.838	5R01HL103676-06		0	25,077
Pulmonary microvascular perfusion in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-12		0	20,801
Integration of omics data to improve interpretation of genetic risk variants in lung disease	93.838	1R01HL142028-01		0	15,364
Subclinical Interstitial Lung Disease in MESA and FAR-ILD	93.838	5R01HL103676-06		0	13,166
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	4R01HL114626-04		10,850	10,850
Role of interferons in Staphylococcus aureus upper respiratory tract infection	93.838	1R56HL125653-01A1		0	4,812
Pulmonary Microvascular Blood Flow and Cor Pulmonale Parvus in Emphysema/COPD	93.838	5R01HL093081-08		0	-15
TASK-1 Mutation as a Cause of Pulmonary Arterial Hypertension	93.838	5F30HL129656-03		0	-604
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	4R01HL114626-04		0	-2,395
				$1,530,570	$8,960,042

Blood Diseases and Resources Research

Genetic characterization of osteoblast-induced leukemias	93.839	5R01HL130937-03		0	637,665
Emergency Myelopoiesis Pathways in the Control of Blood Production	93.839	5R35HL135763-02		0	630,310
Mitochondrial regulation of hematopoietic stem cells	93.839	5R01HL135039-02		0	455,486
The safety of red blood cell transfusions	93.839	5R01HL121275-04		0	454,246
Regulation of hematopoietic stem cells and leukemia stem cells by thrombopoietin	93.839	5R01HL132074-03		0	403,767
Yes 1 and CTNND1 as quiescence regulators in hematopoietic stem cells	93.839	5R01HL115145-04		0	252,453
Emergency Myelopoiesis Pathways in the Control of Blood Production	93.839	5R35HL135763-02		0	222,954
Neurocognitive effects of iron deficiency in blood donors.	93.839	1R01HL139489-01		0	222,205
Local and systemic regulation of hematopoietic stem cells by thrombopoietin	93.839	5F30HL137323-02		0	44,044
Mechanisms Underlying Impaired Bacterial Clearance Following Transfusion of Storage-Damaged Red Blood Cells	93.839	5F31HL134284-02		0	44,044
Harmful effects of red blood cell transfusions are mediated by iron	93.839	4R01HL115557-04		0	29,213

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Harmful effects of red blood cell transfusions are mediated by iron	93.839	5R01HL115557-03		0	-29,693
				$0	$3,366,692
Arthritis, Musculoskeletal and Skin Diseases Research					
Meniscus Regeneration by Endogenous Stem/Progenitor Cells	93.846	5R01AR065023-05		365,642	919,304
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	799,450
Functional Genomics of Alopecia Areata	93.846	5R01AR065963-04		0	718,804
Osteochondroreticular (OCR) cells as sources of cartilage repair in Osteoarthritis	93.846	5R01AR069852-03		0	634,085
Osteocyte Calcium and Contractile Dynamics in Facilitating the Expression of RANKL, OPG, and Sclerostin under Mechanical Loading	93.846	5R01AR069148-03		0	456,112
Inflammation and Cardiovascular Disease in Rheumatoid Arthritis	93.846	5R01AR050026-13		106,249	427,301
Incorporation of Dexamethasone Delivery within Engineered Cartilage	93.846	5R01AR068133-03		132,747	416,938
Mechanisms of mechanosensory transduction in Merkel cells	93.846	5R01AR051219-13		153,525	410,497
Tendon Enthesis Development and Regeneration	93.846	5R01AR055580-09		104,986	405,368
Rotator Cuff Degeneration and Repair	93.846	5R01AR057836-07		49,644	397,203
The Osteoblast as a Determinant of Leukemogenesis	93.846	5R01AR054447-10		0	376,531
Pathogenesis of Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR048997-14		0	356,687
Seamless Healing of Avascular Meniscus Tears by Stem Cell Recruitment	93.846	1R01AR071316-01A1		37,377	316,872
Tendon Enthesis Development and Regeneration	93.846	5R01AR055580-09		0	315,000
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	313,796
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	312,450
Adipose Inflammation in Rheumatoid Arthritis	93.846	5R01AR068425-03		8,382	293,638
Primary Cilia as Mechanotransducer in Bone	93.846	5R01AR062177-07		0	291,793
Nuclear Movement LINC Complex and Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR068636-04		0	271,681
Mechanobiology of Inflammation in the Intervertebral Disc	93.846	5R01AR069668-03		0	265,942
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	215,760
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	207,938
Nuclear Movement LINC Complex and Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR068636-04		0	181,894

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Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	145,413
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	141,751
Functional Studies of the IL-7/IL-7R Pathway in Alopecia Areata	93.846	5K01AR070291-02		0	129,018
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	125,972
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	125,942
Immunophenotyping of Lichen Planopilaris.	93.846	5R21AR073013-02		0	116,645
Activation of Human Skin T Cells by Mammalian and Microbial Lipids Presented by CD1a	93.846	5K01AR068475-04		0	112,105
Epigenetic control of target gene activity by hairless in skin homeosasis	93.846	5K01AR064315-05		0	109,214
Developing an Alopecia Areata Disease Activity Index (ALADIN)	93.846	5U01AR067173-03		0	103,097
Inflammation and Cardiovascular Disease in Rheumatoid Arthritis	93.846	5R01AR050026-13		0	97,291
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	95,555
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	93,728
Micro-Mechanical Modeling of Trabecular Bone	93.846	5R01AR051376-09		73,020	89,637
Synthetic Developmental Tissue Engineering of Human Hair Follicles	93.846	5K01AR072131-02		0	88,908
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	88,675
Functional Genomics of Alopecia Areata	93.846	5R01AR065963-04		0	83,573
Rotator Cuff Degeneration and Repair	93.846	2R56AR057836-06		25,151	62,347
Alopecia Areata Center for Research Translation (AACORT)	93.846	5P50AR070588-02		0	51,156
Primary Cilia as Mechanotransducer in Bone	93.846	5R01AR062177-07		0	46,799
Molecular and Therapeutic Mechanisms of a new model of Congenital Muscular Dystrophy	93.846	5F31AR070013-03		0	45,864
Mechanisms of mechanosensory transduction in Merkel cells	93.846	5R01AR051219-13		0	41,561
Cross-talk between skeleton and pancreas morphogeneses during development	93.846	5R21AR067320-02		0	37,042
Role of Primary Cilia During Epidermal Morphogenesis	93.846	5R00AR063161-05		0	26,776
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	12,310
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	9,348
Role of Primary Cilia During Epidermal Morphogenesis	93.846	5R00AR063161-05		0	9,243

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Clinical Bone Mechanics Using HR-pQCT and MRI	93.846	5R01AR058004-05		0	8,950
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	3,258
Tendon Enthesis Development and Regeneration	93.846	5R01AR055580-09		0	2,169
Columbia University Skin Disease Resource-Based Center (epiCURE)	93.846	5P30AR069632-03		0	978
Clinical Bone Mechanics Using HR-pQCT and MRI	93.846	5R01AR058004-05		0	105
Micro-Mechanical Modeling of Trabecular Bone	93.846	5 R01 AR051376-05		0	-1
Primary cilia as mechanotransducers in bone	93.846	4R01AR062177-05		0	-2,917
INFLAMMATION AND CARDIOVASCULAR DISEASE IN RA	93.846	5R01AR050026-11		0	-4,960
Micro-Mechanical Modeling of Trabecular Bone	93.846	5 R01 AR051376-05		-6,656	-6,656
Primary cilia as mechanotransducers in bone	93.846	4R01AR062177-05		0	-34,441
				$1,050,067	$11,360,497
Diabetes, Digestive, and Kidney Diseases Extramural Research					
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-17		649,468	967,973
Advancing Clinical Research in Primary Glomerular Diseases	93.847	5UM1DK100876-06		75,600	781,645
Mouse Models of Insulin Resistance	93.847	5R37DK058282-19		0	700,681
Primary Hyperparathyroidism	93.847	5R01DK032333-33		0	666,968
Elucidating IgA nephropathy through Genetic Studies of IgA1 Glycosylation	93.847	5R01DK082753-09		381,860	646,333
Mechanisms of Beta Cell Failure	93.847	5R01DK064819-16		0	637,397
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	584,769
Long term change of GLP-1 insulinotropic effect after GBP surgery	93.847	5R01DK098056-04		96,028	573,090
Genetics of Human Renal Hypodysplasia	93.847	5R01DK080099-08		252,058	567,472
Body Composition and REE Responses to Bariatric Surgeries	93.847	7R01DK072507-08		45,455	558,966
Role of Forkhead Proteins in Insulin Action	93.847	5R01DK057539-18		0	510,761
Retinoic acid signaling controls urothelial development and regeneration.	93.847	5R01DK095044-06		0	508,463
ADIPOSE TISSUE MACROPHAGE PHENOTYPE AND FUNCTION	93.847	5R01DK066525-15		0	498,355
Lifestyle Interventions in Overweight and Obese Pregnant Women	93.847	5U01DK094463-06		23,513	496,620

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Metabolomic Biomarkers Predictors of Long-term Success Following Bariatric surgery	93.847	5R01DK108580-04		323,305	495,152
Understanding the Role of a Long Noncoding RNA in Celiac Disease	93.847	5R01DK102180-05		0	482,919
New approaches to the evaluation and treatment of acromegaly	93.847	5R01DK110771-02		0	468,392
Functional imaging and eating behavior among FTO genotypes in pre-obeses children	93.847	5R01DK097399-05		175,306	463,859
The molecular genetic analysis of human obesity	93.847	5R01DK052431-23		0	431,632
Genetics of IgA nephropathy by integrative network-based association studies	93.847	5R01DK105124-04		69,585	429,001
Vitamin A Homeostasis: Retinyl Ester Stores	93.847	5R01DK101251-03		92,202	420,829
Metabolic and Endocrine Effects of Bariatric Surgery	93.847	5R01DK072011-12		0	414,976
Mechanisms Underlying Predictors of Success from Obesity Surgery	93.847	5R01DK108643-04		108,506	401,264
Imaging beta cell function for metabolic surgery	93.847	5R01DK104740-03		0	399,260
Branching Morphogenesis of Urinary Epithelia: from Genes to Cellular Behaviors	93.847	5R01DK083289-10		0	374,185
VZV in the enteric nervous system: pathogenesis and consequences	93.847	5R01DK093094-06		8,261	372,923
HORMONES: BIOCHEMISTRY AND MOLECULAR BIOLOGY	93.847	5T32DK007328-39		0	365,118
Role of Dach1 in Obesity-Induced Hepatic Insulin Resistance	93.847	5R01DK106045-03		0	363,432
13/22 Diabetes Prevention Program Outcomes Study (DPPOS) Phase 3 - Research Project	93.847	5U01DK048404-25		0	362,731
Function and regulation of progastrin receptors on intestinal progenitors	93.847	5R37DK052778-20		0	360,422
Genetics of Congenital Obstructive Uropathy	93.847	5R01DK103184-05		95,941	344,814
Regulation of glucose uptake in osteoblasts by Runx2	93.847	5R01DK104727-04		0	330,235
Circadian clock regulation of branching morphogenesis during kidney development	93.847	5R01DK106548-03		0	321,826
THE FUNCTION AND REGULATION OF HISTIDINE DECARBOXYLASE IN GUT INFLAMMATION	93.847	2R01DK048077-22		0	320,929
Paneth cells and acute kidney injury	93.847	5R01DK109544-02		0	319,760
New York Obesity Research Center	93.847	5P30DK026687-38		16,988	316,770
Amitosis of Polyploid Cells to Functional Intestinal Stem Cells	93.847	5R01DK107702-03		0	310,732
CSF Neuropeptide, Hormonal and Metabolomic Analysis in Human Energy	93.847	5R01DK093920-07		0	306,546
Postprandial Vitamin A	93.847	5R01DK068437-13		0	303,516
Notch, Type 2 Diabetes and NAFLD	93.847	5R01DK103818-04		0	301,648

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GENERATING AN ATLAS OF THE DEVELOPING HUMAN URINARY OUTFLOW TRACT.	93.847	5U01DK110803-03		34,401	299,750
Notch function in postnatal intestinal and mesenteric lymphatics	93.847	5R01DK107633-02		53,171	299,493
Kidney Precision Medicine Program (KPMP): Columbia AKI RecruitmentSite	93.847	5UG3DK114926-02		0	299,152
Barrett s esophagus and progenitor cells at the squamous-columnar junction	93.847	1R01DK113144-01		0	295,963
Mechanisms of Mucosal Th17 Cell Induction By Segmented Filamentous Bacteria	93.847	5R01DK098378-05		0	292,661
Genomics of mammalian posterior urethral valves	93.847	5R01DK115574-02		0	291,789
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-04		0	290,471
Graduate Training in Nutrition	93.847	5T32DK007647-29		0	277,725
13/22 Diabetes Prevention Program Outcomes Study (DPPOS) Phase 3 - Research Project	93.847	5U01DK048404-25		0	277,272
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-05		81,975	276,513
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	260,175
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	259,479
A New Therapeutic Option for the Treatment of Prolactinomas	93.847	5R21DK112093-03		0	256,662
Training Program in Endocrinology and Metabolism	93.847	5T32DK007271-39		0	253,989
Role of Autophagy in Maladaptive Renal Repair Following Acute Kidney Injury	93.847	5R01DK107653-03		0	250,266
PPARgamma Deacetylation in the Restoration of Metabolic Homeostasis	93.847	5R01DK112943-02		0	245,664
Significance of Intrarenal T cells in SLE Nephritis	93.847	5R01DK106436-03		0	243,298
Basal Progenitor Cells and Eosinophilic Esophagitis	93.847	5R01DK100342-06		0	239,922
Targeting the Microenvironment in Gastric Chemoprevention	93.847	5K08DK100544-05		0	238,643
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-17		234,116	235,497
Brown Remodeling of White Adipose Tissue by Ppargamma Deacetylation	93.847	5R00DK097455-05		0	234,569
IGFBP-Mediated Local and Systemic Effects of Mitochondrial Dysfunction in Skeletal Muscles	93.847	5R21DK112074-03		0	233,388
New York Obesity Research Center	93.847	5P30DK026687-38		0	232,275
Multidisciplinary Training in Translational Gastrinointestinal and Liver Research	93.847	5T32DK083256-10		0	230,358
New York Obesity Research Center	93.847	5P30DK026687-38		141,135	221,884
New York Obesity Research Center	93.847	5P30DK026687-38		0	219,762

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The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	214,397
TAZ and YAP in Non-Alcoholic Steatohepatitis and its Complications	93.847	1R01DK116620-01		0	213,949
Training Grant in Pediatric Endocrinology, Diabetes and Metabolism	93.847	5T32DK065522-14		0	195,678
Bacterial Translocation and the Intestinal Microbiome in Recurrent Disease Following Liver Transplantation	93.847	5K23DK101827-04		0	195,509
Bile acids and insulin sensitivity	93.847	1R56DK115825-01		0	193,549
Primary Hyperparathyroidism: Neurocognitive Features	93.847	5R21DK104105-02		0	192,747
A Differential Dielectric Affinity Microsensor for Stable and Accurate Glucose Monitoring	93.847	1DP3DK101085-01		69,488	192,682
Discovery and fine mapping of susceptibility loci for IgA nephropathy	93.847	4R01DK095510-05		128,878	181,874
Dynamically tailoring interventions for problem-solving in diabetes self-management using self-monitoring data - a randomized controlled trial	93.847	1R56DK113189-01		0	176,000
Enteric Neuronal Development as a Determinant of Intestinal Inflammation	93.847	5K08DK093786-05		0	170,709
TAZ and YAP in Non-Alcoholic Steatohepatitis and its Complications	93.847	1R01DK116620-01		0	169,063
Loss of Gastrointestinal Colonization Resistance and Antibiotic-Resistant infections in the ICU	93.847	5K23DK111847-02		0	166,384
Immune regulation of adipose tissue mass	93.847	5R01DK101942-04		0	165,771
The Intraepithelial T cell Response in Celiac Disease	93.847	5K08DK100739-05		0	165,436
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	164,639
Enteric Glia, Sexual Dimorphism and GI Motility	93.847	5K08DK110532-03		0	162,118
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-17		161,364	161,364
09/16 Action for Health in Diabetes Extension Study Research Project	93.847	5U01DK057178-19		0	152,669
09/16 Action for Health in Diabetes Extension Study Research Project	93.847	5U01DK057178-19		0	152,576
Increasing Minority Population Awareness through Community Teaching for Improved Organ Donation (IMPACT for Improved Organ Donation)	93.847	5R01DK114893-02		0	145,453
Precision Medicine Research in Nephrology	93.847	5T32DK108741-03		0	135,033
Genetics of early childhood obesity and its clinical implications	93.847	5K23DK110539-04		0	133,157
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	128,863
Aptamer-Based Arrays for Detection of Pathogenic IgA1 O-Glycoforms in IgA Nephropathy	93.847	5R21DK109690-02		23,924	118,235
Peptidylarginine deiminase-4 and acute kidney injury	93.847	5R01DK115694-02		0	117,869
Non-Classic Manifestations of Primary Hyperparathyroidism	93.847	4K24DK074457-10		0	117,800

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Progenitor Cells of the Mouse Prostate Epithelium	93.847	4R01DK076602-11		0	115,091
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-05		74,416	106,897
Regulation of active and quiescent intestinal stem cells	93.847	7K08DK096048-06		0	105,545
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	101,124
The Subgingival Microbiome and Impaired Glucose Regulation	93.847	5R01DK102932-03		5,445	100,605
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	97,177
Mechanisms of monocytosis and accelerated atherosclerosis in patients with CKD	93.847	5K23DK097288-05		0	94,238
Genetics of Congenital Obstructive Uropathy	93.847	5R01DK103184-05		0	80,874
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	80,318
Improving Diagnosis and Prevention of Pediatric Nonalcoholic Fatty Liver Disease	93.847	1K23DK115682-01		0	78,863
New York Obesity Research Center	93.847	5P30DK026687-38		0	78,851
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	77,354
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	74,729
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	72,992
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-04		0	72,842
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	70,403
2/2 APOL1 Long-Term Kidney Transplantation Outcomes Network- Clinical Center	93.847	5U01DK116066-02		16,752	69,900
Enteroendocrine Cell Subsets with Reserve Stem Cell Function	93.847	5R03DK114656-02		0	68,468
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	68,162
TLR4 in Obesity-Driven Liver Fibrosis	93.847	5R03DK101863-03		0	65,007
New York Obesity Research Center	93.847	5P30DK026687-38		0	64,681
Obesity Research Center Training Grant	93.847	5T32DK007559-28		0	60,854
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		44,946	59,946
Advancing Clinical Research in Primary Glomerular Diseases	93.847	5UM1DK100876-06		0	59,362
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	59,082
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	58,902

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Mediators of Type 2 Diabetes Mellitus Remission after GastricBypass Surgery	93.847	5F32DK113747-02		0	54,798
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-05		9,231	51,593
Training Medical Students in NIDDK Research	93.847	5T35DK093430-07		0	51,503
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-04		0	50,945
Utility of Genomic Diagnostics for Chronic Kidney Disease	93.847	5F30DK116473-02		0	49,044
New York Obesity Research Center	93.847	5P30DK026687-38		0	44,501
Novel genetic engineering tools for functiona	93.847	5F30DK111145-02		0	42,486
Characterizing the Dedifferentiating Beta Cell in Diabetes	93.847	5F30DK112518-03		0	42,247
New York Obesity Research Center	93.847	5P30DK026687-38		0	41,541
New York Obesity Research Center	93.847	5P30DK026687-38		0	40,809
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-05		0	37,810
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	37,795
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	34,294
Role of the Kidney in Iron Balance	93.847	5F31DK105799-03		0	34,109
Training Medical Students in NIDDK Research	93.847	5T35DK093430-07		0	32,861
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	32,192
Precision Medicine Research in Nephrology	93.847	5T32DK108741-03		0	31,368
Lifestyle Interventions in Overweight and Obese Pregnant Women	93.847	5U01DK094463-06		0	30,486
GENERATING AN ATLAS OF THE DEVELOPING HUMAN URINARY OUTFLOW TRACT.	93.847	5U01DK110803-03		18,207	29,548
The role of long noncoding RNAs in regulating pancreas development and function	93.847	5F31DK107028-03		0	27,672
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	25,390
The Rewarding Value of Sugar in the Absence of Sweet Taste	93.847	5F30DK108564-04		0	22,620
The Rewarding Value of Sugar in the Absence of Sweet Taste	93.847	5F30DK108564-04		0	22,552
New York Obesity Research Center	93.847	5P30DK026687-38		0	19,765
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	17,447
The role of long noncoding RNAs in regulating pancreas development and function	93.847	5F31DK107028-03		0	17,037

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Aptamer-Based Arrays for Detection of Pathogenic IgA1 O-Glycoforms in IgA Nephropathy	93.847	5R21DK109690-02		0	16,746
Training Program in Endocrinology and Metabolism	93.847	5T32DK007271-39		0	14,369
GENERATING AN ATLAS OF THE DEVELOPING HUMAN URINARY OUTFLOW TRACT.	93.847	5U01DK110803-03		0	14,099
HIT for Facilitating Problem Solving in Diabetes Management	93.847	5R01DK090372-05		13,038	13,038
TAZ and YAP in Non-Alcoholic Steatohepatitis and its Complications	93.847	1R01DK116620-01		0	11,947
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	11,378
New York Obesity Research Center	93.847	5P30DK026687-38		0	9,663
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		9,568	9,568
Generating Molecular markers that selectively label urothelial sub-populations.	93.847	5U01DK094530-05		0	7,353
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	4,722
Retinoic acid signaling controls urothelial development and regeneration	93.847	4R01DK095044-04		0	4,308
Novel genetic engineering tools for functiona	93.847	5F30DK111145-02		0	3,974
Characterizing the Dedifferentiating Beta Cell in Diabetes	93.847	5F30DK112518-03		0	3,896
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	3,774
Iron Delivery in the Developing Kidney	93.847	4R01DK092684-05		0	3,703
HORMONES: BIOCHEMISTRY AND MOLECULAR BIOLOGY	93.847	5T32DK007328-39		0	1,080
Iron Lipocalin NGAL in Kidney Disease	93.847	5R01DK073462-09		0	1,080
Multidisciplinary Training in Translational Gastrinointestinal and Liver Research	93.847	5T32DK083256-10		0	1,037
Graduate Training in Nutrition	93.847	5T32DK007647-29		0	883
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-17		0	800
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-17		0	759
Advancing Clinical Research in Primary Glomerular Diseases	93.847	5UM1DK100876-06		0	654
BONE PROPERTIES IN HYPOPARATHYROIDISM: EFFECT OF PTH	93.847	5R01DK069350-10		0	537
New Approaches to the Evaluation and Treatment of Acromegaly	93.847	2R56DK064720-11A1		0	161
Interdisciplinary Training in Nutritional and Population Health Sciences	93.847	5T32DK091227-05		0	157
Quiescent Dclk1+ stem cells in the mouse intestine	93.847	5R01DK097016-03		0	100

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Lifestyle Interventions in Overweight and Obese Pregnant Women	93.847	5U01DK094463-06		0	48
Training Medical Students in NIDDK Research	93.847	5T35DK093430-04		0	-1
New York Nutrition Obesity Research Center	93.847	7P30DK026687-35		0	-2
Metabolic and Endocrine Effects of Bariatric Surgery	93.847	5R01DK072011-10		0	-46
Generating Molecular markers that selectively label urothelial sub-populations.	93.847	5U01DK094530-05		0	-198
Mechanisms of immune regulation by long noncoding RNA during Crohn s and Celiac Diseases	93.847	5F32DK104579-02		0	-300
RENAL PROTECTION WITH A1 ADENOSINE RECEPTORS	93.847	5R01DK058547-15		0	-687
Training Program in Endocrinology and Metabolism	93.847	5T32DK007271-39		0	-1,186
HIT for Facilitating Problem Solving in Diabetes Management	93.847	5R01DK090372-05		0	-4,102
Mechanisms of Beta Cell Failure	93.847	4R01DK064819-14		0	-5,549
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-15		0	-9,100
09/16 Action for Health in Diabetes Extension Study Research Project	93.847	5U01DK057178-19		0	-59,099
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-05		0	-79,854
				$3,534,133	$32,466,897
Extramural Research Programs in the Neurosciences and Neurological Disorders					
AtRial Cardiopathy and Antithrombotic Drugs In prevention After cryptogenic stroke (ARCADIA)	93.853	5U01NS095869-02		1,025,163	1,584,312
Identification of Susceptibility Genes for Essential Tremor	93.853	5R01NS073872-07		491,300	1,441,561
Genetic Determinants of Epilepsy in Murine Systems	93.853	5R37NS031348-26		0	955,796
Cellular and molecular mechanisms underlying the function of SRGAP2 during synaptic development	93.853	5R01NS067557-09		0	864,028
Identification and molecular characterization of somatic mutations in MCD	93.853	5R01NS094596-03		317,272	673,076
Mechanisms of measles virus CNS adaptation	93.853	5R01NS091263-04		87,492	622,377
Dynamic Neural Mechanisms of Audiovisual Speech Perception	93.853	5U01NS098976-03		359,816	579,601
Targeting Lewy Body Specific Pathology Using Biomarkers	93.853	5U01NS100600-03		45,717	561,253
Prevalence and predictors of asymptomatic atrial fibrillation in the community	93.853	5R01NS083784-05		13,250	552,267
MicroRNA modulation of tau expression and phosphorylation in tauopathy	93.853	5R01NS095922-03		0	541,639
Motor neuron selector genes and mechanism of their action	93.853	2R56NS078097-06		126,383	532,529

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Statewide dissemination of a school-based public stroke education intervention	93.853	5R01NS067443-08		149,144	521,992
Novel genetic determinants of the neuromuscular SMA phenotype	93.853	4R01NS057482-09		0	496,955
Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics (CREST-H)	93.853	5R01NS097876-02		314,027	493,497
Autophagy and Neurodegeneration	93.853	5R01NS063973-09		203,800	476,406
Development and function of an adult locomotion circuit in Drosophila	93.853	5R01NS070644-09		0	462,055
The striatal cholinergic interneurons in Parkinson s disease and treatment	93.853	5R01NS101982-02		0	437,336
RNA-mediated mechanisms of motor system dysfunction in spinal muscular atrophy	93.853	5R01NS102451-02		0	417,807
Mitochondrial complex-I as a target for metab	93.853	5R01NS100850-02		144,818	411,240
Neural populations, high frequency oscillations and EEG seizures	93.853	5R01NS095368-03		217,034	394,551
New York Stroke Trials network of Columbia and Cornell (NYCCSTN)	93.853	5U10NS086728-05		81,916	382,042
SCAPE microscopy for high-speed in-vivo volumetric microscopy in behaving organisms	93.853	5U01NS094296-03		0	379,008
The Role of Clustered Protocadherins in Neurite Self-avoidance	93.853	5R01NS088476-04		0	377,790
Discovery of Novel Molecular Abnormalities Underlying Non-Lesional Focal Epilepsy	93.853	5R01NS089552-04		98,853	375,770
Mitochondrial Dysfunction and White Matter Injury	93.853	5R01NS099109-03		0	375,498
NEUROTROPHIC FACTOR DEPRIVATION AND NEURONAL CELL DEATH	93.853	5R01NS033689-23		0	370,112
The behavioral functions of upper and lower cortical layers	93.853	5R01NS094659-03		0	365,776
The Role of Dendrites in Thalamocortical Circuitry	93.853	5R01NS069679-08		0	361,630
Seizure localization in humans: the effect of inhibitory suround on the EEG	93.853	5R01NS084142-05		124,008	357,870
Mechanisms of Central Synaptic Dysfunction in SMA	93.853	5R01NS078375-07		0	353,362
Assessment and characterization of naming in older adults with epilepsy	93.853	5R01NS083976-05		0	352,568
RNA Binding Proteins in Complex Neurological Disease	93.853	5R01NS091118-04		90,864	349,822
Examination of the earliest symptoms and biomarkers of FTLD MAPT carriers	93.853	4R01NS076837-05		81,501	348,638
Cadherin-Catenin Based Recognition in Sensory-Motor Connectivity	93.853	5R01NS080932-05		0	343,199
The regulations of beta-amyloid sensitivity and Alzheimer s related impairments by PP2A	93.853	5R01NS092045-04		68,275	337,496
Elucidating a molecular pathway for synaptic vesicle maintenance and degradation	93.853	5R01NS080967-05		0	330,576
Sexually dimorphic regulation of neuronal identity in C.elegans	93.853	5R37NS039996-18		0	329,982

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Dendritic Patterning by interacting	93.853	5R01NS061908-10		0	328,442
Striatal Specific Alterations in Translation, Synaptic Function, and Behavior in Autism Spectrum	93.853	5R00NS087112-04		0	326,233
The role of ApoE in injury-induced neurogenesis	93.853	5R01NS095803-02		0	324,598
Motor neuron selector genes and mechanism of their action	93.853	4R01NS078097-05		294,830	323,215
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		2,732	318,196
Structure and Finction of AMPA subtype ionotropic glutamate receptors	93.853	5R01NS083660-05		0	317,086
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		0	316,755
RNA regulatory networks in motor neuron development and function	93.853	5R01NS089676-04		0	316,536
Identification of the initial cellular site of action of a-synuclein in the pathogenesis of Parkinson s disease in vivo.	93.853	5R01NS102172-02		0	315,000
Dual Inhibition of Mitochondrial Matrix Chaperones and Anti-Apoptotic Bcl-2 Family Members for Glioblastoma Therapy.	93.853	5R01NS095848-03		0	314,646
Neurology Research Education and Mentorship Program	93.853	5R25NS070697-09		0	312,202
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-07		0	305,357
Mechanisms and Treatment of CNS Edema	93.853	5R01NS081333-05		0	299,517
In-vivo optical imaging of neurovascular coupling and cerebral metabolism	93.853	5R01NS063226-09		0	297,180
CRCNS: Refining computational models of motor sequence learning and execution	93.853	5R01NS105349-02		129,213	287,074
Statistical methods for early disease prediction and treatment strategy estimation using biomarker signatures	93.853	5R01NS073671-06		46,474	281,249
Neuroepidemiology Training Program	93.853	5T32NS007153-35		0	271,269
Influence of genotype on microglia phenotype and function in PD	93.853	5R01NS089674-04		53,014	265,818
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		8,730	259,997
Planning grant: Columbia-Yale-Bilkent Study: Genetic Study of Essential Tremor	93.853	5R21NS098930-02		27,731	257,176
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		9,159	255,573
Peripheral Mechanisms Governing Tactile Encoding During Normal Target Remodeling	93.853	4R01NS073119-07		136,779	249,623
Multimodal Imaging Biomarkers of Parkinson s Disease	93.853	1R56NS099239-01A1		0	247,524
Functional data analytics for kinematic assessments of motor control	93.853	5R01NS097423-02		79,070	247,416
CRCNS: Understanding flexible neural computations in the motor cortex	93.853	5R01NS100066-03		0	240,262
Role of MMP-9 in selective motor neuron degeneration in ALS	93.853	5R01NS072428-05		0	234,698

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Mechanisms for Internal Models in a Cerebellum-like Circuit	93.853	5R01NS075023-07		0	233,253
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	228,296
SCAPE microscopy for high-speed in-vivo volumetric microscopy in behaving organisms	93.853	5U01NS094296-03		0	226,820
Non-cell Autonomous Role of Synuclein in Neurodegeneration	93.853	5R21NS099862-03		0	219,132
A kinase pathway required for terminal axon branching and presynaptic function	93.853	5R01NS089456-09		0	204,470
Endosomal Platforms for Neuropeptide Receptor Signaling	93.853	5R01NS102722-02		0	198,626
FUS Gain-of-Function Mechanisms in Animal and Cellular Models of ALS	93.853	2R56NS073776-06A1		0	197,751
Blood Flow and Cognition in Asymptomatic Carotid Artery Disease	93.853	4R01NS076277-05		83,895	195,988
Overcoming apoptotic resistance in glioblastoma by CP-d/n-ATF5, a novel tumor specific therapeutic compound targeting the transcription factor ATF5	93.853	5K08NS083732-04		0	195,835
The role of glucocerebrosidase and chaperone-mediated autophagy in Parkinson s disease	93.853	5K08NS083738-05		0	194,376
Advanced Graduate Training Program in Neurobiology and Behavior	93.853	5T32NS064928-09		0	185,267
New York Stroke Trials network of Columbia and Cornell (NYCCSTN)	93.853	5U10NS086728-05		148,027	182,654
Advanced Graduate Training Program in Theoretical Neuroscience	93.853	5T32NS064929-10		0	176,049
Neurotrophins, spontaneous release, and synaptic growth cascades	93.853	5R01NS083690-05		0	173,924
Omega 3 Fatty Acids Acute Neuroprotection via Mitochondria	93.853	5R01NS088197-04		0	172,342
The Role of p38 MAPK Activation in Spinal Muscular Atrophy	93.853	5R21NS098363-02		0	165,703
Statewide dissemination of a school-based public stroke education intervention	93.853	5R01NS067443-08		0	165,017
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	158,776
SMN post-translational modification in Spinal Muscular Atrophy	93.853	5R21NS101575-02		0	158,755
Systematic functional dissection of neuronal transcriptome diversity	93.853	5R21NS098172-02		0	157,182
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		0	154,908
Neuron death in Parkinson s disease: The role of Trib3	93.853	2R01NS072050-06A1		0	153,395
MICROENVIRONMENT IN ENTERIC NEURON DEVELOPMENT	93.853	2R01NS015547-35A1		0	143,923
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	139,935
Single cell analysis of the infiltrative margins of glioblastoma and post-treatment recurrence	93.853	5R01NS103473-02		0	139,376
3 of 7 Epi4K: Sequencing, Biostatistics & Bioinformatics Core	93.853	5U01NS077303-06		0	136,950

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Targeting Lewy Body Specific Pathology Using Biomarkers	93.853	5U01NS100600-03		0	136,048
SCAPE microscopy for high-speed in-vivo volumetric microscopy in behaving organisms	93.853	5U01NS094296-03		61,090	133,680
Interaction Between DA, Alpha-Synuclein and Chaperone-Mediated Autophagy	93.853	5R01NS075222-05		0	130,449
Omega 3 Fatty Acids Acute Neuroprotection via Mitochondria	93.853	5R01NS088197-04		0	128,254
Single cell analysis of the infiltrative margins of glioblastoma and post-treatment recurrence	93.853	5R01NS103473-02		0	128,165
3 of 7 Epi4K: Sequencing, Biostatistics & Bioinformatics Core	93.853	5U01NS077303-06		0	127,057
SMN dysfunction in FUS-dependent ALS	93.853	5R21NS099977-02		0	123,737
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	117,031
Lysosomal stress triggers exosome release and transfer of proteins	93.853	5R21NS093569-02		0	116,459
Identifying Huntingtons Disease Markers by Modern Statistical Learning Methods	93.853	5U01NS082062-03		33,204	112,018
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		77,284	109,768
Psychosocial Impact of Genetics in Epilepsy	93.853	5R01NS078419-04		0	103,565
The Spinal Muscular Atrophy NMJ phenotype: mechanisms and molecular mediators	93.853	5R21NS099921-02		0	101,607
Small molecule drugs for treatment of dry age-related macular degeneration	93.853	5U01NS74476-05		0	101,146
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	88,749
Dynamic Neural Mechanisms of Audiovisual Speech Perception	93.853	5U01NS098976-03		38,864	86,435
The role of a Synuclein transcript variants in neuronal pathology and function	93.853	5R01NS082068-05		0	85,614
Generation of mice to selectively mark a subset of spinal interneurons	93.853	5R03NS103148-02		0	85,406
Making the Invisible Visible: Advanced MRI in Non Lesional Focal Epilepsy	93.853	5R21NS101303-02		15,827	84,946
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	82,098
Spinal muscular atrophy: Mechanisms and treatment strategies.	93.853	1R56NS104218-01		0	81,901
The behavioral functions of upper and lower cortical layers	93.853	5R01NS094659-03		0	79,758
A nervous system-wide analysis of C. elegans homeobox gene function	93.853	1R21NS106843-01		0	75,801
Building an expression atlas of C.elegans sensory receptors	93.853	5R21NS096343-02		0	74,066
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		69,793	72,277
Summer Program for Under Represented Students (SPURS)	93.853	5R25NS076445-07		0	71,616

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Trans-Synaptic Tracing of Developing Somatosensory Circuits	93.853	5R21NS093572-02		0	68,877
Genetic Determinants of Epilepsy in Murine Systems	93.853	5R37NS031348-26		0	66,597
Generation of caspase-9 cell specific inducible knockout mice for the study of mechanisms of cerebral edema	93.853	5R03NS099920-02		0	65,639
Imaging the neuronal and metabolic basis of resting state connectivity mapping	93.853	5R01NS076628-05		0	60,309
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		42,373	54,837
Stable silencing of spinal motor neuron enhancers by transiently expressed Nkx2.2	93.853	5R21NS092043-02		0	53,775
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		14,016	52,001
Dynamic Neural Mechanisms of Audiovisual Speech Perception	93.853	5U01NS098976-03		0	50,771
RNA regulatory networks in motor neuron development and function	93.853	5R01NS089676-04		0	50,000
Functional dissection of a radial subdivision among hippocampal pyramidal cells	93.853	5F30NS090819-04		0	49,044
Investigating V1 interneuron subtype diversity using embryonic stem cells	93.853	5F30NS092262-03		0	49,044
How do discriminative touch receptors selectively innervate peripheral targets?	93.853	5F31NS094023-04		0	49,044
Pharmacologic Treatment of Human Mitochondrial DNA (mtDNA) Disease	93.853	5F30NS093798-04		0	48,576
A molecular map of the electrical connectome of C. elegans	93.853	1R21NS106909-01		0	46,744
Regulation of HCN channel trafficking and function in the brain by TRIP8b	93.853	4R01NS036658-17		0	44,900
Health Disparities in Sepsis as a Risk Factor for Stroke	93.853	5R03NS101417-02		0	44,267
Defining the transcriptional regulation of motor neuron maturation in vivo and in vitro	93.853	5F32NS105372-02		0	44,181
Cellular and molecular mechanisms of neuronal remodeling in healthytissue	93.853	5F31NS103439-02		0	44,044
Motor cortical control of voluntary forelimb muscle activity	93.853	5F31NS098638-02		0	44,044
Alternative splicing of Dscam2 in the development of nociceptive circuitry in Drosophila	93.853	5F31NS098765-02		0	44,044
The role of secondary thalamus in enhancing cortical sensory representations	93.853	5F31NS098670-02		0	44,044
Excitatory spinal micro-circuit mechanisms involved in locomotor activity	93.853	5F30NS098551-03		0	44,044
Whole-neuron structural input mapping of SRGAP2 regulation of synaptic development	93.853	1F31NS101820-01		0	44,044
Retromer dysfunction in amyotrophic lateral sclerosis	93.853	5F31NS101966-02		0	43,576
The Role of NDE1 in the Pathogenesis of Microcephaly and Schizophrenia	93.853	5F30NS095577-03		0	43,200
Effects of learning on multi-sensory integration in primary sensory cortical areas	93.853	5F31NS105490-02		0	42,057

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Mechanisms of spatial memory during navigation in virtual reality	93.853	5R00NS093071-04		0	41,245
Structural elucidation of ionotropic glutamate receptor states with cryoelectron microscopy	93.853	5F31NS093838-02		0	40,070
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		15,567	39,015
Do seizures stimulate glioma progression?	93.853	5R03NS103125-02		0	37,164
Control of Motor Neuron Differentiation	93.853	5R37NS033245-23		0	37,151
Development and function of an adult locomotion circuit in Drosophila	93.853	5R01NS070644-09		0	35,635
AtRial Cardiopathy and Antithrombotic Drugs In prevention After cryptogenic stroke (ARCADIA)	93.853	5U01NS095869-02		19,950	33,762
Mechanisms Linking Hearing Loss and Alzheimer s Disease and Related Dementias	93.853	1K23AG057832-01		0	32,676
Deep brain stimulation for depression using directional current steering an individualized network targeting	93.853	1UH3NS103549-01		0	31,324
The role of the superficial cortical layers in whisker-based shape discrimination	93.853	5F32NS096819-03		0	31,162
Control of sexually dimorphic synaptic wiring	93.853	5F31NS096863-03		0	30,104
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		10,262	29,084
Evaluating CA2 Neurons as Novel Targets in Epliepsy	93.853	5R21NS093991-02		28,940	28,940
Peripheral mechanisms of neurotransmission in mammalian touch receptors	93.853	1F31NS105449-01		0	27,103
The Role of Glucocerebrosidase in Parkinsons Disease	93.853	4K02NS080915-05		0	26,927
Targeting Lewy Body Specific Pathology Using Biomarkers	93.853	5U01NS100600-03		0	26,729
Single-cell dissection of neural stem cell heterogeneity in vivo	93.853	5F32NS090736-03		0	25,524
RNA regulatory networks in motor neuron development and function	93.853	5R01NS089676-04		0	20,193
Exploring synaptic abnormalities that underlie hyperactivity in a stem-cell derived model of amyotrophic lateral sclerosis	93.853	5F31NS095571-02		0	18,196
Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics (CREST-H)	93.853	5R01NS097876-02		5,494	17,444
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-07		15,355	15,355
Computational and circuit mechanisms underlying motor control	93.853	5U19NS104649-02		0	14,646
Do seizures stimulate glioma progression?	93.853	5R03NS103125-02		0	14,295
Plasticity of bridge collaterals in Parkinonian state and treatment	93.853	5R03NS096494-02		0	14,036
The role of the superficial cortical layers in whisker-based shape discrimination	93.853	5F32NS096819-03		0	13,557
The role of the superficial cortical layers in whisker-based shape discrimination	93.853	5F32NS096819-03		0	12,016

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NAMDC: Overall Research Plan	93.853	5U54NS078059-08		0	11,959
The Role of NDE1 in the Pathogenesis of Microcephaly and Schizophrenia	93.853	5F30NS095577-03		0	11,688
The role of CA2 in epilepsy and social comorbidity	93.853	1R01NS106983-01		0	11,011
Control of sexually dimorphic synaptic wiring	93.853	5F31NS096863-03		0	9,740
Mechanisms and Treatment of CNS Edema	93.853	5R01NS081333-05		0	7,367
Role of phosphoinositides in neuronal membrane traffic and neurodegeneration	93.853	4R01NS056049-10		0	7,006
NAMDC: Overall Research Plan	93.853	5U54NS078059-08		0	6,527
Functional dissection of a radial subdivision among hippocampal pyramidal cells	93.853	5F30NS090819-04		0	5,844
Summer Program for Under Represented Students (SPURS)	93.853	5R25NS076445-07		0	5,398
Discovery of Novel Molecular Abnormalities Underlying Non-Lesional Focal Epilepsy	93.853	5R01NS089552-04		1,832	1,832
Mechanisms of Central Synaptic Dysfunction in SMA	93.853	4R01NS078375-05		0	415
Screening lipid modifying enzymes to ameliorate A-beta triggered synaptic loss	93.853	5R21NS084328-02		0	-1
Autophagic Clearance of Aberrant Tau: Biochemical and Therapeutic Implications	93.853	5R01NS074593-05		0	-16
Environmental Epidemiology of Essential Tremor	93.853	5R01NS039422-13		0	-2,055
Cortical Localization in Temporal Lobe Epilepsy	93.853	5R01NS035140-15		0	-2,210
Neurexin-Neuroligin Trans-Synaptic Interaction: Learning-Related Synaptic Growth	93.853	5K08NS053415-05		0	-2,818
Next generation sequencing approaches for novel gene discovery in ALS	93.853	7K08NS075094-06		0	-3,655
R25 Neurology Research Education and Mentorship Program	93.853	5R25NS070697-05		0	-5,040
Single-cell dissection of neural stem cell heterogeneity in vivo	93.853	5F32NS090736-03		0	-6,024
Evaluating CA2 Neurons as Novel Targets in Epliepsy	93.853	5R21NS093991-02		0	-28,539
				$5,510,137	$35,933,896
Allergy and Infectious Diseases Research					
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		2,525,086	2,984,318
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		2,127,770	2,127,770
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		53,834	1,620,708
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	1,288,196

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Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		858,385	999,344
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		839,771	920,903
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	846,280
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		802,476	831,768
Engineering protease-resistant alpha-beta peptides	93.855	5R01AI114736-04		160,258	736,995
Micron-scale Spatial Metagenomic Mapping of Microbial Biogeography in the Gastrointestinal Tract	93.855	5R01AI132403-02		0	705,019
Regulatory T cells to promote mixed chimerism for tolerance to islets andkidneys from deceased and living donors	93.855	5U19AI131474-02		0	698,082
Regulatory T cells to promote mixed chimerism for tolerance to islets andkidneys from deceased and living donors	93.855	5U19AI131474-02		8,530	679,555
Flu SAFE: Flu SMS Alerts to Freeze Exposure	93.855	5R01AI127812-02		0	671,019
Elucidating the molecular basis of piperaquine resistance and the role of altered hemoglobin metabolism in Plasmodium falciparum	93.855	5R01AI124678-03		115,793	624,747
Tolerance to Vascularized Allografts in Miniswine	93.855	2R56AI031046-26		0	616,859
Promoting Engagement in the Drug Resistant TB/HIV Care Continuation in South Africa	93.855	5R01AI124413-03		451,618	614,447
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	603,853
Role of ncRNA Surveillance Complex	93.855	5R01AI099195-07		0	586,429
A Household Yeast Biosensor for cholera	93.855	5R01AI110794-04		79,151	538,165
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		133,162	524,859
Self-assembling nanoparticles for intranasal delivery of influenza fusion inhibitors	93.855	5R01AI119762-03		245,400	522,046
Center for Solutions for ME/CFS	93.855	5U54AI138370-02		8,245	516,689
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	504,573
Comprehensive genetic analysis of antibiotic persistence	93.855	5R01AI077562-09		0	497,078
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		0	487,010
Development of lung T cell responses in infant respiratory immunity	93.855	5U01AI100119-07		0	476,369
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		0	468,034
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		32,966	453,784
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		0	432,954
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		156,726	432,795

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Carbapenem-resistant bacterial colonization and infection in liver transplant	93.855	5R01AI116939-04		0	423,620
Integration of redox-balancing mechanisms in Pseudomonas aeruginosa biofilms	93.855	5R01AI103369-05		0	403,411
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	401,192
Innate B cell immunity and antibody-mediated rejection of human kidney allografts	93.855	5R01AI123342-03		23,325	398,770
Defining P. Falciparum resistance to artemisinin-based combination therapies	93.855	5R01AI109023-05		26,188	384,507
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		347,742	347,742
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		0	345,226
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	343,601
Overcoming Immunosenescence by Nanoparticle-Mediated Activation	93.855	5R01AI096305-05		218,119	339,235
Design of CNS-targeted peptide entry inhibitors for emerging henipaviruses	93.855	7R33AI101333-05		108,000	337,096
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		279,194	333,084
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-04		0	332,369
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	331,608
Development of novel endosome-targeted Ebola virus entry inhibitors as antiviral agents	93.855	5R01AI121349-03		136,147	331,509
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		329,957	329,957
Asymmetric Lymphocyte Division in the Immune Response	93.855	5R01AI076458-08		0	328,282
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	325,877
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		322,288	322,288
Advanced Rigidity-based Material for Enhanced Immunotherapy	93.855	5R01AI110593-04		0	319,784
Development and significance of the plasma cell niche in the humaninfant thymus	93.855	5U01AI131339-02		0	311,823
Diversifying and Regenerating T Cell Function	93.855	5R01AI113365-05		0	310,421
HIV and the Menopausal Transition: Effects on Musculoskeletal Health	93.855	5R01AI095089-05		0	283,990
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		0	270,772
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		268,854	268,854
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	267,830
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	266,205

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Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	265,597
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	265,549
Long noncoding RNA expressing genomic element that control antibody diversification and chromosomal integrity in B cells	93.855	1R01AI134988-01		0	260,677
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	256,952
Contribution of B cells to human cardiac allograft vasculopathy	93.855	5R01AI116814-04		36,167	239,973
Molecular basis for paramyxovirus entry	93.855	7R01AI031971-24		1,364	235,332
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		42,205	233,105
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	232,945
Global HIV Implementation Science Research Training Grant	93.855	5T32AI114398-05		0	225,241
Intestinal Immune Response in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome	93.855	5R21AI121996-02		0	225,182
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	223,508
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	208,216
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	205,905
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		0	205,884
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	199,136
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	198,846
Modeling the development, age structure and maintenance of T cell populations	93.855	5R01AI093870-10		0	198,235
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		0	189,441
Columbia University Graduate Training Program in Microbiology and Immunology	93.855	5T32AI106711-05		0	188,390
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		37,948	175,912
Training in Pediatric Infectious Diseases	93.855	5T32AI007531-20		0	168,045
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	167,999
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	165,574
Regulatory T cells to promote mixed chimerism for tolerance to islets andkidneys from deceased and living donors	93.855	5U19AI131474-02		0	162,826
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		158,569	158,569
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	157,571

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Regulatory T cells to promote mixed chimerism for tolerance to islets andkidneys from deceased and living donors	93.855	5U19AI131474-02		111,131	152,546
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	149,338
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	146,028
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	141,851
Mechanisms mediating tissue repair by leukocytes during influenza virus infection	93.855	5K22AI127847-02		0	140,145
Intestinal allograft tolerance in large animals	93.855	1R01AI138547-01		0	140,125
Columbia Integrated Training Program in Infectious Disease Research	93.855	5T32AI100852-05		0	132,024
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	128,103
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		112,482	124,194
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	118,217
Altered CD4+ T cell function in relation to the AHI1 MS locus	93.855	5R01AI130547-03		0	116,974
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		0	116,501
Role of CD47 in Xenograft Rejection by Macrophages	93.855	4R01AI064569-10		0	114,691
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	114,593
Preventing Childhood Tuberculosis in Lesotho (PREVENT Study)	93.855	5K01AI104351-05		0	113,851
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	112,017
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	111,631
Understanding the Role of Meningeal Dendritic Cells in CNS Antiviral Immunity	93.855	5R01AI101251-05		0	110,659
New mechanism of commensal bacteria interaction with host immunity	93.855	5R21AI126305-02		0	102,119
Understanding the Role of NF-kB T-regulatory Cell Function	93.855	5R01AI068977-11		0	101,156
MRSA Activation of Human Keratinocyte Signaling	93.855	4R01AI103854-04		2,741	100,643
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	96,074
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	94,972
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	91,343
Carbapenem-resistant bacterial colonization and infection in liver transplant	93.855	5R01AI116939-04		0	90,913
Role of ncRNA Surveillance Complex	93.855	5R01AI099195-07		0	90,766

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Defining the Role of PfCRT and PfMDR1 as Pleiotropic Mediators of Plasmodium falciparum Multidrug Resistance	93.855	2R01AI050234-16		0	87,743
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		0	82,442
Engineering and targeting novel antigen-specific tolerogenic interfaces	93.855	5R21AI110812-02		0	80,728
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		22,314	78,166
Controllable Rigidity Surface for T Cell Mechanobiology	93.855	5R21AI119953-02		4,563	74,341
Cellular receptor for enterovirus D68	93.855	5R21AI121944-02		0	70,627
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	70,161
Regulatory T cells to promote mixed chimerism for tolerance to islets andkidneys from deceased and living donors	93.855	5U19AI131474-02		0	66,126
Human anti-viral immune responses in tissues and circulation	93.855	1U19AI128949-01		0	64,812
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	64,608
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	61,722
A Rationally Targeted Approach to Preventing GBS Infection	93.855	1K08AI132555-01A1		0	59,463
Elucidating the complex genetic and molecular basis of Plasmodium falciparum artemisinin resistance.	93.855	5F32AI120578-03		0	57,576
DNA Elements Underlying Celiac and Crohn s Su	93.855	1R21AI133140-01		0	51,851
Structural basis of phosphoinositide biosynthesis in Mycobacterium	93.855	5R21AI119672-02		0	48,941
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	46,330
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	45,145
Role of pfcrt in Chloroquine Resistance P. falciparum	93.855	5R01AI050234-15		0	44,198
Epigenetic Regulation of Dendritic Cell Development	93.855	5F31AI124661-03		0	44,044
Biomarker for XDR-TB Treatment Response and Drug Resistance in HIV Endemic Area	93.855	5K23AI098479-05		0	41,046
Global HIV Implementation Science Research Training Grant	93.855	5T32AI114398-05		0	37,360
Training in Pediatric Infectious Diseases	93.855	5T32AI007531-20		0	35,043
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	34,641
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	33,505
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	33,083
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		32,453	32,453

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Tolerance-inducing properties of human dendritic cell subsets in vivo	93.855	5R21AI117641-02		0	32,144
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	29,834
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-18		0	29,590
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		29,100	29,380
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		0	28,188
Preventing Childhood Tuberculosis in Lesotho (PREVENT Study)	93.855	5K01AI104351-05		0	26,963
Control of CD8= Effector T Cell Differentiation	93.855	5R01AI061699-11		0	26,923
A Household Yeast Biosensor for cholera	93.855	5R01AI110794-04		0	25,276
Mother Infant Retention Across the Option B plus Cascade	93.855	5R21AI120690-02		0	23,243
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		0	22,256
Integration of Redox-Balancing Mechanisms in Pseudomonas Aeruginosa Biofilms	93.855	2R01AI103369-06		0	20,288
Mechanism of Zika virus induced corticogenesis defects	93.855	1R21AI139775-01		0	16,553
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-04		0	16,291
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	15,816
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	14,840
Understanding the importance of IkB-b as a selective co-activator of NF-kB signaling	93.855	1R01AI139217-01		0	14,438
Columbia University Graduate Training Program in Microbiology and Immunology	93.855	5T32AI106711-05		0	13,135
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	12,937
Physiological responses to cell wall-active antibiotics in a Gram-positive bacterium	93.855	1R21AI135427-01		0	9,398
A Tolerance Approach to Xenotransplantation	93.855	2P01AI045897-16		0	8,990
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-14		0	8,793
Tissue compartmentalization of human lymphocytes	93.855	2P01AI106697-06		0	8,307
Tissue compartmentalization of human lymphocytes	93.855	2P01AI106697-06		0	5,632
Development of Lung T Cell Responses in Infant Respiratory Immunity	93.855	4R01AI100119-05		4,989	4,989
Tissue compartmentalization of human lymphocytes	93.855	2P01AI106697-06		0	4,178
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-04		0	3,601

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Tissue compartmentalization of human lymphocytes	93.855	2P01AI106697-06		0	3,408
PRovide Options for Treatment of Exposed Children against Tuberculosis (PROTECT) Study	93.855	1R21AI138807-01A1		0	2,997
Integration of redox-balancing mechanisms in Pseudomonas aeruginosa biofilms	93.855	5R01AI103369-05		0	2,971
Tissue compartmentalization of human lymphocytes	93.855	2P01AI106697-06		0	2,423
Dissecting the molecular basis of PfCRT-mediated antimalarial drug resistance	93.855	5F30AI114070-03		0	2,238
LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		0	983
Columbia University Graduate Training Program in Microbiology and Immunology	93.855	5T32AI106711-05		0	393
Contribution of B cells to human cardiac allograft vasculopathy	93.855	5R01AI116814-04		0	332
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-04		0	43
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-05		0	-100
LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		-184	-184
Subproject for Institution # 10-3527	93.855	5R01AI093985-05		0	-212
LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		0	-296
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	-1,056
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-13		0	-3,871
Tissue compartmentalization of human lymphocytes	93.855	5P01AI106697-05		0	-7,184
Mother Infant Retention Across the Option B plus Cascade	93.855	5R21AI120690-02		0	-16,031
Global HIV Implementation Science Research Training Grant	93.855	5T32AI114398-05		0	-17,159
Immune response to combined liver and bone marrow transplant or tolerance in NHP	93.855	1R56AI122332-01A1		0	-29,682
				$11,254,827	$42,973,939
Biomedical Research and Research Training					
Medical Scientist Training Program	93.859	5T32GM007367-43		0	1,177,549
Mechanisms of Epigenetic inheritance	93.859	5R35GM118015-03		0	994,657
Regulation of mRNA processing: Mechanisms and Consequences	93.859	5R35GM118136-03		0	990,787
Molecular Mechanisms Underlying DNA Double-Strand Break and Crosslink Repair	93.859	5R35GM118180-03		0	840,746
Structural and functional studies of mRNA processing, stability and quality control	93.859	5R35GM118093-03		89,927	824,530

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Interpreting and Deploying Genomic Information During Animal Development	93.859	5R35GM118336-03		0	751,353
Extended Methods and Software Development for Health NLP	93.859	5R01GM114355-03		460,865	732,325
Understanding Complex Gene Editing Systems and RNA Biology in Oxytricha	93.859	5R35GM122555-02		0	693,174
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		522,565	631,057
Mitochondrial inheritance and quality control	93.859	5R35GM122589-02		0	597,776
Mechanisms of Genome Integrity	93.859	5R35GM118026-03		0	574,185
Development and Dissemination of Operational Real-Time Respiratory Virus Forecast	93.859	5U01GM110748-05		8,054	564,955
Genetic analysis of nematode cell differentiation	93.859	5R01GM030997-34		46,526	554,299
Structural Analysis of Macromolecular Assemblies	93.859	5R01GM029169-36		0	553,616
Genetic analysis of nematode cell differentiation	93.859	5R35GM122522-02		0	550,378
Hedgehog signaling in Drosophila	93.859	5R01GM041815-28		0	543,534
Drug Effect Discovery Through Data Mining and Integrative Chemical Biology	93.859	5R01GM107145-05		0	506,803
Quantitative studies of influenza evolution	93.859	5R01GM109018-05		0	488,034
IMSD at Columbia s Mailman School of Public Health	93.859	5R25GM062454-15		0	481,151
Structure and Function of Desmosomal Cadherins	93.859	5R01GM118584-02		115,821	471,608
Training in Cellular, Molecular and Biomedical Studies	93.859	5T32GM008224-32		0	462,875
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-18		0	456,447
The structural dynamics of translation elongation and its regulation	93.859	3R01GM119386-03S1		35,469	447,986
Mechanisms of homologous recombination in yeast	93.859	5R01GM041784-29		0	443,125
Asymmetric Synthesis of Nitrogen Heterocycles	93.859	5R01GM080442-12		0	423,542
Biophysical mechanisms of ABC-F proteins	93.859	5R01GM120579-03		0	422,083
Mitochondrial stress signal transduction from organelle to organism	93.859	5R35GM119793-03		0	418,541
Lipid biosynthesis and modification by integral-membrane enzymes	93.859	5R01GM111980-04		71,834	418,466
Asymmetric Umpolung Aldehyde Reactions	93.859	5R01GM072586-13		0	414,113
Control of Transcription Termination in E. Coli	93.859	5R01GM037219-29		0	406,820
New modes and mechanisms of negative regulation of LIN-12/Notch in C. elegans	93.859	5R01GM114140-04		0	394,670

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Selective Functionalization of Aliphatic Amines and Derivatives	93.859	5R01GM125206-02		0	391,748
Structural and Functional Studies of Potassium Channels by Solid State NMR	93.859	5R01GM088724-08		0	391,057
Structural Studies of Human Extracellular Calcium-Sensing Receptor	93.859	5R01GM112973-04		0	389,449
Molecular mechanism of nucleobase/vitamin C transporters	93.859	5R01GM119396-03		228,109	388,424
Elucidation of regulation and function of amyloid-like assemblies	93.859	5R35GM124633-02		0	385,974
The structural dynamics of translation initiation	93.859	5R01GM084288-09		0	382,485
The Impact Of Surgery-Induced Neuroinflammation On Tau Pathology And Function	93.859	5R01GM101698-07		14,351	378,370
Role of Nucleo-cytoskeleton Interactions in Cell Migration	93.859	5R01GM099481-06		0	376,065
Protein Motions in Recognition, Regulation and catalysis	93.859	5R01GM059273-19		0	370,607
Nanomechanics of bacterial adhesion	93.859	5R01GM116122-18		0	362,625
Break-induced replication and genome rearrangements	93.859	5R01GM094386-07		0	353,978
The population genetics of disease risk and other quantitative traits	93.859	5R01GM115889-04		0	337,301
NMR Studies of Structure and Dynamic of Proteins	93.859	5R01GM050291-23		0	337,172
Control of Drosophilia wing growth by morphogen	93.859	5R01GM113000-04		0	330,735
Mutation rate variations in primates	93.859	5R01GM122975-02		0	330,578
Transcriptional regulation by the DNA damage response	93.859	5R01GM117064-03		0	327,363
Predoctoral Training Grant in Genetics and Development	93.859	5T32GM007088-44		0	324,014
Training Program in Molecular Biophysics	93.859	5T32GM008281-30		0	319,546
Computational Annotation of Orphan Metabolic Activities	93.859	5R01GM079759-07		0	312,618
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-16		75,319	311,293
Integrate cancer genomics data in genetic studies and diagnosis of developmental disorders	93.859	5R01GM120609-02		11,197	298,072
Continued Development and Maintenance of the 3DNA Suite of Programs	93.859	5R01GM096889-08		43,328	287,803
Natural selection in recent human evolution	93.859	5R01GM121372-02		0	287,450
Mechanisms of cell competition that regulate growth during development	93.859	5R01GM078464-12		0	280,810
Competition and morphogenesis in tip cell-mediated branching of tubular networks	93.859	7R01GM089782-08		0	277,979
Computer Studies of Protein Structure and Function	93.859	5R01GM030518-37		0	277,617

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Small G-protein Regulation of Calcium Channels	93.859	5R01GM107585-04		0	273,488
Carbon monoxide exposure and anethesia-induced neurotoxicity	93.859	5R01GM103842-06		13,676	273,037
Mechanism of Notch activation by Epsin-dependent ligand endocytosis in Drosophila	93.859	5R01GM109183-04		0	272,908
Spatial, temporal and environmental regulation of early gonadogenesis in C. elegans	93.859	5R01GM115718-04		0	264,421
Cell polarity and cytokinesis	93.859	5R01GM117407-03		0	261,548
Identifying Remote Regulators of Complex I Biogenesis in Drosophila	93.859	5R35GM124717-02		0	256,533
Anesthesiology Research Training	93.859	5T32GM008464-25		0	250,702
Uncovering the Structure of Evolution using the Topology of Genomic Data with Applications to HIV	93.859	5R01GM117591-04		19,256	250,039
Tropomyosin and tyrosine kinases in mechanics of cancer	93.859	5R01GM113022-04		0	249,615
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		0	248,611
Modeling Contractile Ring Constriction in Fission Yeast	93.859	5R01GM086731-08		0	244,809
Enhancing Secondary School STEM Education for Students and Teachers through Biomedical Engineering Design	93.859	8R25GM129217-03		0	235,872
Regulation of Protein Synthesis in Bacteria by Ser/Thr Phosphorylation	93.859	5R01GM114213-04		0	232,720
Modular assembly of cytochrome oxidase	93.859	5R01GM111864-04		0	226,711
Experimentally Guided Ribosomal RNA Modeling	93.859	5R01GM055440-21		0	225,396
Modeling SNARE-Mediated Membrane Fusion	93.859	5R01GM117046-02		0	217,826
Anomalous Diffraction Analysis of Biomolecular Structure	93.859	5R01GM107462-04		0	215,809
Post-selection inference and trajectory analysis	93.859	5R01GM095722-08		0	206,149
ER export and the quality control checkpoint during membrane protein biogenesis	93.859	5R01GM078186-09		62,662	194,615
Catalysis of Tin-Free Radical Reactions Under H2	93.859	5R01GM124295-02		0	181,470
CysZ Proteins - A Family of Sulfate Transporters with Remarkable Architecture	93.859	4R01GM098617-05		0	170,026
Function of the Bromodomain Protein Brdt in Spermatogenesis	93.859	4R01GM081767-08		0	169,938
Single-nucleotide resolution mapping of allelic protein-RNA interactions and splicing regulatory variants	93.859	1R01GM124486-01A1		0	167,791
Somatic stem cells in the Drosophila ovary	93.859	5R01GM079351-08		0	163,660
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		0	162,844
Molecular mechanisms of cargo capture into ER-derived transport vesicles	93.859	4R01GM085089-08		93,305	159,777

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Asymmetric Synthesis of Marcolide Antibiotics	93.859	5R01GM058133-16		0	157,709
Lipid biosynthesis and modification by integral-membrane enzymes	93.859	5R01GM111980-04		0	149,532
Enantioselective Catalysis with Cyclopropenimines	93.859	5R01GM102611-05		0	129,674
Circadian regulation of phagocytosis	93.859	5R01GM105775-05		0	95,620
Morphogen control of organ growth in Drosophila	93.859	1R35GM127141-01		0	95,429
Understanding Complex Gene Editing Systems in Protists	93.859	7R01GM059708-16		0	93,984
Coupling promoter choice and alternative RNA	93.859	5K99GM121815-02		0	93,628
Medical Scientist Training Program	93.859	5T32GM007367-43		0	90,100
Structural basis of aminoarabinose biosynthes	93.859	5K99GM123228-02		0	89,607
Biophysical mechanisms of ABC-F proteins	93.859	5R01GM120579-03		0	88,904
Regulation of mRNA processing: Mechanisms and Consequences	93.859	5R35GM118136-03		0	87,336
TRPML1 channel physiology and pathophysiology	93.859	5R01GM085234-08		0	80,678
Biophysical mechanisms of ABC-F proteins	93.859	5R01GM120579-03		0	80,623
Regulation of Protein Synthesis in Bacteria by Ser/Thr Phosphorylation	93.859	5R01GM114213-04		0	80,167
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-16		0	67,779
Mechanism and regulation of DNA double-strand break repair	93.859	1R35GM126997-01		0	58,827
Mechanisms of cell competition that regulate growth during development	93.859	5R01GM078464-12		0	55,873
Enantioselective Bronsted Acid Catalysis with Chiral Cyclopentadienes	93.859	5R01GM120205-02REVISED		0	55,865
Asymmetric Umpolung Aldehyde Reactions	93.859	5R01GM072586-13		0	51,406
Circadian regulation of physiological functions	93.859	1R35GM127049-01		0	47,443
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		0	44,235
Role of regulated mRNA degradation in the control of axonal mRNA localization and translation.	93.859	5F31GM116617-03		0	44,044
Mechanisms of Epigenetic inheritance	93.859	5R35GM118015-03		0	42,015
A C. elegans model for studying blocks to EGFR signal transduction in quiescent cells	93.859	5F31GM126741-02		0	39,844
Mechanism of Heterochromatin Assembly	93.859	5R01GM085145-09		0	33,845
A Combined Rhodium-Photoredox-Catalyzed Approach to Alkene Carbofunctionalization by Carbon-Hydroge	93.859	1F32GM126609-01		0	33,758

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Molecular Mechanisms Underlying DNA Double-Strand Break and Crosslink Repair	93.859	5R35GM118180-03		0	32,274
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		0	32,220
Histone chaperones and transcriptional silencing	93.859	7R01GM072719-11		0	30,415
Reversible regulation of ribosome recycling by Ser/Thr phosphorylation	93.859	5F32GM122266-02		0	29,912
Reversible regulation of ribosome recycling by Ser/Thr phosphorylation	93.859	5F32GM122266-02		0	28,785
Identifying Novel Regulators of Mitochondrial Complex I Biogenesis	93.859	1F31GM125363-01		0	22,022
Microtuble networks and Virus Trafficking	93.859	5P01GM105536-05		0	21,491
Super-multiplex vibrational imaging in living cells	93.859	1R01GM128214-01		0	21,036
PTEN/DAF-18 and FOXO/DAF-16 function in blast cell quiescence in C. elegans dauer developmental arrest	93.859	5F31GM116508-02		0	17,691
Structural and functional studies of mRNA processing, stability and quality control	93.859	5R35GM118093-03		0	15,810
Studies of Riboswitch-Mediated Transcriptional Control Using Single-Molecule Field-Effect Transistors	93.859	5R01GM107417-04		0	15,693
Single-nucleotide resolution mapping of allelic protein-RNA interactions and splicing regulatory variants	93.859	1R01GM124486-01A1		0	15,077
Population Genetic Modeling of the Genetic Architecture of Complex Disease	93.859	1F32GM126787-01		0	13,810
Babesiosis Emergence in the United States	93.859	5R01GM105246-05		11,262	12,581
Medical Scientist Training Program	93.859	4T32GM007367-41		0	12,200
Characterizing and Mapping Deleterious Mutations in Humans	93.859	1F32GM128318-01		0	11,662
Training in Cellular, Molecular and Biomedical Studies	93.859	4T32GM008224-30		0	8,262
Stochastic Events Regulating a Notch-Mediated Cell Fate Decision in Caenorhabditis elegans	93.859	5F32GM113368-02		0	7,863
Catalysis of Tin-Free Radical Reactions Under H2	93.859	5R01GM124295-02		0	7,681
A role for Hox-dependent chromatin architecture in defining cell-fate	93.859	5F32GM112326-03		0	5,903
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-18		0	5,729
Studies of Riboswitch-Mediated Transcriptional Control Using Single-Molecule Field-Effect Transistors	93.859	5R01GM107417-04		0	5,672
Development and Dissemination of Operational Real-Time Respiratory Virus Forecast	93.859	5U01GM110748-05		227	5,606
Structure and function of 5 to 3 exoribonucleases	93.859	2R01GM090059-05		0	3,329
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-16		0	2,672
Evolutionary paths toward intrinsic antibiotic resistance	93.859	4F31GM108419-04		0	1,948

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The structural basis of cis and trans protocadherin interactions	93.859	4R01GM107571-04		0	1,936
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-18		0	252
MECHANISM OF RENAL PROTECTION WITH VOLATILE ANESTHETICS	93.859	5 R01 GM067081-08		0	-1
RNA Biology in Oxytricha: a Complex Unicellular Model	93.859	5R01GM111933-02		0	-1
Recombination Rate Variation and Evolution in Primates	93.859	5R01GM083098-08		0	-292
Mitochondrial Motility and Inheritance	93.859	4R01GM045735-19		0	-315
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-18		0	-337
Quantitative studies of influenza evolution	93.859	5R01GM109018-05		0	-960
Anesthesiology Research Training	93.859	5T32GM008464-25		0	-1,620
				$1,923,752	$35,192,568
Child Health and Human Development Extramural Research					
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-05		644,744	881,919
Predictors of High-Risk Behavior among Youth (MARTINS/BLANCO/CANINO/DUARTE)	93.865	5R01HD060072-10		543,460	730,333
Columbia University/Aga Khan University Global Network Research Unit	93.865	5U10HD078438-05		590,390	717,545
PRENATAL CYTOGENETIC DIAGNOSIS BY ARRAY-BASED COPY NUMBER ANALYSES: Follow-up	93.865	4U01HD055651-10		209,698	640,521
Determinants of Leukocyte Telomere Length at Birth (Susser/Factor-Litvak/Aviv)	93.865	4R01HD071180-05		412,730	628,678
Placenta-derived extracellular circulating RNA as a tool for monitoring placental function	93.865	5R01HD086327-04		229,323	561,185
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		130,393	522,724
Host epigenetic and mitochondrial function in HIV-infected children	93.865	4R01HD073952-05		263,880	513,652
Neurobiology and Behavior Research Training Grant	93.865	5T32HD007430-20		0	461,005
Bone health in perinatally HIV-infected South African children on antiretrovirals	93.865	4R01HD073977-05		252,189	424,438
Flu2Text: A Multi-Site Study assessing an Intervention for 2nd Dose of Influenza Vaccine	93.865	5R01HD086045-03		258,296	412,637
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		21,855	406,524
Preventing Postpartum Depression: A Dyadic Approach Adjunctive to Obstetric Care	93.865	5R01HD092062-02		10,341	399,714
Systems analysis of mouse gastrulation	93.865	5R01HD085904-03		0	391,704
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		12,385	347,851

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Calcium activated chloride channel modulation of myometrial excitability	93.865	5R01HD082251-03		11,690	347,470
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	335,367
Columbia-Vietnam Social Science Training and Research Partnership: STAR II (Hirsch/Parker/Van)	93.865	5R24HD056691-10		150,253	320,599
Neonatal and Pediatric Platelet Function and Pharmacology	93.865	5R01HD081281-03		128,979	315,140
Regulation of neural progenitor competence	93.865	5R01HD092381-02		0	306,868
Structural and Social Transitions among Adolescents and young adults in Rakai (SSTAR)	93.865	5R01HD091003-02		40,907	306,579
Infection, fever and immunity and offspring ADHD i a population based pregnancy/birth cohort	93.865	5R01HD090051-02		0	270,308
A Comprehensive Systems Analysis of Community Based Primary Health Care	93.865	5R21HD086474-02		0	234,855
Role of Cyclin A s in mammalian gametogenesis	93.865	5R01HD034915-18		0	234,038
Columbia Population Research Center	93.865	5P2CHD058486-10		0	230,380
Maternal-Fetal Medicine Units (MFMU) Network	93.865	5UG1HD040485-19		0	226,686
Mentored Clinical Scientist Research Career Development Award	93.865	5K08HD082287-04		0	188,634
Adolescent and Parental Attitudes About STI Prevention Trial Participation	93.865	5R01HD067287-05		17,087	177,420
Prevention and Planning Linkages (SANTELLI)	93.865	4R01HD072695-05		60,043	175,682
Obstetric Interventions, Neonatal Health, and Child Development	93.865	5R01HD090119-02		74,625	175,664
The Genetics and Neurobiology of Parental Care in Wild Mice	93.865	5R00HD084732-04		0	175,509
Retinoid Receptor Antagonists as Novel Male Contraceptives	93.865	5U01HD060479-10		0	173,314
A Computational Framework for the Clinical Evaluation of the Soft Tissue Mechanics in Pregnancy	93.865	5R01HD091153-02		0	167,170
Decisions around chronic ventilation for children with life-limiting conditions	93.865	5K23HD082361-04		0	159,354
A Pilot Study to Improve Sleep Quality in Urban High School Students with Asthma	93.865	5R21HD086448-02		87,285	157,573
GSH Training Grant	93.865	5T32HD049339-12		0	155,559
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-05		83,456	153,887
Evaluating the role of human cervical smooth muscle cells in normal and premature cervical remodeling	93.865	5K08HD088758-03		0	150,044
Assessing a Stroke Homehealth Aide Recovery Program (SHARP) as a Potential High Impact Strategy for Improving in Functional Mobility after Stroke	93.865	5R21HD089013-02		77,803	135,289
Evaluation of Oxidative Capacity and Exercise Tolerance in Ambulatory Patients with Spinal Muscular Atrophy	93.865	5K01HD084690-03		0	126,154
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	114,425

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				R&D Cluster	
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Columbia University/Aga Khan University Global Network Research Unit	93.865	5U10HD078438-05		110,457	110,457
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	109,891
Evaluating a Youth focused economic empowerment approach to HIV Treatment	93.865	5R01HD074949-05		0	109,089
Maternal-Fetal Medicine Units (MFMU) Network	93.865	5UG1HD040485-19		0	84,506
SES & Allostatic Load: Pregnancy Outcomes and Maternal Neurobehavior	93.865	5K99HD079668-02		0	75,202
Prenatal Alcohol in Sudden Infant Death Syndrome (SIDS) and Stillbirth (PASS) Network	93.865	5U01HD055155-10		68,673	70,202
Retinoid Receptor Antagonists as Novel Male Contraceptives	93.865	5U01HD060479-10		0	63,494
Maternal-Fetal Medicine Units (MFMU) Network	93.865	5UG1HD040485-19		0	61,012
Migration and Child Health and Development: Effects and Mechanisms	93.865	4K01HD073318-05		0	60,632
Identification and Characterization of the Genetic Causes of Lymphatic Anomalies	93.865	5R03HD092662-02		0	59,425
Systems analysis of mouse gastrulation	93.865	5R01HD085904-03		0	58,820
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-05		45,608	45,608
The Development of Emotion Regulation Mechanisms Impacting Health	93.865	5R01HD069178-05		0	37,394
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	34,394
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	32,229
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-05		0	30,218
Early Menarche and the Reproductive Health of Ghanaian Girls and Young Women.	93.865	5F31HD089592-03		0	27,590
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	23,147
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	22,950
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		18,328	20,451
Fragile Families Summer Data Workshops Series 2013 to 2017	93.865	5R25HD074544-05		0	18,097
Maternal-Fetal Medicine Units (MFMU) Network	93.865	5UG1HD040485-19		0	15,475
Columbia Population Research Center	93.865	5P2CHD058486-10		0	15,431
Columbia Population Research Center	93.865	5P2CHD058486-10		0	13,204
Columbia Population Research Center	93.865	5P2CHD058486-10		0	12,924
Columbia Population Research Center	93.865	5P2CHD058486-10		0	11,720

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Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	8,399
Bridges to the Future: Economic Empowerment for AIDS-Orphaned Children in Uganda	93.865	5R01HD070727-05		0	8,127
Columbia Population Research Center	93.865	5P2CHD058486-10		0	7,672
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	6,396
The development and regualtion of moral emotions	93.865	5F32HD081960-03		0	6,361
Columbia Population Research Center	93.865	5P2CHD058486-10		0	2,373
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	2,123
An Experimental Investigation into the Impact of Socioeconomic Context on Biological Markers of Aging, Health and Mortality	93.865	1R21HD075664-01		0	1,526
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	1,065
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-05		0	-187
Role of T-box genes in mouse development	93.865	4R37HD033082-20		0	-436
Strategies to Optimize ART Services for Maternal & Child Health: the MCH-ART Study (Abrams/Myer)	93.865	5R01HD074558-03		0	-1,298
Columbia University/Aga Khan University Global Network Research Unit	93.865	5U10HD078438-05		0	-4,773
Maternal-Fetal Medicine Units (MFMU) Network	93.865	5UG1HD040485-19		0	-9,174
				$4,554,879	$14,806,134

Aging Research

Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		2,463,560	3,005,082
Offspring Study of Mechanisms of Racial Disparities in Alzheimer s Disease	93.866	1RF1AG054070-01		0	2,047,034
WHICAP -Genetic Epidemiology of Cerebrovascular Factors in Alzheimer s Disease	93.866	1RF1AG054023-01		0	1,360,686
Exploring Cognitive Aging Using Reference Ability Neural Networks	93.866	2RF1AG038465-06		0	1,318,303
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-04		230,754	1,270,070
School Quality and Racial Disparities in Alzheimer s Disease in Project Talent	93.866	1RF1AG056164-01		1,048,581	1,214,191
Interdisciplinary Research to Understand the Interplay of Diabetes, Cerebrovascular disease and Alzheimer s disease	93.866	1RF1AG051556-01		269,337	1,154,087
The National Institute on Aging (NIA) Late Onset of Alzheimer s Disease(LOAD) Family Based Study (FBS)	93.866	5U24AG056270-02		328,956	981,630
Diabetes Status and Brain Amyloid in Middle Aged Hispanics	93.866	5R01AG050440-04		39,411	980,267
Genetic Studies of Alzheimer s Disease in Caribbean Hispanics	93.866	2RF1AG015473-16A1		64,800	910,237

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Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	794,570
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	700,883
Anti-viral therapy in Alzheimer s disease	93.866	5R01AG055422-02		199,450	683,733
Assessment of ultrasound-facilitated Neurotherapeutics in Alzheimer s Disease	93.866	5R01AG038961-08		0	673,713
Predictors of Severity in Alzheimer s Disease	93.866	5R01AG007370-27		82,604	610,334
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	597,518
Resilience mechanisms underlying racial/ethnic disparities in Alzheimer s disease	93.866	5R01AG054520-02		0	597,156
Old SCHOOL Hip Hop: A randomized controlled trial to improve dementia knowledge	93.866	5R01AG054536-02		105,400	577,219
Imaging of Cognition, Learning and Memory in Aging	93.866	5R01AG026158-12		0	560,835
Olfactory deficits and donepezil treatment in cognitively impaired elderly	93.866	5R01AG041795-05		0	522,993
Statin Neuroprotection & Cognitive Dysfunction after Carotid Endarterectomy	93.866	5R01AG050819-02		0	463,645
Extracellular tau oligomers and Alzheimer disease	93.866	5R01AG049402-04		0	447,674
Mitochondrial maintenance mechanisms of stem cells and aging	93.866	5R01AG055910-02		8,574	432,193
Tauopathy in AD and FTD - Molecular Determinants of Phenotypic Diversity	93.866	1RF1AG056151-01A1		59,905	409,210
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	399,076
Genetic Modifiers of Alzheimer Disease in PSEN1 Mutation Carriers in Puerto Rico	93.866	1R56AG051876-01A1		105,247	394,629
Genetic Studies of Alzheimer s Disease in Caribbean Hispanics	93.866	2RF1AG015473-16A1		0	388,426
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	369,836
Understanding cognitive mechanisms of emotion regulation in aging	93.866	5R01AG043463-05		0	368,572
Pathway discovery, validation and compound identification for Alzheimer s disease	93.866	7U01AG046152-05		34,197	353,784
Entorhinal-hippocampal circuit dysfunction in AD mice	93.866	5R01AG050425-04		4,561	353,094
Pathogenic role for formin mediated microtubule stabilization pathways in Alzheimers disease	93.866	5R01AG050658-03		0	349,911
Role of C99 in the regulation of lipid metabolism- Relevance to Alzheimer s disease	93.866	5R01AG056387-02		0	344,023
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	334,756
Are there ethnic differences in brain amyloid and tau in the seventh decade of life?	93.866	5R01AG055299-02		64,000	320,034
Testing Olfaction in Primary care to detect Alzheimer s disease and other Dementias (TOPAD)	93.866	5R01AG057898-02		31,000	286,122

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R&D Cluster

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White Matter Hyperintensities in Aging and Dementia	93.866	2R56AG034189-06A1		0	259,842
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	242,228
Task-specific and person-specific factors related to SubjectiveCognitive Decline	93.866	5R01AG054525-02		0	241,800
Aging of tissue-specific clocks in the immune system of Drosophila	93.866	5R01AG045842-05		0	238,757
The Role of Actin in Cellular Aging	93.866	5R21AG051047-02		0	236,113
An integrative analysis of DNA methylation, transcriptomic changes, and cognitive dysfunction in Alzheimer s disease	93.866	5K76AG054868-02		0	228,358
Cognitive training and neuroplasticity in mild cognitive impairment	93.866	5R01AG052440-02		119,278	216,112
Epidemiology of Familial Late-Onset Alzheimer s Disease	93.866	4R01AG041797-05		96,618	212,185
Frailty, Palliative Care Needs, and Outcomes in Older Survivors of Critical Illness	93.866	5K23AG045560-05		0	209,528
Prenatal Under Nutrition and Mortality Through Age 63 Project	93.866	5R01AG028593-07		87,181	206,592
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	193,100
Midcareer Mentoring Award for Patient Oriented Research in Geriatric Cardiology	93.866	5K24AG036778-08		0	180,582
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	178,657
Deconstructing and modeling the single cell architecture of the Alzheimer brain	93.866	1RF1AG057473-01		85,130	172,091
Dietary Factors and Neuroimaging Markers	93.866	5R00AG042483-05		0	167,065
Imaging inflammation and tau in elders with different clinical and biomarker profiles of Alzheimer s disease	93.866	5K23AG052633-03		0	162,540
Admixture mapping in late-onset Alzheimer s disease	93.866	5R21AG054832-02		0	161,473
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-04		0	158,998
Determinants of Critical Care Intensity for Hospitalized Older Adults: the Effect of Hospital-based Palliative Care Services	93.866	5K08AG051184-04		0	157,394
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	151,344
Mechanisms of BMP synthesis and alterations in Alzheimer s disease	93.866	5R21AG056758-02		2,910	143,320
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	137,661
Toward Understanding Aging Mechanisms of Neuromusc	93.866	5R21AG052011-02		0	134,642
Endoplasmic Reticulum Mitochondrial membranes in Alzheimer s Disease	93.866	5K01AG045335-05		0	133,580
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		18,594	131,247
An Experimental Investigation into the Impact of Socioeconomic Context on Biological Markers of Aging, Health and Mortality	93.866	5R01AG054466-02		0	129,363

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Receptor-mediated clearance of synaptic tau as a novel therapy forAlzheimer s disease.	93.866	5K01AG055694-02		0	126,659
Exploring the Latent Class Structure of Inhibition in Normal Aging	93.866	5K99AG055684-02		0	124,691
Toward Understanding Aging Mechanisms of Neuromusc	93.866	5R21AG052011-02		0	123,382
Analyzing age-related changes of brain activation in subjects native space	93.866	5K01AG044467-05		0	123,056
Longitudinal Changes in White Matter Integrity Predicting Cognitive Changes in Reasoning and Vocabulary Abilities	93.866	5K01AG051777-03		0	122,931
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	115,521
Investigating the vulnerability of WFS1-expressing excitatory neurons to tau pathology in early Alzheimer s disease.	93.866	5K01AG056673-02		0	114,959
On the role of microglia-derived extracellular vesicles in amyloid-beta induced changes in synaptic function and network activity.	93.866	1R56AG056108-01		0	114,400
Hippocampal Neurogenesis, Pattern separation & age- Related cognitive impairments	93.866	5R01AG043688-05		0	113,636
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	112,885
A pilot randomized trial of arteriovenous fistula versus arteriovenous graft in elderly patients with advanced kidney disease	93.866	5R03AG053294-02		0	105,412
The role of a novel atypical monoamine transporter in Alzheimer s disease	93.866	5K01AG047954-05		0	105,048
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		0	103,336
A longitudinal study of mid- to late life blood pressure profile as risk factor in Alzheimer s disease for Hispanics.	93.866	5R03AG054186-02		37,240	98,703
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	94,921
The Brief Research in Aging and Interdisciplinary Neurosciences	93.866	2T35AG044303-06		0	87,869
Interdisciplinary Research to Understand the Interplay of Diabetes, Cerebrovascular disease and Alzheimer s disease	93.866	1RF1AG051556-01		82,291	82,291
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	82,031
Biological aging in older HIV-infected African Americans	93.866	5R21AG056175-02		0	79,742
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-04		0	79,294
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	77,503
Gene-Environment Interaction in Cognition in Venezuelan Families	93.866	5R01AG036469-05		0	75,839
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-04		35,550	73,315
Midcareer Award for Research in Dementia Risk Factors and Prevention	93.866	5K24AG045334-03		0	72,590
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		67,192	68,792
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	67,305

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Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	63,462
Understanding cognitive mechanisms of emotion regulation in aging	93.866	5R01AG043463-05		0	62,177
Interdisciplinary Research to Understand the Interplay of Diabetes, Cerebrovascular disease and Alzheimer s disease	93.866	1RF1AG051556-01		0	61,383
The Role of Actin in Cellular Aging	93.866	4R33AG051047-03		0	54,208
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		33,474	53,709
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	53,658
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	52,367
The National Institute on Aging (NIA) Late Onset of Alzheimer s Disease(LOAD) Family Based Study (FBS)	93.866	5U24AG056270-02		0	51,327
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	51,304
School Quality and Racial Disparities in Alzheimer s Disease in Project Talent	93.866	1RF1AG056164-01		31,117	51,056
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	48,000
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	46,539
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	46,298
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	44,188
AMPK as a master regulator of oligomeric Abeta42 inducedsynaptotoxicity and mitochondrial dysfunction	93.866	1F31AG056083-01		0	42,057
Genetic Studies of Alzheimer s Disease in Caribbean Hispanics	93.866	2RF1AG015473-16A1		0	39,429
APP ubiquitination and implications for AB generation	93.866	5F30AG047748-04		0	37,994
Biological aging in older HIV-infected African Americans	93.866	5R21AG056175-02		0	37,911
Expanding the knowledge base for emotion regulation in aging	93.866	1R56AG057202-01		0	37,561
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	37,552
Can Ventricular Assist Devices Reverse the Frailty Phenotype	93.866	5R21AG046703-02		29,193	36,497
Skeletal Disease in Type 2 Diabetes: a Novel Therapeutic Approach for the Elderly	93.866	1R21AG058210-01		0	35,843
Efficient Statistical Methods for Association Studies with Dense Genotypes and Family History of Disease	93.866	5F31AG054095-02		0	32,378
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	30,969
Factors Influencing Financial Capacity and Awareness of Capacity in Cognitive Aging	93.866	5F32AG053035-02		0	30,688
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	28,890

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WHICAP -Genetic Epidemiology of Cerebrovascular Factors in Alzheimer s Disease	93.866	1RF1AG054023-01		0	28,187
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		0	27,511
Mitochondria-cytoskeleton communication and function in aging	93.866	5F31AG055326-02		0	26,476
The Brief Research in Aging and Interdisciplinary Neurosciences	93.866	5T35AG044303-05		0	24,548
Early life environment and later life dementia, cognition, neuropathology, and reserve	93.866	5K01AG050723-04		0	21,990
APP ubiquitination and implications for AB generation	93.866	5F30AG047748-04		0	20,782
Expanding the knowledge base for emotion regulation in aging	93.866	1R56AG057202-01		0	19,827
Factors Influencing Financial Capacity and Awareness of Capacity in Cognitive Aging	93.866	5F32AG053035-02		0	19,587
Calcium Leak-Dependent Muscle Function Loss in Aged C. elegans	93.866	5F31AG052312-02		0	18,260
Mitochondria-cytoskeleton communication and function in aging	93.866	5F31AG055326-02		0	17,892
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	16,907
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	16,507
Imaging of Cognition, Learning and Memory in Aging	93.866	5R01AG026158-10		0	15,601
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	15,037
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	14,760
Metabolomic/lipidomic analysis of apoE isoform effects in AD-linked brain regions	93.866	5F32AG047797-03		0	14,713
Convergence of myeloid susceptibility protein function in Alzheimer s disease	93.866	1RF1AG058852-01		0	13,668
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	11,241
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	11,024
An Experimental Investigation into the Impact of Socioeconomic Context on Biological Markers of Aging, Health and Mortality	93.866	5R01AG054466-02		6,008	9,614
School Quality and Racial Disparities in Alzheimer s Disease in Project Talent	93.866	1RF1AG056164-01		2,926	9,556
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	8,322
Aging of tissue-specific clocks in the immune system of Drosophila	93.866	5R01AG045842-05		0	8,255
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	6,411
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	6,351
Entorhinal-hippocampal circuit dysfunction in AD mice	93.866	5R01AG050425-04		0	5,246

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Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	5,046
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	4,683
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	4,337
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	3,894
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	2,606
Factors Influencing Financial Capacity and Awareness of Capacity in Cognitive Aging	93.866	5F32AG053035-02		0	2,400
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	2,062
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	1,193
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	900
Human induced neuronal stem cell models of familial Alzheimer s disease	93.866	4R01AG042317-05		862	862
Long Life Family Study: Columbia University	93.866	5U01AG023749-13		0	608
Diabetes Status and Brain Amyloid in Middle Aged Hispanics	93.866	5R01AG050440-04		0	316
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	82
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-09		0	12
Exercise, Age-Related Memory Decline, and Hippocampal Function	93.866	5R01AG035015-05		0	5
Epidemiology of Biomarkers of Risk and Progression in LOAD	93.866	5R01AG037212-05		0	-1
White matter hyperintensities in aging and dementia	93.866	5R01AG034189-05		0	-1
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	-11
Prenatal Under Nutrition and Mortality Through Age 63 Project	93.866	5R01AG028593-05		0	-88
Hematopoietic Stems Cells and Longevity	93.866	4R01AG029626-10		0	-109
Epidemiology of Familial Late-Onset Alzheimer s Disease	93.866	5R01AG041797-04		-213	-213
Exercise, aging, and cognition: Effect and mechanisms	93.866	5R01AG033546-05		0	-279
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		0	-363
Metabolomic/lipidomic analysis of apoE isoform effects in AD-linked brain regions	93.866	5F32AG047797-03		0	-1,200
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		0	-1,600
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		0	-1,617

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Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-29		0	-1,674
Predictors of Severity in Alzheimer s Disease	93.866	5R01AG007370-25		-4,345	-2,815
Human induced neuronal stem cell models of familial Alzheimer s disease	93.866	4R01AG042317-05		0	-2,937
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-04		-6,807	-6,807
Diabetes Status and Brain Amyloid in Middle Aged Hispanics	93.866	5R01AG050440-04		0	-9,109
Imaging of Cognition, Learning and Memory in Aging	93.866	5R01AG026158-10		0	-12,932
Interdisciplinary Research to Understand the Interplay of Diabetes, Cerebrovascular disease and Alzheimer s disease	93.866	1RF1AG051556-01		0	-87,050
				$5,864,534	$35,382,124
Vision Research					
Quantitative Fundus Autofluorescence in Retinal Disorders	93.867	5R01EY024091-04		57,743	516,481
Molecular physiology of cyclic nucleotide-gated channels	93.867	5R01EY027800-02		0	509,282
Core Facilities for Vision Research	93.867	5P30EY019007-08		0	456,577
Structural basis of receptor-mediated cellular vitamin A uptake	93.867	5R01EY027405-02		112,299	430,497
Studying models and mechanisms of optic nerve diseases	93.867	5R01EY002115-41		0	426,888
Ultrasound perfusion imaging in glaucoma	93.867	5R01EY025215-04		82,920	425,117
Therapeutic Corneal Cross-Linking using Formaldehyde Releasing agents	93.867	5R01EY020495-08		0	419,406
Defining Barriers to Gene Therapy	93.867	5R01EY018213-09		0	414,129
Core Facilities for Vision Research	93.867	5P30EY019007-08		0	410,715
Top-down selection of task-relevant cues: neural mechanisms in the frontal and parietal lobes	93.867	5R01EY025965-04		0	401,679
Structural and Functional Progression of Glaucomatous Damage to the Macula	93.867	5R01EY025253-03		0	380,887
Signaling Mechanisms of Lens Development	93.867	5R01EY017061-13		0	373,818
Gene Silencing and Gene Editing in Phototransduction	93.867	5R01EY024698-04		148,609	368,712
Impact of Lipofuscin in Retinal Pigment Epithelial Cells	93.867	5R01EY012951-18		0	366,157
Growth and Guidance of Retinal Axon	93.867	5R01EY012736-28		0	364,207
The Neurophysiology of Visual Search: Oculomotor and Visual Mechanisms	93.867	5R01EY017039-10		0	354,796
Receptor Tyrosine Kinase Activity in Drosophila Eye Development	93.867	5R01EY026217-03		0	348,686

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Genetics of refractive error development in the mouse model	93.867	5R01EY023839-04		26,029	341,613
PDGF signaling in lens development	93.867	5R01EY025933-04		0	339,749
Endogenous neural activity: neurophysiology, optical imaging, fMRI, and behavior.	93.867	5R01EY025330-03		83,553	294,123
Regulation of FGF signaling in lacrimal gland develop	93.867	5R01EY018868-09		0	277,528
The role of cortical feedback in visual face processing	93.867	5R00EY022671-04		0	232,400
Pharmacological modulation of thevisual phototransduction cascade for treatment of diabetic retinopathy	93.867	5R21EY027027-02		0	231,773
Vision Sciences Training Grant	93.867	5T32EY013933-18		0	193,445
Mechanisms of Visual Perception	93.867	5R01EY011378-20		0	190,103
Therapeutic Approaches for ABCA4-associated Disorders	93.867	5R24EY019861-05		85,969	183,832
Role of oculomotor proprioception in spatial processing by the parietal cortex	93.867	5K08EY023265-05		0	183,660
Neurophysiology of Active Vision in humans	93.867	5R21EY024776-02		0	151,046
Photoreceptor specification in the Drosophila eye	93.867	4R01EY023635-04		0	147,221
Optimal calcium imaging with shaped excitation	93.867	5R21EY027592-02		0	141,733
The Role of Zic Genes in Patterning the Binocular Projection	93.867	4R01EY015290-13		0	117,533
Pharmacological treatment for atrophic age-related macular degeneration compounded by common forms of age-related amyloid disease	93.867	1R01EY028549-01		8,433	99,497
Defining Barriers to Gene Therapy	93.867	2R01EY018213-10		0	77,433
Impact of Lipofuscin in Retinal Pigment Epithelial Cells	93.867	4R01EY012951-16		0	55,673
Ocular hemodynamics of rat model of glaucoma	93.867	1R01EY028550-01		0	49,144
Imaging functional connectivity in visual cortex	93.867	4R01EY011787-16		0	46,253
Retinal Disease Promoted by Iron-Induced Bisretinoid Oxidation	93.867	1R01EY028131-01A1		0	38,794
Regulation of Glia-driven Neuroinflammation in Glaucoma	93.867	1R01EY028153-01A1		0	34,706
Vision Sciences Training Grant	93.867	5T32EY013933-18		0	19,938
Therapeutic Corneal Cross-Linking using Formaldehyde Releasing agents	93.867	5R01EY020495-08		0	17,665
Imaging Functional Connectivity in Visual Cortex	93.867	2R01EY011787-17		0	7,602
Imaging the circuit mechanisms of perceptual learning in the visual cortex	93.867	5K99EY024653-02		0	1,542
Novel Approaches in the Therapy of Pathologic Myopia	93.867	5K08EY023595-04		0	1,063

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Anticipatory Hemodynamic Signals in Primary Visual Cortex	93.867	2R01EY019500-05A1		0	-3
Oxidative Stress in Neurodegeneration and Neuroproection in Glaucoma	93.867	5R21EY024105-02		0	-1,227
				$605,554	$10,441,871
Medical Library Assistance					
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-27		0	682,324
Discovering and Applying Knowledge in Clinical Databases	93.879	5R01LM006910-18		0	499,809
Bridging the Semantic Gap Between Research Eligibility Criteria and Clinical Data	93.879	5R01LM009886-09		0	189,766
Pharmacovigilance Methods: Leveraging Heterogeneous Adverse Drug Reaction Data	93.879	4R01LM010016-08		0	183,020
Mechanistic Machine Learning	93.879	1R01LM012734-01		30,267	173,092
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-27		0	92,195
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-24		0	26,810
Bridging the Semantic Gap Between Research Eligibility Criteria and Clinical Data	93.879	5R01LM009886-07		0	26,541
Discovering and Applying Knowledge in Clinical Databases	93.879	5R01LM006910-18		0	1,101
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-24		0	-1,031
Bridging the Semantic Gap Between Research Eligibility Criteria and Clinical Data	93.879	5R01LM00988604		0	-1,746
				$30,267	$1,871,880
International Research and Research Training					
Domestic Violence Attitudes and Culturally Appropriate Prevention in Pakistan	93.989	5R21TW010443-02		196,883	268,458
Adapting the WHO Cardiovascular Disease Risk Management Package to the Ghanaian Community-Based Health Planning and Services (CHPS) Primary Care Model: An Implementation Pilot Study	93.989	5R21TW010452-02		76,289	123,545
				$273,172	$392,003
Total Direct Award Programs				**$62,377,635**	**$419,824,393**
Pass-through Awards					
National Cancer Institute/NIH/DHHS					
Designing a Prototype of N-of1 trials of Depressive symptom management in Cancer Survivors	93	LEIDOS 15X142	HHSN261200800001E	0	182,806
Taspase1 crystallography	93	LEIDOS 16X137	HHSN261200800001E	0	166,246

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R&D Cluster

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Chemoprevention of Esophageal Cancer in a Mouse Model of Barrett s Esophagus	93	CUMC 16040641-01	HHSN26120150000391	156,363	156,756
Phase III Breast Cancer Clinical rials and Multiple Chronic Condition: A Survey of www.clinicaltrials.gov	93	WESTAT 6048-S23	HHSN261201200028I	0	71,150
Breast Cancer Prevention Study	93	VENTWELL 17RWSK002	HHSN261201400002B	0	17,224
VAIDS Trial: Phase II trial of the E75 Peptide Vaccine in Women with DCIS Breast Cancer	93	UTMDA 00003832	HHSN261201200034I	0	2,886
VAIDS Trial: Phase II trial of the E75 Peptide Vaccine in Women with DCIS Breast Cancer	93	UTMDA 00003832	HHSN261201200034I	0	-2,815
National Heart, Lung, and Blood Institute/NIH/DHHS					
Multi-Ethnic Study of Atherosclerosis (MESA) - Field Center	93	UWASH UWSC8537	HHSN268201500003I	0	457,008
Multi-Ethnic Study of Atherosclerosis (MESA) - Field Center	93	UWASH UWSC8537	HHSN268201500003I	0	384,501
Multi-Ethnic Study of Atherosclerosis (MESA) - Field Center	93	UWASH UWSC8537	HHSN268201500003I	0	129,449
National Institute of Allergy and Infectious Diseases/NIH/DHHS					
Systems Biology of Innate Immunity and Vaccination	93	UOR 416861-G-2	HHSN272201400005C	0	244,654
Natural History of Infection Caused by BK Virus (and other opportunistic Viral Pathogens) in renal And renal-Pancreas Transplant Recipients	93	UAB No.000406279-005	HHSN272201100036C	0	45,350
National Institute of Child Health and Human Development/NIH/DHHS					
Efficacy, Safety and Pharmacokinetics of Topical Timolol in Infants with Infantile Hemangioma	93	CDUKE 218094	HHSN-2752010000031	0	6,645
National Institutes of Health/DHHS					
Advanced Cannula Development for Coronary Sinus Access	93	SPSLLC SPS-1	1R41HL129754-01A1	0	47,168
				$156,363	$1,909,028
Family Smoking Prevention and Tobacco Control Act Regulatory Research					
Harmful Constituents and Respiratory Effects of Waterpipe Smoke	93.077	JH 2003435348	R01HL134149	0	21,177
				$0	$21,177
Environmental Health					
Epigenetic Mechanisms of PMMediated CVD Risk	93.113	UNC 5104347	4R01ES020836-05	0	145,388
Personal Environmental Exposure Assessment using Wristbands for Epidemiological Studies in Disadvantaged Communities	93.113	OSU P0421A-B	4R33ES024718-02	0	91,263
A Nested Case-Control Study of Prostate Carcinogenesis	93.113	HFHS CU13-3167	2R01ES011126-11A1	0	69,777

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Participatory Interventions to Reduce Arsenic Exposure in American Indian Communities	93.113	JHU 2003073212	5R01ES025135-02	0	47,379
Comparison of Breast Tissue Characteristics in Women and Adolescents using Optical Spectroscopy and	93.113	UW 782K180	1U01ES026127-01	25,341	40,341
Molecular and Clinical Endocrine Impacts of Arsenic Exposure in Children	93.113	UIL CU13-2606	1R01ES024423-01	0	37,144
Air Particulate, Metals, and Cognitive Performance in an Aging Cohort- Roles of Circulating Extracellular Vesicles and Non-coding RNAs	93.113	HARVARD 112557-5108340	1R01ES027747-01	0	36,625
Manganese-related Neurotoxicity in Asymptomatic Welders	93.113	PSU COLES019672	R01ES019672	0	18,717
Stress-Chemical Interactions and Neurobehavior in School Age Children	93.113	ICAHN 0255-5545-4609	2R01ES013744-11A1	0	13,081
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	12,576
SPIROMICS - Air Polution Study	93.113	JH 2002161671	1R01ES023500-01	0	11,962
The Effects of Environmental Exposures on Semen Quality and the Sperm Epigenome.	93.113	BWH 118582	1R01ES028712-01	0	8,072
Arsenic and Immune Response to Influenza Vaccination in Pregnant Women and Newborns	93.113	JHU 2003603451	R01ES026973	0	4,153
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	-3,834
				$25,341	$532,646
Oral Diseases and Disorders Research					
Protease/PAR2/TRPV4 Axis and Oral Cancer Pain	93.121	NYU F8807-02	1R01DE026806-01A1	0	99,058
Integrating Social & Systems Science Approaches to Promote Oral Health Equity	93.121	NYU CU12-0650	1R01DE023072-01	0	81,793
				$0	$180,851
NIEHS Superfund Hazardous Substances Basic Research and Education					
Asbestos fate, exposure, remediation, and adverse health effects	93.143	UPENN 571374	5P42ES023720-04	0	10,126
				$0	$10,126
Human Genome Research					
Non coding RVIS in the identification of pathogenic mutations in regulatory sequence	93.172	UMI-CU-Goldstein-1	1UM1HG00890-01	0	66,315
Genomic Medicine Pilot For Hypertension and Kidney Disease in Primary Care	93.172	0255-6177-4609	4U01HG007278-04	0	60,000
Incorporating Local Haplotype Sharing to Detect Genetic Associations	93.172	BCMH 102115423	1R01HG008157-01A1	0	54,403
The goals and practices for next generation prenatal testing	93.172	HASTINGS CU14-2995	1R01HG008805-01A1	0	37,753
Genomic Medicine Pilot For Hypertension and Kidney Disease in Primary Care	93.172	0255-6178-4509	4U01HG007278-04	0	16,512

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New York Center for Collaborative Research in Genomics	93.172	NYGC UM1-CU-TLapp-03	1UM1HG008901-01	0	10,933
New York Center for Collaborative Research in Genomics	93.172	NYGC UM1-CU-TLapp-03	1UM1HG008901-01	0	7,821
Non coding RVIS in the identification of pathogenic mutations in regulatory sequence	93.172	UMI-CU-Goldstein-1	1UM1HG00890-01	0	6,538
				$0	$260,276
Research Related to Deafness and Communication Disorders					
Randomized Controlled Trial of Valganciclovir for Asymptomatic Cytomegalovirus Infected Hearing Impaired Infants (ValEAR Trial)	93.173	UUMC 10041913-010	1U01DC014706-01A1	0	1,927
				$0	$1,927
Research and Training in Complementary and Integrative Health					
Metals in the Trial to Assess Chelation Therapy 2 (TACT2)	93.213	R01 AT009273	1R01AT009273-01	0	141,939
Metals in the Trial to Assess Chelation Therapy 2 (TACT2)	93.213	R01 AT009273	1R01AT009273-01	0	122,590
				$0	$264,529
Mental Health Research Grants					
A Holographic Module for Multiphoton Microscopes in Neuroscience	93.242	BNLS CU14-4060	2R44MH109187-03	0	315,206
Peer-Led Healthy Lifestyle Program in Supportive Housing	93.242	WASHU WU-17-430	7R01MH10457-04	0	211,111
Functional Consequences of GABAergic Inhibition of Dendritic Spines at Puberty	93.242	RFSUNY 1109936-74156	5R01MH100561-03	0	201,095
Interagency Collaboration to Implement Effective Behavioral Interventions -DEBIs	93.242	UMICH 3003874015	5R01MH095676	28,382	165,800
Electrohysiology of human spatial cognition	93.242	UPENN 563386	5R01MH061975-16	0	135,387
Characterizing Cognition Acrioss the Lifespan in Untreated Psychosis in China	93.242	NYU F8752-04	7R01MH108385-03	0	133,764
Statistical models for fine mapping and functional interpretation of loci associated to schizophreni	93.242	NYGC 14-3011	R01MH106842	0	108,003
Genetic neuroscience: How human genes and alleles shape neuronal phenotypes	93.242	BRINST 5100481-5500001084	1U01MH115727-01	0	86,204
Characterizing Placebo Response	93.242	NYUMC 12-01978	1R01MH099003-01	0	81,473
Determinants for Resilience in Youth with HIV infection and Youth affected by HIV	93.242	HJFAMM 832613	5R01MH102151-03	0	71,597
Improving the Emergency Department Management of Deliberate Self-Harm	93.242	UPENN 568947/10052478/19439	1R01MH107452-01A1	0	69,821
Improving Cognition via Exercise in Schizophrenia	93.242	MSSM 0255-3351-4609	1R01MH110623-01A1	0	61,659
Characterizing Placebo Response	93.242	17-A0-00-007642-01	2R01MH099003-06	0	60,321

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R&D Cluster

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Biomarkers of Conversion Risk and Treatment Response in Early-Stage Schizophrenia	93.242	CUMC 183086-01	1R01MH110270-01A1	0	58,523
Suubi4Her: A Combination Intervention Addressing HIV Risk Behaviors Among Older Adolescent Girls Transitioning into Adulthood in Uganda	93.242	WU-18-219	1R01MH113486-01	0	58,402
A D1 Agonist for Working Memory Enhancement in the Schizophrenia Spectrum	93.242	MSSM 0255-5881-4609	1R01MH097799-01A1	0	50,798
Transforming mental health delivery through behavioral economics and implementation science	93.242	UPENN 572120	1P50MH113840-01	0	45,308
Optimizing Youth Suicide Risk Screening in the Emergency Department	93.242	UMICH 3003330094	UMH104311	0	36,162
Impact of Trauma Exposure on Critical Periods in Brain Development	93.242	EMORYU T702382	5R01MH111682-02	0	35,560
3D Virtual Slide System for Creation and Analysis of Focusable Digital Slides	93.242	MBFBIO CU16-0080	5R44MH076188-06	0	31,699
ED-SAFE-2: Translating Safety Planning into Practice	93.242	UMASS WA00318982/RFS2016003	5R01MH106726-02	0	30,252
NNCI Synapse: Development of a mobile application to disseminate neuroscience training to medical professionals	93.242	CFSI CU17-1085	1R44MH11546-01	0	27,418
Family psychoeducation for adults with psychotic disorders in Tanzania (Study)	93.242	DU 2036373	1R34MH106663-01A1	0	26,887
Promoting Research Training During Psychiatry Residency	93.242	BROWNU 00000705	5R25MH101076-03	0	25,315
Identifying Social Processes Implicated in Remitted Recurrent Depression	93.242	UIL 16731	1R21MH112330-01	0	24,857
Electrohysiology of human spatial cognition	93.242	UPENN 563386	5R01MH061975-16	0	23,705
In utero Assessment of the Human Neural Connectome and later Child Behavior	93.242	WAYNE 16127	1R01MH110793-01	0	21,670
Development of GSK3beta PET Radioligands for In Vivo Imaging in Brain	93.242	WUBGSM WFUHS 115188	R21MH112307	0	19,415
Connectomes Related to Anxiety and Depression in Adolescents	93.242	MIT S5416 PO194771	1U01MH108168-01	0	19,329
EEG/MRI Controlled TMS Real-Time Neural Feedback in Anti-Depressive Treatment	93.242	MUSC15-020	4R33MH106775-03	0	17,545
An Adaptive Algorithm-Based Approach to Treatment for Adolescent Depression	93.242	UMINN N006073701	1R01MH113748-01	0	16,266
Suicide Risk Reduction in the Year Following Jail Release	93.242	MSU RC105383CU	1U01MH106660-01A1	0	16,160
Influence of neighborhoods and networks on the HIV care continuum among HIV-infected MSM in NYC	93.242	NYBC NIH000491	1R56MH112401-01A1	0	12,946
Functional Brain Networks Mediating Individuals Differences in Valence Bias	93.242	UNL 24-1219-0001-002	5R01MH111640-02	0	11,836
Addressing Psychiatrist Workforce Shortages in the U.S. with Psychiatric Advanced Practice Registered Nurses	93.242	UMARY 1802161	1R01MH113650-01	0	11,813
Optimizing Youth Suicide Risk Screening in the Emergency Department	93.242	UMICH 3003330094	UMH104311	0	6,256
Mechanisms and Longitudinal Effects of Stigma on Women s Adherence and Outcomes	93.242	UAB 000506211-005	1R01MH104114-01	0	3,220
CIT & MH Service Access in Police Contacts: Impact on Outcomes of Persons w/SMI	93.242	UIL 084107-00001	4R01MH096744-05	0	3,188
Neurodevelopmental Profiling of the Epigenome in Human and Rhesus	93.242	MSSM 0255-6211-4609	7R01MH094774-03	0	1,858

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Towards a Complete Description of the Circuitry Underlying Memory Replay	93.242	SU 61104073-121247	7U01NS090583-02	0	1,288
Weight suppression, dieting and bulimia nervosa: A biobehavioral study	93.242	DREXEL 232547-3684	5R01MH095982-04	0	68
Novel medication strategies targeting brain mechanisms in pediatric OCD	93.242	CUMC 120100300	1R34MH095377-01A1	0	-2,432
Bluntant and Discordant Affect: A Transdiagnositc Construct in Psychopathology	93.242	UPMC 0025282(123087-2)	1R01MH096334-01	0	-16,414
				$28,382	$2,320,340
Alcohol Research Programs					
Impact of supportive policies on minority stress, drinking and health among women	93.273	UIL 16343	2R01AA013328-10A1	0	204,200
A Randomized Trial of Abandoned Housing Remediation, Substance Abuse and Violence	93.273	UPENN 569453	1R01AA024941-01	0	114,060
Gene network perturbations in alcohol dependence - A systems biology approach	93.273	TSRI PO No. 5-53365	1R01AA021667-01A1	0	71,530
Next Generation Rare Variant Discovery in Multiplex AD Families	93.273	UPITT 0045432	1R01AA021746-01	0	56,400
Alcohol Actions-Molecular Targets on Brain Proteins	93.273	UTEXAUS UTA16-000568	R01AA06399	0	49,151
Structural Analysis of Alcohol-Dependent Activation of GIRKs	93.273	ISMMS 0255-5042-4609	2R01AA018734-06A1	0	15,750
Molecular Subtypes for Targeted Therapies in Alcoholic Hepatitis	93.273	UPITT 0059011 130258-5	7U1AA021908-05	0	6,280
Sexual Orientation, Discrimination, and Health Disparities in DSM-5 Alcohol Use Disorder	93.273	UMICHG 300914461	1R01AA0256841-01	0	5,926
Dose and Pattern of Adverse Effects in the Diagnosis of Fetal Alcohol Spectrum Disorders: A Secondary Analysis of Data from Five Cohorts	93.273	WSU18044	1R01AA025905-01 .	0	5,851
Gene network perturbations in alcohol dependence - A systems biology approach	93.273	TSRI PO No. 5-53365	1R01AA021667-01A1	0	2,732
Structural Analysis of Alcohol-Dependent Activation of GIRKs	93.273	ISMMS 0255-5042-4609	2R01AA018734-06A1	0	2,730
Teen Alcohol Screening in the Pediatric Emergency Care Applied Research Network	93.273	RIH 7017137111-5-NY	1R01AA021900-01	0	-11,343
				$0	$523,268
Drug Abuse and Addiction Research Programs					
Florida Node Alliance of the Drug Abuse Clinic Trials Network-CTN 0064	93.279	UMIAMI SPC-000433	3UG1DA013720-16S1	0	358,427
Micro- to Nanoscale Neurotransmitter Sensors	93.279	UCLA 2000GVG295	1R01DA045550-01	0	226,358
Florida Node Allliance of the Drug Abuse Clinic Trials Network	93.279	UMIAMI SPC-000755	2UG1DA013720-16	0	191,351
Clinical Trials Network: Greater New York Node	93.279	16-A0-00-003671-01	2UG1DA013035-14	0	105,918
CRCNS: Computational and Neural Mechanisms of Memory-guided Decisions	93.279	PU SUB0000170	5R01DA038891-04	0	102,459
Systems Biology of HIV, methanphetamine and antiretrovirals interactions	93.279	SCRIPPS 5-53218	1R01DA041750-01	0	100,907

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R&D Cluster

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A Natural History Study of Buprenorphine Diversion, Self Treatment and Engagement with Formal Treatment Services	93.279	WSU 670244-1	1R01DA040811-01A1	0	67,694
The health and social consequences of national marijuana legalization	93.279	UCD 201601382-01	1R01DA040924-01A1	0	62,537
Impact of Health reform on outpatient substance abuse treatment programs	93.279	BAY 15258-CU	7R01DA034634-04	0	54,371
New York State Health Home Impact on HIV Treatment Cascade	93.279	CASAC CU13-3389	5R01DA038193-05	0	51,981
Clinical Trials Network: Greater New York Node (CTN-0068)	93.279	NYU 15-A0-00-003671-01	3UG1DA013035-16S3	0	51,264
Monitoring the Future: Drug Use and Lifestyles of American Youth	93.279	UMICHG 3004489406	2R01DA001411-43	0	50,414
Role of Depression and Anxiety in the Tobacco Epidemic	93.279	RFCUNY 41997-A	7R01DA020982-09	0	48,941
Metropolitan Trajectories of HIV Epidemics, Drug Use, and Responses in US Key Populations	93.279	EMORYU T425319	5R01DA037568-02	0	47,559
Systems Biology of HIV, methanphetamine and antiretrovirals interactions	93.279	SCRIPPS 5-53218	1R01DA041750-01	0	46,953
Florida Node Alliance of the Drug Abuse Clinic Trials Network CTN 0067	93.279	UMIAMI SPC-000550	2UG1DA013720-16	0	43,266
NIDA CU17-2611 2017 NIDA Inserm Drug abuse Research Fellowship	93.279	NIDA CU17-2611	NIDA	0	41,962
Florida Node Alliance of the Drug Abuse Clinic Trials Network	93.279	MIAMI SPC-000445	3UG1DA013720-16S1	0	39,997
Evaluating ART for all HIV Seropositive: Can it work with the Hardest Case?	93.279	ISMMS 0255-0781-4609	7R01DA035707-04	0	35,376
Clinical Trials Network: Greater New York Node	93.279	16-A0-00-003671-01	2UG1DA013035-14	0	34,972
Novel Longitudinal Methods for SMART Studies of Drug Abuse an HIV	93.279	UMICH 3003778400	1R01DA039901-01	0	27,491
Sexual Orientation Differences: Prevalence and Correlates of Substance Use and Abuse	93.279	PHI 00394	5R01DA036606-03	0	27,366
Clinical Trials Network: Greater New York Node (CTN-0051)	93.279	NYU 16-A0-S2-003671-01	3UG1DA013036-14S4	0	25,884
The Impact of State Healthcare Reforms on Treatment of Substance Use Disorders	93.279	JH 2003027470	1R01DA039863-01A1	0	19,038
Prescription drug monitoring programs and opiod-related harm	93.279	UCD 201504235-01	1R01DA039962-01A1	0	17,172
Vaccines for Prescription Opiod and Heroin Abuse	93.279	MNMRF 07428-2	5U01DA038876-03	0	16,902
Translational Research Traninig on Addiction for Racial/ Ethnic Minorities	93.279	RFCUNY CM0000-864	5R25DA035161-05	0	15,318
Trending Social Media Analysis to Monitor Cannabis and Synthetic Cannabinoid Use	93.279	WRIGHTSU CU14-0818	1R01DA039454-01	0	14,336
Does medical cannabis reduce opioid analgesics in HIV+ and HIV adults with pain?	93.279	AECM 311147	1R01DA044171-01A1	0	14,254
Florida Node Allliance of the Drug Abuse Clinic Trials Network	93.279	UMIAMI SPC-000755	2UG1DA013720-16	0	8,119
Acute Pain Management and Longterm Opioid Use after Surgery	93.279	SBRI 2017-1217	1R01DA042299-01A1	0	7,443
Florida Node Alliance of the Drug Abuse Clinic Trials Network	93.279	MIAMI SPC-000445	3UG1DA013720-16S1	0	5,292

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HIV/Drug Abuse Prevention Research Ethics Training Institute	93.279	FORD0034	5R25DA031608-07	0	4,721
Vaccines for Prescription Opiod and Heroin Abuse	93.279	MNMRF 07428-2	5U01DA038876-03	0	1,537
Systems Biology of HIV, methanphetamine and antiretrovirals interactions	93.279	SCRIPPS 5-53218	1R01DA041750-01	0	-12,374
Florida Node Alliance of the Drug Abuse Clinic Trials Network-CTN 0064	93.279	UMIAMI SPC-000433	3UG1DA013720-16S1	0	-24,036
				$0	$1,931,169
Discovery and Applied Research for Technological Innovations to Improve Human Health					
Imaging Human brain Function with Minimal Mobility Restrictions	93.286	UMINN N006264801	U01EB025153	0	550,350
Tissue Engineering Resource Center (TERC)	93.286	TUFTS 100228	5P41EB002520-15	0	475,587
Cross-Scale Interactions Between Mineral and Collagen for Tendon-Bone Attachment	93.286	WU-18-159	5U01EB016422-03	0	162,689
Bio-electrochemical detectors for in vivo continuous monitoring	93.286	USCB KK1836	1R01EB022015-01A1	0	136,354
Longitudinal Causal Inferencer for fMRI	93.286	JHU 2003011601	R01EB016061	0	21,991
Cross-Scale Interactions Between Mineral and Collagen for Tendon-Bone Attachment	93.286	WU-18-159	5U01EB016422-03	0	14,109
OPTICAL SMALL ANIMAL IMAGING UNIT FOR QUANTIFICATION OF BACTERIAL INFECTIONS	93.286	INVIVO CU16-3663	R44EB018644	0	5,580
Cross-Scale Interactions Between Mineral and Collagen for Tendon-Bone Attachment	93.286	WU-18-159	5U01EB016422-03	0	-382
				$0	$1,366,278
Minority Health and Health Disparities Research					
Racial Disparity Reduction in the National Kidney Allocation Policy	93.307	EMORY T436682	1R01MD010290-01	0	35,450
Peer-Administered Asthma Self-Management Intervention in Urban Middle Schools	93.307	RIH 710-7137328	1R01MD012225-01	0	25,616
Genomic Analysis of Enhanced Response to Heart Failure Therapy in African Americans	93.307	UPITT 0041119	1R01MD009118-01	0	9,752
				$0	$70,819
Trans-NIH Research Support					
Data and Research Support Center	93.310	VUMC 59350	1U2COD23196-01	0	804,927
Exposome Contributors to Child Health Originating from National Fetal Growth Study (ECCHO-NFGS)	93.310	MUSC16-086-8C267	1UG3OD023316-01	0	612,097
An integrated and diverse genomic medicine program for undiagnosed diseases	93.310	DUKEU 2031865	1U01HG007672-01	0	317,073
Children s Respiratory Research and Environment Workgroup (CREW)	93.310	UWM 800K450	1UG3OD023282-01	0	289,474

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Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	AMH ARIECOS218	7UG3OD023279-03	0	156,879
Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	AVERA ARIECOS118	7UG3OD023279-03	0	124,779
Exposome Contributors to Child Health Originating from National Fetal Growth Study (ECCHO-NFGS)	93.310	MUSC16-086-8C267	1UG3OD023316-01	0	108,892
Children s Respiratory Research and Environment Workgroup (CREW)	93.310	UWM 800K450	1UG3OD023282-01	0	107,561
Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	SNFRD SR-2018-11	1UG3OD023279-01	0	101,336
Data and Research Support Center	93.310	VUMC 59350	1U2COD23196-01	0	96,000
Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	SR-2018-09	1U2G3OD023279-01	0	68,951
Children s Respiratory and Environmental Workgroup (CREW)	93.310	UWIS 777K335	5UG3OD023282-02	0	66,112
Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	SNFRD SR-2018-11	1UG3OD023279-01	0	54,774
Mount Sinai CHEAR Network Laboratory HUB	93.310	ISMMS 0855-0502-4609	1U2CES026561-01	0	43,219
Environmental Influences on Child Health Outcomes in the Northern Plains Safe Passage Study Cohort	93.310	SR-2018-09	1U2G3OD023279-01	0	32,843
Children s Respiratory Research and Environment Workgroup (CREW)	93.310	UWM 800K450	1UG3OD023282-01	0	27,671
Exposome Contributors to Child Health Originating from National Fetal Growth Study (ECCHO-NFGS)	93.310	MUSC16-086-8C267	1UG3OD023316-01	0	24,369
Children s Respiratory Research and Environment Workgroup (CREW)	93.310	UWM 800K450	1UG3OD023282-01	0	22,347
Environmental Influences on Child Health Outcomes (ECHO) Coordinating Center	93.310	DU 203-8398	1U2COD023375-01	0	18,613
Environmental Influences on Child Health Outcomes (ECHO) Coordinating Center	93.310	DU 203-8398	1U2COD023375-01	0	16,492
Physical Activity Genomics, Epigenomics/transcriptiomics Site	93.310	ISMMS 0255-2441-4609	1U24DK112331-01	0	15,052
ECHO Consortium on Perinatal Programming of Neurodevelopment	93.310	0255-2291-4609	1UG3OD023337-01	0	8,014
Mount Sinai CHEAR Network Laboratory HUB	93.310	ISMMS 0855-0502-4609	1U2CES026561-01	0	5,733
Physical Activity Genomics, Epigenomics/transcriptiomics Site	93.310	ISMMS 0255-2441-4609	1U24DK112331-01	0	2,880
ECHO Consortium on Perinatal Programming of Neurodevelopment	93.310	0255-2291-4609	1UG3OD023337-01	0	2,671
				$0	$3,128,758

National Center for Advancing Translational Sciences

Systemic Inflammation in Microphysiological Models of Muscle and Vascular Disease	93.350	DUKEU A03-0128	1UG3TR002142-01	0	189,966
Open Health Natural Language Processing Collaboratory	93.350	MAORO COL-231278/65497608	1U01TR002062-01	0	107,968
University of Pittsburgh Clinical and Translational Science Institute ACT Supplement	93.350	UP 0055353 (130910-6)	3UL1TR001857-01S1	0	79,136

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Improving Clinical Trial Enrollment and Recruitment Education at CTSA hubs (I-CERCH)	93.350	VUMC 59243	1U24TR001579-01	0	71,187
Circulartory system and integrated muscle tissue for drug and tissue toxicity	93.350	DUKEU 203-4567	UH3TR000505-03	0	61,338
NIH Tissue Chip Testing Centers: Validating Microphysiological Systems (U24)	93.350	MIT 57092	1U24TR001951-01	0	54,808
NIH Tissue Chip Testing Centers: Validating Microphysiological Systems (U24)	93.350	TAMU ID No. 50111	U24TR001950	0	54,672
NIH Tissue Chip Testing Centers: Validating Microphysiological Systems (U24)	93.350	TAMU ID No. 50111	U24TR001950	0	36,538
SMART IRB	93.350	HMS 149749.5107492.4477	3UL1TR001102-04S1	0	16,389
SMART IRB	93.350	HMS 149749.5107492.4477	3UL1TR001102-04S1	0	12,095
Improving Clinical Trial Enrollment and Recruitment Education at CTSA hubs (I-CERCH)	93.350	VUMC 59243	1U24TR001579-01	0	4,653
				$0	$688,752
Research Infrastructure Programs					
The Jackson Laboratory Center for Precision Genetics: From New Models to Novel Therapeutics	93.351	JACKSONLAB CU16-1083	1U54OD020351-01	0	32,161
The Jackson Laboratory Center for Precision Genetics: From New Models to Noel Therapeutics	93.351	JACKSONLAB CU14-2766	1U54OD020351-01	0	16,950
				$0	$49,111
Nursing Research					
Communicating Narrative Concerns Entered by RNs (CONCERN): Decision Support for Risky Patient States	93.361	BWH 117030	1R01NR016941-01	0	174,592
Understanding Delayed Access to HIV Prevention Services among Black MSM	93.361	UPITT 0029591 (127125-3)	1R01NR013865-01A1	0	23,680
				$0	$198,273
Cancer Cause and Prevention Research					
(PQ#9) Targeting leaky ryanodine receptor (RyR2) to treat and prevent chemotherapy-associated cognitive dysfunction in patients with breast cancer	93.393	IU IN4687657COL	1R01CA206025-01	0	384,714
Definition of serum ribonucleoprotein composition and its regulation and function	93.393	RFU CU17-1425	U19CA179564	0	320,861
Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	130,074
Role of the p53 C-terminal domain in tissue homeostasis, tumor suppression, and oncogenesis	93.393	ISMMS 0255-0481-4609	5R01CA196234-02	0	113,430
Returning genetic research panel results for breast cancer susceptibility	93.393	UPENN 565533	1R01CA19871-01 REVISED	0	70,034
Returning genetic research panel results for breast cancer susceptibility	93.393	UPENN 565533	1R01CA19871-01 REVISED	0	68,037
Definition of serum ribonucleoprotein composition and its regulation and function	93.393	RFU CU17-1425	U19CA179564	0	65,214

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Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	60,685
Defining the Role of ERG in Modulating the AR Cistrome and Antiandrogen Sensitivity	93.393	MSKCC BD517911C	1R01CA193837-01	0	49,427
Structural Cell Biology of DNA Repair Machines	93.393	LBNL 7341650	2P01CA092584-16	0	49,206
Role of the p53 C-terminal domain in tissue homeostasis, tumor suppression, and oncogenesis	93.393	ISMMS 0255-0481-4609	5R01CA196234-02	0	26,990
Defining the Role of ERG in Modulating the AR Cistrome and Antiandrogen Sensitivity	93.393	MSKCC BD517911C	1R01CA193837-01	0	21,140
Structural Cell Biology of DNA Repair Machines	93.393	LBNL 7341650	2P01CA092584-16	0	20,208
Predictors of long-term cardiovascular disease among breast cancer survivors in an integrated health system	93.393	KFDNI RNG209338-CU-01	1R01CA214057-01A1	0	19,268
Health, Stress, and Tobacco Use Disparities among Sexual Minority Populations	93.393	UMICH 3004610081	1R01CA212517	0	18,680
Risk and Penetrance of Mutations from Breast Cancer Testing Panels	93.393	MAORO 65664148	1R01CA192393-01	0	12,059
MicroRNA and Breast Cancer: Functional Characterization in a Population-Based Study	93.393	MSSM 0255-6601-4609	1R01CA172460-01A1	0	11,851
Genome-Wide Association Study in Hepatocellular Carcinoma	93.393	00003016	1R01CA186566-01A1	0	11,202
CT DOSE COLLABORATORY	93.393	UCSF 9390sc	5R01CA181191-02	0	10,000
Detroit Research on Cancer Survivors (Detroit POCS)	93.393	WSU18038	1U01CA199240-01A1	0	7,548
Risk and Penetrance of Mutations from Breast Cancer Testing Panels	93.393	MAORO 65664148	1R01CA192393-01	0	6,978
MicroRNA and Breast Cancer: Functional Characterization in a Population-Based Study	93.393	MSSM 0255-6601-4609	1R01CA172460-01A1	0	4,187
Molecular pathways of Inerleukin-13 in cutaneous T-cell lymphoma	93.393	UPITT 0051797 (128253-1)	1R21CA209107-01	0	1,564
				$0	$1,483,356

Cancer Detection and Diagnosis Research

Quantitative imaging tools to derive DW-MRI oncological biomarkers	93.394	MSKCC BD522043A	U01CA211205	0	237,009
Computational modeling of tumor burden by CT to advance cancer therapeutics	93.394	INOVA FP-152539-A	R01CA194783	0	211,636
Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & Discovery	93.394	MGH 224943	5U24CA180927-02	0	139,775
Validation of screening Biomarkers for Early Detection of Colorectal Neoplasia	93.394	UMIG CU11-2632	2 U01 CA86400-11	0	65,949
Circulating Biomarker Consortium for Pancreatic Cancer Early Detection	93.394	DFCI 1283203	1U01CA210171-01	0	60,568
Molecular characteristics of treatment-resistant high-risk neuroblastoma	93.394	USC 81893192	1R01CA197903-01A1	0	57,858
caCDE-QA: A Quality Assurance Platform for Cancer Study Common Data Elements	93.394	MAORO COL-192324-01	5U01CA180940-02	0	27,812
Circulating Biomarker Consortium for Pancreatic Cancer Early Detection	93.394	DFCI 1283203	1U01CA210171-01	0	1,816

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Tethered Capsule Endomicroscopy Natural History Study of Barrett sEsophagus	93.394	MGH 224449	5R01CA184102-03	0	1,151
				$0	$803,573
Cancer Treatment Research					
Probiotics for Prevention of Acute Graft-vs-host Disease in Children with Cancer	93.395	UCD 201601437-01	1R01CA201788-01A1	0	211,434
Psychosocial Approaches to Better Understanding & End Stage Cancer Care (PROTECT)	93.395	CUMC 15050714-02	1R35CA197730-01	0	198,035
Support, NIH COG Phase 1 Grant	93.395	CHOP CU15-2115	UM1CA097452	0	141,106
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia	1UGCA189974-01	0	93,446
Per Case Reimbursement and Patient Studies	93.395	CHOP CU15-2114	UM1CA097452	0	82,318
Alliance for Clinical Trials in Oncology Operations Center	93.395	BWH 111278	5U10CA180821-02	0	75,737
Maximizing Local Access to Therapeutic Deliveries in Glioblastoma	93.395	WFUHS 441111 CORE 3	P01CA207206	0	69,416
SWOG Network Group Operations Center of the NCTN	93.395	ORHSUN 9009627	5U10CA180888-03	0	66,419
SWOG Network Group Operations Center of the NCTN	93.395	ORHSUN 9009627 COLUMBIA	U10CA180888-03	0	57,118
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia Crew	5UG1CA189974-03	0	44,034
Investigating the molecular mechanism that mediates the addiction of inflammatory breast cancer cells to HDAC6 function	93.395	ISMMS 0255-1701-4609	1R01CA201162-01A1	0	43,929
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia	1UGCA189974-01	0	29,232
Anticancer agents from Diverse Natural products sources	93.395	UNCG 130239	2P01CA125066-06A1	0	28,860
Psychosocial Approaches to Better Understanding & End Stage Cancer Care (PROTECT)	93.395	CUMC 15050714-02	1R35CA197730-01	0	27,942
The coding genome of HIV associaed plasmablastic lymphomas in South Africa	93.395	WITS D1404370-02	1R21CA192854-01	0	27,679
Prognostic biomarkers and disease drivers in T-cell acute lymphoblastic leukemia	93.395	MMC CU16-1319	5U10CA180827-03	0	18,713
SCIENTIFIC LEADERSHIP: COG NCORP Research Base	93.395	CHPHI 962363-RSUB	1UG1CA189955-01	0	13,727
Prognostic biomarkers and disease drivers in T-cell acute lymphoblastic leukemia	93.395	MMC CU16-1319	5U10CA180827-03	0	12,468
Randomized Trial of Stepped Palliative Care versus Early Integrated Palliative Care in Patientswith Advanced Lung Cancer	93.395	MGH 231928	1R01CA215188-01A1	0	7,637
Phase 2 Clinical Trials Program for Experimental Therapuetics Clinical Trials Newtwork	93.395	Mayo - THE-213126-02	3UM1CA186686-03S1	0	5,299
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia Crew	5UG1CA189974-03	0	3,667
SCIENTIFIC LEADERSHIP: COG NCORP Research Base	93.395	CHPHI 962363-RSUB	1UG1CA189955-01	0	2,044
Psychosocial Approaches to Better Understanding & End Stage Cancer Care (PROTECT)	93.395	CUMC 15050714-02	1R35CA197730-01	0	-12,088

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Probiotics for Prevention of Acute Graft-vs-host Disease in Children with Cancer	93.395	UCD 201601437-01	1R01CA201788-01A1	0	-26,895
				$0	$1,221,276
Cancer Biology Research					
GI Tract Dysbiosis and Breast Cancer	93.396	MIT 5710003957	1U01CA164337-01	0	33,545
				$0	$33,545
Cancer Centers Support Grants					
MSK SPORE in Lymphoma-(Project 4: Targeting Acetyltransferase Gene Inactivation in Diffuse Large B Cell Lymphoma)	93.397	MSKCC BD520439A	1P50CA192937-01A1	0	220,974
Towards Understanding Prostate Cancer Heterogeneity	93.397	WCMC 17030366-4	1P50CA211024-01A1	0	115,504
Genetic determinants of primary chemo-resistance in diffuse large B cell lymphoma	93.397	MSKCC BD522275	P50CA192937	0	70,707
Repositioning therapeutic principles for Diffuse Large B cell Lymphomas	93.397	MSKCC BD522305	P50CA192937	0	66,668
Investigation of a nonparticle albumin-bound mTOR inhibitor, nabrapamycin, for the intravesical treatment of BCG recurrent or refractory non-muscle invasive transitional cell bladder cancer	93.397	AADI 12-2573	1R42CA171552-01	0	23,649
DF/HCC SPORE in Gastrointestinal Cancer	93.397	DFCI 1132406	2P50CA127003-06A1	0	19,462
MSK SPORE in Lymphoma-(Project 4: Targeting Acetyltransferase Gene Inactivation in Diffuse Large B Cell Lymphoma)	93.397	MSKCC BD520439A	1P50CA192937-01A1	0	14,294
MSK SPORE in Lymphoma (Career Enhancement Program)	93.397	MSKCC BD520441A	1P50CA192937-01A1	0	9,154
MSK SPORE in Lymphoma (Career Enhancement Program)	93.397	MSKCC BD520441A	1P50CA192937-01A1	0	1,725
Feasibility of Creating a Prospective Lactation Cohort in the New York Metropolitan Area	93.397	FCCC CU17-2335	P30CA006927	0	503
				$0	$542,640
Supporting and Maintaining a Surveillance System for Chronic Kidney Disease (CKD) in the United States					
Genomic and Transcriptomic Analysis of Emphysema and Subclinical ILD	93.833	UV GB10323 152721	1R01HL131565-01	0	47,674
				$0	$47,674
Cardiovascular Diseases Research					
Clinical & Basic Science Studies in Long QT Syndrome Type 3 (LQT3)	93.837	ROCHSTR 416473-G	1R01HL123483-01	0	323,004
Chronic Hypertension and Pregnancy-CHAP Clinical Coordinating Center	93.837	UAB 000503570-002	5U01HL120338-02	209,313	281,691
Transitioning from Risk Factors to Heart Failure: Prevalence, Pathogenesis, and Phenomics	93.837	WFUHS 114487	1R01HL127028-01	0	229,269
Calmodulin regulation of Na+ channels in neurons and cardiomyocytes	93.837	WCMC 17020250	7R01HL122967-03	0	170,689

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Clinical & Basic Science Studies in Long QT Syndrome Type 3 (LQT3)	93.837	ROCHSTR 416473-G	1R01HL123483-01	0	168,251
Individual Response to Vitamin D Treatment	93.837	UWASH UWSC9378	2R01HL096875-05A1	0	152,247
A Longitudinal Epigenetic Study of Atherosclerosis	93.837	WUBGSM WFUHS 116827	1R01HL1350039-01	0	149,703
Serotonin Signaling in Mitral Valve Homeostasis, Maintenance and Restoration	93.837	CHPHI FP20409 Sub06 01	5R01HL131872-02	0	141,328
Ripple Effect of Lifestyle Intervention During Pregnancy on Partners Weight	93.837	CALPC 15-4-45222	1R01HL118208-01	0	122,470
Calmodulin regulation of Na+ channels in neurons and cardiomyocytes	93.837	WCMC 17020250	7R01HL122967-03	0	100,878
Ezh2-mediated Epigenetic Effects and Alloimmunity	93.837	TEMPLE 257154-00-01	1R01HL127351-01A1	0	95,107
Hybrid Coronary Revascularization Trial	93.837	MSH 0255-1521-4609	1U01HL125488-01A1	0	88,696
Statistical Methods for Biosignals with Varying Domains	93.837	JH 2002309393	1R01HL123407-01	0	87,166
PREGNANCY AS A WINDOW TO FUTURE CARDIOVASCULAR HEALTH: ADVERSE PREGNANCY OUTCOMES	93.837	RTI 11-312-0214047-52915L	1U10HL119991-01	16,881	83,364
administrative Coordinating Center (ACC) for the NHLBI Cardiovascular Development (CvDC) and Pediatric Cardiac Genomics (PCGC) Consortia	93.837	CINCMC 138281	U01HL131003	0	82,677
Incorporation of a Hypertension Working Group into the Jackson Heart Study	93.837	UAB 000515198-002	2R01HL117323-04A1	0	82,468
Ezh2-mediated Epigenetic Effects and Alloimmunity	93.837	TEMPLE 257154-00-01	1R01HL127351-01A1	0	76,050
Serotonin Signaling in Mitral Valve Homeostasis, Maintenance and Restoration	93.837	CHPHI FP20409 Sub06 01	5R01HL131872-02	0	75,430
Childhood Adversity and Cardiovascular Health among Puerto Rican Youth	93.837	EMORYU T930325	7R01HL125761-03	0	74,297
Administrative Coordinating Center (ACC) for the NHLBI Cardiovascular Development (CvDC) and Pediatric Cardiac Genomics (PCGC) Consortia	93.837	CINCMC 138281	1U01HL131003-01	0	71,936
NHLBI AsthmaNet - BARD	93.837	BWH CU14-1907	5U10HL098102-05	0	68,646
A Longitudinal Epigenetic Study of Atherosclerosis	93.837	WUBGSM WFUHS 116827	1R01HL1350039-01	0	68,506
Pathogenic Role of Selected Cardiac Myocyte- and Fibroblast-Specific Epigenetic Changes in Laminopathies	93.837	UTEXHOUS 0011823B	1R01HL132401-01	0	68,268
Childhood Adversity and Cardiovascular Health among Puerto Rican Youth	93.837	EMORYU T930325	7R01HL125761-03	0	54,618
CMR Myocardial Tissue Based on Prediction of Ischemic MR Revascularization Response	93.837	CUMC 15040456-04	1R01HL128278-01	0	53,815
Atrial fibrillation burden, vascular disease of the brain and cardiac MRI in MESA	93.837	UWASH UWSC8531	1R01HL127659-01	0	53,299
REPRIEVE A5332 and A5333S	93.837	BWH CU15-0282	1U01HL123336-01	0	51,660
Administrative Coordinating Center (ACC) for the NHLBI Cardiovascular Development (CvDC) and Pediatric Cardiac Genomics (PCGC) Consortia	93.837	CINCMC 138281	1U01HL131003-01	0	50,995
Pediatric Heart Network U24HL135691	93.837	NERI CU17-3862	U24HL135691	0	50,992
NHLBI AsthmaNet SIENA	93.837	BWH CU14-2527	5U10HL098102-06	0	50,128

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Reference Profiles of ExRNAs in Normal Human Pregnancy	93.837	UCSD 75649782	5U01HL126494-03	0	47,441
nuMoM2b Heart Health Study (nuMoM2b-HHS)	93.837	RTI CU14-3218	1U10HL119991-01	38,560	43,909
Project Eat-IV: Eating and Activity in Adolescents and Young Adults	93.837	UMINN P005778701	4R01HL116892-04	0	43,533
Prospective trial of oral azithromycin when added to inhaled tobramycin in CF	93.837	SCRI 11657SUB	7R01HL124053-02	0	38,036
Multi-Component Technology Intervention for African American Emerging Adults With Asthma	93.837	WAYNE WSU17001	1R01HL133506-01	0	31,898
A Highly Sensitive and Targeted Non-Invasive test for the Surveillance of Rejection in Cardiac Transplant Recipients	93.837	MCW 1	1R01HL119747-01	0	30,733
New approaches to cardiothoracic tolerance induction	93.837	MGH 225421	2P01HL018646-36A1	0	29,771
Macrophage Dysfunction in Obesity, Diabetes and Atherosclerosis	93.837	NYUMC 16-A1-00-004888	1P01HL131481-01A1	0	28,998
EHD Proteins in Cardiac Membrane Protein Targeting and Remodeling	93.837	OSU 60038336	1R01HL114383-01A1	0	28,675
New approaches to cardiothoracic tolerance induction	93.837	MGH 225421	2P01HL018646-36A1	0	26,762
Telomeres and Female Fecundity	93.837	RUTGER 0070	1R01HL134840-01	0	22,510
Administrative Coordinating Center (ACC) for the NHLBI Cardiovascular Development (CvDC) and Pediatric Cardiac Genomics (PCGC) Consortia	93.837	CINCMC 138281	1U01HL131003-01	0	21,581
Chronic Hypertension and Pregnancy-CHAP Clinical Coordinating Center	93.837	UAB 000503570-002	5U01HL120338-02	0	20,486
RLDC: Molecular Pathway-Driven Diagnostics & Therapeutics for Rare Lung Diseases	93.837	CINCMC 135461	1U54HL127672-01	0	18,833
RAGE: Macrophages & HDL Metabolism	93.837	NYUMC CU12-1919	1R01HL118565-01	0	17,828
Notch in Angiogenesis and Vascular Biology	93.837	UIL 16880-00	R01HL112626	0	15,414
Macrophage-lipoprotein Interactions	93.837	WCMC 17050688	2R01HL093324-08A1	0	15,252
RAGE/mDia 1, Macrophage Trafficking and Inflammation In Regression of Diabetic Atherosclerosis	93.837	NYU 16-A1-00-006521-01	1R01HL132516-01A1	0	11,760
Chronic Hypertension and Pregnancy-CHAP Clinical Coordinating Center	93.837	UAB 000503570-002	5U01HL120338-02	0	11,369
Mucus Microstructure and Osmotic Pressure: Biomarkers for CB in COPD	93.837	JH 2002883011	1R01HL125169-01A1	0	11,096
Sorafenib for Hepatopulmonary Syndrome	93.837	UPENN 567266	5UM1HL116886-02	0	10,042
Pediatric Heart Network U24HL135691	93.837	NERI CU17-3862	U24HL135691	0	9,956
Cardiac Biomarkers in Pediatric Cardiomyopath (per patient)	93.837	WAYNE WSU14112-A3	7R01HL109090	0	8,845
Population Effects of Motivation Interviewing on Pediatric Obesity inPrimary Care	93.837	AAP 817102Columbia	R01HL128231-01A1	0	8,501
RAGE/mDia 1, Macrophage Trafficking and Inflammation In Regression of Diabetic Atherosclerosis	93.837	NYU 16-A1-00-006521-01	1R01HL132516-01A1	0	8,463
Eating, Activity, and Weight-Related Problems Across the Life Course in Diverse Populations	93.837	UMINN P06297201	1R35HL139853-01	0	7,930

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Clinical Implementation of Clopidogrel Pharmacogenetics: The TAILOR-PCI Trial - CCC - Lead Application	93.837	MAORO COL-215432	1U01HL128606-01A1	0	6,768
INfluenza Vaccine to Effectively Stop Cardio Thoracic Events andDecompensated heart failure (INVESTED)	93.837	BWH PHC #114117	5U01HL130163-02	0	5,158
International Study of Comparative Health Effectiveness with Medical and Invasive Approaches	93.837	NYU CU13-1776	U01HL105907	0	4,647
administrative Coordinating Center (ACC) for the NHLBI Cardiovascular Development (CvDC) and Pediatric Cardiac Genomics (PCGC) Consortia	93.837	CINCMC 138281	U01HL131003	0	4,270
RLDC molecular pathway-driven diagnostic and therapeutics for rare lung diseases	93.837	LAMF CU16-0725	5U54HL127672-02	0	3,766
Genotype-Phenotype Associations in Pediatric Cardiomyopathy	93.837	WSU15059-A2	5R01HL111459-05	0	3,499
A Phase III Safety Extension Study of Udenafil in Adolescents with Single Ventricle Physiology aft	93.837	NERI CU17-1452	NIH	0	3,341
Pediatric Heart Network U24HL135691	93.837	NERI CU17-3862	U24HL135691	0	2,607
Macrophage-lipoprotein Interactions	93.837	WCMC 17050688	2R01HL093324-08A1	0	2,518
Randomized, Multicenter, Controlled Trial to Compare Best Endovascular versus Best Surgical Therapy in Patients with Critical Limb Ischemia	93.837	NERI CU15-1318	5U01HL107407-02	0	2,416
Fontan Udenafil Exercise Longitudinal Assessment Trial	93.837	NERI CU16-2307	4U10HL068270-15	0	1,869
Pediatric Heart Transplantation: Transitioning to Adult Care	93.837	901477-COLUMBIA	5R34HL111492-02	0	1,135
Atrial fibrillation burden, vascular disease of the brain and cardiac MRI in MESA	93.837	UWASH UWSC8531	1R01HL127659-01	0	404
Prospective trial of oral azithromycin when added to inhaled tobramycin in CF	93.837	SCRI 11657SUB	7R01HL124053-02	0	-542
CMR Myocardial Tissue Based on Prediction of Ischemic MR Revascularization Response	93.837	CUMC 15040456-04	1R01HL128278-01	0	-1,692
Assessment of Bioreactor-Derived Human Platelet Quality, Storage Profile, Safety, and Function	93.837	PBGI CU15-1266	1R44HL131050	0	-2,184
Long-term Outcomes of Children with Hypoplastic Left Heart Syndrome and the Impact of Norwood Shunt Type	93.837	NERI CU16-0462	5U10HL068270-14	0	-2,268
Proof of Principal Evaluation of IV Gallium Nitrate (Ganite) in Patients with Cystic Fibrosis	93.837	SCRI 11233SUB	1UM1HL119073-01	0	-3,824
Transitioning from Risk Factors to Heart Failure: Prevalence, Pathogenesis, and Phenomics	93.837	WFUHS 114487	1R01HL127028-01	0	-6,912
Sorafenib for Hepatopulmonary Syndrome	93.837	UPENN 567266	5UM1HL116886-02	0	-15,281
				$264,753	$3,806,964
Lung Diseases Research					
ORal Bacterial EXtracts (ORBEX): Primary Prevention of Asthma and Wheezing in Children	93.838	UA 330411	1U01HL130045-01	6,427	161,392
Genetic Epidemiology of Chronic Obstructive Pulmonary Disease	93.838	NJMRCCS 24021506	2R01HL089897-06A1	0	149,232
SPIROMICS II: Biological underpinnings of COPD heterogeneity and progression	93.838	UCSF CU17-3435	1U01HL137880-01	0	144,247
Frailty and patient centered outcomes in candidates for lung transplantation	93.838	UCSF 10296sc	1R01HL134851-01A1	0	99,180

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HALF-PINT Heart and Lung Failure - Pediatric INsulin Titration Trial	93.838	CHMCB PO#0001145520	1 U01 HL107681-01	0	88,924
Data Fusion: A Sustainable Scalable, Open Source Registry Advancing PVD Research	93.838	UCOL FY15.369.005	1U01HL121518-01	0	47,011
Secondhand smoke and asthma: Mechanistic outcomes of DNA methylation in T cells	93.838	SU 60519233-107979	1R01HL118612-01	0	46,704
Clinical Risk Factors for Primary Graft Dysfunction	93.838	UPENN 565138	2R01HL087115-06A1	0	43,295
Development of new drugs for asthma by targeting GABA(A) receptors in the lungs	93.838	UW 153405520	5R01HL118561-02	0	36,187
Defining the role of early pulmonary vascular disease in COPD	93.838	UIO W000812667	1R01HL126838-01	0	32,760
ORal Bacterial EXtracts (ORBEX): Primary Prevention of Asthma and Wheezing in Children	93.838	UA 330411	1U01HL130045-01	0	32,623
The CAPTURE Study: Validating a Unique COPD Screening Tool inPrimary Care	93.838	WCMC 16121993-6	1R01HL136682-01	0	29,019
ORal Bacterial EXtracts (ORBEX): Primary Prevention of Asthma and Wheezing in Children	93.838	UA 330411	1U01HL130045-01	0	27,257
Translating an Efficacious Illness Management Intervention for AfricanAmerican Youth with Poorly Controlled Asthma to Real WorldSettings	93.838	WSU17149	1R01HL138633-01	0	19,012
PATINA - Precision Administration of Treatment in Neutrophilic severe Asthma	93.838	BWH 118345	1UG1HL139124-01	0	14,751
SPIROMICS II: Biological underpinnings of COPD heterogeneity and progression	93.838	UCSF CU17-3435	1U01HL137880-01	0	11,982
Compliant Thoracic Artificial Lungs	93.838	CMU 1090409-334670	5R01HL089043-06	0	11,569
OPTIMIZing Treatment Early Pseudomonas aeruginosa Infection in Cystic Fibrosis	93.838	SCH 11664SUB	1U01HL114623-01A1	0	9,575
OPTIMIZing - Treatment for Early Pseudomonas aeruginosa Infection in Cystic Fibrosis: The OPTIMIZE Multicenter, Placebo-Controlled, Randomized Trail	93.838	SCH 11102SUB	1U01HL114623-01A1	0	3,545
Early Life DNA Methylation and Childhood Allergic Disease	93.838	TBWHI 113444	4R01HL111108-04	0	-1,932
				$6,427	$1,006,333
Blood Diseases and Resources Research					
The Pro-Inflammatory Effects of Acute Exercise in Children with SCA	93.839	CMH 901516-Columbia	1R01HL13680-01	0	46,451
Platelet and megakaryocyte biology in the normal and injured lung	93.839	UCSF 10277sc	R01HL107386	0	38,983
DISPLACE: Dissemination and Implementation of Stroke PreventionLooking at the Care Environment	93.839	MUSC17-072-8C868	1R01HL133896-01A1	0	19,865
Novel viruses and viral dynamics in multiple transfusion recipients	93.839	CH-700077-0318-00	7R01HL119485-03	0	11,999
Novel viruses and viral dynamics in multiple transfusion recipients	93.839	CH-700077-0318-00	7R01HL119485-03	0	-2
				$0	$117,296
Arthritis, Musculoskeletal and Skin Diseases Research					
Treatments Against RA and Effect on FDG PET/Ct: The Target Trial	93.846	BWH 113296	1U01AR068043-01	0	227,165

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Evolving Adaptive and Effector Mechanisms from Pre-RA Through Established Disease	93.846	NWU 60044689CU	UH2AR067681	0	43,549
Nanofiber Scaffolds With Gradations In Mineral Content For Rotator Cuff Repair	93.846	GIT RC995-G2	5R01AR060820-05	0	41,054
Genetic and Immunologic Etiology of Chronic Recurrent Multifocal Osteomylitis (CRMO)	93.846	UIO 1001838760	5R01AR059703-07	0	34,769
ENHANCED TENDON HEALING THROUGH GROWTH FACTOR AND CELL THERAPIES	93.846	WU-16-63	5R01AR062947-04	0	29,679
A multiplex assay for early detection of Cutaneous T-Cell Lymphoma	93.846	ALLIS CU17-0320	1R43AR070084-01A1	0	9,052
Electrotherapeutic Strategies for Connective Tissue Repair	93.846	TUFTS HS1988	1R01AR061988	0	6,453
Electrotherapeutic Strategies for Connective Tissue Repair	93.846	TUFTS HS1988	1R01AR061988	0	993
MRI of Proximal Femur Microarchitecture as a Biomarker of Bone Quality	93.846	NYU14-A1-00-001693-01	R01AR066008	0	-3
				$0	$392,710
Diabetes, Digestive, and Kidney Diseases Extramural Research					
Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness (GRADE) Study	93.847	GW S-GRD1718-LL7	2U01DK098246-06	0	575,895
The Subgingival Microbiome and Impaired Glucose Regulation	93.847	UM P006923603	7R01DK102932-04	0	375,750
Treatment Options For Type 2 Diabetes In Adolescents and Youth (Today) Trial T2P2	93.847	GWU 15-D06	2U01DK061230-12	0	284,019
Glycemic Reduction Approaches in Diabetes (GRADE) Study	93.847	GWU SGRD1213-EA7	5U01DK098246-02	0	242,051
NIDDK Type 1 Diabetes TrialNet Data Coordinating Center	93.847	USF 6163-1005-00-B	1UC4DK097835-01	0	237,072
Purinergic signaling in granulomaforming Th2 immunity	93.847	RUTGER 0363	1R01DK113790-01A1	0	207,656
TrialNet Type 1 Diabetes Natural History Study	93.847	UFLRDA CU09-4618	NIDDK-U01	0	198,302
Novel pharmacotherapy strategies for obesity in schizophrenia	93.847	UNC-CH 510499	1R01DK105526-01A1	0	197,954
NIDDK Type 1 Diabetes TrialNet Data Coordinating Center	93.847	USF 6163-1005-00-B	1UC4DK097835-01	0	150,910
Pathogenesis of compromised bone quality and mechanics in chronic kidney disease	93.847	IUSM IN46887773CU	1R01DK110871-01	0	134,533
Incidence and Implications of Subclinical Kidney Injury with Tenofovir-based PrEP	93.847	ISMMS 0255-7481-4609	1R01DK100272-01A1	0	134,161
Study of coding variants in human obesity and their functional characterization using human iPSC-derived cellular models	93.847	ISMMS 0255-2211-4609	1R01DK110113-01	0	130,281
Islet-reactive TCR clones in humanized mice generated with type 1 diabetes patient vs. healthy control hematopoietic stem cells	93.847	BRICHCC 51504.2000556.669313	5U01DK104162-04	0	128,800
Long-term Consequences of HIV in the Kidney	93.847	BCMH 7000000385	2P01DK056492-01	0	114,710
Diabetes Prevention Program Outcomes Study (DPPOS)	93.847	GWU S-DPP1617-JB22	2U01DK048489-23	0	107,891
Methylomics of Prenatal GDM: Natural History & Lifestyle Intervention in Children	93.847	LSU 50363-S3	5R01DK100790-02	0	100,439

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Obesity-Related Epigenetic Changes and Type-2 Diabetes	93.847	WFUHS 114050	R01DK101921	0	89,492
Probing the Biochemical Mechanisms of Amyloid Disease	93.847	SCRIPPS 5-52960	2R01DK046335-25A1	0	72,451
siRNA Protection of Islet rafts in Baboons	93.847	MGH 226597	1R01DK105503-01A1	0	70,041
Glycemic Reduction Approaches in Diabetes (GRADE) Study	93.847	GWU SGRD1213-EA7	5U01DK098246-02	0	50,385
Continuation of the Glycemia Reduction Approaches in Diabetes: A Comparative Effectiveness (GRADE) Study	93.847	GWU S-GRD1718-LL41	2U01DK098246-06	0	41,341
siRNA Protection of Composite Islet Kidney Transplant in Baboons	93.847	MGH 226596	1R01DK105468-01A1	0	35,325
Incidence and Implications of Subclinical Kidney Injury with Tenofovir-based PrEP	93.847	ISMMS 0255-7481-4609	1R01DK100272-01A1	0	29,129
Redefining DM by Agnostic Kidney Interrogation: A Pilot Grant in Confirmation of sn-RNAseq Technology	93.847	GRU 32307-11	U24DK115255-01	0	28,602
Epidemiology of Diabetes Interventions and Complications	93.847	CWRU RES511777	3U01DK094157-06S1	0	27,423
Glycemic Reduction Approaches for Diabetes: A Comparative Effective Study	93.847	GWU S-GRD1617-LL41	1U01DK098246-01	0	26,292
Targeting RAGE-MDia1 Signal Transduction in Diabetic Complications: Mechanisms and Therapeutics	93.847	NYUMC 14-A0-00-002489-01	5R24DK103032-03	0	25,331
Epgenetic, Protein, and Cellular Biomarkers of Beta Cell Function in T1D	93.847	YU CU14-0736	1UC4DK104205-01	0	22,857
Novel Biomarkers to Predict Outcomes in Kidney Transplant Recipients	93.847	YU M17A12649 (A10910)	2R01DK093770-05	0	19,222
RAGE/mDia 1, Macrophage Trafficking and Inflammation in High Fat Feeding	93.847	NYUMC 15-A0-00-005301-01	1R01DK109675-01	0	15,192
Epigentic Markers of Severity in Nonalcoholic Fatty Liver Disease	93.847	NJMRCCS 20108201	1R01DK107735-01A1	0	13,978
Diabetes Prevention Program Outcomes Study (DPPOS)	93.847	GWU S-DPP1617-JB22	2U01DK048489-23	0	13,849
Treatment Options For Type 2 Diabetes In Adolescents and Youth (Today) Trial T2P2	93.847	GWU 15-D06	2U01DK061230-12	0	11,845
Multi-level supermarket discounts of fruits and vegetables on intake and health	93.847	ISMMS 0255-1861-4609	1R01DK105440-01A1	0	11,533
Urinary Incontinence Study, Urinary KNOWledge study (U-KNOW)	93.847	LOYAU 206423	1R01DK104842-01	0	8,575
DiaCompSummer Student Funding Program	93.847	GRU 30835-26	2U24DK076169-11	0	8,526
THE NEPHROTIC SYNDROME STUDY NETWORK	93.847	MICHG 3001819806	U54 DK083912	0	7,282
Non-Operative Management of Pediatric Appendicitis: A Randomized Controlled Study	93.847	RIH 701-7137304-1	1U34DK112584-01A1	0	6,251
Multi-level supermarket discounts of fruits and vegetables on intake and health	93.847	ISMMS 0255-1861-4609	1R01DK105440-01A1	0	5,908
Targeting RAGE-MDia1 Signal Transduction in Diabetic Complications: Mechanisms and Therapeutics	93.847	NYUMC 14-A0-00-002489-01	5R24DK103032-03	0	5,221
Subcontract to InfoSciTex Corp: Wearable Artificial Kidney STTR Phase 2	93.847	Vivonics 1483-S001	2R42DK072646-02A1	0	2,461
Short-Term Education Program for Underrepresented Persons (STEPUP)	93.847	UA CU17-2546	NIH	0	1,499

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NIDDK Type 1 Diabetes TrialNet Data Coordinating Center	93.847	USF 6163-1005-00-B	1UC4DK097835-01	0	571
A2ALL-Patient Safety System Improvements in Living Donor Liver Transplant	93.847	NWU 60029589CUNY	5R01DK090129-04	0	-2
A twin study of obesity pathogenesis using fM	93.847	UWASH UWSC8832	5R01DK089036-05	0	-3
REPRIEVE A5332 Kidney Function Sub Study	93.847	BWH 000509533-006	1R01DK108438-01	0	-404
				$0	$3,970,598
Extramural Research Programs in the Neurosciences and Neurological Disorders					
Risk Factors FOR Stroke and Cognitive Decline in a Tri-Ethnic Region	93.853	UMIAMI SPC-000554	2R01NS029993-23A1	0	1,100,236
Towards a Complete Description of the Circuitry Underlying SharpWave-Mediated Memory Replay	93.853	SU CU17-0676	1U19NS104590-01	0	532,105
PATHOLOGOMICS: ESSENTIAL TREMOR IN THE BROADER CONTEXT OF NEURODEGENERATION	93.853	YALE M15A12205 (A10281)	7R01NS088257-02	0	360,318
in Vivo Quantification of Cerebellar GABA and NAA in Essential Tremor	93.853	YALE M16A12440 (A10345)	5R01NS085136-04	0	311,197
Modular nanophotonic probes for dense, large-scale neural recording with single-cell resolution	93.853	CALTECH 43B-1095745	U01 NS090596	0	249,947
Discovery and analysis of the C. elegans neuronal gene expression network (CENGEN)	93.853	YU GR101257 (CON-800013486)	5R01NS100547-02	0	234,951
High-speed volumetric imaging of neuronal network activity at depth using Multiplexed Scanned Temporal Focusing (MuST)	93.853	RFU 1U01NS094263-02	1U01NS094263-01	0	227,201
Neurological Emergencies Treatment Trials (NETT)-SHINE	93.853	UMICHG 3002925824-SHN	5U01NS069498-03	0	224,836
Close-loop intervention in eplieptogenesis	93.853	SU 61104536-120534	1R01NS094668-01	0	210,813
Project 2 - Neural Basis of Motor Pattern Loops	93.853	CIT 21B-1098370	U19NS104655	37,500	198,290
High-Speed Volumetric imaging of neural activity throughout the livingbrain	93.853	UCB 00009591	1U01NS103489-01	0	164,070
CONSEQUENCES OF PROLONGED FEBRILE SEIZURES IN CHILDHOOD	93.853	AECM 310873/310995/310309	2R37NS043209-11	0	154,647
SUDEP Translational Research Allicance (SUTRA): The Central Autonomic Network, Serotonin, and Adenosine: SUTRA 4 of 7	93.853	UCL CU14-1548	5U01NS090415-04	0	152,870
Mechanisms of Regulation of Progenitor Proliferation and Transformation	93.853	RFCUNY 42012-A	7R01NSO52738	0	149,807
Clinical-Pathological Study of Cognitive Impairment in Essential Tremor	93.853	YU GK000100 (CON-80000453)	R01NS086736	0	145,019
CRCNS: Neural Representation of Object Compliance in the Periphery	93.853	UV GB10477.156396	R01NS105241	0	143,381
Wide Deployment of Massively Multiplexed Nanosystems for Brain Activity Mapping	93.853	CALTECH 43B-1097614/S389576	U01NS099726	0	141,045
Long-term outcome in unruptured brain arteriovenous malformation patients	93.853	UCSF 10177sc	1R01NS099268-01A1	0	136,856
Modeling enteric nervous system development and Hirschsprung s disease in human pluripotent stem cells	93.853	MSKCC BD520455	1R01NS099270-01	0	134,607
Environmental Epidemiology of Essential Tremor	93.853	YU GK000165 (COM-80000475)	1R01NS094607-01	0	126,027

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Risk Factors FOR Stroke and Cognitive Decline in a Tri-Ethnic Region	93.853	UMIAMI SPC-000554	2R01NS029993-23A1	0	113,485
Neurological Emergencies Treatment Trials (NETT)- ESETT	93.853	SUBK00004095-ESETT	5U01NS088034-04	0	108,552
NeuroGrid: A scalable system for large-scale recording of action potentials from the brain surface	93.853	NYU 16-A0-00-006398-01	5U01NS099705-03	0	99,893
Functional Mapping of Pathways for Sensory-Motor Integration	93.853	CALTECH 21B-1095811	5U01NS090514-02	0	99,730
Center for Stroke Disaparities Solution, Project III	93.853	NYU 12-02247 101974-108621	1U54NS081765-01	0	94,482
Risk Factors FOR Stroke and Cognitive Decline in a Tri-Ethnic Region	93.853	UMIAMI SPC-000554	2R01NS029993-23A1	0	91,927
Using Cell-Penetrant Peptides to Target ATF5 in Mouse Glioma Models	93.853	UCD 201303503-01	5R01NS083795-02	0	86,180
Project 1 - The Neural Basis of Muscle Action Loops	93.853	UWSC10310	U19NS104655	0	79,031
Center for Stroke Disparities Solution (Core A)	93.853	NYU 12-02247 101975	1U54NS081765-01	0	75,739
The Frontotemporal Lobar Degeneration Clinical Research Consortium	93.853	UCSF 8570SC	1U54NS092089-01	0	75,502
Customized cortical stimulation therapy in the rehabilitation of stroke patients	93.853	EU T467956	1R01NS090677-01A1	0	67,203
Deep brain photoacoustic tomography at single-neuron resolution using arrays of photonic emitters and high-frequency ultrasound transducers	93.853	CALTECH 67C-1097568/S389076	U01NS099717	0	65,957
Carotid Revasculaization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2) Trial (	93.853	MAOJF 187276-01	5U01NS080168-04	0	61,508
The Effect of Lower Pressure over the Life Course on Late-life Cognition in Black	93.853	UMICHG 3004658789	1R01NS102715-01	0	60,798
Optimizing flexible, active electrode arrays for chronic, large-scale recording and stimulation on the scale of 100,000 electrodes	93.853	DUKE 203-5815/203-6433	1U01NS099697-01	0	56,261
A versatile system for cell-specific gene expression control in the fly brain	93.853	SU 60545612-111633	1R24NS086564	0	55,550
Targeting Kif11 to Treat Glioblastoma Invasion and Proliferation	93.853	MAOJF COL-232390	7R01NS073610-06	0	51,828
IDENTIFYING GENES AND PATHWAYS THAT IMPACT TAU TOXICITY IN FTD	93.853	COL-219212	3U54NS100693-02S1	0	48,638
Discovery Healthcare Innovations to Address Disparities in Stroke (DIADS)	93.853	UCSF 8621sc	1U54NS081760-01	0	46,455
Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs	93.853	EMORYU T659982	2U01NS038455-11A1	0	46,275
Neurological Emergencies Treatment Trials	93.853	UMICHG 3004674689-PNT	2U01NS06286-06	0	41,790
Engineering stem cell therapies to understand and overcome glioblastoma adaption	93.853	UNC-CH 5109024	5R01NS099368-02	0	35,999
Safety Evaluation Of 3K3AAPC In Ischemic Stroke-Rhapsody-NEURONEXT	93.853	CSMCLA CU15-3417	5U01NS088312-02	0	31,496
Mechanism of regulation of progenitor proliferation and transformation	93.853	MSSM 0255-2583-6409	2R01NS052738-10	0	30,114
MRI Predictors of Disease and Disability Progression in African Americans With Multiple Sclerosis	93.853	ISMMS 0255-4191-4609	1R01NS10081-01A1	0	29,237
Discovery Healthcare Innovations to Address Disparities in Stroke (DIADS)	93.853	UCSF 8621sc	1U54NS081760-01	0	28,940

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Consequences of Prolonged Febrile Seizures in Childhood	93.853	AECM 311302	R37NS043209	0	28,070
The trajectory of functional status and quality of life before and after stroke	93.853	MSSM 0253-9491-4609	1K23NS079422-01A1	0	27,407
Center for SUDEP Research (CSR): Autonomic and Imaging Biomarkers of SUDEP	93.853	CWRU RES512392	5R01NS090407-01	0	26,955
Long-term outcome in unruptured brain arteriovenous malformation patients	93.853	UCSF 10177sc	1R01NS099268-01A1	0	22,029
Clinical Coordination Center for STEADY-PD3	93.853	NWU 60036745 CU	1U01NS080818-01A1	0	21,748
PATHOLOGOMICS: ESSENTIAL TREMOR IN THE BROADER CONTEXT OF NEURODEGENERATION	93.853	YALE M15A12205 (A10281)	7R01NS088257-02	0	21,090
The Frontotemporal Lobar Degeneration Clinical Research Consortium	93.853	UCSF 8570SC	1U54NS092089-01	0	20,854
Spinal Muscular Atrophy (SMA) Biomarkers in the Immediate Postnatal Period of Development NN101	93.853	NEURONEXT NN101	1U10NS077423-01	0	19,972
Futility Study of Deferoxamine Mesylate in Intracerebral Hemorrhage (i-DEF)	93.853	BIDMC CU15-0742	5U01NS074425-03	0	19,192
A model system for studying the interaction of multiple processes for motor learning	93.853	PU CU13-0458	1R01NS084948-01	0	18,804
NIH Stroke Net National Coordinating Center - Administrative Collaborating Agreement	93.853	UCIN 008822	1U01NS086872-01	0	15,592
SUDEP Translational Research Allicance (SUTRA): The Central Autonomic Network, Serotonin, and Adenosine: SUTRA 4 of 7	93.853	UCL CU14-1548	5U01NS090415-04	0	13,458
An Exploratory Phase II STudy to Determine the Tolerability, Safety, and Activity of a Novel Vasopressin 1a Receptor Antagonist (SRX246) in Irritable Subjects with Huntington s Disease (HD) (NN105)	93.853	UMASS CU16-1638	1U10NS077423-01	0	12,660
Safety & Efficacy of Intgramyocardial Injection of Messenchymal Precursor Cells on Myocardial Function In LVAD Recipients	93.853	ISMMS 0255-3108-4609	5U01HL088942-08	0	10,944
Optimizing flexible, active electrode arrays for chronic, large-scale recording and stimulation on the scale of 100,000 electrodes	93.853	DUKE 203-5815/203-6433	1U01NS099697-01	0	9,696
CTE and Post Traumatic Neurodegeneration: Neutropathology and Ex Vivo Imaging	93.853	BUMC 4500002025	1U01NS086659-01	0	6,000
Center for SUDEP Research (CSR): Autonomic and Imaging Biomarkers of SUDEP	93.853	CWRU RES512392	5R01NS090407-01	0	3,397
High density - cellular resolution multielectrode arrays with spatially selective unidirectional and rotating fields for investigation of neuronal networks	93.853	UMINN N006207501	1U01NS103569-01	0	3,057
Mechanisms of Early Recurrence in Intracranial Atherosclerotic Disease	93.853	UM SPC-000140	1R01NS084288-01A1	0	2,342
The Inherited Neuropathy Consortium (INC) RDCRC	93.853	UIO W001054741	5U54NS065712-10	0	2,087
NIH Stroke Net National Coordinating Center - Administrative Collaborating Agreement	93.853	UCIN 008822	1U01NS086872-01	0	1,590
Risk Factors FOR Stroke and Cognitive Decline in a Tri-Ethnic Region	93.853	UMIAMI SPC-000554	2R01NS029993-23A1	0	1,483
Established Status Epilepticus Treatment Trial (ESSETT)	93.853	UV GB10094-14858/151272	1U01NS088031-01	0	963
Neurological Emergencies Treatment Trials (NETT)-Point	93.853	UMICHG 3002925634-PNT	5U01NS062835-04	0	5
				$37,500	$7,090,188

Allergy and Infectious Diseases Research

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
HPTN 083 Protocol Funding - Development Cost	93.855	FHID PO16002898	5UM1AI068619	951,037	963,543
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 839K193	1UM1AI114271-01	0	801,630
HVTN 703/ HPTN 081 Site Readiness	93.855	FHCRC 0000888693	5UM1AI068614-09	0	778,759
HPTN083 Protocol Funding - Implementation Costs Harlem CRS	93.855	PO17001995	5 UM1AI068619-11	25,299	702,090
HPTN083 Protocol Funding - Implementation Costs Bronx CRS	93.855	FHID PO17002294	5UM1AI068619-11	0	619,744
HVTN 703/ HPTN 081 Site Readiness	93.855	FHCRC 0000888693	5UM1AI068614-09	0	580,839
HPTN 085 - Bronx Prevention Center CRS	93.855	FHID PO15004262	UM1AI068619	0	450,733
HPTN 085 - Harlem Prevention Center CRS	93.855	FHID PO15004260	UM1AI068619	0	410,405
HPTN 085 - Bronx Prevention Center CRS	93.855	FHID PO15004262	UM1AI068619	0	390,522
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	319,103
HPTN 084, A Phase 3 Double Blind Safety and Efficacy Study of Long Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre- Exposure Prophylaxis in HIV Uninfected Women.	93.855	FHI PO17003034	UM1AI068619	69,094	317,538
HPTN 085 - Harlem Prevention Center CRS	93.855	FHID PO15004260	UM1AI068619	25,299	284,113
Lyme Point-of-care phase II	93.855	ITI CU13-2663	2R44AI096551-03	0	256,896
HPTN 081/085 Protocol Funding - Implementation - Centralized Laboratory and Other Operational Support	93.855	FHID PO16003322	UM1 AIO68619	0	244,203
Defining the targets of broad intervention antimalarial agents	93.855	UCSD 42374631	4R01AI103058-04	0	211,623
Delivery of Rectal Enema as Microbicide	93.855	JHU 2002342875	1U19AI113127-01	0	209,030
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	208,879
HPTN 084, A Phase 3 Double Blind Safety and Efficacy Study of Long Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre- Exposure Prophylaxis in HIV Uninfected Women.	93.855	FHI PO17003034	UM1AI068619	663	192,592
Units for HIV/AIDS Clinical Trials Network	93.855	CAPRISA1 2002 024027 08	2UM1AI069469-08	0	167,641
Listeria monocytogenes physiology and host pathogen interactions	93.855	UWASH UWSC8286	1R01AI116669-01	0	160,685
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	145,697
Miami Womens Interagency HIV Study (WIHS)	93.855	UMIAMI SPC-000610	1U01AI103397-01	0	141,931
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	141,202
High resolution analyses of Env-directed B cells to accelerate vaccine design-P2	93.855	SCRIPPS 5-52613	5P01AI104722-03	0	138,229
Units for HIV/AIDS Clinical Trials Network	93.855	CAPRISA1 2002 024027 08	2UM1AI069469-08	0	124,027
Miami Womens Interagency HIV Study (WIHS)	93.855	UMIAMI SPC-000610	1U01AI103397-01	0	96,845

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East Africa international Epidemiologic Database to Evaluate AIDS (IeDEA) Regional Consortium	93.855	IN4688916COL	2U01AI09629911-11	0	90,906
HVTN Scientific Leadership (Hammer)	93.855	FHCRC 0000791118	2UM1AI068614-08	0	90,739
Novel Reporter Phages to Detect Complex TB Drug Resistance and Persistence	93.855	AECM 310877	5R01AI114900-03	0	90,527
Function of antimalarial drug resistance proteins	93.855	GU 411310	2R01AI056312-10A1	0	89,588
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.855	AECM 310838	1R01AI116665-01	0	88,128
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.855	AECM 310838	1R01AI116665-01	0	82,956
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 839K193	1UM1AI114271-01	0	71,216
HPTN083 Protocol Funding -Development Costs Harlem CRS	93.855	PO16002861	UM1 AI068619	0	68,472
Dengue Human Immunology Project Consortium (DHIPC)	93.855	ISMM 0255-8656-4609	5U19AI118610-03	0	66,768
HVTN Scientific Leadership (Hammer)	93.855	FHCRC 0000791118	2UM1AI068614-08	0	63,849
Optimizing clinical use of Polymyxin B: Teaching old drug to treat superbugs	93.855	UMICHG 3004415914	7R01AI119446-03	0	61,771
HIV s Effects on Breast Cancer Treatment and Outcomes in South Africa	93.855	WHCL D1404280	1R01CA192627-01	0	60,321
Sub-Saharan African MSM s Interest in Prep an	93.855	FHI PO17001730	UM1AI068619	0	59,410
AIDS Clinical Trials Group Protocol Funds	93.855	BWH CU14-1723	2UM1AI068636-08	0	57,008
Exploring HIV Risk Within the Context of Gend	93.855	FHID PO17002027	UM1AI068619	0	56,901
Effects of inhibiting early inflammation in kidney transplant patients	93.855	ISMMS 0255-1366-4609	5U01AI063594-13	0	53,332
The molecular basis of the carbapenem resistance epidemic	93.855	RU 8315	2R01AI090155-07A1	0	52,127
Chronic Graft Destruction: Interplay of Allo- and Autoantibodies and Nonadherence	93.855	VUMC40877	6U01AI104336-05	0	49,390
Diversity and Phenotype of Artemisinin Resistance Mutations in Central Africa	93.855	UNC 5104761	1R21AI121465-01	0	48,980
Women s Interagency HIV Study (WIHS)-Longitudinal Cohort	93.855	EMORYU T930529	5U01AI103408-03	0	48,556
HVTN Correlates Phase 1 Funding (PF) (HVTN 108 and HVTN 120)	93.855	FHCR 0000938671	5UM1AI068614-12	0	48,493
HPTN083 Protocol Funding - Development Costs Bronx CRS	93.855	PO16002993	UM1 AI068619	0	44,874
Point-of-care assay for serodiagnosis of Leptospirosis	93.855	ITI CU18-1165	1R43AI136551-01	0	43,849
HPTN 084, A Phase 3 Double Blind Safety and Efficacy Study of Long Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre- Exposure Prophylaxis in HIV Uninfected Women.	93.855	FHI PO17003034	UM1AI068619	0	42,933
Immune Tolerance Network	93.855	BRI FY16ITN109	5UM1AI109565-02	0	41,956
Targeting matrix metalloproteinases to limit imunopathology in airborne infection	93.855	USH 2	5R33AI102239-04	0	40,271

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AIDS Clinical Trials Group Protocol Funds	93.855	BWH CU14-1723	2UM1AI068636-08	0	39,668
Central Africa International Epidemiology Database to Evaluate AIDS (CA-leDEA)	93.855	AECM 31614F	2U01AI096299-07	0	38,357
HPTN 084, A Phase 3 Double Blind Safety and Efficacy Study of Long Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre- Exposure Prophylaxis in HIV Uninfected Women.	93.855	FHI PO17003034	UM1AI068619	0	38,187
School Inner-City Asthma Intervention Study	93.855	CHB GENFD0001207108	5U01AI110397-02	0	34,138
HIV/AIDS Prevention Trials Network (HPTN) Leadership Group	93.855	FHI 860/0080.0015	UM1AI068619	0	31,033
Immunosupression Withdrawl for Stable Pediatric Liver Transplant Recipients	93.855	UCSF 7230sc	5U01AI100807-03	0	30,208
Autoimmunity Center of Excellence Clinical Research Program	93.855	UCSF 9882SC	5UM1AI110498-03	0	29,391
IL-33 Blockade as a Novel Therapeutic for T-cell Mediatiated Hypercytokinemia Syndromes	93.855	CHPHI 3200280521	1R01AI121250-01A1	0	26,932
Rituximab for Treatment of SSc-PAH (ASC01)	93.855	UCSF 9309SC	5UM1AI110498-02	0	24,370
Parasite-specific proteasome inhibitors to combat mult-drug resistant malaria	93.855	SU 61424825-123798	1R21AI127581-01	0	24,324
HPTN076 Protocol	93.855	FHID PO15001918	UM1 AI068619	0	23,999
School Inner-City Asthma Intervention Study	93.855	CHB GENFD0001207108	5U01AI110397-02	0	23,020
A Pilot Study Evaluating the Use of Novel Self-Administered Dried Blood Spot Device - HemaSpot - to Monitor PrEP Use among Men Who Have Sex with Men	93.855	FHCRC 0000887934	5UM1AI068614-10	0	22,770
Novel Hantavirus Virulence Determinants	93.855	SUNYSB 75939	R56AI119854	0	22,646
HPTN Leadership and Operations Center	93.855	FHI FCO 104112/ID 0080.0239	UM1AI068619	0	21,716
International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT)	93.855	JH 2002127548	UM1AI068632	0	21,200
The Fetal and Childhood Environment, Oxidative Balance, Inflammation and Asthma	93.855	TBWHI 114196	4R01AI102960-04	0	20,553
International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT)	93.855	JH 2002127548	UM1AI068632	0	19,113
Identification and validation of molecular markers of piperaquine resistance	93.855	UMB 1701550	1R01AI25579-02	0	17,567
HIV Prevention Trials Network: Protocol Leadership: HPTN078	93.855	FHI PO15000459	UM1AI068619	0	17,105
HVTN Scientific Leadership (Sobieszcayk)	93.855	FHCRC 0000851189	5UMAI068614-09	0	17,026
HPTN 085 - Harlem Prevention Center CRS	93.855	FHID PO15004260	UM1AI068619	12,649	16,368
Immune Tolerance Network	93.855	FY15ITN159	5UM1AI109565-02	0	16,051
Sofosbuvir and Ledipasvir in HIV/HCV Coinfected Pre & Post Liver Transplant	93.855	UCSF 8658sc	1U01AI115714-01	0	14,864
Building Towards Scientific Expertise in Substance Related Risks for HIV Transmission in HPTN Protocols	93.855	UCSD 72534530	5UM1AI068619-10	0	14,557
HIV Prevention Trials Network: Protocol Leadership: HPTN078	93.855	FHI PO15000459	UM1AI068619	0	13,490

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Rituximab Plus Cyclophosphamide Followed by Belimimab for the Treatment of Lupus Nephritis	93.855	BRI FY15ITN152	5UM1AI109565-02	0	12,012
Evolution of Glycan - Reactive Broadly Neutralizing Anti-V2 Antibodies in HIV Infection	93.855	WITS D1307700-06	5R01AI104387-04	0	11,690
HIV/AIDS Prevention Trials Network (HPTN) Leadership Group	93.855	FHI 860/0080.0015	UM1AI068619	0	11,643
Strategies for Tuberculosis Control in Prisons	93.855	SU 61485127-124916	1R01AI13005801	0	11,104
Safety, phamacokinetics, and resistace to bedaquiline in XDR TB and HIV	93.855	AECM 14-2397	1R01AI114304-01A1	0	11,070
Sofosbuvir and Ledipasvir in HIV/HCV Coinfected Pre & Post Liver Transplant	93.855	UCSF 8658sc	1U01AI115714-01	0	10,966
HVTN Scientific Leadership (Sobieszcayk)	93.855	FHCRC 0000851189	5UMAI068614-09	0	10,153
HPTN 084: A Phase 3 Double Blind Safety and Efficacy Study of Long-Acting Injectable Cabotegravir Compared to Daily Oral TDF/FTC for Pre- Exposure Prophylaxis in HIVUninfected Women	93.855	FHI360 PO18001958	UM1AI068619	0	10,151
Approaches to Tolerance of Allogeneic Kidney and Islet Transplants	93.855	MGH 228402	5U19AI102405-04	0	8,009
B-Cell Targeted Induction to Improve Outcomes in Pediatric Lung Transplantation	93.855	WASHU WU-15-206	5U01AI077810-07	0	3,680
AIDS Clinical Trials Group (ACTG)	93.855	BWH 110140	5UM1AID68636-10	0	2,729
Probing the natural genomic diversity of Babesia microti	93.855	YU C15A12235(A10294)	5R21AI112938-02	0	2,199
Immune Tolerance Network	93.855	FY15ITN159	5UM1AI109565-02	0	1,822
Immunosupression Withdrawl for Stable Pediatric Liver Transplant Recipients	93.855	UCSF 7230sc	5U01AI100807-03	0	1,575
Transient Chimerism and Allograft Tolerance	93.855	MGH 227877	1R56AI121254-01	0	98
Type IV Pilus: A Switch that determines consequences of Neisseria colonization	93.855	UA 223700	5R01AI107966-01	0	-1
Transient Chimerism and Allograft Tolerance	93.855	MGH 227877	1R56AI121254-01	0	-99
Delivery of Rectal Enema as Microbicide	93.855	JHU 2002342875	1U19AI113127-01	0	-610
High resolution analyses of Env-directed B cells to accelerate vaccine design-P2	93.855	SCRIPPS 5-52613	5P01AI104722-03	0	-1,062
HIV/AIDS Prevention Trials Network (HPTN) Leadership Group	93.855	FHI 860/0080.0015	UM1AI068619	0	-5,417
				$1,084,041	$11,392,184
Biomedical Research and Research Training					
A minimally invasive synthetic biology-driven approach for natural products discovery	93.859	RFU CU14-2989	U01GM110714-01A1	0	361,389
Structure-Based Antagonism of HIV-1 Envelope Function in Cell Entry	93.859	DREXEL 800128-Columbia	5P01GM056550-19	0	194,893
Engineered gene circuits for basic science and biotechnology	93.859	UCSD 82360876	5R01GM069811-14	0	146,740
The Transport Cycle in Neurotransmitter Uptake Systems (Bridge 3.1)	93.859	UCHIC FP043359-B	2U54GM087519-06	0	123,014

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FEBio- Finite Elements for Biomechanics and Biophy	93.859	UTAH 10026950-COLUMBIA	5R01GM083925-08	0	117,595
Semiparametric analysis of censored data in current medical studies	93.859	UNC-CH-5101930	5R01GM047845-27	0	94,545
Modulation of KCNQ1 Channel Activity	93.859	UMIAMI CU13-1303	1R01GM109762-01	0	72,102
New Methods for the Synthesis of Biologically Active Peroxides	93.859	NYU F0501-01	5R01GM118730-02	0	69,012
Regulatory modifiers of coding variant penetrance	93.859	NYGC R01GM122924-COL-1	1R01GM122924-01	0	68,887
Spatial Models of Cell Regulatory Networks	93.859	ISMMS 0225-0651-4609	5R01GM072853-10	0	62,497
Spatial Models of Cell Regulatory Networks	93.859	ISMMS 0225-0651-4609	5R01GM072853-10	0	59,402
A synthetic biology approach to analyze evolution of programmed bacterial death	93.859	DUKE 15-NIH-1083	R01GM11049-01	0	52,048
A minimally invasive synthetic biology-driven approach for natural products discovery	93.859	RFU CU14-2989	U01GM110714-01A1	0	47,168
Center on Macromolecular Dynamics by NMR Spectroscopy	93.859	NYSBC G09112-01	5P41GM118302-02	0	46,437
The Transport Cycle in Neurotransmitter Uptake Systems (Bridge 3.1)	93.859	UCHIC FP043359-B	2U54GM087519-06	0	29,730
Maturation of the Large Ribosomal Subunit in Yeast	93.859	UTEXAUS UTA14-000554	5R01GM053655-19	0	29,723
Next Generation Fluorescent Probes for Biological Research	93.859	CORNELL 16060913	2R01GM098859-05	0	29,286
Statistical methods for modeling multi-omic data	93.859	MHC GD9241	1R15GM126485-01	0	24,484
Structure-Based Antagonism of HIV-1 Envelope Function in Cell Entry	93.859	DREXEL 800128-Columbia	5P01GM056550-19	0	17,297
Spectral revelations of mitochondrial Ca2+ flux interactome Ca2+ interactome	93.859	TEMPLE 361067-04710-02	1R01GM109882-01	0	12,203
Statistical Methods for Single-Cell Transcriptomics	93.859	UPENN 572782	1R01GM125301-01	0	10,552
Efficient Statistical Learning Methods for Personalized Medicine Using Large Scale Biomedical Data.	93.859	UNC-CH 5110020	1R01GM124104-01A1	0	10,380
Methods for integrated analysis of multi-level omics data	93.859	MHC GD9311	1R01GM127862-01	0	9,748
				$0	$1,689,132

Child Health and Human Development Extramural Research

The Maternal Fetal Medicine Unit Network	93.865	GWU CU14-1338	2U10HD036801-16	529,561	953,667
Gene Mutation and Rescue in Diaphragmatic Hernia	93.865	MGH 230914	P01HD068250	0	232,000
Control of the Neonatal Septisome and Hydrocephalus in sub Saharan Africa	93.865	COLHD086071	5DP1HD086071-02	0	180,567
Fragile Families and Child Well-being in Adolescence	93.865	PU 00002107	2R01HD036916-11A1	0	177,144
The Vuka Family Program: Supporting the health and behavior of South African HIV+ youth	93.865	NYU F7107-01	1R01HD074052-01	0	168,950

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.865	AECM 310838	1R01AI116665-01	0	105,122
Protection Against Cognitive Decline in MS: Longitudinal Investigation of Reserve	93.865	MSSM 0255-1471-4609	R01HD082176	0	103,871
Data Integration and Advanced Statistical Modeling to Describe and Control Pediatric Pedestrian Injuries in The United States	93.865	15-A0-00-004772-01	5R01HD087460-02	0	87,480
Mechanisms by which steroid hormones modulate cervical extracellular matrix structure and function during pregnancy and provide therapeutic protection against preterm birth	93.865	UTSW GMO 170904	5R01HD088481-02	0	75,965
Impact of Emergency Department Probiotic Treatment of Pediatric Gastoenteritis	93.865	WUSOM WU-14-226-MOD-3	1R01HD071915-01A1	0	75,352
Clinical Diagnostic Sequencing of Structural Variation	93.865	MGH 225991	1R01HD081256-01A1	0	72,352
Novel retinoic acid receptor alphaselective antagonists--Project 1	93.865	UMINN P006822801	1U54HD093540-01	0	70,222
Developmental Mechanisms of Trachea-Esophageal Birth Defects,project 1	93.865	CHMCO 140554	1P01HD093363-01	0	68,511
Impact of Perinatal Depression treatment on child developmental outcomes	93.865	UNC 5105594	7R01HD075875-04	0	58,508
Long-term Adherence and Care Engagement (LACE) study	93.865	UCT 1RMA25571	3R01HD080465-02S1	0	54,922
RNA Biosignatures: A Paradigm Change for the Management of Young Febrile Infants	93.865	UMICH 3004685884	7R01HD085233-03	0	49,695
Developmental Mechanisms of Trachea-Esophageal Birth Defects	93.865	CHMC 140553	1P01HD093363-01	0	48,571
Molecular mechanisms of infection-mediated cervical ripening	93.865	UTSW GMO 160410	5R01HD086495-03	0	46,214
Contraceptive Discovery, Development and Behavioral Research Center - Project # 2	93.865	UMINN P006247401	1U54HD093540-01	0	41,211
A Comprehensive Community-based Strategy to Optimize the HIV Prevention and Treatment Continuum for Youth at HIV Risk, Established HIV Infection	93.865	2000 G UD586	1U19HD089886-01	0	35,354
Improving Outcomes for HIV-infected Children in South Africa and Cote dIvoire	93.865	MGH 224642	1R01HD079214-01	0	31,446
Parenting and Men s Health: The Utility of the fathers and Sons Program	93.865	3004148036	5R01HD084526-02	0	30,899
Innovative PK/PD Approaches to Optimize TBM Treatment in Children (PATCH Study)	93.865	JHU 2002824937	R01HD074944-02	0	28,177
Medical Optimization & Management of Pregnancies with Overt Type 2 Diabetes (MOMPOD)	93.865	UNC 5106225	1R01HD086139-01A1	0	27,555
Novel retinoic acid receptor alphaselective antagonists--Project 1	93.865	UMINN P006822801	1U54HD093540-01	0	27,459
Changes in Functioning among Mentally Retarded Adults	93.865	KKINS 231.234H	5 P01 HD035897-24	0	26,847
Study of Oxytocin in Autism to Improve Reciprocal Social Behaviors (SOARS-B)	93.865	DUKEU 2035287	7U01HD073984-05	0	25,418
Innate and Adaptive Immunity to HCV in Human Pregnancy	93.865	UCOL FY14.284.004	5R01HD075549-02	0	25,001
Protection Against Cognitive Decline in MS: Longitudinal Investigation of Reserve	93.865	MSSM 0255-1471-4609	R01HD082176	0	22,620
Impact of Combined Use of Depot Medroxyprogesterone Acetate Contraception and Tenofovir PreExposure Prophylaxis on Bone Health (Depo-PrEP)	93.865	UWSC9850	1R01HD089843-01A1	0	21,637
FANMI: A community-based cohort model for HIV adolescent care in Haiti	93.865	17071036-01	1R01HD091935-01A1	0	20,834

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Contraceptive Discovery, Development and Behavioral Research Center - Project # 2	93.865	UMINN P006247401	1U54HD093540-01	0	20,452
The Pediatric HIV/AIDS Cohort Study (PHACS)	93.865	TUL-HSC-555750-18/19	5U01HD052104-14	0	19,173
Contraceptive Discovery, Development and Behavioral Research Center - Project # 3	93.865	UMINN P006247402	1U54HB093540-01	0	18,960
Using Smart Phones to Understand the Link between Social and Geographical Context and HIV Risk Behavior Among MSM	93.865	YU GR101489 (CON-80001024	1R01HD092185-01	0	18,817
Multigenerational Familial and Environmental Risk for Autism (MINERvA)	93.865	MSSM 0255-5365-4609	U01HD073978-01	0	16,481
Neurobiological Pathways Underlying Maladaptive Behaviors in Youth	93.865	MSU RC107642CU	R01HD093334	0	14,814
Integration of a Youth-Led Microfinance Program with Adult Microfinance to Improve Resilience Outcomes in the Democratic Republic of Congo (DRC)	93.865	JH 2003057086	1R01HD071958-01	0	13,669
Delivery mode, environment and the gut microbiome: influence on childhood body size	93.865	HFHS 87645	1R01D082147-01A1	0	13,522
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.865	AECM 310838	1R01AI116665-01	0	10,131
Medical Optimization & Management of Pregnancies with Overt Type 2 Diabetes (MOMPOD)	93.865	UNC 5106225	1R01HD086139-01A1	0	9,684
WeCare	93.865	AAP CU18-0762	1R01HD090191-01	0	8,759
Burden and Reducing Risk of Neurological, Cognitive and Behavioral Impairment of Pediatric Sickle Cell Disease in Uganda	93.865	MU MakCHS092016	1R21HD089791-01	0	8,375
Contraceptive Discovery, Development and Behavioral Research Center - Project # 3	93.865	UMINN P006247402	1U54HB093540-01	0	8,057
The Pediatric HIV/AIDS Cohort Study (PHACS)	93.865	TUL-HSC-555750-18/19	5U01HD052104-14	0	5,900
MD-INMD-CV Predictive Informatics Monitoring in the Neonatal Intensive Care Unit	93.865	UV GB10057 147305	1R01HD072071-01A1	0	4,481
Impact of Emergency Department Probiotic Treatment of Pediatric Gastoenteritis	93.865	WUSOM WU-14-226-MOD-3	1R01HD071915-01A1	0	670
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.865	AECM 310838	1R01AI116665-01	0	-54
Comparative Effectiveness of Development-Bhavioral Screening Instruments	93.865	TUSM 5007836-SERV	5R01HD072778-05	0	-721
Control of the Neonatal Septisome and Hydrocephalus in sub Saharan Africa	93.865	COLHD086071	5DP1HD086071-02	0	-3,061
				$529,561	$3,181,683

Aging Research

Consortium for Alzheimer s Sequence Analysis (CASA) Project 2	93.866	UPENN 564315	1UF1AG047133-01	0	601,946
Communities Designed to Support Cardiovascular Health for Older Adults	93.866	DU 800080	5R01AG049970	0	427,745
Alzheimer s Disease Genetics Consortium	93.866	UPENN 573992	5U01AG032988	0	276,293
Psychosocial protective factors in cognitive and brain aging	93.866	UMICH 3004295136	4R00AG47963-03	0	257,922
Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS)	93.866	MAORO TRU-194007-07	1U01AG045390-01A1	0	237,863

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Risk Factors, Pathology and Clinical Expressions of AD	93.866	RUSH L97092581-Sub04	2RF1AG015819-16	0	227,812
Genetic Epidemiology of Early-Onset Alzheimer s disease in Caribbean Hispanics and non Hispanic Whit	93.866	UMIAMI 668342	1RF1AG054080-01	0	204,746
Replication and Extension in African Americans of AD Sequencing	93.866	UMIAMI SPC-000756	1U01AG052410-01	0	183,657
Alzheimer s Disease Genetics Consortium	93.866	UPENN 573992	5U01AG032988	0	154,347
Etiology of Geographic and Racial Differences in Stroke	93.866	UAB 000426787-008	U01NS41588	0	140,762
Dominantly Inherited Alzheimer	93.866	WASHU WU-15-186	2UF1AG032438-07	0	108,994
A Longitudinal Network Study of Alzheimer s and Dementia Care in Relation to Disparities in Access and Outcomes	93.866	VNSNY 4616CU	1R56AG056347-01	0	107,366
Identifying epigenetic mechanisms underlying age-related disease risk in CHARGE	93.866	BC CU16-1130	5U34AG051418-02	0	91,054
Alzheimer s Disease Cooperative Study - A4 Study	93.866	USC 75679119	U19AG010483	0	87,612
Integrative Pathways to Health & Illness	93.866	UWIS 834K164	1U19051426-01A1	0	83,876
PP2A Dysregulation in the Pathogenesis of alphaSynucleinopathies	93.866	RUTGERS 0131	1R01NS101134-01	0	76,217
Identifying the molecular systems, networks, and key molecules that underlie cognitive resilience	93.866	RUMC 17021705-Sub02	1R01AG057911-01	0	74,728
Prevention of Alzheimer s disease in women: risks and benefits of hormone therapy	93.866	MAORO THE-234899	1RF1AG057547-01	0	72,980
Whole Genome Sequencing in Ethnically Diverse Cohorts for the ADSP Follow Up Study (FUS)	93.866	UMIAMI SPC-000541	U01AG057659	0	65,825
Re-visiting Methods for MCI Diagnosis to Improve Biomarker and Trial Findings	93.866	UCSD 73333288	1R01AG049810-01A1	0	59,940
Einstein Aging Study - Project 2	93.866	AECM 31135W	2P01AG003949-32	0	59,442
Consortium for Alzheimer s Sequence Analysis (CASA) U19 PENN	93.866	UPENN 564315	1UF1AG047133-01	0	50,131
African Ancestry and the Genomic Architecture of AD and Other Common Neurodegenerative Disease Neuropathologies	93.866	RUSH 15092401-Sub03-Amend01	5R01AG054058-02	0	44,630
Tau-Sliceosome Interactions in Alzheimer s Disease	93.866	BCMH 7000000572	5R01AG053960-02	0	43,688
Genomic Characterization of Alzheimer s Disease Risk in the Puerto Rican population	93.866	UMIAMI 667606	1RF1AG054074-01	0	42,263
Improving Health Outcomes for an Aging Population	93.866	NBER 4135G.30.16.Columbia	2P01AG005842-30	0	40,984
Sustaining Quality of Life of the Aged: Heart Transplant or Mechanical Support?	93.866	NWU 60040682 CU	5R01AG047416-03	0	39,336
New York Center for Collaborative Research in Genomics	93.866	UM1-CU-MAYAUEX-Supp-2	1UM1HG008901	0	38,367
MRI, Genetic and Cognitive Precursors of AD and Dementia	93.866	BUSM 4500001205	2R01AG016495-11	0	37,353
Coordinating Center for Genetics and Genomics of Alzheimer s Disease (CGAD)	93.866	UPENN 573913	1U54AG052427-01	0	36,586
Coordinating Center for Genetics and Genomics of Alzheimer s Disease (CGAD)	93.866	UPENN 573913	1U54AG052427-01	0	36,264

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R&D Cluster

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Dissecting the Genetic and Molecular Networks Underlying Longevity and Aging	93.866	PU SUB0000093	1R56AG047344-01A1	0	32,722
Benfotiamine in Alzheimer s Disease: A pilot study	93.866	WMBMRI CU15-1104	1R01AG043679-01A1	0	31,695
National Alzheimer s Coordinating Center	93.866	UWASH UWSC7720	2U01AGB016976-16	0	26,777
Coordinating Center for Genetics and Genomics of Alzheimer s Disease (CGAD)	93.866	UPENN 573913	1U54AG052427-01	0	26,034
What Does Health Insurance Do? Evidence from the Oregon Health	93.866	NBER 4126B.COLUMBIA	2R01AG034151-06A1	0	25,559
What Does Health Insurance Do? Evidence from the Oregon Health Insurance Lottery	93.866	NBER 41260.Columbia	R01AG034151	0	18,618
Health and Retirement Study Yrs 29- 34: Harmonized Cognitive Assessment Protocol (HCAP)	93.866	UMICHG 3004832623	U01AG058499	0	16,196
Replication and Extension in African Americans of AD Sequencing	93.866	UMIAMI SPC-000756	1U01AG052410-01	0	15,709
ARMADA: Advancing Reliable Measurement in Alzheimer s Disease and cognitive Aging	93.866	NWU 60048330CU	U2CAG057441	0	15,079
Frailty and Functional Status in Older Liver Transplant Patients	93.866	UCSF 8976sc	5K23AG048337-02	0	14,232
Changing Long Term Care in America: Policies, Markets, Strategies and Outcomes	93.866	BU 00001005	5P014G027296-08	0	14,003
Nutrient Signaling and Stem Cell Maintenance in Aging Epithelia	93.866	BIFROA SA31100-CU	1R01AG047497-01A1	0	13,881
Coordinating Center for Genetics and Genomics of Alzheimer s Disease (CGAD)	93.866	UPENN 573913	1U54AG052427-01	0	12,452
Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS)	93.866	MAORO TRU-194007-07	1U01AG045390-01A1	0	11,128
Mindfulness Meditation and Insomnia in Alzheimer Disease Caregivers: Inflammatory and Biological Aging Mechanism	93.866	UCLA 2000 G VK311	1R01AG056424-01	0	10,538
Health and Retirement Study Yrs 29-34	93.866	UMICHG 3004822521	U01AG009740	0	9,804
THE FOUR REPEAT TAUOPATHY NEUROIMAGING INITIATIVE	93.866	UCSF 10375sc	R01AG038791	0	7,656
ARMADA: Advancing Reliable Measurement in Alzheimer s Disease and cognitive Aging	93.866	NWU 60048330CU	U2CAG057441	0	6,221
Benfotiamine in Alzheimer s Disease: A pilot study	93.866	WMBMRI CU15-1104	1R01AG043679-01A1	0	4,567
he Alzheimer s Disease Cooperative Study - Janet	93.866	UCSD 0000000080132357	4U19AG010483-25	0	3,816
Pitavastatin to Reduce Physical Function Impairment and Frailty in HIV (PREPARE)	93.866	BWH CU17-1188	1R01AG054366-01A1	0	725
Non-Invasive Treatment of Abdominal Aortic Aneurysm Clinical Trial (N-TA3CT)	93.866	UNEMED 36-5360-2141-111	5R01AG037120-03	0	-2
Replication and Extension in African Americans of AD Sequencing	93.866	UMIAMI SPC-000756	1U01AG052410-01	0	-11,649
				$0	$4,316,487
Vision Research					
Multiple Scales of Representation in V1	93.867	NYU F4415-01	1R01EY025673-01	0	172,767

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Mechanistic Studies on Regenerative Medicine Approaches to Childhood Blindness	93.867	UIO 1001607458	R01EY026682-01	0	155,088
Clinical and genetic analysis of retinopathy of prematurity	93.867	1005935 COLUMBIA	2R01EY019474-04	0	73,609
African Descent and Glaucoma Evaluation Study (ADAGES) IV: Alterations of the lamina cribrosa in progression	93.867	UAB 000512884-002	1R01EY026574-01A1	0	60,489
Mechanistic Studies on Regenerative Medicine Approaches to Childhood Blindness	93.867	UIO 1001607458	R01EY026682-01	0	23,592
Ocular Hypertension Treatment Study 20-Year Follow-Up Clinical Center Grant	93.867	WU-16-137	1UG1EY025181-01	0	16,122
Ocular Hypertension Treatment Study 20-Year Follow-Up Clinical Center Grant	93.867	WU-16-137	1UG1EY025181-01	0	15,347
Ocular Hypertension Treatment Study 20-Year Follow-Up Clinical Center Grant	93.867	WU-16-137	1UG1EY025181-01	0	10,606
xADAGES III: Contribution of genotype to glaucoma phenotype in African Americans	93.867	UCSD 61152595	1R01EY023704	0	320
Mechanistic Studies on Regenerative Medicine Approaches to Childhood Blindness	93.867	UIO 1001607458	R01EY026682-01	0	-9,495
				$0	$518,445
Medical Library Assistance					
Casual Inference in Large - Scale Time - Series with Rare Events and Latent Variables	93.879	SIT 2102255-01	5R01LM011826-07	0	112,859
Tempral relation discovery for clinical text	93.879	CHMCB RSTFD0000653987	2R01LM010090-05	0	27,352
				$0	$140,211
National Institutes of Health Acquired Immunodeficiency Syndrome Research Loan Repayment Program					
HIV Prevention Trials Network (HPTN) Leadership Group	93.936	FHI 0080-0025	U01 AI068619	0	436,694
				$0	$436,694
Coal Miners Respiratory Impairment Treatment Clinics and Services					
Multiplex RNA imaging in single cells by superresolution microscopy and barcode FISH	93.965	CALTECH 68D-1097567	1R01HD075605	0	3,494
				$0	$3,494
International Research and Research Training					
Bangladesh Center for Global Environmental and Occupational Health	93.989	UCHICAGO FP056723-D	1U2RTW010122-01	0	10,089
Injury and Trauma Research Training program for Botswana	93.989	UPenn 570884	1-D43-TW-010448-01	0	6,829
Bangladesh Center for Global Environmental and Occupational Health	93.989	UCHICAGO FP056723-D	1U2RTW010122-01	0	4,798
				$0	$21,717

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Total Pass-through Programs				**$2,132,369**	**$55,673,526**
Total: National Institute of Health				**$64,510,004**	**$475,497,919**
State / City Government					
Pass-through Awards					
National Endowment for the Humanities/National Fndn on the Arts and Humanities					
Beats, Rhymes & Justice	45.129	NYCH 2752178	NEH CU17-2639	0	4,290
				$0	$4,290
Centers for Disease Control and Prevention/DHHS					
Follow-up Survey of Users of High Arsenic Private Wells Identified through PWTA Testing	93	NJDEP CU17-0001	CDC CU17-0001	0	17,410
Arsenic Testing Outreach to Hunterdon County Families with Pregnancies and Young Children through Healthcare Providers	93	NJDEP CU18-0958	CDC CU18-0958	0	16,389
Targeted Mailing Pilot Intervention to Promote Arsenic Testing of High Risk Wells (Phase 2)	93	NJDEP CU18-0960	CDC CU18-0960	0	7,063
Department of Health & Human Services					
FAST-PS TORFP - Biomarker Validation Study	93	RFMH 1012489 Task 3	HHS-N-271-201200007-I	0	155,610
Food & Drug Administration					
A Randomized, DoubleBlind, Placebo and ActiveControlled, Crossover Study to Evaluate the Abuse Potential of Oxymorphone Compared to Other Mu Opioid Agonists in Physically Dependent Opioid Users-with-M	93	RFMH 26766	HHSF223201710119C	0	91,035
Substance Abuse & Mental Health ServicesAdministration					
National Suicide Prevention Evaluation	93	RFMH 26497	HHSS2832012000071/HHSS28342002	0	195,256
				$0	$482,763
Environmental Health					
Prenatal endocrine-disrupting chemicals and social/cognitive risk inmothers and infants: Potential biologic pathways	93.113	RFMH 137497	5R01ES027424	0	34,139
				$0	$34,139
Mental Health Research Grants					
Antecedents of Suicidal Behavior Related Neurobiology	93.242	RFMH 26454	4P50MH090964-04	0	312,891
Adult Hippocampal Neuroplasticity and Depression	93.242	RFMH 25938	5R01MH083862-07	0	287,400

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R&D Cluster

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Human Trial of Allosteric Modulator Alpha7 Nicotinic Receptors in Schizophrenia	93.242	RFMH 26508	7U01MH094247-06	0	207,377
Cognitive ans Neural Mechanisms of the Accelerated Aging Phenotype in PTSD	93.242	RFMH 26738	1R01MH111596-01A1	0	207,325
The Neurobiology of Violence in a Psychosis-Risk Cohort	93.242	RFMH 26737	1R01MH113861-01	0	196,015
2/2 Familial Early-Onset Suicide Attempt Biomarkers	93.242	RFMH 26230	1R01MH108032-01	0	185,100
Structure and function of dopamine receptors	93.242	SRFMH 26468	5R01MH054137-19	0	178,643
Antecedents of Suicidal Behavior Related Neurobiology	93.242	SRFHM 26160/26454/26695	5P50MH090964-05	0	151,157
Early Cortical Processing in Schizophrenia	93.242	RFMH 25602	4R01MH049334-25	0	149,688
Control and Reward Circuits as Targets for Repetitive Thoughts and Behaviors	93.242	RFMH 25991	R01MH104648	0	147,295
Temporal Specification of neuronal function and its relevance to mental health	93.242	RFMH 26515	5R56MH106809-02	0	146,918
Neural Mechanisms of Food Choice in Anorexia Nervosa	93.242	SRFMH 26227	5R01MH105452-04	0	142,858
Three Generations at High and Low Risk for Depression Followed Longitudinally	93.242	RFMH 26658	2R1MH036197-29A1	0	133,744
Antecedents of Suicidal Behavior Related Neurobiology	93.242	SRFHM 26160/26454/26695	5P50MH090964-05	0	116,887
Developmental regulation of mood states by 5-HT1A heteroreceptors	93.242	SRFMH 26235	5R01MH105675-03	0	116,852
Functionally selective D2R s, striatal circuit function and motivation	93.242	RFMH 26444	5R01MH093672-08	0	115,974
Mechanisms of Antidepressant NonResponse in Late Life Depression	93.242	RFMH 25816	5R01MH102293-05	0	92,822
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Y	2P30MH043520-25	0	91,381
Hospital Discharge Planning and Transition to Outpatient Psychiatric Care	93.242	RFMH 26439	1R01MH106558-01A1	0	71,986
Neural Signature of Fear Overgeneralization in Trauma Exposed Adults	93.242	SRFMH 124376	1R01MH105355-01A1	0	66,688
Risk and Resilience Trajectories to Young Adulthood: The role of Perinatal HIV	93.242	SRFMH 903-1601L	2R01MH069133-11	0	64,822
Attaining and Maintaining Wellness in OCD	93.242	RFMH 25479	5R01MH045436-21	0	60,956
Postmortem Neurochemical Studies in Suicide	93.242	RFMH 26452	4R01MH040210-30	0	59,841
PRIDE SSA - Partnerships in Research to Implement and Disseminate Sustainable and Scalable Evidence Based Practices in sub-Saharan Africa	93.242	RFMH 26657	5U19MH113203-02	0	47,779
Sensory-learning deficits and conversion to psychosis among individuals at clinical high-risk: a longitudinal model-based fMRI study	93.242	RFMH 26493	5R21MH110700-02	0	44,797
Longitudinal Assessment of Neural Circuits in Adolescents with Anorexia Nervosa	93.242	RFMH 26643	1R01MH110445-01A1	0	40,435
Integrating evidence-based MDD treatment in primary care: TB in Brazil as a model and point of-of-entry	93.242	SRFMH 26431	5K01MH104514-03	0	36,913
Imaging Stimulant Effects on Emotional Liability in Children with ADHD	93.242	SRFMH 113943	1R01MH101172-01	0	30,855

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HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Z	2P30MH043520-25	0	22,798
Thought Disorder and Social Cognition in Clinical Risk States for Schizophrenia	93.242	RFMH 26484	1R01MH107558-01	0	22,643
HIV Center for Clinical and Behavioral Studies	93.242	RFMH 137477	2P30MH043520-30	0	20,403
Optimizing and Personalizing Interventions for Schizophrenia Across the Lifespan (OPAL)	93.242	RFMH 26918	1P50MH115843-01	0	19,516
HIV Center for Clinical and Behavioral Studies	93.242	RFMH 112561	2P30MH043520-25	0	19,171
2/5 Neurocognitive and neuroimaging biomarkers: predicting progression towards dementia in patients with treatment resistant late-life depression.	93.242	RFMH 26754	1R01MH114980-01	0	17,841
Return to Work RCT: Counseling After Fatigue Treatment in HIV/AIDS	93.242	RFMH 25887	5R01MH102161-02	0	17,269
Optimizing and Personalizing Interventions for Schizophrenia Across the Lifespan (OPAL)	93.242	RFMH 26918	1P50MH115843-01	0	10,389
Optimizing and Personalizing Interventions for Schizophrenia Across the Lifespan (OPAL)	93.242	RFMH 26918	1P50MH115843-01	0	6,060
Improving ART adherence among people who inject drugs in Kazakhstan	93.242	RFMH 13275	5P30MH043520-29	0	5,852
Identifying Reproducible Brain Signatures of Obsessive Compulsive Profiles	93.242	RFMH 26719	1R01MH113250-01	0	5,134
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 137476	2P30MH043520-30	0	3,466
Antecedents of Suicidal Behavior Related Neurobiology	93.242	RFMH 26454	4P50MH090964-04	0	-14,203
A Longitudinal Multimodal MRI Study of Adolescents with Bulimia Nervosa	93.242	RFMH 25207	5R01MH090062-05	0	-14,817
				$0	$3,646,923
Substance Abuse and Mental Health Services Projects of Regional and National Significance					
Improving Life Trajectories for Youth with Early Psychosis	93.243	RFMH 26005	5H79SM061900-03	0	46,987
Improving Life Trajectories for Youth with Early Psychosis	93.243	RFMH 26005	5H79SM061900-03	0	36,377
				$0	$83,364
Alcohol Research Programs					
HealthCall: Enhancing brief intervention for HIV primary care alcohol dependence	93.273	RFMH 25998	1R01AA023163-01	0	85,041
A Pilot Study of Deep Brain Stimulation for Alcohol Dependence	93.273	RFMH 26368	1R21AA023879-01A1	0	28,291
				$0	$113,332
Drug Abuse and Addiction Research Programs					
Shared Pharmacotherapeutic Strategies for Cannabinoid & Opioid Use Disorders	93.279	RFMH 26955	5U54DA037842-05	0	305,688

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Health and justice: a continuum of care for HIV and SU for justice involved youth	93.279	RFMH 130318	1 R01 DA043122-01	0	203,552
Preclinical Synthetic Cannabinoid Vapor Inhalation: Acute and Chronic Effects	93.279	RFMH 26139	1R01DA039123-01	0	146,158
Impulsivity in Cocaine Abusers: Relationship to Drug-Taking and Treatment Outcome	93.279	RFMH 25925	5R01DA035846-05	0	143,283
Functional connectome analysis of amphetamine action at dopamine neuron synapses	93.279	RFMH 26054	R01DA038966	0	118,096
DSM-IV and DSM-5 Alcohol/Substance Disorders: Reliability, Validity in NESARC-III	93.279	RFMH 25962	2R01DA018652-06A1	0	85,411
Risk and Benefits of Overdose Education and Naloxone Prescribing to Heroin Users	93.279	SRFMH 25987	1R01DA035207-01A1	0	78,754
Evaluation of an F-18 Agonist PET Ligand for 5HT2AR	93.279	RFMH 26504	1R21DA041670-01A1	0	44,152
Medical Marijuana Laws and MTF Teen Marijuana Use and Attitudes Since 1991	93.279	SRFMH CU11-0649	R01DA034244	0	38,194
The role of thalamic dopamine D2 receptors in cocaine intake	93.279	RFMH 26705	1R21DA044329-01	0	38,031
Medication Development for Opioid and Alcohol Abuse: Laboratory Studies on Humans	93.279	RFMH 26686	5R01DA039169-02	0	26,538
Medical Marijuana Laws and MTF Teen Marijuana Use and Attitudes Since 1991	93.279	SRFMH CU11-0649	R01DA034244	0	25,603
Family Engagement, Cross-System Linkage to SU treatment for Juvenile Probationers	93.279	RFMH 26142	5R34DA039316-02	0	16,523
A Sequenced Behavioral and Medication Intervention for Cocaine Dependence	93.279	RFMH 26430	5R01DA034087-05	0	15,617
Substance Use/Abuse & HIV/STI Risk Behaviors in Puerto Rican Youth Growing Up	93.279	RFMH 25391	4R01DA033172-05	0	15,602
Web-based Addiction Treatment Cultural Adaptation with American Indians	93.279	RFMH 26748	1R34DA040831-01A1	0	10,406
Cognitive Control in Children of SUD Parents: A Longitudinal Multimodal MRI Study	93.279	RFMH 26191	1R01DA038154-01A1	0	8,480
Quetiapine Treatment for Cannabis Dependence	93.279	RFMH 25475	5R01DA031826-04	0	2,603
				$0	$1,322,691
NATIONAL INSTITUTE ON MINORITY HEALTHAND HEALTH DISPARITIES					
State and county level income inequality and infant mortality risk	93.307	UNR-16-16	1R15MD010223-01	0	13,274
				$0	$13,274
Trans-NIH Research Support					
Breaking The Cycle Of Intergenerational Disadvantage: Neurodevelopment Among Puerto Rican Children	93.310	RFMH 26517	1UG3OD023328-01	0	243,305
Breaking The Cycle Of Intergenerational Disadvantage: Neurodevelopment Among Puerto Rican Children	93.310	RFMH 26517	1UG3OD023328-01	0	49,306
				$0	$292,611

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Lung Diseases Research					
Sleep and Well-being in High Risk Youth	93.838	RFMH 26555	1R01HL134856-01	0	75,196
				$0	$75,196
Extramural Research Programs in the Neurosciences and Neurological Disorders					
Targeting Dopaminergic Mechanisms of Slowing to Improve Late Life Depression	93.853	RFMH 26478	1R61MH110029	0	96,717
				$0	$96,717
Child Health and Human Development Extramural Research					
Use of Novel Mobile Technology to Screen Sexual Partners for HIV and STIS	93.865	RFMH PO#128918	5R01HD088156-03	0	184,944
				$0	$184,944
Aging Research					
Physical and Mental Fatigability in Late Life Clinical Populations	93.866	RFMH 26495	1R21AG053202-01	0	45,539
Physical and Mental Fatigability in Late Life Clinical Populations	93.866	RFMH 26495	1R21AG053202-01	0	31,031
				$0	$76,570
International Research and Research Training					
PALOP MH Implementation Research Training Program	93.989	RFMH 25941	5D43TW009675-02	0	26,498
				$0	$26,498
Maternal and Child Health Services Block Grant to the States					
Provision of Prenatal and Clinical Genetic Counseling Services	93.994	SDH C029422	HRSA	0	44,902
				$0	$44,902
Total Pass-through Programs				**$0**	**$6,498,214**
Total: State / City Government				**$0**	**$6,498,214**

National Science Foundation

Direct Awards

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Engineering Grants					
EFRI ACQUIRE: Development of Heterogenous Platform for Chip Based Quantum Information Applications	47.041	EFMA-1641094		454,424	464,656
DMREF: Collaborative Research: Designing Optimal Nanoparticle Shapes and Ligand Parameters for Polymer Grafted Nanoparticle Membranes	47.041	CBET-1629502		0	420,536
EFRI NewLAW: Novel Approaches to RF Non-Reciprocity in Semiconductor Systems	47.041	EFMA-1641100		0	313,096
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		34,091	227,151
Advances Signal Processing for Smart Grid and Renewable Energy Sources	47.041	ECCS-1405327		0	227,077
EFRI NewLAW: Novel Approaches to RF Non-Reciprocity in Semiconductor Systems	47.041	EFMA-1641100		161,837	176,837
A Dynamic Model for Systemic Risk in Networks Subject to Contagion	47.041	CMMI-1462495		0	171,887
Data Driven Queueing Models for Healthcare: Accounting for Stochastic Dependence and Time Dependence	47.041	CMMI-1634133		0	171,175
Phase II IUCRC Columbia University: Center for Energy Harvesting Materials and Systems (CEHMS)	47.041	IIP-1738802		0	144,545
EFRI ACQUIRE: Development of Heterogenous Platform for Chip Based Quantum Information Applications	47.041	EFMA-1641094		0	137,490
DMREF: Collaborative Research: Designing Optimal Nanoparticle Shapes and Ligand Parameters for Polymer Grafted Nanoparticle Membranes	47.041	CBET-1629502		0	123,013
Collaborative Research: REU Site: Nano-NY	47.041	EEC-1659808		0	111,802
GOALI: Omics and metabolically informed out selection of Nitrospira spp. and Comammox bacteria from energy efficient engineered nitrogen removal processes	47.041	CBET-1706726		0	110,546
GOALI: Inter-laminar Toughening of Composite Structures: Bonding Mechanisms and Delamination Resistance	47.041	CMMI-1363328		0	102,767
Assembling Nanoparticle Arrays at Fluid Interfaces	47.041	CBET-1603043		0	100,108
CAREER: Structure and Functional Imaging of the Atrial Myocardium	47.041	CBET-1454365		0	99,420
CAREER: Growth and Remodeling of the Uterine Cervix During Pregnancy	47.041	CMMI-1454412		0	97,377
GOALI: Laser Forming of Metal Foam with Controlled Dimensional and Mechanical Properties	47.041	CMMI-1725980		0	90,538
CAREER: Contact Charge Electrophoresis for Mobile Microfluidics	47.041	CBET-1738191		0	89,107
CAREER: Operationally aware design of Matching Markets	47.041	CMMI 1653477		0	87,856
Collaborative Research: A Contact Lens-Based Glucose Nanosensor Using Affinity Polymer-Functionalized Graphene	47.041	ECCS-1509760		0	86,281
Compressive Sampling for Uncertainty Modeling and Quantification of Dynamical Systems Subject to Highly Limited/Incomplete Data	47.041	CMMI-1724930		0	85,104
A Robust Framework for Modeling Preferences and its Applications in Revenue Management	47.041	CMMI-1636046		0	84,016
Multi-Component Reactive Pressure-dependent Chemistry Verified by Multi-Scale Uncertainty Quantification	47.041	CBET-1706252		0	83,534
CAREER: Virtual Modular Power (VMP) Conversion	47.041	ECCS-1653574		0	83,374

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CAREER: Tailoring Rheological Behavior and Interlayer Properties of 3 D Printing Concrete	47.041	CMMI-1653419		0	82,150
EFRI NewLAW: Novel Approaches to RF Non-Reciprocity in Semiconductor Systems	47.041	EFMA-1641100		0	79,728
CAREER: A Data-driven Robust Approach for Large Scale Dynamic Optimization	47.041	CMMI-1351838		0	76,326
CAREER: Optimization-based Quantification of Statistical Uncertainty in Stochastic and Simulation Analysis	47.041	CMMI-1834710		0	75,115
Collaborative Research: Hybrid Discrete Continuum Numerical Simulation of Granular Materials	47.041	CBET-1706689		0	70,756
Switched-Mode Signal Processing: An Innovative Paradigm for High Performance Analog in Nanoscal CMOS	47.041	ECCS-1309721		0	68,229
Collaborative Research: SusCHEM: Environmental Sustainability of Lead Perovskite Solar Cells	47.041	CBET-1705606		0	67,201
NRI: FND: Scalable Multimodal Tactile Sensing for Robotic Manipulators in Manufacturing	47.041	CMMI-1734557		0	64,381
EFRI ACQUIRE: Development of Heterogenous Platform for Chip Based Quantum Information Applications	47.041	EFMA-1641094		55,478	55,478
NSF Career Award	47.041	NSF 1763281		0	53,364
NRI: FND: Scalable Multimodal Tactile Sensing for Robotic Manipulators in Manufacturing	47.041	CMMI-1734557		0	51,803
CAREER: Stochastic processes in high dimensions: from asymptotic analysis to algorithms	47.041	CMMI-1551829		0	50,732
Collaborative Research: Perfect Simulation of Stochastic Networks	47.041	CMMI-1538217		0	50,587
Collaborative Research: Modeling and Analyzing Extreme Risks in Insurance and Finance	47.041	CMMI-1436700		0	49,772
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	47,768
Predictive Optimization of T cell Expansion	47.041	CBET-1743420		17,142	47,649
Managing Patient Flows with Congestion Effect	47.041	CMMI-1350059		15,379	47,380
Collaborative Research: REU Site: Nano-NY	47.041	EEC-1659808		0	39,660
Collaborative Research: Joint UFL/CUI/UCR Center for Particulate and Surfactant Systems	47.041	IIP-1362078		0	39,483
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	39,350
CAREER: Exploiting Many-Particle Physics for Low-Energy Nanoelectronics	47.041	ECCS-1752401		0	39,159
Molecular scale Breaking due to Repeated Loading in Molecular Shuttles	47.041	CMMI-1662329		0	37,514
Wireless control of implantable microdevices	47.041	ECCS-1509748		35,327	35,327
GOALI/Collaborative Research: Interfacial Mechanics of Atomically-Thin Graphene in Multi ayered Laminate Composites	47.041	CMMI-1363093		0	33,435
Proposal to Support the International Water Association Resource Recovery Conference IRRC 2017, Linking Global Challenges, August 7th 9th, 2017 New York, NY	47.041	CBET-1715497		0	30,472
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	30,033

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
SusChEM: Rational design of aqueous interfaces of Earth abundant and nontoxic	47.041	CBET-1336845		0	26,448
RCN-SEES: Multidisciplinary Approaches to Carbon Capture, Utilization and Storage	47.041	CBET-1231393		0	24,567
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	22,567
EARS: Cross Layering in Full Duplex - From Integrated Circuits to Networking	47.041	ECCS-1547406		0	22,510
A phase field Arlequin model for resolving nonlocal hydromechanical effects of porous media across time and spatial scales	47.041	CMMI-1462760		0	18,633
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	18,532
Understanding the load transfer mechanisms	47.041	CMMI-1233885		0	17,286
2018 Biomedical Engineering Society (BMES) - Cellular and Molecular Bioengineering (CMBE) Conference	47.041	NSF 1748291		0	17,161
EARS: Cross Layering in Full Duplex - From Integrated Circuits to Networking	47.041	ECCS-1547406		0	16,268
GOALI: Inter-laminar Toughening of Composite Structures: Bonding Mechanisms and Delamination Resistance	47.041	CMMI-1363328		0	15,046
Online algorithms for service systems	47.041	CMMI-1538088		0	14,200
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	13,705
Proposal to Support the International Water Association Resource Recovery Conference IRRC 2017, Linking Global Challenges, August 7th 9th, 2017 New York, NY	47.041	CBET-1715497		0	12,479
Strength and Reliability of Large Area CVD Graphene	47.041	CMMI-1437450		0	12,281
GOALI: Laser Forming of Metal Foam with Controlled Dimensional and Mechanical Properties	47.041	CMMI-1725980		0	12,000
CAREER: SusChEM: Tunable Electrocatalysis at Buried Interfaces	47.041	CBET-1752340		0	11,690
E2CDA: Type I: Collaborative Research: Interconnects Beyond Cu	47.041	ECCS-1740270		0	11,455
SusChEM: Long chain hydrocarbons from CO2 and electricity via genetic modification of a chemolithoautrophic bacterium	47.041	CBET-1438263		0	9,000
CBET-EPSRC: Hybrid organic-CMOS devices for optogenetic stimulation and lens-free fluorescence imaging of the brain	47.041	CBET-1706207		0	7,395
EARS: Cross Layering in Full Duplex - From Integrated Circuits to Networking	47.041	ECCS-1547406		0	5,635
CAREER: Systemic Risk and Strategic Formation in Stochastic Networks	47.041	CMMI-1752326		0	4,000
Sustainable co-generation of COx-free hydrogen and biochar from biomass via novel alkaline thermal treatment	47.041	CBET-1336567		0	3,764
CAREER: Optimization Methods to Support Real time Personalized Consumer Transactions	47.041	CMMI 1653770		0	3,687
NRI: FND: Scalable Multimodal Tactile Sensing for Robotic Manipulators in Manufacturing	47.041	CMMI-1734557		0	3,610
RAPID/Collaborative Research: Measuring the Impact of the Re-entry of Ride Sourcing in Austin, Texas: A Natural Experiment	47.041	CMMI-1745708		0	2,202
GOALI: Low-Power, Multi-Tiered, Shared-Spectrum Access Terminals using COmpressive Scanning and On-Top-of-CMOS BAW Filter Banks	47.041	ECCS-1343282		0	1,927

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
RCN-SEES: Multidisciplinary Approaches to Carbon Capture, Utilization and Storage	47.041	CBET-1231393		0	1,016
High Fidelity Probabilistic Structural Health Monitoring	47.041	CMMI 1563364		0	765
Wireless control of implantable microdevices	47.041	ECCS-1509748		0	-2,030
GOALI: Inter-laminar Toughening of Composite Structures: Bonding Mechanisms and Delamination Resistance	47.041	CMMI-1363328		0	-8,024
SusChEM: Long chain hydrocarbons from CO2 and electricity via genetic modification of a chemolithoautrophic bacterium	47.041	CBET-1438263		0	-8,123
MRI: Acquisition of Chlorine Reactive Ion Etching System	47.041	ECCS-1428960		0	-9,806
				$773,678	$5,553,990
Mathematical and Physical Sciences					
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	679,156
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1707971		0	654,744
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	440,295
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1707971		0	389,312
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		375,122	375,122
DMREF: Deblurring our View of Atomic Arrangements in Complex Materials for Advanced Technologies	47.049	DMR-1534910		0	259,233
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		0	250,125
SusChEM: Unjamming the Growth of Metal Pnictide Synthesis	47.049	CHE-1710352		0	207,160
Laboratory Measurements of three deuterium substitution reactions important in interstellar chemistry	47.049	AST-1613267		0	191,394
CAREER: Searching for Dark Matter and Studying Galactic Particle Accelerators with VERITAS	47.049	PHY-1352567		0	189,827
CAREER: Molecular Engineering of Charge Transfer in Polymeric Materials	47.049	DMR-1351293		0	188,295
Momentum conversation in optoelectronic processes at 2D van der Waals semiconductor heterojunctions	47.049	DMR-1608437		0	182,590
A Bridge to the Future	47.049	AST-1539931		0	178,140
Coulomb drag in ultra-clean and strongly interacting van der Waals materials: toward exciton condensation	47.049	DMR-1507788		0	163,551
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	160,794
Photoactivator Chemistry in Atmospheric Aerosols	47.049	CHE-1506789		35,472	154,617
Collaborative Research: Rational Design of Anticancer Drug Combinations using Dynamic Multidimensional Theory	47.049	NSF 1545805		0	148,254
CAREER: Precision Measurements with Ultracold Diatomic Molecules	47.049	PHY-1349725		0	147,816

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R&D Cluster

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Infrared spectroscopy and nano-imaging of iron arsenide superconductors	47.049	DMR-1608096		0	143,348
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	142,697
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	140,950
Metallacarbatrane, Hydride Fluoride, and Metal-Metal Bonded Compounds of the Main Group Elements: Synthesis and Applications	47.049	CHE-1465095		0	140,558
CAREER: Fractal Bandstructure by Superlattice Patterning	47.049	DMR-1462383		0	136,546
Sum Frequency studies of liquid interfaces	47.049	CHE-1360969		0	135,155
Mathematics and Control of Systemic and High Frequency Trading Risks	47.049	DMS-1716145		0	133,356
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	128,510
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	127,852
Problems in Complex Analysis and Complex Geometry	47.049	DMS-1266033		0	126,303
SusChEM: The Use of Ti-C Bonds for RNC Insertions and Dynamic Kinetic Resoluitions	47.049	CHE-1664566		0	123,206
Modeling Solute Diffusion in Polymeric Membranes for Gas Separations	47.049	DMR-1507030		0	118,891
Collaborative Research: A Survey of Galaxy Evolution and Star Formation over the Past 4.6 Billion Years	47.049	AST-1413102		0	118,366
Quantum Phase Transitions in Mott Insulator Systems and Itinerant Electron Magnets: MuSR Studies of Magnetic Order, Volume Evolution and Spin Fluctuations	47.049	DMR-1610633		0	117,921
Stochastic Controls, Portfolios, and Competing Particle Systems	47.049	DMS-1405210		0	116,464
CAREER: Fixing Stellar Chronometers with Open Clusters	47.049	AST-1255419		0	116,344
Quantum Processing via Four-Wave Mixing	47.049	PHY-1707918		0	115,127
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	112,307
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	109,821
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	109,376
Beyond Single-Molecule Conductance: Understanding and Controlling Charge Transport by External Stimuli and Supramoleculer Interactions	47.049	DMR-1507440		0	109,050
Dynamics of Organic Reactions	47.049	CHE-1465040		0	106,931
The Role of Grafting Mechanism on the Self Assembly and Properties of Polymer Nanocomposites	47.049	DMR-1709061		0	106,307
New Platforms for Catalysis	47.049	CHE-1464992		0	105,819
CDS&E: The development of open-source software with an application to modeling the formation of globular star clusters	47.049	AST-1615955		0	105,128
Beyond Single-Molecule Conductance: Understanding and Controlling Charge Transport by External Stimuli and Supramoleculer Interactions	47.049	DMR-1507440		0	104,337

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
DMREF: Deblurring our View of Atomic Arrangements in Complex Materials for Advanced Technologies	47.049	DMR-1534910		0	103,907
CDS&E: Scanning Electrochemical Microscopy with Compressed Sensing: Beyond the Point Probe	47.049	CHE-1710400		0	100,441
Collaborative Research: Phase-Change Materials for Strong Optical Modulation and Nonvolatile Optical Memory	47.049	DMR-1610215		0	100,276
Estimation, Computation, and Uncertainty Quantification in Structured Regression Models	47.049	DMS-1712822		0	100,260
Modeling Ion Extraction from First Toroidal Electron-Cyclotron-Resonance Ion Source	47.049	PHY-1632802		0	97,738
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	97,632
REU Site: Nevis Labs, Columbia University for Summers 2017-2019	47.049	PHY-1659528		0	96,571
A Study of the Faint Debris Remnant of Large Galaxy, Small Galaxy Interactions	47.049	AST-1614743		0	96,540
Directly Testing the Presence of Large-Scale Multiphase Flows in the Galactic Halo	47.049	AST-1312888		0	95,601
OP: Collaborative Research: Landau levels and Dirac points in Continuouis Photonic Systems	47.049	DMS-1620418		0	95,212
Collaborative Research: SusChEM:Rational Design of Non-Precious Metal Catalysts for a Future Biorefining Industry	47.049	CHE-1566104		0	94,102
Symbiotic Stars and Citizen Science in the Age of Time-Domain Astrophysics	47.049	AST-1616646		0	92,644
Ideal Probe Single Molecule Imaging for the Study of Small Molecule and Polymeric Glass Formers	47.049	CHE 1660392		0	91,019
Excitations in Landau Levels of Two-dimensional Quantum Fluids	47.049	DMR-1306976		0	90,218
CAREER: Statistical inference of network and relational data	47.049	DMS-1554804		0	87,948
Nonlinear Geometric Partial Differential Equations: Entire Solutions and Regularity	47.049	DMS-1600658		0	87,354
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	85,553
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	83,406
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	83,386
Family Floer Cohomology	47.049	DMS-1609148		0	83,268
CHaS: The Circumgalactic H-alpha Spectrograph	47.049	AST-1407652		0	75,979
Model Uncertainty and Optimal Transport	47.049	DMS-1512900		0	74,469
p-adic Automorphic forms, p-adic L-functions and Selmer groups	47.049	DMS-1407239		0	72,591
Incomplete Markets and Financial Bubbles in Mathematical Finance	47.049	DMS-1714984		0	71,974
A Novel Statistical Framework For Big Data Prediction	47.049	DMS-1513408		0	71,942
Regularity problems in the calculus of variations and elliptic PDEs	47.049	DMS-1500438		0	69,761

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R&D Cluster

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Partial Differential Equations in Riemannian Geometry	47.049	DMS-1649174		0	68,128
Understanding Discoveries, Maximizing Science and Enabling Best Data of Advanced LIGO During the Regular Detection Era	47.049	PHY-1708028		0	67,627
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		47,003	66,703
The Stacks Project in Algebraic Geometry	47.049	DMS-1601160		0	66,544
Link homology, cohomological operations, and categorification at roots of unity	47.049	DMS-1406065		0	66,473
Towards Self-Assemblying active micro-structures	47.049	DMR-1703873		0	64,776
Discrete models and conformally invariant limits	47.049	DMS-1512853		0	64,326
CDS&E: Scanning Electrochemical Microscopy with Compressed Sensing: Beyond the Point Probe	47.049	CHE-1710400		0	63,304
Langlands Correspondences and Motivic L Functions	47.049	DMS-1701651		0	62,544
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	61,554
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1707971		0	60,179
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	59,944
FRG: Collaborative Research: Integrable Probability	47.049	DMS-1664650		0	59,742
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	59,217
Arithmetic and Geometry Around Relative Trace Formulae	47.049	DMS-1601144		0	57,696
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	57,320
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	56,965
Construction of the TPC Readout Electronics for the LAr1-ND Experiment	47.049	PHY-1505313		0	56,150
Modeling Spin Configurations and Ranking	47.049	DMS-1712037		0	55,663
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	55,100
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	53,845
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	53,068
Dynamics and Transport in Strongly Interfacing	47.049	CHE-1464802		0	52,801
Solution Theories and Scaling Limit roblems in Stochastic Partial Differential Equations	47.049	DMS-1712684		0	52,499
FRG: Collaborative Research: Floer homotopy theory	47.049	DMS-1564172		0	52,472
FRG: Collaborative Research: Categorifying Quantum Three Manifold Invariants	47.049	DMS-1664255		0	52,185

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	51,286
Mean Field Games and Optimal Contracts	47.049	DMS-1714607		0	49,967
Physical Manifestations of Chaos and Regularity Around Galaxies	47.049	AST-1715582		0	48,231
Quantum Groups, Special Functions, and Integrable Probability	47.049	DMS-1701654		0	46,631
Symplectic topology, symmetries and singularities	47.049	DMS-1505798		0	44,979
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	44,303
Signatures of Shocks and Particle Acceleration from Novae in our Galaxy	47.049	AST-1615084		0	43,492
Collaborative Research: Cavity-enhanced exciton emission from ultraclean carbon nanotubes in the intrinsic regime	47.049	DMR-1507423		0	43,432
Construction of the TPC Readout Electronics for the LAr1-ND Experiment	47.049	PHY-1505313		0	41,778
Understanding Discoveries, Maximizing Science and Enabling Best Data of Advanced LIGO During the Regular Detection Era	47.049	PHY-1708028		0	41,632
Geometric Flows and Canonical Kahler Metrics	47.049	DMS-1710500		0	39,512
The Stacks Project in Algebraic Geometry	47.049	DMS-1601160		39,292	39,292
Collaborative Research: Continuation of the Dark Matter Search with XENON1T at LNGS	47.049	PHY-1719286		0	38,664
Collaborative Research:The Hierachical Mergers of Low Mass Galaxies	47.049	AST-1715944		0	37,635
CBMS Conference: Dyson Schwinger Equations, Topological Expansions, and Random Matrices	47.049	DMS-1642595		0	37,492
A Study of the Faint Debris Remnant of Large Galaxy, Small Galaxy Interactions	47.049	AST-1614743		0	34,572
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	34,225
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	34,181
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		0	33,156
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	32,984
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	32,674
Numerical Analysis of Smoothed Particle Hydrodynamics Type Methods via Nonlocal Models	47.049	DMS-1719699		0	31,965
Ongoing Accretion on a Galactic Disk and primordial Galaxies	47.049	AST-1410800		0	31,787
The Microscopic Electronic Structure of Iron Superconductors Under Strain: New Frontiers in Scanning Probe Microscopy	47.049	DMR-1610110		0	30,988
CHaS: The Circumgalactic H-alpha Spectrograph	47.049	AST-1407652		0	30,073
IsoDAR Neutrino Target R&D and Engineering	47.049	PHY-1707969		0	29,587

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Collaborative Research: Scalable Kilo-Pixel Detector Modules Based on Polarization Sensitive Multi-Chroic Aluminum Manganese MKIDs	47.049	AST-1711160		0	29,163
Geometry of random Loewner chains	47.049	DMS-1308476		0	27,727
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	27,227
Development of ultrathin intermetallic phases for giant spin Hall effects	47.049	DMR-1411160		0	26,717
Criticality and Nonlinearity in Interacting Particle Systems and Stochastic Partial Differential Equations	47.049	DMS-1712575		0	25,481
Collaborative Research: A Multi-Frequency Campaign to Probe Neptune s Dynamics and Deep Atmospheric Structure	47.049	AST-1615448		0	24,693
Collaborative Research: Scalable Kilo-Pixel Detector Modules Based on Polarization Sensitive Multi-Chroic Aluminum Manganese MKIDs	47.049	AST-1711160		0	24,161
Workshop on Transport and Localization in Random Media: Theory and Applications	47.049	DMS-1804339		0	23,895
FRG: Collaborative Research: Floer homotopy theory	47.049	DMS-1564172		0	23,632
FRG: Collaborative Research: Integrable Probability	47.049	DMS-1664650		0	23,304
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	23,106
Maximizing the Early-Detection Science of Advanced LIGO	47.049	PHY-1404462		0	22,767
FRG: Collaborative Research: Vertorial and geometric problems in the calculus of variations	47.049	DMS-1361131		0	22,117
Functional, Atomically-defined Nanowires and Nanoribbons of Silicon	47.049	CHE-1404922		0	19,392
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	16,638
Collaborative Research: Polarization Sensitive, Multi-Chronic MKIDs	47.049	AST-1509211		0	14,579
Radiative Shocks in Gamma-Ray Bursts	47.049	AST-1412485		0	14,514
Beyond Geometric Invariant Theory	47.049	DMS-1601976		0	13,204
Improving and Extending Models of Gamma-Ray Burst Afterglows	47.049	AST-1716567		0	13,072
Collaborative Research: Polarization Sensitive, Multi-Chronic MKIDs	47.049	AST-1509211		0	12,794
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	12,760
Periodic Phenomena and the Evolution of Cataclysmic Variable Binary Stars	47.049	AST-1615456		0	12,642
Development of ultrathin intermetallic phases for giant spin Hall effects	47.049	DMR-1411160		0	11,323
Foundations of Algebraic Stacks	47.049	DMS-1303247		0	9,655
FRG: Collaborative Research: Crossing the Walls in Enumerative Geometry	47.049	DMS-1564497		0	9,643
Automorphic Galios Representations and Automorphic L-functions	47.049	DMS-1404769		0	9,519

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Application of geometric analysis to general relativity and geometric flows	47.049	DMS-1405152		0	9,346
Maximizing the Early-Detection Science of Advanced LIGO	47.049	PHY-1404462		0	9,317
Multi-Scale Computational Methods for Coastal Flooding	47.049	DMS-1720288		0	6,256
Questions in Probability Relating to Mathematical Finance	47.049	DMS-1612758		0	5,676
Assessing the Columbia Bridge-to-PhD Program s First Decade	47.049	AST-1742716		0	5,440
Collaborative Research: Mergers of Massive Black Holes at the Centers of Galaxies	47.049	AST-1715661		0	5,167
Collaborative Research: GOALI: Graphene	47.049	DMR-1411107		0	5,071
Molecular Conductance and Induced Reactivity in Group 14 Constructs	47.049	CHE-1764256		0	5,029
Workshop on Transport and Localization in Random Media: Theory and Applications	47.049	DMS-1804339		0	4,566
Laboratory Measurements of three deuterium substitution reactions important in interstellar chemistry	47.049	AST-1613267		0	4,533
CAREER: Enabling a Rich Astro-particle and Exotic Physics Program in DUNE	47.049	PHY-1753228		0	4,060
Molecular Conductance and Induced Reactivity in Group 14 Constructs	47.049	CHE-1764256		0	3,353
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	3,200
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	3,117
Collaborative Research: Statistical Methods, Algorithms, and Theory for Large Tensors	47.049	DMS-1803450		0	3,012
Collaborative Research: Continuation of the Dark Matter Search with XENON1T at LNGS	47.049	PHY-1719286		0	2,032
Molecular Conductance and Induced Reactivity in Group 14 Constructs	47.049	CHE-1764256		0	1,676
Collaborative Research: proposal for an NSF-Wide Workshop to Explore the Prospects for a Common Response to the Requirements for Public Access to Research Data	47.049	PHY-1655160		0	1,411
Collaborative Research: Continuation of the Dark Matter Search with XENON1T at LNGS	47.049	PHY-1719286		0	1,261
The Role of Grafting Mechanism on the Self Assembly and Properties of Polymer Nanocomposites	47.049	DMR-1709061		0	1,050
Optimal Treatment Policies and Adaptive Screening for Functional Predictors	47.049	DMS-1307838		0	638
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	484
COLLABORATIVE PROPOSAL:THE XENON DARK MATTER PROJECT: CONSTR UCTION AND OPERATION OF A 100 KG DETECTOR	47.049	PHY-0705337		0	-1
Collaborative Research: Optimal Monte Carlo Estimation via Randomized Multilevel Methods	47.049	DMS-1320550		0	-1
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	-1
US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		-108	-108

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US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		0	-267
Polyacetals: Water-Soluble pH-Degradeable Polymers with Remarkable Thermoresponsive Behavior	47.049	DMR-1505164		0	-268
HyPra: Anchoring the Rotation-Activity Relation at 600 Myr	47.049	AST-1517367		0	-956
Controlling Nancomposite Properties by Nanoparticle Assembly	47.049	DMR-1408323		0	-970
Testing the Millisecond Magnetar Model for Gamma-Ray Bursts and Superluminous Supernovae	47.049	AST-1410950		0	-1,120
Probability Density Function of Dislocation Free Path Length: Experimental Determination through GND Measurements	47.049	DMR-1310503		0	-1,395
FRG: Collaborative Research: Crossing the Walls in Enumerative Geometry	47.049	DMS-1564497		0	-11,683
				$496,781	$13,524,884
Geosciences					
Ship Operations 2012-2017	47.050	OCE-1211494		0	6,122,735
A Proposal to Manage the U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP)	47.050	OCE-1450528		3,263,529	5,353,118
Oceanographic Technical Services, R/V Marcus G. Langseth, 2012-2016	47.050	OCE-1214328		0	3,046,184
Ship Operations 2012-2017	47.050	OCE-1211494		0	2,744,687
Ship Operations 2012-2017	47.050	OCE-1211494		0	1,253,853
LTER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelafic Ecosystem	47.050	PLR-1440435		840,207	916,358
IEDA 2016-2021: Operation of a Multi-Disciplinary Data Facility for the Earth Science Community - EarthChem/SESAR	47.050	OCE-1636653		55,198	863,751
Rolling Deck to Repository (R2R) 2014-2019	47.050	OCE-1447797		461,338	751,908
Collaborative Research: A systems approach to understanding linkages between the Ross Ocean and ice Shelf Environment, and Tectonic settling Through Aerogeophysical surveys and modeling (ROSETTA)	47.050	OPP-1443534		33,905	664,205
IEDA 2016-2021: Operation of a Multi-Disciplinary Data Facility for the Earth Science Community - EarthChem/SESAR	47.050	OCE-1636653		0	663,948
IEDA 2016-2021: Operation of a Multi-Disciplinary Data Facility for the Earth Science Community - EarthChem/SESAR	47.050	OCE-1636653		94,949	633,182
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		95,272	583,327
Collaborative Research: EaSM2: Linking Near-term Future Changes in Weather and Hydroclimate in Western North America to Adaption for Ecosystem and Water Management	47.050	AGS-1243204		0	580,687
Acquisition of a State-of-the-Art 40Ar/39Ar Geochronology System for the AGES Lab at Lamont-Doherty Earth Observatory	47.050	EAR-1636685		0	490,672
FESD Type 1: Pilocene Maximum Sea Level (PLIOMAX): Dynamic Ice Sheet-Earth Response in a Warmer World	47.050	OCE-1202632		104,394	482,977
Collaborative Research: Global Ocean Repeat Hydrography, Carbon and Tracer Measurements 2009-2014	47.050	OCE-0752980		1,803	411,239
Collaborative Research: Subduction below Extreme Sedimentation A Multidisciplinary Transect from the Ganges-Brahmaputra Delta to the IndoBurma Backarc	47.050	EAR-1714892		0	406,738

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IEDA 2016-2021: Operation of a Multi-Disciplinary Data Facility for the Earth Science Community - EarthChem/SESAR	47.050	OCE-1636653		35,186	360,626
Collaborative Research: Alteration of Mantle Peridotite: Geochemical Fluxes and Dynamics of far from Equilibrium Transport	47.050	EAR-1516300		0	339,775
A Proposal to Manage the U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP)	47.050	OCE-1450528		0	331,618
2017-2020 Provision of Log Data Reduction and Database Services for Scientific Ocean Drilling	47.050	OCE-1741698		0	330,351
CNH: Competing demands and future vulnerability of groundwater: Drinking water quality and food security in arsenic-impacted South and Southeast Asia	47.050	ICER-1414131		100,171	326,918
Support for th U.S. GEOTRACES Project Office	47.050	OCE-1536294		0	289,958
Collaborative Research: U.S. Geotraces Arctic Section: 230th, 232th and 231Pa tracers of trace element supply and removal	47.050	OCE-1434479		0	250,113
Lamont Doherty Core Repository: Curation, Service Professional Development, Outreach	47.050	OCE-1559059		0	223,752
Collaborative Research: Adding animals to the equation: assessing herbivore impacts on carbon cycling in northern Alaska	47.050	PLR-1603777		0	221,064
Collab Res U.S. GEOTRACES Arctic Section - Water Mass Composition Circulation and Mean Residence Times Derived from Measurements of 18O/D, CFCs. SF6, 3H/#he and 14c	47.050	OCE-1436666		0	218,383
Oceanic Response to a Coastal Polynya, Terra Nova Bay, Antarctica	47.050	PLR-1341688		0	217,517
Collaborative Research: Dust deposition, paleo-export production, and migration of the (ITCZ) through the last glacial cycle in the west-central Pacific (Line Islands)	47.050	AGS-1502889		0	210,874
Understanding Forced Asian Monsoon Changes in Observations and Coupled Model Intercomparison Project - Phase 5 (CMIP5) Models	47.050	AGS-1607348		0	202,272
Collaborative Research: Reconstructing Spatiotemporal Climatic Patterns for Northeastern Canada	47.050	AGS-1602022		0	201,225
Collaborative Research: A High-Sensitivity 10Be and Extraterrestrial 3He Record from an Ice Core at South Pole	47.050	PLR-1443448		68,000	198,712
Stratospheric and Tropical Influences on the Mid-Latitude Circulation Response to Rising Greenhouse	47.050	AGS-1317469		0	195,456
The Systematics of Helium in Diamond-forming Metasomatic Mantle Fluids	47.050	EAR-1725323		0	189,223
Collaborative Research: Changes in Riveraquifer Exchange Induced by Groundwater Pumping, and their Effect on Arsenic Contamination in the Red River Delta Vietnam	47.050	EAR-1521356		32,047	181,700
Collaborative Research: Ice sheet sensitivity in a changing Arctic system - using geologic data and modeling to test the stable Greenland Ice Sheet Hypothesis	47.050	PLR-1503959		0	179,913
A Proposal to Manage the U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP)	47.050	OCE-1450528		0	179,245
Causes of Climate Extremes-generating Ocean States	47.050	OCE-1657209		0	176,994
Continental scale Droughts in North America: Their Frequency, Character and Causes over the Past Millennium and Near Term Future	47.050	AGS-1401400		0	169,868
Collaborative Research: Spatiotemporal Variability of Northwestern North American Temperatures in Response to Climatic Forcing	47.050	AGS-1502150		0	169,330
Collaborative Research Flow, Turbulence and mixing in Mid-Ocean ridge Fracture Zone Canyons	47.050	OCE-1235094		0	166,177
Collaborative Research: Role of small-sized protists in the microbial loop with emphasis on interactions between mixotrophic prolists and picocyanobacteria	47.050	OCE-1458070		0	164,721
Surface signatures of stratospheric variability and trends	47.050	AGS-1322439		0	161,219

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CAREER: Investigating the Impact of Temporal and Spatial Variations on Lava Emplacement Through Numerical and Physical Models	47.050	EAR-1654588		0	159,072
SHINE: Observational Constraints on Wave Heating of the Corona	47.050	AGS-1459247		0	150,570
CAREER: Evolution of Ocean Mesoscale Turbulence in a Changing Climate	47.050	OCE-1553593		0	148,549
Evaluating Mechanisms for the Formation, Propagation and Evolution of Volcanic Rifts and Margins	47.050	OCE-1654745		0	145,343
Collaborative Research: Ocean Acidification: Impacts of Evolution on the Response of Phytoplankton Populations to Rising C02	47.050	OCE-1314336		0	142,999
Support for th U.S. GEOTRACES Project Office	47.050	OCE-1536294		0	141,415
Collaborative Proposal: EarthCube Integration: Pangeo: An Open Source Big Data Climate Science Platform	47.050	OCE-1740648		69,672	137,156
Collaborative Research: Tectonic and Magmatic Processes During Early-Stage Rifting: An Integrated Study of Northern Lake Malawi, Africa	47.050	EAR-1110921		52,499	130,356
The Impact of the Stratosphere on Arctic Climate	47.050	PLR-1603350		0	118,673
Understanding the Integrity of Deep Ice in Antarctica from Geophysical Data Sets and Physical Models	47.050	OPP-1643970		0	118,669
Modeling aqueous secondary organic aerosol formation	47.050	AGS-1546136		0	118,502
EaSM-3 Collaborative Research: Local and remote regional climate responses to regional forcings from short-lived climate dorcers	47.050	AGS-1419398		71,455	117,589
Was Subantarctic dust a major driver of past CO2 variability	47.050	OPP-1405204		0	115,480
Collaborative Research: Dissolved Phosphorus Processing by Trichodesmium Consortia: Quantitative Partitioning, Role of Microbial Coordination, and Impact on Nitrogen Fixation	47.050	OCE-1332912		0	114,494
Collaborative Research: Dynamics and Variability of Freshwater Components in the Arctic Ocean	47.050	PLR-1504404		0	113,510
Geochemical Analysis of Ancient Salt Deposits from the Dead Sea and its Climate and Hydrology During Warmer Periods in the Past 200,000 Years	47.050	EAR-1635391		0	112,174
Collaborative Research: Timescales for Large-Scale Tropispheric Transport	47.050	AGS-1402931		0	111,256
Collaborative Research: Alteration of Mantle Peridotite: Geochemical Fluxes and Dynamics of far from Equilibrium Transport	47.050	EAR-1516300		0	111,173
Collaborative Research: A Pilot Study for Electromagnetic Surveying of Freshwater Resources Beneath the US Atlantic Continental Shelf	47.050	OCE-1751193		0	108,965
Collaborative Research: Past ocean-atmosphere variability from spatiotemporal patterns of North Atlantic climate during the Common Era	47.050	AGS-1502224		0	108,953
Ventilation History of the Sulu Sea: Record of Abrupt Changes in the Tropical Western Pacific Thermocline	47.050	OCE-1736602		0	108,402
Facility Support: The Global CMT Project	47.050	EAR-1639131		0	107,941
Improved Locations for Global Seismic Events using Surface Waves	47.050	EAR-1520657		0	107,328
Collaborative Research: Role of Cloud Albedo and Land Atmosphere Interactions on Continental Tropical Climates	47.050	AGS-1734156		0	106,739
Collaborative Research: Quantifying the sensitivity of Rifting Processes to Erosion and Sedimentation	47.050	EAR-1650166		0	104,224
Real-Time Power: A Thermoelectric System for Powering Seafloor Instrumentation	47.050	OCE-1820547		0	104,008

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Reconstruction and Dynamics of Interhemispheric Hydroclimate Variability Between the Americas	47.050	AGS-1602581		0	103,324
Assessing the Impacts of Arctic Amplification on the Midlatitude Circulation with a Hierarchy of Atmospheric General Circulation Models	47.050	AGS-1815138		82,476	101,263
Collaborative Research: Impact of the Amazon River Plume on Nitrogen Availability and Planktonic Food Web Dynamics in the Western Tropical North Atlantic	47.050	OCE-1737128		0	100,823
Collaborative Research: Dynamics of Unsaturated Downdrafts, Cold Pools, and Their Roles in Convective Initiation and Organization	47.050	AGS-1649770		0	99,389
Response of high-latitude forests to a warmer and CO2-enriched atmosphere: tree rings in a process-based model	47.050	PLR-1504134		0	98,968
Magma ascent and eruption in the Aleutian arc	47.050	EAR-1551868		0	95,609
Earthcube IA: Collaborative Proposal: Interdisciplinary Earth Data Alliance as a Model for Integrating Earthcube Technology Resources and Engaging the Broad Community	47.050	ICER-1541022		0	95,366
A Combined Experimental and Theoretical Investigation of Reactive Flow in Brittle Media with Applications to Solid Earth Geodynamics	47.050	EAR-1520732		0	94,629
Mechanisms of Mediterranean Region Hydroclimate Variability and Change	47.050	AGS-1734760		0	93,646
Collaborative Research: From the Slab to the Surface: Origin, Storage, Accent and Eruption of Violate-Bearing Magmas	47.050	EAR-1456814		0	93,398
Reconstruction and Dynamics of Interhemispheric Hydroclimate Variability Between the Americas	47.050	AGS-1602581		0	92,981
Sea Surface Temperature-Forced Monsoon Evolution and Variability in West Africa	47.050	AGS-1612904		0	88,287
Collaborative Research: US GEOTRACES Pacific Section: Analysis of 230Th, 232Th and 231Pa	47.050	OCE-1233688		0	87,877
Collaborative Research: East Antarctic Glacial Landscape Evolution (EAGLE): A study using combined thermochronology, geochronology and provenance analysis	47.050	PLR-1443565		0	87,670
CAREER: Departure from Monin-Obukhov Similarity Theory (MOST) using high-resolution turbulence models	47.050	EAR-1552304		0	86,045
Collaborative Research: Testing Arctic Ice Sheet Sensitivity to Abrupt Climate Change	47.050	PLR-1417675		0	85,388
Collaborative Research: Rapid Magma Ascent Recorded in Volatile Diffusion Profiles	47.050	EAR-1524542		0	85,249
Collaborative Research: Calibrating Southeast Asian Proxies Speleothems and Tree Rings	47.050	AGS-1602629		0	83,951
CAREER: Characterizing the uncertainty in projection of climate change in the semi-arid tropics based on the moist static energy framework	47.050	AGS-0955372		0	81,183
Collaborative Research: Rifting, Magmatism, and Lithospheric Sutures Crustal Imaging of the South Georgia Basin and Suwanee Suture	47.050	EAR-1144534		0	80,924
The Essential Dynamics of Tropical Rain Belts: Monsoons and Inter-Tropical Convergence Zone (ITCZ) in a Multi-model Ensemble of Idealized Simulations	47.050	AGS-1565522		1,223	80,222
Final stages of breakup and early spreading history of the Eastern North America passive margin from multichannel seismic data	47.050	OCE-1551807		0	80,002
Collaborative Research: Multidisciplinary Analysis of Antarctic Blue Ice Moraine Formation and their Potential as Climate Archives over Multiple Glacial Cycles	47.050	PLR-1443213		0	77,614
Collaborative Research: Understanding the Spatio-Temporal Characteristics of Earthquakes at Axial Seamount Late in an Eruptive Cycle	47.050	OCE-1536320		0	76,268
Imaging the Fine Structure of Earthquakes and Faults with High-Precision Aftershocks	47.050	EAR-1520680		0	75,011
Mapping Variability in the Thermo-mechanical Structure of the North American Plate and Upper Mantle	47.050	EAR-1736165		0	73,483

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
CAREER: Monsoon and the Upper Troposphere Lower Stratosphere	47.050	AGS-1802248		18,007	73,456
Collaborative Research: Evolution of Arctic Water Column Hydrography during the Holocene Based on a Novel Instrumentation Combination	47.050	PLR-1550041		0	73,172
Tectonics in the Western Anatolian Extensional Province from sequence stratigraphic modeling of multichannel seismic data in the Gulf of Kusadasi	47.050	OCE-1559098		0	72,503
Water in the Lithosphere: The Fidelity of Mantle Xenoliths	47.050	EAR-1731784		0	71,384
Heinrich event iceberg flux, melting, and ocean circulation in the North Atlantic	47.050	AGS-1635019		0	69,901
Collaborative research: Geochemical variation of the Pacific crust subducting beneath the Izu-Bonin arc and its implications for the generation of arc magmas	47.050	OCE-1333235		0	69,453
Love-wave Propragation in Oceanic Upper Mantle: Constraints on Radial Anisotropy and Implications for Dynamics of the Asthenosphere	47.050	OCE-1538229		0	69,316
Advanced Imaging Techniques Combined with In Situ Analyses used to Assess Diagenesis in Benthic Foraminifera	47.050	OCE-1658230		0	68,555
Comprehensive High-precision Relocation of Global Seismicity	47.050	EAR-1547560		0	68,493
The Madden Julian Oscillation and the Maritime Continent	47.050	AGS-1543932		0	64,264
Theoretical Studies of Spectroscopic Line Mixing in Remote Sensing Applications with Theoretical Support to Improve the Accuracy of the HITRAN H20 Database	47.050	AGS-1501297		9,814	62,847
Collaborative Resaerch: P2C2--Multi-Site Paleo-Reconstruction of Missouri River Streamflows from Tree Ring Data	47.050	AGS-1404188		0	62,599
Collaborative Research: Magnetotelluric and Seismic Investigation of Arc Melt Generation,Delivery, and Storage Beneath Okmok Volcano	47.050	OCE-1751099		0	60,037
Inter-Disciplinary Earth Data Alliance (IEDA)	47.050	OCE-1561175		13,406	59,966
Collaborative Research: Contributions of Prydz Bay Shelf Water to Antarctic Bottom Water Formation	47.050	OPP-1443444		0	59,846
CEDAR: Analysis of High Resolution Stratospheric Observations of Polar Mesospheric Clouds	47.050	AGS-1452183		56,993	56,993
Collaborative Research: EaSM2: Linking Near-term Future Changes in Weather and Hydroclimate in Western North America to Adaption for Ecosystem and Water Management	47.050	AGS-1243204		0	53,393
GP-IMPACT: Science Technology Engineering and Math Student Experiences Aboard Ships (STEMSEAS)	47.050	ICER-1701168		0	53,210
P2C2: Decomposition and Reconstruction of Drought Variability Across the Continental United States and Northern Mexico	47.050	AGS-1703029		0	52,846
Collaborative Research: P2C2--Derivation of Ensemble and Joint-Variable Climate Field Reconstructions of the Common Era Using New Random Field Methods	47.050	AGS-1602920		0	52,661
Collaborative Research: Investigating Effects of Geologic Complexity on Induced Seismicity, using M0-M5.7 Seismicity from Prague, Oklahoma	47.050	EAR-1649771		0	52,486
GEOTRACES Arctic Section: Improving Understanding of Controls on the Distributions of Selected Anthropogenic Radionuclides in the Amerasian Basin	47.050	OCE-1439319		0	52,097
Development of low Nitrogen: Phosphorus Ratios in the Euphotic Zone - The Phosphorus Side of the Story	47.050	OCE-1737240		0	50,613
Collaborative Research: Focused Study of Aleutian Plutons and their Hoist Rocks: Understanding the building blocks of continental crust	47.050	EAR-1457293		0	48,403
A Combined Experimental and Theoretical Investigation of Reactive Flow in Brittle Media with Applications to Solid Earth Geodynamics	47.050	EAR-1520732		0	47,251
Collaborative Research: West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from	47.050	PLR-1246207		0	46,566

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Collaborative Research: Inferences on Cascadia Deformation Front and Plate Interface Properties from Advanced Studies of Active Source Seismic Data	47.050	OCE-1657737		0	46,337
GEOTRACES Pacific Section: Dissolved and Particulate Concentrations of Selected Anthropogenic Radionuclides along the U.S. GEOTRACES Peru-Tahiti Zonal Section	47.050	OCE-1235233		0	46,151
Formation and evolution of upper oceanic crust from seismic data acquired over mature oceanic crust near the Sumatra and Alaska Subduction zones	47.050	OCE-1634625		0	44,985
Geochemical Analysis of Ancient Salt Deposits from the Dead Sea and its Climate and Hydrology During Warmer Periods in the Past 200,000 Years	47.050	EAR-1635391		0	44,096
Collaborative Research: Uncertainty in Predictions of 21st Century Ocean Biogeochemical Change	47.050	OCE-1818501		0	43,656
Collaborative Research: Open Core Data: Transformative Data Infrastructure for Integrating and Accessing Scientific Drilling and Coring Data	47.050	EAR-1550887		0	43,179
Collaborative Research: Understanding the Spatio-Temporal Characteristics of Earthquakes at Axial Seamount Late in an Eruptive Cycle	47.050	OCE-1536320		0	42,905
Collaborative Proposal: Combined Influence of Snow cover and ENSO on North African/Mediterranean Temperature and Precipitation	47.050	AGS-1303542		0	42,309
Collaborative Research:Refreezing in the firn of the Greenland Ice Sheet: Spatiotemporal Variability and Implications for Ice Sheet Mass Balance	47.050	PLR-1603331		0	41,738
Collaborative Research: The North Anatolian Fault system in the Marmara Sea, Turkey - Insights from the Plio-Quaternary evolution of a multi-stranded transform	47.050	OCE-1537614		0	41,723
Collaborative Research: Development and support of the MB-System software package for processing and display of swatch mapping	47.050	OCE-1260599		0	41,652
Collaborative Research: Influence of Surfactants on Air-Sea Gas Exchange: 3He/SF6 Experiments in the Baltic Sea	47.050	OCE-1756757		0	40,075
Collaborative Research: Deep Structure of Three Continental Sutures in Eastern North America	47.050	EAR-1147742		0	39,477
Do Creeping Faults Ever Host Large Earthquakes? An investigation of Thermal Alteration in the SAFOD Drillcore	47.050	EAR-1358585		0	39,167
REU Site: Interdisciplinary Cutting-Edge Research though the Analysis of Global Data	47.050	OCE-1757602		0	38,572
Collaborative Proposal: Determining the Vulnerability and Resilience of Boreal Forests and Shrubs across Northwestern North America	47.050	PLR-1603473		0	38,232
Hikurangi Trench Regional Electromagnetic Survey to Image the Subduction Thrust	47.050	OCE-1737328		0	36,261
Collaborative Research: Taking the Reliability of Cenozoic Boron Isotope pH and pCO2 Reconstructions to the Next Level	47.050	OCE-1657974		0	35,335
Response of high-latitude forests to a warmer and CO2-enriched atmosphere: tree rings in a process-based model	47.050	PLR-1504134		0	34,200
Collaborative Research: Imaging Small-scale Convection and Structure of the Mantle in the South Pacific a US Contribution to International Collaboration PacificArray	47.050	OCE-1658491		0	33,361
Collaborative research: Nano- and micro particle transport prediction in subsurface media: The role of heterogeneity and structure	47.050	EAR-1721660		0	33,122
Collaborative Research: Tectonic and Magmatic Processes During Early-Stage Rifting: An Integrated Study of Northern Lake Malawi, Africa	47.050	EAR-1110921		0	33,054
GP-IMPACT: Science Technology Engineering and Math Student Experiences Aboard Ships (STEMSEAS)	47.050	ICER-1701168		0	32,521
RCN: Improving reconstructions of Cenozoic pCO2 and temperature change	47.050	OCE-1636005		0	32,323
Collaborative Research: Measuring Strain along the Aleutian Subduction Zone Trench to better Constrain Seismic and Tsunami Hazard	47.050	OCE-1656413		0	32,255
Collaborative Research: Subduction below Extreme Sedimentation A Multidisciplinary Transect from the Ganges-Brahmaputra Delta to the IndoBurma Backarc	47.050	EAR-1714892		0	32,244

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Collaborative Research: Filling the Triassic Geochronologic Gap: A Continuous Cored Record of Continental Environmental Change in Western North America	47.050	EAR-0958976		18,322	31,163
Mechanisms of Mediterranean Region Hydroclimate Variability and Change	47.050	AGS-1734760		0	30,990
2017 Oceanographic Instrumentation	47.050	OCE-1733592		0	29,466
The Madden Julian Oscillation and the Maritime Continent	47.050	AGS-1543932		0	27,701
RCN: Improving reconstructions of Cenozoic pCO2 and temperature change	47.050	OCE-1636005		0	27,566
Collaborative Research: An Experimental Investigation of Reactive Melt channelization in Partially Molten Rocks	47.050	OCE-1459664		0	27,539
Collaborative Research: Closing the Gaps in Climate Models Surface Albedo Schemes of Processes Driving the Darkening of the Greenland Ice Sheet	47.050	OPP-1713072		0	26,510
Collaborative Research: Insights into North African climate variability over the last 1.1 million years from dust fluxes and leaf wax isotopes	47.050	OCE-1502925		0	26,052
A Combined Experimental and Theoretical Investigation of Reactive Flow in Brittle Media with Applications to Solid Earth Geodynamics	47.050	EAR-1520732		0	25,450
Synthesis of Internal Wave and Turbulence Observations Across the Antarctic Circumpolar Current	47.050	OCE-1737325		0	25,277
PREEVENTS Track 1: Fire Prediction Across Scales Conference at Columbia University	47.050	ICER-1744038		0	25,146
Collaborative Research: Holocene Indian Summer Monsoon Variability Reconstructed for Decadally Resolved Tibetan Lake Sediments	47.050	EAR-1402133		0	24,845
Collaborative Research: Defining the biogeochemical drivers of diatom physiological ecology in the North Atlantic	47.050	OCE-1558506		0	24,421
Collaborative Research: Deep Circulation over the Flanks of a Mid-Ocean Ridge	47.050	OCE-1735618		0	24,015
Collaborative Research: P2C2-Inferring Spatio-Temporal Variations in the Risk of Extreme Precipitation in the Western United States from Tree Ring Chronologies	47.050	AGS-1702184		0	23,757
Collaborative Research: GEOTRACES Pacifice Section - Nd isotopes and REEs in the South Pacific	47.050	OCE-1234687		0	22,741
Collaborative Research: Seismic Study of the Galicia S Detachment	47.050	OCE-1030650		0	21,789
Collaborative Research: Insights into North African climate variability over the last 1.1 million years from dust fluxes and leaf wax isotopes	47.050	OCE-1502925		0	21,660
Collaborative Research: An Eocene Perspective on Future Recovery Rates of Climate and Ocean Chemistry	47.050	OCE-1657848		0	21,443
Along-strike Variations in Synrift Magmatism on the Eastern North American Margin	47.050	OCE-1654629		0	20,728
IEDA 2016-2021: Operation of a Multi-Disciplinary Data Facility for the Earth Science Community - EarthChem/SESAR	47.050	OCE-1636653		0	19,727
Dynamic and Thermodynamic Controls on Deep Convection in Organization of Tropical East Pacific Convection (OTREC)	47.050	AGS-1758603		0	19,586
Sea Surface Temperature-Forced Monsoon Evolution and Variability in West Africa	47.050	AGS-1612904		0	19,448
Thermohaline Circulation and Deep Ocean Carbonate Chemistry across the Mid-Pleistocene Transition	47.050	OCE-1436079		0	18,288
Wave Breaking in High Winds and its Effects on the Air-Sea Exchange of Gasses of Varying Solubility	47.050	OCE-1537890		0	18,017
Collaborative Proposal: EarthCube Integration: THROUGHPUT: Standards and Services for Community Curated Repositories	47.050	ICER-1740663		0	18,005

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Collaborative Research: Cloud-Capable Tools for MG&G-Related Image Analysis of OOI HD Camera Video	47.050	OCE-1700923		0	17,827
Collaborative Research: Ecosystem Dynamics of Western Pacific Hydrothermal Vent Communities Associated with Polymetallic Sulfide Deposits	47.050	OCE-1536650		0	17,379
Development and Testing of Pressure Gradient Sensors to Improve Shallow Seafloor Seismic Observation	47.050	OCE-1334746		0	17,104
Collaborative Research: Along Strike Variation in Shallow, Offshore Strain Accumulation and Slow Slip at Hikurangi Subduction Margin, New Zealand	47.050	OCE-1754929		0	16,249
Collaborative Research: Testing Mechanisms of Tropical Climate Change and Variability using New Cores from the Line Islands	47.050	OCE-1401649		0	15,914
Collaborative Research: Deep Structure of Three Continental Sutures in Eastern North America	47.050	EAR-1147742		0	15,699
Collaborative Research: Alteration of Mantle Peridotite: Geochemical Fluxes and Dynamics of far from Equilibrium Transport	47.050	EAR-1516300		0	14,839
Photoheterotrophy in Unicellular Cyanobacteria: Ecological Drivers and Significance for Marine Biogeochemistry	47.050	OCE-1434916		0	14,584
Workshop on Antarctic Surface Hydrology and Future Ice-shelf Stability	47.050	OPP-1743326		0	14,568
Collaborative Research: Arctic GEOTRACES - Nd isotopes and REEs in the Arctic	47.050	OCE-1459716		0	14,081
A Global Survey of Marine Magnetic Anomalies to Constrain the Late Cretaceous-Survey of Marine Magnetic Anomalies	47.050	OCE-1535937		0	13,788
Collaborative Research Assessing the Simulated Arctic Freshwater System in CMIP5 Modelsm the CESM Large Ensemble, and Forced Simulations	47.050	PLR-1504023		0	12,968
Collaborative Research: Climate, Human and Ecosystem Interactions in the face of a Rapidly Changing North Asian Biome	47.050	OPP-1737788		0	12,806
Collaborative Research: The Upper Branch of the Southern Ocean Overturning in the Southern Ocean State Estimate: Water Mass Transformation and Pathways of the 3-Dimensional Residual Circulation	47.050	OCE-1357133		0	12,513
EarthCube RCN: C4P: Collaboration and cyberinfrastructure for Paleogeosciences	47.050	ICER-1340301		0	12,232
Role of variable picoplankton cellular phosphorus turnover and allocation in marine phosphorus cycling	47.050	OCE-1434914		0	10,821
LTER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelafic Ecosystem	47.050	PLR-1440435		0	10,582
Ocean Acidification: Collaborative Research: Quantifying the potential for the biogeochemical feedbacks to create refugia from ocean acidification on tropical coral reefs	47.050	OCE-1316006		0	10,487
Workshop on Antarctic Surface Hydrology and Future Ice-shelf Stability	47.050	OPP-1743326		0	10,235
Collaborative Research: Modeling Hydrothermal Recharge and Outflow in Oceanic Crust Analogs with Sharp Permeability	47.050	OCE-1536943		0	8,618
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	8,414
ELT Collaborative Research: Evolutionary and ecological responses of small mammal communities to habitat and climate change over the last 5 million years	47.050	EAR-1338243		0	8,181
EarthCube RCN: iSAmpLEs: The internet of Samples in the Earth Sciences	47.050	ICER-1440351		1,116	8,006
Provision of log data reduction and database serves fo scientific ocean drilling	47.050	OCE-1440495		0	7,480
REU Site: Research Experience for Undergraduates: Analyzing Global Databases	47.050	OCE-1359194		0	7,074
Collaborative Research: Rio Grande Rise: New Questions on Plume Dynamics Atlantic Tectonic Evolution and an Important Window to the African LLSVP	47.050	OCE-1558734		0	6,819

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Collaborative Research: Sediment pathways, sedimentation processes, and structural growth along the Tohoku segment of the Japan subduction margin: Role of megathrust earthquakes	47.050	OCE-1436240		0	6,732
EarthCube RCN: C4P: Collaboration and cyberinfrastructure for Paleogeosciences	47.050	ICER-1340301		0	6,334
Collaborative Research: Completing a 10-Year Record of Deep Western Boundary Current Observations at Line W A contribution to the Atlantic Meridional Overturning Circulation Study	47.050	OCE-1332834		0	6,054
Collaborative Research: Near- Surface Repulsion and Mixing- Limitations: Upscaling of Colloid Transport in Non-Uniform Media	47.050	NSF 1700766		0	5,906
Collaborative Research Reconstruction of Carbon Monoxide in the Pre-Industrial Arctic Atmosphere from Ice Cores at Summit Greenland	47.050	PLR-1404158		0	5,690
Collaborative Research: Climate and Glacier change in Bhutan: the last millennia, present and future	47.050	EAR-1304351		0	4,869
Thermal Structure, hydration and dehydration of the entire Juan de Fuca Plate	47.050	OCE-1334831		0	4,636
Collaborative Research: Persistent Presence in the Ocean Interior: Developing a Low-power, Autonomous System for Geo-referenced Navigation	47.050	OCE-1634215		0	4,083
A Critical Test of the Nd Paleocirculation Proxy	47.050	OCE-1260514		0	4,047
Collaborative Research: Imaging Small-scale Convection and Structure of the Mantle in the South Pacific a US Contribution to International Collaboration PacificArray	47.050	OCE-1658491		0	3,871
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	3,686
Collaborative Research: Subduction below Extreme Sedimentation A Multidisciplinary Transect from the Ganges-Brahmaputra Delta to the IndoBurma Backarc	47.050	EAR-1714892		0	3,366
Collaborative Research: Assessing the impact of Arctic Sea Ice Variability on the Greenland Ice Sheet Surface Mass and Energy Balance	47.050	PLR-1643187		0	3,361
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	3,326
EarthCube RCN: iSAmpLEs: The internet of Samples in the Earth Sciences	47.050	ICER-1440351		0	3,168
EarthCube Building Blocks: Collaborative Proposal: Geolink- Leveraging Semantics and Linked Data for Data Sharing and Discovery	47.050	ICER-1440221		0	3,012
Water mass structure and bottom water formation in the ice-age Southern Ocean	47.050	PLR-1542962		0	2,613
Collaborative Research: Assessing the Role of Compound-specific Phosphorus Hydrolase Transformations in the Marine Phosphorus Cycle	47.050	OCE-1737083		0	2,330
Collaborative Research: U.S. GEOTRACES Pacific Meridional Transect: Thorium-232, Thorium-231 and Proactinium-231 as Tracers of Trace Element Supply and Removal	47.050	OCE-1737224		0	2,047
The Madden Julian Oscillation and the Maritime Continent	47.050	AGS-1543932		0	2,000
Collaborative Research: Establishing Community Standards for Underwater Video Acquisition , Tagging, Archiving and Access	47.050	OCE-1549546		0	1,815
Travel Support for an International Meeting on Monsoons and Tropical Rain Belts: Trieste, Italy July 2-5, 2018	47.050	AGS-1824715		0	1,797
Collaborative Research: Improving Constraints on Tropical Climate Feedbacks with Inverse Modeling of the Stable Isotopic Composition of Atmospheric Water Vapor	47.050	AGS-1737813		0	1,761
Testing geochemical proxy relationships under variable paleo-seawater chemical compositions	47.050	OCE-1232987		0	1,617
Fibrous diamonds through time-insights into mantle fluids and metasomatism	47.050	EAR-1348045		0	1,559
Collaborative Research: Climate and Glacier change in Bhutan: the last millennia, present and future	47.050	EAR-1304351		0	1,126

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Travel Support for an International Meeting on Monsoons and Tropical Rain Belts: Trieste, Italy July 2-5, 2018	47.050	AGS-1824715		0	773
Active lava lakes as a window into magma and volcano dynamics	47.050	EAR-1348022		0	309
Collaborative Research: The North Anatolian Fault system in the Marmara Sea, Turkey - Insights from the Plio-Quaternary evolution of a multi-stranded transform	47.050	OCE-1537614		0	246
Collaborative Research: Dust deposition, paleo-export production, and migration of the (ITCZ) through the last glacial cycle in the west-central Pacific (Line Islands)	47.050	AGS-1502889		0	165
Collaborative Research: Impact of the Amazon River Plume on Nitrogen Availability and Planktonic Food Web Dynamics in the Western Tropical North Atlantic	47.050	OCE-1737128		0	153
Collab Res U.S. GEOTRACES Arctic Section - Water Mass Composition Circulation and Mean Residence Times Derived from Measurements of 18O/D, CFCs. SF6, 3H/#he and 14c	47.050	OCE-1436666		0	30
Algorithms and computation for rare events in complex systems	47.050	DMS-1558744		0	-1
LTER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelafic Ecosystem	47.050	PLR-1440435		0	-17
Collaborative Research: Rheology of the upper mantle in the Kuril-Kamchatka subduction zone from postseismic GPS observations after great earthquakes	47.050	EAR-1546998		0	-55
Geoinformatics Facilities Support: Integrated Data Collections for the Earth & Ocean Sciences: The Marien Geoscience Data System and the Geoinformatics for Geochemistry Program	47.050	OCE-0950477		0	-660
				$5,580,982	$40,902,269

Computer and Information Science and Engineering

BD Hubs: NORTHEAST: The Northeast Big Data Innovation Hub	47.070	IIS-1550284		0	544,983
TWC: Small A Linux ARM Hypervisor for System Security	47.070	CNS-1422909		0	467,333
SCH:INT: Large -Scale Probabilistic Phenotyping Applied to Patient Record Summarization	47.070	IIS-1344668		0	347,132
NeTS: Small: Do You See What I See: Finding and Fixing Faults in the Internet	47.070	CNS-1218977		0	269,149
BIGDATA:F:IA:Robust Convolutional Modeling for Massive-Scale Electron Microscopy Data	47.070	IIS-1546411		0	245,539
SHF: Medium: Compiling Parallel Algorithms to Memory Systems	47.070	CCF-1162124		0	216,706
CHS: Medium: Collaborative Research: Augmented Reality for Multiple People Perspectives, Platforms, and Tasks	47.070	IIS-1514429		0	215,227
SaTC: TTP Option: Medium: Scalable Web Transparency: New Scientific Building Blocks, Tools, and Measurements to Tame the Data-Driven Web	47.070	CNS-1514437		0	210,853
TWC: Small: Virtual Private Social Networks	47.070	CNS-1318415		0	187,721
AF: Medium: New Frontiers in Equilibrium Computation	47.070	CCF-1703925		0	184,126
CAREER: New Abstractions for Sensitive Data Management in Modern Operating Systems	47.070	CNS-1351089		0	180,218
CI-SUSTAIN: Stan for the Long Run	47.070	CNS-1730414		0	179,997
A Novel Light-weight Cable-driven Active Leg Exoskeleton (C-ALEX) for training of Human Gait	47.070	IIS-1339666		0	179,178
RAISE: Deep Gravitational Wave Exploration, Instrumental Insights and Noise Removal Through Machine Learning	47.070	CCF-1740391		0	170,612

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BIGDATA:F:IA:Robust Convolutional Modeling for Massive-Scale Electron Microscopy Data	47.070	IIS-1546411		0	169,093
AF: Medium: New Frontiers in Equilibrium Computation	47.070	CCF-1703925		0	159,291
III: small: Database Algorithms for Modern CPU Memory Hierarchies	47.070	IIS-1422488		0	157,642
Algorithmic Explorations in Networks, Markets, Evolution, and the Brain	47.070	CCF-1819935		0	156,563
AF: Small: Nearest Neighbor Search in High Dimensional Spaces	47.070	CCF-1617955		0	155,777
NRI: Active Tendon-driven Orthosis for Prehensile Manipulation after Stroke	47.070	IIS-1526960		0	154,224
TWC: Medium: Toward Trustworthy Mutable Replay for Security Patches	47.070	CNS-1563555		0	146,668
BIGDATA: Collaborative Research: IA: Hardware and software for spike detection and sorting in massively parallel electrophysiological recording systems for the brain	47.070	IIS-1546296		0	145,114
RI: Medium: Assessing Speaker and Teacher Effectiveness Through Gestural Analysis, EEG Recordings, and Eye Tracking	47.070	IIS-1513853		21,387	143,852
SCH:INT: Large -Scale Probabilistic Phenotyping Applied to Patient Record Summarization	47.070	IIS-1344668		0	143,811
AF: Small: Scheduling and Routing: Algorithms with novel cost measures	47.070	CCF-1421161		0	138,448
RI: Medium : Collaborative Research: Write A Classifier: Learning Fine-Grained Visual Classifiers from Text and Images	47.070	IIS-1409257		0	137,401
BIGDATA: Mid-Scale ESCE: Collaborative Research: Discovery and Socail Analytics for Large-Scale Scientific Literature	47.070	IIS-1502780		0	136,738
NRI: Collaborative Research: Multimodal Brain Computer Interface for Human Robot Interaction	47.070	IIS-1527747		0	130,987
SaTC: TTP Option: Medium: Scalable Web Transparency: New Scientific Building Blocks, Tools, and Measurements to Tame the Data-Driven Web	47.070	CNS-1514437		0	129,817
III: Medium: Collaborative Research: Composing Interactive Data Visualizations	47.070	IIS 1564049		0	129,695
NRI: Collaborative Research: Multimodal Brain Computer Interface for Human Robot Interaction	47.070	IIS-1527747		0	125,864
SHF: Small: Rethinking CAD for System-Level Design via Interactivity, Learning, and Collaboration	47.070	CCF-1527821		0	118,387
E2CDA: Type I: Collaborative Research: Energy Efficient Computing with Chip-Based Photonics	47.070	CCF-1640108		0	114,996
CIF: Small: Structured Signal Modeling via Nonconvex Optimization	47.070	CCF-1527809		0	112,168
TWC: Medium: Collaborative: Efficient Repair of Learning Systems via Machine Unlearning	47.070	CNS-1564055		0	111,646
AF: Medium: Collaborative Research: Circuit Lower Bounds via Projections	47.070	CCF-1563155		0	111,362
III: Medium: Adaptive Information Extraction from Social Media for Actionable Inference in Public Health	47.070	IIS-1563785		0	110,627
RI:Medium:Incorporating Biologically-Motivated Circuit Motifs into Large-Scale Deep Neural Network Models of the Brain	47.070	IIS 1704938		0	106,609
CAREER: Simulating Nonlinear Audiovisual Dynamics for Simulated Enviroments and Interactive Applications	47.070	IIS-1453101		0	104,898
EAGER: Collaborative Research: Combining Community and Clinical Data for Augmenting Influenza Modeling	47.070	NSF 1643623		0	104,280

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
CAREER: Biologically Inspired neural network models for robust speech processing	47.070	IIS-1555079		0	103,594
CAREER: From Grasp Quality to Hand Quality: Analysis and Optimization for Effective Robot Hands	47.070	IIS-1551631		0	101,681
CAREER: Abstractions for Energy Management: Vision, Architecture and Tools	47.070	CCF-1253772		0	100,546
NRI: Active Tendon-driven Orthosis for Prehensile Manipulation after Stroke	47.070	IIS-1526960		0	99,709
RI: Medium: Assessing Speaker and Teacher Effectiveness Through Gestural Analysis, EEG Recordings, and Eye Tracking	47.070	IIS-1513853		0	99,565
CIF: Small: Structured Signal Modeling via Nonconvex Optimization	47.070	CCF-1527809		0	97,739
AF: Small Linear and polynomial Threshold Functions: Structural Analysis and Algorithmic Applications	47.070	CCF-1420349		0	96,472
SHF: Large: Collaborative Research: Molecular computing for the real world	47.070	CCF 1832985		0	91,531
CSR: CHS: Medium: Collaborative Research: Improving Pedestrian Safety in Urban Cities using Intelligent Wearable Systems	47.070	CNS-1704899		0	91,105
NRI: Collaborative Research: Dynamic Braces for Quantification and Treatment of Abnormal Curves in the Human Spine	47.070	IIS-1527087		0	85,183
SHF: Small: An Asynchronous Network on Chip Methodology for Cost Effective and Fault Tolerant Heterogeneous SoC Architectures	47.070	CCF-1527796		0	84,745
AF: Small: Collaborative Research: Computational Representations for Design and Fabrication of Developable Surfaces	47.070	CCF-1717268		0	82,633
SaTC: TTP: Small: Easy Email Encryption	47.070	CNS-1717801		0	81,696
BD Hubs: NORTHEAST: The Northeast Big Data Innovation Hub	47.070	IIS-1550284		0	80,639
SI2-SSI: Collaborative Research: ENKI: Software infrastructure that Enables Knowledge integration for modeling coupled geochemical and geodynamical processes	47.070	ACI-1550337		0	78,138
NeTS: Small: RDMA over Ethernet: A Control Theoretic Approach	47.070	CNS-1618911		0	76,489
EAGER: majorization Methods for Machine Learning	47.070	IIS-1451500		0	75,916
E2CDA: Type I: Collaborative Research: Energy Efficient Computing with Chip-Based Photonics	47.070	CCF-1640108		0	72,690
RAISE: Deep Gravitational Wave Exploration, Instrumental Insights and Noise Removal Through Machine Learning	47.070	CCF-1740391		0	72,120
Integration of Environmental Factors and Causal Reasoning Approaches for Large-Scale Observational Health Research	47.070	IIS 1636832		27,470	70,706
EAGER: Topic Models for Population Genetics	47.070	CCF-1547120		0	65,310
TWC: Small: Collaborative: Automated Detection and Repair of Error Handling Bugs in SSL/TLS Implementations	47.070	CNS 1617670		0	62,423
III: Medium: Adaptive Information Extraction from Social Media for Actionable Inference in Public Health	47.070	IIS-1563785		0	60,367
III: Small: Collaborative Research: Approximate Learning and Inference in Graphical Models	47.070	IIS-1526914		0	58,453
Molecular Computing in Real Life	47.070	CCF-1518715		0	58,321
Creating Speech Synthesizers for Low Resource Languages	47.070	IIS-1548092		0	57,489

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CAREER: Adaptive Algorithms for Combinatorial Optimization in Stochastic Networks	47.070	CNS-1652115		0	55,265
SI2-SSE: Improving Scikit-Learn Usability and Automation	47.070	OAC-1740305		0	54,731
E2CDA: Type I: Collaborative Research: Energy Efficient Computing with Chip-Based Photonics	47.070	CCF-1640108		0	53,578
RAISE: Deep Gravitational Wave Exploration, Instrumental Insights and Noise Removal Through Machine Learning	47.070	CCF-1740391		0	52,295
NeTS: Small: Dynamic Optical Networks - from Theory to Experimentation	47.070	CNS-1423105		0	51,422
CSR: CHS: Medium: Collaborative Research: Improving Pedestrian Safety in Urban Cities using Intelligent Wearable Systems	47.070	CNS-1704899		0	49,504
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153		0	48,628
SCH: EAGER: Improving Nutritional Literacy and Decision Making with Learner-Centered Crowdsourcing	47.070	IIS-1551708		0	47,699
Naturalistic computation and signaling by neural populations in the primate retina	47.070	IIS-1430239		0	44,824
BIGDATA: Collaborative Research: IA: F: Latent and Graphical Models for Complex Dependent Data in Education	47.070	IIS 1633360		0	44,318
AF: Small: Minimalist cryptography	47.070	CCF-1423306		0	44,286
CHS: Small: Physically-Based Simulation of Strand-Liquid Interaction	47.070	IIS-1717178		0	44,286
SaTC: Small: New Challenges in Functional Encryption	47.070	CNS-1445424		0	41,286
CIF: Small: Collaborative: Communication with Energy Harvesting Nodes	47.070	CCF-1526215		0	40,009
RI: Small: Describing Disasters and the Ensuing Personal Toll	47.070	IIS-1422863		0	37,036
RI: Small: Creating Text-to-Speech Synthesis for Low Resource Languages	47.070	IIS-1717680		0	35,716
CHS: Small: Physically-Based Simulation of Strand-Liquid Interaction	47.070	IIS-1717178		0	35,496
BIGDATA: F: Statistical Foundation of Predictivity: A Novel Architecture for Big Data Learning	47.070	IIS-1741191		0	35,359
III: Small: Collaborative Research: Towards Interactive Data Visualization Management Systems	47.070	IIS-1527765		0	35,064
TWC: Medium: Toward Trustworthy Mutable Replay for Security Patches	47.070	CNS-1563555		0	34,311
Carer: Banalytics: Behavioral Network Analytics with Data Transparency	47.070	CNS-1254035		0	34,150
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153		0	32,819
Collaborative Research: SI2-SSI: Inquiry-Focused Volumetric Data Analysis Across Scientific Domains: Sustaining and Expanding the Yt Community	47.070	OAC-1663893		0	31,750
EAGER: Collaborative Research: Supporting Public Access to Supplemental Scholarly products Generated from Grant Funded Research	47.070	ACI-1649703		0	28,367
CI-New: Collaborative Research: An Open Platform for Internet Routing Experiments	47.070	CNS-1835252		0	26,998
SaTC: TTP: Small: Easy Email Encryption	47.070	CNS-1717801		0	26,519

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Eager: Collaborative Research: Advanced Machine Learning for Prediction of Preterm Birth	47.070	IIS-1454855		0	26,083
WiFiUS: Collaborative Research: Scaling, Securing and Validating Massive Heterogeneous IoT Systems	47.070	CNS-1702952		0	25,729
EAGER: Collaborative Research: Lighting a Dark Fiber Experimental Research Network in Harlem	47.070	CNS-1650685		0	22,398
CIF: Small: Collaborative Research: Towards universal signal recovery algorithms	47.070	CFF-1420328		0	19,545
TWC: Medium: Collaborative: Studying journalists to identify requirements for usable, secure, and t	47.070	CNS-1513663		0	19,071
CSR: NeTS: Medium: Collaborative Research: Cloud Support for Latency-Sensitive Web Services	47.070	CNS-1835253		0	18,242
Advanced Peak Demand Forecast and Battery Dispatch Algorithms to Integrate Storage-Based Demand Response with Building Automation Systems	47.070	CNS-1524628		0	17,024
E2CDA: Type I: Collaborative Research: Energy Efficient Computing with Chip-Based Photonics	47.070	CCF-1640108		0	16,817
A Novel Light-weight Cable-driven Active Leg Exoskeleton (C-ALEX) for training of Human Gait	47.070	IIS-1339666		0	16,323
EAGER: USBRCCR: Researching Internet Routing Security in the Wild	47.070	CNS-1740883		0	15,460
CHS: Medium: Collaborative Research: Computational Design and 3D Printing of Textiles	47.070	IIS-1409286		0	15,344
TRIPODS: From Foundations to Practice of Data Science and Back	47.070	CCF-1740833		0	13,969
TRIPODS: From Foundations to Practice of Data Science and Back	47.070	CCF-1740833		0	13,482
Symposium on Discrete Algorithms Science (SODA) 2018 Travel Grant	47.070	CCF-1807311		0	13,442
BD Hubs: NORTHEAST: The Northeast Big Data Innovation Hub	47.070	IIS-1550284		7,474	11,959
CRII: NeTS: High-Performance Scheduling Algorithms for Resource Management in Cloud Networks	47.070	CNS-1565774		0	11,870
EAGER: Collaborative Research: Lighting a Dark Fiber Experimental Research Network in Harlem	47.070	CNS-1650685		0	10,000
CHS: Medium: Collaborative Research: Computational Design and 3D Printing of Textiles	47.070	IIS-1409286		0	9,838
AF: Student Travel to CCC 2017	47.070	CCF-1724073		0	9,566
AF:Small:Beyond Worst Case Running time: Algorithms for Routing, Scheduling and Matching	47.070	CCF-1714818		0	9,538
CAREER: Abstractions for Energy Management: Vision, Architecture and Tools	47.070	CCF-1253772		0	8,000
Carer: Banalytics: Behavioral Network Analytics with Data Transparency	47.070	CNS-1254035		0	8,000
CHS: Small: Making sense of information in online discussion boards with novel social computing platforms	47.070	IIS-1422381		0	7,935
AITF: Learning and Adapting Sparse Recovery Algorithms for RF Spectrum Sensing	47.070	CCF-1733857		0	7,554
AITF: Learning and Adapting Sparse Recovery Algorithms for RF Spectrum Sensing	47.070	CCF-1733857		0	6,867
Data Science Leadership Summit	47.070	IIS-1821451		0	6,708

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SHF: Medium: RacePro: Automatically Detecting API Races in Deployed Systems	47.070	CCF-1162021		0	6,520
CAREER: Unifying Provable Security Techniques for Advanced Cryptographic Systems	47.070	CNS-1552932		0	6,400
CRII: ACI: Unveiling the Origin of the Highest Energy Particles in the Universe with Large Scale First Principle Fully Kinetic Simulations	47.070	ACI-1657507		0	6,099
BIGDATA: Collaborative Research: IA: Hardware and software for spike detection and sorting in massively parallel electrophysiological recording systems for the brain	47.070	IIS-1546296		0	5,790
CAREER: Routing for the Emerging Topologies of Modern Internet Services	47.070	CNS 1836872		0	5,473
CRISP Type 1: Protecting Coastal Infrastructure in a Changing Climate by Integrating Optimization Modeling and Stakeholder Observations	47.070	OAC-1735609		3,273	5,332
Molecular Computing in Real Life	47.070	CCF-1518715		0	4,800
Data Science Leadership Summit	47.070	IIS-1821451		0	3,784
AF: Small: On the Complexity of Optimal Pricing and Mechanism Design	47.070	CCF-1423100		0	3,152
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153		0	2,000
TRIPODS: From Foundations to Practice of Data Science and Back	47.070	CCF-1740833		0	1,920
TRIPODS: From Foundations to Practice of Data Science and Back	47.070	CCF-1740833		0	1,658
SODA 2017 Travel Grant	47.070	CCF-1701346		0	1,407
BIGDATA: Collaborative Research: IA: Hardware and software for spike detection and sorting in massively parallel electrophysiological recording systems for the brain	47.070	IIS-1546296		0	1,384
AF: Small: Minimalist cryptography	47.070	CCF-1423306		0	1,291
NeTS: Small: A Theoretical Approach to MAC Design for Communication Between Low Cost, Ultra Low Power Devices	47.070	CNS-1717867		0	469
NeTS: Small: RDMA over Ethernet: A Control Theoretic Approach	47.070	CNS-1618911		0	400
NeTS: Small: A Theoretical Approach to MAC Design for Communication Between Low Cost, Ultra Low Power Devices	47.070	CNS-1717867		0	293
NeTS: Small: Dynamic Optical Networks - from Theory to Experimentation	47.070	CNS-1423105		0	201
BIGDATA: Collaborative Research: IA: Hardware and software for spike detection and sorting in massively parallel electrophysiological recording systems for the brain	47.070	IIS-1546296		0	-305
				$59,604	$10,644,540

Biological Sciences

NeuroNex Theory Team: Columbia University Theoretical Neuroscience Center	47.074	DBI-1707398		0	1,114,789
NeuroNex Technology Hub: Live Imaging of the C.elegans Connectome	47.074	DBI-1707401		229,868	667,865
Midbrain electrosensory processing in mormyrid fish: multimodalintegration, recurrent feedback, and cerebellar influence	47.074	IOS 1656354		0	345,112
Collaborative: The Digital Fruit Fly Brain	47.074	DBI-1544383		0	285,167

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Assignment and Structural Characterization of Uniformly Labled proteins by Solid State NMR	47.074	MCB-1412253		0	265,078
The Molecular Basis of Cadherin-Mediated Cell Adhesion	47.074	MCB-1412472		0	243,377
Collaborative Research: Does a transition in nitrogen fixation strategy explain the latitudinal distribution of nitrogen-fixing trees?	47.074	DEB-1457650		15,007	230,849
Endocrine, genetic and epigenetic mechanisms of coping with environmental change in tropical birds	47.074	IOS-1656098		0	160,743
CAREER: The Mechanistic Interplay Between Biofilm Metabolism and Morphogenesis	47.074	MCB-1553023		0	156,172
Large-Scale CMOS electrochemical imagers for the study of metaboilites in multicellular films	47.074	DBI-1353553		0	139,604
Adaptations for mate choice: perceptual mechanisms in species with highly divergent communication signals	47.074	IOS-1656825		0	126,497
BRAIN EAGER: A Nanophotonic Platform for Multisite Optical Activation in the Brain	47.074	IOS-1611090		0	72,889
Environmental, Endocrine and Epigenetic Drivers of Sociality in Birds	47.074	IOS-1257530		0	71,997
RAPID: Hurricane Maria: ASSESSING LANDSCAPE RESILIENCE TO A CHANGING DISTURBANCE REGIME	47.074	DEB-1801315		0	61,430
Constraining the Relationship Between Vegetation Change and Net Carbon Sequestration in Arctic and Boreal Peatlands	47.074	DEB-1557078		0	54,952
From sensation to perception: cellular and circuit mechanisms underlying prey detection in an electric fish	47.074	IOS-1430065		0	51,832
Collaborative Research: Nucleation of Calcium phosphate biomaterials	47.074	DMR-1608554		0	44,457
NSF INCLUDES Early Engagement in Research: key to long-term STEM retention	47.074	DBI-1649310		0	42,463
NSF INCLUDES Early Engagement in Research: key to long-term STEM retention	47.074	DBI-1649310		0	38,690
RAPID: Hurricane Maria: ASSESSING LANDSCAPE RESILIENCE TO A CHANGING DISTURBANCE REGIME	47.074	DEB-1801315		0	38,182
A systems Approach to Study Horizontal Acquisition of Regulatory DNA	47.074	MCB-1453219		0	36,662
Meeting: Coordinating Global Brain Projects, Rockefeller University, September 19th, 2016	47.074	DBI-1644405		0	28,188
BRAIN EAGER: A Nanophotonic Platform for Multisite Optical Activation in the Brain	47.074	IOS-1611090		14,111	22,577
NSF INCLUDES Early Engagement in Research: key to long-term STEM retention	47.074	DBI-1649310		0	14,506
Collaborative Research: An Integrated Approach Towards Understanding Iron Uptake in Marine Eukaryotic Phytoplankton	47.074	IOS-1558030		0	13,668
NSF INCLUDES Early Engagement in Research: key to long-term STEM retention	47.074	DBI-1649310		0	10,016
Meeting: Coordinating Global Brain Projects, Rockefeller University, September 19th, 2016	47.074	DBI-1644405		0	8,614
Constraining the Relationship Between Vegetation Change and Net Carbon Sequestration in Arctic and Boreal Peatlands	47.074	DEB-1557078		0	6,127
NSF INCLUDES Early Engagement in Research: key to long-term STEM retention	47.074	DBI-1649310		0	5,212
Large-Scale CMOS electrochemical imagers for the study of metaboilites in multicellular films	47.074	DBI-1353553		0	4,118

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Using DNA Curtains to Reveal the Mechanisms of Target Site Location by DNA Binding Proteins	47.074	MCB-1154511		0	1,510
				$258,985	$4,363,341
Social, Behavioral, and Economic Sciences					
Understanding and improving environmental decisions	47.075	SES-0951516		33,364	282,915
The Effects of Federal Indirect Cost Recovery Policy on Academic Institutions	47.075	NSF 1735413		62,091	181,988
Episodic memory contributions to value-based decision making	47.075	SES-1606916		0	116,724
Topics in Analysis of Big Data and Complex Models	47.075	SES-1558623		0	116,693
RIDIR: Collaborative Research: Computational and Historical Resources on Nations and Organizations for the Social Sciences (CHRONOS)	47.075	SMA-1637159		0	105,470
Structural Changes in High Dimensional Factor Models	47.075	SES-1658770		0	93,477
The Boston Reentry Study: Analysis and Preparation of Public Use Data	47.075	SES-1762486		0	85,268
The Role of Tacit Knowledge in Scientific Experimentation	47.075	SES-1430843		0	76,776
CRCNS Research Proposal: US German Collaboration: Roles of Place and Grid Cells and Phase Precession in Human Spatial and Episodic Memory	47.075	BCS-1724243		50,313	75,905
Decisions From Experience and the Role of Feedback in Environmental Decisions	47.075	SES-1227462		0	67,562
CRED Renewal: Center for Research on Environmental Decisions - Understanding and Improving Environmental Decisions	47.075	SES-1463122		0	65,591
Educating Young Researchers in Environment Ethics	47.075	SES-1635656		0	60,906
Matching Theory and College Admissions	47.075	SES-1260937		0	55,621
Collaborative Research Reassessing the settlement history of the Faroe Islands using lipid biomarkers and environmental genomics	47.075	BCS-1623595		0	50,649
Standard Grant: The Role of Craft Skill in Scientific Practice	47.075	SES-1734596		0	49,556
The Dynamics of Controversial Practices: SEC Sunshine, Aspirational Pay, and the Evolution of Executive Compensation Networks	47.075	SES-1359666		0	49,371
Non-Standard Issues in Regression Discontinuity Designs	47.075	SES-1559058		0	48,976
Science Policy Research Report: The Effects of Patents on Innovation, Diffusion and Access	47.075	NSF 1732544		0	48,786
Collaborative Research: Market Based Emissions Policies	47.075	SES-1658929		0	47,245
CAREER:Interdealer Networks and the Distribution of Credit Risk	47.075	SES-1555155		0	37,987
Unemployment Insurance Schemes in Developing Countries	47.075	SES-1757105		0	36,329
Collaborative Research: Multilevel Regression and Poststratifcation: A United Framework for Survey Weighted Interface	47.075	SES-1534414		0	33,750
RIDIR: Collaborative Research: Computational and Historical Resources on Nations and Organizations for the Social Sciences (CHRONOS)	47.075	SMA-1637159		0	33,319

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Would More Information Reduce Disagreement? Theory and Applications	47.075	SES-1459877		0	32,296
Statistical Analysis for Cognitive Diagnosis - Theory and Applications	47.075	SES-1323977		0	30,408
Information-Constrained Dynamic Models of Choice Behavior	47.075	SES-1426168		0	26,060
Political Communication and Accountability	47.075	SES-1260631		0	25,320
Doctoral Dissertation Research: An Ethnographic and Historical Study of Therapeutic Communities	47.075	BCS-1729646		0	24,778
Collaborative Research: Science Policy Research Report: Government Brokerage of Innovation Networks	47.075	SMA-1735668		0	24,108
Doctoral Dissertation Research in Economics: Reference Dependence and Option Adjustable Rate Mortgages	47.075	SES-1559460		0	24,000
Workshop: Translation and Encoding for the Making and Knowing Project	47.075	SES-1656227		0	18,434
A Study Into the Effect of Employment Conditions Upon Judicial Behavior and Performance	47.075	SES-1260875		0	17,485
Doctoral Dissertation: The Distributive Properties of the Bureaucracy	47.075	SES-1729334		0	17,136
Doctoral Dissertation Research: The Political Determinants of Economic Exchange	47.075	SES-1647457		0	16,783
Using Multilevel Regression and Poststratification to Measure and Study Dynamic Public Opinion	47.075	SES-1424962		0	16,322
Doctoral Dissertation Grant: An Ethnography of Chronic Disease Risk and Pre-Diabetes	47.075	SES-1656224		0	12,865
Information Transmission and Aggregation	47.075	SES-1155931		0	11,795
Fields of Study, School-Work Linkages, and Inequality: A Comparative Approach	47.075	SES-1423828		0	10,779
Doctoral Dissertation Research: The Politics of Status in International Development	47.075	SES-1647493		0	9,761
Collaborative Research: Testing the Orbital Theory of Ice Ages using glacial deposits in southern South America and numerical modeling	47.075	BCS-1263474		0	9,550
Doctoral Dissertation Research: Intergenerational Transmission of Status in New Immigrant Families	47.075	SES-1738696		0	9,035
Attention Networks and Cognitive Challenges: Positional Advantages in Complex and Distant Search	47.075	SES-1236931		0	8,921
Understanding and improving environmental decisions	47.075	SES-0951516		0	8,915
Doctoral Dissertation Research: American Mayors: How Voters Choose and How Mayors Shape Policy	47.075	SES-1647503		0	8,240
Collaborative Research: Voter Mobilization and Electoral Subversion in the Workplace	47.075	SES-1324281		0	7,416
Doctoral Dissertation Research: Legitimizing the State or a Grievance	47.075	SES-1647438		0	7,380
Doctoral Dissertation Research in Economics: Urban Transit Infrastructure and the Growth of Cities	47.075	SES-1658827		0	6,094
The Role of Tacit Knowledge in Scientific Experimentation	47.075	SES-1430843		0	5,018
Doctoral Dissertation Research: Reducing Religious Extremism Via Elite Persuation	47.075	SES-1647364		0	4,910

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Doctoral Dissertation: Dispossession and Agrarian Politics	47.075	BCS-1658469		0	4,233
Doctoral Dissertation Research: Formation of Ethnoracial Identity	47.075	SES-1802599		0	4,101
Protected Family and Medical Job Leave: Evidence from US Administrative Data	47.075	SES-1357608		0	4,066
Doctoral Dissertation Research in Economics: Attention and Beliefs in Games: an Experiment	47.075	SES-1730399		0	3,880
New Approaches for Dynamic Panel Data Analysis	47.075	SES-1357598		0	3,038
The Boston Reentry Study: Analysis and Preparation of Public Use Data	47.075	SES-1762486		0	2,000
DDRIG: Constructions and Understandings of Cancer Genetic Risk	47.075	SES-1556980		0	1,647
The Emergence of Symbolic Notation and Data Visualization in Algebra and Chemistry	47.075	SES-1754788		0	1,632
Collaborative Research: Models and Analyses of Industrial Laboratories: Returns, Risks, and Structural Efficiency, with Implications for Sustainability and Science Policy	47.075	SMA-01360189		0	960
Doctoral Dissertation Research: Race, Achievment and Trust in Student-Teacher Relationships	47.075	SES-1702651		0	317
Doctoral Dissertation Research: The Autonomy of Adults with Developmental Disabilities	47.075	SES-1802591		0	172
Doctoral Dissertation Research: Understanding Organizational Anticipation and Response to Disaster Risks	47.075	SES-1519280		0	146
Doctoral Dissertation Research: Return Migration and Post-Conflict Governance	47.075	SES-1535577		0	111
Doctoral Dissertation Research: Privacy Concerns Regarding the Use of Home Diagnostic Technologies	47.075	SES-1430884		0	-105
Doctoral Dissertation Research: New Therapies and the Multiplication of Disease Diagnoses	47.075	SES-1602895		0	-773
				$145,768	$2,240,098

Education and Human Resources

NSF Graduate Research Fellow Program	47.076	DGE-1644869		0	6,024,250
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		135,206	441,356
IGERT: From Data to Solutions: A New PhD Program in Transformational Data & Information	47.076	DGE-1144854		0	296,888
IGERT: Engineering Photons for a Sustainable Future	47.076	DGE-1069240		-5,770	226,700
IGERT: From Data to Solutions: A New PhD Program in Transformational Data & Information	47.076	DGE-1144854		-3,320	134,697
SEGUE Scholars Program	47.076	DUE-1154372		0	44,827
Collaborative Research: DRK-12: High School Students Climate Literacy Through Epistemology of Scientific Modeling	47.076	DRL-1719872		0	42,405
Collaborative Research: Developing a Visualization Framework for Chemical Reactions	47.076	DUE-1525475		0	35,432
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		0	30,611

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Reducing Racial and Gender Achievement Gaps in STEM: Use of Natural Language Processing to Understand Why Affirmation Interventions Improve Performance	47.076	DRL-1420446		22,757	22,757
Reducing Racial and Gender Achievement Gaps in STEM: Use of Natural Language Processing to Understand Why Affirmation Interventions Improve Performance	47.076	DRL-1420446		0	7,389
IGERT: Engineering Photons for a Sustainable Future	47.076	DGE-1069240		0	5,670
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		0	3,660
NSF Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (Gerard Parkin) (PAESMEM)	47.076	DUE-0933971		0	2,546
Collaborative Research: Developing a Visualization Framework for Chemical Reactions	47.076	DUE-1525475		0	950
				$148,873	$7,320,139
Polar Programs					
A Study of Atmospheric Dust in the WAIS Divide Ice Core Based on Sr-Nd-Pb-He Isotopes	47.078	ANT-1043471		0	74,768
Geophysical constraints on the crust and upper-mantle structure of Greenland	47.078	OPP-1304346		0	48,264
Collaborative Research: Totten Glacier System and the Marine Record of Cryosphere - Ocean Dynamics	47.078	ANT-1143834		0	14,851
Collaborative Research: Terrestrial Geological Context for Glacier change in the Northeast Antartica Peninsula	47.078	ANT-1142002		0	1,852
				$0	$139,735
Office of International Science and Engineering					
Life on a Tectonically Active Delta: Convergence of Earth Science and Geohazard Research in Bangladesh with Education and Capacity Building	47.079	OISE-0968354		203	130,662
				$203	$130,662
Total Direct Award Programs				**$7,464,873**	**$84,819,658**
Pass-through Awards					
Engineering Grants					
SRN: Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy and Livable Cities	47.041	UMINN A0005261801	CBET-1444745	0	404,612
Nanosytems Engineering Research Center for Directed Multiscale Assembly of Cellular Metamaterials with Nanoscale Precision:CELL-MET	47.041	BU 4500002500	EEC-1647837	0	157,936
Mid-Infrared Topological Plasmon-Polaritons with 2D Materials	47.041	UMINN A006382202	EFMA-1741660	0	127,526
Mid-Infrared Topological Plasmon-Polaritons with 2D Materials	47.041	UMINN A006382202	EFMA-1741660	0	91,165
STTR Phase I: Using Mining Waste as a Feedstock for the Production of Chemicals from CO2 with Genetically Engineered Acidithiobacillus Ferrooxidans	47.041	IC CU(1648889)	IIP-1648889	0	64,487
Mechanopotentiation of Cytoxic T Cell Function	47.041	MSKCC BD521839	PD-14-7479	0	55,664

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
NSF Engineering Research Center for Integrated Access Networks (CIAN)	47.041	UA Y503160	EEC-0812072	0	48,697
NSF Engineering Research Center for Integrated Access Networks (CIAN)	47.041	UA Y503160	EEC-0812072	0	37,133
SRN: Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy and Livable Cities	47.041	UMINN A0005261801	CBET-1444745	0	26,155
EFRI NewLAW: New frontiers for topologically-protected propagation of light, sound, elastic and mechanical waves	47.041	UTA16-000936	EFMA-1641069	0	15,993
Resilient and Programmable Metro Optical Networking System	47.041	UA 331329	IIP 1601784	0	14,367
Resilient and Programmable Metro Optical Networking System	47.041	UA 331329	IIP 1601784	0	2,462
Development of an Accurate Low-Cost Wearable UV Dosimeter for the General Population	47.041	YOUV CU18-1093	IIP-1746461	0	542
				$0	$1,046,739
Mathematical and Physical Sciences					
ATLAS Phase - I Upgrades	47.049	SUNYSB 68790	1345157	0	479,115
US ATLAS Operations: Discovery and Measurement at the Energy Frontier	47.049	RFSUNY 76749/1136652/2R&D/PM	PHY-1624739	0	409,372
ATLAS Phase - I Upgrades	47.049	SUNYSB 68790	1345157	0	382,151
US ATLAS Operations: Discovery and Measurement at the Energy Frontier	47.049	RFSUNY 76749/1136652/2R&D/PM	PHY-1624739	0	300,086
NSMDS: Computational Design and Synthetic Exploitation Design of Earth-Abundant-Sourced Photocatalysts for C-X Activation	47.049	CSU G-90640-3	1339674	0	80,753
U.S. ATLAS Operations: Discovery and Measurement at the Energy Frontier	47.049	RFSUNY 76749/1136652/2M&O	PHY-1624739	0	78,765
US ATLAS Operations: Discovery and Measurement at the Energy Frontier	47.049	RFSUNY 76749/1136652/2R&D/PM	PHY-1624739	0	72,281
US ATLAS Operations: Discovery and Measurement at the Energy Frontier	47.049	RFSUNY 76749/1136652/2R&D/PM	PHY-1624739	0	70,208
Particle Astrophysics at TeV Energies with VERITAS	47.049	BARNARD CU-1505811	NSF-1505811	0	69,864
Subcontract Cornell Center for Materials Research-CEMRI	47.049	CU 63016-9679	DMR-110296	0	46,652
APS Conference for Undergraduate Women in Physics II	47.049	APSO CWC-026	PHY-1622510	0	18,750
				$0	$2,007,997
Geosciences					
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	941,476
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	419,111
LADCP Measurments on Global Ocean Repeat Hydrography Cruises	47.050	UCSD 59692302	OCE-1437015	0	239,084
Quantum Mechanical Modeling of Major Mantle Materials	47.050	UMINN A005402001	EAR-1348066	0	179,998

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Collaborative Research: Seasonal Sea Ice Production in the Ross Sea, Antarctica	47.050	UTHSCSA 1000000784	PLR-1341717	0	156,069
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	143,733
The impact of the ozone hole on the climate of the Southern Hemisphere	47.050	MIT 5710003465	OCE-1338814	0	139,892
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	136,562
FESD Type: VOICE: Volcano, Ocean, Ice, and Carbon Experiments	47.050	HARVARD 130783-5069512	AGS-1338832	0	101,501
FESD Type: VOICE: Volcano, Ocean, Ice, and Carbon Experiments	47.050	HARVARD 130783-5069512	AGS-1338832	0	96,783
Collaborative Research: Deglacial Ice Dynamics in the Weddell Sea Embayment Using Sediment Provenance	47.050	TAMU 02-S170236	PLR-1724670	0	69,777
Collaborative Research: Global Ocean Repeat Hydrography Carbon & Tracer Measurements, 2015-2020	47.050	UWASH UWSC8202	OCE-1433922	0	66,151
Alaska Amphibious Community Seismic Experiment	47.050	CU 80572-10908	OCE-1654568	0	62,716
EarthCube Science Support Office (ESSO)	47.050	UCAR SUBAWD000094	ICER-1623751	0	53,322
FESD Type: VOICE: Volcano, Ocean, Ice, and Carbon Experiments	47.050	HARVARD 130783-5069512	AGS-1338832	0	51,590
Coupled Model Biases in the Sea Surface Temperature (SST) Distribution of the Global Tropics and Their Influence on Climate Change Projections	47.050	UMAINE UMS-1113	AGS-1650037	0	46,871
Ocean Sciences for Rural Communities via Informal Science Education: Pop-Up/Drill Down Science	47.050	COL No. SA16-35	DRL-1515856	0	45,548
Mapping Antarctic Subglacial Water in Three Dimensions with Novel Electromagnetic Techniques	47.050	UCSD 96644852	OPP-1643917	0	41,871
Paleoenvironmental Perspectives on Prehistoric Human Settlement of Arctic Norway: Implications for Climate, Age Sea-level, and Land-use changes during the Iron-Age	47.050	WM 714711-712687	PLR-1504270	0	41,259
EarthCube Building Blocks: Collaborative Proposal: EarthCube Data Discovery Hub	47.050	UCSD 80863331/MP S9001535	IER-1639764	19,339	39,240
Collaborative Research: Modeling Ice-ocean Interaction for the Rapidly Evolving Ice Shelf Cavities of Pine Island and Thwaites Glaciers, Antarctica	47.050	UWASH UWSC9918	OCE-1643285	0	36,040
Fully Three-dimensional Numerical Models for Along-axis Variations in Magmatic and Tectonic Processes at Slow-spreading Mid-ocean Ridges	47.050	UOFM P0212336	OCE-1658072	0	31,117
SCEC5 Research Collaboration at Columbia University	47.050	USC 91051852	EAR-1600087	0	28,998
Operation, Densification and Upgrade of Continuous GPS Stations in Russia in the Framework of MOU be	47.050	IRIS 01-Columbia-SAGE	EAR-1261681	0	17,153
Coupled Model Biases in the Sea Surface Temperature (SST) Distribution of the Global Tropics and Their Influence on Climate Change Projections	47.050	UMAINE UMS-1113	AGS-1650037	0	14,865
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	14,211
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	12,852
EarthCube Building Blocks: Community Inventory of EarthCube Resources for Geoscience Interoperability (CINERGI)	47.050	UCSD 44142633	ICER-1343813	0	12,839
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	10,628
Earthcube IA: Oceans of Data: Bringing EarthCube to the Science User	47.050	UCSD 66925508	ICER-1540966	0	8,645

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Quantifying Borehole Shape in IODP Holes U137	47.050	COCEANL T334A34	OCE-0652315	0	3,446
Supporting the Multibeam Sonar Systems of the U.S. Academic Research Fleet: Coordinating Operations to Optimize data Quality	47.050	UNH 15-040	OCE-1524585	0	3,134
Operation, Densification and Upgrade of Continuous GPS Stations in Russia in the Framework of MOU be	47.050	IRIS 01-Columbia-SAGE	EAR-1261681	0	2,134
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	2,131
Seismic/Well Integration Bering Sea, IODP Expedition 323	47.050	COCEANL T323A34	OCE-0652385	0	227
Ocean Leadership, IODP Expedition #354 Bengal-Fan	47.050	COCEANL T354A34	OCE-0652315	0	18
U.S.S.S.P. salary for Angela Slagle to participate in IODP Expedition 322 NanTroSEIZE Stage 2 subduction Input on the D/V Chikyu	47.050	COCEANL T322A34	OCE-0652315	0	9
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	-859
				$19,339	$3,270,144
Computer and Information Science and Engineering					
ASCENT: Advancing Computer Science Careers Through Enhanced Networking and Training. A Proposal for the Implementation of BEst Practices int he Computer Science and Engineering Postdoc in New York Cit	47.070	CRA POSTDOC003	CCF-1136996	83,721	305,094
NRI: Deep Learning UAVS for High-Throughput Agricultural Disease Phenotyping	47.070	CU 74852-10552	IIS-1527232	0	148,282
CPS: Synergy: Multi-Robot Cyberphysical System for Assisting Young Developmentally-Delayed Children in Learning to Walk	47.070	HARVARD 167879-5068379	CNS-1329363	0	41,024
NeTS: Large: Collaborative Research: Programmable Inter-Domain Observation and Control	47.070	USC 101503073	CNS-1413978	0	16,890
Collaborative Research: SI2-SSI: The community-driven BiG CZ software system for integration and analysis of Bio- and Geoscience data in the Critical Zone	47.070	SWRC 340049-55900	ACI-1339834	0	15,478
BD Spokes: Planning: Northeast: Cross-organization Big Data Cyber Attack Awarness	47.070	PSU 5511-CU-NSF-6899	IIS-1636899	0	14,400
				$83,721	$541,167
Biological Sciences					
IOS EDGE: Taking Electric Fish Research to the EDGE with GeneManipulation Technologies	47.074	MSU RC107432A	IOS 1644965	0	114,674
LTER5B Understanding Environmental Change in Northwest Puerto Rico	47.074	UPRRP 2016-004	DEB-1546686	0	46,941
				$0	$161,615
Social, Behavioral, and Economic Sciences					
Collaborative Research: INFEWS/T1: Understanding Multi-Scale Resilience Options for Climate-Vulnerable Africa	47.075	JHU 2003204180	BCS-1639214	0	71,448
Rebound in Gateway Effects of Pro-Environmental Behavior	47.075	UCOL 1551637	SES1447274	0	45,172
RIDIR: Analytical Tools for Text Based Social Data Integration	47.075	UCSD 93934887	SES-1738411	0	40,133
				$0	$156,753

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Education and Human Resources					
IGERT - Inerdisciplinary Evolution Primatology: Conservation and Human Evolution Join Behavior, Bones and Genes	47.076	RFCUNY 40A66C	DGE-0966166	0	84,000
InTeGrate: Interdisciplinary Teaching of Geoscience for Sustainable Future	47.076	CARLE CU15-0195	DUE-1125331	0	70,228
InTeGrate: Interdisciplinary Teaching of Geoscience for Sustainable Future	47.076	CARLE CU15-0195	DUE-1125331	0	68,700
BOP-STEM-C Curriculm and Community Enterprise for New York Harbor Restoration in New York City Public Schools	47.076	PACEU CW2284704	DRL-1440869	0	46,767
BOP-STEM-C Curriculm and Community Enterprise for New York Harbor Restoration in New York City Public Schools	47.076	PACEU CW2284704	DRL-1440869	0	46,487
Urban Climate Education Partnership	47.076	FRANKLIN CU12-1201	DUE-1239782	0	35,611
IGERT - Inerdisciplinary Evolution Primatology: Conservation and Human Evolution Join Behavior, Bones and Genes	47.076	RFCUNY 40A66C	DGE-0966166	0	13,514
Urban Climate Education Partnership	47.076	FRANKLIN CU12-1201	DUE-1239782	0	13,017
EL: Computational Thinking in Ecosystems: A-Program-to-Play Approach to Infusing Computational Thinking into Environmental Science Learning	47.076	NYSCI NSF0019-001	DRL-1543144	0	1,243
InTeGrate: Interdisciplinary Teaching of Geoscience for Sustainable Future	47.076	CARLE CU15-0195	DUE-1125331	0	-2,457
				$0	$377,108
Office of International Science and Engineering					
PIRE: Climate Research Education in the Americas using Tree-Ring and Cave Sediment Examples (PIRE-CREATE)	47.079	SUNYA 18-28-79761	OISE-1743738	0	75,197
PIER: International Collaboration for Education, Training, and Research in Ice Core Science(ICE-ICS)	47.079	OREGSU S1315A-D	OISE-0968391	0	16,850
PIRE: Climate Research Education in the Americas using Tree-Ring and Cave Sediment Examples (PIRE-CREATE)	47.079	SUNYA 18-28-79761	OISE-1743738	0	9,777
				$0	$101,824
Office of Cyberinfrastructure					
I-Corps Node: New York City Regional Innovation Node (NYCRIN)	47.080	RFCUNY 40D14-A	NSF OIA-1305023	0	250,245
				$0	$250,245
Office of Integrative Activities					
PIRE: Dust Simulated Drawdown of Atmospheric CO2 as a Trigger for Northern Hemisphere Glaciation	47.083	ROCHSTR 416748	OISE-1545859	0	156,163
Stories from the Deep Biosphere: An Interactive Science Experience	47.083	USC 86136996	OCE-0939564	0	49,928
				$0	$206,091
Total Pass-through Programs				**$103,060**	**$8,119,684**

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Total: National Science Foundation				**$7,567,933**	**$92,939,342**
National Aeronautics & Space Administration					
Direct Awards					
National Aeronautics & SpaceAdministration					
Socioeconomic Data and Applications Distrubuted Active Archive Center (DAAC) for the EOS Data and Information Systems	43	NNG13HQ04C		0	4,891,540
Socioeconomic Data and Applications Distrubuted Active Archive Center (DAAC) for the EOS Data and Information Systems	43	NNG13HQ04C		0	5,366
				$0	$4,896,906
Science					
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	992,892
High Resolution Gravity and Measurements for Operation IceBridge Antarctica Campaigns 2016-2019	43.001	NNX16AJ65G		485,499	804,782
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		54,901	760,669
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	478,573
The GAPS Experiment: A Search for Dark Matter Using Low Energy Antiprotons and Antideuterons	43.001	NNX17AB44G		0	434,520
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	394,721
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	379,499
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	291,475
Goldstone Bosons & Broken Symetries in Cosmology	43.001	NNX16AB27G		0	268,543
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	260,865
Tropical Deciduous Forests of South Asia: Monitoring Degradation and Assessing Impacts of Urbanization	43.001	NNX17AI24G		0	255,471
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	245,335
Animals on the move: Remotely based determination of key drivers influencing movements and habitat selection of highly mobile fauna throughout the ABoVE study domain	43.001	NNX15AV92A		22,485	244,945
Subpolar N. Atlantic air-sea fluxes associated with mid-latitude cyclones and their effect on AMOC	43.001	NNX16AC93G		0	206,412
Calibration of Density Diagnostic for Solar Physics Using an Electron Beam Ion Trap	43.001	NNX16AF10G		0	201,815
Bayesian integration of multiple geodetic data types for investigation of the coupled impact of climate change on Earth systems	43.001	NNX14AP33G		24,145	195,984
Source Attribution using Satellite Products and Models to Inform Air Quality Planning and Health Accountability	43.001	NNX16AQ20G		76,437	189,469

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R&D Cluster

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Faint Young Sun Paradoxes and Habitable Worlds: Comparative Climatology of Early Earth and Mars	43.001	NNX15AP16G		0	174,138
Spatio-temporal Dynamics of the Ganges Brahmaputra Delta: Field-validated, Multi sensor Analysis of Interannual Flooding and Channel Movement	43.001	NNX12AM20G		0	170,670
Accretion Disk Outflows from Compact Object Mergers	43.001	NNX16AB30G		0	163,583
Variability and Trends in Tropospheric Oxidation: Interactions with Regional Air Quality, Global Atmospheric Composition, and Climate	43.001	NNX17AG40G		64,159	146,090
Analysis of Plumes to Predict Their Signatures in the Inner Heliosphere and Solar Wind: Laying the Groundwork for Solar Orbiter and Solar Probe Plus	43.001	NNX15AB71G		0	141,421
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	135,580
Activity of Strongly Magnetized Neutron Stars	43.001	NNX17AK37G		0	135,273
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	134,692
Multi-source Imaging of Infrastructure and Urban Growth using Landsat, Sentinel and SRTM	43.001	NNX15AT65G		0	130,988
Phytoplankton and Natural Hydrocarbon Seeps	43.001	NNX16AJ08G		0	130,403
MoonDB: Restoration and synthesis of Lunar Petrological Data to Empower Future Science	43.001	NNX15AI99G		0	128,741
Rocky Planet Habitability: Insights from Solar System Climate Dynamics Through Time	43.001	NNX15AK95G		0	124,235
Decision and Information System for the Coastal Waters of Oman (DISCO) - an Integrative tool for Managing Coastal Resources under Changing Climate	43.001	NNX17AG66G		42,893	122,418
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	121,937
Desertification or Re-greening:? Adaptation lessons learned in coping with late 20th century drought in West Africa	43.001	NNX16AN29G		0	120,125
Tropical Cyclones in the GISS model at High Resolution	43.001	80NSSC17K0196		0	117,162
Fireball-2: Trailblazing Observations of the Space UV Circumgalactic Medium	43.001	NNX17AC54G		0	110,111
High-resolution Measurements of Phytoplankton Size, Functional Types and Photosynthetic Competency over Time and Space in Support of GEOCAPE	43.001	NNX16AD40G		0	108,827
Self-Consistent Models for Primordial Star-Formation and Reionization	43.001	NNX15AB19G		0	107,932
Synergistic ice cloud observations from eMAS and RSP	43.001	NNX15AD44G		66,739	103,853
4-D AEROSOLS: occurrence, type and evolution study using the GISS-E2 model and space/ground based observation	43.001	NNX15AE36G		0	99,027
Radiative transfer in gamma-ray bursts	43.001	NNX15AE26G		0	97,731
Model Analysis of the Factors Regulating the Trends and Variability of Methane, CO2 and OH	43.001	NNX14AM38G		0	95,171
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	95,105
Development of a neural network scheme for SMAP retrieval of soil moisture at the global scale and assimilation into NWP centers	43.001	NNX15AB30G		0	92,257
Atmospheric Correction for Retrieval of Ocean Spectra from Space (ACROSS)	43.001	NNX15AD30G		0	90,243

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Probing the Magnetic Structure of Young Neutron Stars	43.001	NNX16AF30G		0	88,977
Reconstructions of a Snowball Earth: A Data/Model Perspective	43.001	NNX14AK24G		0	87,190
Combining Altimetry with Electromagnetic and Regional-climate Models for Improved Estimation of Greenland Ice Sheet Mass Balance	43.001	NNX17AH04G		12,445	86,887
Maintenance and Refinement of the NASA SWE Product through AMSR-E Historical Observations	43.001	NNX16AO75G		41,200	85,063
Laboratory Studies of Dissociative Recombinationa in Interstellar Clouds in Support of the NASA Astrophysics Missions	43.001	NNX15AL73G		0	84,278
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	82,135
Research Scanning Polarimeter (RSP) Team Support for CAMP2Ex	43.001	80NSSC18K0150		0	80,312
A Methodology for Optimizing Free Global Climate Model Parameters using NASA Observational Datasets	43.001	NNX17AF46G		0	79,400
The GAPS Experiment: A Search for Dark Matter Using Low Energy Antiprotons and Antideuterons	43.001	NNX17AB44G		0	77,585
The Impact of Cosmic Ray Pressure on Galactic Disk Dynamics and Outflows	43.001	NNX15AB20G		0	76,848
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	71,410
Total Carbon Estimation in Coastal and Freshwater Peatland Forests	43.001	80NSSC18K0469		0	64,081
Analysis of GPM observations to improve our understanding of midlatitude precipitation: A process-oriented study of extratropical cyclones	43.001	NNX16AD82G		27,461	61,912
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		60,149	60,149
Dynamics and Rates of Tidal Disruption Events	43.001	NNX17AK43G		0	59,040
The Emerging Picture of Shocks in Gamma-Ray Novae	43.001	80NSSC17K0501		0	54,913
Remote Sensing Estimate of Evapotranspiration Partitioning to Transpiration	43.001	80NSSC18K0998		0	54,694
Start up Funds for Early Career Researcher	43.001	NNX17AH08G		0	54,666
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	53,785
Measuring and Modeling the Response of the Solid Earth to Changes in the Cryosphere and the Earthquake Cycle in Southern Alaska	43.001	NNX16AK86G		0	52,671
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	49,513
Quantifying Process-based Variability and Uncertainties in Ocean, Land, and Atmosphere Forcing of Extra-tropical Droughts and Heat Waves in GISS Model E and Observations	43.001	80NSSC17K0265		0	48,598
A Snapshot Survey of the Hyades: Testing Models for Magnetic Saturation	43.001	NNX17AD71G		0	47,819
Lumped-Element Kinetic Inductance Detectors for Cosmic Microwave Background Polarimetry	43.001	NNX15AR85H		0	47,559
First-Principle Modeling of the Crab GEV Flares	43.001	NNX16AR75G		2,403	47,007
PSR J1400-1438: A Potential Laboratory for Fundamental Neutron Star Physics	43.001	NNX17AC68G		0	45,402

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Observations of biosphere-atmosphere interactions using satellite data	43.001	NNX16AO16H		0	45,000
The Impact of Organic Aerosol Volatility on Aerosol Microphysics for Global Climate Modeling Applications	43.001	80NSSC18K0184		0	44,997
Assessing the Impacts of Arctic Sea Ice Melting and Freshwater Flux on Phytoplankton Productivity and Carbon Export in the North Atlantic	43.001	NNX15AN27H		0	44,520
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	44,008
BERNARD LIPAT GRADUATE STUDENT RESEARCH PROGRAM	43.001	NNX15AN69H		0	43,579
Applying NASA Satellite Precipitation Products to Global Fire Prediction: Assimilating GPCP, TRMM and GPM into the Global Fire Weather Database	43.001	NNX16AE37G		0	42,946
Attributing the Causes of a Century of Wetting in the Eastern United States Using Observations, Models, and Tree Rings	43.001	80NSSC17K0402		0	42,081
The Energetic Magnetar in Hess J1713-381/CTB 37B	43.001	NNX17AC22G		0	41,716
Response of the Indian Ocean to Indonesian Throughflow Variability	43.001	80NSSC17K0438		0	41,699
16-NUSTAR16-0019, NuSTAR Hard X-Ray Probe into Jovian Magnetosphere in Synergy with Juno and XMN-Newton	43.001	80NSSC17K0632		0	41,503
Development and Implementation of Flood Risk Mapping, Water Bodies Monitoring and Climate Information for Disaster Management and Human Health (integration within SERVIR)	43.001	NNX12AQ70G		17,435	41,213
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	40,933
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	40,428
Glacier Changes in High Mountain Asia since 1970 - Combining Declassified Spy Satellite Imagery with Energy and Mass Balance Models	43.001	NNX16AO59H		0	40,000
Particle Acceleration and Non-Thermal Emission in Gamma-Ray Novae	43.001	NNX16AR73G		0	39,942
Advancing Total Tomography for Study of Earth s Interior	43.001	NNX17AD97G		0	39,317
Subpolar N. Atlantic air-sea fluxes associated with mid-latitude cyclones and their effect on AMOC	43.001	NNX16AC93G		35,572	39,082
Biomass burning in the NASA GISS ModelE: uncertainty and interactions between emissions, transport and chemistry	43.001	80NSSC18K0166		0	39,003
MoonDB Phase 2: Restoration of Lunar Geochronological and Lunar Meteorite Data	43.001	80NSSC18K0514		0	37,396
A VLA Survey for Transitional Millisecond Pulsars in Unassociated Fermi LAT Sources (#91230)	43.001	NNX16AR53G		0	36,209
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	35,502
Quantifying Process-based Variability and Uncertainties in Ocean, Land, and Atmosphere Forcing of Extra-tropical Droughts and Heat Waves in GISS Model E and Observations	43.001	80NSSC17K0265		0	34,556
The Neutron Star Interior Composition Explorer (NICER)	43.001	NNX17AC28G		0	31,776
The Power at the Heart of Symbiotic Stars -- Interpreting a Megasecond of X-ray and UV Observations	43.001	NNX15AF19G		0	31,382
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	31,220
Population and Infrastructure on Our Human Planet: Supporting Sustainable Development through Improved Spatial Data and Models for Human Settlements, Infrastructure and Population Distribution Based o	43.001	80NSSC18K0328		0	31,093

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Desertification or Re-greening:? Adaptation lessons learned in coping with late 20th century drought in West Africa	43.001	NNX16AN29G		0	30,837
Subsetting Tools for Advanced Analysis of Airborne Chemistry Data	43.001	NNX16AR14G		0	30,684
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	28,271
16-SWIFT 16-0015, Testing the Origin of Periodic Variability for the Binary Candidate Quasar PG1302-102	43.001	80NSSC17K0311		0	27,163
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	27,001
An Examination of Midlatitude Frontal Systems in NASA Models and Observations	43.001	80NSSC17K0195		0	25,821
A Time Series of Sea Surface Nitrate and Nitrate Based New Production in the Global Oceans	43.001	NNX13AI29A		0	23,695
Quantifying Surface Diapycnal Mixing by Mesoscale Eddies Using Satellite Observations	43.001	NNX14AI46G		0	22,499
Atmospheric Tomography Experiment (ATom)	43.001	NNX15AG58A		0	21,098
The Energetic Magnetar in Hess J1713-381/CTB 37B	43.001	NNX17AC14G		0	20,862
Science and Calibration Support for the Reflection Grating Spectrometer on the XMM-Newton Observatory	43.001	NNX17AD54G		0	20,177
Continuing the Long-Term Monitoring of the CCO Pulsar 1E1207.4-5209	43.001	NNX17AC12G		0	19,262
SU LYN: A Hard X-Ray Bright Symbiotic Star Hiding in Plain Sight	43.001	NNX17AC45G		0	18,690
Why So Much Shell Burning on the White Dwarfs in Wide Binaries?	43.001	NNX17AD94G		0	18,245
Improved Surface Mass Balance Mapping of Antartica by Quantifying Wind-blown and Sublimated Snow	43.001	NNX14AH79G		10,981	16,523
Fireball-2: Trailblazing Observations of the Space UV Circumgalactic Medium	43.001	NNX17AC54G		0	16,504
Linking Remote Sensing Data and Energy Balance Models for Scalable agriculture Insurance Systems for sub-Saharan Africa	43.001	NNX14AD62G		0	13,819
Uncovering the population of compact supermassive black hole binaries	43.001	NNX17AL82G		0	13,099
Spatial and temporal Characteristics of Sea surface Salinity Fluctuations and Links to the Marine Hydrological cycle Aquarius	43.001	NNX14AI90G		0	13,038
Towards A Global Flood & Flash Flood Early Warning Early Action System Driven by NASA Earth Observations and Hydrologic Models	43.001	80NSSC18K0342		0	12,293
The Impact of Solar Wind Ions on the Surface and Exosphere of Mercury	43.001	80NSSC18K0521		0	11,336
How the Other Half Lives: Completing the K2 Census of Low-Mass Hyads	43.001	NNX17AF73G		0	10,149
High Energy Spectroscopy of the Exceptional Millisecond Pulsar PSR B1821-24	43.001	NNX15AV29G		0	8,991
Workshop: Bridging Multi-platform Observations and Multi-scale Modeling to Constrain Ozone Dry Deposition Impacts on Atmospheric Composition, Vegetation, and Climate	43.001	80NSSC17K0193		0	6,109
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	6,034
Understanding the fundamental processes controlling the surface mass balance of the Greenland ice sheet and improving estimates	43.001	NNX16AH38G		0	5,836

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
High Resolution X-ray Spectroscopic Investigations of Cosmic Sources with Hitomi	43.001	NNX16AH43G		0	5,323
80191, Observing PSR J2032+4127, A BE Gamma-Ray Binary at Periastron	43.001	80NSSC18K0402		0	5,155
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		0	5,076
Global Variation of the Fundamental Radiative Properties of Ice Clouds	43.001	NNX14AJ28G		0	4,816
Swift Monitoring of Nearby X-Ray Binary-Radio Millisecond Pulsar Transition Objects	43.001	NNX16AN79G		0	4,540
A Framework for the Validation of Global Nighttime Environmental Products	43.001	80NSSC18K0795		0	3,332
Intraseasonal varibility and tropical cyclones in the NASA GISS General Circulation Model	43.001	NNX13AM18G		0	3,250
Iced sheet Sliding Constrained by Assimilation of Stratigraphic Data	43.001	NNX13AN57H		0	3,143
Testing the Magnetar Model for Superluminous Supernovae with Swift	43.001	NNX16AN77G		0	2,288
Interdisciplinary Research on Earth System Modeling and the Impacts of Climate Change	43.001	80NSSC17M0057		0	2,011
Oceanic freshwater flux within the upper limit limb of the shallow overturning cell	43.001	NNX14AP29H		0	1,400
Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		0	1,232
Investigating the Influence of Subglacial Hydrologic Conditions on Seasonal Velocity in Northwest Greenland	43.001	NNX15AN28H		0	1,000
Spatial and temporal Characteristics of Sea surface Salinity Fluctuations and Links to the Marine Hydrological cycle Aquarius	43.001	NNX14AI90G		0	367
Laboratory Studies of Dissociative Recombinationa in Interstellar Clouds in Support of the NASA Astrophysics Missions	43.001	NNX15AL73G		0	247
The General Antiparticle Spectrometer Experiment (GAPS): A Search For Antideuteron-Generated Dark Matter	43.001	NNX09AC16G		0	-1
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	-772
Interdisciplinary Research on Climate Science & the Impact of Climate Change	43.001	NNX10AU63A		0	-7,313
				$1,044,905	$13,029,807
Exploration					
Physical and Biological Modulators of Space Radiation Carcinogenesis: Mechanistically-Based Model D	43.003	NNX16AR81A		0	251,472
Combined effects of Space Radiation and Microgravity on the function of human capillaries and the endothelial barrier: Implications for degenerative disorders	43.003	NNX14AR22G		0	72,179
The effect of high LET radiation on differentiation and tumorigenesis in the human hematopoietic system: Modeling in vitro and in vivo for risk assessment	43.003	NNX14AC27G		0	-185
				$0	$323,465
Cross Agency Support					
BioWires: DNA-based nanowires for conductivity-enhanced, self- assembling nanoelectronics	43.009	NNX14AM51H		0	73,647

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				$0	$73,647
Space Technology					
Versatile Manipulation for Assistive Free-Flyers	43.012	NNX16AD13G		0	89,812
Ultra-Low Power CMOS-comparible Integrated Photonic Platform for Terabit-Scale Communications	43.012	NNX16AD16G		0	70,268
Ultra-Low Power CMOS-comparible Integrated Photonic Platform for Terabit-Scale Communications	43.012	NNX16AD16G		0	39,893
				$0	$199,972
Total Direct Award Programs				**$1,044,905**	**$18,523,797**
Pass-through Awards					
National Aeronautics & SpaceAdministration					
Operation, Densification, and Upgrade of Continuous GNSS Stations in Russia in the Framework of MOU between LDEO & JPL	43	JPLCIT 1452786	NAS7-03001	94,434	133,059
Columbia University Participation in The Nuclear Spectroscopic Telescope Array (NuSTAR): Bringing the High Energy Universe Into Focus (Bridge Phase)	43	CALTECH S376760	NNG08FD60C	0	127,644
Einstein Postdoctoral Fellowship for Dr. Daniel Siegel: The Transient Electromagnetic Sky from Bina	43	SAO PF6-170159	NAS8-03060	0	81,278
Understanding Planets Through Their Host Stars: Measuring Detailed Abundances of M Dwarfs	43	HST-HF2-51364.002-A	NAS5-26555	0	78,381
Einstein Postdoctoral Fellowship for Dr. Nicholas Stone:	43	SAO PF5-160145	NAS8-03060	0	74,821
Einstein Postdoctoral Fellowship for Dr. Jennifer Barnes: Transient Modeling for the Multi-Messenger Era	43	SAO PF7-180162	NAS8-03060	0	74,108
The origin of circumgalactic medium: tracing the baryon cycle via synthetic absorption line mapping	43	HST-HF2-51388.001-A	NAS5-26555	0	73,837
Understanding the Angular Momentum Content of Galaxies in Concert with Their Circumgalactic Medium	43	HST-AR-14565.005-A	NAS5-26555	0	70,854
Kinetic Inductance Detector Arrays for Very Sensitive Millimeter-Wave	43	JPLCIT 1533216	NNN12AA01C	0	65,280
PSR J2032+4127: A Be / Gamma-Ray Pulsar Binary Heading Toward Periastron	43	SAO GO7-18055X	NAS8-03060	0	64,855
Warm Gas Flows in the Coma Cluster	43	HST-GO-13382.001-A	NAS5-26555	0	55,655
Kinetic Inductance Detector Arrays for Very Sensitive Millimeter-Wave	43	JPLCIT 1533216	NNN12AA01C	0	44,559
Production of a Climate Data Record for Cloud Water Path	43	JPL 1524741	NNN12AA01C	0	39,244
Non-Thermal X-ray Emission from Tidal Disruption Flares	43	SAO GO7-18108A	NAS8-03060	0	37,609
Einstein Postdoctoral Fellowship for Dr. Daniel Siegel: The Transient Electromagnetic Sky from Bina	43	SAO PF6-170159	NAS8-03060	0	34,795
Identifying Fermi Sources as Transitional Millisecond Pulsar Binaries	43	SAO GO6-17027X	NAS8-03060	0	27,803

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Einstein Postdoctoral Fellowship for Dr. Jennifer Barnes: Transient Modeling for the Multi-Messenger Era	43	SAO PF7-180162	NAS8-03060	0	26,390
Einstein Postdoctoral Fellowship for Dr. Nicholas Stone:	43	SAO PF5-160145	NAS8-03060	0	26,173
Connecting Precipitation to Clouds and the Large-Scale Circulation by Atmospheric Processes: Water Budget Oriented Analysis	43	JPL 1548062	NNN12AA01C	0	24,553
Galactic Accretion Unveiled: A Unique Opportunity with COS and M33	43	HST-GO-13706.002-A	NAS5-26555	0	20,738
The origin of circumgalactic medium: tracing the baryon cycle via synthetic absorption line mapping	43	HST-HF2-51388.001-A	NAS5-26555	0	20,406
Advanced FUVUV/Visible Photon Counting and Ultralow Noise Detectors Year 1	43	JPLCIT 1570533	NNN12AA01C	0	19,818
Columbia University Participation in The Nuclear Spectroscopic Telescope Array (NuSTAR): Bringing the High Energy Universe Into Focus (Bridge Phase)	43	CALTECH S376760	NNG08FD60C	0	18,575
Joint Chandra/VLA Observations of PSR J1023+0038: A Unique Testbed for Accretion and Jet Formation Physics	43	SAO GO6-17034X	NAS8-03060	0	15,844
Support of the MESSENGER Principal Investigator	43	CIW DTM-3250-1123	NASW-0002	0	14,267
Enhanced rates of tidal disruptions in E+A galaxies: resolving the central dynamics of post-starburst galactic nuclei with HST observations	43	HST-GO-14785.004-A	NAS5-26555	0	12,721
Measuring the Properties of Dwarf Streams	43	HST-GO-13383.001-A	NAS5-26555	0	12,627
Understanding Planets Through Their Host Stars: Measuring Detailed Abundances of M Dwarfs	43	HST-HF2-51364.002-A	NAS5-26555	0	11,398
Advanced FUVUV/Visible Photon Counting and Ultralow Noise Detectors Year 1	43	JPLCIT 1570533	NNN12AA01C	0	10,153
The Accretion Disk of a Rare Jet-Driving Symbiotic Binary During it s Brightest Outburst in a ~ Century	43	SAO DD6-17080X	NAS8-03060	0	9,388
Time-Resolved Ultraviolet Spectroscopy of the Missing Link Pulsar/LMXB PSR J1023	43	HST-GO-13630-002.A	NAS5-26555	0	9,344
Target-of-Opportunity Chandra Observations of Magnetars in Outburst	43	SAO GO7-18053X	NAS8-03060	0	7,500
The Role of Shocks in the Appearance and Aftermath of Stellar Mergers and Type IIn Supernovae	43	HST-AR-15041.001-A	NAS5-26555	0	7,255
Validating the Presence of a Moon Orbiting Kepler-1625b	43	HST-GO-15149.002-A	NAS5-26555	0	6,954
A Redback Millisecond Pulsar with Variable Heating	43	SAO GO7-18047X	NAS8-03060	0	1,784
Coordinated X-Ray and Radio Observations of the Repeating Fast Radio Burst FRB 121102	43	SAO GO7-18059A	NAS8-03060	0	954
WFIRST Infrared Nearby Galaxy Survey	43	UWASH UWSC9083	NNG16PJ28C	0	-540
				$94,434	$1,360,084

Science

LIDAR, Passive Spectral, and Ecophysiological Approaches to link Forest Tundra Ecotone Structure and Function	43.001	UOFIA GTK006-SB-001	NNX15AT86A	0	206,782
Understanding and Forecasting Changes in High Mountain Asia Snow Hydrology via a Novel Bayesian Reanalysis and Modeling Approach	43.001	UCLA 0135 G VA160	NNX16AQ63G	0	195,386
Continuation of AMASR-E Earth Science Data Records with JAXA AMSR2	43.001	UOA 2016-044	NNX13AN44GG	0	119,996

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Collaborative Research: Earth Venture Suborbital -2 Oceans Melting Greenland (OMG)	43.001	JPL 1525063	NNN12AA01C	0	113,281
Fluxes of Heat, Carbon, and Oxygen at SWOT Scales	43.001	NYU F7831-01	NNX16AJ35G	0	94,624
Computational Technologies: An Assessment of Hybrid Quantum Annealing Through Mission Related Approaches for Inferring and Assimilating Satellite Surface Flux Data into Global Land Surface Models	43.001	UMARY 0000020109	80NSSC17K0285	0	66,074
Turbulence, gravity waves, and instability dynamics observed in polar mesospheric clouds	43.001	GATS SC 160002	NNX16AF64G	0	63,757
Subcontract: A Peek at the Past of Greenland Ice Sheet using Radar Layers and Modeling	43.001	JPLCIT 1569119	NNH15ZDA001N-CRYO	0	63,311
Climate-driven Impacts on the Marine Ecology, Biogeochemistry, and Carbon Cycle of the West Antarctic Peninsula	43.001	WHOI A101144	NNX14AL86G	0	46,206
Developing a Mechanistic Understanding of Variability in the Atmospheric CO2 Growth Rate owing to Interannual Climate Oscillations	43.001	UMICHG 3004565769	NNX17AK19G	0	35,331
Observation-System Simulation Experiments (OSSEs) and seasonal forecasts to support EXPORTS	43.001	USRA 05754-01	NNX16AR51G	0	28,012
Improving the Accuracy of Geodetic System Ties at Core Sites through Estimation on Strategies that Exploit Atmospheric Structure	43.001	MIT 24825	NNX17AG98G	0	24,786
Turbulence, gravity waves, and instability dynamics observed in polar mesospheric clouds	43.001	GATS SC 160002	NNX16AF64G	0	24,785
Lunar Impact Melt Flows: Geological Mapping, Experimental Simulation, and Numerical Modeling	43.001	UA 295634	NNX15AL60G	0	23,883
Ecological and Sociodemographic Determinants and Impacts of Urbanization and Restoration on Intertwined Urban-wetland-estuarine	43.001	CCONY 49A37-B	80NSSC17K0258	0	23,038
From the Ice Sheet to the Sea: An Interdisciplinary Study of the Impact of Extreme Melt on Ocean Stratification and Productivity near West Greenland	43.001	UOG RR175-257/S001110	NNX14AD98G	0	19,070
Subcontract: Joint Radar and Model Investigations of Greenland Basal Water Conditions	43.001	SU 61372951-124103	NNX16AJ95G	0	17,108
A Multi-Frequency Campaign to Probe Uranus Dynamics and Deep Atmospheric Structure	43.001	UCB 00009673	NNX16AK14G	0	12,347
Blazar emission modeling: going beyond the spherical cows	43.001	PURDUNIV 4103-84001	NNX17AG21G	0	11,008
A CloudSat, CALIPSO, and A-Train-Based Examination of Aerosols, Cloud Structure, and Cloud Radiative Forcing in Midlatitude Cyclones	43.001	UMICH 3002866440	NNX13AQ33G	0	10,027
The Detection of Hidden Worlds in Kepler Data	43.001	SRI No. J99019CO	NNX15AF09G	0	8,571
Stage 2: Developing Global Building Exposure for Disaster Forecasting, Mitigation and Response	43.001	IMAGE 14-94-02:02	NNX14AQ13G	0	7,958
Predicting Climatic/Hydrologic Extremes inthe Greater Horn of Africa Under Evolving Climate Conditions to Support Mitigation and Adaptation Strategies	43.001	25-6238-0676-003	NNX14AD30G	0	3,473
				$0	$1,218,812

Exploration

Space radiation and gastrointestinal cancer: A comprehensive strategy for risk assessment and model development	43.003	GU 410967 GR410946-CU-Project	NNX15AI21G	0	48,364
A Mechanistic Framework to Assess the Efficacy of Aspirin and other Radioprotectors to Reduce Carcinogenesis by Space Radiations	43.003	BCMH CU17-2236	NNX16A069A	0	36,849
				$0	$85,213

Education

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NASA / NEW YORK SPACE GRANT CONSORTIUM: NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM 2015-18	43.008	CU 76156-10486	NNX15AK07H	0	27,643
NASA / NEW YORK SPACE GRANT CONSORTIUM: NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM 2015-18	43.008	CU 76156-10486	NNX15AK07H	0	10,000
				$0	$37,643
Total Pass-through Programs				**$94,434**	**$2,701,752**
Total: National Aeronautics & Space Administration				**$1,139,339**	**$21,225,550**
Department of Energy					
Direct Awards					
Brookhaven National Laboratory					
MOU/BNL for Oleg Gang	81	BNL CU16-2135		0	241,224
MOU/BNL for Oleg Gang	81	BNL CU16-2135		0	29,887
				$0	$271,112
Office of Science Financial Assistance Program					
Theoretical High Energy Physics	81.049	DE-SC0011941		0	1,017,001
HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	671,688
Jet and Heavy Flavor Probes of the Quark-Gluon Plasma	81.049	DE-FG02-86ER40281		0	608,191
DNA Grafting Building Blocks Designed to Self-Assemble into Desired Nanostructures	81.049	DE-SC0008772		222,301	546,616
MAGNETOHYDRODYNAMICS MODE CONTROL RESEARCH IN DIII-D	81.049	DE-FG02-04ER54761		0	544,525
Disruption Prediction and Avoidance in High Beta long pulse KSTAR Plasmas	81.049	DE-SC0016614		0	518,178
MAGNETO HYDRODYNAM STABILITY/ACTIVE MODE CONTROL- OFF CAMPUS THE NATIONAL SPHERICAL TORUS EXPERIMENT	81.049	DE-FG02-99ER54524		0	377,258
Quantum transport in 2D semiconductors	81.049	DE-SC0016703		0	282,648
STELLARATORY THEORY DESIGN	81.049	DE-FG02-95ER54333		0	250,328
Characterization of oceanic post-cold frontal clouds and their model representation	81.049	DE-SC0016344		178,205	236,546
Catalytic Applications of H Atom Transfer from Transition-Metal Hydride Complexes-04	81.049	DE-FG02-97ER14807		0	225,686
Structure-property relationship in metal carbides and bimetallic alloys	81.049	DE-SC0009476		0	213,811
Dedicated Beamline Facilities for Catalytic Research: Synchrotron Catalysis Consortium (SCC)	81.049	DE-SC0012653		73,284	202,866

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Building a Toolbox of Singlet Fission Molecules for Solar Energy Conversion	81.049	DE-SC0014563		0	194,444
A new approach to the interacting phonon problem	81.049	DE-SC0016507		0	171,545
HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	169,730
Fundamental Studies of Metal Centered Transformations Relavant to Catalysis	81.049	DE-FG02-93ER14339		0	169,710
Synthesis of Observed and Simulated Rain Microphysics to Inform a new Bayesian Statistical Framework for Microphysical Parameterization in Climate Models	81.049	DE-SC0016579		114,042	162,406
Stability Research for Disruption Prediction and Avoidance in MAST-U Spherical Tokamak Plasmas	81.049	DE-SC0018623		0	149,965
Nonlinear Dynamics of Strong Interchange Instabilities in a Rotating Dipole-Confined Plasma	81.049	DE-FG02-00ER54585		0	146,115
Catalytic Growth of Molecular-Scale Wiring	81.049	DE-FG02-01ER15264		0	144,400
Transient Superconductivity at Nano-and Meso-Scales	81.049	DE-SC0018218		127,766	142,766
Physics and Control of Disruptive Locked Modes at DIII-D	81.049	DE-SC0016372		0	130,857
Dedicated Beamline Facilities for Catalytic Research: Synchrotron Catalysis Consortium (SCC)	81.049	DE-SC0012653		0	130,302
Electronic and Photonic Phenomena in Graphene-Based Heterostructures	81.049	DE-SC0018426		0	126,177
Transient Superconductivity at Nano-and Meso-Scales	81.049	DE-SC0018218		0	117,256
Understanding Recent Global Hydroclimate Change using Multivariate Detection and Attribution Techniques and GCM Experiments	81.049	DE-SC0014423		0	114,608
Charge carrier dynamics in hybrid organic-inorganic semiconductors	81.049	DE-SC0010692		0	113,729
RESISTIVE WALL MODES AND ERROR FIELD AMPLIFICATION	81.049	DE-FG02-03ER54696		0	101,907
Understanding Recent Global Hydroclimate Change using Multivariate Detection and Attribution Techniques and GCM Experiments	81.049	DE-SC0014423		0	101,656
Cross-Scal Land-Atmosphere Experiment (CSLAEX)	81.049	DE-SC0014203		0	96,218
Regularized Finite Element Formulations for Shear Band Instabilities in Metals	81.049	DE-SC0008196		0	94,544
Transient Superconductivity at Nano-and Meso-Scales	81.049	DE-SC0018218		0	91,718
Collaborative Research: Explosive Reconnection in Relativistic Magnetically-Dominated Plasmas	81.049	DE-SC0016542		0	87,131
Simulation Center for Runaway Electron Avoidance and Mitigation	81.049	DE-SC0016347		0	80,117
Fundamental Studies in Basic Plasma Science: Investigations of Alfven Wave Damping Processes Relevant to the Solar Corona	81.049	DE-SC0016602		0	64,713
Stability and Control of Burning Tokamak Plasmas with Resistive Walls	81.049	DE-SC0014119		0	51,657
Transient Superconductivity at Nano-and Meso-Scales	81.049	DE-SC0018218		0	47,489
HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	46,245

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MAGNETO HYDRODYNAM STABILITY/ACTIVE MODE CONTROL- OFF CAMPUS THE NATIONAL SPHERICAL TORUS EXPERIMENT	81.049	DE-FG02-99ER54524		0	43,576
Jet and Heavy Flavor Probes of the Quark-Gluon Plasma	81.049	DE-FG02-86ER40281		0	24,991
Assembling Microorganisms into Energy Converting Materials	81.049	DE-SC0007999		0	23,600
Using Crystallization to Control Filler Dispersion and Vice Versa n Polymer Nanocomposites	81.049	DE-SC0018111		0	18,908
Theoretical High Energy Physics	81.049	DE-SC0011941		0	17,449
Theoretical High Energy Physics	81.049	DE-SC0011941		0	17,293
Nonlinear Dynamics of Strong Interchange Instabilities in a Rotating Dipole-Confined Plasma	81.049	DE-FG02-00ER54585		0	10,498
Charge carrier dynamics in hybrid organic-inorganic semiconductors	81.049	DE-SC0010692		0	10,059
Theoretical High Energy Physics	81.049	DE-SC0011941		0	8,741
Theoretical High Energy Physics	81.049	DE-SC0011941		0	7,315
Theoretical High Energy Physics	81.049	DE-SC0011941		0	6,229
Theoretical High Energy Physics	81.049	DE-SC0011941		0	6,145
Theoretical High Energy Physics	81.049	DE-SC0011941		0	3,195
Theoretical High Energy Physics	81.049	DE-SC0011941		0	1,880
Theoretical High Energy Physics	81.049	DE-SC0011941		0	1,581
Theoretical High Energy Physics	81.049	DE-SC0011941		0	1,221
Laser Dynamic Studies of Photoreactions of Single-Crystal and Nanostructured Surfaces	81.049	DE-FG02-90ER14104		0	960
Mapping the Electron Response of Nanomaterials	81.049	DE-FG02-04ER46157		0	120
Laser Dynamic Studies of Photoreactions of Single-Crystal and Nanostructured Surfaces	81.049	DE-FG02-90ER14104		0	-18,696
				$715,599	$8,927,811
Conservation Research and Development					
Reducing plug-load electricity footprint of residential buildings through low-cost, non-intrusive sub-metering and personalized feedback technology	81.086	DE-EE0007684		30,000	289,517
Graded Alloy Quantum Dots for Energy Efficient Solid State Lighting	81.086	DE-EE0007628		42,805	260,952
Reducing plug-load electricity footprint of residential buildings through low-cost, non-intrusive sub-metering and personalized feedback technology	81.086	DE-EE0007684		0	114,336
				$72,805	$664,805
Fossil Energy Research and Development					

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Integrated Pre-Feasibility Study for CO2 Geological Storage in the Cascadia Basin: Offshore Washington State and British Columbia	81.089	DE-FE0029219		87,050	480,212
Integrated Pre-Feasibility Study for CO2 Geological Storage in the Cascadia Basin: Offshore Washington State and British Columbia	81.089	DE-FE0029219		0	137,039
Integrated Pre-Feasibility Study for CO2 Geological Storage in the Cascadia Basin: Offshore Washington State and British Columbia	81.089	DE-FE0029219		0	13,323
				$87,050	$630,574
Nuclear Energy Research, Development and Demonstration					
An integrated multiscale experimental-numerical analysis on re-consolication of scale-clay mixure for disposal of heat-generating waste	81.121	DE-NE0008534		0	142,607
				$0	$142,607
Advanced Research Projects Agency - Energy					
Vertical GaN transistors using controlled spalling for substrate heterogeneity	81.135	DE-AR0000452		424,173	1,086,483
PINE: Photonic Integrated Network Energy Efficient Datacenters	81.135	DE-AR0000843		0	209,787
PINE: Photonic Integrated Network Energy Efficient Datacenters	81.135	DE-AR0000843		171,023	208,896
PINE: Photonic Integrated Network Energy Efficient Datacenters	81.135	DE-AR0000843		0	137,920
Demonstration of Near-Field Thermophotovolatiuc (TPV) Energy Generation	81.135	DE-AR0000731		131,543	131,543
PINE: Photonic Integrated Network Energy Efficient Datacenters	81.135	DE-AR0000843		0	123,063
PINE: Photonic Integrated Network Energy Efficient Datacenters	81.135	DE-AR0000843		0	47,810
Demonstration of Near-Field Thermophotovolatiuc (TPV) Energy Generation	81.135	DE-AR0000731		0	34,244
Can so con photonics offer a path to low power computing after all?	81.135	DE-AR0000720		0	-728
Can so con photonics offer a path to low power computing after all?	81.135	DE-AR0000720		0	-2,608
Co-Generation of Fuels During Copper Bioleaching	81.135	DE-AR0000553		0	-22,042
				$726,739	$1,954,367
Total Direct Award Programs				**$1,602,193**	**$12,591,275**
Pass-through Awards					
Department of Energy					
Photonic Interconnect for Exascale	81	HEWLET CW458432	DE-AC52-07NA27344	0	545,021
Project Controls Support, U.S. ATLAS HL-LHC Upgrade	81	BNL 334322	DE-SC0012704	0	319,603

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Dynamical Mean Field Theory for Realistic Models of Correlated Materials	81	ARGNTL 7F-30011	DE-AC02-06CH11357	0	136,185
Joint Appointment agreement between BSA/BNL and Columbia for Jingguang Chen s Salary	81	BNL CU13-1454	DE-AC02-98CH10886	0	134,711
The Nanostructure Problem in Strongly Correlated Electron and Related Materials	81	BNL CU08-9027	DE-AC02-98CH10886	0	125,088
Advanced Machine Learning for Synvhrophasor Technology	81	LANL 398437	DE-AC52-06NA25396	0	112,849
Exascale Lattice Gauge Theory Opportunities/Requirements for Nuclear & High Energy Physics	81	BNL 333581	DE-SC0012704	0	109,472
The Nanostructure Problem in Strongly Correlated Electron and Related Materials	81	BNL CU08-9027	DE-AC02-98CH10886	0	105,074
Deputy Project manager for the US-ATLAS HL-LHC Upgrade Project	81	BNL 332054	DE-SC0012704	0	97,311
Incorporating Silicon Photonics at the System Level	81	SANDIA 1319001	DE-AC04-94AL85000	0	95,434
Photonic Integrated Circuits for Terabit per Second Optical Networks	81	FREEDOMP CU16-0418	DOE CU16-0418	0	86,297
NOMAD as a high throughput instrument for materials genomics studies	81	ORNL 4000156508	DE-AC05-00OR22725	0	62,034
Advanced Machine Learning for Synvhrophasor Technology	81	LANL 398437	DE-AC52-06NA25396	0	61,667
Graduate Student Support for Christianna Lininger DFT Studies of Ferrite Materials	81	BNL 336515	DOE CU17-1774	0	60,714
US-Israel Desalination Design Competition	81	ORNL 4000153171	DE-AC05-00OR22725	0	53,508
Design of Carbide and Bimetallic Catalysts and Electrocatalysts	81	BNL NO.233521	DE-AC02-98CH10886	0	51,538
GO ORNL PROGRAM for Nikhil Rampal	81	ORNL 4000160263	DE-AC05-00OR22725	0	32,786
Foundations of Rigorous Mathematics for Uncertainty Quantification in Large Systems at the Extreme Scale	81	ORNL 4000144755	DE-AC05-00OR22725	0	29,846
BNL Graduate Student Support	81	BNL 343987	DE-SC0012704	0	27,593
The ChemistryHUB.org: Webenabled Multiscale materials and Chemistry Hub	81	IR-2017Sub-001	DE-SC0017099	0	24,738
Energy/Water Nexus Knowledge Discovery Framework (EWN-KDF)	81	ORNL 4000152843	DE-AC05-00OR22725	0	20,350
Joint Brookhaven-Columbia Appointment for Dr. Zhihua Dong	81	BNL CU16-0940	DE-SC0012704	0	19,728
Integrated Modeling and Co-Design Environment for Photonic Interconnected Multi-Level Memory Computing Systems	81	LBNL No.7257488	DE-AC02-05CH11231	0	17,037
The fundamental studies of the electronic structure and carrier dynamics in 2D RPPs	81	BNL 331361	DE-SC0012704	0	11,739
sPHENIX detector at RHIC in FY14/15	81	BNL 268332	DE-AC02-98CH10886	0	9,579
sPHENIX EMCAL Detector Upgrade at RHIC	81	BNL 346171	DE-SC0012704	0	5,342
sPHENIX detector at RHIC in FY14/15	81	BNL 268332	DE-AC02-98CH10886	0	4,561
Scalable Forecasting for Improving Grid Efficiency and Resiliency	81	NREL XHA-8-70349-01	DE-AC36-08GO28308	0	2,170

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Postdoctoral work on the Optical Characterization of Hybrid Organic-Inorganic Materials for Light Harvesting Applications	81	BNL 324471	DE-SC0012704	0	-7,525
				$0	$2,354,451
Office of Science Financial Assistance Program					
Mid-Atlantic Offshore Carbon Storage Resource Assessment Project	81.049	BMI 504916	DE-FE0026087	79,431	210,349
EFRC: Center for Mesoscale Conductivity	81.049	RFSUNY 68856	DE-SC0012673	0	145,313
Rational Design of Innovative Catalytic Technologies for Biomass Derivative Utilization	81.049	UD 32826	DE-SC0001004	0	141,985
Center for Bio-Inspired Energy Science (CBES)	81.049	SP0027267-PROJ0011442	DE-SC0000989	0	134,943
Integration of AgMIP results for the development of agricultural response functions for PNNL Models	81.049	PNNL 296668	DE-AC05-76RL01830	0	93,052
Brookhaven Joint Appointment Acknowledgement Agreement	81.049	BNL CU16-1657	DE-AC02-98CH10886	0	87,122
TURBO: Terabits/s Using Reconfigurable Bandwidth Optics	81.049	UARIZONA 335551	DE-SC0015867	0	80,659
Ultrafast Creation of Emergent Phenomena and Metastable Phases in Complex	81.049	PSU 5710-CU-DOE-2375	DE-SC0012375	0	77,204
Bayesian Cloud Property Retrievals from ARM Active and Passive Measurements	81.049	UCLA 2095 G UA028	DE-SC0016118	0	73,811
Ultrafast Creation of Emergent Phenomena and Metastable Phases in Complex	81.049	PSU 5710-CU-DOE-2375	DE-SC0012375	0	71,080
Dynamic Visualization and Control of Emergent Phases in Complex Oxide Heterostructures	81.049	PSU 5064-CU-DOE-2375	DE-SC0012375	0	50,308
Studies of Reactive Amorphous Compounds and Surfaces: Their Pathways to Crystallinity and Surface Functionality	81.049	TAMU 02-M1800290	DE-SC0017864	0	43,975
Rational Design of Innovative Catalytic Technologies for Biomass Derivative Utilization	81.049	UD 32826	DE-SC0001004	0	25,311
Photonic-Storage Subsystem Input/Output	81.049	EMU 001	DE-SC0018472	0	21,729
Ultrafast Infrared Nano-spectroscopy and Nano-imaging of Unconventional Superconductivity in Cuprate and Pnictide High-Tc Systems	81.049	UCSD 54554030	DE-SC0012592	0	8,860
EFRC: Center for Mesoscale Conductivity	81.049	RFSUNY 68856	DE-SC0012673	0	374
				$79,431	$1,266,076
Renewable Energy Research and Development					
Improved Performance and Reliability of Cu(InGa)(SeS)2 PV Modules using the Reaction of Metal Precursors	81.087	UDELAWARE 48779	DE-EE0007542	0	72,846
				$0	$72,846
Fossil Energy Research and Development					
Deepwater Methane Hydrate Characterization in the Gulf of Mexico: Scientific Assessment and Production Potential	81.089	UTA14-001159	DE-FE0023919	0	268,685

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Photonic Memory Controller Module (P-MCM)	81.089	FP S7092-01	DOE CU16-3450	0	67,500
Photonic Memory Controller Module (P-MCM)	81.089	AP CU16-3448	DOE CU16-3448	0	62,652
Photonic Memory Controller Module (P-MCM)	81.089	PLCC CU16-3438	DOE CU16-3438	0	56,930
Mechanisms for Metyhane Transport and Hydrate Accumulation in Coarse-grained Reservoirs	81.089	UTEXAUS UTA13-001088	DE-FE0013919	0	42,442
				$0	$498,209
Defense Nuclear Nonproliferation Research					
Consortium for Verification Technology	81.113	UMICHG 3003222364	DE-NA002534	0	364,238
				$0	$364,238
Advanced Research Projects Agency - Energy					
High Fidelity, Year Long Power Network Data Sets for Replicable Power System Research	81.135	UMICH 3004152692	DE-AR0000715	0	37,254
				$0	$37,254
Total Pass-through Programs				**$79,431**	**$4,593,074**
Total: Department of Energy				**$1,681,624**	**$17,184,349**
Department of Defense					
Direct Awards					
Defense Advanced Research Projects Agency					
BISC: Bioelectronic Interfacing to Sensory Cortex with massive, fully implanted, flexible wireless CMOS surface recording and stimulating arrays	12	N66001-17-C-4002		1,358,648	2,588,787
Breaking the Code: Engineering Neural Controllers and Behavior in Hydra	12	DARPA HR0011-17-C-0026		1,000,840	1,784,595
Hardware-Up Security: Anti-fragility and Automation	12	HR001118C0017		9,780	471,282
BISC: Bioelectronic Interfacing to Sensory Cortex with massive, fully implanted, flexible wireless CMOS surface recording and stimulating arrays	12	N66001-17-C-4002		0	262,480
BISC: Bioelectronic Interfacing to Sensory Cortex with massive, fully implanted, flexible wireless CMOS surface recording and stimulating arrays	12	N66001-17-C-4002		0	213,429
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	191,256
Hardware-Up Security: Anti-fragility and Automation	12	HR001118C0017		0	185,614
A scalable peptide/GPCR communication language	12	HR0011-15-2-0032		68,941	167,777
BISC: Bioelectronic Interfacing to Sensory Cortex with massive, fully implanted, flexible wireless CMOS surface recording and stimulating arrays	12	N66001-17-C-4002		0	153,473

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Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	140,342
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	118,522
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	108,290
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	48,839
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	27,760
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	20,668
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	10,627
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	-171
Defense Threat Reduction Agency					
Developing Real-Time Forecasts of Infectious Diseases	12	DTRA HDTRA 1-15-C-0018		0	481,256
Developing Real-Time Forecasts of Infectious Diseases	12	DTRA HDTRA 1-15-C-0018		0	-13,206
Department of the Army					
Defining the Role of the 5-HT4 Receptor in the Brain, Behavior, and Gut Abnormalities Resulting from in Utero SSRI Exposure	12	W81XWH-17-1-0166		13,128	203,463
Intelligence Advanced Research ProjectsActivity					
System for CRoss-Language Information Processing, Translation, and Summarization (SCRIPTS)	12	FA8650-17-C-9117		126,812	919,509
System for CRoss-Language Information Processing, Translation, and Summarization (SCRIPTS)	12	FA8650-17-C-9117		0	144,164
System for CRoss-Language Information Processing, Translation, and Summarization (SCRIPTS)	12	FA8650-17-C-9117		0	108,345
				$2,578,149	$8,337,099
Basic and Applied Scientific Research					
Perfect Semiconductors from Imperfect Materials: Dynamic Screening as a Design Principle	12.300	N00014-18-1-2080		0	557,927
New frontiers of nano-photonics: multi-THz imaging and spectroscopy of graphene based nanostructure	12.300	N00014-15-1-2671		184,553	438,868
The YOLO Approach to Resilient Cyber Physical Systems	12.300	N00014-15-1-2173		0	355,344
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		208,716	331,483
BUDDY: TCB Hardening for Cyber Physical Systems	12.300	N00014-17-1-2010		0	305,009
BUDDY: TCB Hardening for Cyber Physical Systems	12.300	N00014-17-1-2010		0	298,204

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R&D Cluster

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BUDDY: TCB Hardening for Cyber Physical Systems	12.300	N00014-17-1-2010		0	289,148
Next-Generation Variational Methods: Active Inference, Streaming Inference, and Assessing Model Fitness	12.300	N00014-15-1-2209		0	273,130
Strategic Dynamic of Cyber Conflict	12.300	N00014-17-1-2423		0	261,937
Adapting Static and Dynamic Program Analysis to Effectively Harden Debloated Software	12.300	N00014-16-1-2263		0	220,568
Phase-Change Correlated Perovskites as a New Platform for Photonics	12.300	N00014-16-1-2442		0	199,326
Biologically inspired architectures for evaporation-driven active materials	12.300	N00014-16-1-2449		0	186,717
Next-Generation Massively Parallel Cellular Biosurveillance and Recording Devices	12.300	N00014-17-1-2353		0	185,877
Collaborative Dexterous Manipulation: Mechanisms and Interfaces	12.300	N00014-16-1-2026		0	183,898
High Performance Organic Solar Cells from Conjugated Ribbons	12.300	N00014-17-1-2205		0	172,427
A Foundational Synthetic Biology Toolbox for Engineering Human But Microbiota towards Enhancing Warfighter Capabilites	12.300	N00014-15-1-2704		0	171,010
Development of Singlet Fission Materials for Third-Generation Solar Cells	12.300	N00014-15-1-2532		0	165,487
Low Latitude Indian to Western Pacific, From 40E to 160E	12.300	N00014-16-1-2480		0	152,901
Multifunctional Weathering System for Life Cycle Performance Investigation of Emerging Polymer Materials and Structures	12.300	N00014-13-1-0795		0	148,000
Designer 2D bandstructures by superlattice patterning of layered materials	12.300	N00014-17-1-2832		0	144,698
Multimodal matrix and tensor factorization methods exploiting strong structural and side information	12.300	N00014-17-1-2843		0	132,262
Causal inference using hierarchical and nonparametric Bayesian interaction models	12.300	N00014-17-1-2141		18,549	128,095
A Mobile Manipulation Platform for Collaborative Human-Robot Dexterous Manipulation	12.300	N00014-16-1-3176		0	122,870
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		0	122,319
Graphene-Silicon Photonics for Extreme Sensitivity, Cryogenic-Room Temperature Dense WDM Interconnects	12.300	N00014-16-1-2219		0	116,096
Graphene-Silicon Photonics for Extreme Sensitivity, Cryogenic-Room Temperature Dense WDM Interconnects	12.300	N00014-16-1-2219		0	109,921
Precision Photodissociation: a New Tool for Ultracold Chemistry and Physics, and a Source of Novel	12.300	N00014-17-1-2246		0	96,597
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		2,688	92,219
Fundamental Limits and Efficient Algorithms for Tensor Inverse Problems	12.300	N00014-17-1-2827		0	87,548
Culture in Power Transitions: Sino-American Conflict in the 21st Century	12.300	N00014-15-1-0039/N00014-16-1-2		0	85,779
Fabrication of Large Format Imaging Systems	12.300	N00014-15-1-2902		0	84,243
Development of predictive modeling and simulation capabilities	12.300	N00014-15-1-2053		0	82,815

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Informative priors for Bayesian inference and regularization	12.300	N00014-15-1-2541		0	82,798
Computational Certification Under Limited Experimental Data	12.300	N00014-17-1-2038		0	68,805
High Performance Organic Solar Cells from Conjugated Ribbons	12.300	N00014-17-1-2205		0	58,925
Dynamics and Prediction of the Boreal Summer Intraseasonal Oscillation in the Maritime Continent	12.300	N00014-16-1-3073		0	55,801
Practical algorithms for polynomial optimization	12.300	N00014-16-1-2889		0	55,096
Multiscale Mesh-Based Meshless Method M4	12.300	N00014-17-1-2085		0	50,415
Towards Flexible Sheet Cameras	12.300	N00014-16-1-2152		45,949	45,949
Bay of Bengal Intraseasonal Oscillations and the Upper Ocean Mesoscale	12.300	N00014-17-1-2394		0	43,026
Culture in Power Transitions: Sino-American Conflict in the 21st Century	12.300	N00014-15-1-0039/N00014-16-1-2		0	42,094
Basic science with an ultracold molecule clock: forbidden transitions, nonadiabatic physics, and precision metrology	12.300	N00014-14-1-0802/N00014-16-1-2		0	34,558
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		0	34,298
Biologically Inspired Architectures for Evaporation-Driven Active Materials	12.300	N00014-17-1-2821		0	29,586
The Role of Clandestine Capabilities in Deterrence: Theory and Practice	12.300	NPS N00244-16-1-0032		-668	19,593
Analysis of Riverine Skin Temperature Response to Surface and Subsurface Processes	12.300	N00014-15-1-2153		0	19,049
Dynamics and Prediction of the Boreal Summer Intraseasonal Oscillation in the Maritime Continent	12.300	N00014-16-1-3073		0	13,172
Scanned Probe and Electrical Characterization of One and Two Dimensional Materials	12.300	N00014-17-1-2967		0	7,061
Support for Recombinant Type Materials symposium at the 254th ACS National Meeting	12.300	N00014-17-1-2596		0	6,000
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		4,323	4,323
Towards Flexible Sheet Cameras	12.300	N00014-16-1-2152		0	3,591
Decentrailzed Signal Processing based on Very-low-rate Sampling: Theory and Applications	12.300	N00014-14-1-0667		0	1,429
LITHOGRAPHICALLY DIRECTED BIOMOLECULAR ASSEMBLY OF FUNCTIONA L NANOSTRUCTURES FOR SUB-10 NM ELECTRONIC DEVICES	12.300	N00014-09-1-0250		0	-1
Towards Flexible Sheet Cameras	12.300	N00014-16-1-2152		0	-3,190
Culture in Power Transitions: Sino-American Conflict in the 21st Century	12.300	N00014-15-1-0039/N00014-16-1-2		0	-4,705
				$464,109	$6,970,391
Scientific Research - Combating Weapons of Mass Destruction					
Investigation of Data-Intensive Discovery Methods for Improved Seismic Monitoring	12.351	HDTRA1-11-1-0027		77,434	208,207

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Development of Inhibitors of the Aging Process of Organophosphate Adducts of AChE	12.351	HDTRA1-16-1-0053		0	154,137
Power Grid Vulnerability and Resilience to Geographically Correlated Failures	12.351	HDTRA1-13-1-0021		129,402	153,182
DTRA2013-Enzyme Cascades	12.351	HDTRA1-14-1-0051		0	145,498
Development of Inhibitors of the Aging Process of Organophosphate Adducts of AChE	12.351	HDTRA1-16-1-0053		0	35,779
Power Grid Vulnerability and Resilience to Geographically Correlated Failures	12.351	HDTRA1-13-1-0021		0	28,195
DTRA2013-Enzyme Cascades	12.351	HDTRA1-14-1-0051		0	9,696
				$206,836	$734,694
Military Medical Research and Development					
Programmable Probiotics as Primary and Metastatic Breast Cancer Therapeutics	12.420	W81XWH-17-1-0356		0	1,071,623
GREAT-SF (Grief REsilience Activities and Training For Surviving Families): an Online Selective Intervention for Bereved Military Families	12.420	W81XWH-15-2-0043		0	745,268
Multispecies, Integrative GWAS for Focal Segmental Glomerulosclerosis	12.420	W81XWH-16-1-0450		0	411,005
Multispecies, Integrative GWAS for Focal Segmental Glomerulosclerosis	12.420	W81XWH-16-1-0451		0	377,120
Actin fence therapy for Acute Lung Injury	12.420	W81XWH-16-1-0368		0	358,209
Establishment of donor Chimerism Using Allogeneic Bone Marrow with AMP Cell Co-infusion	12.420	W81XWH-15-1-0234		0	259,352
Programmable probiotics for early detection of lung cancer	12.420	W81XWH-17-1-0395		20,105	240,038
Prevention and Treatment of Neurofibromatosis Type 1- Associated Malignant Peripheral Nerve Sheath Tumors	12.420	W81XWH-14-1-0073		0	235,996
Investigation of a Putative Prostate Stem Cell Niche	12.420	W81XWH-16-1-0345		0	220,782
Racial Disparities in the Initiation and Intensity of Adjuvant Therapy for Breast Cancer	12.420	DDEF W81XWH-0510399		0	216,433
Development of a Novel Approach to Regenerate Functional Lungs	12.420	W81XWH-17-1-0139		0	202,677
Role of Tumor infiltrating B cells in breast cancer metastasis.	12.420	W81XWH-17-1-0055		0	201,010
Physical Telerehabilitation in Patients with Multiple Sclerosis with Significant Mobility Impairment	12.420	W81XWH-16-1-0704		0	197,951
Identifying New Chemical Entities that Treat and Prevent Relapsing vivax and Drug-Resistant falciparum Malaria in U.S. Military Personnel	12.420	W81XWH-15-2-0033		0	154,439
Role of Tumor-Infiltrating B Cells in Breast Cancer Metastasis	12.420	W81XWH-17-1-0056		0	151,503
Integrative Device for Treating Rotator Cuff Tendon Injuries	12.420	W81XWH-15-1-0685		0	149,746
Impaired mTOR-Macroautophagy and Neurocognitive Deficits in Tuberous Sclerosis Complex	12.420	W81XWH-16-1-0263		0	146,902
Genetic variation underlying traumatic brain injury (TBI) and late Onset Alzheimer s Disease (LOAD)	12.420	W81XWH-16-0588		0	146,810

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Motor Neuron-Protecting Agents as Therapeutics for Treating ALS	12.420	W81XWH-16-1-0204		0	144,700
Striatal cholinergic interneuron ablation dystonia model	12.420	W81XWH-17-1-0209		0	132,213
Molecular mechanisms underlying the epileptogenesis and seizure progression in Tuberous Sclerosis Complex 1 deficient mouse models	12.420	W81XWH-15-1-0112		0	131,844
Targeting Immune Microenvironment Interactions in Lung Cancer Metastasis	12.420	W81XWH-17-1-0441		0	127,842
TBI-Induced Formation of Toxic Tau and Its Biochemical Similarities to Tau in AD Brains	12.420	W81XWH-15-1-0550		53,955	127,760
Cardiomyocyte Chirality Defects in Congenital Heart Disease	12.420	W81XWH-17-1-0112		0	123,009
Identification of master regulators of advanced and castrate-resistant prostrate cancer under treatment with Abiraterone.	12.420	W81XWH-13-1-0422		0	113,415
Mitochondrial dysfunction and disease progression	12.420	W81XWH-15-1-0450		83,156	105,091
Characterization of Epigenetic Regulatory Drivers of Prostate Cancer Metastasis	12.420	W81XWH-16-01-0243		0	104,970
Targeting MEK5 Enhances Radiosensitivity of Human Prostate Cancer and Impairs Tumor Associated Angiogenesis	12.420	W81XWH-15-1-0296		0	104,693
DEFINING THE ROLE OF THE 5- HT4 RECEPTOR IN THE BRAIN, BEHAVIOR AND GUT ABNORMALITIES RESULTING FROM IN UTERO SSRI EXPOSURE	12.420	W81XWH-17-1-0167		0	90,023
Hippocompal and cognitive Function, Exercise, and Ovarian Cancer: A Pilot Study	12.420	W81XWH-14-1-0236		0	77,465
Electric Field Stimulation Enhances Healing of Post-Traumatic Osteoarthritic Cartilage	12.420	W81XWH-14-1-0591		64,674	73,522
Molecular mechanisms underlying the epileptogenesis and seizure progression in Tuberous Sclerosis Complex 1 deficient mouse models	12.420	W81XWH-15-1-0112		0	67,383
Developmental Pathways and Autism Spectrum Disorders	12.420	W81XWH-17-1-0566		0	61,702
TBI-Induced Formation of Toxic Tau and Its Biochemical Similarities to Tau in AD Brains	12.420	W81XWH-15-1-0550		0	54,991
Study of Spinal Muscular Atrophy in a Human Neuromuscular Junction Three-Dimensional Optogenetic Model	12.420	W81XWH1810095		0	54,555
Proteomic Mapping of the Immune Response to Gluten in Children with Autism	12.420	W81XWH-14-1-0293		0	38,736
Electric Field Stimulation Enhances Healing of Post-Traumatic Osteoarthritic Cartilage	12.420	W81XWH-14-1-0591		0	25,703
TBI-Induced Formation of Toxic Tau and Its Biochemical Similarities to Tau in AD Brains	12.420	W81XWH-15-1-0550		0	25,455
Motor Neuron-Protecting Agents as Therapeutics for Treating ALS	12.420	W81XWH-16-1-0204		0	12,849
Physical Telerehabilitation in Patients with Multiple Sclerosis with Significant Mobility Impairment	12.420	W81XWH-16-1-0704		0	11,614
A cell-based assay to identify neuroprotective molecules for the treatment of amyotrophic lateral sclerosis	12.420	W81XWH-13-1-0416		0	10,950
Programmable Probiotics as Primary and Metastatic Breast Cancer Therapeutics	12.420	W81XWH-17-1-0356		0	10,512
Retinoid X receptor gamma s a potential therapeutic target for fragile X syndrome	12.420	W81XWH-15-1-0404		0	7,592
Identification and validation of maser regulators of castration resistant prostate cancer	12.420	W81XWH-15-1-0474		0	2,457

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Columbia SMA project: 4-AP as a potential SMA therapeutic agent and biological mechanisms of action	12.420	W81XWH-11-1-0753		0	-4
PREDICT: Pattern Representation and Evaluation of Data through Integration, Correlation, and Transformation	12.420	W81XWH-13-1-0056		0	-6
Transcriptome Annotation of Infectious Agents host Species using High Throughput Genomic Data	12.420	W81XWH-13-2-0029		0	-136
Stationary Digital Tomosynthesis System for Early Detection of Breast	12.420	W81XWH-10-1-0008		0	-154
Therapeutic Targeting of Notch in Ovarian Cancer	12.420	W81XWH-09-1-0408		0	-164
Activation of mTor Signaling by Gene Transduction to Induce Axon Regeneration in the Central Nervous System Following Neural Injury	12.420	W81XWH-12-1-0051		0	-877
				$221,890	$7,326,568
Basic Scientific Research					
Imaging how a neuron computes	12.431	W911NF-12-1-0594		415,298	610,893
Distributed High Performance Algorithms for Mobile Ad Hoc Networks	12.431	W911NF-16-1-0259		50,557	174,431
Rare-event Analysis and Computational Methods for Stochastic Systems Driven by Random Fields	12.431	W911NF-15-1-0159		0	154,453
The role of ApoE in Alzheimer disease and in traumatic brain injury	12.431	W911NF-15-1-0169		0	146,835
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	139,763
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	133,173
Intent Switching and Co-Adaption of Man and Machine in a Closed-Loop Brain Computer Interface (8.4 Neurophysiology and Cognitive Neuroscience)	12.431	W911NF-16-1-0507		0	126,945
Thermodynamics of Learning	12.431	W911NF-17-1-0107		0	77,480
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	54,295
Understanding hydro-mechanical coupling mechanism of wetted granular matters beyond the pendular regime	12.431	W911NF-15-1-0581		0	52,873
Phase Transitions and Elusive Electronic States In Correlated Oxides	12.431	W911NF-17-1-0543		0	46,369
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	44,001
Development of Chip-Based Optical Parametric Oscillators for Coherent Computing and Quantum Random Number Generation	12.431	W911NF-17-1-0016		0	40,320
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	26,204
Development of Chip-Based Optical Parametric Oscillators for Coherent Computing and Quantum Random Number Generation	12.431	W911NF-17-1-0016		0	23,264
Imaging how a neuron computes	12.431	W911NF-12-1-0594		0	22,709
In situ Genome Engineering of Unculturable Microbes and Genomic Recording to Limit the Robustness of the Genetic Code	12.431	W911NF-15-2-0065		0	16,283
High Strain Rate Failure Modeling Incorporating Shear Banding and Fracture	12.431	W911NF-13-1-0238		0	14,441

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Descriptive, Injunctive, and Sacred Norms	12.431	W911NF-18-1-0091		0	11,725
In situ Genome Engineering of Unculturable Microbes and Genomic Recording to Limit the Robustness of the Genetic Code	12.431	W911NF-15-2-0065		0	11,528
Conference Support: Dendritic Computation	12.431	W911NF1810131		0	8,146
Conference Support: Dendritic Computation	12.431	W911NF1810131		0	5,126
Characterizing and Enhancing Biological Corrosion of Metals	12.431	W911NF1810239		0	5,029
In situ Genome Engineering of Unculturable Microbes and Genomic Recording to Limit the Robustness of the Genetic Code	12.431	W911NF-15-2-0065		0	-579
				$465,856	$1,945,710
Basic, Applied, and Advanced Research in Science and Engineering					
The Role of Implicit and Explicit Cognition in Cultural Learning	12.630	W911NF-13-1-0113		0	142,070
				$0	$142,070
Air Force Defense Research Sciences Program					
Statistical models of graph and relational data from probablistic symmetries	12.800	FA9550-15-1-0074		287,673	369,466
Foundations of Neuroinformation Processing Phase and Spike Processing Machines	12.800	FA9550-16-1-0410		0	278,575
Polaritonic Metamaterials Based on Van Der WAALS Heteostructures	12.800	FA9550-15-1-0478		0	238,224
Fundamental Studies of Microresonator-Based Parametric Frequency Combs	12.800	FA9550-15-1-0303		0	207,688
Artificial Atoms, Molecules, and Solids: Multiple Functions and Emergent Properties	12.800	FA9550-18-1-0020		0	177,266
New Functionality in van der Waals Heterstructures	12.800	FA9550-16-1-0601		0	167,925
Intelligent Learning	12.800	FA9550-15-1-0502		51,681	151,468
Spoken Indicators of Trust Across Cultures	12.800	FA9550-18-1-0039		0	114,653
Fundamental Studies of Microresonator-Based Parametric Frequency Combs	12.800	FA9550-15-1-0303		0	87,341
Artificial Atoms, Molecules, and Solids: Multiple Functions and Emergent Properties	12.800	FA9550-18-1-0020		0	64,267
Infrared Cameras and Broadly Tunable Light Sources for Research on Metasurface-Based Optolectronic Devices and Biometric Optical Coatings	12.800	AFOSR FA9550-16-1-0322		0	56,993
(YIP) Modeling the High-Rate Responses of Wetted Granular Materials Across Scales and the Third-Party Replicable Validation Exercises Utilizing 3D Printers	12.800	FA9550-17-1-0169		0	47,667
Artificial Atoms, Molecules, and Solids: Multiple Functions and Emergent Properties	12.800	FA9550-18-1-0020		0	40,023
Apparatus for Laser Cooling, Trapping, and Discussion of BaH molecules	12.800	FA9550-17-1-0441		0	35,344
Artificial Atoms, Molecules, and Solids: Multiple Functions and Emergent Properties	12.800	FA9550-14-1-0381		0	18,150

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Designing for Measurable Security	12.800	FA9550-12-1-0162		11,045	11,045
Thermoelectric Phenomena in Quasi-One-Dimensional Metals	12.800	FA9550-18-1-0063		0	3,994
				$350,399	$2,070,088
Mathematical Sciences Grants					
Trace Formulae L-functions, and Analytic Number Theory	12.901	H98230-16-1-0009		0	37,079
				$0	$37,079
Research and Technology Development					
The Virome of Manhattan: A Testbed for Radically Advancing Understanding and Forecast of Viral Respiratory Infections	12.910	W911NF-16-2-0035		365,331	2,680,064
THUNDER: Tolerant Hosts Using Novel Drug-Enhanced Resilience	12.910	HR0011-17-2-0009		313,489	907,217
Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		725,433	725,433
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		127,906	675,467
High-Performance Parametric RF Integrated Non-Reciprocal Circulators (HIPERION)	12.910	HR0011-17-2-0007		103,929	461,032
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		0	435,186
ENGINEERING PROTOTROPHY IN MAMMALIAN CELLS	12.910	HR0011-17-2-0041		124,516	348,043
Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		0	228,276
Metasurface-Based Spatial Light Modulators	12.910	D15AP00111		0	215,780
Combining clinical data ad transdermal analysis of whole blood to create a next-generation wearable device	12.910	D17AP00047		0	213,346
Reproducible and Scalable Bayesian Modeling for Next-Generation Social Sciences	12.910	D17AC00001		0	212,527
SOAS: Interactive design compiler based on simultaneous optimization and simulation	12.910	HR0011-17-2-0014		0	198,302
Combining clinical data ad transdermal analysis of whole blood to create a next-generation wearable device	12.910	D17AP00047		0	168,549
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		0	168,326
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		0	167,536
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		0	167,500
SEEM: Inferring Sentiment bElief pErspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		5,373	160,638
Superbroadband Achromatic Metasurface Lenses	12.910	HR0011-17-2-0017		0	156,767
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		117,429	147,429

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Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		0	145,639
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		0	131,888
Ultra-low power integrated optical phase modulator	12.910	FA8650-16-1-7643		0	125,009
SEEM: Inferring Sentiment bElief pErspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		0	122,753
Reproducible and Scalable Bayesian Modeling for Next-Generation Social Sciences	12.910	D17AC00001		0	121,433
Multifunctional Glass for Augmented Reality	12.910	HR00111720034		0	114,402
Resistant and scalable storage using semi-synthetic DNA	12.910	D17AP00027		0	110,391
Scalable Millimeter-wave Arrays based on Dual-Use 3D Heterogeneous Architectures	12.910	DARPA-FA86501617644		0	88,096
Auto-generative Neural Networks for Lifelong Learning	12.910	HR0011-18-2-0020		0	81,703
SEEM: Inferring Sentiment bElief pErspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		15,445	70,011
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		0	55,284
Densely Packed 2D Photonic Phased Array	12.910	FA8650-18-1-7815		0	37,735
SEEM: Inferring Sentiment bElief pErspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		0	32,852
The Virome of Manhattan: A Testbed for Radically Advancing Understanding and Forecast of Viral Respiratory Infections	12.910	W911NF-16-2-0035		0	27,526
Reproducible and Scalable Bayesian Modeling for Next-Generation Social Sciences	12.910	D17AC00001		0	24,135
Real-Time Control of Network Physical Structures to Bypass Complexity: Optimization, Stochastics and Structure Recognition	12.910	N660011824028		0	16,134
DARPA SEED: Development of Ultraflow Power Supercontinuum Platform Based on Silicon Nitride	12.910	N66001-16-1-4055		0	1,602
				$1,898,851	$9,744,010
Total Direct Award Programs				**$6,186,089**	**$37,307,708**
Pass-through Awards					
Air Force Office of Scientific Research					
Scalable Coherent Photonic Array on a Silicon Platform	12	TREX 102562	FA8650-17-P-1085	0	41,996
Experimenting with the CU Core BARTER I	12	ACS 2013010S	FA8750-14-C-0019	0	-53,433
Defense Advanced Research Projects Agency					
Chip-Scale Optical Planar LADAR Architecture (COPLA)	12	TREX S20100	DARPA-BAA-16-13	0	946,617

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
IBIS: Implantable bioluminescence interface for an all-optical neuroprosthesis to the visual cortex	12	JBPL 285-B Phase II	N66001-17-C-4012	0	627,887
Engineered Living Materials	12	ECODES CU16-2615	DARPA-BAA-16-50	0	454,265
Democratizing DDos Defenses Using Secure Indirection Networks	12	GMU E203809-01	HR0011-16-C-0055	0	292,596
Chip-Scale Optical Planar LADAR Architecture (COPLA)	12	TREX S20100	DARPA-BAA-16-13	0	285,924
Pathways to Recruitment: Identifying and Comparing Social Indicators of Gang Violence and Recruitment in a Chicago Twitter Data Set with ISIS Engagement Using Qualitative Analysis and Natural Language	12	USC-PO55630053	FA8750-14-C-0240	0	254,304
Heterogeneously Integrated Optical Synthesizer (H-iOS)	12	UCB 00009636	HR0011-15-C-0057	0	164,040
CONCEAL: Cryptographic ObfuscatioN of CodE and ALgorithms	12	IBM 4915012804	W911NF-15-C-0236	0	139,666
Pathways to Recruitment: Identifying and Comparing Social Indicators of Gang Violence and Recruitment in a Chicago Twitter Data Set with ISIS Engagement Using Qualitative Analysis and Natural Language	12	USC-PO55630053	FA8750-14-C-0240	0	129,444
Domain-specific Insight Graphs	12	USC-PO55630053	FA8750-14-C-0240	0	114,706
Fast Electric Grid Communication Network Isolation and Restoration (PHOENIX)	12	BAE 941140	DARPA CU16-0568	0	101,507
Machine-Intelligence for Advance Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA)	12	ACS PO-0008887	FA8750-16-C-0054	0	93,841
Heterogeneously Integrated Optical Synthesizer (H-iOS)	12	UCB 00009636	HR0011-15-C-0057	0	91,696
CONCEAL Cryptographic Obfuscation of Code and Algorithms	12	YU GR100654(CON-80000822)	W911NF-15-C-0236	0	88,218
Engineered Living Materials	12	ECODES CU16-2615	DARPA-BAA-16-50	0	86,496
Integrated DC-DC Converters Using Thin-Film Magnetic Power Inductors	12	FERRIC FSDA01	D17PC00070	0	70,000
Machine-Intelligence for Advance Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA)	12	ACS PO-0008887	FA8750-16-C-0054	0	64,263
Machine-Intelligence for Advance Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA)	12	ACS PO-0008887	FA8750-16-C-0054	0	58,505
CONCEAL: Cryptographic ObfuscatioN of CodE and ALgorithms	12	IBM 4915012804	W911NF-15-C-0236	0	48,645
Machine-Intelligence for Advance Notification of Threats and Energy-Grid Survivable Situational Awareness (MANTESSA)	12	ACS PO-0008887	FA8750-16-C-0054	0	36,298
Scene Recovery Using An Extended Plenoptic Function	12	UWM No.673K573	HR011-16-C-0025	0	28,111
DARPA Probabilstic for Advanced Machine Learning (PPAML)	12	ACS 2013012S	FA8750-14-C-0019	0	7,420
CONCEAL: Cryptographic ObfuscatioN of CodE and ALgorithms	12	IBM 4915012804	W911NF-15-C-0236	0	178
Defense Threat Reduction Agency					
Determination and Understanding of Quantitative Infectious Dose for Ebola Virus	12	UTMB 17-031	HDTRA1-17-C-0009	0	346,878
Investigation of Radiation Resistance Mechanisms in Melanized Fungi	12	USASK CU17-0613	HDTRA1-15-0058	0	39,209

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Department of Defense					
STTR: Particulate Composite Mixing Processes	12	GEMI FFP-2016-CU-0401	FA9550-16-C-0018	0	170,118
Long Term Potentiation Deficits after Repetitive Primary Blast	12	SURVICE S17-095006	DOTC-17-01-INIT0086/OTA 2014-3	0	75,779
Anticipatory Analytics for Environmental Stressors	12	ISCI W912HZ17P0104-SC-01	W912HZ17P0104	0	71,429
Department of the Air Force					
Development of Augmented Reality Prototype for Cyber Affordance Visualization in Augmented Reality (CAVAIR)	12	CMU 17-00202-SUB-000	FA8702-15-D-0002	0	91,149
3D nondestructive imaging techniques for mesoscale damage analysis	12	ALT-2017CU-001	FA8651-14-C-0045	0	79,750
Department of the Air Force, Air Force Research Laboratory					
Alteration Detection & Provenance Tracking (In Visual Imagery, Scenes, Media) (ADAPT (IVISM))	12	KITWARE K001892-00-S03	FA8750-16-C-0166	0	233,576
Conventionalized Orthography and Morphological Research	12	BATC 21770.003.02.01	FA8650-11-C-6160	0	205,065
Develop physics-based damage, oxidation, and coupled mechanical oxidation models	12	UTC PSA-1205265 PO2603158	FA8650-13C-5213	0	93,225
Identification of Eigenstrain Modeling Best Practices and Error Quantification	12	UDAYTON RSC17056	FA8650-12-D-3212/0009	0	72,000
Department of the Army, Army Medical Research and Materiel Command					
Using Aptamer Coated Nanoparticles Encapsulating Prostate tumor antigen encoding NRNA to Target dendritic cells in vivo	12	DUKE 313-0723	W81XWH-12-1-0261	0	3,471
Department of the Army,Army Research Office					
Abelian Bridge to Non-Abelian Anyons in Ultra-Cold Atoms and Graphene	12	UCSB KK1813	W911NF-17-1-0323	0	281,346
Long Term Potentiation Deficits after Repetitive Primary Blast	12	IAP PO#JRS-000077	DOD CU17-0285	0	122,292
Fundamentally New Methods of Fabrication (SuperVan)	12	BBN PO4201804852	W911NF-18-C-0044	0	3,323
Intelligence Advanced Research ProjectsActivity					
Reverse Engineering Neocortical Intelligence	12	BCM PO7000000059/PO7000000428	D16PC0000	0	284,686
Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	226,924
Cortical Architecture and Algorithms for Machine Listening	12	HARVARD 167937-5093338	D16PC0008	0	129,789
Measuring Insider Threat Monitoring Systems	12	LEIDOS P010185636	2016-16031400008	0	111,349
Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	22,099

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Reverse Engineering Neocortical Intelligence	12	BCM PO7000000059/PO7000000428	D16PC0000	0	10,721
Measuring Insider Threat Monitoring Systems	12	LEIDOS P010185636	2016-16031400008	0	118
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	-98
National Security Agency					
Contribution to ACS Modeling, Simulation & Emulation Project	12	BAHI S900741BAH	FA8075 14 D 0002	0	25,447
Contribution to ACS Modeling, Simulation & Emulation Project	12	BAHI S900741BAH	FA8075 14 D 0002	0	1,101
Office of Naval Research					
Fast and Flexible Differential Equation Model Fitting with Application to Pharmacometrics	12	METRUM CU16-2364	N00014-16-P-2039	0	152,495
				$0	$7,026,432
Basic and Applied Scientific Research					
Seasonal COSEE: Environmental stress and human migration in two developing coastal nations: A comparison of the co-evolving human and physical landscapes in Bangladesh and Sri Lanka	12.300	VU UNIV59746	N00014-11-1-0683	82,541	251,997
Carbon-based Hierarchically Integrated Synthetic Electronics (CHISEL)	12.300	UCB 00009293	N00014-16-1-2921	0	188,078
ABIDES: Adaptive BInary DEbloating and Security	12.300	SIT 2102747-02	N00014-17-1-2788	0	106,111
Seasonal COSEE: Environmental stress and human migration in two developing coastal nations: A comparison of the co-evolving human and physical landscapes in Bangladesh and Sri Lanka	12.300	VU UNIV59746	N00014-11-1-0683	0	104,360
Elements of Causal Learning: Basic Concepts, Theory, Methods, Algorithms and Applications	12.300	HARVARD 133691-5102004	N00014-17-1-2131	0	80,438
Embedasploit: A Pen-Test in a Box for Industrial Control Systems	12.300	GIT RF823-G2	N00014-15-1-2180	0	62,791
Next Generation Time-of-Flight Imaging	12.300	UWIMAD 696K662	N00014-16-1-2995	0	62,278
Tailoring Electronic Properties of Graphene at the Nanoscale	12.300	UMARY Z894102	N00014-09-1-1064	0	-1
Extended-Range Prediction with Low-Dimensional, Stochastic-Dynamic Models: A Data-driven Approach	12.300	UCLA 2090 G QA272	N00014-16-1-2073	0	-7,956
				$82,541	$848,097
Scientific Research - Combating Weapons of Mass Destruction					
Deep Characterization of Rousettus aegyptiacus immune system: Use of bats / nonhuman primates to compare immune responses during asymptomatic / symptomatic filovirus infections	12.351	GENEVA S-1340-02	HDTRA1-14-1-0016	0	52,934
Trace Gas Transport through Fractured Rock using Sulfur Hexafluoride Injections	12.351	WGPC 06142107	DTRA HDTRA11710040	0	20,282
				$0	$73,216
Military Medical Research and Development					

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R&D Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
CDK5- A Novel Role in Prostate Cancer Immunotherapy	12.420	JH 2003391776	W81XWH-15-1-0670	0	55,944
Direct 3D Printing of Integrated Electro Mechanical Systems	12.420	IMOD P.O.#444/0729085	DOD CU15-3453	0	51,915
Whole Exome Analysis of Early Onset Alzheimer s Disease	12.420	UMIAMI 665409	W81XWH1210013	0	40,036
Novel targeted therapies for inflammatory breast cancer	12.420	ISMMS 0258-0901-4609	W81XWH-16-1-0461	0	26,898
Novel targeted therapies for inflammatory breast cancer	12.420	ISMMS 0258-0901-4609	W81XWH-16-1-0461	0	23,359
Effects of Traumatic Brain Injury and Post-Traumatic Stress Disorder on Alzheimer s Disease (AD) in Veterans with Mild Cognitive Impairment (MC) using the Alzheimer s disease neuroimaging initiative (	12.420	USC 78227300	W81XWH-13-1-0259	0	17,753
Beta-Blockers for the Prevention of Acute Exacerbations of COPD	12.420	CUMC 15040499	W81XWH-15-1 -0705	0	14,541
RAGE/Diaph1, Diabetes, and Kidney Disease: Mechanisms and Novel Therapeutic Strategies	12.420	NYUMC 17-AO-00-007334-01	W81XWH-17-1-0201	0	4,990
Effects of Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD) on Alzheimer s Disease (AD) in Veterans Using Imaging and Biomarkers in the AD Neuroimaging Initiative (ADNI) (DoD)	12.420	USC 69091938	W81XWH-12-2-0012	0	2,677
Beta-Blockers for the Prevention of Acute Exacerbations of COPD	12.420	CUMC 15040499	W81XWH-15-1 -0705	0	2,024
LAM Pilot study with Imatinib Mesylate (LAMP-1)	12.420	MUSC14-051	W81XWH-14-1-0132	0	1,920
Beta-Blockers for the Prevention of Acute Exacerbations of COPD	12.420	CUMC 15040499	W81XWH-15-1 -0705	0	288
Immune-Stimulating Combinatorial Therapy for Prostate Cancer	12.420	JH 2003329756	W81XWH-15-1-0667	0	2
				$0	$242,348

Basic Scientific Research

Fractional PDEs for Conservation Laws and Beyond: Theory, Numerics and Applications	12.431	BROWN 00000825	W911NF1510562	0	163,685
Multivariate Heavy Tail Phenomena: Modeling, Diagnostics, and Applications in Tactical Operations	12.431	CU 66220-9900	W911NF-12-1-0385	0	133,861
Bio-inspired Design of Adaptive Catalysis Center	12.431	UUTAH10034220-04	W911NF-14-1-0263	0	129,352
Bio-inspired Design of Adaptive Catalysis Center	12.431	UUTAH10034220-04	W911NF-14-1-0263	0	112,126
Decentralized Methods for Multi-Agent Problems Over Networks	12.431	PSU 5667-CU-USARL-0298	W911NF-17-1-0298	0	12,068
Physical behavior of layered superatomic crystals	12.431	CMU 1130214-394149	W911NF-17-1-0397	0	4,497
Image Database and Neuroimaging Data Collection for Rapid Visual Decision Making	12.431	APX03-S005	W911NF-10-D-0002	0	196
Toward Accurate Models of Wet Granular Media in Nature	12.431	MIT 5710004052	W911NF-15-1-0598	0	21
				$0	$555,805

Basic, Applied, and Advanced Research in Science and Engineering

Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	898,969

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Climate-informed Estimation of Hydrologic Extremes for Robust Adaptation to Non-s	12.630	16-009040 A 00	W912HQ-15-C-0052	0	116,602
Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	1,418
Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	-7,878
				$0	$1,009,111
Air Force Defense Research Sciences Program					
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	302,889
Compact CMOS-Compatible Opitcal Transceiver	12.800	PSI SC-1920-001	FA9550-16-C-0042	0	197,048
MURI Center for Material Failure Prediction through peridynamics	12.800	UOARIZONA-PO225829	FA9550-14-1-0073	0	186,345
Science and Emerging Technology of 2D Atomic Layered Materials and Devices	12.800	RICEU R18643	FA9550-14-1-0268	0	174,419
Prototype Packaging High-Density Fiber I/O to SiP PIC	12.800	RFSUNY CU16-1029	AFOSR CU16-1029	0	168,342
Harnessing Strong-Field Mid-Infrared (IR) Lasers: Designer Beams of Relativistic Particles and THz-to-X-ray Light	12.800	UCB 1553896	FA9550-16-1-0121	0	159,714
Active Metasurfaces for Advanced Wavefront Engineering and Waveguiding	12.800	HARVARD-123885-5079402	FA9550-14-1-0389	0	144,415
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	133,878
The Next Generation of Probabilistic Programming: Massive Data, Data Streams, and Model Diagnostics	12.800	SUB 0000028	FA8750-14-2-0009	0	103,863
Very High Speed Digital Data and Communication Links	12.800	RFSUNY CU16-1030	AFOSR CU16-1030	0	86,758
Prototype Packaging High-Density Fiber I/O to SiP PIC	12.800	RFSUNY CU16-1029	AFOSR CU16-1029	0	39,978
PIC (Photonic Intergrated Chip) Integration on Interposer/Chip	12.800	RFSUNY CU16-1834	AFOSR CU16-1834	0	31,985
Science and Emerging Technology of 2D Atomic Layered Materials and Devices	12.800	RICEU R18643	FA9550-14-1-0268	0	14,811
Very High Speed Digital Data and Communication Links	12.800	RFSUNY CU16-1030	AFOSR CU16-1030	0	10,925
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	4,579
TAP Process Development 2018 (Rochester HUB)	12.800	RFSUNY CU18-1149	AFOST CU18-1149	0	193
Very High Speed Digital Data and Communication Links	12.800	RFSUNY CU16-1030	AFOSR CU16-1030	0	-1
Rochester Hub Planning	12.800	RFSUNY CU16-3117	AFOSR CU16-3117	0	-12
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	-27,255
				$0	$1,732,873
Research and Technology Development					

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OLPENS: Optimized Learning via Peripheral Nerve Stimulation	12.910	UFDSP00011646	HR0011-17-2-0020	0	238,089
ZeD: Zero-Knowledge Discovery Using Data Smashing	12.910	UCHICA FP064753-A	FA8750-17-2-0124	0	183,122
Automated System for Knowledge-based Continuous Organic Synthesis (ASKCOS)	12.910	MIT CU16-1886	W911NF-16-2-0023	0	144,396
Diamond Micro-Combs and Applications	12.910	HARVARD 123926-5097294	W31P4Q-15-1-0013	0	138,334
Memory Enhancement with Modeling, electrophysiology, and simulation (MEMES)	12.910	UPENN 564000/569456	N66001-14-2-4032	0	137,238
Memory Enhancement with Modeling, electrophysiology, and simulation (MEMES)	12.910	UPENN 564000/569456	N66001-14-2-4032	0	126,206
Generating Alternatives for Interpretation and Analysis (GAIA)	12.910	USC 98328001	FA8750-18-2-0014	0	115,093
An Investigator-initiated, Prospective Study of Direct Brain Recording and Stimulation for memory Enhancement	12.910	UPENN 569456	N66001-14-2-4-31	0	53,474
Generating Alternatives for Interpretation and Analysis (GAIA)	12.910	USC 98328001	FA8750-18-2-0014	0	43,584
Tabletop Coherent X-ray Nano-bio Imaging atr the Space-time Limits (NANO-X)	12.910	BOULDER 1554093	W31P4Q-13-1-0015	0	32,053
Continual Learning Across Synapses, Circuits, and Brain Areas	12.910	BRI 7000000603	HR0011-18-2-0025	0	1,406
An Investigator-initiated, Prospective Study of Direct Brain Recording and Stimulation for memory Enhancement	12.910	UPENN 569456	N66001-14-2-4-31	0	951
Memory Enhancement with Modeling, electrophysiology, and simulation (MEMES)	12.910	UPENN 564000/569456	N66001-14-2-4032	0	-2,606
				$0	$1,211,341
Total Pass-through Programs				**$82,541**	**$12,699,222**
Total: Department of Defense				**$6,268,630**	**$50,006,930**

Department of Commerce

Direct Awards

Education Quality Award Ambassadorship

A Test of QED and the gravitational inverse-square law at the sub-nanometer scale with ultracold Sr2 molecules	11.013	DCNIST 60NANB13D163		0	40
				$0	$40

Climate and Atmospheric Research

IRAP: Integrating Climate Information and Decision Processes for regional Climate Resilience	11.431	NA13OAR4310184		651,497	1,574,058
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		512,942	601,095
Madden Julian Oscillation - the Maritime Continent barrier and seamless verification	11.431	NA16OAR4310076		0	188,515

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Evaluating How Dry Deposition Influences Eastern U.S. Ozone. Aerosols, and Precursors: Mean Contributions, Uncertainties, and Spatio-Temporal Variability From Weather, Regional Climate, and Land Use	11.431	NA14OAR4310133		0	177,747
The Dynamical Machanisms and Potential Predictability of Indian and Pacific Ocean Influences on Seasonal North American Draught	11.431	NA14OAR4310232		0	169,456
Interpolation of Subsurface Ocean Properties and Indices of Climate Variability	11.431	NA17OAR4310156		0	155,228
Developing a Real-Time Multi-Model Sub-seasonal Predictive Capability	11.431	NA16OAR4310145		0	151,907
Process Oriented Diagnostics of Tropical Cyclones in Climate Models	11.431	NA15OAR4310095		0	142,593
Drought Onset and Termination across North America: Mechanisms and Predictability	11.431	NA17OAR4310126		0	121,119
Biosphere-atmosphere regulations of droughts assessed using microwave and solar-induced fluorescence observations and improved plant water stress representation	11.431	NA17OAR4310127		0	101,111
Assessment of CFS predictions of severe weather activity	11.431	NA14OAR4310185		0	98,777
The Relationship of Tropical Cyclones to MJO and ENSO in theS2S Database	11.431	NA16OAR4310079		0	94,267
Diagnostics, Trends and Climate Model Projections of U.S. Summer Heat Waves	11.431	NA14OAR4310204		1,583	64,996
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	58,596
Developing a Real-Time Multi-Model Sub-seasonal Predictive Capability	11.431	NA16OAR4310145		0	37,209
Enhancing Seasonal Drought Prediction Capabilities fort he US and the Globe Using the National Multi-Model Ensemble	11.431	NA12OAR4310088		17,536	35,188
Reactive nitrogen biogeochemical cycling in the GFDL Earth System Models: Advancing understanding of atmosphere-land interactions under changing climate and land use	11.431	NA15OAR4310065		0	32,140
Improved Probabilistic Forecast Products for the MMME Seasonal Forecast System	11.431	NA14OAR4310188		0	26,641
The Relationship of Tropical Cyclones to MJO and ENSO in theS2S Database	11.431	NA16OAR4310079		0	26,010
Process Oriented Diagnostics of Tropical Cyclones in Climate Models	11.431	NA15OAR4310095		0	16,532
Madden Julian Oscillation - the Maritime Continent barrier and seamless verification	11.431	NA16OAR4310076		0	14,610
Subseasonal NMME Forecasts: Skill, Predictability, and Multi-model Combinations	11.431	NA14OAR4310184		0	10,980
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	10,638
Sub-seasonal to seasonal Predictability of Weather Statistics Using NMME	11.431	NA15OAR4310076		0	10,421
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	7,760
Advancing Predictive understanding of North American Drought: The Role of the North Atlantic SST	11.431	NA14OAR4310223		0	1,226
Advancing Predictive understanding of North American Drought: The Role of the North Atlantic SST	11.431	NA14OAR4310223		0	-536
				$1,183,559	$3,928,284

Applied Meteorological Research

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Weather regime diagnostic tools for sub-monthly ensemble forecasts	11.468	NA16NWS4680014		0	157,128
Weather regime diagnostic tools for sub-monthly ensemble forecasts	11.468	NA16NWS4680014		0	29,998
Development and testing of a multi-model ensemble prediction system for sub-monthly forecasts	11.468	NA15NWS4680014		0	28,371
				$0	$215,497
Center for Sponsored Coastal Ocean Research Coastal Ocean Program					
Resolving the Effects of Resource Availability, Predation and Competition on Brown Tide Dynamics using Metatranscriptomics	11.478	NA15NOS4780199		0	47,973
				$0	$47,973
Measurement and Engineering Research and Standards					
Space-time multiscale-multiphysics modeling and simulation of heterogeneous materials	11.609	70NANB14H281		0	13,598
				$0	$13,598
Science, Technology, Business and/or Education Outreach					
FY 2017 Summer Undergraduate Research Fellowship PML-PL	11.620	70NANB17H099		0	3,534
				$0	$3,534
Total Direct Award Programs				**$1,183,559**	**$4,208,926**
Pass-through Awards					
National Oceanic & AtmosphericAdministration/Department of Commerce					
High-resolution Shipboard Measurements of Phytoplankton Functional Types, Size Classes and Photosynthetic Competency in Support of SUOMI-VIIRS Ocean Color Observations	11	GSTI SA14-CUNYC01-002-002	DG133E-10-CQ-0034	0	88,372
NOAA-ISC Telepresence Support	11	URI 043117/0006278	WC133R17SU0143	0	47,709
				$0	$136,081
Climate and Atmospheric Research					
Monitoring the Indonesian Throughflow and Weddell Sea Deep and Bottom Water Outflow	11.431	UCAR Z15-17551	NA11OAR4310213	0	133,920
Monitoring the Indonesian Throughflow and Weddell Sea Deep and Bottom Water Outflow	11.431	UCAR SUBAWD000363	NA16OAR4310253	0	132,286
Monitoring the Indonesian Throughflow in Makassar Strait	11.431	UCAR SUBAWD000430	NA16OAR4310253	0	73,158
From Precipitation Thresholds Identification to Planning Helping Communities Plan and Adapt to Future Extreme Events	11.431	UCONN 126959	NA16OAR4310124	0	14,463
Global, Local, Coastal: Preparing the Next Generation for a Changing Planet	11.431	GWHV CU16-3460	NA15SEC0080004	0	10,008

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
From Precipitation Thresholds Identification to Planning Helping Communities Plan and Adapt to Future Extreme Events	11.431	UCONN 126959	NA16OAR4310124	0	8,000
Global, Local, Coastal: Preparing the Next Generation for a Changing Planet	11.431	GWHV CU15-1681	NA15SEC0080004	0	496
				$0	$372,330
National Oceanic and Atmospheric Administration (NOAA) Cooperative Institutes					
Surface Water pCO2 measurements from Ships	11.432	UMIAMI SPC-000138	NA15OAR4320064	0	286,919
Surface Water pCO2 measurements from Ships	11.432	UMIAMI SPC-000138	NA15OAR4320064	0	10,995
				$0	$297,914
Total Pass-through Programs				**$0**	**$806,325**
Total: Department of Commerce				**$1,183,559**	**$5,015,251**
Department of Education					
Direct Awards					
National Resource Centers Program for Foreign Language and Area Studies or Foreign Language and International Studies Program and Foreign Language and Area Studies Fellowship Program					
Foreign Language and Area Studies Fellowships	84.015	P015B140115-17		86,000	326,163
Foreign Language and Area Studies Fellowships	84.015	P015B140111-17		0	299,459
Foreign Language and Area Studies Fellowships	84.015	P015B140110-17		0	255,869
Foreign Language and Area Studies Fellowships	84.015	P015B140108-17		0	212,000
National Resource Centers	84.015	P015A140115-17		174,626	186,249
National Resource Centers	84.015	P015A140108-17		8,325	138,988
National Resource Centers	84.015	P015A140115-17		0	122,367
Foreign Language and Area Studies Fellowships	84.015	P015B140115-17		83,773	83,773
National Resource Centers	84.015	P015A140108-17		0	80,760
National Resource Center	84.015	P015A140111-17		0	68,295
National Resource Center	84.015	P015A140111-17		0	53,328
National Resource Center	84.015	P015A140111-17		0	50,960
National Resource Centers	84.015	P015A140108-17		0	37,519

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
National Resource Center	84.015	P015A140111-17		0	27,603
National Resource Centers	84.015	P015A140108-17		0	21,107
National Resource Centers	84.015	P015A140115-17		0	20,448
National Resource Centers	84.015	P015A140115-17		0	12,320
National Resource Center	84.015	P015A140111-17		0	6,534
National Resource Center	84.015	P015A140111-17		0	6,333
Foreign Language and Area Studies Fellowships	84.015	P015B140111-17		0	6,000
National Resource Centers	84.015	P015A140108-17		0	5,231
Foreign Language and Area Studies Fellowships	84.015	P015B140110-17		0	5,148
Foreign Language and Area Studies Fellowships	84.015	P015B140108-17		0	2,500
National Resource Center	84.015	P015A140111-17		0	2,165
National Resource Center	84.015	P015A140111-17		0	2,119
National Resource Center	84.015	P015A140111-17		0	2,044
National Resource Center and Foreign Language Area Studies	84.015	DE-P015A100026		0	-1
National Resource Center	84.015	P015A140111-17		0	-648
National Resource Center	84.015	P015A140111-17		0	-1,383
				$352,724	$2,033,249
Overseas Programs - Doctoral Dissertation Research Abroad					
Fulbright-Hays Doctoral Dissertation Research Abroad	84.022	P022A160039		0	94,986
FY2017 Fulbright-Hays Doctoral Dissertation Research Abroad	84.022	P022A170038		0	87,148
				$0	$182,134
Education Research, Development and Dissemination					
Learning from Errors	84.305	R305A150467-17		0	331,296
Solving Difficult Bayesian Computation Problems in Education Research Using STAN	84.305	DE R305D140059-16		11,509	56,434
Getting Ready for School: An Integrated Curriculum to Help Teachers and Parents Support Preschool Children s Early Literacy, Math and Self-regulation Skills	84.305	DE R305A120783-14		0	5,081
				$11,509	$392,810

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Total Direct Award Programs				**$364,233**	**$2,608,193**
Pass-through Awards					
Education Research, Development and Dissemination					
NYU/Columbia Quantitative Postdoctoral Training Program	84.305	NYU F7080-01	R305B120017-16A	0	43,651
				$0	$43,651
Total Pass-through Programs				**$0**	**$43,651**
Total: Department of Education				**$364,233**	**$2,651,844**
Department of Agriculture					
Direct Awards					
Agricultural Research Basic and Applied Research					
Harnessing natural cariation in the ability of the Asian citrus psylid to transmit Liberibacter for the development of novel HLB	10.001	USDA 59-8062-6-012		0	452,717
				$0	$452,717
Agricultural and Rural Economic Research, Cooperative Agreements and Collaborations					
Towards an Understanding of Supply Chains in Agriculture	10.250	USDA 58-3000-4-0046		22,070	22,070
				$22,070	$22,070
Total Direct Award Programs				**$22,070**	**$474,787**
Pass-through Awards					
1890 Institution Capacity Building Grants					
A Modeling Approach in Climate Change and Natural Resource Education	10.216	SUAMC OSP-02-8300-2016-0016	USDA 2017-38821-26444	0	8,160
				$0	$8,160
Consumer Data and Nutrition Research					
Intergenerational transmission of food insecurity and the role of food assistance programs in moderating the transmission of food insecurity across generations	10.253	UKRF 3200000900-17-239	58-4000-6-0059-R	0	21,242
SNAP Benefit Levels, Food Insecurity, and Diet Quality Evidence from the Food Acquisition and Purchase Survey	10.253	UK 58-5000-3-0066	3048110944-16-246	0	6,022
				$0	$27,263

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Agriculture and Food Research Initiative (AFRI)					
Nitrogen Transformations in Aquaponic Systems	10.310	RCUH MA1020	2013-67019-21376	0	5,083
				$0	$5,083
Total Pass-through Programs				**$0**	**$40,506**
Total: Department of Agriculture				**$22,070**	**$515,294**
Department of Homeland Security					
Direct Awards					
State and Local Homeland Security National Training Program					
Economic Recovery from Disasters Training Program	97.005	EMW-2016-CA-00123-S01		0	451,083
Addressing Gaps in Housing Disaster Recovery: A Training Program for the Whole Community	97.005	EMW-2017-CA-00043-S01		0	258,576
				$0	$709,659
Total Direct Award Programs				**$0**	**$709,659**
Pass-through Awards					
Department of Homeland Security					
Transcriptional analysis of burkholderia pseudomallei infected nonhuman primates	97	BNBI BN16-0017	HSHQDC-15-C- 00064	0	14,760
				$0	$14,760
Total Pass-through Programs				**$0**	**$14,760**
Total: Department of Homeland Security				**$0**	**$724,419**
Department of Interior					
Direct Awards					
U.S. GEOLOGICAL SURVEY/DEPARTMENT OF THEINTERIOR					
Measurement of Tritum, Helium, Neon, 3He/4He and Noble Gases in Ground Water Samples	15	USGS G15PC00070		0	48,847
Measurement of Tritum, Helium, Neon, 3He/4He and Noble Gases in Groundwater Samples	15	USGS G11PC00051		0	-68
				$0	$48,779

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Water Desalination Research and Development					
Improved Energy Efficiency of Electrodialysis Desalination and Separation:Development of Percolating Network Nanocomposite Ion-Exchange Membranes for High Conductivity	15.506	DIBR R16AC00124		0	99,600
				$0	$99,600
Earthquake Hazards Program Assistance					
Operation of the Lamont Cooperative Seismographic Network and the Northeastern United States Earthquake Data Center	15.807	USGS G15AC00045		0	302,571
				$0	$302,571
U.S. Geological Survey Research and Data Collection					
USGS -IEDA Partnership to Suppoert a Data Lifecycle Framework and Tools	15.808	USGS G13AC00381		0	28,106
A Guide to Natural Hazards Communication	15.808	USGS G15AC00449		0	21,275
				$0	$49,381
Cooperative Research and Training Programs Resources of the National Park System					
Conduct Historical Research for Governors Island National Monument	15.945	NPS P12AC10964		0	5,199
				$0	$5,199
Total Direct Award Programs				**$0**	**$505,530**
Pass-through Awards					
Department of the Interior					
Creation of Operationally Realistic 3D Environment (CORE3D)	15	KITWARE K002037-00-S01	D17PC00286	0	115,413
				$0	$115,413
National and Regional Climate Adaptation Science Centers					
A Proposal to the Department of the Interior to Establish the Northeast Climate Science Center	15.820	UMASS 12-007036 D 12	G12AC00001	0	53,856
A Proposal to the Department of the Interior to Establish the Northeast Climate Science Center	15.820	UMASS 12-007036 D 12	G12AC00001	0	23,388
A Proposal to the Department of the Interior to Establish the Northeast Climate Science Center	15.820	UMASS 12-007036 D 12	G12AC00001	0	17,525
Examining the Mechanisms of Species Responses to Climate Change: Are there Biological Thresholds?	15.820	UMASS 17-009638 B 01	G16AC00256	0	16,514
Examining the Mechanisms of Species Responses to Climate Change: Are there Biological Thresholds?	15.820	UMASS 17-009638 B 01	G16AC00256	0	7,134

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
A Proposal to the Department of the Interior to Establish the Northeast Climate Science Center	15.820	UMASS 12-007036 D 12	G12AC00001	0	2,770
				$0	$121,187
Cooperative Research and Training Programs □ Resources of the National Park System					
Metrics for general circulation model biases in extratropical cyclone clouds and precipitation: evaluating their skill and identifying processes to be improved	15.945	RFCUNY 49300A	NA15OAR4310094	0	30,235
				$0	$30,235
Total Pass-through Programs				**$0**	**$266,835**
Total: Department of Interior				**$0**	**$772,365**
Department of Justice					
Pass-through Awards					
National Institute of Justice Research, Evaluation, and Development Project Grants					
Studying the Impact of Video Analytics for Pre, Live and Post Event Analysis on Outcomes of Criminal Justice	16.560	UCF CU15-1688	2015-R2-CX-K025	0	75,207
Space-time study of youth and school violence	16.560	UPENN 565802	2014-CK-BX-0008	0	57,659
				$0	$132,866
Total Pass-through Programs				**$0**	**$132,866**
Total: Department of Justice				**$0**	**$132,866**
Department of Labor					
Pass-through Awards					
Department of Labor					
2017-18 DOL Scholars Program	17	AVAR Columbia-2017-001	DOL-OPS-15-C-0060	0	48,984
				$0	$48,984
Total Pass-through Programs				**$0**	**$48,984**
Total: Department of Labor				**$0**	**$48,984**
Department of State					
Direct Awards					

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Department of State					
Evaluating MUHURI s Youth Security Forums: How Can Governments Counter Violent Extremism?	19	DS SAQMMA16M2860		0	68,171
				$0	$68,171
Investing in People in The Middle East and North Africa					
Fostering Entrepreneurship in Engineering Education in Tunsia	19.021	S-TS800-15-GR-035/PDPR 03		0	19,304
				$0	$19,304
Total Direct Award Programs				**$0**	**$87,475**
Total: Department of State				**$0**	**$87,475**
Department of Transportation					
Pass-through Awards					
Federal Aviation Administration					
Blue-sky Thinking: Impact of Airport Connectivity on Regional Innovation in the U.S	20	ODURF CU16-2647	FAA CU16-2647	0	2,196
				$0	$2,196
Highway Research and Development Program					
A Novel Vision Sensor for Remote Measurement of Bridge Displacement	20.200	NCHRP-189	DTFH61-13-H-00024	0	51,890
				$0	$51,890
University Transportation Centers Program					
National University Transportation Consortium: A Speaker Recognition Based Damage Detection	20.701	RUTGERS-00005238 PO-S2087565	DTRT13-G-UTC28	0	72,720
				$0	$72,720
Total Pass-through Programs				**$0**	**$126,805**
Total: Department of Transportation				**$0**	**$126,805**
Department of Veterans Affairs					
Direct Awards					
Department of Veterans Affairs					

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Neuronal Subtype Specific Epigenetic Regulation in Schizophrenia	64	DVAMC CU16-3298		0	16,000
Neuronal Subtype Specific Epigenetic Regulation in Schizophrenia	64	DVAMC CU16-3298		0	12,193
Visual Sensory Impairments and Progression Following Mild Traumatic Brain Injury View	64	DVAMC VA263-17-P-2625		0	11,090
				$0	$39,283
Total Direct Award Programs				**$0**	**$39,283**
Total: Department of Veterans Affairs				**$0**	**$39,283**
Dept. of HousingUrban Development					
Direct Awards					
Transformation Initiative: Rental Assistance Demonstration Small Research Grant Program					
Examining the Impact of Rental Assistance Demonstration on Children Living in Public Housing Communities	14.535	HUD H-21666CA		10,545	36,725
				$10,545	$36,725
Healthy Homes Technical Studies Grants					
Fungal Exposure in N.Y.C. Low-Income Housing Pre-and Post- Intervention	14.906	NYHHU0030-15		144,029	295,062
Smoke-Free Living: Evaluating Compliance and Refining Enforcement of Smoke-free Housing Policy in Low-Income Multiple Unit Housing	14.906	NYHHU0034-16		128,058	255,142
				$272,087	$550,204
Total Direct Award Programs				**$282,632**	**$586,928**
Total: Dept. of HousingUrban Development				**$282,632**	**$586,928**
Environmental Protection Agency					
Direct Awards					
Environmental Protection Agency					
Quantifying and modeling the long-term performance of urban green roofs for stormwater in New York City	66	EP-15-C-000016		0	17,884
				$0	$17,884
Science To Achieve Results (STAR) Research Program					
Quantifying Risks From Changing U.S. PM2.5 Distributions Due to Climate Variability and Warming with Large Multi-Model Ensembles and High-Reolution Donscaling	66.509	EPA RD-83587801-4		62,648	136,935

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		0	112,772
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		28,032	100,777
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		0	86,683
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		60,434	60,434
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		0	49,971
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		0	29,956
				$151,114	$577,529
Science To Achieve Results (STAR) Fellowship Program					
Alternative Stable States in Nitrogen Fixer Abundance	66.514	EPA 91781501		0	13,032
A novel analytic method for evaluating early life susceptibility to chemical stressors	66.514	EPA 91779001		0	7,121
				$0	$20,152
Total Direct Award Programs				**$151,114**	**$615,565**
Pass-through Awards					
Science To Achieve Results (STAR) Research Program					
The Multi-Ethnic Study of Atherosclerosis and Air Pollution (MESA Air): Next Stage	66.509	UWSC10109	838300001-0	0	35,462
Development and Implementation of a Process Technology toolbox for sustainable biological nitrogen removal using mainstream deammonification	66.509	WARF 4855 (STAR N2R14)	RD-83556701	0	14,893
				$0	$50,355
Office of Research and Development Consolidated Research/Training/Fellowships					
Assessing Adverse Health Effects of Long-Term Exposure to Low Levels of Ambient Air Pollution	66.511	HARVARD 114500-5104310	EPA 83467701	0	53,203
				$0	$53,203
Total Pass-through Programs				**$0**	**$103,558**
Total: Environmental Protection Agency				**$151,114**	**$719,123**
Japan US Friendship Commission					
Direct Awards					
Japan-U.S. Friendship Commission Grants					

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
The Japan-U.S. Friendship Commission Prize for the Translation of Japanese Literature	90.300	JAPUS 17-17		0	14,774
The Japan-U.S. Friendship Commission Prize for the Translation of Japanese Literature	90.300	JAPUS 17-17		0	6,000
2016 -2017 The Japan-U.S. Friendship Commission Prize for the Translation of Japanese Literature	90.300	JAPUS 16-28		0	-21
2016 -2017 The Japan-U.S. Friendship Commission Prize for the Translation of Japanese Literature	90.300	JAPUS 16-28		0	-93
				$0	$20,660
Total Direct Award Programs				**$0**	**$20,660**
Total: Japan US Friendship Commission				**$0**	**$20,660**

Nat. Endowment for the ArtsHumanities

Direct Awards

Promotion of the Humanities Division of Preservation and Access

Language and Culture Archive of Ashkenazic Jewry: Digitizing the Data	45.149	PW-228212-15		0	7,474
				$0	$7,474

Promotion of the Humanities Research

Craft Techniques and Knowledge Systems in a 16th-Century Artist s Manuscript: An Open-Access Critical Edition and Translation	45.161	NEH RQ-249842-16		0	154,933
Relocating Heart Disease in the Tropics: Race, and Modernization in Post-Independence India	45.161	RZ-51759-14		15,125	41,030
The Selected Papers of John Jay: Publication of Vols. 5 and 6 and Submission to Press of Vol 7.	45.161	NEH RQ-230395-15		0	38,303
Outbreak Anxieties. The Contingent Politics of Panic and Crisis in America	45.161	RZ-51757-14		0	3,231
				$15,125	$237,497

Promotion of the Humanities Professional Development

AMERICA ENGAGES EURASIA. 19TH-CENTURY PRESENT: STUDIES, TEAC HING AND RESOURCES IN THEIR HISTORICAL GEOPOLITICAL FRAMES	45.163	EH-50234-10		0	-1
				$0	$-1

Promotion of the Humanities Office of Digital Humanities

SARIT: Enriching Digital Text Collections in Infology	45.169	NEH HG-50041-13		0	-563
				$0	$-563

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
National Leadership Grants					
Reverse Engineering the Image Library: the feasibility of using deep learning to identify significance in a 35mm slide collection	45.312	IMLS LG-89-17-0218-17		0	11,809
				$0	$11,809
Total Direct Award Programs				**$15,125**	**$256,215**
Pass-through Awards					
Promotion of the Humanities Office of Digital Humanities					
Humanities CORE	45.169	MLA CU16-0295	HD-250665	0	37,392
Analyzing Large-Scale Data for Patterns in Jazz	45.169	UIL 087569-16852	HJ-253587-17	0	10,690
				$0	$48,082
Total Pass-through Programs				**$0**	**$48,082**
Total: Nat. Endowment for the ArtsHumanities				**$15,125**	**$304,297**
National Archives and Records Administration					
Direct Awards					
National Historical Publications and Records Grants					
The Selected Papers of John Jay, Year 14 (2017-2018)	89.003	NHPRC PE-100093-17		0	87,163
The Selected Papers of John Jay. Year 13. 2016-2017	89.003	NHPRC PE-50026-16		0	49,729
				$0	$136,892
Total Direct Award Programs				**$0**	**$136,892**
Total: National Archives and Records Administration				**$0**	**$136,892**
Nuclear Regulatory Commission					
Direct Awards					
U.S. Nuclear Regulatory Commission Scholarship and Fellowship Program					
Faculty Development Program in Probabilistic Low-D	77.008	NRC-HQ-84-16-G-0013		0	88,237
				$0	$88,237

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Total Direct Award Programs				**$0**	**$88,237**
Total: Nuclear Regulatory Commission				**$0**	**$88,237**
Other Agencies / Gov't					
Direct Awards					
Adult Polyglucosan Body Disease ResearchFoundation					
Adult Polyglucosan Body Disease Research Foundation	99	APBDRF CU14-1290		0	3,351
KANSAS STATE UNIVERSITY					
Immunogens of high impact livestock pathogens	99	KSU-1048		0	836
				$0	$4,187
Total Direct Award Programs				**$0**	**$4,187**
Pass-through Awards					
Small Business Development Centers					
The New York Small Business Development Center (NY SBDC)	59.037	RFSUNY 79337	SBA1142365	0	169,777
SBDC-RFSUNY project FY2017	59.037	SUNYRF 76351	SBA 1135774	0	67,003
				$0	$236,780
Total Pass-through Programs				**$0**	**$236,780**
Total: Other Agencies / Gov't				**$0**	**$240,967**
Social Secuirty Administration					
Pass-through Awards					
Social Security Administration/DHHS					
Early Intervention Mental Health Demonstration Study	96	WESTAT 6464-S02	SS001660014	0	134,974
				$0	$134,974
Total Pass-through Programs				**$0**	**$134,974**
Total: Social Secuirty Administration				**$0**	**$134,974**

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
United States Agency for International Dvlpt.					
Direct Awards					
USAID Foreign Assistance for Programs Overseas					
A Validation Study on the Skill, Based on Accuracy and Reliability of Weather Forecasts from Ignitia AB to Smallholder Farmers in West Africa	98.001	AID-OAA-F-17-00064		0	90,000
SAInS: School Action for innovations in Science	98.001	AID-497-A-13-00001		0	-821
Water-Agriculture-Livelihood Security in India	98.001	AID-386-A-12-00001		0	-6,709
				$0	$82,470
Total Direct Award Programs				**$0**	**$82,470**
Pass-through Awards					
U.S. Agency for International Development					
West Africa Biodiversity and Climate Change	98	TETRAARD 1861-CIESIN-000-001	AID-OAA-I-13-0058	0	281,106
Improving Climate Services for Resilient Development (CSRD) in Colombia	98	CIAT C-136-16	USAID CU16-3371	0	100,827
SERVIR for USAID West Africa	98	TETRARD 1865-Columbia-001	AID-OAA-I-13-00058	0	74,726
Water Security and Climate Risk: A Philippine Climate Change Adaptation Strategy for the Agriculture Sector	98	UPLBFI 2012-086	M-OAA-GRO-EGAS-DGP-11-0001	886	24,077
Social accountability in Nicaragua	98	NORC 7554	GS-10F-0033M	0	22,858
Insuring Intensification: Climate Variability, Water Stress and Sustainability of Small Holder Agriculture in East Africa	98	PURDUNIV 8000066666	AID CU15-0449	0	18,917
SERVIR for USAID West Africa	98	TETRARD 1865-Columbia-001	AID-OAA-I-13-00058	0	13,505
USAID Municipal Waste Recycling Program Proposed SOW for CSUD Earth Institute	98	DIG CU16-1664	USAID CU16-1664	0	9,999
				$886	$546,014
USAID Foreign Assistance for Programs Overseas					
Predict 2	98.001	ECOHA PREDICT 2	AID CU15-0064	0	442,406
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	395,402
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	354,820
PREDICT-2 Davis	98.001	UCD 201403200-09	AID-OAA-A-14-00102	0	309,903
Predict 2	98.001	ECOHA PREDICT 2	AID CU15-0064	0	303,832

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	R&D Cluster Subrecipients	R&D Cluster Total Expenditures (Includes Subrecipients)
Integrated HIV/AIDS Program (IHAP)	98.001	AID.2179-01542564-PAL	AID-660-A-17-00001	0	298,568
Climate Services for Agriculture-Rwanda	98.001	CIAT C-165-15	USAID CU15-3757	0	260,440
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	256,993
Assessing Sustainability and Effectiveness of Climate Information Services in Africa (CIS)	98.001	WINRK 6776-17-AM-01	AID-OAA-A-16-00056	0	231,935
Elucidation of Genetic Markets to Detect P. falciparum Resistance to MMV-Supported Antimalarials (Enabling Technologies)	98.001	MMV CU09-1816	AID CU09-1816	0	228,164
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	210,684
Toward a Learning Agenda: Generating knowledge and evidence for CIS design and implementation	98.001	MERCY IRI-COLUMBIA CISRI 32946	AID-OAA-A-16-0072	0	177,488
Climate Services for Resilient Development (CSRD) in South Asia and Bangladesh	98.001	CIMMYT CU17-2016	USAID CU17-2016	0	175,980
PREDICT-2 Davis	98.001	UCD 201403200-09	AID-OAA-A-14-00102	0	128,035
Climate Services for Africa	98.001	CIAT C-009-16	USAID CU16-0337	0	120,888
Understanding the Mechanism of Arsenic and Fluoride and Reducing Exposure by Targeting Low Arsenic and Fluoride Aquifers in Rural Punjab, Pakistan	98.001	NAS 2000006111	ESP-A-00-05-00001-00	0	73,888
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	60,254
Linking Climate Services and Soil Diagnostics for Climate-smart Decisions for Small-scale Farmers and Service Providers	98.001	MSU RC102194	USAID AID OAA-A-13-0006	20,357	56,891
Evaluating the effect of site-specific soil information on farmer input choices and the relationship between poverty and soil quality	98.001	UCD 201121454-15	AID-OAA-L-12-00001	11,104	33,735
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC D1509970	AID-OAA-A-15-0069	0	31,867
Integrated HIV/AIDS Program (IHAP)	98.001	AID.2179-01542564-PAL	AID-660-A-17-00001	0	16,531
SoilDoc System Malawi, Mozambique and Tanzania	98.001	2015 SSTP 025	USAID CU15-1753	-6,450	11,363
CHPS+FP: An innovative and scalable intervention for increasing contraceptive use in Ghana	98.001	FY16-CR06-6017	AID-641-A-14000002	0	8,020
Integrating Climate Risk Information for Agricultural Resilience and Forest Conservation in Paraguay	98.001	WWF #OT17	AID-OAA-A-15-00065	0	6,411
Integrating Climate Risk Information for Agricultural Resilience and Forest Conservation in Paraguay	98.001	WWF #OT17	AID-OAA-A-15-00065	0	5,137
PREDICT-2 Davis	98.001	UCD 201403200-09	AID-OAA-A-14-00102	0	-2,476
				$25,011	$4,197,160
Global Development Alliance					
Satellite Technologies, Innovative and Smart Financing for Food Security (SATISFy)	98.011	IFPRI 2016X375.CUN	AID-OAA-A-14-00022	0	15,351
Phase II Trial to Assess the Safety and Acceptability of the long-acting Injectable HIV Integrase Inhibitor, Calbotegravir (GSK126744), in HIV Uninfected Women I KwaZulu Natal, South Africa	98.011	CAPRISA CU16-0163	AID-OAA-A-15-00040	0	3,221
				$0	$18,572

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Total Pass-through Programs				**$25,897**	**$4,761,746**
Total: United States Agency for International Dvlpt.				**$25,897**	**$4,844,216**
Total: Research & Development Cluster				**$84,436,190**	**$695,989,473**

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The Trustees of Columbia University in the City of New York
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Student Financial Aid Cluster

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Student Financial Assistance Cluster					
Department of Health & Human Services					
Direct Awards					
Health Professions Student Loans, Including Primary Care Loans/Loans for Disadvantaged Students					
LDS - Dentistry	93.342			0	10,298,270
LDS - Dentistry - GRANT TYPE	93.342	1E31HP27258-02-00		0	11,690
				$0	$10,309,960
Nursing Student Loans					
Nursing Students	93.364			0	1,395,040
				$0	$1,395,040
Total Direct Award Programs				**$0**	**$11,705,000**
Total: Department of Health & Human Services (Excluding NIH)				**$0**	**$11,705,000**
Department of Education					
Direct Awards					
Federal Supplemental Educational Opportunity Grants					
Federal Supplemental Education Opportunity Grant(FSEOG) 2016-2017	84.007	P007A172737		0	1,116,934
				$0	$1,116,934
Federal Work-Study Program					
Federal Work Study 2017-2018	84.033	P033A172737		0	6,603,848
				$0	$6,603,848
Federal Perkins Loan Program					
Federal Perkins Loans	84.038			0	60,959,386
				$0	$60,959,386

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				Student Financial Aid Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Federal Pell Grant Program					
Pell Grant Program 2017-2018	84.063	PELL CU16-1335		0	9,576,923
				$0	$9,576,923
Federal Direct Student Loans					
Federal Direct Loan Program 18/19	84.268	P268K191840		0	306,073,567
				$0	$306,073,567
Total Direct Award Programs				**$0**	**$384,330,658**
Total: Department of Education				**$0**	**$384,330,658**
Total: Student Financial Assistance Cluster				**$0**	**$396,035,658**

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The Trustees of Columbia University in the City of New York
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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Child Care Development Cluster Subrecipients	Child Care Development Cluster Total Expenditures (Includes Subrecipients)
Child Care & Development Fund Cluster					
Department of Health & Human Services					
Direct Awards					
Child Care and Development Block Grant					
Child Care and Early Education Research Connections - ACF	93.575	90YE0143-05-03		284,396	790,473
Child Care and Early Education Research Connections - ACF	93.575	90YE0143-05-03		298,666	489,887
				$583,062	$1,280,360
Total Direct Award Programs				**$583,062**	**$1,280,360**
Total: Department of Health & Human Services (Excluding NIH)				**$583,062**	**$1,280,360**
Total: Child Care & Development Fund Cluster				**$583,062**	**$1,280,360**

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Foreign Food Donation-USAID Cluster Subrecipients	Foreign Food Donation-USAID Cluster Total Expenditures (Includes Subrecipients)
Foreign Food Aid Donation Cluster (USAID)					
United States Agency for International Dvlpt.					
Pass-through Awards					
Food for Peace Emergency Program (EP)					
Measuring Separation in Emergencies	98.008	SCF 999000925	AID-OFDA-G15-00176	0	35,225
				$0	$35,225
Total Pass-through Programs				**$0**	**$35,225**
Total: United States Agency for International Dvlpt.				**$0**	**$35,225**
Total: Foreign Food Aid Donation Cluster (USAID)				**$0**	**$35,225**

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	TRIO Cluster Subrecipients	TRIO Cluster Total Expenditures (Includes Subrecipients)
TRIO Cluster					
Department of Education					
Direct Awards					
TRIO Talent Search					
CCO DDC Talent Search	84.044	DE-P044A160893		0	335,157
				$0	$335,157
TRIO Upward Bound					
TRIO Upward Bound Program	84.047	P047A170670-18		0	759,947
Upward Bound Program	84.047	P047A121775		0	14,481
				$0	$774,428
Total Direct Award Programs				**$0**	**$1,109,585**
Total: Department of Education				**$0**	**$1,109,585**
Total: TRIO Cluster				**$0**	**$1,109,585**

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The Trustees of Columbia University in the City of New York
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Global Aids

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Global Aids					
Department of Health & Human Services					
Direct Awards					
Global AIDS					
Supporting Sustainable Implementation of HIV and TB Services for Epidemic Control in the Republic of Mozambique under PEPFAR	93.067	5NU2GGH001944-03-00		0	21,946,993
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		13,113,087	15,269,001
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		7,671,256	14,082,948
Supporting Sustainable Implementation of HIV and TB Services for Epidemic Control in the Republic of Mozambique under PEPFAR	93.067	5NU2GGH001944-03-00		418,843	10,108,448
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	8,798,411
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		919,793	7,980,751
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		3,434,912	7,172,641
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		28,429	7,096,537
Ethiopia Technical Assistance 1036 (NY)	93.067	6NU2GGH001036-05-04		245,312	7,053,343
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		1,781,701	6,653,211
Increase Access to Comprehensive HIV/AIDS Prevention, Care and Treatment Services in the Democratic Republic of Congo under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001351-04-00		185,845	6,616,389
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		804,538	6,311,492
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		3,490,142	5,645,403
Ethiopia Technical Assistance 1036 (NY)	93.067	6NU2GGH001036-05-04		621,528	5,622,711
Implementation of Programs for the Prevention, Care and Treatment of HIV/AIDS in the Republic of Cote d Ivoire under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH002015-02-00		511,690	4,907,444
Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		414,221	4,580,626
Increase Access to Comprehensive HIV/AIDS Prevention, Care and Treatment Services in the Democratic Republic of Congo under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001351-04-00		492,104	4,330,168
South Sudan Scale-Up (NY)	93.067	5NU2GGH001335-04-00		60,675	3,197,411
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		265,667	3,168,515
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		708,310	3,010,976
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		1,117,293	1,878,856

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Global Aids

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	1,830,183
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		32,929	1,664,699
Swaziland HIV/TB Lab (NY)	93.067	5NU2GGH001307-04-00		50,000	1,615,876
Supporting the Provision of High Quality, Comprehensive, and Sustainable HIV Services in National Teaching and Referral Hospitals in the Republic of Kenya under PEPFAR	93.067	5NU2GGH001952-03-00		458,232	1,612,417
Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		0	1,383,404
Implementation of Programs for the Prevention, Care and Treatment of HIV/AIDS in the Republic of Cote d Ivoire under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH002015-02-00		0	1,337,583
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	1,290,671
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	1,216,282
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	1,196,643
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	1,089,132
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5NU2GGH001128-05-00		0	1,032,147
Supporting the Provision of High Quality, Comprehensive, and Sustainable HIV Services in National Teaching and Referral Hospitals in the Republic of Kenya under PEPFAR	93.067	5NU2GGH001952-02-00		456,609	989,091
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	923,895
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	914,731
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	892,329
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		302,811	838,222
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	831,753
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		63,332	825,444
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	775,805
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	774,970
South Sudan Scale-Up (NY)	93.067	5NU2GGH001335-04-00		0	751,931
Swaziland HIV/TB Lab (NY)	93.067	5NU2GGH001307-04-00		0	655,191
Supporting Sustainable Implementation of HIV and TB Services for Epidemic Control in the Republic of Mozambique under PEPFAR	93.067	5NU2GGH001944-03-00		0	630,508
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	616,184
GH13-1368 HQ Global Technical Assistance	93.067	6NU2GGH000994-05-06		0	608,805
Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		0	591,412

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Global Aids

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Ethiopia Technical Assistance 1036 (NY)	93.067	6NU2GGH001036-05-04		0	574,103
Swaziland HIV/TB Lab (NY)	93.067	5NU2GGH001307-04-00		0	573,389
Expand Coverage and Improve the Quality of Facility and Community-Based Prevention of Mother to Child Transmission of HIV (PMTCT) Support for Rollout of Option B+ Services in the Littoral and Center R	93.067	5 NU2GGH001352-03-00		0	570,998
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	539,450
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	529,846
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	523,944
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	518,279
Technical Assistance to National Health Information Systems and Health Workforce Development of the Federal Democratic Republic of Ethiopia under the President s Emergency Plan for AIDS Relief (PEPFA	93.067	5NU2GGH002090-02-00		0	503,851
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	499,658
Technical Assistance Program Area #2 1194 (NY)	93.067	5NU2GGH001194-05-00		0	489,570
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	449,526
Strengthening Epidemiology and Strategic Information in the Republic of Zimbabwe under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001939-03-00		0	430,968
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-06		0	418,128
Increase Access to Comprehensive HIV/AIDS Prevention, Care and Treatment Services in the Democratic Republic of Congo under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001351-04-00		0	393,262
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	383,861
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		152,113	377,968
Strengthening Epidemiology and Strategic Information in the Republic of Zimbabwe under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001939-03-00		0	369,012
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	340,968
Implementation of Programs for the Prevention, Care and Treatment of HIV/AIDS in the Republic of Cote d Ivoire under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH002015-02-00		0	337,828
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	330,664
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	317,773
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-06		0	315,441
Supporting Sustainable Implementation of HIV and TB Services for Epidemic Control in the Republic of Mozambique under PEPFAR	93.067	5NU2GGH001944-03-00		0	303,761
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	285,234
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	282,419
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	260,750

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Global Aids

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Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		0	245,320
GH13-1368 Global Technical Assistance - CAR COP - NY	93.067	5NU2GGH000994-05		0	244,197
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		0	238,828
Supporting Sustainable Surveillance Systems Among Key Populations (KP) and Support the Government of Zambia to Improve HIV-related Services for KP under the President s Emergency Plan for AIDS Relief	93.067	5NU2GGH002056-02-00		0	235,715
Ethiopia Technical Assistance 1036 (NY)	93.067	6NU2GGH001036-05-04		0	231,598
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	224,129
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	215,701
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	210,447
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	206,749
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	204,965
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-06		163,497	201,901
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	197,142
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	192,329
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	185,694
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	182,953
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	181,408
Lesotho, Provide Miner-friendly SErvices for Integrated TB/HIV Care (PROMISE)	93.067	5U01GH002115-03-00		0	179,690
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	176,119
Supporting the Provision of High Quality, Comprehensive, and Sustainable HIV Services in National Teaching and Referral Hospitals in the Republic of Kenya under PEPFAR	93.067	5NU2GGH001952-03-00		0	175,867
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	168,336
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	168,227
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	162,178
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-06		0	157,165
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	155,611
Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		0	151,880
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	149,780

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Global Aids

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Swaziland HIV/TB Lab (NY)	93.067	5NU2GGH001307-04-00		0	149,449
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	149,364
Technical Assistance Program Area #2 1194 (NY)	93.067	5NU2GGH001194-05-00		0	148,192
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	144,124
Expand Coverage and Improve the Quality of Facility and Community-Based Prevention of Mother to Child Transmission of HIV (PMTCT) Support for Rollout of Option B+ Services in the Littoral and Center R	93.067	5 NU2GGH001352-03-00		0	138,100
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		28,666	137,028
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	135,843
GH13-1368 Global Technical Assistance - CAR COP - NY	93.067	5NU2GGH000994-05		0	134,652
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	131,663
South Sudan Scale-Up (NY)	93.067	5NU2GGH001335-04-00		0	130,695
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	130,580
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	128,426
Implementation of Programs for the Prevention, Care and Treatment of HIV/AIDS in the Republic of Cote d Ivoire under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH002015-02-00		0	127,973
Increase Access to Comprehensive HIV/AIDS Prevention, Care and Treatment Services in the Democratic Republic of Congo under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001351-04-00		0	127,193
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	126,617
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	125,703
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	123,729
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	123,399
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	119,743
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	117,157
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	116,736
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	115,504
Technical Assistance to National Health Information Systems and Health Workforce Development of the Federal Democratic Republic of Ethiopia under the President s Emergency Plan for AIDS Relief (PEPFA	93.067	5NU2GGH002090-02-00		0	114,514
GH13-1368 Global Technical Assistance - CAR COP - NY	93.067	5NU2GGH000994-05		0	110,939
Lesotho, Provide Miner-friendly SErvices for Integrated TB/HIV Care (PROMISE)	93.067	5U01GH002115-03-00		0	103,689
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	103,459

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	102,975
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	101,160
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	96,196
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	92,695
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	90,121
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	89,150
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	89,023
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	84,466
Technical Assistance Program Area #2 1194 (NY)	93.067	5NU2GGH001194-05-00		0	83,548
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	77,362
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	74,040
Strengthening Epidemiology and Strategic Information in the Republic of Zimbabwe under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001939-03-00		0	72,579
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5NU2GGH001128-05-00		0	72,301
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	70,018
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	69,656
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	69,153
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	66,624
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	65,994
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	64,372
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	64,371
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	62,069
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	61,924
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	60,891
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	58,798
Supporting Sustainable Surveillance Systems Among Key Populations (KP) and Support the Government of Zambia to Improve HIV-related Services for KP under the President s Emergency Plan for AIDS Relief	93.067	5NU2GGH002056-02-00		0	58,739
GH13-1368 HQ Global Technical Assistance	93.067	6NU2GGH000994-05-06		0	57,469

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	54,910
Swaziland HIV/TB Lab (NY)	93.067	5NU2GGH001307-04-00		0	53,852
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	53,689
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	51,310
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	51,272
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	51,093
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	50,203
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	49,079
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	48,807
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	47,829
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	47,425
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	46,500
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	45,388
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	44,345
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	43,307
South Sudan Scale-Up (NY)	93.067	5NU2GGH001335-04-00		0	42,864
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	42,701
Strengthening Epidemiology and Strategic Information in the Republic of Zimbabwe under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	5NU2GGH001939-03-00		0	42,257
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	42,049
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	41,324
GH13-1368 Global Technical Assistance - CAR COP - NY	93.067	5NU2GGH000994-05		0	40,406
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	39,531
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		0	39,366
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	36,209
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		28,029	34,529
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	33,661

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	33,144
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	32,236
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	32,116
Swaziland - Quality-Assured (NY)	93.067	5NU2GGH001433-04-00		0	31,968
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	31,207
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	28,946
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		0	28,755
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	28,361
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	27,777
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	27,443
Technical Assistance Program Area #2 1194 (NY)	93.067	5NU2GGH001194-05-00		0	26,905
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	26,548
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	26,201
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	25,947
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	25,907
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	25,693
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	24,876
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	23,796
GH13-1368 HQ Global Technical Assistance	93.067	5NU2GGH000994-05		0	23,364
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		22,543	22,543
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	20,919
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	20,849
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	18,755
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	17,004
Supporting the Provision of High Quality, Comprehensive, and Sustainable HIV Services in National Teaching and Referral Hospitals in the Republic of Kenya under PEPFAR	93.067	5NU2GGH001952-02-00		0	15,829
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	15,222

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	13,416
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	13,170
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	12,063
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	12,023
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	11,509
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	11,316
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	11,237
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	11,063
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	10,563
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	8,413
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	7,920
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	7,717
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	7,543
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	7,042
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	5,887
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	5,857
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	5,840
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	5,296
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	5,292
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-06		0	4,323
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	4,149
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	4,138
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	3,439
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	2,961
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	2,602
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	2,568

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	2,473
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	2,381
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	1,552
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	1,419
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5NU2GGH001128-05-00		0	1,003
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	718
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	580
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	515
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	473
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	256
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	206
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	166
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	48
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	38
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	37
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	17
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	17
IMPLEMENTING COMPREHENSIVE HIV PREVENTION SERVICES FOR INJEC TING DRUG USERS AND OTHER MOST-AT-RISK POPULATIONS IN THE UN	93.067	1 U2G PS000950-01		0	-1
UTAP 2: TANZANIA (NY)	93.067	5U2GPS001521-05		0	-3
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-14
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5NU2GGH001128-05-00		0	-21
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-48
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-135
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	-168
Tanzania Peds TB/HIV 0193 - NY	93.067	5U2GGH000193-04		0	-171
Implementation of Program for the Intervention, Care and Treatment of HIV/AIDS	93.067	6 NU2GGH000119-05-03		0	-294

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-498
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-1,123
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-1,752
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-2,186
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-2,194
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-06		0	-2,283
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-2,673
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5NU2GGH001128-05-00		0	-2,975
MZ Technical Assistance 0424 (NY)	93.067	5U2GGH000424-04		0	-3,100
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	-3,928
Strengthening National Epidemiology and Research Capacity to Improve Health Outcomes in the Kingdom of Swaziland under the President s Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5NU2GGH001271-04-00		0	-3,928
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-4,052
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-4,238
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		0	-7,859
Implementation of Program for the Intervention, Care and Treatment of HIV/AIDS	93.067	6 NU2GGH000119-05-03		0	-8,476
Swaziland Rapid Scale Up 2005 (NY)	93.067	5U2GPS002005-05		-13,328	-13,328
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		-13,395	-13,395
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		-13,452	-13,452
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	-17,432
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		0	-18,661
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-05-06		0	-29,718
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		-36,209	-36,209
MZ Tech Assistance - NY	93.067	6 NU2GPS002828-05-08		0	-40,569
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	-40,747
Tanzania Endeleza 1998 - NY	93.067	5U2GPS001998-05		0	-58,992
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		0	-67,154

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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					Global Aids
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		0	-257,941
Community-Based HIV Services for Key Populations and Adolescent Girls and Young Women	93.067	5NU2GGH001941-03-00		0	-260,318
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		0	-778,712
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency Plan for AIDS Relief (PEPFAR) - NY	93.067	5U2GGH001226-05-00		-2,513,215	-2,513,215
				$35,454,509	$201,389,820
Total Direct Award Programs				**$35,454,509**	**$201,389,820**
Pass-through Awards					
Global AIDS					
Comprehensive Approaches to Strengthening the Health System and HIV Response in the Republic of Mozambique under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	JHPIEGO 16-SBA-016	U2GGH001309	0	226,215
Transition of Angola INLS Aggregate Database to DHIS2	93.067	INLS CU17-2651	6NU2GGH001918-01	0	71,916
Transition of Angola INLS Aggregate Database to DHIS2	93.067	INLS CU17-2651	6NU2GGH001918-01	0	45,294
Comprehensive Approaches to Strengthening the Health System and HIV Response in the Republic of Mozambique under the President s Emergency Plan for AIDS Relief (PEPFAR)	93.067	JHPIEGO 16-SBA-016	U2GGH001309	0	-12,463
				$0	$330,962
Total Pass-through Programs				**$0**	**$330,962**
Total: Department of Health & Human Services (Excluding NIH)				**$35,454,509**	**$201,720,782**
Total: Global Aids				**$35,454,509**	**$201,720,782**

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Other Programs Subrecipients	Other Programs Total Expenditures (Includes Subrecipients)
Other Programs					
Department of Health & Human Services					
Direct Awards					
Centers for Disease Control and Prevention/DHHS					
TB Building and Strengthening Infection Control Strategies	93	CDC 14IPA1417004		0	167,336
TB Building and Strengthening Infection Control Strategies	93	CDC 14IPA1417004		0	163,203
				$0	$330,539
Nurse Anesthetist Traineeship					
Nurse Anesthetist Traineeship (NAT) Program	93.124	1A22HP30960 -01- 00		0	34,083
				$0	$34,083
Emergency Medical Services for Children					
EMSC NETWORK DEVELOPMENT DEMONSTRATION PROJECT (NDDP)	93.127	5U03MC00007-18-00		170,214	413,216
EMSC NETWORK DEVELOPMENT DEMONSTRATION PROJECT (NDDP)	93.127	5U03MC00007-18-00		56,758	106,346
				$226,973	$519,561
HIV-Related Training and Technical Assistance					
AIDS Education and Training Centers Program	93.145	5U10HA29291-04-00		978,487	2,638,742
AIDS Education and Training Centers Program	93.145	5U10HA29291-04-00		924,493	1,012,075
				$1,902,980	$3,650,817
Substance Abuse and Mental Health Services Projects of Regional and National Significance					
Training Medical and Dental Students in SBIRT	93.243	6H79TI025937-03M003		116,570	134,832
Training Medical and Dental Students in SBIRT	93.243	6H79TI025937-03M003		49,152	80,402
				$165,722	$215,234
Health Systems Strengthening and HIV/AIDS Prevention, Care and Treatment under the President's Emergency Plan for AIDS Relief					
Resilient and Responsive Health Systems Initiative (RRHS)	93.266	6UH6HA30740-02-03		0	921,587

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Other Programs

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Resilient and Responsive Health Systems Initiative	93.266	6UH6HA30739-02-03		274,999	661,909
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	586,848
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		480,000	484,112
Resilient and Responsive Health Systems Initiative (RRHS)	93.266	6UH6HA30740-02-03		0	370,925
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		215,845	353,723
Resilient and Responsive Health Systems Initiative	93.266	6UH6HA30739-02-03		0	343,525
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	249,886
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	247,332
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	243,615
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	173,057
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	167,064
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	165,079
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	162,423
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	159,670
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	155,576
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	133,913
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	132,775
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	126,617
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	126,553
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	111,030
Resilient and Responsive Health Systems Initiative	93.266	6UH6HA30739-02-03		0	110,623
Resilient and Responsive Health Systems Initiative (RRHS)	93.266	6UH6HA30740-02-03		0	93,012
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	89,578
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	88,924
Resilient and Responsive Health Systems Initiative (RRHS)	93.266	6UH6HA30740-02-03		0	86,051
Resilient and Responsive Health Systems Initiative	93.266	6UH6HA30739-02-03		0	85,642

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Other Programs

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Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	67,720
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	67,682
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	63,970
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	52,827
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	52,556
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	51,814
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	50,965
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	48,456
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	44,394
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	43,420
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	40,036
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	39,410
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	39,331
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	33,888
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	31,596
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	29,140
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	28,615
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	28,361
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	26,450
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	26,046
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	25,305
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	24,535
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	22,138
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	21,682
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	20,462
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	18,296

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Other Programs

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	17,260
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	16,005
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	14,759
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	12,926
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	11,327
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	10,831
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	10,778
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	7,686
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	7,274
Optimizing Momentum - Toward Sustainable Epidemic Control	93.266	5UJ7HA31180-02-00		0	3,257
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	1,290
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	835
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	761
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	492
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	198
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	-157
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	-1,987
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	-3,315
Global HIV/AIDS Nursing Initiative	93.266	6U92HA127772-08-26		0	-5,384
Quality Improvement Capacity for Impact Project - Ken COP16 - NY	93.266	5U1NHA28555-04-00		0	-11,665
				$970,844	$7,723,316

Complex Humanitarian Emergency and War-Related Injury Public Health Activities

Enumerating and monitoring vulnerable sub-populations	93.269	5U01GH001644-04-00		0	48,191
Enumerating and monitoring vulnerable sub-populations	93.269	5U01GH001644-04-00		0	36,329
				$0	$84,521

Centers for Disease Control and Prevention Investigations and Technical Assistance

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Other Programs Subrecipients	Other Programs Total Expenditures (Includes Subrecipients)
MN11-1101, NATIONAL MINORITY UNDERGRADUATE STUDENT PROGRAMS	93.283	6 NU50MN000018-05-01		0	196,339
				$0	$196,339
Protecting and Improving Health Globally: Building and Strengthening Public Health Impact, Systems, Capacity and Security					
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	1,002,277
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	312,538
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	289,936
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	253,801
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	55,657
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	32,470
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	30,814
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	17,084
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-03-03		0	-185
				$0	$1,994,392
Nurse Education, Practice Quality and Retention Grants					
Nurse Education, Practice, Quality, and Retention InterprofessionalCollborative Practice	93.359	6 UD7HP26907-03-01		39,779	42,465
				$39,779	$42,465
Public Health Training Centers Program					
Affordable Care Act (ACA) Public Health Training Centers	93.516	4UB6HP27878-04-04		174,710	448,365
Affordable Care Act (ACA) Public Health Training Centers	93.516	4UB6HP27878-04-04		191,745	285,191
Affordable Care Act (ACA) Public Health Training Centers	93.516	4UB6HP27878-04-04		0	40,905
Affordable Care Act (ACA) Public Health Training Centers	93.516	4UB6HP27878-04-04		0	4,130
				$366,455	$778,591
Early Head Start	93.600	02CH3042-06-00		0	1,902,113
Head Start	93.600	02CH3022-06-02		0	522,255

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Early Head Start	93.600	02CH3042-06-00		0	408,243
Head Start	93.600	02CH3022-06-02		0	384,346
Early Head Start	93.600	02CH3042-06-00		0	265,825
Early Head Start	93.600	02CH3042-06-00		0	85,928
Head Start	93.600	02CH3022-06-02		0	81,465
Head Start	93.600	02CH3022-06-02		0	69,351
Early Head Start	93.600	02CH3042-06-00		0	-352
Early Head Start	93.600	02CH3042-06-00		0	-580
				$0	$3,718,594
ARRA - Health Information Technology Professionals in Health Care					
Columbia University Workforce Training to Educate Healthcare Professionals	93.721	90WT0004/01-01		0	52,254
Columbia University Workforce Training to Educate Healthcare Professionals	93.721	90WT0004/01-01		0	1,965
				$0	$54,219
Grants for Primary Care Training and Enhancement					
Primary Care Training and Enhancement	93.884	5T0BHP29302 -04 -00		0	302,032
Primary Care Training and Enhancement	93.884	5T0BHP29302 -04 -00		0	-8,565
				$0	$293,467
Ryan White HIV/AIDS Dental Reimbursement and Community Based Dental Partnership Grants					
Dental Care for Hard-to-Reach HIV/AIDS Populations in Harlem & South Bronx	93.924	6H65HA00014-16-01		96,490	316,319
Ryan White HIV/AIDS Dental Reimbursement	93.924	1T22HA31218- 01- 00		0	70,371
Dental Care for Hard-to-Reach HIV/AIDS Populations in Harlem & South Bronx	93.924	6H65HA00014-16-01		46,656	49,154
				$143,146	$435,845
Total Direct Award Programs				**$3,815,898**	**$20,071,983**
Pass-through Awards					
Centers for Disease Control and Prevention/DHHS					

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Other Programs Subrecipients	Other Programs Total Expenditures (Includes Subrecipients)
Human Resources for Health, Rwanda	93	MHRW CU14-1787	CDC CU14-1787	0	20,738
Human Resources for Health, Rwanda	93	MHRW CU14-1787	CDC CU14-1787	0	-812
				$0	$19,926
Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) Aligned Cooperative Agreements					
Tick-Borne Disease Analysis	93.074	PHS 77601-1039A	3U90RP000546-03S2	0	10,377
				$0	$10,377
HIV-Related Training and Technical Assistance					
AETC National Coordinating Resource Center	93.145	RUTGER 0305	5U1OH28686-03-00	0	30,457
				$0	$30,457
Health Careers Opportunity Program					
Health Careers Opportunity Program	93.822	ISMMS 0253-6641-4609	1D18HP29036-01-00	0	102,316
Health Careers Opportunity Program	93.822	ISMMS 0253-6641-4609	1D18HP29036-01-00	0	37,183
				$0	$139,499
HIV Prevention Activities Health Department Based					
Pennsylvania Expanded HIV Testing Initiative	93.940	5620-CU-COP-5622	NU62PS003643-06	0	22,434
Pennsylvania Expanded HIV Testing Initiative	93.940	5620-CU-COP-5622	NU62PS003643-06	0	20,934
				$0	$43,367
Total Pass-through Programs				**$0**	**$243,625**
Total: Department of Health & Human Services (Excluding NIH)				**$3,815,898**	**$20,315,608**

National Institute of Health

Direct Awards

National Institute of Allergy and Infectious Diseases/NIH/DHHS

Fee for Service VirCapSeq-VERT analysis	93	HHSN272201700151P		0	5,000
				$0	$5,000

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NIEHS Superfund Hazardous Substances Basic Research and Education					
Southeast Asia Regional Conference on Groundwater Arsenic: Multi-Disciplinary Approaches to Protecting the Health of the Public	93.143	1R13ES026487-01		0	18,106
				$0	$18,106
Allergy and Infectious Diseases Research					
The 9th International Workshop on HIV Pediatrics	93.855	1R13AI131743-01		48,000	58,253
				$48,000	$58,253
Medical Library Assistance					
Conexion: A localized information resource for a low-income Hispanic community	93.879	1G08LM012689-01		0	47,738
				$0	$47,738
Total Direct Award Programs				**$48,000**	**$129,097**
Total: National Institute of Health				**$48,000**	**$129,097**
National Aeronautics & Space Administration					
Direct Awards					
Science					
Asian Monsson Response to the Changing Climate Role of Anthropogenic Forcing	43.001	NNX15AP01H		0	43,940
				$0	$43,940
Space Technology					
Collaborative Augmented Reality with Hands-Free Gesture Control for Remote Astronaut Training and Mentoring	43.012	NNX16AM79H		0	76,108
				$0	$76,108
Total Direct Award Programs				**$0**	**$120,048**
Total: National Aeronautics & Space Administration				**$0**	**$120,048**
Department of Defense					
Direct Awards					

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Basic and Applied Scientific Research					
GS ADMISSIONS ONR SERRANO COHORT 6	12.300	N00014-06-1-1097		0	-1
				$0	$-1
Total Direct Award Programs				**$0**	**$-1**
Total: Department of Defense				**$0**	**$-1**
Department of Education					
Direct Awards					
National Resource Centers Program for Foreign Language and Area Studies or Foreign Language and International Studies Program and Foreign Language and Area Studies Fellowship Program					
National Resource Centers	84.015	P015A140110-17		0	157,659
National Resource Centers	84.015	P015A140110-17		0	13,017
				$0	$170,676
Total Direct Award Programs				**$0**	**$170,676**
Total: Department of Education				**$0**	**$170,676**
Department of Agriculture					
Direct Awards					
Agricultural Market and Economic Research					
Rapid Assessment of Agriculture in a + 1.5 Scenario: An AgMIP Coordinated Global and Regional Assessment	10.290	USDA 58-0111-16-010		128,475	163,320
Rapid Assessment of Agriculture in a + 1.5 Scenario: An AgMIP Coordinated Global and Regional Assessment	10.290	USDA 58-0111-16-010		0	20,344
				$128,475	$183,664
Total Direct Award Programs				**$128,475**	**$183,664**
Total: Department of Agriculture				**$128,475**	**$183,664**
Department of State					
Direct Awards					

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Other Programs Subrecipients	Other Programs Total Expenditures (Includes Subrecipients)
Professional and Cultural Exchange Programs - Special Professional and Cultural Programs					
The Ngwang Choephel Fellows Program	19.012	S-ECAGD-17-GR-1095		0	164,775
The Ngwang Choephel Fellows Program: Tibet Small Business Training and Outreach Project, FY 2016	19.012	S-ECAGD-16-GR-1128		0	66,625
The Ngwang Choephel Fellows Program	19.012	S-ECAGD-17-GR-1095		0	13,133
Ngwang Choephel Fellows Program	19.012	DS S-ECAGD-15-GR-1070		0	10,440
The Ngwang Choephel Fellows Program: Tibet Small Business Training and Outreach Project, FY 2016	19.012	S-ECAGD-16-GR-1128		0	4,090
The Ngwang Choephel Fellows Program: Tibet Ecotourism Market Project	19.012	DS S-ECAPE-12-GR-188(RJ)		0	-1
				$0	$259,061
Investing in People in The Middle East and North Africa					
Fostering Entreprenuership in Tunisia	19.021	DS STS80017GR0087		0	45,250
Fostering Entreprenuership in Tunisia	19.021	DS STS80017GR0087		0	19,994
Fostering Entreprenuership in Tunisia	19.021	DS STS80017GR0087		0	14,400
				$0	$79,644
Total Direct Award Programs				**$0**	**$338,705**
Total: Department of State				**$0**	**$338,705**

Department of Veterans Affairs

Direct Awards

Department of Veterans Affairs

VISN 3 MIRECC	64	DVAMC CU16-2032		0	39,410
VISN 3 MIRECC	64	DVAMC CU16-2032		0	7,040
VISN 5 MIRECC	64	VA245-17-C-0029		0	6,107
VISN 5 MIRECC	64	VA245-17-C-0029		0	1,978
JAMES J PETERS VA MEDICAL CENTER					
DNA Methylation and inflammatory signatures associated with suicide	64	JJPVA CU17-1648		0	29,886
Suicide Safety Planning Group Treatment-Project Life Force	64	JJPVA CU16-0809		0	12,402

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Other Programs Subrecipients	Other Programs Total Expenditures (Includes Subrecipients)
VA, NEW JERSEY HEALTH CARE SYSTEM					
Mindfulness-Based Cognitive Therapy for Preventing Suicide in Military Veterans	64	VANJ CU13-2538		0	23,339
				$0	$120,162
Total Direct Award Programs				**$0**	**$120,162**
Total: Department of Veterans Affairs				**$0**	**$120,162**
Dept. of HousingUrban Development					
Pass-through Awards					
Section 4 Capacity Building for Community Development and Affordable Housing					
Comprehensive community needs assessment and participatory design	14.252	GRAND 16SG0524	B-15-CB-MD-0001	0	24,918
				$0	$24,918
Total Pass-through Programs				**$0**	**$24,918**
Total: Dept. of HousingUrban Development				**$0**	**$24,918**
Nat. Endowment for the ArtsHumanities					
Direct Awards					
Promotion of the Arts Grants to Organizations and Individuals					
To support artist fees and production expenses for the Composer Portraits and Pop-up Concerts at Miller Theatre.	45.024	NEA 1830051-31-8		0	30,000
				$0	$30,000
Promotion of the Humanities Teaching and Learning Resources and Curriculum Development					
Humanities Connections Curriculum for Medicine, Literature and Society	45.162	AK-255276-17		0	34,020
				$0	$34,020
Total Direct Award Programs				**$0**	**$64,020**
Total: Nat. Endowment for the ArtsHumanities				**$0**	**$64,020**
United States Agency for International Dvlpt.					
Direct Awards					

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
Schedule of Expenditures of Federal Awards
For year ended June 30, 2018

Other Programs

Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures (Includes Subrecipients)
USAID Foreign Assistance for Programs Overseas					
USAID/MSPH/ISCISA Management Education Partnership	98.001	AID-656-A17-00006		0	388,759
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	384,412
Malaria Diagnosis and Treatment Activity	98.001	72066318CA00005		0	143,793
Malaria Diagnosis and Treatment Activity	98.001	72066318CA00005		0	130,827
USAID/MSPH/ISCISA Management Education Partnership	98.001	AID-656-A17-00006		0	59,339
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	41,993
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	16,929
				$0	$1,166,052
Total Direct Award Programs				**$0**	**$1,166,052**
Pass-through Awards					
U.S. Agency for International Development					
Malaria Diagnosis and Case Management Program	98	PATH AID.1760-6233-CRT	AID CU13-1372	0	13,761
				$0	$13,761
USAID Foreign Assistance for Programs Overseas					
Transforming Households: Reducing Incidence of Violence in Emergencies (THRIVE)	98.001	UNICEF CU15-3526	USAID AID-OFDA-10-14-00033	0	95,236
Technical Support to PEPFAR Programs in the Southern Africa Regin	98.001	TSP00ICAP16	AID-674-A-16-00003	0	44,959
Technical Support to PEPFAR Programs in the Southern Africa Regin	98.001	TSP00ICAP16	AID-674-A-16-00003	0	14,028
				$0	$154,222
Total Pass-through Programs				**$0**	**$167,984**
Total: United States Agency for International Dvlpt.				**$0**	**$1,334,035**
Total: Other Programs				**$3,992,373**	**$22,800,935**
Total Federal Award Expenditures:				**$124,466,134**	**$1,318,972,019**

The accompanying footnotes are an integral part of the Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
Notes to Schedule of Expenditures of Federal Awards
June 30, 2018

1. Basis of Presentation

The accompanying Schedule of Expenditures of Federal Awards (the "Schedule") has been prepared in accordance with OMB Uniform Guidance. The purpose of the Schedule is to present a summary of those activities of The Trustees of Columbia University in the City of New York (the "University") for the year ended June 30, 2018, which have been financed by the U.S. Government ("Federal awards"). For purposes of the Schedule, Federal awards include all Federal assistance entered into directly between the University and the Federal government and also between the University and other primary recipients of Federal government funds (pass-through), recorded on the accrual basis of accounting. Negative amounts listed on the Schedule represent adjustments, in the normal course of business, to amounts included on the prior year's Schedule. In addition, amounts indicated in the schedule with $0 expenditures, are reflective of actual expenditures transacted at less than $1, which are rounded down in the context of the report. The project number on the Schedule represents the number assigned by the direct or originating sponsor, and when not available an alpha-numeric number is assigned by the University to manage sponsored project spending. The pass through contract number on the Schedule represents the number assigned by the pass-through entity to the applicable program. CFDA numbers and pass-through numbers are provided when available.

2. Facility and Administrative Costs

The University elects not to use the 10% de minimus rate allowed under the Uniform Guidance. Effective July 1, 2014 the University and the federal government operated under a provisional agreement that provided for facilities and administrative cost rates under federal grants and contracts through October 24, 2017, when a new agreement was finalized. The following are the University F&A cost rates that were established as provisional rates:

All campuses, excluding Lamont-Doherty Earth Observatory	
On-campus	60.0 %
Off-campus	26.0
Off-campus modified	29.4
Lamont-Doherty Earth Observatory	
On-campus	53.0 %
Off-campus	26.0
Off-campus modified	29.4
Other sponsored activity	
On-campus	31.0 %
Off-campus	26.0

3. Guaranteed Student Loan Programs

With respect to the Federal Direct Lending Program, the University is only responsible for the performance of certain administrative duties; therefore, the transactions and the balances of loans outstanding related to this program are not included in the University's consolidated financial statements. The schedule includes the amounts awarded to students during the year ended June 30, 2018. It is not practical to estimate the outstanding balance of loans under this program.

4. Student Loan Programs

The University is responsible for the oversight and management of the U.S. Department of Education's Federal Title IV Programs, which includes Federal Perkins Loan Program (CFDA# 84.038), as well as Health Resources and Services Administration (HRSA) Title VII and Title VIII loan programs funded by the Department of Health and Human Services.

(amounts in thousands)

Federal Agency	Loan Program	Federal CFDA No.	Outstanding Principal Balance at June 30 ,2018
Education	Perkins Loan	84.038	$ 50,687
DHHS	Health Professionals	93.342	9,203
DHHS	Nursing Students	93.364	1,043
			$ 60,933

The loan program amounts reported on the Schedule for the above loan programs represents the beginning of year (July 1, 2017) balance of the respective loan program, new loans during fiscal year 2018 and the applicable administrative cost allowance. The federally approved administrative cost allowed under the Title IV program for Federal Work study, Federal Perkins and Federal SEOG for the fiscal year ending June 30, 2018 was $456. This expense was charged to the Federal Work Study Program. The administrative cost allowance is determined as a percentage of the total program expenditures. The formula permits administrative cost charges at 4.5% of the first $5.5 million expended and 3% on expenditures over $5.5 million.

Report of Independent Auditors on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance With *Government Auditing Standards*

To The Trustees of Columbia University in the City of New York

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the consolidated financial statements of The Trustees of Columbia University in the City of New York (the "University"), which comprise the consolidated balance sheet as of June 30, 2018, and the related consolidated statements of activities and of cash flows for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated October 9, 2018.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting ("internal control") to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of This Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

PricewaterhouseCoopers LLP

New York, New York
October 9, 2018

Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance With the Uniform Guidance

To The Trustees of Columbia University in the City of New York

Report on Compliance for Each Major Federal Program

We have audited The Trustees of Columbia University in the City of New York's (the "University") compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2018. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2018.

Report on Internal Control Over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the University's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

PricewaterhouseCoopers LLP

New York, New York
March 8, 2019

The Trustees of Columbia University in the City of New York
Summary of Independent Auditors' Results
Year Ended June 30, 2018

Section I – Summary of Independent Auditors' Results

Financial Statements

Type of report of independent auditors issued:	Unmodified	
Internal control over financial reporting: Material weakness (es) identified?	____ Yes	_X_ No
Significant deficiencies(s) identified that are not considered to be material weaknesses?	____ Yes	_X_ None reported
Noncompliance material to financial statements noted?	____ Yes	_X_ No

Federal Awards

Internal Control over major programs: Material weakness (es) identified?	____ Yes	_X_ No
Significant deficiencies(s) identified that are not considered to be material weaknesses	____ Yes	_X_ None reported
Type of independent auditors' report issued on compliance for major programs:	Unmodified	
Any audit findings disclosed that are required to be reported in accordance with Uniform Guidance?	____ Yes	_X_ No

Identification of major programs:

CFDA Number(s)	Name of Federal Program or Cluster
Various	Research and Development Cluster
Various	Student Financial Assistance Cluster
93.067	Global Aids
93.600	Head Start

Dollar threshold used to distinguish between Type A and Type B programs: $3,956,916

Auditee qualified as low-risk auditee? _X_ Yes _____ No

The Trustees of Columbia University in the City of New York
Schedule of Findings and Questioned Costs
Year Ended June 30, 2018

Section II—Financial Statement Findings

None noted.

Section III—Federal Award Findings and Questioned Costs

None noted.

The Trustees of Columbia University in the City of New York
Summary Schedule of Prior Audit Findings
Year Ended June 30, 2018

There were no prior year audit findings that require an update in this report.