

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

**Report on Federal Awards in Accordance with
OMB Circular Uniform Guidance
For the year ended June 30, 2016
Employer Identification Number 13-5598093**

The Trustees of Columbia University in the City of New York
Report in Connection with OMB Circular Uniform Guidance
For the year ended June 30, 2016
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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 (the "University"), which comprise the consolidated balance sheet as of June 30, 2016 and the related consolidated statements of activities and of cash flows for the year then ended, 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 University'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 University'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 financial position of The Trustees of Columbia University in the City of New York at June 30, 2016 and 2015, and the changes in their net assets for the year ended June 30, 2016 and their cash flows for the years ended June 30, 2016 and 2015 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, 2015, and the related consolidated statements of activities and cash flows for the year then ended (not presented herein), and in our report dated October 13, 2015, 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, 2015 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, 2016, 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 for the year ended June 30, 2016 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 11, 2016 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, 2016. 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 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 11, 2016

The Trustees of Columbia University in the City of New York
Consolidated Balance Sheets
At June 30, 2016 and 2015
(in thousands of dollars)

	June 2016	June 2015
Assets		
Cash and cash equivalents	\$901,494	\$804,916
Accounts receivable, net:		
Government agencies	131,499	130,605
Patient receivables	108,784	99,651
Other	294,402	291,549
Investment income receivable, net	2,006	1,709
Receivable for securities sold	80,938	28,997
Cash and securities held in trust by others	100,744	40,488
Pledges receivable, net	627,259	636,092
Student loans receivable, net	104,231	102,183
Investments, at fair value	8,954,996	9,624,129
Institutional real estate	893,960	880,921
Land, buildings, and equipment, net	4,058,667	3,727,688
Other assets	262,158	247,958
Net assets held by CPMC Fund, Inc.	52,169	70,442
Interest in perpetual trusts held by others	169,446	183,691
Total assets	\$16,742,753	\$16,871,019
Liabilities		
Accounts payable and accrued expenses	\$293,969	\$310,946
Liabilities for securities purchased	8,305	14,011
Prepaid tuition and other deferred credits	97,045	94,081
Deferred revenue and unamortized bond premium	222,661	121,150
Refundable advances	99,752	92,082
Capital lease obligations	122,947	122,680
Conditional asset retirement obligations	121,420	117,750
Accrued employee benefit liabilities	210,126	178,892
Federal student loan funds	85,039	79,795
Actuarial liability for split-interest agreements	56,169	53,249
Bonds and notes payable	1,629,792	1,541,755
Other long-term liabilities	514,768	469,519
Total liabilities	3,461,993	3,195,910
Net assets		
Unrestricted	5,963,691	6,024,449
Temporarily restricted	4,304,959	4,770,391
Permanently restricted	3,012,110	2,880,269
Total net assets	13,280,760	13,675,109
Total liabilities and net assets	\$16,742,753	\$16,871,019

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, 2016, with Summarized Comparative 2015 Totals
(in thousands of dollars)

	Unrestricted	Temporarily Restricted	Permanently Restricted	June 2016	June 2015
Operating activities					
Revenues and support					
Tuition and fees	\$1,365,439			\$1,365,439	\$1,285,957
Less financial aid grants	<u>(361,839)</u>			<u>(361,839)</u>	<u>(344,693)</u>
Net tuition and fees	1,003,600			1,003,600	941,264
Government grants and contracts:					
Direct	606,056			606,056	566,666
Indirect	194,407			194,407	186,700
Private gifts, grants and contracts:					
Direct	235,296	\$170,430		405,726	330,459
Indirect	27,594			27,594	22,783
Revenue from other educational and research activities	248,460			248,460	265,838
Patient care revenue	1,125,031			1,125,031	1,026,956
Investment income and gains utilized	388,623	175,857		564,480	522,684
Sales and services of auxiliary enterprises	166,160			166,160	157,257
Other sources	379			379	280
Net assets released from restrictions	319,596	(319,596)			
Total operating revenues and support	4,315,202	26,691		4,341,893	4,020,887
Expenses					
Instruction and educational administration	1,592,412			1,592,412	1,474,033
Research	538,971			538,971	538,242
Patient care expense	914,674			914,674	829,577
Library	67,487			67,487	66,446
Operation and maintenance of plant	233,368			233,368	232,100
Institutional support	289,404			289,404	266,544
Auxiliary enterprises	137,043			137,043	128,643
Depreciation expense	207,114			207,114	199,652
Interest expense	44,116			44,116	43,047
Other	19,813			19,813	22,607
Total expenses	4,044,402			4,044,402	3,800,891
Change in net assets from operating activities	270,800	26,691		297,491	219,996
Nonoperating activities					
Endowment gifts			\$125,041	125,041	133,819
Current year realized and unrealized capital gains (losses)	(131,262)	(190,647)	(63)	(321,972)	640,790
Endowment appreciation utilized	(148,772)	(280,051)		(428,823)	(396,775)
Change in net assets held by CPMC Fund, Inc.	20	(14,331)	(3,962)	(18,273)	(74)
Change in funds held by others in perpetuity			(14,245)	(14,245)	(3,905)
Present value adjustment to split-interest agreements	447	(16,836)	4,823	(11,566)	(21,411)
Changes in pension and post retirement obligations	(37,466)			(37,466)	(2,143)
Other		11,898	3,566	15,464	
Reclassification	(14,525)	(2,156)	16,681		
Change in net assets from nonoperating activities	(331,558)	(492,123)	131,841	(691,840)	350,301
Change in net assets	(60,758)	(465,432)	131,841	(394,349)	570,297
Net assets at beginning of year	6,024,449	4,770,391	2,880,269	13,675,109	13,104,812
Net assets at end of period	\$5,963,691	\$4,304,959	\$3,012,110	\$13,280,760	\$13,675,109

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, 2016 and 2015
(in thousands of dollars)

	June 2016	June 2015
Cash flows from operating activities		
(Includes adjustments to reconcile change in net assets to net cash provided by operating activities):		
Change in net assets	(\$394,349)	\$570,297
Depreciation expense	207,114	199,652
Interest on capital lease obligations and CARO	11,579	11,323
Institutional real estate depreciation	28,296	25,555
Realized and unrealized (gains) losses	321,972	(640,790)
Partnership distributions	484,487	544,427
Contributions restricted for permanent investment, plant, and split-interest agreements	(187,291)	(198,889)
Contributions other than cash	(55)	(165)
Present value adjustments and actuarial liability for split-interest agreements	11,566	21,411
Accreted interest on bonds	606	631
Change in fair value of net assets held by CPMC Fund, Inc.	18,273	74
Change in fair value of interest in perpetual trusts held by others	14,245	3,905
Change in operating assets and liabilities:		
Accounts receivable, net	(12,880)	(49,775)
Investment income receivable, net	(297)	857
Pledges receivable, net	8,833	126,006
Other assets	(15,839)	(21,849)
Accounts payable and accrued expenses	(17,107)	24,227
Prepaid tuition and other deferred credits	2,964	32,803
Deferred revenue and unamortized bond premium	101,511	18,993
Refundable advances	7,670	952
Accrued employee benefit liabilities	31,234	22,347
CARO and other long-term liabilities	14,699	872
Net cash provided by operating activities	637,231	692,864
Cash flows from investing activities		
Proceeds from sales of investments	1,763,758	2,639,820
Purchases of investments	(1,935,377)	(2,822,211)
Collections from student notes	14,985	14,059
Student notes issued	(17,033)	(16,324)
Investment in cash and securities held in trust by others	(60,256)	(40,483)
Purchases of institutional real estate	(43,647)	(32,540)
Sales of institutional real estate		1,861
Purchases of plant and equipment	(531,015)	(577,719)
Net cash used by investing activities	(808,585)	(833,537)
Cash flows from financing activities		
Proceeds from contributions for:		
Investment in endowment	128,552	133,727
Investment in plant	48,139	56,430
Investment in split-interest agreements	10,600	8,732
Investment income on split-interest agreements	3,108	3,895
Payments on split-interest agreements	(5,178)	(6,536)
Payments on capital lease obligations	(9,964)	(9,318)
Repayment of taxable commercial paper		(504,685)
Proceeds from taxable commercial paper issuance		443,510
Repayment of bonds and notes payable	(302,274)	(35,740)
Proceeds from bond issuance	389,705	215,315
Net change in federal student loan funds	5,244	143
Net cash provided by financing activities	267,932	305,473
Net change in cash and cash equivalents	96,578	164,800
Cash and cash equivalents at beginning of year	804,916	640,116
Cash and cash equivalents at end of year	\$901,494	\$804,916
Supplemental disclosure of cash flow information:		
Equipment and space acquired through capital leases	\$4,834	\$2,502
Cash paid during the year for interest	\$76,627	\$70,208

See accompanying notes to the consolidated financial statements.

The Trustees of Columbia University in the City of New York
Notes to the Consolidated Financial Statements
For the Years Ended June 30, 2016 and 2015
(in thousands of dollars)

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 30,304 full-time and part-time students and employs approximately 15,900 full-time employees, including 5,837 full-time faculty members and research staff. Of these, 1,494 hold positions in the arts and sciences; 3,451 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 Medical Center

Columbia University Medical Center (“CUMC”), 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: College of Physicians and Surgeons, Mailman School of Public Health, College of Dental Medicine, and School of Nursing.

CUMC has three primary areas of focus: patient care, scientific research, and education. CUMC 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 CUMC’s revenues. Approximately 4,464 students are enrolled at CUMC, with a full-time faculty of 2,339, of whom approximately 290 are tenured. Additionally, CUMC’s staff includes 2,911 part-time faculty instructors, 1,118 full-time and, 212 part-time researchers, 247 post-doctoral research trainees and 1,084 post-doctoral clinical trainees. Approximately 73 percent of the full-time faculty and 35 percent of the part-time faculty hold clinical appointments and have admitting privileges at New York-Presbyterian Hospital (“NYP”).

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.

CUMC 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,” CUMC 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.

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In fiscal 2016, the clinical faculty handled approximately 2.1 million outpatient and emergency room visits and participated in instruction and supervision of 648 University medical students and 943 residents and fellows at NYP. CUMC physicians generated approximately 62,000 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 (53 percent), Medicare (18 percent), Medicaid (13 percent), commercial insurance (5 percent), and other (1 percent). Direct patient payments comprise 10 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.
- Columbia University Press—Columbia University Press is a not-for-profit corporation formed to promote the study of economic, historical, literary, philosophical, scientific, and other subjects and to encourage and promote the publication of literary works embodying original research in such subjects. The operations of the Press were integrated into the University operations effective January 1, 2016.
- 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 NYP.

The University is also the sole corporate member of two not-for-profit practice entities, Columbia Ophthalmology Consultants, Inc., and 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.

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Notes to the Consolidated Financial Statements
For the Years Ended June 30, 2016 and 2015
(in thousands of dollars)

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"), adopted on September 17, 2010. 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.

The Trustees of Columbia University in the City of New York
Notes to the Consolidated Financial Statements
For the Years Ended June 30, 2016 and 2015
(in thousands of dollars)

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 programs. Financial aid packages to students may include direct grants, loans, and employment.

Contributions

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 that are expected to be collected within one year 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. 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 CUMC, 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 Statement 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 are currently operating under a provisional agreement that provides for facilities and administrative cost rates under federal

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(in thousands of dollars)

grants and contracts until such time as a new agreement is reached. The provisional rates are based on the agreement that was in place through June 30, 2014.

Research and Development

The University engages in numerous research and development projects, 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 over several years. The revenue, net of payments due to third parties, is recorded in "Revenue from other educational and research activities" in the Consolidated Statement 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, 2016 and 2015. Alternative investments include investments in absolute return strategy funds, private equity funds, and real asset funds (collectively, the 'funds'). The management of the 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, 2016 and 2015. Because alternative investments 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 Statement 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

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(in thousands of dollars)

Consolidated Statement 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 is provided 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 promise 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 Statement 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 forty 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.

Other Assets

Prepaid expenses, bond issuance costs, the University's investment in the Medical Center Insurance Company ("MCIC"), and insurance recovery receivable are categorized within other assets. Bond issuance costs are amortized over the expected holding period of the specific debt issue.

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 Sheet. Costs

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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 nonoperating activity in the Consolidated Statement 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 five 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.

2015 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 2015. Within the Statement 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

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consolidated financial statements for the year ended June 30, 2015. In addition, certain amounts in the summarized consolidated financial statements for fiscal year 2015 have been reclassified to conform to the fiscal year 2016 presentation.

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 University is evaluating the impact on the University consolidated financial statements.

In April 2015, the FASB issued ASU No. 2015-03 (Subtopic 835-30) Imputation of Interest - Simplifying the Presentation of Debt Issuance Costs. This ASU requires all premium received, discount given and costs incurred to issue debt to be presented in the balance sheet as an adjustment to the carrying value of the associated debt liability. The ASU is effective for fiscal years beginning after December 15, 2016 with early adoption permissible. The University is evaluating the impact on the University consolidated financial statements.

In May 2015, the FASB issued ASU 2015-07, Disclosure for Investments in Certain Entities That Calculated Net Asset Value per Share (or its Equivalent). The ASU removes the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the practical expedient. The ASU further removes the requirement to make certain disclosures for all investments that are eligible to be measured at fair value using the practical expedient. As permitted under the standard, the University has elected to adopt the ASU for the fiscal year ended June 30, 2016. The changes are reflected in Note 6.

In February 2016, the FASB issued ASU No. 2016-02, 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 2016-14, 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.

4. Operating Measurement

The University divides its Consolidated Statement 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.

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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 perpetual trusts held by others, 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 \$320.0 million and \$291.2 million of revenue for the years ended June 30, 2016 and 2015, respectively. As of June 30, 2016 and 2015, Accounts receivable, net - other includes \$91.7 million and \$83.4 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 \$747.9 million and \$687.3 million for the years ended June 30, 2016 and 2015, respectively. As of June 30, 2016 and 2015, patient accounts receivable amounts to \$108.8 million and \$99.7 million, respectively. Medical service agreements generated \$22.5 million and \$24.1 million of revenue for the years ended June 30, 2016 and 2015, respectively and other patient care activities generated \$34.6 million and \$24.3 million of revenue for the years ended June 30, 2016 and 2015, 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 upon 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.

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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 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 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 additional procedures and 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.

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The following tables present assets and liabilities measured at fair value and NAV at June 30, 2016 and June 30, 2015.

Assets	2016				Total
	Level 1	Level 2	Level 3	NAV	
Investments:					
Cash and cash equivalents	\$ 145,924	\$ 268,848			\$ 414,772
Global equities	742,646	45,248	\$ 1,047	\$ 706,709	1,495,650
Fixed income	20,746	35	51	287,284	308,116
Absolute return strategies	98,826	19,678		2,965,256	3,083,760
Private equity			79,311	1,901,644	1,980,955
Real assets	61,318		13,462	1,596,963	1,671,743
Investments, at fair value	<u>1,069,460</u>	<u>333,809</u>	<u>93,871</u>	<u>7,457,856</u>	<u>8,954,996</u>
Interest in perpetual trusts held by others			158,704	10,742	169,446
Total assets at fair value	<u>\$ 1,069,460</u>	<u>\$ 333,809</u>	<u>\$ 252,575</u>	<u>\$ 7,468,598</u>	<u>\$ 9,124,442</u>
Liabilities					
Swaps payable		\$ 99,818			\$ 99,818
Total liabilities at fair value		<u>\$ 99,818</u>			<u>\$ 99,818</u>
Assets	2015				Total
	Level 1	Level 2	Level 3	NAV	
Investments:					
Cash and cash equivalents	\$ 202,030	\$ 735,670			\$ 937,700
Global equities	844,801	40,938	\$ 34,392	900,362	1,820,493
Fixed income	13,145	2,531	70	260,827	276,573
Absolute return strategies	48,939	43,042		2,685,787	2,777,768
Private equity		2,155	88,130	2,181,277	2,271,562
Real assets	28,900		53,261	1,457,872	1,540,033
Investments, at fair value	<u>1,137,815</u>	<u>824,336</u>	<u>175,853</u>	<u>7,486,125</u>	<u>9,624,129</u>
Interest in perpetual trusts held by others			182,027	1,664	183,691
Total assets at fair value	<u>\$ 1,137,815</u>	<u>\$ 824,336</u>	<u>\$ 357,880</u>	<u>\$ 7,487,789</u>	<u>\$ 9,807,820</u>
Liabilities					
Swaps payable		\$ 68,233			\$ 68,233
Total liabilities at fair value		<u>\$ 68,233</u>			<u>\$ 68,233</u>

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.

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Global Equities and Fixed Income

Global equities and fixed income consists 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. These 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 the absolute return strategy fund based on NAV as a practical expedient, the investment is excluded from the fair value hierarchy and will be categorized as NAV. If the valuation is 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. All private equity funds and real asset funds, with the exception of directly-held public securities, 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, 2016 and 2015, 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, 2016 and 2015. 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.

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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 trust held by third parties 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.

These positions are reflected on a net basis within Investments, at fair value on the Consolidated Balance Sheet and are summarized below:

Derivative Instruments	Notional Exposure		Gross		Net Fair Value	Collateral Posted
	Long	Short	Asset	Liability		
June 30, 2016						
Equity	\$ 595,630	\$ (35,648)	\$ 3,858	\$ (287)	\$ 3,571	\$ 10,000
Commodity		(240,492)	55,114		55,114	
Currency*			11,202	(171)	11,031	
June 30, 2015						
Equity	\$ 737,256	\$ (224,112)	\$ 6,698	\$ (23,313)	\$ (16,615)	
Commodity		(120,150)	24,486		24,486	\$ 2,993
Currency*			1,547	(1,703)	(156)	

*The University held currency derivative contracts with an aggregate notional amount of \$1,467.1 million and \$658.2 million as of June 30, 2016 and 2015, respectively.

Outside of the endowment portfolio, the University entered into a fixed payor interest rate swap as described in Footnote 16. The estimated fair value of the agreement was (\$99.8) million and (\$68.2) million at June 30, 2016 and 2015, 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 Sheet. Unrealized gain or loss from derivative investments is a component of the current year realized and unrealized capital gains (losses) in the Consolidated Statement 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.

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The following table is a rollforward of the Consolidated Balance Sheet amounts for financial instruments classified by the University within Level 3 of the fair value hierarchy defined above at June 30, 2016 and 2015.

	June 30, 2015	Transfers In/Out	Purchases	Sales	Realized gain/loss	Unrealized gain/loss	June 30, 2016
Global equities	\$ 34,392	\$ (28,726)		\$ (74)	\$ 20	\$ (4,565)	\$ 1,047
Fixed income	70			(19)			51
Private equity	88,130		\$ 591	(1,388)	(4,633)	(3,389)	79,311
Real assets	53,261	28,105		(54,600)		(13,304)	13,462
Total level 3 investments	\$ 175,853	\$ (621)	\$ 591	\$ (56,081)	\$ (4,613)	\$ (21,258)	\$ 93,871

	June 30, 2015	Transfers In/Out	Disburse- ments	Realized/ Unrealized gain/loss, net	June 30, 2016
Interest in perpetual trusts held by others	\$ 182,028	\$ (8,943)	\$ (6,820)	\$ (7,561)	\$ 158,704

	June 30, 2014	Transfers In/Out	Purchases	Sales	Realized gain/loss	Unrealized gain/loss	June 30, 2015
Global equities	\$ 3,892	\$ 29,546	\$ 954	\$ (2)	\$ 2		\$ 34,392
Fixed income	88			(18)			70
Private equity	114,120		583,429	(342,293)	39,552	(306,678)	88,130
Real assets	69,332		6,032			(22,103)	53,261
Total level 3 investments	\$ 187,432	\$ 29,546	\$ 590,415	\$ (342,313)	\$ 39,554	\$ (328,781)	\$ 175,853

	June 30, 2014	Transfers In/Out	Disburse- ments	Realized/ Unrealized gain/loss, net	June 30, 2015
Interest in perpetual trusts held by others	\$ 186,308		\$ (6,593)	\$ 2,313	\$ 182,028

All net realized and unrealized gains (losses) in the tables above are reflected in the Consolidated Statement of Activities. Net unrealized gains (losses) relate to those financial instruments held by the University at June 30, 2016 and 2015. 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, 2016 and 2015.

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

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to 180 days. Generally, as noted above, the University has no discretion as to withdrawal with respect to 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, 2016, the University had unfunded commitments of approximately \$2.2 billion as displayed in the table below.

Asset class (\$ in millions)	Remaining life	Unfunded commitments	Timing to draw commitments
Global equities	N/A	\$ 15	1 to 8 years
Absolute return strategies	N/A	137	1 to 5 years
Private equity	1 to 12 years	900	1 to 12 years
Real assets	1 to 12 years	1,180	1 to 12 years
Total		<u>\$ 2,232</u>	

Management'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 does have 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 Statement 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 \$428.8 million and \$396.8 million during 2016 and 2015, respectively. The nonoperating section of the Consolidated Statement 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 almost 5,200 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

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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 which had previously been classified as unrestricted net assets is now classified as temporarily restricted net assets.

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The composition and changes in the University's endowment net assets as of June 30, 2016 and 2015, are as follows:

	2016			Total
	Unrestricted Net Assets	Temporarily Restricted Net Assets	Permanently Restricted Net Assets	
Changes in University endowment net assets				
Opening balance - June 30, 2015				
Investment return:	\$ 3,296,768	\$ 3,751,929	\$ 2,590,368	\$ 9,639,065
Investment income	84,429	1,346		85,775
Net appreciation / (depreciation)	(96,214)	(193,081)	(14,706)	(304,001)
Total investment return	(11,785)	(191,735)	(14,706)	(218,226)
New gifts	2,586	9,780	108,896	121,262
Appropriation for expenditure	(240,215)	(315,951)		(556,166)
Other Changes:				
Transfers to create endowments	22,308	25,966	6,811	55,085
Other / Reclassifications	(8,882)	(6,315)	15,204	7
	13,426	19,651	22,015	55,092
Closing balance - June 30, 2016	<u>\$ 3,060,780</u>	<u>\$ 3,273,674</u>	<u>\$ 2,706,573</u>	<u>\$ 9,041,027</u>
University endowment composition				
Endowment funds	\$ (4,675)	\$ 3,023,759	\$ 2,515,420	\$ 5,534,504
Funds functioning as endowment:				
Departmental funds	1,218,238	219,453		1,437,691
University funds	1,395,294			1,395,294
Institutional real estate, net	451,923			451,923
CPMC Fund, Inc.		30,462	21,707	52,169
Interests in perpetual trusts held by others			169,446	169,446
University's endowment value	<u>\$ 3,060,780</u>	<u>\$ 3,273,674</u>	<u>\$ 2,706,573</u>	<u>\$ 9,041,027</u>

Note: The tables above do not include split-interest agreements, net of \$81,913 and pledges receivable, net of \$275,353.

Reconciliation to Investments, at fair value

Investments, at fair value	\$ 8,954,996
Add:	
Interests in perpetual trusts held by others	169,446
CPMC Fund, Inc.	52,169
Institutional real estate, net	451,923
Investment receivables and payables	79,550
Subtract:	
Other long-term investments	(444,399)
Split-interest agreements	(138,353)
Funds held on behalf of others	(84,305)
University's endowment value	<u>\$ 9,041,027</u>

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	2015			Total
	Unrestricted Net Assets	Temporarily Restricted Net Assets	Permanently Restricted Net Assets	
Changes in University endowment net assets				
Opening balance - June 30, 2014	\$ 3,206,776	\$ 3,582,047	\$ 2,434,224	\$ 9,223,047
Investment return:				
Investment income	65,980	1,552		67,532
Net appreciation / (depreciation)	183,483	447,392	(3,997)	626,878
Total investment return	249,463	448,944	(3,997)	694,410
New gifts	53,444	5,510	133,488	192,442
Appropriation for expenditure	(244,544)	(304,040)		(548,584)
Other Changes:				
Transfers to create endowments	59,313	19,176	2,649	81,138
Other / Reclassifications	(27,684)	292	24,004	(3,388)
	31,629	19,468	26,653	77,750
Closing balance - June 30, 2015	\$ 3,296,768	\$ 3,751,929	\$ 2,590,368	\$ 9,639,065
University endowment composition				
Endowment funds		\$ 3,466,527	\$ 2,381,008	\$ 5,847,535
Funds functioning as endowment:				
Departmental funds	\$ 1,344,762	240,629		1,585,391
University funds	1,512,938			1,512,938
Institutional real estate, net	439,068			439,068
CPMC Fund, Inc.		44,773	25,669	70,442
Interests in perpetual trusts held by others			183,691	183,691
University's endowment value	\$ 3,296,768	\$ 3,751,929	\$ 2,590,368	\$ 9,639,065

Note: The tables above do not include split-interest agreements, net of \$108,458 and pledges receivable, net of \$263,927.

Reconciliation to Investments, at fair value

Investments, at fair value		\$ 9,624,129
Add:		
Interests in perpetual trusts held by others	183,691	
CPMC Fund, Inc.	70,442	
Institutional real estate, net	439,068	
Investment receivables and payables	23,789	716,990
Subtract:		
Other long-term investments	(458,487)	
Split-interest agreements	(173,132)	
Funds held on behalf of others	(70,435)	(702,054)
University's endowment value		\$ 9,639,065

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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 5 percent target spending rate, 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 5 percent 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 5 percent 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.

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

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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 2017.

8. Accounts Receivable

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

	2016	2015
Patient receivables, net of contractual allowances	\$ 195,497	\$ 153,923
Government agencies	141,423	139,996
NewYork-Presbyterian Hospital	103,652	93,573
Patent and licensing	6,339	23,009
Student receivables	68,372	61,008
Other receivables, gross	<u>131,339</u>	<u>129,751</u>
	646,622	601,260
Less: Allowance for doubtful accounts	<u>(111,937)</u>	<u>(79,455)</u>
Accounts receivable, net	<u>\$ 534,685</u>	<u>\$ 521,805</u>

Patient receivables for medical services are net of an allowance for contractual reserves in the amount of \$186.8 million and \$143.0 million at June 30, 2016 and 2015, 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:

	2016	2015
Government revolving loans	\$ 76,434	\$ 75,414
Institutional loans	<u>29,955</u>	<u>28,673</u>
Gross student loans	106,389	104,087
Less: Allowance for doubtful collections	<u>(2,158)</u>	<u>(1,904)</u>
Student loans receivable, net	<u>\$ 104,231</u>	<u>\$ 102,183</u>

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 \$70.3 million and \$69.2 million and advances under the other federally sponsored loan programs are \$14.7 million and \$10.6 million as of June 30, 2016 and 2015, respectively. These advances are classified as liabilities on the Balance Sheet. 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.

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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. These loans are not recorded in the University's consolidated financial statement since the University does not guarantee any federal loan funds related to these programs. The amount of loans issued under these programs was \$265.4 million and \$253.2 million for the years ended June 30, 2016 and 2015, 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.

	2016			2015		
	University Sources	External Sources	Total Financial Aid	University Sources	External Sources	Total Financial Aid
Undergraduate	\$ 106,654	\$ 55,292	\$ 161,946	\$ 101,953	\$ 49,248	\$ 151,201
Graduate	134,964	64,929	199,893	132,541	60,951	193,492
Total financial aid grants	<u>\$ 241,618</u>	<u>\$ 120,221</u>	<u>\$ 361,839</u>	<u>\$ 234,494</u>	<u>\$ 110,199</u>	<u>\$ 344,693</u>

Agency activities such as tuition aid grants, federal supplemental educational opportunity grants, federal Pell, SMART, and ACG grant program are not included in the University's consolidated financial statements. Receipts from agency transactions were \$13.2 million and \$13.2 million, and disbursements were \$13.2 million and \$13.2 million in fiscal year 2016 and 2015, respectively.

10. Pledges Receivable

Unconditional promises to give appear as pledges receivable and revenue of the appropriate net asset category. Pledges are recorded after recognizing 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:	2016	2015
Less than one year	\$ 169,195	\$ 178,061
One to five years	392,264	398,601
More than five years	<u>196,666</u>	<u>206,456</u>
Total unconditional promises	758,125	783,118
Less: Allowance for doubtful contributions	(25,362)	(32,140)
Less: Net present-value discount	<u>(105,504)</u>	<u>(114,886)</u>
Net pledges receivable	<u>\$ 627,259</u>	<u>\$ 636,092</u>

New pledges recorded in 2016 and 2015 were discounted at an average annual rate of 1.45 percent and 2.02 percent, respectively, using a rate that considers market and credit risk. Credit risk is also considered in the allowance for doubtful contributions.

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Pledges receivable are intended for the following purposes:

	2016	2015
Endowment for educational and general purposes	\$ 275,353	\$ 263,400
New construction and modernization of plant	171,219	137,802
Support of University operations	180,687	234,890
Net pledges receivable	<u>\$ 627,259</u>	<u>\$ 636,092</u>

The University also has other outstanding pledges of \$402.8 million as of June 30, 2016. 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:

	2016			2015		
	Total Assets	Accumulated Depreciation	Net Assets	Total Assets	Accumulated Depreciation	Net Assets
Land	\$ 460,168		\$ 460,168	\$ 455,538		\$ 455,538
Building and building improvements	4,405,779	\$ 2,362,120	2,043,659	4,161,483	\$ 2,197,801	1,963,682
Construction in progress	1,377,881		1,377,881	1,143,623		1,143,623
Equipment	422,901	245,942	176,959	376,333	211,488	164,845
	<u>\$ 6,666,729</u>	<u>\$ 2,608,062</u>	<u>\$ 4,058,667</u>	<u>\$ 6,136,977</u>	<u>\$ 2,409,289</u>	<u>\$ 3,727,688</u>

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. Capital space leases at June 30, 2016 and 2015 were \$78.4 million and \$81.0 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 2016 and 2015, the University recognized actuarially computed liabilities of \$48.0 million and \$41.7 million, respectively.

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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 plans for past service, and in the case of two plans, defined benefit for future service. Two of the pension plans provide defined benefits for service prior to 1976 (January 1, in one case, and prior to July 1, 1976, in the other). 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 \$5.7 million and \$5.5 million for the years ended June 30, 2016 and 2015, 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”). Charges to expenditures for the officer plan amounted to \$118.4 million and \$110.2 million for the years ended June 30, 2016 and 2015, 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 services.

Obligations and Funded Status

The University adopted authoritative guidance, which requires the recognition on the Balance Sheet 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	
	2016	2015	2016	2015
Net actuarial loss	\$ 77,024	\$ 54,940	\$ 14,123	\$ 3,190
Prior service cost	442	507	(1,911)	(6,425)
Total amount recognized	<u>\$ 77,466</u>	<u>\$ 55,447</u>	<u>\$ 12,212</u>	<u>\$ (3,235)</u>

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

	Pension Plan Benefits		Other Postretirement Benefits	
	2016	2015	2016	2015
Change in benefit obligation:				
Benefit obligation, beginning of year	\$ 179,781	\$ 163,037	\$ 156,784	\$ 178,441
Service cost	5,921	5,503	6,243	5,792
Interest cost	8,435	7,281	7,039	6,501
Plan participants' contributions			5,836	5,669
Actuarial (gain) loss	26,167	9,898	3,836	(26,473)
Federal subsidy			195	222
Net disbursements and transfers	(6,534)	(5,938)	(14,484)	(13,368)
Benefit obligation, end of year	<u>\$ 213,770</u>	<u>\$ 179,781</u>	<u>\$ 165,449</u>	<u>\$ 156,784</u>
Change in plan assets:				
Fair value of assets, beginning of year	\$ 141,867	\$ 138,025	\$ 173,742	\$ 170,500
Actual return on plan assets	8,793	2,336	3,336	6,273
Employer contributions	7,467	7,444	3,189	4,667
Plan participants' contributions			5,836	5,670
Net disbursements and transfers	(6,534)	(5,938)	(14,484)	(13,368)
Fair value of assets, end of year	<u>\$ 151,593</u>	<u>\$ 141,867</u>	<u>\$ 171,619</u>	<u>\$ 173,742</u>
Net amount recognized	<u>\$ (62,177)</u>	<u>\$ (37,914)</u>	<u>\$ 6,170</u>	<u>\$ 16,958</u>

Weighted-average assumptions used to determine end of year benefit obligation

	2016	2015
Discounted rate	2.95% to 3.75%	3.75% to 4.65%
Rate of compensation increase	2.00% to 3.25%	2.39% to 3.00%

The accumulated benefit obligations for the underfunded pension plans at June 30, 2016 and 2015 were \$182.7 and \$151.9 million, respectively.

At the end of 2016 and 2015, 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	2016	2015
Projected benefit obligation	\$ 203,093	\$ 168,108
Fair value of plan assets	139,750	129,510

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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	2016	2015
Accumulated postretirement benefit obligation	\$ 165,449	\$ 156,784
Fair value of plan assets	171,620	173,742

A 7 percent annual rate of increase in the per capita cost of covered health care benefits for the other postretirement benefit plan was assumed for 2017. The rate was assumed to decrease gradually to 5 percent for 2022 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	\$ 22,101	\$ (17,614)

The asset allocation for the two defined benefit plans for both past and future service at June 30, 2016 and 2015, and the target allocation for 2017, by asset category, follows:

Asset category	Target allocation 2017	Percentage of plan assets at year's end 2016	2015
U.S. large cap equity and global equity funds	27%	19%	18%
International equities (non-U.S.)	13%	10%	16%
High yield fixed income securities	10%	17%	18%
U.S. core fixed income	50%	54%	48%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

The asset allocation for the two defined benefit plans for prior service only at June 30, 2016 and 2015, and the target allocation for 2017, by asset category, follows:

Asset category	Target allocation 2017	Percentage of plan assets at year's end 2016	2015
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%
	<u>100%</u>	<u>100%</u>	<u>100%</u>

The retirement plan for the employees of Arden Conference Center was invested in equity securities, including mutual funds, 30 percent, and debt securities, 70 percent as of June 30, 2016.

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The following presents investments of the pension plans as of June 30, 2016. 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.

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>NAV</u>	<u>Total</u>
Common collective trust funds					
Global equity				\$ 40,881	\$ 40,881
Fixed income				107,606	107,606
Mutual funds	\$ 919				919
Fixed income investment contracts			\$ 2,187		2,187
Investments, at fair value	<u>\$ 919</u>		<u>\$ 2,187</u>	<u>\$ 148,487</u>	<u>\$ 151,593</u>

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

	June 30, 2015	Purchases (Gross)	Sales (Gross)	Investment gain/(loss)	June 30, 2016
Investment contracts	\$ 2,166	\$	\$ (144)	\$ 165	\$ 2,187
Total level 3 investments	<u>\$ 2,166</u>	<u>\$</u>	<u>\$ (144)</u>	<u>\$ 165</u>	<u>\$ 2,187</u>

The following presents investments of the pension plans as of June 30, 2015.

	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>NAV</u>	<u>Total</u>
Common collective trust funds					
Global equity				\$ 43,861	\$ 43,861
Fixed income				94,885	94,885
Mutual funds		\$ 955			955
Fixed income investment contracts			\$ 2,166		2,166
Investments, at fair value		<u>\$ 955</u>	<u>\$ 2,166</u>	<u>\$ 138,746</u>	<u>\$ 141,867</u>

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

	June 30, 2014	Purchases (Gross)	Sales (Gross)	Investment gain/(loss)	June 30, 2015
Investment contracts	\$ 2,317	\$	\$ (133)	\$ (18)	\$ 2,166
Total level 3 investments	<u>\$ 2,317</u>	<u>\$</u>	<u>\$ (133)</u>	<u>\$ (18)</u>	<u>\$ 2,166</u>

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The asset allocation for the other postretirement benefit plan at June 30, 2016 and 2015, and the target allocation for 2016, by asset category, follows:

Asset category	Target allocation	Percentage of plan assets at year's end	
	2017	2016	2015
U.S. large cap equity and global equity funds	50%	60%	59%
International equities (non-U.S.)	10%	16%	16%
U.S. fixed income	30%	24%	25%
Other assets	10%		
	<u>100%</u>	<u>100%</u>	<u>100%</u>

The following presents investments of the other postretirement benefit plan as of June 30, 2016. 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				\$ 130,242	\$ 130,242
Fixed income				41,377	41,377
Investments, at fair value				<u>\$ 171,619</u>	<u>\$ 171,619</u>

The following presents investments of the other postretirement benefit plan as of June 30, 2015.

	Level 1	Level 2	Level 3	NAV	Total
Common collective trust funds					
Global equity				\$ 129,410	\$ 129,410
Fixed income				44,332	44,332
Investments, at fair value				<u>\$ 173,742</u>	<u>\$ 173,742</u>

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Net Periodic Pension Cost

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

	Pension Plan Benefits		Other Postretirement Benefits	
	2016	2015	2016	2015
Components of net periodic benefit cost				
Service cost	\$ 5,921	\$ 5,503	\$ 6,243	\$ 5,792
Interest cost on projected benefit obligation	8,435	7,281	7,039	6,501
Expected return on assets	(7,907)	(8,184)	(10,744)	(12,676)
Amortization of prior service cost/(credit)	65	71	(4,513)	(9,199)
Amortization of unrecognized net losses/(gain)	3,196	3,140	-	(589)
Net periodic benefit cost	<u>9,710</u>	<u>7,811</u>	<u>(1,975)</u>	<u>(10,171)</u>
Other changes in plan assets and benefit obligations recognized in the Consolidated Statement of Activities				
Current year actuarial (gain)/loss	25,281	15,746	10,933	(20,180)
Amortization of actuarial gain/(loss)	(3,196)	(3,140)	-	589
Amortization of prior service credit/(cost)	<u>(65)</u>	<u>(71)</u>	<u>4,513</u>	<u>9,199</u>
Total recognized in nonoperating	<u>22,020</u>	<u>12,535</u>	<u>15,446</u>	<u>(10,392)</u>
Total recognized in net periodic benefit cost and nonoperating	<u>\$ 31,730</u>	<u>\$ 20,346</u>	<u>\$ 13,471</u>	<u>\$ (20,563)</u>

Amounts in net unrestricted assets expected to be recognized in net periodic pension cost in fiscal 2017 are as follows:

	Pension Plan Benefits	Other Postretirement Benefits
Actuarial (gain)/loss	\$ 4,462	\$ 366
Prior service (credit)/cost	65	(1,911)
	<u>\$ 4,527</u>	<u>\$ (1,545)</u>

Weighted-average assumptions used to determine net periodic pension cost

	2016	2015
Discount rate	3.75% to 4.65%	3.55% to 4.45%
Expected return on plan assets	3.75% to 6.50%	5% to 7.5%
Rate of compensation increase	2.39% to 3.25%	2.39% to 3.00%

To arrive at assumptions for expected long term rates of return on assets in the pension plan 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.

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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	\$ 2,502	\$ (1,933)

Expected Cash Flows

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

	Pension Benefits	Other Postretirement Pension Benefits
University contributions:		
2017 (expected)	\$ 9,162	\$ 4,407
Expected benefit payments:		
2017	6,774	6,970
2018	7,071	6,979
2019	7,421	6,809
2020	7,818	6,986
2021	8,297	7,226
2022-2026	49,086	38,664
Total	<u>\$ 86,467</u>	<u>\$ 73,634</u>

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 \$0.5 million in fiscal 2016.

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, 2016 and 2015, were \$122.9 million and \$122.7 million, respectively. Operating lease rental expense for the years ended June 30, 2016 and 2015 were approximately \$36.9 million and \$36.6 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:		
2017	\$ 40,084	\$ 9,953
2018	32,582	8,355
2019	29,198	7,137
2020	27,409	5,950
2021	24,832	5,775
Thereafter	292,394	233,720
Less: Interest at 1.45 percent to 5.31 percent		(147,943)
Capital lease obligations at June 30, 2016		<u>\$ 122,947</u>

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

Conditional asset retirement obligations related to remediation or disposal of asbestos, underground storage tanks, soil, radioactive sources, and equipment were \$121.4 million and \$117.8 million at June 30, 2016 and 2015, respectively.

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16. Bonds and Notes Payable

Bonds and notes payable outstanding at June 30, 2016 and 2015, are as follows:

	2016	2015
Dormitory Authority of the State of New York, tax exempt revenue bonds, Columbia University issues		
Series 2016 A-1, 4.00% to 5.00%, maturing FY2027	\$ 50,000	
Series 2016 A-2, 5.00%, maturing FY2047	130,000	
Series 2016 B, 3.00% to 5.00%, maturing FY2032	209,705	
Series 2015 A, 5.00%, maturing FY2046	92,535	\$ 92,535
Series 2015 B, 3.00% to 5.00%, maturing FY2025	47,780	47,780
Series 2012 A, 3.00% to 5.00%, maturing FY2023	137,935	137,935
Series 2011 A, 3.00% to 5.00%, maturing FY2042	300,000	300,000
Series 2009 A, variable rate, 0.01% to 0.43%, maturing FY2040	117,000	117,000
Series 2008 A, 5.00%, maturing FY2038	200,000	200,000
Series 2006 A, 4.75% to 5.25%, maturing FY2031		176,750
Series 2006 B, 4.125% to 5.25%, maturing FY2022		96,470
Series 2004 C, 5.00%, maturing FY2029	48,270	48,270
Series 2003 B, variable rate, 0.01% to 0.48%, maturing FY2028	30,000	30,000
Series 2002 C, variable rate, 0.03% to 0.45%, maturing FY2027	23,300	23,300
	<u>1,386,525</u>	<u>1,270,040</u>
Taxable Series 2015, 3.457%, maturing FY2046	75,000	75,000
Taxable Series 2012, 3.827%, maturing FY2043	100,000	100,000
New Jersey Economic Development Corporation		
Series 2002, variable rate, 0.03% to 0.45%, maturing FY2028	5,965	6,375
Medium-Term Notes, Taxable Series C 6.83% to 7.36%, maturing FY2022	37,435	65,179
Empire State Development Corporation Issues:		
Interest-free, maturing FY2029	6,767	7,061
Interest-free, maturing FY2020	8,100	8,100
Economic Development Corporation		
Interest-free, maturing FY2020	10,000	10,000
	<u>243,267</u>	<u>271,715</u>
Total bonds and notes payable	<u>\$ 1,629,792</u>	<u>\$ 1,541,755</u>

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Estimated principal payments on bonds and certificates are summarized below:

Fiscal Year	Principal
2017	\$ 15,199
2018	48,032
2019	60,829
2020	81,933
2021	73,326
Thereafter (through 2047)	1,350,473
Total	\$ 1,629,792

At June 30, 2016, the University's bonds and notes payable had a carrying amount of approximately \$1.6 billion, compared to an estimated fair value of \$1.9 billion. The estimated fair value of bonds and notes payable was calculated using a discounted cash flow method, where the estimated cash flows were based on contractual principal and interest payments. The discount rates used were based on the University's borrowing rate for similar obligations. Fair values represent the lower of the estimated value at call or maturity of each respective issue.

As of June 30, 2016, the University had a \$100 million operating line of credit, which expires in December, 2017. Additionally, as of June 30, 2016, the University had two \$100 million standby lines of credit supporting self-liquidity for variable rate debt outstanding, one that expires in January, 2017 and a second that expires in January, 2019. Each of the lines is with a different lending institution and, as of June 30, 2016, no balances were outstanding on the lines of credit.

The University issues most of its tax-exempt debt through the Dormitory Authority of the State of New York ("DASNY"). On April 27, 2016, the University issued \$50 million of Series 2016A-1 green bonds, \$130 million of Series 2016A-2, and \$209.7 million of Series 2016B, all tax-exempt fixed rate bonds. Series 2016A-1 was issued at a premium of \$14.4 million which will be amortized over 10 years based on the maturity of the underlying bond. Series 2016A-2 was issued at a premium of \$45 million, \$36.9 million of which will be amortized based on the maturity of the underlying bonds which ranges from 8 to 30 years and \$8.1 million of which will be amortized over 10 years based on the optional redemption date. Series 2016B was issued at a premium of \$42.4 million which will be amortized over 10 years based on the optional redemption date. The proceeds from Series 2016A-1 and 2016A-2 will be used to finance various construction and renovation projects. The proceeds from Series 2016B were used to redeem outstanding Series 2006A and 2006B Bonds. The redeemed bonds were legally defeased and, as such, are not reflected in "Bonds and Notes Payable" at June 30, 2016.

On April 23, 2015, the University issued \$92.5 million of Series 2015A and \$47.8 million of Series 2015B tax-exempt fixed rate bonds. Series 2015A was issued at a premium of \$32.5 million, which is being amortized over 30 years based on the maturity of the underlying bonds. Series 2015B was issued at a premium of \$8.5 million, which is being amortized over 9 years based on the maturity of the underlying bonds. The proceeds from Series 2015A were used to finance various construction and renovation projects. The proceeds from Series 2015B were used to redeem outstanding taxable commercial paper and complete the refunding of the Series 2004B Bonds which were redeemed in June 2014.

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From time to time, the University also issues taxable bonds. On April 2, 2015, the University issued \$75 million of Series 2015 taxable fixed rate bonds. The proceeds from taxable Series 2015 were used to finance various construction and renovation projects.

The University has a \$150 million taxable commercial paper program. As of June 30, 2016 and 2015 there was no commercial paper outstanding under this program.

On October 1, 2008, the University entered into a \$200 million notional value forward starting, fixed payor swap agreement to protect against the risk of interest rate changes. The estimated fair value of the liability was (\$99.8) million and (\$68.2) million at June 30, 2016 and 2015, 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.

The University has administrative covenants with which it was in compliance as of June 30, 2016 and 2015.

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 fifteen 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 1,732 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 \$275.3 million and \$257.1 million as of June 30, 2016 and 2015, respectively. The medical malpractice liabilities of approximately \$177.5 million and \$167.0 million as of June 30, 2016 and 2015, respectively, are reported gross with an offsetting receivable for anticipated recoveries of \$118.5 million and \$109.5 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 Statement 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 called New York-Presbyterian Hospital. The University provides NYP with medical, professional, and supervisory staff as well as other technical assistance. These services are reimbursed by NYP.

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NYP provides funding to the 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 reimbursement agreement. The fiscal year 2016 joint budget was approximately \$303.5 million. The payments to NYP for goods and services were \$95.9 million. The majority of revenues received pursuant to this reimbursement arrangement for services rendered are reflected in the consolidated financial statements as a portion of "Patient care revenue." 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 Sheet. The University has no liability for obligations and debt incurred by NYP.

In fiscal 2016 and 2015, 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 \$42.5 million and \$42.0 million during fiscal year 2016 and 2015, respectively, which has not been consolidated into the University's consolidated financial statements. In addition, the University had a financial arrangement with another PC which it assumed control of in October 2014 and has consolidated the activity of this PC subsequent to this date into the University's consolidated financial statements. This PC generated revenue of approximately \$7.2 million during fiscal year 2015 that was not consolidated into the University consolidated financial statements.

The University also controls two not-for-profit practice entities 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 2016, the CPMC Fund, Inc. transferred to the University eighteen endowments previously held by CPMC Fund, Inc. for the University. The value of the endowments at the time of transfer was \$15.5 million, with \$3.6 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

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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, 2016, the University has recorded \$121.4 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 \$37.7 million. As of June 30, 2016 approximately \$9.0 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.

During fiscal year 2010, a private lending institution offered a loan program for certain students and families to pay tuition, fees and other costs. These loans are guaranteed by the University. Accordingly, in the event of default by the borrower, the University is required to pay all or a portion of the outstanding loan balance. The amount of guaranteed loans outstanding under this program was \$1.1 million and \$1.6 million as of June 30, 2016 and 2015, respectively.

The University has performed an evaluation of subsequent events through October 11, 2016, 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.

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

	2016			2015		
	Expenses per Statement of Activities	Allocation	Final Allocated Expenses	Expenses per Statement of Activities	Allocation	Final Allocated Expenses
Instruction and educational administration	\$ 1,592,412	\$ 175,558	\$ 1,767,970	\$ 1,474,033	\$ 166,717	\$ 1,640,750
Research	538,971	80,472	619,443	538,242	83,305	621,547
Patient care expense	914,674	102,857	1,017,531	829,577	113,833	943,410
Library	67,487	42,754	110,241	66,446	37,189	103,635
Operation and maintenance of plant	233,368	(233,368)	-	232,100	(232,100)	-
Institutional support	289,404	21,265	310,669	266,544	19,130	285,674
Auxiliary enterprise	137,043	61,692	198,735	128,643	54,625	183,268
Depreciation expense	207,114	(207,114)	-	199,652	(199,652)	-
Interest expense	44,116	(44,116)	-	43,047	(43,047)	-
Other	19,813	-	19,813	22,607	-	22,607
	<u>\$ 4,044,402</u>		<u>\$ 4,044,402</u>	<u>\$ 3,800,891</u>		<u>\$ 3,800,891</u>

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 and 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
Supplemental 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
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	310,966
A Prospective Comprehensive Epidemiologic Study in a Large Cohort in the National ALS Registry: Identifying ALS Risk Factors	93	CDC 200-2013-56886		0	244,578
Columbia University CISA (wheezing Study)	93	CDC 200-2012-53665-T004		0	128,852
Columbia University CISA Center	93	CDC 200-2012-53665/0002		0	70,243
Tuberculosis Trials Consortium	93	CDC 200-2009-32593		0	67,622
Columbia University CISA (wheezing Study)	93	CDC 200-2012-53665-T004		0	62,650
Columbia University CISA Center	93	CDC 200-2012-53665/0002		0	28,210
Columbia University CISA (wheezing Study)	93	CDC 200-2012-53665-T004		0	17,192
				\$0	\$930,313
Training in General, Pediatric, and Public Health Dentistry					
Advanced Clinical Training in Oral Health Networking (ACTION)	93.059	5D88HP20109-07-00		0	671,732
Faculty Development in General, Pediatric & Public Health Dentistry & Dental Hygiene	93.059	5D86HP24475-05-00		0	421,235
Predoctoral Training in General, Pediatric & Public Health Dentistry & Dental Hygeine	93.059	5D85HP20031-07-00		0	341,448
Faculty Development in General, Pediatric & Public Health Dentistry & Dental Hygiene	93.059	5 D86HP24475-03-00		0	1,683
				\$0	\$1,436,098
Food and Drug Administration Research					
Phase 2 Teriparatide for Tx of Idiopathic Osteoporosis in Premenopausal Women	93.103	4R01FD003902-04		38,022	218,660
Phase 1 a/1 b Study of 11-1 F4 mAb for the Treatment of AL Amyloidosis	93.103	5R01FD005110-02		0	178,911
High-T susceptometer to monitor transfusional iron overload (NSR device)	93.103	5R01FD003702-04		0	160,856
Phase 2 Study of Vitamin D for Tx of Respiratory Complications in Sickel Cells Ds	93.103	5R01FD003894-04		0	23,308
Phase 2 Teriparatide for Tx of Idiopathic Osteoporosis in Premenopausal Women	93.103	5R01FD003902-03		22,571	6,992

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

The Trustees of Columbia University in the City of New York
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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
				\$60,593	\$588,727
Maternal and Child Health Federal Consolidated Programs					
MCH Research	93.110	6R40MC28312-01-02		0	74,243
				\$0	\$74,243
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	552
Category I: Technology and Community-Based Approaches to Improve Health in Harlem	93.135	5U48DP001916-05		0	-532
Category I: Technology and Community-Based Approaches to Improve Health in Harlem	93.135	5U48DP001916-05		0	-29,225
				\$0	\$-29,205
Injury Prevention and Control Research and State and Community Based Programs					
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	137,791
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	137,669
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	122,196
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	118,510
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	58,216
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	51,406
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	46,928
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	43,038
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	37,856
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	12,080
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	8,727
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	8,283
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	6,128
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	4,851
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	4,412
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	3,288

The accompanying footnotes are an integral part of the Supplemental 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
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	1,600
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	1,345
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	256
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	126
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	111
Columbia Injury Control Research Center	93.136	5R49CE002096-05		0	0
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	0
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	0
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-111
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-126
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-3,768
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-4,371
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-4,412
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-16,308
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-17,832
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-35,065
Columbia Injury Control Research Center	93.136	5R49CE002096-04		0	-37,460
				\$0	\$685,364
AIDS Education and Training Centers					
New York/New Jersey AIDS Education and Training Center	93.145	5H4AHA00071-12-00		0	-139
				\$0	\$-139
Health Program for Toxic Substances and Disease Registry					
Case-Control Studies Nested in National ALS Registry to Evaluate Environmental Risks	93.161	5R01TS000243-02		0	166,915
				\$0	\$166,915
National Research Service Award in Primary Care Medicine					
Primary Care Research Fellowship	93.186	6T32HP10260-08-01		0	125,360

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

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Supplemental Schedule of Expenditures of Federal Awards

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				R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>
NRSA for Primary Medical Care	93.186	6T32HP10260-07-01		0
				14,071
				\$0
				\$139,431

Research on Healthcare Costs, Quality and Outcomes

Addressing Hospital Patient Information Needs Using a PHR Portal	93.226	5R01HS021816-04		60,000	619,773
Keep It Clean for Kids: The KICK Project	93.226	4R01HS021470-04		0	276,474
Topical Vancomycin for Craniotomy Wound PRophylaxis	93.226	5R01HS022903-03		129,324	263,060
PRISM: Personalized Reminders for Immunization using Short Messaging systems	93.226	5R01HS022677-03		0	214,350
Increasing the Uptake of the USPSTF Hypertension Screening Guidelines in Primary Care	93.226	5R01HS024262 02		0	198,212
SINC: Synchronized Immunization Notifications	93.226	5R01HS023582-02		13,337	186,214
Keep It Clean for Kids: The KICK Project	93.226	4R01HS021470-04		0	113,118
Anesthesia Exposure and Risk of Behavioral or Developmental Disorder	93.226	5K08HS022941-03		0	104,567
Topical Vancomycin for Craniotomy Wound PRophylaxis	93.226	5R01HS022903-03		0	76,523
Use of mHealth Technology for Supporting Symptom Management in Underserved Persons Living with HIV	93.226	5R21HS023963-02		0	72,855
Use of mHealth Technology for Supporting Symptom Management in Underserved Persons Living with HIV	93.226	5R21HS023963-02		0	41,689
Keep It Clean for Kids: The KICK Project	93.226	4R01HS021470-04		0	7,888
WICER 4U	93.226	1R01HS022961-01		0	7,630
Anesthesia Exposure and Risk of Behavioral or Developmental Disorder	93.226	5K08HS022941-03		0	934
Addressing Hospital Patient Information Needs Using a PHR Portal	93.226	5R01HS021816-02		0	309
PRISM: Personalized Reminders for Immunization using Short Messaging systems	93.226	5R01HS022677-03		0	123
				\$202,661	\$2,183,719

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	785,154
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-05		0	398,982
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-04		0	3,821
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-04		0	261
MOSAIC: Mobile Surveillance for ARI and ILI in the Community	93.283	5U01IP000618-04		0	-73,105

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
				\$0	\$1,115,113
Health Care Innovation Awards (HCIA)					
MySmileBuddy: Demonstrating the Value of Technology-assisted Non-surgical Caries Management in Young Childre	93.610	1C1CMS331347-03-00		510,664	891,698
MySmileBuddy: Demonstrating the Value of Technology-assisted Non-surgical Caries Management in Young Childre	93.610	1C1CMS331347-03-00		500,606	631,875
				\$1,011,270	\$1,523,573
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	90PD0274-03-01		0	81,948
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	90PD0274-03-01		0	27,774
				\$0	\$109,722
Grants for Primary Care Training and Enhancement					
Faculty Development in Primary Care	93.884	5 D55 HP05154-10-00		0	108,030
Faculty Development in Primary Care	93.884	5 D55 HP05154-10-00		0	59,300
Postdoctoral Training in General, Pediatic and Public Health Dentistry and Dental Hygiene	93.884	5 D88HP20109-05-00		0	29,160
				\$0	\$196,490
HIV Demonstration, Research, Public and Professional Education Projects					
PS11-003: Minority AIDS Research Initiative (MARI)	93.941	5U01PS003321-05		0	142,880
				\$0	\$142,880
Cooperative Agreements to Support State-Based Safe Motherhood and Infant Health Initiative Programs					
Male Teen Pregnancy Prevention Project (Male TPP Project)	93.946	5U01DP006109-02		0	245,477
				\$0	\$245,477
Total Direct Award Programs				\$1,274,524	\$9,508,721
Pass-through Awards					
Biomedical Advanced Research and Development Authority					
Integrated Biodosimetry System (IBIS) for High Throughput Medical Care After Radiologic and Nuclear Events	93	ASU 10-378	HHSO100201000008C	0	56,465
Centers for Disease Control and Prevention/DHHS					

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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
The Epidemiology of Novel Influenza Virus Infection and Evaluation of Antiviral and Vaccine Effectiveness	93	ABTAI 44717-44925	HHSD20002013M53890B/200-2013-F	0	37,524
Implementation & Evaluation of a Comprehensive Prevention with Positives Intervention at HIV Clinics	93	UMIAM I 664152	CDC 200-2011-41981	0	37,008
The Epidemiology of Novel Influenza Virus Infection and Evaluation of Antiviral and Vaccine Effectiveness	93	ABTAI 44717-44924	GS-10F0086K/BPA 200-2013-M-538	0	30,550
Department of Health & Human Services					
High-Throughput Biodosimetry After Radiological and Nuclear Events	93	NGC 8140000727	HHSO100201000002C	0	779,079
Healthy Weight in Lesbian and Bisexual Women Study- Coordinating Center	93	PUBHS 15-TCU-01	HHSP23320095629WC/HHSP23337005	0	33,649
ACE and Healthy Weight Intervention Development Center	93	HHSP2332015000531/HHSP23337001	HHSP2332015000531/HHSP23337001	0	15,939
National Center for Infectious Disease/CDC/DHHS					
CONNECT Revised: Relationship-Based HIV prevention (CRRHP)	93	DANYA 3597	CDC	0	390
				\$0	\$990,604
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	50,679
				\$0	\$50,679
Hospital Preparedness Program (HPP) and Public Health Emergency Preparedness (PHEP) Aligned Cooperative Agreements					
NYC DOHMH Performance Measure Development	93.074	PHS 15-CU-01	U9OTP000546	0	112,916
				\$0	\$112,916
Food and Drug Administration Research					
Phase 2 Study of Rasagiline for Treatment of Amyotrophic Lateral Sclerosis	93.103	QB85973A	1R01FD003739-01A3	0	4,949
Phase II trial of ADXS11-001 vaccine for HPV-related oropharyngeal cancer	93.103	BCM H 102156094	1R01FD005109-01A1	0	4,677
Covered Cheatham Platinum Stent for Prevention or Treatment of Aortic Wall Injury Associated with Ao	93.103	JU PO#2001286995	R01FD003898-01	0	-5,230
				\$0	\$4,396
Injury Prevention and Control Research and State and Community Based Programs					
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	25,223
				\$0	\$25,223
Research on Healthcare Costs, Quality and Outcomes					

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Center for Education and Research on Mental Health Therapeutics	93.226	RUTGER 5764	U19 HS021112-01	0	122,651
Youth Providers 2.0 (YP2)	93.226	SAHM CU12-1565	1R18HS021943-01	0	62,092
SMINET: Applying Evidence to Improve Care and Outcomes in Severe Mental Illness	93.226	RUTGER 5750	1R18HS023258-01	0	57,104
Effects of Missing Data Strategies on Disparities Research Results in HCUP SID	93.226	GWU 14-M65	7R01HS021734-02	0	35,777
Center for Education and Research on Mental Health Therapeutics	93.226	RUTGER 5764	U19 HS021112-01	0	23,852
Education and Training Program in Patient-Centered Outcomes Research	93.226	AECM 310742	1R25HS023199-01	0	21,674
Development of Dashboards to Provide Feedback to Home Care Nurses	93.226	VNSNY 4513C	1R21HS023855-01A1	0	10,131
Finding a safer way: Novel interaction design approaches to Health iT safety	93.226	SUNYRF 100-1125915-71853	1R01HS023708-01A1	0	7,513
Comparative Effectiveness of Surgical Treatments for Lung Cancer in the Elderly	93.226	MSSM 0254-5684-4609	5R01HS019670-03	0	1,715
Finding a safer way: Novel interaction design approaches to Health iT safety	93.226	SUNYRF 100-1125915-71853	1R01HS023708-01A1	0	1,240
				\$0	\$343,749

Substance Abuse and Mental Health Services Projects of Regional and National Significance

Implementing Pharmacotherapies for Opioid Dependence: Collaborative Strategies for Training Health Professionals	93.243	AAAP 5-27003-005	1U79TI024697-01	0	107,580
Providers Clinical Support System for Opioid Therapies	93.243	AAAP PCSSO14-12	5H79TI025595-02	0	14,743
Implementing Pharmacotherapies for Opioid Dependence: Collaborative Strategies for Training Health Professionals	93.243	AAAP 5-27003-005	1U79TI024697-01	0	9,779
Providers Clinical Support System for Opioid Therapies	93.243	AAAP PCSSO14-12	5H79TI025595-02	0	3,880
				\$0	\$135,982

Occupational Safety and Health Program

Mental Health Impact and Service Use Among Asian Survivors and Rescuers Exposed to WTC Attack	93.262	FORDUN CU13-3469	1U01OH010516	0	115,719
WTC-HEART: A Cohort Study of Heart Disease in World Trade Center Responders	93.262	QCCUNY 41901-A	1U01OH010722-01	0	97,422
Trace elements in autopsy tissues in WTC decedents	93.262	NYU 12-02605	1U01OH010395-01A1	0	9,026
				\$0	\$222,167

Teenage Pregnancy Prevention Program

Engender Health	93.297	ENGENDER PSA-655-01	5 TP2AH000001-02-00	0	78,908
Teenage Pregnancy Prevention: (Tier 2) with Native Youth	93.297	UCOL FY11-355.001	1 TP2AH0003-01-00	0	-752
Teenage Pregnancy Prevention: (Tier 2) with Native Youth	93.297	UCOL FY11-355.001	1 TP2AH0003-01-00	0	-15,333

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				\$0	\$62,823
Promoting Safe and Stable Families					
Improving Service Delivery to Youth in the Chile Welfare System	93.556	RIFPA CU11-2269	HHS-2011-ACF-ACYF-CW-0186	0	92,941
Improving Service Delivery to Youth in the Chile Welfare System	93.556	RIFPA CU11-2269	HHS-2011-ACF-ACYF-CW-0186	0	49,877
				\$0	\$142,818
HIV Emergency Relief Project Grants					
Ryan White Part A Contract 93-EVL-4645 for Planning and Evaluation (BASE)	93.914	PUBHS 93-EVL-4645	H89HA00015-25-03	0	782,463
Ryan White Part A Contract 93-EVL-4645 for Planning and Evaluation (BASE)	93.914	PUBHS 93-EVL-4645	H89HA00015-25-03	0	58,746
				\$0	\$841,209
HIV Prevention Activities Health Department Based					
2015 Pennsylvania Expanded HIV Testing Initiative (PEHTI)	93.940	COL4300446330	CDC-RFA-PS12-1201	0	43,201
Positive Pathways	93.940	SHRI 4477-04	5U62PS003692-03	0	19,702
				\$0	\$62,903
Total Pass-through Programs				\$0	\$2,995,469
Total: Department of Health & Human Services (Excluding NIH)				\$1,274,524	\$12,504,190

National Institute of Health

Direct Awards

National Heart, Lung, and Blood Institute/NIH/DHHS

Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		89,193	237,741
Multi-Ethnic Study of Atherosclerosis (MESA)- Field Center	93	N01-HC-95161		0	121,773
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		0	62,104
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		50,037	51,419
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		31,439	42,685
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		0	28,365
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		20,152	24,948

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		
Subpopulations and Intermediate Outcome Measure in COPD Study (SPIROMICS: Clinical Center)	93	HHSN268200900017C		
National Human Genome Research Institute/NIH/DHHS				
Functional Analysis for NHGRI Undiagnosed Disease Patients	93	HHSN268201500052P		
National Institute of Child Health and Human Development/NIH/DHHS				
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		
A Multi-Center, Randomized Study to Evaluate the Pharmacokinetic and Pharmacodynamic Profile, Contraceptive Efficacy and Safety of Daily Oral Low Dose Ulipristal Acetate	93	HHSN275201300010I		
Central Lab for the Nestorone/Estradiol-releasing Vaginal Ring for Female Contraception	93	HSN275201100042U		
A Multi-Center, Randomized Study to Evaluate the Pharmacokinetic and Pharmacodynamic Profile, Contraceptive Efficacy and Safety of Daily Oral Low Dose Ulipristal Acetate	93	HHSN275201300010I		
Central Lab for the Nestorone/Estradiol-releasing Vaginal Ring for Female Contraception	93	HSN275201100042U		
ARRA -HHSN275200800013C	93	HHSN275200800013C		
ARRA -HHSN275200800013C	93	HHSN275200800013C		
The National Standard for Normal Fetal Growth	93	HHSN275200800013C		
National Institute on Aging/NIH/DHHS				
Active PCI: accelerometer measures recovery after percutaneous coronary intervention	93	HHSN271201500885P		
National Institute on Drug Abuse/NIH/DHHS				
Antipsychotic and Stimulant Prescribing Patterns in Specific Patient Populations	93	HHSN271201400712P		
			\$199,706	\$844,220
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	1R03HL132590-01		
			\$0	\$17,426
Environmental Health				
Prenatal Factors and Risk of Autism in a Finnish National Birth Cohort	93.113	5R01ES019004-05		
Arsenic Exposure, Impaired Respiratory Function, and Immunosuppression	93.113	5R01ES023888-02		
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-02		

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Understanding Adoption of Clean Cookstoves	93.113	5R01ES024489-03		82,445	452,391
Intervening to Improve Birth Weight and Infant Respiratory Health in Rural Ghana	93.113	5R01ES019547-05		422,097	422,097
Pre- and Postnatal PBDE Exposure, Thyroid Hormones, and Neurodevelopment	93.113	5R01ES021806-04		0	383,872
Intervening to Improve Birth Weight and Infant Respiratory Health in Rural Ghana	93.113	5R01ES019547-05		196,498	376,137
Presynaptic Mechanisms of Lead Neurotoxicity	93.113	5R01ES020465-04		235,161	363,233
CEHNM - Admin Core	93.113	4P30ES009089-18		0	348,230
Pre- and Postnatal PBDE Exposure, Thyroid Hormones, and Neurodevelopment	93.113	5R01ES021806-04		0	310,630
Potential inhaled dose of particulates, biking and cardiovascular indicators	93.113	5R21ES024734-02		163,473	254,559
Cytoplasmic Damage and Genotoxicity	93.113	5R01ES012888-09		0	246,846
NMDA Receptor Function in Lead Neurotoxicity	93.113	2R01ES006189-21A1		55,785	233,922
Prenatal Pyrethroid Exposure and Child Mental, Motor and Behavioral Dvlpmnt (Whyatt/Factor-Litvak)	93.113	4R01ES021482-04		0	233,030
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	228,714
Mechanism-based abrogation of BCC pathogenesis	93.113	4R01ES020344-05		0	225,918
CEHNM - Admin Core	93.113	4P30ES009089-18		0	220,981
Interdisciplinary Training in Climate and Health	93.113	5T32ES023770-03		0	219,842
Understanding the pathway that links lipopolysaccharide (LPS) to mitochondrial function using a novel mouse model	93.113	5R21ES025677-02		0	199,421
Black Carbon Exposure, DNA Methylation, Airway Inflammation in Pediatric Asthma	93.113	4R01ES013163-10		0	175,248
The Columbia Center for Children s Environmental Health	93.113	5P50ES009600-17		0	168,370
CEHNM - Admin Core	93.113	4P30ES009089-18		0	167,188
Black carbon exposure, DNA methylation, airway inflammation in pediatric asthma	93.113	5R01ES013163-09		0	165,219
Prenatal pyrethroid exposure and child mental, motor and behavioral development	93.113	4R01ES021482-04		0	161,029
Interdisciplinary Training in Environmental Health	93.113	5T32ES007322-14		0	157,412
Early-life Phthalate Exposure, Thyroid Function and Child Cognitive Development	93.113	5R01ES013543-09		0	137,095
Multiparametric: Prediction of Vasospasm after Subarachnoid Hemorrhage	93.113	5K01ES026833-02		0	136,441
Biological Markers of Aflatoxin Exposure and Methylation	93.113	5R01ES005116-23		0	132,061
The Columbia Center for Children s Environmental Health	93.113	5P50ES009600-17		0	130,399

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Air Pollution and Risk of Placental Abruption in New York City	93.113	5R21ES025845-02		0	129,898
Peripheral BDZ Receptor Biomarker of Neurontoxicity	93.113	5R01ES007062-17		0	125,814
Pregnancy and Prenatal PAHs and other Environmental Exposures and Breast Cancer	93.113	5U01ES026122-02		0	125,185
CEHNM - Admin Core	93.113	4P30ES009089-18		0	120,417
Training Program in Environmental Life Course Epidemiology	93.113	5T32ES023772-02		0	113,676
Intervening to Improve Birth Weight and Infant Respiratory Health in Rural Ghana	93.113	5R01ES019547-05		98,580	113,580
CEHNM - Admin Core	93.113	4P30ES009089-18		60,174	100,609
Nutrients Involved in 1- Carbon Metabolism and the Methylation of Arsenic and DNA	93.113	5R00ES018890-05		0	91,341
CEHNM - Admin Core	93.113	4P30ES009089-18		0	91,310
Undergraduate Research Program to Promote Diversity in EHS	93.113	5R25ES025505-02		7,245	88,369
The Columbia Center for Children s Environmental Health	93.113	5P50ES009600-17		0	87,992
Multicenter ALS Cohort Study of Oxidative Stress and Disease Progression	93.113	5R01ES016348-05		11,788	81,695
NMDA Receptor Function in Lead Neurotoxicity	93.113	5R01ES006189-20		71,053	77,720
The Columbia Center for Children s Environmental Health	93.113	5P50ES009600-17		0	75,901
The Columbia Center for Children s Environmental Health	93.113	5P50ES009600-17		0	74,673
Validating particulate matter monitors for multiple parameters	93.113	5R01ES020424-02		28,010	69,381
Biomarkers for Arsenic Toxicity: Genetics, Epigenetics and Folate	93.113	5R01ES017875-04		21,793	62,993
CEHNM - Admin Core	93.113	4P30ES009089-18		0	62,818
CEHNM - Admin Core	93.113	4P30ES009089-18		0	62,246
Assessing the Impact of Clean Heat Policy Intervention in New York City	93.113	5R21ES024108-02		0	60,486
Cytoplasmic Damage and Genotoxicity	93.113	4R01ES012888-10		0	55,285
Understanding Adoption of Clean Cookstoves	93.113	5R01ES024489-03		0	52,983
Mechanism-based abrogation of BCC pathogenesis	93.113	5R01ES020344-04		0	52,980
Prenatal Factors and Risk of Autism in a Finnish National Birth Cohort	93.113	5R01ES019004-05		36,992	51,992
CEHNM - Admin Core	93.113	4P30ES009089-18		0	42,786
CEHNM - Admin Core	93.113	4P30ES009089-18		0	41,945

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CEHNM - Admin Core	93.113	4P30ES009089-18		0	32,767
Pre- and Postnatal PBDE Exposure, Thyroid Hormones, and Neurodevelopment	93.113	4R01ES021806-05		0	31,485
CEHNM - Admin Core	93.113	4P30ES009089-18		0	31,416
CEHNM - Admin Core	93.113	4P30ES009089-18		0	28,863
Molecular and Behavioral Effects of Low Level Mn Exposure	93.113	5R01ES010975-10		3,202	28,736
Influences of arsenic and folate on histone methylation marks	93.113	1F31ES025100-01A1		0	26,907
Black Carbon Exposure, DNA Methylation, Airway Inflammation in Pediatric Asthma	93.113	4R01ES013163-10		0	24,498
CEHNM - Admin Core	93.113	4P30ES009089-18		0	23,327
CEHNM - Admin Core	93.113	4P30ES009089-18		0	21,976
Potential inhaled dose of particulates, biking and cardiovascular indicators	93.113	5R21ES024734-02		0	21,102
Multicenter ALS Cohort Study of Oxidative Stress and Disease Progression	93.113	5R01ES016348-05		0	18,709
CEHNM - Admin Core	93.113	4P30ES009089-18		0	18,044
CEHNM - Admin Core	93.113	4P30ES009089-18		0	15,343
CEHNM - Admin Core	93.113	4P30ES009089-18		0	14,036
CEHNM - Admin Core	93.113	4P30ES009089-18		0	12,358
CEHNM - Admin Core	93.113	4P30ES009089-18		0	12,124
Black carbon exposure, DNA methylation, airway inflammation in pediatric asthma	93.113	5R01ES013163-09		0	11,422
CEHNM - Admin Core	93.113	4P30ES009089-18		0	10,560
Black carbon exposure, DNA methylation, airway inflammation in pediatric asthma	93.113	5R01ES013163-09		0	9,896
CEHNM - Admin Core	93.113	4P30ES009089-18		0	9,351
CEHNM - Admin Core	93.113	4P30ES009089-18		0	7,847
CEHNM - Admin Core	93.113	4P30ES009089-18		0	7,807
CEHNM - Admin Core	93.113	4P30ES009089-18		0	7,570
CEHNM - Admin Core	93.113	4P30ES009089-18		0	7,185
Biomarkers for Arsenic Toxicity: Genetics, Epigenetics and Folate	93.113	5R01ES017875-04		0	5,709
CEHNM - Admin Core	93.113	4P30ES009089-18		0	4,290

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Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	4,106
CEHNM - Admin Core	93.113	4P30ES009089-18		0	3,506
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	2,487
CEHNM - Admin Core	93.113	4P30ES009089-18		0	2,011
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	1,959
CEHNM - Admin Core	93.113	4P30ES009089-18		0	1,526
CEHNM - Admin Core	93.113	4P30ES009089-18		0	1,490
Interdisciplinary Training in Climate and Health	93.113	5T32ES023770-03		0	697
Prenatal Exposure to a Mixture of EDCs, Maternal Thyroid Function and Child Neurodevelopment	93.113	5K99ES020364-02		0	281
Interdisciplinary Training in Environmental Health	93.113	5T32ES007322-14		0	0
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-6
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-6
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-7
NMDA Receptor Function in Lead Neurotoxicity	93.113	5R01ES006189-20		0	-19
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-51
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-69
Assessing the Impact of Clean Heat Policy Intervention in New York City	93.113	5R21ES024108-02		0	-357
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-460
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-834
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-1,290
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-1,684
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-2,519
Eff of a Major Climatic Evnt -Sprstrm Sandy on Preg Outcms and Telomere Length (Factor-Litvak/Monk)	93.113	5R21ES023582-02		0	-4,884
Columbia Center for Children s Environmental Health - Admin Core	93.113	5P01ES009600-15		0	-27,353
				\$1,915,404	\$10,322,506

Oral Diseases and Disorders Research

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Craniofacial Tissue Engineering	93.121	2R01DE016525-07		179,921	531,280
Pre-clinical Models of Odontic Analogs by Endogenous Stem Cells	93.121	5R01DE023112-03		0	478,761
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	5R01DE013094-14		24,265	440,601
Mechanism of F. Nucleatum in Intrauterine Infection	93.121	5R01DE023332-04		0	368,508
Periodontitis Exposure and Risk of Incident Dementia	93.121	5R56DE022568-02		32,356	307,667
Role of Estrogen Receptor Alpha and Beta in Regulating Mandibular Condylar Growth	93.121	2R56DE020097-06		0	265,147
Multidisciplinary Training in TMJ Disorders/Pain: Integrating Basic, Translational and Clinical Science	93.121	5K12DE023583-03		0	258,089
NIDCR Dentist Scientist K99:Improve TMJ Fibrocartilage Regeneration Strategies	93.121	5R00DE022060-05		0	228,608
Planning a Stage II Trial to Prevent ECC Progression	93.121	1R34DE023158-01A1		74,156	167,680
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	4R01DE013094-15		0	143,637
Genomic approaches to the pathobiology andclassification of periodontitis	93.121	5R03DE024735-02		0	113,476
Periodontitis Exposure and Risk of Incident Dementia	93.121	5R56DE022568-02		0	89,850
Investigation of FADA adhesin from Fusobacterium Nucleatum	93.121	7R01DE014924-10		0	64,277
Predictive Value of MicroRNAs in the Progression of Oral Leukoplakias	93.121	5R03DE023820-02		0	59,228
HIV Testing in Dental Care Settings	93.121	7R01DE019615-04		0	37,933
Pre-clinical Models of Odontic Analogs by Endogenous Stem Cells	93.121	5R01DE023112-04		0	37,371
Continuous root formation in developing teeth by molecular cues	93.121	1R01DE025643-01A1		0	29,362
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	5R01DE013094-14		0	14,605
Multidisciplinary Training in TMJ Disorders/Pain: Integrating Basic, Translational and Clinical Science	93.121	5K12DE023583-03		0	10,750
Periodontal Infections and Type 2 Diabetes Mellitus Risk	93.121	5R00DE018739-05		0	10,088
Oral Transmission of HIV through Breastfeeding	93.121	5R01DE021238-04		8,675	6,763
Functional analysis of miRNAs during craniofacial dermal morphogenesis	93.121	5F31DE023472-03		0	1,873
Estrogen Receptor Beta Regulation of Mandibular Condylar Growth	93.121	5R01DE020097-05		0	-800
Oral Infections and Vascular Disease Epidemiology Study (INVEST)	93.121	5R01DE013094-14		0	-14,807
				\$319,373	\$3,649,947

NIEHS Superfund Hazardous Substances Basic Research and Education

The accompanying footnotes are an integral part of the Supplemental 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
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		552,432	552,432
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	320,732
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	232,965
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		68,215	193,933
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	191,028
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		16,628	180,798
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		66,216	136,711
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		44,302	132,258
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	113,209
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		16,628	111,542
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	105,054
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	84,106
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		9,143	78,454
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	76,191
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	74,083
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	72,494
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	61,365
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	58,557
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	56,890
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	52,011
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	38,448
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	36,713
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	33,552
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	24,381
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	23,333
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	22,948

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					R&D Cluster
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Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	14,187
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	1,861
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	4P42ES010349-15		0	165
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	0
Health Effects and Geochemistry of Arsenic and Manganese - Administrative Core	93.143	5P42ES010349-14		0	0
				\$773,564	\$3,080,401

Human Genome Research

An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		434,137	1,844,397
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		128,157	973,218
Predictive Learning of Post-Transcriptional Networks	93.172	5R01HG003219-11		0	614,737
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-02		0	580,805
An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		0	412,289
Integrated, multiplexed high-frequency electronic analysis of DNA in nanopores	93.172	5R01HG006879-03		51,128	396,333
Inferring gene regulatory circuitry from functional genomics data	93.172	5R01HG003008-11		84,446	368,477
Single Molecule Real Time Electronic Sequencing	93.172	5R01HG006882-04		34,976	320,652
Massively parallel mapping of all molecular interactions in a single tube	93.172	5R01HG009065-02		0	267,347
Single Molecule Real Time Electronic Sequencing	93.172	5R01HG006882-04		200,579	222,142
Impact of return of incidental genetic test results to research participants in the genomic era	93.172	5R01HG006600-03		0	68,254
Quantile Analysis on Human Complex Traits in GWAS and Sequencing Studies	93.172	5R03HG007443-02		0	37,151
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		0	31,999
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	4P50HG007257-04		0	19,793
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		23,474	17,160
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		0	16,000
Columbia GENIE (GENomic Integration with Ehr)	93.172	5U01HG008680-02		0	15,201
Develop quantile analysis tools for sequencing and eQTL studies	93.172	1R01HG008980-01		0	14,312
Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		0	12,202

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Center for Research on Ethical, Legal and Social Implications of Psychiatric, Neurologic and Behavioral Genetics	93.172	5P50HG007257-03		0	-2,243
An integrated System for Single Molecule Electronic Sequencing by Synthesis	93.172	5R01HG007415-03		0	-1,123,442
				\$956,897	\$5,106,784

Research Related to Deafness and Communication Disorders

A Medicinal Chemistry Approach to Understanding the Basis of Olfactory Perception	93.173	5R01DC013553-03		0	477,216
The Unfolded Protein Response as an Organizer of Chemosensory Response	93.173	5R01DC014144-03		0	348,165
Regeneration in the olfactory system	93.173	4R01DC012567-04		6,008	312,660
Understanding the Role of Nuclear Architecture in Olfactory Receptor Choice	93.173	5R01DC013560-04		0	308,276
Neurophysiology of robust speech perception in human superior temporal gyrus	93.173	5R01DC014279-02		0	298,282
Observing Auditory Mechanics with Pressure and Motion Measurements	93.173	5R01DC003130-21		0	218,824
Intracochlear Delivery of Therapeutics Across RWM via Microneedle Array	93.173	5R01DC014547-02		0	189,704
Auditory Mechanics and Cochlear Amplification	93.173	1R01DC015362-01		0	167,199
Experience-dependent modulation of innate neural circuits	93.173	5K99DC014516-02		0	156,549
Neural Coding and Perception of Learned Vocalizations	93.173	2R01DC009810-06A1		0	149,474
Adaptive Sensory Processing in the dorsal cochlear nucleus of the mouse	93.173	5F30DC014174-03		0	44,300
Interactions between piriform cortex and amygdala in a model of associative learning in the mammalian olfactory system	93.173	5F32DC014387-03		0	39,915
Defining the Circuitry for Olfactory Memories Beyond the Mushroom Body in Drosophila melanogaster	93.173	5F31DC014394-02		0	39,804
Intracochlear Delivery of Therapeutics Across RWM via Microneedle Array	93.173	5R01DC014547-02		0	31,063
Observing Auditory Mechanics with Pressure and Motion Measurements	93.173	5R01DC003130-21		0	15,764
Interactions between piriform cortex and amygdala in a model of associative learning in the mammalian olfactory system	93.173	5F32DC014387-03		0	7,936
Neural Coding and Perception of Learned Vocalizations	93.173	5R01DC009810-05		0	932
Regeneration in the olfactory system	93.173	4R01DC012567-04		20,055	-149,082
				\$26,063	\$2,656,981

Research and Training in Complementary and Integrative Health

Acupuncture of Armotase Inhibitor Related Arthralgias in Breast Cancer Patients	93.213	5R01AT006376-05		220,000	425,006
Acupuncture of Armotase Inhibitor Related Arthralgias in Breast Cancer Patients	93.213	5R01AT006376-05		14,604	604

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				\$234,604	\$425,610
National Center on Sleep Disorders Research					
VASCULAR ENDOTHELIAL ACTIVATION IN SLEEP APNEA	93.233	5R01HL106041-05		0	299,557
Reducing Sleep Disparities in Urban, Minority School-Aged Children	93.233	5R01HL092856-05		0	38,439
Reducing Sleep Disparities in Urban, Minority School-Aged Children	93.233	5R01HL092856-05		0	-14,222
				\$0	\$323,774
Mental Health Research Grants					
1/3-Identifying regulatory mutations that influence neuropsychiatric disease	93.242	5U01MH105670-04		89,592	889,443
Biosignatures of Treatment Remission in Major Depression	93.242	5U01MH092250-04		625,172	768,082
Developing drivers for neuron type-specific gene expression	93.242	5U01MH105924-03		0	716,659
Identifying de novo mutations causing OCD in trios by whole exome sequencing	93.242	5R01MH099216-05		0	716,416
Hippocampal inhibitory control of contextual fear learning	93.242	5R01MH100631-03		0	600,470
Peer-Led Healthy Lifestyle Program in Supportive Housing	93.242	3R01MH104574-03		152,309	595,326
Building Schizophrenia Research in Macedonia	93.242	5R01MH098786-04		179,544	587,167
Identification of Rare Variants of OCD	93.242	5R01MH097971-05		0	580,101
Genomic Approaches to Deciphering Memory Circuits	93.242	4R01MH097062-05		208,004	575,623
Longitudinal Imaging of Patients at Clinical Risk for Psychosis.	93.242	5R01MH093398-05		64,356	556,178
Development of fluorescent false neurotransmitters	93.242	5R01MH108186-02		0	552,636
Genetic targeting of hippocampal CA2 pyramidal neurons	93.242	5R01MH104602-03		0	547,386
Stigma Associated with a High-Risk State for Psychosis	93.242	5R01MH096027-04		320,409	469,420
Characterizing cognition across the lifespan in untreated psychosis in China	93.242	5R01MH108385-02		275,940	455,027
Two-photon optical control of astrocytic function	93.242	5R01MH101218-03		0	450,469
Adv PrEP for Black MSM: Community-Based Ethnography and Clinic-Bsd Intrvntn - ICAP (Colson/Hirsch)	93.242	5R01MH098723-04		79,187	430,669
Prenatal stress: the epigenetic basis of maternal and perinatal effects	93.242	5R01MH092580-05		0	420,170
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-27		0	415,393
The neurophysiological basis of serial learning	93.242	5R01MH081153-07		0	403,760

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A Research Training Program in Psychiatric Epidemiology	93.242	4T32MH013043-45		0	403,595
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	5R01MH067068-13		0	401,522
The Effects of Prenatal Stress & Poor Nutrition on Brain and Cognition	93.242	5R01MH093677-05		161,393	399,637
Efficacy Trial of a Brief Health Enhancement Intervention for Newly Diagnosed Men (Wilson/Hansen)	93.242	4R01MH097651-05		76,802	386,360
Vitamin-D- PRODH- &DTNBP1-Induced Hyperprolinemia:Schizophrenia Risk & Treatment	93.242	5R01MH100219-03		198,198	382,625
Neurophysiology underlying neural representations of value	93.242	4R01MH082017-09		0	379,273
Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.242	5T32MH015144-39		0	359,255
Translational Research Training in Child Psychiatry	93.242	5T32MH016434-37		0	353,398
Biosignatures of Treatment Remission in Major Depression	93.242	5U01MH092250-04		125,699	351,447
MicroRNA Dysregulation in Pyschiatric Disorders and Cognitive Dysfunction	93.242	5R01MH097879-04		0	350,582
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patients	93.242	5T32MH018870-29		0	345,163
Identifying de novo mutations causing OCD in trios by whole exome sequencing	93.242	5R01MH099216-05		114,844	329,698
Medium Spiny Neuron Excitability and Motivation	93.242	5R01MH093672-05		0	324,207
Network Models for Timing and Sequence Generation	93.242	5R01MH093338-05		0	314,493
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		263,376	313,012
Mechanisms Mediating Long-Term Synaptic Plasticity	93.242	4R01MH060387-16		0	294,611
Online Partnering of Heterosexuals and HIV Risk (Siegel/Lekas)	93.242	5R01MH095325-03		0	285,092
tDCS Augmentation of Cognitive Remediation in Schizophrenia	93.242	5R33MH099265-04		0	277,607
Intra-axonal signaling pathways triggered by attractive guidance cues.	93.242	5R01MH096702-04		0	274,653
The Antidepressant Action of Ketamine: Brain Chemistry and Sustaining Remission	93.242	5R01MH093637-04		102,197	257,447
Development of fluorescent false neurotransmitters	93.242	5R01MH108186-02		0	257,393
Elucidating the Effect of Disc 1 on Neurodevelopment and Synaptic Transmission	93.242	5R01MH080234-08		0	253,023
Neurobiology of Depression and Antidepressants	93.242	5R01MH040695-22		0	251,080
Research Training in Late-Life Neuropsychiatric Disorders	93.242	5T32MH020004-18		0	249,982
Role of the protocadherin alpha gene cluster in serotonergic circuitry formation and its implications in depressive disorders	93.242	1R01MH108579-01		0	247,859
Attentional Control by Uncertainty and Reward: Parietal and Frontal Mechanisms	93.242	5R01MH098039-05		0	241,172

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Novel Statistical Methods for DNA Sequencing Data, and Applications to Autism	93.242	5R01MH095797-04		36,047	236,941
Personalized and Scalable Cognitive Remediation Approaches	93.242	5R34MH100317-03		21,318	232,641
The Conte Center for Schizophrenia Research	93.242	5P50MH086385-05		204,563	220,782
1/3 - Genomics of Schizophrenia in the South Africa Xhosa	93.242	5U01MH096756-03		115,910	219,373
Exploring the pathophysiology of anxiety: the role of the hippocampus, amygdala and medial prefrontal cortex	93.242	4R01MH081968-09		0	214,791
A School-Based Intervention to Reduce Stigma and Promote Mental-Health Service Use (Link/Painter)	93.242	5R01MH095254-04		74,897	208,504
Mechanisms Underlying the Functional Connectivity Deficit in the 22q11 Microdeletion Syndrome	93.242	5R01MH096274-04		0	205,057
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	202,928
Ketamine vs Midazolam: Testing Rapid Relief of Suicide Risk in Depression	93.242	5R01MH096784-04		113,403	201,281
Neurophysiology underlying neural representations of value	93.242	5R01MH082017-08		0	196,812
Adv PrEP for Black MSM: Community-Based Ethnography and Clinic-Bsd Intrvntn - ICAP (Colson/Hirsch)	93.242	5R01MH098723-04		0	188,276
The Role of Place and Grid Cells in Human Spatial navigation and Memory	93.242	5R01MH104606-02		0	186,163
Cortical Dynamics of Anticipation and Preparatory Attention	93.242	5R21MH103814-02		0	185,522
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	5R01MH067068-13		0	177,845
The role of the hippocampal CA2 region in neuropsychiatric disease	93.242	1R01MH106629-01A1		0	171,340
The neurophysiological basis of serial learning	93.242	4R01MH081153-08		0	169,470
Prenatal stress: the epigenetic basis of maternal and perinatal effects	93.242	5R01MH092580-05		0	152,977
Multi-Level Determinants of Late ART Initiation in sub-Saharan Africa	93.242	5R01MH089831-05		51,419	152,774
The Spread of Autism Diagnosis through Spatially Embedded Social Networks	93.242	5R21MH100514-02		56,747	152,344
Understanding Discontinuation of Outpatient Care among HIV-positive Inpatients (Lekas/Metsch)	93.242	5R01MH095849-03		0	151,396
Serotonin 1A Receptor PET Imaging and SSRI Outcome in Bipolar Depression	93.242	5K23MH105688-03		0	149,418
VPAC2 receptor function and its link to schizophrenia	93.242	5K01MH106833-02		0	135,422
Interagency Collaboration to Implement Effective Behavioral Interventions-DEBIs	93.242	5R01MH095676-04		5,298	126,230
Applications of Novel Statistical Methods to CNVs in Autism and Schizophrenia	93.242	5R21MH106888-02		0	123,749
1/3 - Genomics of Schizophrenia in the South Africa Xhosa	93.242	4U01MH096756-04		7,043	117,063
Intra-axonal signaling pathways triggered by attractive guidance cues.	93.242	4R01MH096702-05		0	116,466

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Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	116,129
Mitochondrial dysfunction due to aberrant mTor-regulated mitophagy in autism	93.242	5K01MH096956-03		0	112,553
Implementing Health Care Interventions for Hispanics with Serious Mental Health	93.242	5K01MH091118-06		0	112,500
Research Training in Biobehavioral Disturbances of Eating Disorders	93.242	4T32MH096679-04		0	111,417
Epignetic modulation of antidepressant efficacy	93.242	5R21MH099251-02		0	110,018
Mechanisms Mediating Long-Term Synaptic Plasticity	93.242	5R01MH060387-15		0	107,895
Mechanisms Underlying the Functional Connectivity Deficit in the 22q11 Microdeletion Syndrome	93.242	5R01MH096274-04		0	107,838
High-throughput screening platform for discovery of fluorescent synaptic markers	93.242	5R21MH104803-02		0	105,536
High-throughput screening platform for discovery of fluorescent synaptic markers	93.242	5R21MH104803-02		0	105,337
Attentional Control by Uncertainty and Reward: Parietal and Frontal Mechanisms	93.242	4R01MH098039-05		0	99,411
MicroRNA Dysregulation in Psychiatric Disorders and Cognitive Dysfunction	93.242	4R01MH097879-05		0	96,258
Mapping Genes for Schizophrenia in a Founder Population	93.242	5R01MH061399-12		0	93,218
Epigenetic Links Between the Social Environment and Emotional Brain Function (KOENEN/HARIRI)	93.242	1R21MH106715-01		321	92,816
HIV Dissemination Science Training Program for Underrepresented Investigators	93.242	4R25MH080665-08		7,884	88,605
Assessing Causality: Is Post-traumatic Stress Disorder Cardio-toxic? (KOENEN/KUBZANSKY)	93.242	1R01MH101269-01A1		81,561	81,561
tDCS augmentation of cognitive remediation in Schizophrenia	93.242	5R21MH099265-02		0	81,405
Efficacy Trial of a Brief Health Enhancement Intervention for Newly Diagnosed Men	93.242	4R01MH097651-05		0	80,398
Developing drivers for neuron type-specific gene expression	93.242	5U01MH105924-03		0	76,329
Modeling schizophrenia in Mice by Altered Expression of Neuregulin 1 (Nrg1)	93.242	5K08MH090397-05		0	74,108
Elucidating the Effect of Disc 1 on Neurodevelopment and Synaptic Transmission	93.242	4R01MH080234-09		0	72,613
The Effects of Prenatal Stress & Poor Nutrition on Brain and Cognition	93.242	5R01MH093677-05		0	72,149
Exploring the pathophysiology of anxiety: the role of the hippocampus, amygdala and medial prefrontal cortex	93.242	4R01MH081968-09		0	71,211
1/4 Optimizing Treatment for Complicated Grief	93.242	5R01MH060783-10		0	66,446
Categorical Decision-Making in Fronto-Striatal Circuits	93.242	5R01MH059244-15		0	59,068
The role of GABA-mimetic metabolites in neurodevelopmental and neuropsychiatric disorders	93.242	5R21MH100691-02		0	56,504
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	4R01MH067068-14		0	56,045

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R&D Cluster					
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Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	47,264
The Role of Place and Grid Cells in Human Spatial navigation and Memory	93.242	5R01MH104606-02		0	46,804
Functional analysis of the 22q11.2 schizophrenia susceptibility genes	93.242	4R01MH067068-14		0	45,801
Two-photon analysis of circuit-level mechanisms of schizophrenia biomarkers	93.242	5F32MH106265-03		0	44,344
Dissection of mediodorsal thalamic circuitry underlying flexible behavior	93.242	5F31MH106278-03		0	44,248
The role of basolateral amygdala interneurons in fear suppression	93.242	5F30MH107204-02		0	44,248
Optogenetic dissection of thalamoprefrontal circuitry supporting spatial working memory	93.242	5F31MH102041-02		0	43,120
smFRET Investigation of Gating in a Neurotransmitter Transporter Homolog	93.242	5F30MH101985-03		0	43,120
I3DEAL for HIV Research	93.242	5R03MH103957-02		0	38,880
Identifying Risk Factors for PTSD by Pooled Analysis of Current Prospective Studies (KOENEN/KESSLER/SHALEV)	93.242	1R01MH101227-01A1		24,197	38,715
Developing drivers for neuron type-specific gene expression	93.242	5U01MH105924-03		0	35,718
Medium Spiny Neuron Excitability and Motivation	93.242	5R01MH093672-05		0	35,636
Temporal dynamics of neurophysiological patterns as treatment targets in Sz	93.242	1R01MH109289-01		0	34,662
Peer-Led Healthy Lifestyle Program in Supportive Housing	93.242	3R01MH104574-03		21,332	32,964
A School-Based Intervention to Reduce Stigma and Promote Mental-Health Service Use (Link/Painter)	93.242	5R01MH095254-04		0	32,054
Mitochondrial dysfunction due to aberrant mTor-regulated mitophagy in autism	93.242	4K01MH096956-04		0	31,312
Biosignatures of Treatment Remission in Major Depression	93.242	5U01MH092250-04		30,204	31,183
Factors Shaping MSM-Focused HIV Prevention Policies and Activities in Ghana (SANDFORT/GYAMERAH)	93.242	5F31MH102156-02		0	30,526
Research Training in Late-Life Neuropsychiatric Disorders	93.242	5T32MH020004-18		0	29,540
HIV Dissemination Science Training Program for Underrepresented Investigators	93.242	4R25MH080665-08		0	28,007
Understanding hippocampal circuit dysfunctions related to spatial and episodic memory impairment in 22q11, 2DS mouse model of schizophrenia	93.242	5F31MH105169-02		0	23,865
Developing drivers for neuron type-specific gene expression	93.242	5U01MH105924-03		0	23,339
Social Influence on Emotion in Adolescence	93.242	1F31MH107119-01A1		0	23,280
1/4 Optimizing Treatment for Complicated Grief	93.242	5R01MH060783-10		0	20,843
5-HT1A Receptor Anti-apoptotic Transduction Pathways in Suicide	93.242	5R01MH079439-05		1,042	20,778
Regional Network for Mental Health Research in Latin America (Susser/Galea/Alvarado/Rojas)	93.242	5U19MH095718-05		0	20,088

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Stigma Associated with a High-Risk State for Psychosis among Adolescents and Young Adults: Impacts on Identity and Social Integration	93.242	4R01MH096027-05		0	18,161
Understanding hippocampal circuit dysfunctions related to spatial and episodic memory impairment in 22q11, 2DS mouse model of schizophrenia	93.242	5F31MH105169-02		0	17,845
A Stepped Care Model of Adolescent Depression Treatment in Primary Care	93.242	5R34MH091320-03		0	16,569
Integrative methods for the identification of causal variants in mental disorder	93.242	1R01MH106910-01A1		0	16,461
Neurobiological Underpinnings of Two Suicidal Subtypes	93.242	1R01MH109326-01		0	13,694
Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.242	5T32MH015144-39		0	9,213
Cognitive control mechanisms in human prefrontal cortex	93.242	1R01MH106700-01A1		0	8,473
Posttraumatic Stress Disorder and Cognitive Decline in Women (KOENEN/GRODSTEIN)	93.242	1R21MH102570-01A1		6,595	7,091
Inferring Phenogenic Mechanisms in Psychiatric and other Complex Traits	93.242	5R01MH084995-04		0	4,767
2/2 A Comparison of Long-Acting Injectable Medications for Schizophrenia-ACLAIMS	93.242	5R01MH081107-06		0	4,310
Research Training in Biobehavioral Disturbances of Eating Disorders	93.242	4T32MH096679-04		0	4,254
Two-photon analysis of circuit-level mechanisms of schizophrenia biomarkers	93.242	5F32MH106265-03		0	4,039
A Research Training Program in Psychiatric Epidemiology	93.242	4T32MH013043-45		0	3,412
Using genetic and optogenetic models to dissect the role of the serotonin 1B receptor in aggression and impulsivity	93.242	5F32MH100888-02		0	3,309
Multimodal Neuroimaging for Mapping Decision Making in the Human Brain	93.242	5R01MH085092-05		0	2,911
Novel Methods for Evaluation and Implementation of Behavioral Intervention Technologies for Depression	93.242	1R01MH109496-01		0	2,906
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-25		0	2,643
The role of the hippocampal CA2 region in neuropsychiatric disease	93.242	1R01MH106629-01A1		0	2,493
Interagency Collaboration to Implement Effective Behavioral Interventions-DEBIs	93.242	5R01MH095676-04		0	2,080
Multi-Level Determinants of Late ART Initiation in sub-Saharan Africa	93.242	5R01MH089831-05		0	1,489
1/3-Identifying regulatory mutations that influence neuropsychiatric disease	93.242	5U01MH105670-04		0	1,466
5-HT1A Receptor Anti-apoptotic Transduction Pathways in Suicide	93.242	5R01MH079439-05		0	1,373
2/2 A Comparison of Long-Acting Injectable Medications for Schizophrenia-ACLAIMS	93.242	5R01MH081107-06		0	529
Intrinsic Motivation and Learning in Schizophrenia	93.242	5K23MH086755-05		0	393
Child/AdolescentAnxiety Multimodal Extended Long-Term Study	93.242	5R01MH064092-11		0	0
1/4 Optimizing Treatment for Complicated Grief	93.242	5 R01 MH060783-08		0	-24

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1/4 OPTIMIZING TREATMENT FOR COMPLICATED GRIEF	93.242	2 R01 MH060783-06A1		0	-32
1/4 OPTIMIZING TREATMENT FOR COMPLICATED GRIEF	93.242	5 R01 MH060783-07 R1		0	-34
Research Training in Biobehavioral Disturbances of Eating Disorders	93.242	4T32MH096679-04		0	-208
Complicated Grief Treatment in Elderly Adults	93.242	5R01MH070741-05		0	-375
GENETIC ANALYSIS: PSYCHIATRIC AND OTHER COMPLEX DISEASES	93.242	5 T32 MH065213-09		0	-411
A Research Training Program in Psychiatric Epidemiology	93.242	4T32MH013043-45		0	-527
A Research Training Program in Psychiatric Epidemiology	93.242	4T32MH013043-45		0	-578
TRANSLATIONAL RESEARCH TRAINING IN CHILD PSYCHIATRY	93.242	2 T32 MH016434-31		0	-1,465
Genetic Analysis: Psychiatric and Other Complex Diseases	93.242	5 T32 MH065213-10		0	-1,943
Parental Remission From Depression and Child Psychopathology	93.242	5R01MH082255-04		0	-2,154
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-25		0	-2,837
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-25		0	-3,465
The Conte Center for Schizophrenia Research	93.242	5P50MH086385-05		0	-3,496
Prenatal stress: the epigenetic basis of maternal and perinatal effects	93.242	5R01MH092580-05		0	-3,728
2/2 A Comparison of Long-Acting Injectable Medications for Schizophrenia-ACLAIMS	93.242	5R01MH081107-06		0	-4,984
Research Training in Biobehavioral Disturbances of Eating Disorders	93.242	4T32MH096679-04		0	-7,661
Lithium s Molecular Mechanism of Action and the Pathology of Bipolar Disorder	93.242	5R01MH090276-02		0	-9,958
Neural Mechanisms of Increased Anxiety in Serotonin 1A Receptor-Deficient Mice	93.242	5R01MH081968-05		0	-12,049
Behavioral Sciences Research in HIV Infection	93.242	5T32MH019139-25		0	-12,932
1/4 Optimizing Treatment for Complicated Grief	93.242	5R01MH060783-10		0	-36,398
Intra-axonal signaling pathways triggered by attractive guidance cues.	93.242	5R01MH096702-04		0	-51,809
				\$3,896,803	\$26,800,666

Alcohol Research Programs

Targeting DAMPs in Alcoholic Hepatitis	93.273	5U01AA021912-03		47,521	373,411
Prefrontal cortex and adolescent binge drinking: Role of HCN channels	93.273	5R01AA023531-02		0	280,455
Neighborhood Interventions in Alcohol-related Homicide: A Systems Approach (Cerde/Wild)	93.273	5R21AA021909-02		97,890	243,690

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The Role of Maternal Nutrition in the Teratogenesis of Alcohol in Humans	93.273	5K23AA020516-05		26,992	183,662
Structural Intervention for Adolescent Alcohol Use and HIV Risk in Tanzania	93.273	5R21AA022868-02		48,987	158,713
2/2 Multisite Study: Varenicline for Alcohol Dependent Smokers	93.273	5R01AA020389-04		54,868	153,688
Race, Alcohol Consumption and Vehicle Crashes: An Epidemiologic Paradox	93.273	4K01AA021511-04		0	125,503
Role of the Gut Microbiota and TLR4 in Alcoholic Hepatocarcinogenesis	93.273	5R01AA020211-05		0	102,150
Alcoholic liver disease and its association with hepatic vitamin A homeostasis	93.273	5K99AA022652-02		0	97,351
Prefrontal cortex and adolescent binge drinking: Role of HCN channels	93.273	5R01AA023531-02		0	57,055
A cogniyive neuroscience approach to understanding mechanisms of heavy drinking and its treatment	93.273	5F32AA023704-02		0	44,177
Targeting DAMPs in Alcoholic Hepatitis	93.273	5U01AA021912-03		39,164	39,164
Heterogeneity of VTA DA neurons: Response to acute and chronic ethanol	93.273	1F31AA023714-01A1		0	35,984
Targeting DAMPs in Alcoholic Hepatitis	93.273	4U01AA021912-04		0	12,008
A cogniyive neuroscience approach to understanding mechanisms of heavy drinking and its treatment	93.273	5F32AA023704-02		0	11,185
Race, Alcohol Consumption and Vehicle Crashes: An Epidemiologic Paradox	93.273	4K01AA021511-04		0	10,296
Alcohol withdrawal and tonic inhibition in the thalamus.	93.273	5F32AA022545-02		0	1,818
				\$315,422	\$1,930,310

Drug Abuse and Addiction Research Programs

Enhanced Access to HIV Care for Drug Users in San Juan, Puerto Rico (Metsch/Santana-Bagur)	93.279	5R01DA035280-03		1,864,174	2,035,357
Project RETAIN: Providing Integrated Care for HIV-Infected Crack Cocaine Users (Metsch/Del Rio)	93.279	5R01DA032098-06		842,668	1,171,144
A Multimedia HIV/STI Intervention for Black Drug-involved Women on Probation	93.279	5R01DA038122-03		0	994,769
Translational research to increase service access for NYS juvenile probationers	93.279	5U01DA036226-03		126,303	740,606
Evaluating a Microfinance Intervention for High Risk Women in Kazakhstan	93.279	5R01DA036514-03		0	666,080
Couple HIV prevention for drug-involved male offenders: An Effectiveness Trial	93.279	5R01DA033168-04		7,734	528,253
Prescription Drug Use in the US Population: Gateway Effects and Family Patterns	93.279	5R01DA036748-02		0	478,883
Improving HIV Service Delivery for People who Inject Drugs in Kazakhstan	93.279	5R01DA041063-02		0	465,845
Couples-Based HIV/STI Prevention for Drug-Involved, African American MSM	93.279	5R01DA030296-05		0	454,771
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-02		88,927	402,362

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A web-Based Intervention to Prevent Drug Abuse among Adolescent Girls	93.279	5R01DA031782-04		0	399,473
Preventing Drug Abuse among Hispanic Adolescents	93.279	5R01DA031477-04		0	381,005
STAR - Seek, Test and Retain. Linkages for Black HIV+, Substance Using MSM	93.279	5R01DA032100-05		75,208	376,578
Research Fellowship in Substance Abuse Disorder	93.279	4T32DA007294-24		0	366,880
Presynaptic Mechanisms in Dopamine Neurotransmission	93.279	4R01DA007418-22		0	344,553
A Bundled Rapid HIV/HCV Testing Intervention to Increase Receipt of Test Results	93.279	5R34DA038530-02		79,082	331,436
Epidemiology of Substance Use Disorders Training Program at Columbia University	93.279	5T32DA031099-04		0	302,043
Controlling epigenetic states and nuclear architecture in the brain	93.279	5R01DA036894-04		102,284	297,166
Training Program on HIV and Substance Use in the Criminal Justice System	93.279	5T32DA037801-03		0	288,107
State Medical Marijuana Laws and NSDUH Marijuana Use and Consequences Since 2004	93.279	5R01DA037866-03		12,230	237,233
Brief Substance and HIV Interventions for Homeless Young Adults	93.279	5K23DA032323-05		0	235,529
Imaging the Neurochemistry of Negative Reinforcement in Cocaine Abuse	93.279	5R01DA027777-05		194,301	204,635
Revealing Novel Mechanisms of Amphetamine Action in a Drosophila Model	93.279	5K08DA031241-06		0	191,464
Post Exposure Prophylaxis among IDU Syringe Customers - Pharmacy Pilot Intervention	93.279	5R01DA030253-05		75,109	185,780
Brain Circuits Mediating Motivated Behaviors	93.279	5R01DA035025-03		0	175,307
Assess the Effects of ETS on Neurodevelopment	93.279	5R01DA027100-05		80,329	170,622
A Web-Based Intervention to Prevent Drug Abuse among Adolescent Girls	93.279	4R01DA031782-05		0	160,449
Substance Abuse Treatment Development and Clinical Research Mentoring	93.279	5K24DA029647-07		0	152,707
Contextualizing & responding to HIV risk behaviors among Black drug offenders	93.279	5K01DA036411-03		0	151,596
Mapping dopamine neuron cotransmission by proximity detection	93.279	5R21DA040443-02		70,257	142,498
Social Stress and Substance Use Disparities in Sexual Minority Youth	93.279	5K01DA032558-04		0	138,425
Brain Circuits Mediating Motivated Behaviors	93.279	4R01DA035025-04		0	133,059
Drug Abuse Treatment Development and Research Mentoring	93.279	5K24DA022412-09		0	131,534
Molecular Determinants for the Action of Psychostimulants	93.279	5K05DA022413-09		0	128,783
Using PET to Image the Neurochemistry of Addiction	93.279	5K02DA026525-08		0	123,543
Clinical and Preclinical Models in Drug Abuse: Training and Development	93.279	5K05DA031749-05		0	123,541

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Enhanced Access to HIV Care for Drug Users in San Juan, Puerto Rico (Metsch/Santana-Bagur)	93.279	4R01DA035280-04		16,620	113,128
The Family as Recovery Capital for HIV Infected Male Injection Drug Users in Vietnam	93.279	5R03DA037783-02		88,564	109,045
Single molecule imaging of beta2 adrenergic receptor activation	93.279	5R21DA035485-02		20,260	99,227
Translational research to increase service access for NYS juvenile probationers	93.279	5U01DA036226-03		40,399	80,505
Exploratory Study of Drug User Health-related Internet and Mobile Technology Use	93.279	5R21DA034841-02		17,057	60,936
Role for delta opioid receptor in morphine tolerance during chronic pain	93.279	5R21DA036826-02		16,494	60,743
Conflict, Substance Use and HIV and Related Diseases (Fellow: Bradley Kerridge)	93.279	5F32DA036431-03		0	54,590
AMPA receptors: Common role in opiate withdrawal and pain sensitivity	93.279	5R01DA027460-05		28,542	50,905
Substance Use and Sexual Risk Behavior Among MSM in South African Townships	93.279	5F31DA037128-02		0	34,348
Drug Abuse Treatment Development and Research Mentoring	93.279	4K24DA022412-10		0	25,613
A Multimedia HIV/STI Intervention for Black Drug-involved Women on Probation	93.279	5R01DA038122-03		0	18,039
Substance Abuse Treatment Development and Clinical Research Mentoring	93.279	5K24DA029647-05		0	16,082
Cannabinoid modulation of neurotransmission during morphine tolerance	93.279	7F32DA034464-02		0	15,090
Deciphering nuclear bodies and compartments that govern singular olfactory receptor expression.	93.279	5U01DA040582-02		0	13,539
Training Program on HIV and Substance Use in the Criminal Justice System	93.279	5T32DA037801-03		0	13,409
Role for delta opioid receptor in morphine tolerance during chronic pain	93.279	5R21DA036826-02		0	9,761
Research Fellowship in Substance Abuse Disorder	93.279	4T32DA007294-24		0	7,973
Daily Psychosocial Determinants of ART Adherence in Substance-Using Black Men	93.279	5R34DA034568-03		0	6,553
Effects of Cannabis on Neuronal Translation	93.279	1R03DA039440-01A1		0	5,988
Conflict, Substance Use and HIV and Related Diseases (Fellow: Bradley Kerridge)	93.279	5F32DA036431-03		0	5,565
STAR - Seek, Test and Retain. Linkages for Black HIV+, Substance Using MSM	93.279	5R01DA032100-05		0	4,322
Substance Use and Sexual Risk Behavior Among MSM in South African Townships	93.279	5F31DA037128-02		0	4,025
Post Exposure Prophylaxis among IDU Syringe Customers - Pharmacy Pilot Intervention	93.279	5R01DA030253-05		0	2,918
Effects of Cannabis on Neuronal Translation	93.279	1R03DA039440-01A1		0	2,419
Epidemiology of Substance Use Disorders Training Program at Columbia University	93.279	5T32DA031099-04		0	1,936
Imaging Dopamine Transmission in Cannabis Dependence	93.279	5R01DA022455-04		0	968

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Trajectories of Substance Use and Comorbid Mental Illness	93.279	5K01DA030449-05		0	58
Contextualizing & responding to HIV risk behaviors among Black drug offenders	93.279	4K01DA036411-04		0	25
RESEARCH FELLOWSHIP IN SUBSTANCE ABUSE DISORDER	93.279	5 T32 DA007294-20		0	-1,216
Research Fellowship in Substance Abuse Disorder	93.279	4T32DA007294-24		0	-2,369
Epidemiology of Substance Use Disorders Training Program at Columbia University	93.279	5T32DA031099-04		0	-3,780
Molecular Mechanisms of Bacterial Homologs of Neurotransmitter: Sodium Symporters	93.279	5R01DA017293-10		0	-11,958
				\$3,846,542	\$14,610,403

Mental Health Research Career/Scientist Development Awards

Enhancing Patient-Oriented Research and Training in OCD	93.281	5K24MH091555-05		36,799	98,249
Psychosis in Schizophrenia: Mechanisms of Recovery	93.281	5 K23 MH077653-05		0	10,861
				\$36,799	\$109,110

Mental Health National Research Service Awards for Research Training

Translational Neuroscience Training Grant	93.282	5T32MH015174-39		0	126,646
Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.282	5T32MH015144-36		0	46,954
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patients	93.282	5T32MH018870-27		0	16,859
Translational Neuroscience Training Grant	93.282	5T32MH015174-39		0	6,880
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patients	93.282	5T32MH018870-27		0	6,162
Translational Research Training in Child Psychiatry	93.282	5T32MH016434-35		0	6,129
Translational Neuroscience Training Grant	93.282	5T32MH015174-39		0	2,771
TRAINING IN SCHIZOPHRENIA AND PSYCHOTIC DISORDERS: FROM ANIM AL MODELS TO PATIENTS	93.282	2 T32 MH018870-23		0	-21
Translational Research Training in Child Psychiatry	93.282	5T32MH016434-35		0	-68
Translational Research Training in Child Psychiatry	93.282	5T32MH016434-35		0	-676
Translational Neuroscience Training Grant	93.282	5T32MH015174-39		0	-2,264
Translational Neuroscience Training Grant	93.282	5T32MH015174-36		0	-6,713
Training in Schizophrenia and Psychotic Disorders: From Animal Models to Patie	93.282	5 T32 MH018870-25		0	-18,108
Research Training in Late-Life NeuroPsychiatric Disorders	93.282	5T32MH020004-15		0	-23,915

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Research Training in Mood and Anxiety Disorders: From Animal Models to Patients	93.282	5T32MH015144-36		0	-50,566
				\$0	\$110,070
Centers for Disease Control and Prevention Investigations and Technical Assistance					
Genetic Susceptibility to Age-Related Macular Degeneration	93.283	5R01EY013435-12		31,792	308,215
Genetic Susceptibility to Age-Related Macular Degeneration	93.283	5R01EY013435-12		0	38,704
Genetic Susceptibility to Age-Related Macular Degeneration	93.283	5R01EY013435-12		0	4,193
				\$31,792	\$351,112
Discovery and Applied Research for Technological Innovations to Improve Human Health					
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	1,097,380
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		504,137	833,600
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		315,823	740,154
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		700,912	617,398
Early Detection and Mapping of Ischemia Using Myocardial Elastography	93.286	5R01EB006042-09		61,179	549,453
Optimization of ultrasound-facilitated blood-brain barrier opening	93.286	5R01EB009041-08		0	379,365
Mechanobiological Mechanism for Inflammaory Bone Loss	93.286	5R01EB006834-08		0	344,704
Optical Imaging of small bio-molecules in living cells and tissues by nonlinear Raman microscopy cou	93.286	5R01EB020892-02		0	319,149
Stimulated emission reduced fluorecence (SERF) for breaking and extending the fundamental imaging-depth limit of two-photon microscopy	93.286	5R21EB020073-02		0	263,095
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	261,443
Ultra-deep tissue imaging by super-nonlinear fluorecence microspy	93.286	5R21EB019053-02		0	251,796
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	206,777
Concurrent ultrasound & molecular evaluation of a lymphatic malformation model	93.286	5R21EB016515-02		15,700	189,232
Generalized, multilevel functional response models applied to accelerometer data.	93.286	5R21EB018917-02		0	175,766
Monitoring particulate, PAH, allergen and microbial exposures in asthmatic kids	93.286	1U01EB021983-01		93,281	160,026
A Microfluidic System for Image-Guided RNA-Seq of Single Cells in Glioblastoma	93.286	5K01EB016071-02		0	134,255
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	119,765
Ultrasound-based tumor targeting and thermal ablation monitoring system	93.286	5R01EB014496-04		0	118,210

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

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Intranasal delivery through the blood-brain barrier using focused ultrasound	93.286	1R21EB021103-01A1		0	100,991
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		0	77,519
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	72,142
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	58,111
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-05		3,468	56,797
Device to mechanically interrogate tissue and skin across research environments	93.286	5R21EB015906-04		18,794	53,985
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		0	49,883
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		0	42,803
Monitoring particulate, PAH, allergen and microbial exposures in asthmatic kids	93.286	1U01EB021983-01		0	35,801
Device to mechanically interrogate tissue and skin across research environments	93.286	5R21EB015906-04		0	27,774
Optimization of ultrasound-facilitated blood-brain barrier opening	93.286	5R01EB009041-08		0	22,878
Early Detection and Mapping of Ischemia Using Myocardial Elastography	93.286	5R01EB006042-09		0	20,732
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	11,615
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		7,820	9,044
Radiological Research Accelerator Facility (RARAF)	93.286	5P41EB002033-21		0	4,979
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		0	-23,167
Integrated heart-liver-vascular systems for drug testing in human health and disease	93.286	5UH2EB017103-04		-139,940	-171,735
				\$1,581,174	\$7,211,720

Minority Health and Health Disparities Research

Ancestry, Genetic Risk and Health Disparities in Glomerular diseases	93.307	5R01MD009223-03		0	282,051
Cultural Script Interpretation and HIV Risk in a Diverse Sample of Young Urban MSM	93.307	5R01MD010529-02		28,508	216,867
Next Generation (NIMHD Minority Health and Health Disparities International Research Training (T37)	93.307	5T37MD008637-03		0	133,485
Next Generation (NIMHD Minority Health and Health Disparities International Research Training (T37)	93.307	5T37MD008637-03		0	112,137
Columbia Center for the Health of Urban Minorities	93.307	5P60MD000206-10		0	33,158
Columbia Center for the Health of Urban Minorities	93.307	5P60MD000206-10		0	21,539
Next Generation (NIMHD Minority Health and Health Disparities International Research Training (T37)	93.307	5T37MD008637-03		0	2,441

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Columbia Center for the Health of Urban Minorities	93.307	5P60MD000206-10		0
Columbia Center for the Health of Urban Minorities	93.307	5P60MD000206-10		0
				\$28,508
				\$804,803

Trans-NIH Research Support

Theranostic Nano-objects: Basic Principles and Initial Applications	93.310	5R01GM104960-04		341,309	1,148,824
Functional Connectomics of the Neocortical microcircuit	93.310	5DP1EY024503-03		0	989,901
IR-LAMP: Optigenetic technology to spatially manipulate protein function in vivo	93.310	1DP2OD008773-01		0	767,968
Generation and integration of new CNS neurons by in vivo directed conversion	93.310	5R01NS081701-04		0	757,458
Regulation of Adaptive Immune Response By Large Intergenic Non-Coding RNA	93.310	1DP2OD008651-01		0	546,055
Novel sub-cellular chemical and mechanical nanoimaging	93.310	1DP2EB018657-01		0	428,855
Isolation and System-Level Characterization of Persistent Bacteria	93.310	5DP5OD019792-03		0	414,131
The internal states of neural circuits: data analysis, modeling and disease	93.310	5DP5OD019897-02		0	407,063
Label-Free Chemical Imaging for Biological Applications	93.310	1DP2EB016573		0	314,233
Multi-platform Educational Program in Innovative Methods for the Behavioral and Social Sciences	93.310	5R25GM111757-03		0	213,054
TOP2A effects on transcription in gliomas: implications for personalized therapy	93.310	5DP5OD021356-02		0	136,672
Towards a Cognitive Framework for Understanding Cellular Behavior	93.310	8DP1ES022578-05		0	131,308
International MTCT - Plus Mothers and Children Cohort Study (IMACS)	93.310	OAR 1B01NIAIDCU52002		0	118,564
Functional Metagenomic Reprogramming of the Human Microbiome through Mobilome Engineering	93.310	5DP5OD009172-06		0	75,393
Epigenomics of Alzheimer s Disease	93.310	5R01AG036040-05		0	63,899
Epigenomics of Alzheimer s Disease	93.310	5R01AG036040-05		0	4,077
Towards a Cognitive Framework for Understanding Cellular Behavior	93.310	8DP1ES022578-05		0	0
				\$341,309	\$6,517,455

National Center for Advancing Translational Sciences

Clinical and Translational Science Award	93.350	5TL1TR000082-10		0	184,586
Clinical and Translational Science Award	93.350	5TL1TR000082-10		0	234
Modeling complex diseases using iPSC-derived skin constructs	93.350	5U18TR000561-02		0	139

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Modeling complex diseases using iPSC-derived skin constructs	93.350	5U18TR000561-02		0
				0
				\$0
				\$184,959
Research Infrastructure Programs				
Robust allograft tolerance in non-human primates	93.351	5R01OD017949-02		0
BD Biosciences Influx	93.351	1S10OD020056-01		0
Integrated Multiscale Data Acquisition System for Human Intracranial Neurophysiology	93.351	1S10OD018211-01		0
Enhancing Secondary School STEM Education for Students and Teachers through Biomedical Engineering Design	93.351	1R25OD021905-01		0
				0
				\$0
				\$1,268,327
Nursing Research				
Prevention of Nosocomial Infections and Cost Effectiveness in Nursing Homes	93.361	5R01NR013687-04		190,041
iPhone helping evaluated Atrial Fibrillation Rhythm through Technology (iHEART)	93.361	5R01NR014853-03		0
Video Information Provider for HIV-Associated Non-AIDS (VIP-HANA) Symptoms	93.361	5R01NR015737-02		31,175
Training in Interdisciplinary Research to Prevent Infections (TIRI)	93.361	5T32NR013454-04		0
New York City Hispanic Dementia Caregiver Research Program (NHIRP)	93.361	4R01NR014430-04		84,648
Reducing Health Disparities Through Informatics	93.361	5T32NR007969-14		0
Health Information Technology to Reduce Healthcare-Associated Infections: HIT-HAI	93.361	5R01NR010822-08		19,650
Comparative and Cost-Effectiveness Research Training for Nurse Scientists	93.361	5T32NR014205-03		0
New York City Hispanic Dementia Caregiver Research Program (NHIRP)	93.361	4R01NR014430-04		24,382
Hydroxyurea Adherence for Personal Best in Sickle Cell Treatment: HABIT	93.361	5R21NR013745-02		60,985
New York City Hispanic Dementia Caregiver Research Program (NHIRP)	93.361	4R01NR014430-04		0
Health Information Technology to Reduce Healthcare-Associated Infections: HIT-HAI	93.361	5R01NR010822-08		0
Prevention of Nosocomial Infections and Cost Effectiveness in Nursing Homes	93.361	5R01NR013687-04		0
New York City Hispanic Dementia Caregiver Research Program (NHIRP)	93.361	4R01NR014430-04		0
New York City Hispanic Dementia Caregiver Research Program (NHIRP)	93.361	4R01NR014430-04		0
Hydroxyurea Adherence for Personal Best in Sickle Cell Treatment: HABIT	93.361	5R21NR013745-02		0
Multi-Drug Resistant Infections and Isolation Precautions in Nursing Homes	93.361	5F31NR015176-02		0

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New York City Hispanic Dementia Caregiver Research Program (NHiRP)	93.361	4R01NR014430-04		0	12,939
Healthcare Associated Infections in Home Health Care	93.361	5R03NR013966-02		0	11,017
New York City Hispanic Dementia Caregiver Research Program (NHiRP)	93.361	4R01NR014430-04		0	6,518
Reducing Health Disparities Through Informatics	93.361	5T32NR007969-14		0	4,650
Training in Interdisciplinary Research to Prevent Infections (TIRI)	93.361	5T32NR013454-04		0	537
Secondary Bacteremia in Patients with Catheter-Associated Urinary Tract Infection	93.361	5F31NR014063-02		0	-2,610
				\$410,881	\$3,005,507

National Center for Research Resources

Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	1,729,928
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	1,307,377
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	1,150,364
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	682,938
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	565,220
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	503,248
Clinical and Translational Science Award	93.389	5UL1TR000040-10		223,659	423,659
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	375,172
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	239,248
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	95,411
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	94,694
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	91,344
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	90,545
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	88,189
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	79,103
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	78,439
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	75,212
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	73,328

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Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	73,151
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	59,420
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	29,676
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	15,269
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	6,956
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	6,539
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	6,180
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	4,291
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	1,939
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	1,205
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	293
Clinical and Translational Science Award	93.389	5KL2TR000081-10		0	8
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	0
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	0
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	-634
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	-14,557
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	-19,351
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	-20,335
Clinical and Translational Science Award	93.389	5UL1TR000040-10		0	-53,135
				\$223,659	\$7,840,334

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		653,059	1,013,046
DNA-PKCS Phosphorylation in DNA Repair and Chromosomal Translocations	93.393	5R01CA184187-02		0	432,053
Mouse Models of Gastric Cancer	93.393	5R01CA093405-14		140,367	407,320
Increasing breast cancer chemoprevention in the primary care setting	93.393	5R01CA177995-03		0	401,875
The mechanisms driving brain oncogenesis by FGFR-TACC gene fusions	93.393	5R01CA178546-03		10,025	399,404

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Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	396,934
Methylation Suicide in Cancer (PQ10)	93.393	5R01CA170546-04		0	338,554
DNA Repair and Genomic Instability in Cancer Development and Therapy	93.393	5R35CA197606-02		0	323,036
Fusobacterium nucleatum-mediated stimulation of colorectal cancer: mechanistic studies	93.393	5R01CA192111-02		0	295,594
Increasing breast cancer chemoprevention in the primary care setting	93.393	5R01CA177995-03		0	290,752
LEGACY: A Cohort of Youth in Families from the Breast Cancer Family Registry	93.393	5R01CA138822-05		0	283,809
Regulation for the DNA damage response by the ATM-MRN pathway	93.393	5R01CA092245-13		12,473	268,992
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	259,581
Training Program in Cancer-Related Population Sciences	93.393	4R25CA094061-15		0	254,586
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	253,540
Regulation of Mdmx Stability and Subcellular Localization by Ubiquitination	93.393	5R01CA166294-04		0	243,843
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	241,004
CONSTRUCTION AND ANALYSIS OF RETROVIRUS MUTANTS	93.393	5R01CA030488-36		0	239,482
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	235,725
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	229,314
Mechanisms of Radioresistance and Cell Cycle Progression	93.393	5R01CA130536-21		0	220,857
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	217,835
Replication fork remodeling and genomic stability	93.393	1R01CA197774-01A1		0	212,239
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	205,873
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	178,905
Role of MLL2 Gene inactivation in B cell non-Hodgkin lymphoma	93.393	4R01CA172492-04		0	158,604
Role of MLL2 Gene inactivation in B cell non-Hodgkin lymphoma	93.393	5R01CA172492-03		0	154,382
Modeling human prostate cancer by cellular reprogramming	93.393	5R21CA191757-02		0	149,653
The Influence of Hospital Variability on the Management of Cancer-Associated Complications	93.393	4R01CA169121-04		0	128,883
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	107,446
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	106,630

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Training Program in Cancer-Related Population Sciences	93.393	4R25CA094061-15		0	105,580
Fusobacterium nucleatum-mediated stimulation of colorectal cancer: mechanistic studies	93.393	5R01CA192111-02		0	94,146
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	93,004
The Influence of Hospital Variability on the Management of Cancer-Associated Complications	93.393	5R01CA169121-03		0	86,052
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	86,029
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	78,842
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	78,677
Methylation and mutations in RB1 and variants of synthetic folic acid metabolism	93.393	5R01CA192662-02		0	76,503
Folic Acid and Creatine as Therapeutic Approaches for Lowering Blood Arsenic	93.393	5R01CA133595-05		0	76,155
Randomized Placebo-Controlled Trial of a Gastrin Receptor Antagonist in Barretts Esophagus	93.393	5R03CA186218-02		0	74,183
Estimating State-Specific Potential Annual Healthcare Cost Savings from Reducing Obesity	93.393	5R01CA172814-02		42,176	69,747
Genes, Environment and Breast Cancer Risk: The 15 Year Follow-up of the Prof-SC (Terry/Hopper)	93.393	5R01CA159868-05		0	62,678
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	62,275
Unmetabolized Folic Acid and Retinoblastoma	93.393	5R21CA167833-02		1,253	60,890
Characterizing the functional significance of the highly prognostic FGD-3 metagene in breast cancer	93.393	5R03CA188605-02		0	55,288
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	53,582
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	52,292
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	48,961
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	37,243
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	31,042
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	29,712
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	27,422
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	23,008
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	22,743
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	22,372
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	21,581

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Molecular Pathogenesis of Basal-like Breast Cancer	93.393	5P01CA097403-10		0	17,978
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	17,292
Molecular Mechanisms of Prostate Cancer Initiation	93.393	5P01CA154293-05		0	13,175
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	9,979
Regulation of Mdmx Stability and Subcellular Localization by Ubiquitination	93.393	5R01CA166294-04		0	5,122
Molecular Pathogenesis of Basal-like Breast Cancer	93.393	5P01CA097403-10		0	1,163
Radiation Bystander Effects: Mechanisms	93.393	5P01CA049062-23		0	0
DNA double-strand bread repair, chromosome translocations and cancer	93.393	5P01CA174653-02		0	-1,536
				\$859,353	\$10,242,931

Cancer Detection and Diagnosis Research

Systems Biology of Tumor Progression and Drug Resistance	93.394	5U01CA168426-04		37,908	980,563
Cook For Your Life: Maintaining Dietary Change among Breast Cancer Survivors	93.394	5R01CA186080-02		128,190	464,933
Optical Imaging of Chemotherapy for Brain Tumors	93.394	5R01CA138643-05		107,661	331,447
Long non-coding RNAs in pancreatic cancer	93.394	5R21CA188059-02		0	297,396
Quantitative Volume and Density Response Assessment Sarcoma and HCC as a Model	93.394	5U01CA140207-05		88,954	234,892
Quantitative Volume and Density Response Assessment Sarcoma and HCC as a Model	93.394	5U01CA140207-05		54,252	161,012
Studying measurement variability in tumor volume and volume change on MDCT	93.394	5R01CA149490-05		0	158,223
Systems Biology of Tumor Progression and Drug Resistance	93.394	4U01CA168426-05		0	156,750
Automated Microfluidic Selection of Aptamers against Carbohydrates	93.394	5R21CA199849-02		0	150,694
Systems Biology of Tumor Progression and Drug Resistance	93.394	5U01CA168426-04		0	96,000
Novel Protein Risk Markers for Lung Cancer	93.394	1R21CA195110-01A1		0	72,480
Systems Biology of Tumor Progression and Drug Resistance	93.394	5U01CA168426-04		0	64,814
Systems Biology of Tumor Progression and Drug Resistance	93.394	4U01CA168426-05		0	14,850
Early Detection of Ovarian Cancer Through Epigenetic Factors in the WHI	93.394	1R01CA204119-01		0	13,841
Automated Microfluidic Selection of Aptamers against Carbohydrates	93.394	5R21CA199849-02		0	6,517
Studying measurement variability in tumor volume and volume change on MDCT	93.394	4R01CA149490-05		0	5,678

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Large-Scale Integration of Single Cell RNA-Seq and High-Content Imaging for Analyzing Drug Response in Cancer	93.394	1R33CA202827-01		0	3,616
Systems Biology of Tumor Progression and Drug Resistance	93.394	5U01CA168426-04		9,992	3,153
Systems Biology of Tumor Progression and Drug Resistance	93.394	5U01CA168426-04		0	0
				\$426,957	\$3,216,859

Cancer Treatment Research

Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-03		0	508,246
The role of fibroblasts in the activities of tissue penetrating peptides	93.395	4R01CA167174-06		134,529	369,392
HAUSP inhibitors in p53-wild type and p53-mutant tumors	93.395	5R01CA193890-02		0	352,032
Preclinical analyses of advanced prostate cancer in genetically-engineered mice	93.395	5R01CA173481-03		0	348,806
Chemical genetic profiling of engineered tumor cells	93.395	4R01CA097061-13		0	332,004
Chemical Genetic Profiling of Engineered Tumor Cells	93.395	5R01CA097061-12		0	240,769
Chronic Convection Enhanced Delivery (CED) of Tepotecan for Glioblastoma	93.395	5R01CA161404-04		47,328	229,920
Preclinical evaluation of a targeted Bmi1 inhibitor in pancreatic cancer	93.395	5R21CA188857-02		0	194,020
Using SWOG-Medicare database to evaluate long-term toxicities of cancer survivors	93.395	4R01CA166084-04		59,710	162,950
Discovery of allele-selective KRAS inhibitors	93.395	5R21CA177591-02		0	143,101
Programmable Probiotics for Cancer	93.395	4R00CA197649-02		0	120,122
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-03		22,200	104,279
Enhancing the Vaccinal Effect of Antitumor Antibodies	93.395	5R01CA164309-04		0	81,112
A Randomized trial of topical menthol for chemotherapy induced neuropathy	93.395	5R03CA181909-02		0	63,847
Feasibility of a Weight Loss Intervention among Female Cancer Survivors in SWOG	93.395	5R21CA155973-02		0	59,243
Preclinical analyses of advanced prostate cancer in genetically-engineered mice	93.395	4R01CA173481-04		0	56,656
Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-03		0	52,104
The role of fibroblasts in the activities of tissue penetrating peptides	93.395	4R01CA167174-06		7,761	47,480
: Pre-Surgical trial of Metformin and Atorvastatin in Operable Breast Cancer	93.395	5R03CA186931-02		0	44,417
Using SWOG-Medicare database to evaluate long-term toxicities of cancer survivors	93.395	4R01CA166084-04		11,324	41,654
Enhancing the vaccinal effect of antitumor antibodies	93.395	4R01CA164309-05		0	37,791

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Columbia University Minority/Underserved Site NCI Community Oncology Research Program	93.395	5UG1CA189960-03		0	31,026
Multi-Method Study of Cancer Patients Medication Adherence After Allogenic HSCT	93.395	5R03CA162980-03		0	19,775
Feasibility of a Weight Loss Intervention among Female Cancer Survivors in SWOG	93.395	5R21CA155973-02		0	13,107
Multi-Method Study of Cancer Patients Medication Adherence After Allogenic HSCT	93.395	5R03CA162980-03		0	-3,562
				\$282,852	\$3,650,291

Cancer Biology Research

Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-02		0	856,717
Roles and Regulations of P53	93.396	5P01CA087497-15		757,122	787,754
Roles and Regulations of P53	93.396	5P01CA087497-15		722,426	766,000
Role of MEF2B mutations in lymphomagenesis	93.396	5R01CA178453-03		0	510,231
The Role of wild-type Kras in the context of tumor progression and metastasis	93.396	5R01CA178445-02		0	459,752
Molecular mechanisms of prostate cancer metastasis	93.396	5R01CA183929-02		0	436,502
Investigating the cell of origin of bladder cancer	93.396	5R01CA193442-02		0	417,292
Roles and Regulations of P53	93.396	5P01CA087497-15		0	395,653
The role of the LZTR1 ubiquitin ligase in stem cells and cancer	93.396	5R01CA190891-02		2,992	392,658
Improving specificity of HPV Screen and Treat in South Africa	93.396	5UH2CA189908-02		276,280	377,148
Mechanism of action of Prdm16 in hematopoietic stem cells	93.396	4R01CA167289-04		0	356,630
Defining mechanisms of cancer chemoresistance and metastasis	93.396	5R00CA172697-04		0	343,211
Role of MMP13 in Multiple Myeloma Bone Disease	93.396	5R01CA175313-03		33,688	337,444
Regulation of the p53 tumor suppressor protein	93.396	4R01CA058316-24		0	326,543
The role of RHOA G17V Mutation on Peripheral T-cell Lymphomas	93.396	5R01CA197945-02		0	316,768
Improving specificity of HPV Screen and Treat in South Africa	93.396	5UH2CA189908-02		180,000	294,948
Integrative Cancer Genomics: Drivers, Pathways and Drugs	93.396	5R01CA164729-04		0	293,952
An innate system for detection of aberrant tissue growth	93.396	5R01CA192838-02		0	289,044
Hepatic Stellate Cells and Liver Cancer	93.396	5R01CA190844-02		0	287,024
Regulation of P53 acetylation and deacetylation in tumorigenesis	93.396	5R01CA085533-13		0	275,563

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Targeting non-classical oncogenes as therapy for T-ALL	93.396	5R01CA169162-04		0	267,146
(PQB5) Reconstruction of Evolutionary Networks using Cross-Sectional Genomic Data	93.396	5R01CA185486-03		0	249,149
Mechanisms of Novel Cancer Targets in ARF-mediated Tumor Suppression	93.396	5R01CA169246-04		0	245,619
The BARD1 tumor suppressor and breast cancer	93.396	5R01CA172272-03		0	244,517
Studies of DNA Interstrand Crosslink Repair to Improve Crosslinking Drug Therapies	93.396	5R01CA167826-04		0	238,654
Role of p53-mediated unconventional functions in tumor suppression	93.396	5R01CA172023-04		0	237,932
Regulation of the p53 tumor suppressor protein	93.396	4R01CA058316-24		0	231,829
The role of ETV6 in T-cell acute lymphoblastic leukemia.	93.396	5R01CA172398-03		0	226,392
The Role of NK-kB in B-Cell Differentiation and Lymphomagenesis	93.396	5R01CA157660-04		0	225,275
Identification and modeling of driver genetic modules in glioblastoma	93.396	5R01CA179044-03		0	202,472
Role of Acetyltransferase Gene Inactivation in Follicular Lymphoma Pathogenesis	93.396	5R01CA164152-04		0	198,022
Mechanism of action of Prdm16 in hematopoietic stem cells	93.396	4R01CA167289-04		0	194,094
Regulation of SLC7A11 by p53 in cancer metabolism	93.396	1R01CA190477-01A1		0	178,681
Leveraging in vivo models to identify epigenetic vulnerabilities in leukemia	93.396	5R21CA185762-02		0	150,970
(PQB5) Reconstruction of Evolutionary Networks using Cross-Sectional Genomic Data	93.396	5R01CA185486-03		0	144,289
The role of ETV6 in T-cell acute lymphoblastic leukemia.	93.396	4R01CA172398-04		0	136,976
Mechanism of the Stromal Response to Smoothened Inhibition in Pancreatic Cancer	93.396	5R01CA157980-05		0	136,346
Mouse Model for Human Pancreatic Ductal Adenocarcinoma	93.396	5R01CA109525-11		0	135,614
Investigating the cell of origin of bladder cancer	93.396	5R01CA193442-02		0	132,064
Bone and Breast Cancer Molecular Interactions	93.396	1R01CA203011-01		0	123,304
The Role of NK-kB in B-Cell Differentiation and Lymphomagenesis	93.396	4R01CA157660-05		0	123,237
Analysis of cancer cell metabolism in diverse environmental conditions	93.396	1R01CA201276-01		0	118,924
Identification and modeling of driver genetic modules in glioblastoma	93.396	5R01CA179044-03		0	114,961
The Role of ATM in Suppression of Lymphomas	93.396	5R01CA158073-05		0	105,107
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	5R01CA177319-03		0	95,651
Role of Acetyltransferase Gene Inactivation in Follicular Lymphoma Pathogenesis	93.396	4R01CA164152-05		0	77,144

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The role of PHF6 in T-cell acute lymphoblastic leukemia	93.396	5R01CA155743-05		0	69,839
Elucidating the dependencies of tumor initiating and drug-resistant niches in human malignancies by genome-wide molecular profiling of single cells	93.396	5R35CA197745-02		0	69,277
Understanding the role of B-Ras proteins in tumorigenesis	93.396	1R01CA206556-01		0	67,508
The BARD1 tumor suppressor and breast cancer	93.396	4R01CA172272-04		0	64,974
Mechanisms of Novel Cancer Targets in ARF-mediated Tumor Suppression	93.396	5R01CA169246-04		0	63,125
Integrative Cancer Genomics: Drivers, Pathways and Drugs	93.396	5R01CA164729-04		0	62,995
Role of p53-mediated unconventional functions in tumor suppression	93.396	5R01CA172023-04		0	62,273
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	5R01CA177319-03		0	50,119
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	4R01CA177319-04		0	44,293
Roles and Regulations of P53	93.396	5P01CA087497-15		0	31,372
The Role of NOTCH1 in the Pathogenesis of CLL	93.396	4R01CA177319-04		0	22,753
Targeting non-classical oncogenes as therapy for T-ALL	93.396	4R01CA169162-05		0	19,331
Leadership Component in Chemoprevention: Mouse Models of Human Cancer Consortium	93.396	5U01CA141535-05		0	15,444
Notch Signaling in Lymphangiogenesis	93.396	5R01CA136673-05		0	10,116
Mechanism of the Stromal Response to Smoothened Inhibition in Pancreatic Cancer	93.396	5R01CA157980-05		0	3,230
The role of Id proteins in tumor development and angiogenesis in the brain	93.396	5R01CA101644-11		0	2,486
Elucidation of cancer pathways and druggable targets using mouse models	93.396	5U01CA084294-15		0	1,011
Notch Signaling in Lymphangiogenesis	93.396	5R01CA136673-05		0	929
Mouse Model for Human Pancreatic Ductal Adenocarcinoma	93.396	5R01CA109525-11		0	577
Properties and regulation of p53 in tumor cells	93.396	5R01CA077742-14		0	0
Comparing HTS with Fragment-Based Design for B-Raf and the Ras-Raf Interaction	93.396	5R01CA161061-04		0	-2,485
				\$1,972,508	\$13,714,370

Cancer Centers Support Grants

Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		37,918	593,030
Cancer Center Support Grant	93.397	5P30CA013696-42		0	434,642
Stem Cells And The Origins of Barrett's Esophagus	93.397	5U54CA163004-05		379,626	398,472

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Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		0	366,150
Cancer Center Support Grant	93.397	5P30CA013696-42		0	312,594
Cancer Center Support Grant	93.397	5P30CA013696-42		0	293,919
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	290,160
Cancer Center Support Grant	93.397	5P30CA013696-42		0	280,283
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	276,716
Cancer Center Support Grant	93.397	5P30CA013696-42		0	276,713
Cancer Center Support Grant	93.397	5P30CA013696-42		0	246,687
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	186,598
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05		12,852	180,133
Cancer Center Support Grant	93.397	5P30CA013696-42		0	175,253
Cancer Center Support Grant	93.397	5P30CA013696-42		0	173,915
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		158,440	158,440
Cancer Center Support Grant	93.397	5P30CA013696-42		0	152,354
Cancer Center Support Grant	93.397	5P30CA013696-42		0	138,775
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	129,771
Cancer Center Support Grant	93.397	5P30CA013696-42		0	125,606
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05		0	111,135
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		108,371	108,371
Cancer Center Support Grant	93.397	5P30CA013696-42		0	100,573
Cancer Center Support Grant	93.397	5P30CA013696-42		0	99,582
Cancer Center Support Grant	93.397	5P30CA013696-42		0	96,451
Cancer Center Support Grant	93.397	5P30CA013696-42		0	93,982
Cancer Center Support Grant	93.397	5P30CA013696-42		0	91,939
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05		0	91,832
Cancer Center Support Grant	93.397	5P30CA013696-42		0	88,315

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Cancer Center Support Grant	93.397	5P30CA013696-42		24,256	87,090
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		0	82,573
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	81,990
Cancer Center Support Grant	93.397	5P30CA013696-42		34,528	78,465
Cancer Center Support Grant	93.397	5P30CA013696-42		0	75,948
Cancer Center Support Grant	93.397	5P30CA013696-42		0	72,114
Cancer Center Support Grant	93.397	5P30CA013696-42		0	70,057
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		0	65,465
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05		12,762	64,860
Cancer Center Support Grant	93.397	5P30CA013696-42		0	64,210
Cancer Center Support Grant	93.397	5P30CA013696-42		0	60,004
Cancer Center Support Grant	93.397	5P30CA013696-42		0	59,517
Cancer Center Support Grant	93.397	5P30CA013696-42		0	57,576
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		56,990	56,990
Cancer Center Support Grant	93.397	5P30CA013696-42		0	56,865
Cancer Center Support Grant	93.397	5P30CA013696-42		40,320	53,529
Cancer Center Support Grant	93.397	5P30CA013696-42		0	50,315
Cancer Center Support Grant	93.397	5P30CA013696-42		0	48,568
Cancer Center Support Grant	93.397	5P30CA013696-42		0	48,258
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05		31,200	46,200
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05		0	42,599
Cancer Center Support Grant	93.397	5P30CA013696-42		0	36,734
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	30,159
Cancer Center Support Grant	93.397	5P30CA013696-42		0	25,431
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	25,140
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02		0	25,005

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Cancer Center Support Grant	93.397	5P30CA013696-42	0	23,892
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02	0	18,286
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05	0	17,610
Cancer Center Support Grant	93.397	5P30CA013696-42	0	15,856
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02	0	14,955
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02	0	14,630
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05	0	14,138
Topology of Cancer Evolution and Heterogeneity	93.397	5U54CA193313-02	0	10,315
Cancer Center Support Grant	93.397	5P30CA013696-42	0	6,426
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05	0	6,346
Myofibroblasts in Gastrointestinal Cancers	93.397	5U54CA163111-05	0	5,756
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05	0	2,848
Cancer Center Support Grant	93.397	5P30CA013696-42	0	1,718
Stem Cells And The Origins of Barrett s Esophagus	93.397	5U54CA163004-05	568	568
Cancer Center Support Grant	93.397	5P30CA013696-42	0	0
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-5
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-11
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-40
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-188
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-371
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-472
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-628
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-705
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-1,261
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-2,474
Cancer Center Support Grant	93.397	5P30CA013696-42	0	-9,299
			\$897,831	\$7,675,943

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Cancer Research Manpower				
Cancer Biology Training Grant	93.398	4T32CA009503-30		229,971
Lymphocyte trafficking blockade in allogeneic stem-cell transplantation	93.398	7K23CA178202-03		184,277
Cancer Biology Training Grant	93.398	4T32CA009503-30		171,090
Cancer-Health Disparities in Incarcerated Men	93.398	5K22CA197066-02		167,692
Functional dissection of oncogenic enhancers	93.398	5K99CA197869-02		165,199
A Novel Protein Complex Controls Homologous Recombination Repair in Breast Cancer	93.398	5K22CA178317-02		142,267
Multilevel Determinants of Breast Cancer: Translating Research into Interventions	93.398	5K07CA151777-05		141,281
Childhood Infection and Pubertal Timing	93.398	5K01CA186943-02		108,974
Investigation of luminal stem cells and castration resistance in prostate cancer	93.398	5K99CA194287-02		98,326
ASSESSMENT OF INHERITED COLON CANCER PREDICTION MODELS IN DIVERSE POPULATIONS	93.398	5K07CA151769-05		84,356
TLR4 in obesity-driven liver cancer Ms. Ross,	93.398	5K22CA178098-03		69,666
Cancer Biology Training Grant	93.398	4T32CA009503-30		55,088
Unnatural Amino Acid Mutagenesis with Fluorescent Amino Acids	93.398	5F30CA174357-03		48,120
The role of the BARD1 BRCT domains in DNA repair and tumor suppression	93.398	5F31CA200181-02		44,248
Non-catalytic functions of DNA-PK in DNA repair and tumorigenesis	93.398	5F31CA183504-03		43,004
Evaluating Notch Signaling as a Therapeutic Target in Ovarian Cancer	93.398	5F31CA192891-03		41,977
The role of PRDM16 in Leukemia David F31	93.398	5F31CA196045-02		40,146
Characterization of mTOR signaling during early stages of gliomagenesis	93.398	5F31CA200375-02		40,021
Elucidation of Novel Post-Translational Mechanisms That Regulate Notch Activity	93.398	5F31CA177168-03		38,602
The Role of CLIC 1 And 4 in Tumor Growth And Metastasis	93.398	5F31CA174244-03		31,670
Epigenetics and Risk Factors for Breast and Ovarian Cancer in High Risk Women (TERRY/FERRIS)	93.398	5F31CA183547-02		29,484
Effects of genetic, pharmacological modulation of system Xc- in pancreatic cancer	93.398	4F31CA180738-04		26,190
Methylation and Hepatocellular Carcinoma Outcomes	93.398	5K23CA149084-04		17,347
Effects of genetic, pharmacological modulation of system Xc- in pancreatic cancer	93.398	4F31CA180738-03		15,439
Cancer Biology Training Grant	93.398	4T32CA009503-30		3,996

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Cancer Biology Training Grant	93.398	4T32CA009503-30		0	2,377
Evaluating Notch Signaling as a Therapeutic Target in Ovarian Cancer	93.398	5F31CA192891-03		0	2,073
Health-Seeking Behaviors among Men with Criminal Justice and Substance Abuse Histories	93.398	5K01CA154861-06		0	1,482
Cancer Biology Training Grant	93.398	4T32CA009503-30		0	0
Cancer Biology Training Grant	93.398	4T32CA009503-30		0	-9
Cancer Biology Training Grant	93.398	4T32CA009503-30		0	-3,996
Cancer Biology Training Grant	93.398	4T32CA009503-30		0	-55,088
				\$0	\$1,985,270

Cardiovascular Diseases Research

ABCA1/G1 and LXRs in Atherogenesis	93.837	5R01HL107653-06		0	818,799
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		705,012	773,205
Depressing Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-02		212,286	736,948
Impact of Social-Interpersonal Factors in the ER on PTSD/Cardiac Outcomes	93.837	5R01HL117832-03		0	658,431
District Protein Kinase C-Delta Signaling Modes in Cariomyocytes	93.837	5R01HL123061-03		278,999	652,699
PKD Isoforms in Heart	93.837	5R01HL112388-04		285,895	643,616
HDL, platelet progenitors, atherosclerosis and thrombosis	93.837	5R01HL118567-03		0	526,199
Insulin action, reverse cholesterol transport, and HDL function	93.837	5R01HL125649-03		0	486,338
Investigation of Calcium Channel Modulation in Cardiomyocytes by Novel Methods	93.837	5R01HL113136-03		210,836	462,296
Invivo high resolution imaging of the myocard	93.837	1DP2HL127776-01		0	442,197
PROMISE Trial: Substudy to Assess for Effective Dose of Radiation	93.837	5R01HL109711-05		167,793	441,705
PTSD, Medication Adherence, and Prognosis after Acute Coronary Syndromes	93.837	5R01HL123368-03		0	441,392
TTC39B in Metabolism	93.837	5R01HL119830-03		0	439,549
Single Molecules Studies of titin elasticity	93.837	4R01HL061228-19		0	412,669
Childhood Adversity and Cardiovascular Health among Puerto Rican Youth	93.837	5R01HL125761-02		197,984	406,703
Optical Tomographic Imaging of Peripheral Arterial Disease	93.837	4R01HL115336-04		0	406,100
CNS angiogenesis and blood-brain barrier regulation by the Wnt inhibitor Apccdd1	93.837	5R01HL116995-04		74,333	402,031

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Molecular Basis of Heart Failure	93.837	5R01HL061503-17		0	384,309
Mechanisms of Atherogenesis in Insulin Resistance	93.837	4P01HL087123-09		0	377,168
L-type calcium channel trafficking and modulation in heart	93.837	5R01HL121253-03		0	354,763
Physical Activity Patterns via New Dimension-Informative Cluster Models (Cheung/Elkind)	93.837	5R01HL111195-04		21,606	343,885
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-02		0	343,679
Cardiac Lipotoxicity and Ceramide Metabolism in Heart Failure	93.837	4R01HL114813-04		0	335,874
Postdoctoral Training in Arteriosclerosis Research	93.837	5T32HL007343-38		0	332,081
CLIC function in angiogenesis	93.837	5R01HL119043-03		0	329,402
Noninvasive Arrhythmia Mapping Using Electromechanical Wave Imaging	93.837	4R01HL114358-05		0	319,236
Notch in Angiogenesis and Vascular Biology	93.837	5R01HL112626-04		0	315,273
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	5R01HL116470-04		0	312,765
Engineering vascularized cardiac muscle	93.837	5R01HL076485-09		42,683	311,551
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	300,068
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	299,214
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	292,048
Childhood Adversity and Cardiovascular Health among Puerto Rican Youth	93.837	5R01HL125761-02		193,826	289,925
Assembly and Secretion of APOB containing Lipoproteins	93.837	5R01HL055638-18		0	257,715
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	4R01HL116470 04		0	253,636
Training in Cardiovascular Translational Research	93.837	5T32HL120826-04		0	246,066
MIDCAREER MENTORING IN BEHAVIORAL CARDIOLOGY: DEPRESSION & CARDIOVASCULAR	93.837	5K24HL084034-10		0	244,802
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	239,669
Role of FoxO1 in Lipid Metabolism	93.837	5R00HL111206-05		0	230,063
L-type calcium channel trafficking and modulation in heart	93.837	5R01HL121253-03		0	224,615
Mechanisms and Consequences of Stress-Induced Macrophage Death in Atherosclerosis	93.837	4R01HL075662-13		0	219,702
Impact of sleep and meal timing on food intake regulation	93.837	1R56HL119945-01A1		56,537	219,248
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	209,958

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Training in Cardiovascular Translational Research	93.837	5T32HL120826-04		0	198,704
Modeling of Timothy Syndrome to Screen Drugs with Induced Pluripotent Stem Cells	93.837	5R00HL111345-05		0	193,407
Lung Barrier Protection by Tatylated Proteins	93.837	2R01HL036024-29A1		0	190,760
Functional Implications of Caveolae Localized Myocardial sGC in Heart Failure	93.837	5K08HL109159-05		0	186,668
Elucidating the mechanisms of vascular dysfunction in heart failure	93.837	1R01HL126735-01A1		0	184,059
Testing biopsychosocial mechanisms of the posthospital syndrome model ofearly rehospitalization in acute coronary syndrome patients	93.837	1R01HL128497-01A1		0	178,870
Mechanisms Of Long QT Syndrome 1 In Heart	93.837	1R01HL122421-01A1		0	175,311
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		148,196	175,047
Mechanisms of Atherogenesis in Insulin Resistance	93.837	4P01HL087123-09		0	172,485
Assembly and Secretion of APOB containing Lipoproteins	93.837	5R01HL055638-18		0	160,000
Novel Therapy for Diabetic PAD Monitored With Dual Isotope Multimodality Imaging	93.837	1R01HL130056-01		0	157,817
Pregenancy as a Window to Future Cardiovascular Health	93.837	5U10HL120034-03		47,267	157,037
The Trinucleotide Repeat Containing 6a-Mediated miRNA Activities in the Ciliogenesis of Airway Epithelium	93.837	1R01HL131422-01		5,980	156,973
Albuminuria and Incident chronic lung disease exacerbations in five population-based cohorts	93.837	5R21HL129924-02		0	152,224
Ecological Link of Psychosocial Stress to Exercise: Personalized Pathways	93.837	5R01HL115941-03		0	150,971
ENACTING THE BEHAVIORAL AND SOCIAL SCIENCES IN THE CLINICAL SETTING: INSTITUTION	93.837	5R25HL108014-05		12,121	147,146
Depressing Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-02		101,731	145,611
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	140,826
MerTK Cleavage and Signaling in Atherosclerosis	93.837	1R01HL132412-01		0	131,416
Patient health information preference and statin therapy	93.837	5K23HL121144-03		0	126,968
MECHANISMS OF VENTRICULAR TACHYCARDIA IN LIPOTOXIC CARDIOMYOPATHY	93.837	5K08HL105801-05		0	126,191
Noninvasive arrhythmia mapping using Electromechanical Wave Imaging	93.837	4R01HL114358-05		0	124,061
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-02		0	119,873
Mechanisms of Atherogenesis in Insulin Resistance	93.837	4P01HL087123-09		0	115,615
Mechanisms and Consequences of Stress-Induced Macrophage Death in Atherosclerosis	93.837	5R01HL075662-12		0	115,158
Cell-type Specificity of Heritable Channelopathies: Role of the Purkinje Fiber	93.837	5K08HL116790-03		0	115,117

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Columbia Summer Institute for Training in Biostatistics (CSIBS)	93.837	5T15HL117444-03		0	114,554
Depressing Screening RCT in ACS patients: Quality of Life and Cost Outcomes	93.837	5R01HL114924-02		0	114,328
Enhancing Inflammation Resolution in Atherosclerosis via Targeted Nanoparticle-Mediated Delivery of Biologics	93.837	1R01HL127464-01A1		0	107,232
Mechanisms of Atherogenesis in Insulin Resistance	93.837	4P01HL087123-09		0	107,145
Short Term Training Grant	93.837	2T35HL007616-36		0	104,490
PKD Isoforms in Heart	93.837	5R01HL112388-04		72,821	104,352
CLIC function in angiogenesis	93.837	5R01HL119043-03		0	100,716
Molecular approaches to gene identification in congenital heart disease	93.837	5U01HL098163-06		0	99,084
Midcareer Investigator Award in Patient-Oriented Research in Human Hypertension	93.837	5K24HL125704-02		0	95,800
Identifying Novel Behavioral Targets for Improving Sleep: A Self-Regulation Model	93.837	5K23HL125748-02		0	95,208
Assembly of membranes in heart and yeast mitochondria	93.837	5R01HL022174-33		0	92,063
Role of Vascular Ion Channels in Heart Failure and Cardiovascular Diseases	93.837	5K08HL122526-02		0	89,797
BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program (BEGG/GALEA/VAUGHAN)	93.837	5R25HL096260-08		0	86,805
Mechanisms of Atherogenesis in Insulin Resistance	93.837	4P01HL087123-09		0	83,900
Pathways of Fenofibrate Effects on Cardiovascular Outcomes in ACCORD	93.837	5R01HL110418-03		0	78,648
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	78,554
Use of waveform and frequency analyses to diagnose atrial tachycardias after atrial fibrillation ablation	93.837	5K23HL105893-05		0	77,056
ABA1/ABCG1 IN MYELOID POPULATIONS AND ATHEROGENESIS	93.837	5R01HL107653-04		0	70,992
Endothelial Oxidative Stress and Inflammation:Mechanisms and Human Studies	93.837	5R01HL092144-05		0	70,014
Frailty related risk: Poor physiologic reserve during and after valve replacement	93.837	5K23HL121142-03		0	67,619
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-02		0	66,011
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	5R01HL116470-04		0	64,488
Cardiac Lipotoxicity and Ceramide Metabolism in Heart Failure	93.837	4R01HL114813-04		0	64,396
Adolescent Experiences and Adult Cardiovascular Health: Effects of the Social and Physical Environment	93.837	5K01HL103199-06		0	64,091
Posttraumatic Stress and Cardiovascular Risk in Women: Tests of Biological Mechanisms	93.837	1K01HL130650-01		0	63,034
Role of angiogenic Notch in uterine decidualization and placentation	93.837	1R01HL127013-01A1		0	61,809

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Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	4R01HL116470-04		0	61,374
Pregenancy as a Window to Future Cardiovascular Health	93.837	5U10HL120034-03		54,092	59,463
FIRST in CER (Begg/Davidson/Taylor)	93.837	5R25HL105401-04		0	52,286
Dusp4 in the pathogenesis of LMNA cardiomyopathy	93.837	5K99HL118163-02		0	48,810
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	48,287
Comparative effectiveness analysis of treat-to-target and risk-based blood pressure control guidelines	93.837	5R01HL107475-03		10,885	43,214
Specialized pro-resolving mediators in atherosclerosis	93.837	5K99HL119587-02		0	42,962
Exploring Mechanisms of Atrial Fibrillation through use of Transgenic Mouse Models	93.837	5F30HL129628-02		0	40,428
The role of impaired endothelium-dependent vasoactivity in neurodegeneration	93.837	5F30HL128023-02		0	40,124
Noninvasive qualitative and quantitative assessment of vascular disease in vivo	93.837	5R01HL098830-04		0	38,863
Postdoctoral Training in Arteriosclerosis Research	93.837	5T32HL007343-38		0	38,096
Novel Therapeutic Approaches to Atrial Fibrillation Targeting Intracellular Calcium Leak	93.837	5R01HL102040-04		0	37,919
Translational Studies of ADAMTS7 a Novel GWAS Locus for Coronary Atherosclerosis	93.837	7R01HL111694-05		0	37,677
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	34,390
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	33,491
New techniques for microfabricated vascularized 3D tissues	93.837	5R01HL095477-05		0	32,892
Investigation of Calcium Channel Modulation in Cardiomyocytes by Novel Methods	93.837	4R01HL113136-04		0	31,400
Uncontrolled Hypertension: The Role of Medication Adherence and Clinical Inertia	93.837	5K23HL098359-06		0	30,400
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	28,757
Assembly and Secretion of APOB containing Lipoproteins	93.837	4R01HL055638-19		0	28,219
Gentrification, food environment, and risk for obesity: A mixed methods approach	93.837	1F31HL131441-01		0	26,899
Discrimination, Diabetes and Cardiovascular Complications in Black Ethnic Groups (LUCHSINGER/FORDE)	93.837	5F31HL117613-02		0	23,945
Test of a new theory to explain excess risk in cardiac PTSD	93.837	5R01HL128310-02		0	23,529
Improving QoL in Outpatients with Heart Failure: A Dose-Finding Study and RCT	93.837	5K23HL112850-03		0	21,259
Childhood Adversity and Cardiovascular Health among Puerto Rican Youth	93.837	5R01HL125761-02		0	21,095
Understanding Molecular Basis of Cardiac Calcium Channelopathy	93.837	1F31HL131087-01		0	20,785

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HDL cholesterol and chronic lower respiratory disease events in five cohorts	93.837	5R21HL121457-02		0	19,973
Psychosocial factors and cardiovascular Disease	93.837	5P01HL047540-20		0	17,905
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	5R01HL116470-04		0	17,826
Ecological Link of Psychosocial Stress to Exercise: Personalized Pathways	93.837	5R01HL115941-03		0	11,897
Pregenancy as a Window to Future Cardiovascular Health	93.837	4U10HL120034-04		0	11,731
Mentored Patient Oriented Research in Cardiometabolic Disease	93.837	2K24HL107643-06		0	10,583
Translational Research of Negative Emotions and Acute Endothelial Dysfunction	93.837	4R01HL116470 04		0	9,632
Pathways of Fenofibrate Effects on Cardiovascular Outcomes in ACCORD	93.837	5R01HL110418-03		0	9,385
Insulin Regulation of Reverse Cholesterol Transport	93.837	1F31HL132484-01		0	7,653
Potential future benefits of cardiovascular risk factor control in today s young adults	93.837	2R01HL107475-04		0	7,645
Mechanisms of Defective Efferocytosis in Atheroscleriosis	93.837	5R01HL107497-04		0	7,423
BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program (BEGG/GALEA/VAUGHAN)	93.837	5R25HL096260-08		0	5,244
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	4,888
POSTDOCTORAL TRAINING IN CARDIOVASCULAR DISEASE	93.837	5 T32 HL007854-15		0	900
POSTDOCTORAL TRAINING IN CARDIOVASCULAR DISEASE	93.837	5 T32 HL007854-12		0	686
Autophagy in Advanced Atherosclerosis	93.837	5R01HL106019-04		0	681
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	260
p66Shc Signaling Functions in Cardiomyocytes	93.837	5R01HL093343-04		0	0
Notch3 signaling in the pathogenesis of hemangioma	93.837	5K08HL102068-05		0	0
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	0
Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	-694
Postdoctoral Training in Cardiovascular Disease	93.837	5 T32 HL007854-15		0	-900
Gender Race and Ethnic Disparities Research in Cardiovascular Disease Prevention	93.837	5K24HL076346-10		0	-1,233
BEST-DP: Biostatistics & Epidemiology Summer Training Diversity Program (BEGG/GALEA/VAUGHAN)	93.837	5R25HL096260-08		0	-1,512
Depression, Biobehavioral Mechanisms, & CHD/Mortality Outcomes	93.837	5P01HL088117-05		-2,847	-2,847
The Role of the Orphan Receptor Tyrosine Kinase Rost1 in Vascular Disease	93.837	5R00HL109256-04		0	-4,275

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Postdoctoral Training in Cardiovascular Disease	93.837	5T32HL007854-20		0	-5,539
Postdoctoral Training in Arteriosclerosis Research	93.837	5T32HL007343-38		0	-10,610
Pregenancy as a Window to Future Cardiovascular Health	93.837	5U10HL120034-03		0	-10,632
Mechanisms of Atherogenesis in Insulin Resistance	93.837	5P01HL087123-08		0	-13,615
Exercise and Inflammation: Autonomic, Affective & Cellular Mechanisms	93.837	5R01HL094423-05		0	-21,780
A Novel Atherosclerosis Locus on Mouse Chrom	93.837	5R01HL102206-04		0	-35,621
				\$2,898,036	\$23,939,711

Lung Diseases Research

Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	5R01HL114626-03		373,169	912,560
Pulmonary Microvascular Blood Flow and Cor Pulmonale Parvus in Emphysema/COPD	93.838	5R01HL093081-07		278,328	739,212
Mitochondrial dynamics in acute lung injury	93.838	5R01HL122730-02		0	519,864
REGULATION OF AIRWAY PROGENITOR CELL FATE IN DEVELOPMENT AND REGENERATION	93.838	7R01HL105971-04		0	493,836
Lung resident niches for memory CD4 T cells	93.838	5R01HL116136-02		0	459,801
Bioengineering a chimeric human lung	93.838	5R01HL120046-03		0	429,941
Smoke Induced Airway Injury in the Lung	93.838	5R01HL086936-07		43,279	421,478
Regulation of the Ciliated Cell Program in Airway Progenitors	93.838	5R01HL119836-03		32,081	392,374
Calcium Dependent Signaling Pathways in Epithelial Cells	93.838	5R01HL073989-11		0	322,910
Retinoic Acid Regulation of Lung Development	93.838	5R01HL067129-12		0	320,346
Targeting airway smooth muscle chloride fluxes for bronchorelaxation	93.838	5R01HL122340-02		0	317,999
Novel Quantitative Emphysema Subtypes in MESA and SPIROMICS	93.838	5R01HL121270-03		0	279,251
PVDOMICS Defining the Future Fingerprints of Pulmonary Vascular Disease	93.838	5U01HL125218-03		108,635	256,869
Staphylococcus Aureus Activation of TNF Signaling Pathways	93.838	5R01HL079395-11		0	248,991
COLUMBIA UNIVERSITY TRAINING PROGRAM IN LUNG SCIENCE	93.838	5T32HL105323-05		0	231,963
Bioengineering a chimeric human lung	93.838	5R01HL120046-03		0	210,931
Pulmonary Microvascular Blood Flow and Cor Pulmonale Parvus in Emphysema/COPD	93.838	5R01HL093081-07		0	200,905
Subclinical Interstitial Lung Disease in MESA	93.838	5R01HL103676-04		0	198,731

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Novel Quantitative Emphysema Subtypes in MESA and SPIROMICS	93.838	5R01HL121270-03		99,762	187,389
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	4R01HL114626-04		0	177,599
Role of interferons in Staphylococcus aureus upper respiratory tract infection	93.838	1R56HL125653-01A1		0	149,810
Smoke induced alterations in ion channel function	93.838	5K08HL126071-02		0	138,779
PVDOMICS Defining the Future Fingerprints of Pulmonary Vascular Disease	93.838	5U01HL125218-03		90,137	134,471
Pulmonary microvascular perfusion in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-10		18,629	129,975
Liquid secretion in the alveolar wall	93.838	5R01HL078645-09		0	89,775
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	5R01HL114626-03		0	55,888
Bioengineering a chimeric human lung	93.838	4R01HL120046-04		0	50,471
TASK-1 Mutation as a Cause of Pulmonary Arterial Hypertension	93.838	5F30HL129656-02		0	44,248
Imaging RAGE Pro-inflammatory Signaling and Cellular Apoptosis in Emphysema	93.838	5R01HL116346-03		0	18,218
Cardiopulmonary Structure & Function in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-08		2,547	16,983
Optical Imaging of Mesenchymal Stem Cell Interactions With Lung Microvessels	93.838	5R01HL057556-18		0	15,851
Bioengineering a chimeric human lung	93.838	4R01HL120046-04		0	12,283
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	4R01HL114626-04		0	11,100
COLUMBIA UNIVERSITY TRAINING PROGRAM IN LUNG SCIENCE	93.838	5T32HL105323-05		0	8,017
REGULATION OF AIRWAY PROGENITOR CELL FATE IN DEVELOPMENT AND REGENERATION	93.838	7R01HL105971-04		0	-509
Imaging RAGE Pro-inflammatory Signaling and Cellular Apoptosis in Emphysema	93.838	5R01HL116346-03		0	-3,708
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	5R01HL114626-03		0	-4,422
Cardiopulmonary Structure & Function in the Multi-Ethnic Study of Atherosclerosis	93.838	5R01HL077612-08		0	-7,695
Obesity, Inflammation and Lung Injury after Lung Transplantation	93.838	5R01HL114626-03		-16,678	-26,408
				\$1,029,889	\$8,156,077

Blood Diseases and Resources Research

The safety of red blood cell transfusions	93.839	5R01HL121275-03		0	583,510
Harmful effects of red blood cell transfusions are mediated by iron	93.839	5R01HL115557-03		0	516,913
Yes 1 and CTNND1 as quiescence regulators in hematopoietic stem cells	93.839	5R01HL115145-03		0	332,068

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Novel Viruses and Viral Dynamics in Multiple Transfusion Recipients	93.839	5R01HL119485-02		51,664	187,292
Regulation of hematopoietic stem cells and leukemia stem cells by thrombopoietin	93.839	1R01HL132074-01		0	89,783
Harmful effects of red blood cell transfusions are mediated by iron	93.839	4R01HL115557-04		0	86,051
Yes 1 and CTNND1 as quiescence regulators in hematopoietic stem cells	93.839	4R01HL115145-04		0	77,098
Short-term training: Students in Health Professional Schools	93.839	5T35HL007616-35		0	54,166
Translating Transplant Practices for Sickle Cell Disease in the US and France: National Commitments, Institutional Regimens, Private Sentiments	93.839	5F31HL126353-02		0	25,457
Translating Transplant Practices for Sickle Cell Disease in the US and France: National Commitments, Institutional Regimens, Private Sentiments	93.839	5F31HL126353-02		0	10,411
Role of STAT1 and STAT3 in Graft v. Host disease and Graft v. Leukemia Effects	93.839	7R01HL093716-05		0	7,447
Mechanisms underlying the harmful effects of stored red blood cell transfusions	93.839	5K08HL103756-05		0	-1,359
				\$51,664	\$1,968,837

Arthritis, Musculoskeletal and Skin Diseases Research

Meniscus Regeneration by Endogenous Stem/Progenitor Cells	93.846	5R01AR065023-03		482,642	919,997
Functional Genomics of Alopecia Areata	93.846	5R01AR065963-02		0	373,217
Pathogenesis of Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR048997-12		0	350,859
INFLAMMATION AND CARDIOVASCULAR DISEASE IN RA	93.846	5R01AR050026-11		0	328,908
Role of Primary Cilia During Epidermal Morphogenesis	93.846	5R00AR063161-05		0	327,431
Primary cilia as mechanotransducers in bone	93.846	4R01AR062177-05		0	304,564
Micro-Mechanical Modeling of Trabecular Bone	93.846	5R01AR051376-09		78,988	256,116
Multidisciplinary Engineering Training in Musculoskeletal Research	93.846	5T32AR059038-05		0	255,075
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	235,821
Nuclear Movement LINC Complex and Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR068636-02		0	235,214
Clinical Bone Mechanics Using HR-pQCT and MRI	93.846	5R01AR058004-05		23,319	227,322
Mechanobiology of 3D Trabecular Bone Explants	93.846	5R01AR052461-05		0	219,264
Modification of Bone Grafts for Orthopaedic Procedures	93.846	5R01AR068353-02		0	198,959
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	180,601
ERK Signaling in Inflammatory Bone Loss	93.846	5R01AR056246-07		0	164,767

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Nuclear Movement LINC Complex and Emery-Dreifuss Muscular Dystrophy	93.846	5R01AR068636-02		0	160,082
Cross-talk between skeleton and pancreas morphogeneses during development	93.846	5R21AR067320-02		0	139,009
Developing an Alopecia Areata Disease Activity Index (ALADIN)	93.846	5U01AR067173-03		0	138,797
ERK Signaling in Inflammatory Bone Loss	93.846	4R01AR056246-08		0	117,736
The Osteoblast as a Determinant of Leukemogenesis	93.846	5R01AR054447-08		18,000	111,341
Epigenetic control of target gene activity by hairless in skin homeosasis	93.846	5K01AR064315-03		0	102,032
INFLAMMATION AND CARDIOVASCULAR DISEASE IN RA	93.846	5R01AR050026-11		0	97,688
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	96,234
Tendon Enthesis Development and Regeneration	93.846	5R01AR055580-07		0	91,129
Fracture Prediction by Machine Learning and 3D Finite Element Models from DXA	93.846	5K99AR067883-02		0	86,485
Intracellular calcium leak and muscle function	93.846	5R01AR060037-05		0	79,712
Idiopathic Osteoporosis in Premenopausal Women	93.846	5K24AR052665-10		0	77,630
IGF-1, bone turnover and response to teriparatide in premenopausal women with IOP	93.846	5R03AR064016-03		2,129	77,178
Activation of Human Skin T Cells by Mammalian and Microbial Lipids Presented by CD1a	93.846	5K01AR068475-02		0	73,164
Primary cilia as mechanotransducers in bone	93.846	4R01AR062177-05		0	69,958
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	67,137
Anti-CCP Antibodies, TNF-Antagonists, and Cardiac Function in Rheumatoid Arthriti	93.846	5R03AR064572-03		0	61,778
Optimizing Nutrient Supply in Large Engineered Cartilage Tissue Constructs	93.846	5R01AR060361-05		0	57,485
Rotator Cuff Degeneration and Repair	93.846	2R56AR057836-06		0	55,924
An RA immune system derived from patient s stem cells	93.846	5R21AR064473-02		0	54,385
Primary cilia as mechanotransducers in bone	93.846	4R01AR062177-05		0	52,642
Incorporation of Dexamethasone Delivery within Engineered Cartilage	93.846	1R01AR068133-01A1		0	45,704
A novel mouse model for immune-mediated skin fibrosis in scleroderma	93.846	5R21AR064693-02		0	35,009
Optimizing Nutrient Supply in Large Engineered Cartilage Tissue Constructs	93.846	5R01AR060361-05		0	25,330
Developing an Alopecia Areata Disease Activity Index (ALADIN)	93.846	5U01AR067173-03		0	24,739
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	11,199

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Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	11,107
ERK Signaling in Inflammatory Bone Loss	93.846	5R01AR056246-07		0	10,875
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	10,049
Mechanisms of mechanosensory transductions in Merkel cells	93.846	5R01AR051219-10		0	2,773
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	384
Developing an Alopecia Areata Disease Activity Index (ALADIN)	93.846	5U01AR067173-03		0	224
Interface Tissue Engineering for Soft Tissue-to-Bone Integration	93.846	5R01AR055280-07		0	160
PATHOGENESIS OF EMERY-DREIFUSS MUSULAR DYSTROPHY	93.846	5R01AR048997-10		0	-40
Columbia University Medical Center Skin Disease Research Center (CUMCSDRC)	93.846	5P30AR044535-14		0	-1,124
Clinical Bone Mechanics Using HR-pQCT and MRI	93.846	5R01AR058004-05		0	-1,396
Multidisciplinary Engineering Training in Musculoskeletal Research	93.846	5T32AR059038-05		0	-2,679
An RA immune system derived from patient s stem cells	93.846	5R21AR064473-02		0	-3,006
				\$605,078	\$6,614,949

Diabetes, Digestive, and Kidney Diseases Extramural Research

Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-15		889,326	1,441,644
Epigenetic events underlying Type I diabetes	93.847	1DP3DK094400-01		0	1,008,768
Functional imaging and eating behavior among FTO genotypes in pre-obeses children	93.847	5R01DK097399-03		366,941	770,240
Advancing Clinical Research in Primary Glomerular Diseases (UM1)	93.847	5UM1DK100876-03		48,600	732,736
Lifestyle Interventions in Overweight and Obese Pregnant Women	93.847	5U01DK094463-05		306,040	670,860
Elucidating IgA nephropathy through Genetic Studies of IgA1 Glycosylation	93.847	5R01DK082753-07		371,327	660,236
Genetics of Congenital Obstructive Uropathy	93.847	5R01DK103184-03		40,710	604,597
Branching Morphogenesis of Urinary Epithelia: from Genes to Cellular Behaviors	93.847	5R01DK083289-08		0	603,076
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		8,205	587,759
New York Nutrition Obesity Research Center	93.847	7P30DK026687-35		134,649	531,484
Mouse Models of Insulin Resistance	93.847	5R37DK058282-17		0	524,880
HIT for Facilitating Problem Solving in Diabetes Management	93.847	5R01DK090372-05		234,197	510,575

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Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-15		485,439	492,176
Body Composition and REE Responses to Bariatric Surgeries	93.847	7R01DK072507-08		127,427	487,101
Imaging beta cell function for metabolic surgery	93.847	5R01DK104740-02		0	478,151
Genetics of IgA nephropathy by integrative network-based association studies	93.847	5R01DK105124-02		84,253	466,661
Mechanisms of Beta Cell Failure	93.847	5R01DK064819-13		0	461,727
Postprandial Vitamin A	93.847	5R01DK068437-11		0	458,340
The Subgingival Microbiome and Impaired Glucose Regulation	93.847	5R01DK102932-02		29,483	446,681
Long term change of GLP-1 insulinotropic effect after GBP surgery	93.847	5R01DK098056-03		66,347	440,584
Immune regulation of adipose tissue mass	93.847	5R01DK101942-03		0	401,316
Notch, Type 2 Diabetes and NAFLD	93.847	5R01DK103818-02		0	377,715
Primary Hyperparathyroidism	93.847	5R01DK032333-31		0	366,200
Function and regulation of progastrin receptors on intestinal progenitors	93.847	5R37DK052778-18		0	361,874
Regulation of glucose uptake in osteoblasts by Runx2	93.847	5R01DK104727-02		0	360,736
Adipose Tissue Macrophage Phenotype and Function	93.847	5R01DK066525-12		0	357,274
Metabolic and Endocrine Effects of Bariatric Surgery	93.847	5R01DK072011-10		0	346,948
Discovery and Fine Mapping of Susceptibility Loci for IgA Nephropathy	93.847	5R01DK095510-04		175,231	342,361
HORMONES: BIOCHEMISTRY AND MOLECULAR BIOLOGY	93.847	5T32DK007328-37		0	340,651
Iron Delivery in the Developing Kidney	93.847	5R01DK092684-04		41,304	335,559
Understanding the Role of a Long Noncoding RNA in Celiac Disease	93.847	5R01DK102180-03		0	333,414
Look AHEAD: Action for Health Diabetes	93.847	7U01DK057178-17		0	321,051
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-02		0	314,916
Vitamin D Deficiency in Primary Hyperparathyroidism	93.847	5R01DK084986-05		0	301,130
Mechanisms of Mucosal Th17 Cell Induction By Segmented Filamentous Bacteria	93.847	5R01DK098378-04		0	295,890
RENAL PROTECTION WITH A1 ADENOSINE RECEPTORS	93.847	5R01DK058547-15		0	290,189
Regulation of pancreatic cell fate	93.847	5R01DK082590-07		0	286,758
New York Nutrition Obesity Research Center	93.847	7P30DK026687-35		0	284,898

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Role of Forkhead Proteins in Insulin Action	93.847	5R01DK057539-15		0	282,087
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	279,594
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	279,376
Iron Lipocalin NGAL in Kidney Disease	93.847	5R01DK073462-09		0	277,937
Graduate Training in Nutrition	93.847	5T32DK007647-27		0	273,898
Epigenetic events underlying Type I diabetes	93.847	1DP3DK094400-01		0	270,033
Interactions between neuronal networks that regulate food intake and body weight	93.847	5R01DK089038-05		0	262,879
A Differential Dielectric Affinity Microsensor for Stable and Accurate Glucose Monitoring	93.847	1DP3DK101085-01		25,930	260,785
Epigenetic events underlying Type I diabetes	93.847	1DP3DK094400-01		0	259,959
CSF Neuropeptide, Hormonal, and Metabolomic Analysis in Human Energy Balance	93.847	5R01DK093920-05		0	259,936
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	248,811
Training Program in Endocrinology and Metabolism	93.847	5T32DK007271-37		0	240,937
Progenitor Cells of the Mouse Prostate Epithelium	93.847	5R01DK076602-10		0	240,357
Generating Molecular markers that selectively label urothelial sub-populations.	93.847	5U01DK094530-05		44,024	239,000
Retinoic acid signaling controls urothelial development and regeneration	93.847	5R01DK095044-03		0	234,078
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	233,221
Metabolomic Biomarkers Predictors of Long-term Success Following Bariatric surgery	93.847	5R01DK108580-02		79,781	221,507
TLR4 in Obesity-Driven Liver Fibrosis	93.847	5R03DK101863-03		0	218,774
Skeletal Regulation of Cortical and Trabecular Bone by Parathyroid Hormone	93.847	4K23DK095944-05		0	218,404
Multidisciplinary Training in Translational Gastrinointestinal and Liver Research	93.847	5T32DK083256-08		0	211,563
DPPOS Follow-up	93.847	2U01DK048404-22		0	211,225
Basal Progenitor Cells and Eosinophilic Esophagitis	93.847	5R01DK100342-04		0	207,912
New Approaches to the Evaluation and Treatment of Acromegaly	93.847	2R56DK064720-11A1		0	198,408
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		89,588	196,821
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	194,370
Lifestyle Interventions in Overweight and Obese Pregnant Women	93.847	5U01DK094463-05		0	188,040

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Training Grant in Pediatric Endocrinology, Diabetes and Metabolism	93.847	5T32DK065522-12		0	186,012
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-15		30,534	178,862
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-03		0	178,145
BONE PROPERTIES IN HYPOPARATHYROIDISM: EFFECT OF PTH	93.847	5R01DK069350-10		8,909	170,254
Brown Remodeling of White Adipose Tissue by Ppargamma Deacetylation	93.847	5R00DK097455-04		0	168,030
Mechanisms Underlying Predictors of Success from Obesity Surgery	93.847	5R01DK108643-02		0	148,194
Quiescent Dclk1+ stem cells in the mouse intestine	93.847	5R01DK097016-03		17,797	144,312
New York Nutrition Obesity Research Center	93.847	7P30DK026687-35		0	143,771
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	142,224
Immune Deregulation and Chronic Humoral Rejection of Kidney Allografts in Humans	93.847	7R01DK083352-06		41,675	141,470
NOTCH AND REGULATORS OF NOTCH SIGNALING IMPACT BOTH GLUCOSE AND LIPID	93.847	5K08DK093604-05		0	138,075
Non-Classic Manifestations of Primary Hyperparathyroidism	93.847	5K24DK074457-09		0	135,255
Genetics of Human Renal Hypodysplasia	93.847	2R01DK080099-06A1		0	133,964
13/22 Diabetes Prevention Program Outcomes Study (DPPOS) Phase 3 - Research Project	93.847	2U01DK048404-23		0	132,481
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	132,265
Enteric Neuronal Development as a Determinant of Intestinal Inflammation	93.847	5K08DK093786-03		0	131,414
Significance of Intrarenal T cells in SLE Nephritis	93.847	1R01DK106436-01A1		0	131,292
Role of Forkhead Proteins in Insulin Action	93.847	2R01DK057539-16		0	127,602
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	125,839
Targeting the Microenvironment in Gastric Chemoprevention	93.847	5K08DK100544-03		0	125,493
Obesity Research Center Training Grant	93.847	5T32DK007559-26		0	121,971
Multidisciplinary Training in Translational Gastrinointestinal and Liver Research	93.847	5T32DK083256-08		0	116,720
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	116,253
Primary Hyperparathyroidism: Neurocognitive Features	93.847	5R21DK104105-02		0	114,815
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-03		0	112,286
Genetic diagnosis of kidney and urinary tract malformations via copy number varia	93.847	5R21DK098531-02		0	110,012

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Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-15		100,130	109,752
Mechanisms of monocytosis and accelerated atherosclerosis in patients with CKD	93.847	5K23DK097288-03		0	108,675
BARIATRIC SURGERY: OUTCOMES & IMPACT ON PATHOPHYSIOLOGY	93.847	5U01DK066667-11		108,381	108,381
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	106,397
Interdisciplinary Training in Nutritional and Population Health Sciences	93.847	5T32DK091227-05		0	101,589
Gpr17 function in metabolism and satiety control	93.847	5K99DK098294-02		0	100,473
Mechanisms of Mucosal Th17 Cell Induction By Segmented Filamentous Bacteria	93.847	4R01DK098378-04		0	96,607
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	90,046
Mice with autologous human T1D-derived immune systems and iPSC-derived beta cell	93.847	1UC4DK104207-01		0	88,813
Obesity Research Center Training Grant	93.847	5T32DK007559-26		0	87,366
Hepatocyte Notch Signaling Regulates NASH	93.847	5R03DK105303-02		0	82,651
VZV in the enteric nervous system: pathogenesis and consequences	93.847	5R01DK093094-04		0	81,754
Advancing Clinical Research in Primary Glomerular Diseases (UM1)	93.847	5UM1DK100876-03		0	78,952
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		62,801	77,238
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	76,660
09/16 Action for Health in Diabetes Extension Study Research Project	93.847	2U01DK057178-18		0	71,571
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-02		0	71,051
Clinical Research on Nonalcoholic Fatty Liver Disease	93.847	5U01DK061734-15		70,662	70,662
Human Islet Antgen Discovery and Imaging	93.847	5 R01 DK063567-09		0	70,621
Adipose Tissue Macrophage Phenotype and Function	93.847	4R01DK066525-13		0	68,425
Drug level variability in children after renal transplant and transition of care	93.847	1F32DK101186-01		0	67,055
THE FUNCTION AND REGULATION OF HISTIDINE DECARBOXYLASE IN GUT INFLAMMATION	93.847	5R01DK048077-20		0	66,082
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	64,365
Targeting Intracellular Calcium Leak as Novel Therapy For Diabetes	93.847	5K99DK107895-02		0	63,277
Advancing Clinical Research in Primary Glomerular Diseases	93.847	4UM1DK100876-04		0	56,636
BARIATRIC SURGERY: OUTCOMES & IMPACT ON PATHOPHYSIOLOGY	93.847	5U01DK066667-11		0	56,588

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Mechanisms of Beta Cell Failure	93.847	4R01DK064819-14		0	51,055
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	50,798
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	49,707
Circadian clock regulation of branching morphogenesis during kidney development	93.847	1R01DK106548-01A1		0	49,440
New York Obesity Research Center	93.847	2P30DK026687-36		0	47,069
Training Medical Students in NIDDK Research	93.847	4T35DK093430-05		0	46,369
Brown adipose tissue lysosomal and neutral lipases in nonshivering thermogenesis	93.847	5F31DK105723-02		0	45,860
The Role of FoxO1 in the Regulation of the Adipocyte Browning Response	93.847	5F30DK100038-03		0	44,300
Regulation of exocrine pancreas formation	93.847	5R01DK087711-05		0	44,100
Skeletal Regulation of Cortical and Trabecular Bone by Parathyroid Hormone	93.847	4K23DK095944-05		0	43,809
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	43,449
Vitamin A Homeostasis: Retinyl Ester Stores	93.847	1R01DK101251-01A1		0	43,039
Bacterial Translocation and the Intestinal Microbiome in Recurrent Disease Following Liver Transplantation	93.847	1K23DK101827-01A1		0	42,811
Quantitative Genetics of Defective IgA1 Glycosylation in IgA Nephropathy	93.847	5K23DK090207-04		0	40,914
The Rewarding Value of Sugar in the Absence of Sweet Taste	93.847	5F30DK108564-02		0	40,428
Progenitor Cells of the Mouse Prostate Epithelium	93.847	4R01DK076602-11		0	40,147
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	39,621
Mechanisms of monocytosis and accelerated atherosclerosis in patients with CKD	93.847	4K23DK097288-04		0	38,185
Training Medical Students in NIDDK Research	93.847	5T35DK093430-04		0	37,375
Adult to Adult Living Donor Liver Transplantation Cohort Study	93.847	5U01DK062483-12		0	36,915
Hormones: Biochemistry and Molecular Biology	93.847	5T32DK007328-35		0	35,930
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	35,376
Mechanisms of immune regulation by long noncoding RNA during Crohn's and Celiac Diseases	93.847	5F32DK104579-02		0	33,974
Role of the Kidney in Iron Balance	93.847	5F31DK105799-02		0	33,073
Aptamer-Based Arrays for Detection of Pathogenic IgA1 O-Glycoforms in IgA Nephropathy	93.847	1R21DK109690-01		0	32,371
GDNF/ Ret Regulation of Ureteric Bud Morphogenesis	93.847	5F32DK096782-03		0	31,131

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

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<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
New York Obesity Research Center	93.847	2P30DK026687-36		0	29,871
Brown Remodeling of White Adipose Tissue by PPARgamma Deacetylation	93.847	5K99DK097455-02		0	29,082
Interdisciplinary Training in Nutritional and Population Health Sciences	93.847	5T32DK091227-05		0	28,995
STEM CELL THERAPY FOR ACUTE KIDNEY INJURY	93.847	5R01DK083411-06		0	28,608
The role of long noncoding RNAs in regulating pancreas development and function	93.847	1F31DK107028-01A1		0	28,435
NeuroD function during Beta cell development and in mouse models of diabetes	93.847	5F32DK103506-02		0	28,095
Non-Classic Manifestations of Primary Hyperparathyroidism	93.847	4K24DK074457-10		0	27,562
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	26,457
Immune response to iPSC-derived beta cells in Type 1 diabetes	93.847	5R01DK103585-02		0	26,422
A Differential Dielectric Affinity Microsensor for Stable and Accurate Glucose Monitoring	93.847	1DP3DK101085-01		0	26,088
Mechanisms of Diabetes Control After Weight Loss Surgery	93.847	7R01DK067561-08		0	24,486
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-03		0	23,952
Generating Molecular markers that selectively label urothelial sub-populations.	93.847	5U01DK094530-05		13,139	23,725
Adult to Adult Living Donor Liver Transplantation Cohort Study	93.847	5U01DK062483-12		0	23,714
New York Obesity Research Center	93.847	2P30DK026687-36		0	22,278
Iron Delivery in the Developing Kidney	93.847	4R01DK092684-05		0	19,376
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	19,087
NeuroD function during Beta cell development and in mouse models of diabetes	93.847	5F32DK103506-02		0	18,926
BARIATRIC SURGERY: OUTCOMES & IMPACT ON PATHOPHYSIOLOGY	93.847	5U01DK066667-11		0	18,085
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	17,656
Mouse Models of Insulin Resistance	93.847	5R37DK058282-15		0	15,605
The Role of Glial Cells in the Enteric Nervous System	93.847	5F32DK098903-03		0	13,698
Mechanisms of immune regulation by long noncoding RNA during Crohn s and Celiac Diseases	93.847	5F32DK104579-02		0	13,249
New Approaches to the Evaluation and Treatment of Acromegaly	93.847	5R01DK064720-10		0	13,248
Epigenetic events underlying Type I diabetes	93.847	1DP3DK094400-01		0	10,489
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	10,476

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Role of the Kidney in Iron Balance	93.847	5F31DK105799-02		0	9,664
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	5,331
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	5,193
New York Obesity Research Center	93.847	2P30DK026687-36		0	3,945
New York Obesity Research Center	93.847	2P30DK026687-36		0	3,921
Diabetes and Endocrinology Research Center	93.847	4P30DK063608-14		0	3,826
Chronic Kidney Disease and PTH: Effects on the Postmenopausal Skeleton	93.847	5K23DK084337-05		0	3,341
The Role of FoxO1 in the Regulation of the Adipocyte Browning Response	93.847	5F30DK100038-03		0	1,706
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	1,427
Population Based Study of Serum IgA, IgA1 and Galactose-Deficient IgA1 Levels	93.847	5R03DK099564-02		0	1,261
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	1,017
Advancing Clinical Research in Primary Glomerular Diseases (UM1)	93.847	5UM1DK100876-03		0	1,002
Precision Medicine Research in Nephrology	93.847	1T32DK108741-01		0	1,000
Diabetes and Endocrinology Research Center	93.847	5P30DK063608-13		0	709
Training Program in Endocrinology and Metabolism	93.847	5T32DK007271-37		0	648
Training Grant in Pediatric Endocrinology, Diabetes and Metabolism	93.847	5T32DK065522-10		0	632
GDNF/ Ret Regulation of Ureteric Bud Morphogenesis	93.847	5F32DK096782-03		0	251
Cell intrinsic immunopathology of Type 1 diabetes in humanized mice	93.847	5F32DK095539-03		0	89
Graduate Training in Nutrition	93.847	5T32DK007647-25		0	0
Advancing Clinical Research in Primary Glomerular Diseases (UM1)	93.847	5UM1DK100876-03		0	-27
Human Islet Antgen Discovery and Imaging	93.847	5 R01 DK063567-09		0	-28
Graduate Training in Nutrition	93.847	5T32DK007647-25		0	-391
Adult to Adult Living Donor Liver Transplantation Cohort Study	93.847	5U01DK062483-12		0	-1,236
FUNCTION AND REGULATION OF PROGASTRIN	93.847	5R37DK052778-16		0	-2,876
Generating Molecular markers that selectively label urothelial sub-populations.	93.847	5U01DK094530-05		0	-4,758
STEM CELL THERAPY FOR ACUTE KIDNEY INJURY	93.847	5R01DK083411-06		0	-7,647

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Genetic Analysis of Etv4/Etv5 Transcription Factors and Kidney Development	93.847	5R01DK075578-09		0	-9,311
Interdisciplinary Training in Nutritional and Population Health Sciences	93.847	5T32DK091227-05		0	-13,177
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	-14,922
Molecular Regulation of Adrenal Cortex Homeostasis and Remodeling	93.847	5R01DK081515-05		0	-23,519
The Genetic Origins and Complications of Urinary Tract Abnormalities	93.847	5U54DK104309-03		0	-41,276
Differentiating Radio-sensitivities Among Intestinal Stem Cell Pools	93.847	5U01DK103155-03		0	-63,518
				\$4,102,830	\$31,842,954

Extramural Research Programs in the Neurosciences and Neurological Disorders

Gene-Environment Interactions in an Autism Birth Cohort	93.853	5U01NS047537-08		424,999	1,928,534
3 of 7 Epi4K: Sequencing, Biostatistics & Bioinformatics Core	93.853	5U01NS077303-06		34,784	1,715,714
Motor neuron selector genes and mechanism of their action	93.853	5R01NS078097-04		378,057	685,364
A Dynamical Systems Approach to Fundamental Questions in Neuroscience	93.853	1DP2NS083037-01		0	638,749
Examination of the earliest symptoms and biomarkers of FTLD MAPT carriers	93.853	5R01NS076837-04		139,437	531,367
Identification of Susceptibility Genes for Essential Tremor	93.853	5R01NS073872-05		275,385	523,230
Regulation of HCN Channel Trafficking and Function in the Brain by TRIP8b	93.853	5R01NS036658-16		0	520,032
Prevalence and predictors of asymptomatic atrial fibrillation in the community	93.853	5R01NS083784-03		16,239	515,866
Spatio temporal relationship of pathology and functional decline with tauopathy	93.853	5R01NS074874-05		0	477,897
The role of a Synuclein transcript variants in neuronal pathology and function	93.853	5R01NS082068-03		0	461,564
Autophagy and Neurodegeneration	93.853	5R01NS063973-07		186,938	435,730
Peripheral Mechanisms Governing Tactile Encoding During Normal Target Remodeling	93.853	4R01NS073119-07		127,073	421,049
A kinase pathway required for terminal axon branching and presynaptic function	93.853	5R01NS089456-08		0	418,433
Propagation of tauopathy: role of degeneration and impact of immunotherapy	93.853	5R01NS081555-03		0	407,086
Role of Phosphoinositides in Neuronal Membrane Traffic and Neurodegeneration	93.853	5R01NS056049-09		0	406,783
Cadherin-Catenin Based Recognition in Sensory-Motor Connectivity	93.853	5R01NS080932-03		0	405,735
Structure and Finction of AMPA subtype ionotropic glutamate receptors	93.853	5R01NS083660-03		0	395,629
Seizure localization in humans: the effect of inhibitory surround on the EEG	93.853	5R01NS084142-03		100,298	395,483

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Neurotrophins, spontaneous release, and synaptic growth cascades	93.853	5R01NS083690-03		0	391,926
Assessment and characterization of naming in older adults with epilepsy	93.853	5R01NS083976-03		0	382,192
Mechanisms and Treatment of CNS Edema	93.853	5R01NS081333-03		0	378,560
Imaging the neuronal and metabolic basis of resting state connectivity mapping	93.853	5R01NS076628-05		0	378,366
Psychosocial Impact of Genetics in Epilepsy	93.853	5R01NS078419-04		23,012	377,176
The role of ApoE injury-induced neurogenesis	93.853	1R56NS089523-01A1		0	375,026
Discovery of Novel Molecular Abnormalities Underlying Non-Lesional Focal Epilepsy	93.853	5R01NS089552-03		107,983	373,272
Role of MMP-9 in selective motor neuron degeneration in ALS	93.853	4R01NS072428-04		0	370,873
Modulating Aggrephagy to Modify Huntington s Disease	93.853	5R01NS077111-04		0	368,251
The Role of Clustered Protocadherins in Neurite Self-avoidance	93.853	5R01NS088476-02		0	355,146
RNA regulatory networks in motor neuron development and function	93.853	5R01NS089676-02		0	345,027
Sexually dimorphic regulation of neuronal identity in C.elegans	93.853	5R37NS039996-16		0	341,382
Neuron death in Parkinson s disease: The role of Trib3	93.853	5R01NS072050-04		0	335,541
Analytic Methods for Determining Multimodal Biomarkers for Parkinson s Disease	93.853	5U18NS082143-04		0	324,064
Elucidating a molecular pathway for synaptic vesicle maintenance and degradation	93.853	5R01NS080967-03		0	321,899
The regulations of beta-amyloid sensitivity and Alzheimer s related impairments by PP2A	93.853	1R01NS092045-01		39,748	319,696
Microenvironment in Enteric Neuron Development	93.853	5R01NS015547-33		0	317,817
Development and function of an adult locomotion circuit in Drosophila	93.853	5R01NS070644-07		0	315,253
Novel Genetic Determinants of the Neuromuscular SMA Phenotype	93.853	5R01NS057482-08		0	312,499
Roles for Granule Cells in Adaptive Processing in a Cerebellum-like Circuit	93.853	5R01NS075023-04		0	312,313
New York Stroke Trials network of Columbia and Cornell (NYCCSTN)	93.853	4U10NS086728-04		0	304,511
Genetic Determinants of Epilepsy in Murine Systems	93.853	5R37NS031348-25		0	292,124
In-vivo optical imaging of neurovascular coupling and cerebral metabolism	93.853	5R01NS063226-07		0	292,052
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-05		11,816	289,408
Efficient Methods for Genotype-Specific Distributions with Unobserved Genotypes	93.853	5R01NS073671-04		5,935	282,225
Cortical Localization in Temporal Lobe Epilepsy	93.853	5R01NS035140-15		0	278,056

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Interaction Between DA, Alpha-Synuclein and Chaperone-Mediated Autophagy	93.853	5R01NS075222-05		0	277,503
Control of Motor Neuron Differentiation	93.853	5R37NS033245-23		0	269,119
Dendritic Patterning by interacting	93.853	5R01NS061908-08		0	267,495
New York Columbia Collaborative SPOTRIAS	93.853	5P50NS049060-09		141,654	266,866
Identifying Huntingtons Disease Markers by Modern Statistical Learning Methods	93.853	5U01NS082062-03		54,797	245,419
Goals vs. habits in the human brain: Cognitive and computational mechanisms	93.853	5R01NS078784-04		156,303	241,185
Blood Flow and Cognition in Asymptomatic Carotid Artery Disease	93.853	5R01NS076277-04		60,226	238,829
Prospective Purification of Adult Stem Cell Astrocytes	93.853	5R01NS074039-05		0	237,419
New York Columbia Collaborative SPOTRIAS	93.853	5P50NS049060-09		169,648	236,374
Genetic dissection of locomotion	93.853	5R21NS088446-02		0	236,307
Neurotrophin 3 and regulation of proprioceptor subtype identity and connectivity	93.853	5R21NS090067-02		0	231,205
Autophagic Clearance of Aberrant Tau: Biochemical and Therapeutic Implications	93.853	5R01NS074593-05		0	219,851
FUS/TLS GAIN AND LOSS OF FUNCTION IN ALS: ANIMAL AND CELLULAR MODELS OF DISEASE	93.853	5R01NS073776-05		0	216,668
GFP Reconstitution Across Synaptic Partners (GRASP) Methods to Dissect Mammalian Neural Circuits	93.853	5R01NS076774-05		0	214,714
RCT: The Effects of a novel intervention to improve stroke symptom recognition	93.853	5R01NS067443-05		5,914	211,473
Neuroepidemiology Training Program	93.853	5T32NS007153-33		0	207,190
Evaluating CA2 Neurons as Novel Targets in Epilepsy	93.853	5R21NS093991-02		69,873	206,642
Trans-Synaptic Tracing of Developing Somatosensory Circuits	93.853	5R21NS093572-02		0	204,935
Single Cell Studies of Lineage Specific Expression of the Protocadherin Gene Cluster	93.853	5R21NS088992-02		0	204,072
The Neurophysiology of Spontaneous Biological Recovery	93.853	5K23NS078052-05		0	198,727
Overcoming apoptotic resistance in glioblastoma by CP-d/n-ATF5, a novel tumor specific therapeutic compound targeting the transcription factor ATF5	93.853	5K08NS083732-03		0	198,287
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		11,058	193,181
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	192,602
The role of glucocerebrosidase in Parkinson s disease	93.853	4K02NS080915-04		9,540	189,335
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	180,002
SCAPE microscopy for high-speed in-vivo volumetric microscopy in behaving organisms	93.853	5U01NS094296-02		0	177,369

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The role of glucocerebrosidase and chaperone-mediated autophagy in Parkinson s disease	93.853	4K08NS083738-04		0	176,411
The role of striatal cholinergic interneurons in Parkinson s disease	93.853	1R56NS095053-01		0	175,734
Advanced Graduate Training Program in Neurobiology and Behavior	93.853	5T32NS064928-07		0	172,906
NEUROTROPHIC FACTOR DEPRIVATION AND NEURONAL CELL DEATH	93.853	4R01NS033689-22		0	172,495
Small molecule drugs for treatment of dry age-related macular degeneration	93.853	5U01NS74476-05		0	171,213
Statewide dissemination of a school-based public stroke education intervention	93.853	2R01NS067443-06		0	170,959
Neuro-vascular Disease as a Cause of Impaired Mobility	93.853	5K23NS073104-05		0	168,434
SUMOylation and Amyloid-beta elevation	93.853	5R01NS049442-10		0	161,655
Omega 3 Fatty Acids Acute Neuroprotection via Mitochondria	93.853	5R01NS088197-02		0	159,134
Neuroepidemiology Training Program	93.853	5T32NS007153-30		0	158,279
Small chemical modulators of SMN biology as candidate therapeutics for SMA	93.853	5R21NS083831-02		0	154,704
A genome-wide phenotypic screen for modifiers of SMN expression and function	93.853	5R21NS085612-02		13,456	153,432
Neurotrophic Factor Deprivation and Neuronal Cell Death	93.853	5R01NS033689-21		0	153,229
The Role of Dendrites in Thalamocortical Circuitry	93.853	2R01NS069679-06A1		0	150,403
Deciphering the metabolism of LBPA and its function in the endolysosomal system	93.853	5R21NS088200-02		0	149,449
Omega 3 Fatty Acids Acute Neuroprotection via Mitochondria	93.853	5R01NS088197-02		0	148,599
Infection, Fever and Immune Signatures in an Autism Birth Cohort (HORNIG/LIPKIN)	93.853	1R56NS086122-01A1		0	145,048
Neural populations, high frequency oscillations and EEG seizures	93.853	5R01NS095368-02		47,754	144,444
Screening lipid modifying enzymes to ameliorate A-beta triggered synaptic loss	93.853	5R21NS084328-02		0	136,470
1 of 7 Epi4K: Gene discovery in 4,000 epilepsy genomes - Administrative Core	93.853	5U01NS077274-06		0	134,719
Stable silencing of spinal motor neuron enhancers by transiently expressed Nkx2.2	93.853	5R21NS092043-02		0	132,974
Genetic evaluation of the p53 cell death pathway in spinal muscular atrophy (SMA)	93.853	5R21NS084185-02		0	131,788
Advanced Graduate Training Program in Theoretical Neuroscience	93.853	5T32NS064929-08		0	124,588
Identification of Susceptibility Genes for Essential Tremor	93.853	5R01NS073872-03		0	116,283
New York Stroke Trials network of Columbia and Cornell (NYCCSTN)	93.853	4U10NS086728-04		80,086	116,131
Neuron death in Parkinson s disease: The role of Trib3	93.853	4R01NS072050-05		0	114,486

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Building an expression atlas of C.elegans sensory receptors	93.853	1R21NS096343-01		0	112,394
Propagation of tauopathy: role of degeneration and impact of immunotherapy	93.853	4R01NS081555-04		0	106,299
Dendritic Patterning by interacting	93.853	4R01NS061908-09		0	105,631
Role of MMP-9 in selective motor neuron degeneration in ALS	93.853	4R01NS072428-04		0	97,836
In vivo investigation of mitochondrial dynamics in the mouse brain	93.853	5K99NS091526-02		0	94,982
Mechanisms of Dopamine Neuron Degeneration	93.853	5P50NS038370-15		71,278	89,604
Control of Skilled Forelimb Movements by Cerebellar Feedback Circuits	93.853	5K99NS088193-02		0	89,388
Signaling pathways of necroptosis	93.853	5R21NS088009-02		0	87,395
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		8,178	79,095
Identifying Huntingtons Disease Markers by Modern Statistical Learning Methods	93.853	5U01NS082062-03		38,774	78,716
Nucleoytoplasmic Interactions and Dynamics in Emery-Dreifuss Muscular Dystrophy	93.853	2R56NS059352-06A1		0	75,798
The role of a Synuclein transcript variants in neuronal pathology and function	93.853	4R01NS082068-04		0	74,628
Validating a Novel Lipid Phosphatase Target in Alzheimer s Disease	93.853	5R01NS074536-05		0	74,619
Blood Flow and Cognition in Asymptomatic Carotid Artery Disease	93.853	4R01NS076277-05		12,326	73,816
Developing Optimal Dynamic Behavioral Intervention in Community-Based Studies	93.853	5R01NS072127-03		0	68,657
Summer Research Program for Science Teachers	93.853	5R25NS076444-04		0	68,647
Mechanisms of Central Synaptic Dysfunction in SMA	93.853	4R01NS078375-05		0	63,938
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	63,608
Prospective Study of Clinically Non-functioning Pituitary Adenomas	93.853	5R01NS070600-05		0	54,322
Neuropathology of severe malaria in Thailand: MRI studies	93.853	5R21NS055348-02		0	52,133
Mechanisms of Dopamine Neuron Degeneration	93.853	5P50NS038370-15		0	48,475
SMN Control of snRNP Biogenesis: Role in RNA Splicing and Motor Neuron Survival	93.853	5R01NS069601-05		0	47,946
Elucidating a molecular pathway for synaptic vesicle maintenance and degradation	93.853	4R01NS080967-04		0	47,843
The Role of Dendrites in Thalamocortical Transmission	93.853	5R01NS069679-05		0	47,473
Investigating V1 interneuron subtype diversity using embryonic stem cells	93.853	5F30NS092262-02		0	46,934
BK CHANNEL MODULATION BY BETA SUBUNITS	93.853	5R01NS054946-08		0	46,326

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The neural workings of self-initiated and quasi-automatic movements	93.853	5F32NS092350-02		0	45,434
How do discriminative touch receptors selectively innervate peripheral targets?	93.853	5F31NS094023-02		0	44,374
Pharmacologic Treatment of Human Mitochondrial DNA (mtDNA) Disease	93.853	5F30NS093798-02		0	44,248
The Role of Phosphor-RPS6 and Translational Regulation in Glioma	93.853	5F31NS089106-03		0	44,222
Finding components of Drosophila motor circuitry required for coordinated walking	93.853	5F31NS087905-03		0	43,119
Summer Program for Under-Represented Students	93.853	5R25NS076445-04		0	42,002
Functional dissection of a radial subdivision among hippocampal pyramidal cells	93.853	5F30NS090819-03		0	41,977
Regulation of motor neuron enhancers by the transcription factor Nkx2.2	93.853	5F31NS092246-02		0	40,920
Glioma induced alterations in neuronal transcription and translation	93.853	5R03NS090151-02		0	40,072
Sexually dimorphic regulation of neuronal identity in C.elegans	93.853	5R37NS039996-16		0	39,890
Dissection of neural circuitry underlying nociception in Drosophila larvae	93.853	5F31NS090909-03		0	39,840
Glioma induced alterations in neuronal transcription and translation	93.853	5R03NS090151-02		0	39,550
Cholinergic Regulation of Adult Neural Stem Cells	93.853	5F31NS089252-02		0	39,291
Study of brain Treg localization and function during CNS infection using an engineered encephalomyocarditis virus	93.853	5F31NS084776-03		0	38,726
The Role of NDE1 in the Pathogenesis of Microcephaly and Schizophrenia	93.853	5F30NS095577-02		0	38,518
Uncovering the Role of miRNA Genetic Variation in Neurological Disorders	93.853	5F31NS092362-02		0	36,602
Single-cell dissection of neural stem cell heterogeneity in vivo	93.853	5F32NS090736-03		0	35,886
Contribution of the secondary somatosensory thalamus to perception of somatosensory stimuli	93.853	5F32NS092357-02		0	35,625
Balancing Death and Survival Factors in PD: The Role of the Stress-Related Proteins RTP801 and ATF4	93.853	5K08NS070608-05		0	34,619
3 of 7 Epi4K: Sequencing, Biostatistics & Bioinformatics Core	93.853	5U01NS077303-06		0	33,969
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		19,858	31,452
Advanced Graduate Training Program in Theoretical Neuroscience	93.853	5T32NS064929-08		0	29,830
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-05		15,052	29,704
Advanced Graduate Training Program in Neurobiology and Behavior	93.853	5T32NS064928-07		0	29,288
Microenvironment in enteric neuron development	93.853	4R01NS015547-34		0	25,778
Exploring synaptic abnormalities that underlie hyperactivity in a stem-cell derived model of amyotrophic lateral sclerosis	93.853	1F31NS095571-01		0	25,280

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Lysosomal stress triggers exosome release and transfer of proteins	93.853	1R21NS093569-01A1		0	25,141
Role of p62 in Amyotrophic Lateral Sclerosis	93.853	5F31NS089131-02		0	25,106
Gene regulatory mechanisms that assign and maintain motor neuron terminal differentiation	93.853	5K99NS084988-02		0	24,946
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		17,864	21,935
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	20,370
Novel genetic determinants of the neuromuscular SMA phenotype	93.853	4R01NS057482-09		0	19,827
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	19,189
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-05		15,355	19,176
Motor neuron diversity: markers, regulatory mechanisms, and functional relevance.	93.853	5F32NS086285-02		0	18,775
Development and function of an adult locomotion circuit in Drosophila	93.853	5R01NS070644-05		0	18,522
RNA regulatory networks in motor neuron development and function	93.853	5R01NS089676-02		0	18,173
A novel spinal circuit involved in locomotion	93.853	5R21NS079981-02		0	16,726
1 of 7 Epi4K: Gene discovery in 4,000 epilepsy genomes - Administrative Core	93.853	5U01NS077274-06		0	16,216
Contribution of the secondary somatosensory thalamus to perception of somatosensory stimuli	93.853	5F32NS092357-02		0	15,756
Single-cell dissection of neural stem cell heterogeneity in vivo	93.853	5F32NS090736-03		0	14,574
Mechanisms of measles virus CNS adaptation	93.853	7R01NS091263-02		0	13,479
The role of the superficial cortical layers in whisker-based shape discrimination	93.853	1F32NS096819-01		0	12,288
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		10,601	11,466
Control of Skilled Forelimb Movements by Cerebellar Feedback Circuits	93.853	5K99NS088193-02		0	11,382
RNA Binding Proteins in Complex Neurological Disease	93.853	7R01NS091118-02		0	11,072
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	11,040
Neuroepidemiology Training Program	93.853	5T32NS007153-33		0	9,811
RCT: The Effects of a novel intervention to improve stroke symptom recognition	93.853	5R01NS067443-05		0	8,331
Mechanisms of Dopamine Neuron Degeneration	93.853	5P50NS038370-15		0	7,968
Summer Program for Under-Represented Students	93.853	4R25NS076445-05		0	6,480
Discovery of Novel Molecular Abnormalities Underlying Non-Lesional Focal Epilepsy	93.853	5R01NS089552-03		0	6,343

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Control of sexually dimorphic synaptic wiring	93.853	1F31NS096863-01		0	5,844
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-05		0	5,707
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	4,455
Functions of membrane deforming-proteins during neuronal development	93.853	7R01NS067557-06		0	4,398
Molecular physiology of voltage-gated Ca2+ channels	93.853	5R01NS053494-09		0	3,957
Development of Amodiaquine and Its Analogs as Reactivators of Organophosphate-inh	93.853	5R21NS080790-02		0	3,130
Dissection of neural circuitry underlying nociception in Drosophila larvae	93.853	5F31NS090909-03		0	3,086
Plasticity of bridge collaterals in Parkinsonian state and treatment	93.853	1R03NS096494-01		0	2,966
New York Columbia Collaborative SPOTRIAS	93.853	5P50NS049060-09		0	2,920
Clinical-Pathological Study of Cognitive Impairment in Essential Tremor	93.853	1R01NS086736-01A1		0	2,303
Finding components of Drosophila motor circuitry required for coordinated walking	93.853	5F31NS087905-03		0	2,200
Functional dissection of a radial subdivision among hippocampal pyramidal cells	93.853	5F30NS090819-03		0	1,874
Summer Program for Under Represented Students (SPURS)	93.853	4R25NS076445-05		0	1,867
Computational Analysis of High-grade Gliomas	93.853	5R01NS061776-05		0	1,758
Small molecule drugs for treatment of dry age-related macular degeneration	93.853	5U01NS74476-05		0	1,664
Function and development of a C. elegans GABAergic interneuron	93.853	5R01NS039996-14		0	1,369
Computational Analysis of High-grade Gliomas	93.853	5R01NS061776-05		0	1,284
Neurology Research Education and Mentorship Program	93.853	5R25NS070697-07		0	976
R25 Neurology Research Education and Mentorship Program	93.853	5R25NS070697-05		0	958
Alfy-mediated selective macroautophagy and the pathogenesis of Huntington s Disease	93.853	5F31NS086394-02		0	600
Genetic Analysis of Dopaminergic Neuron Specification in C.elegans	93.853	5R01NS050266-10		0	551
Role of p62 in Amyotrophic Lateral Sclerosis	93.853	5F31NS089131-02		0	263
In Vivo Quantification of Cerebellar GABA and NAA in Essential Tremor	93.853	5R01NS085136-02		0	119
Advanced Graduate Training Program in Theoretical Neuroscience	93.853	5T32NS064929-05		0	-40
Alfy-mediated selective macroautophagy and the pathogenesis of Huntington s Disease	93.853	5F31NS086394-02		0	-74
Advanced Graduate Training Program in Neurobiology and Behavior	93.853	5T32NS064928-05		0	-80

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Pathogenesis of Essential Tremor: Cerebellar Metabolism	93.853	5R01NS042859-09		0	-819
Development of Amodiaquine and Its Analogs as Reactivators of Organophosphate-inh	93.853	5R21NS080790-02		0	-1,440
Small molecule drugs for treatment of dry age-related macular degeneration	93.853	5U01NS74476-05		0	-1,664
The Role of White Matter Progenitors in Glioma Formation and Progression	93.853	5R01NS066955-05		0	-3,680
Genetic Epidemiology of Parkinson s Disease	93.853	2R56NS036630-10		0	-5,992
New York Columbia Collaborative SPOTRIAS	93.853	5P50NS049060-09		0	-7,061
RCT: The Effects of a novel intervention to improve stroke symptom recognition	93.853	5R01NS067443-05		0	-8,331
Columbia University Medical Center-Weill Cornell Medical Center NEXT Site	93.853	5U10NS077267-05		0	-17,819
Nucleoytoplasmic Interactions and Dynamics in Emery-Dreifuss Muscular Dystrophy	93.853	2R56NS059352-06A1		0	-21,584
NAMDC: Overall Research Plan	93.853	5U54NS078059-06		0	-45,325
Mechanisms of Central Synaptic Dysfunction in SMA	93.853	5R01NS078375-04		0	-124,662
Neuroepidemiology Training Program	93.853	5T32NS007153-30		0	-163,063
				\$2,901,299	\$32,599,062

Allergy, Immunology and Transplantation Research

Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		3,112,847	3,127,847
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		1,042,342	1,143,735
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	1,114,919
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		0	1,048,742
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		536,798	669,126
Tolerance to Vascularized Allografts in Miniswine	93.855	7R37AI031046-25		101,598	665,980
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	635,158
HIV and the Menopausal Transition: Effects on Musculoskeletal Health	93.855	5R01AI095089-05		315,369	596,304
Development of Lung T Cell Responses in Infant Respiratory Immunity	93.855	5R01AI100119-04		0	587,577
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		166,939	582,107
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	563,710
A Household Yeast Biosensor for cholera	93.855	5R01AI110794-02		0	543,066

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LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		102,759	531,563
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	495,247
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		177,092	489,097
Asymmetric Lymphocyte Division in the Immune Response	93.855	5R01AI076458-07		0	453,182
Defining P. Falciparum resistance to artemisinin-based combination therapies	93.855	5R01AI109023-03		111,949	428,640
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	420,713
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		408,092	412,746
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	398,159
Antagonism of Innate Immunity by Picornaviruses	93.855	5R01AI102597-04		0	378,638
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		357,604	372,604
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	365,955
Diversifying and Regenerating T Cell Function	93.855	5R01AI113365-03		0	364,774
Contribution of B cells to human cardiac allograft vasculopathy	93.855	5R01AI116814-02		0	362,520
Carbapenem-resistant bacterial colonization and infection in liver transplant	93.855	5R01AI116939-02		19,264	361,676
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		296,258	354,749
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	352,295
Understanding the Role of Meningeal Dendritic Cells in CNS Antiviral Immunity	93.855	5R01AI101251-05		0	346,917
Control of CD8= Effector T Cell Differentiation	93.855	5R01AI061699-11		0	340,940
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	336,902
Role of ncRNA Surveillance Complex	93.855	5R01AI099195-03		0	328,978
Microbial Discovery and Immunity in ME/CFS	93.855	1R56AI120724-01		41,080	320,687
Subproject for Institution # 10-3527	93.855	5R01AI093985-05		0	299,901
MRSA Activation of Human Keratinocyte Signaling	93.855	4R01AI103854-04		0	296,771
Integration of redox-balancing mechanisms in Pseudomonas aeruginosa biofilms	93.855	5R01AI103369-03		0	285,649
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		0	282,085
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	269,552

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
A Combination Intervention Package for Isoniazid Preventive Therapy in Ethiopia (NY)	93.855	5R01AI100044-03		0	260,740
Comprehensive genetic analysis of antibiotic persistence	93.855	5R01AI077562-07		0	258,676
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		233,784	248,784
Understanding the Role of NF-kB T-regulatory Cell Function	93.855	4R01AI068977-10		0	248,471
Advanced Rigidity-based Material for Enhanced Immunotherapy	93.855	5R01AI110593-02		0	234,663
Global HIV Implementation Science Research Training Grant	93.855	5T32AI114398-03		0	230,712
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	229,128
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		39,496	228,734
Spatial coordination of CD28 and TCR signaling	93.855	5R01AI088377-04		0	225,206
A Combination Intervention Package for Isoniazid Preventive Therapy in Ethiopia (NY)	93.855	5R01AI100044-03		0	218,724
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	218,322
miRNA-mediated regulation of LPS tolerance	93.855	5R21AI116082-02		0	216,550
Regulations of HIV-1 Gene Expression in Latency by YY1,RuvB2, and ZAP	93.855	5R01AI106629-03		0	205,208
Understanding the Role of NF-kB T-regulatory Cell Function	93.855	4R01AI068977-10		0	200,975
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	196,128
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	196,026
Structural basis of phosphoinositide biosynthesis in Mycobacterium	93.855	5R21AI119672-02		0	194,157
Osteoporosis in HIV Infected Postmenopausal Women	93.855	5R01AI065200-10		27,415	185,983
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	184,121
Self-assembling nanoparticles for intranasal delivery of influenza fusion inhibitors	93.855	1R01AI119762-01A1		0	181,927
Understanding the Role of Meningeal Dendritic Cells in CNS Antiviral Immunity	93.855	5R01AI101251-03		0	181,620
Overcoming Immunosenescence by Nanoparticle-Mediated Activation	93.855	5R01AI096305-05		0	180,819
Tolerance-inducing properties of human dendritic cell subsets in vivo	93.855	5R21AI117641-02		0	179,010
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	176,060
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	174,893
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		0	174,745

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Training in Pediatric Infectious Diseases	93.855	5T32AI007531-18		0	172,690
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		107,569	171,005
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-02		0	168,882
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	168,674
Engineering protease-resistant alpha-beta peptides	93.855	7R01AI114736-02		0	168,574
Columbia University Graduate Training Program in Microbiology and Immunology	93.855	5T32AI106711-03		0	167,294
Molecular basis for paramyxovirus entry	93.855	7R01AI031971-24		0	166,766
Role of CD47 in Xenograft Rejection by Macrophages	93.855	5R01AI064569-09		18,030	166,444
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		0	164,393
LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		0	161,841
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	159,383
Role of pfcr1 in Chloroquine Resistance P. falciparum	93.855	5R01AI050234-15		0	157,602
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		37,948	156,408
Biomarker for XDR-TB Treatment Response and Drug Resistance in HIV Endemic Area	93.855	5K23AI098479-05		0	143,134
Engineering and targeting novel antigen-specific tolerogenic interfaces	93.855	5R21AI110812-02		0	139,172
A Tolerance Approach to Xenotransplantation	93.855	7P01AI045897-15		0	137,195
Development of novel endosome-targeted Ebola virus entry inhibitors as antiviral agents	93.855	1R01AI121349-01A1		0	133,573
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	133,415
Columbia Integrated Training Program in Infectious Disease Research	93.855	5T32AI100852-03		0	132,637
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	127,346
The Human Innate B Cell Niche and Role in Efferyctosis	93.855	5R21AI110854-03		0	126,847
Pig to human thymic xenotransplantation	93.855	5R01AI084903-05		-404	121,588
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	115,891
Design of CNS-targeted peptide entry inhibitors for emerging henipaviruses	93.855	7R33AI101333-05		0	114,261
Preventing Childhood Tuberculosis in Lesotho (PREVENT Study)	93.855	5K01AI104351-03		0	108,297
Genetic characterization of the murine type I Interferon locus	93.855	5R21AI109458-02		0	103,360

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Dissection of Complex Multifactorial Interactions between Bacterial Species	93.855	1K99AI108787-01A1		0	99,011
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		98,420	98,420
LINK4HEALTH: A Combination Intervention Strategy for Linkage and Retention, Swaziland	93.855	5R01AI100059-03		0	97,828
Cellular receptor for enterovirus D68	93.855	1R21AI121944-01		0	95,345
Mother Infant Retention Across the Option B plus Cascade	93.855	5R21AI120690-02		0	94,961
Development of Lung T Cell Responses in Infant Respiratory Immunity	93.855	5R01AI100119-04		17,546	94,566
Control of CD8= Effector T Cell Differentiation	93.855	5R01AI061699-11		0	94,283
Study of Rodent HCV-GBV like Viruses	93.855	5R21AI107631-02		53,170	92,487
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	91,812
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		86,680	86,680
MECHANISMS OF S. AUREUS TRANSMISSION AND PERSISTENCE	93.855	5K08AI090013-05		0	85,697
DNase For Prevention Of Reproductive Tract Infections In Pregnancy	93.855	5R33AI098654-04		3,601	82,147
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	76,243
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	76,023
Intestinal Immune Response in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome	93.855	1R21AI121996-01		0	75,048
Antagonism of Innate Immunity by Picornaviruses	93.855	4R01AI102597-05		0	70,504
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	67,091
Carbapenem-resistant bacterial colonization and infection in liver transplant	93.855	5R01AI116939-02		0	63,412
Staphylococcus Aureus Exploitation of Autophagy Promotes Latent Infection	93.855	5R21AI105978-02		0	60,355
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	58,398
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	54,745
Gardnerella vaginalis: toxin production and pathogenesis	93.855	5R01AI092743-05		0	53,855
Elucidating the complex genetic and molecular basis of Plasmodium falciparum artemisinin resistance	93.855	5F32AI120578-02		0	53,780
Mother Infant Retention Across the Option B plus Cascade	93.855	5R21AI120690-02		0	51,016
Elucidating the molecular basis of piperaquine resistance and the role of altered hemoglobin metabolism in Plasmodium falciparum	93.855	1R01AI124678-01		0	48,212
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	47,046

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Risk Factors for Spread of Staphylococcus aureus in Prisons.	93.855	5R01AI082536-05		0	44,923
Transcription Factors that Specify Natural Killer Cell Fate and Function	93.855	5F30AI113963-03		0	44,248
Integration of redox-balancing mechanisms in Pseudomonas aeruginosa biofilms	93.855	5R01AI103369-03		0	43,462
Training in Pediatric Infectious Diseases	93.855	5T32AI007531-18		0	43,232
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	43,119
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	40,000
MRSA Activation of Human Keratinocyte Signaling	93.855	4R01AI103854-04		0	38,785
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	37,960
Integration of redox-balancing mechanisms in Pseudomonas aeruginosa biofilms	93.855	4R01AI103369-04		0	37,440
Role of CD47 in Xenograft Rejection by Macrophages	93.855	4R01AI064569-10		0	32,090
Role of ncRNA Surveillance Complex RNA Exosome in Class Switch Recombination and Somatic Hypermuta	93.855	4R01AI099195-05		0	30,529
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	29,666
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	27,848
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	26,201
Orphan nuclear receptors: new mediators of defense against pore-forming toxins	93.855	5R21AI111020-01		0	25,731
Global HIV Implementation Science Research Training Grant	93.855	5T32AI114398-03		0	25,725
Sample Sparing Chambers for Imaging of T cell Response and Function	93.855	5U24AI118669-02		0	23,445
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-12		0	22,479
DNase For Prevention Of Reproductive Tract Infections In Pregnancy	93.855	5R33AI098654-04		0	22,313
Promoting Engagement in the Drug Resistant TB/HIV Care Continuation in South Africa	93.855	1R01AI124413-01		13,730	21,968
Subproject for Institution # 10-3527	93.855	5R01AI093985-05		0	21,900
Dissecting the molecular basis of PfCRT-mediated antimalarial drug resistance	93.855	5 F30 AI114070-02		0	19,840
Dissecting the molecular basis of PfCRT-mediated antimalarial drug resistance	93.855	5 F30 AI114070-02		0	19,460
Center for Research in Diagnostics and Discovery - Administrative Core	93.855	5U19AI109761-03		0	18,170
THE ROLE OF XLF IN HEMATOPOIETIC STEM CELL MAINTENANCE AND FUNCTION	93.855	5R21AI103826-02		0	17,981
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	17,393

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A Household Yeast Biosensor for cholera	93.855	5R01AI110794-02		0	16,772
Asymmetric Lymphocyte Division in the Immune Response	93.855	2R56AI076458-06		0	15,834
Preventing Childhood Tuberculosis in Lesotho (PREVENT Study)	93.855	5K01AI104351-03		0	15,577
Enhance Prevention in Couples (EPIC)	93.855	5R01AI083038-04		0	14,662
Exploiting Fatty Acid Metabolism to Cure Malaria	93.855	5R01AI085584-05		0	14,251
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	12,146
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	8,834
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	7,655
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		0	5,494
Controllable Rigidity Surface for T Cell Mechanobiology	93.855	1R21AI119953-01A1		0	5,156
Contribution of B cells to human cardiac allograft vasculopathy	93.855	5R01AI116814-02		0	2,802
Northeast Biodefense Center - Admin Core & Subs	93.855	5U54AI057158-10		0	1,023
Tissue compartmentalization of human lymphocytes	93.855	4P01AI106697-04		0	560
Columbia Integrated Training Program in Infectious Disease Research	93.855	5T32AI100852-03		0	0
Columbia Partnership for Prevention and Control of HIV/AIDS Clinical Trials Unit (Columbia Partnership CTU)	93.855	5UM1AI069470-10		0	0
The Human Innate B Cell Niche and Role in Effercytosis	93.855	5R21AI110854-03		0	-109
Center for High-Throughput Minimally-Invasive Radiation Biodosimetry	93.855	5U19AI067773-10		-222	-222
Risk Factors for Spread of Staphylococcus aureus in Prisons.	93.855	5R01AI082536-05		0	-414
THE ROLE OF XLF IN HEMATOPOIETIC STEM CELL MAINTENANCE AND FUNCTION	93.855	5R21AI103826-02		0	-2,316
Characterization of Antibody-Dependent Cellular Cytotoxicity in HIV Infection	93.855	5F31AI098409-04		0	-2,750
DNase for Prevention of Reproductive Tract Infections in Pregnancy	93.855	5R21AI098654-02		-2,881	-2,881
Northeast Biodefense Center - Admin Core & Subs	93.855	5U54AI057158-10		-3,059	-3,059
Centers for Innovative Research to Control AIDS	93.855	5UM1AI069466-07		0	-22,790
Centers for Innovative Research to Control AIDS	93.855	5UM1AI069466-07		0	-45,105
Centers for Innovative Research to Control AIDS	93.855	5UM1AI069466-07		0	-54,927
				\$7,520,814	\$32,877,331

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Biomedical Research and Research Training					
Medical Scientist Training Program	93.859	5T32GM007367-40		0	1,357,337
Genetic analysis of nematode cell differentiation	93.859	5R01GM030997-33		0	887,450
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		626,254	813,948
TRPML1 channel physiology and pathophysiology	93.859	5R01GM085234-06		0	646,136
Drug Effect Discovery Through Data Mining and Integrative Chemical Biology	93.859	5R01GM107145-03		0	590,189
Mechanism of Spontaneous and DSB-induced Repair	93.859	2R01GM050237-23		0	545,118
Anomalous Diffraction Analysis of Biomolecular Structure	93.859	5R01GM107462-03		196,665	537,037
Babesiosis Emergence in the United States	93.859	5R01GM105246-05		19,209	482,166
Asymmetric Synthesis of Marcolide Antibiotics	93.859	5R01GM058133-15		0	468,753
Structural biology of pre-mRNA 3'-end processing	93.859	5R01GM077175-08		0	463,781
Development and Dissemination of Operational Real-Time Respiratory Virus Forecast	93.859	5U01GM110748-03		0	462,220
Training in Cellular, Molecular and Biomedical Studies	93.859	5T32GM008224-29		0	455,463
Structural Analysis of Macromolecular Assemblies	93.859	5R01GM029169-33		0	443,014
Mechanism of Action of Dynactin	93.859	5R01GM102347-04		58,415	440,084
Structure and function of 5' to 3' exonucleases	93.859	2R01GM090059-05		91,035	437,642
Computational Annotation of Orphan Metabolic Activities	93.859	5R01GM079759-06		60,000	428,037
Somatic stem cells in the Drosophila ovary	93.859	5R01GM079351-07		0	423,953
Control of Transcription Termination in E. Coli	93.859	5R01GM037219-28		0	412,357
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-16		0	402,788
Initiative for Maximizing Student Diversity (IMSD) (Abraido-Lanza/Fuller)	93.859	5R25GM062454-12		0	402,696
Quantitative studies of influenza evolution	93.859	5R01GM109018-03		27,884	388,848
Mechanism of Heterochromatin Assembly	93.859	5R01GM085145-08		0	382,196
Mechanisms of alternative splicing of pre-mRNA	93.859	5R01GM048259-29		0	374,932
Elucidating the Mechanisms of DNA Recombination	93.859	5R01GM074739-09		0	374,775
Formin mDia Functions in Mitosis	93.859	5R01GM089768-05		0	370,562

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Molecular Genetics of Segment Identity	93.859	5R01GM054510-23		0	365,023
Predoctoral Training Grant in Genetics and Development	93.859	5T32GM007088-41		0	364,908
Mitochondrial Motility and Inheritance	93.859	5R01GM045735-18		0	364,627
Mechanisms of homologous recombination in yeast	93.859	5R01GM041784-28		0	360,899
Tropomyosin and tyrosine kinases in mechanics of cancer	93.859	5R01GM113022-02		0	346,590
Control of Drosophilia wing growth by morphogen	93.859	5R01GM113000-03		0	341,569
Regulation of mRNA processing: Mechanisms and Consequences	93.859	1R35GM118136-01		0	339,426
NMR Studies of Structure and Dynamic of Proteins	93.859	5R01GM050291-22		0	327,577
Proximo-Distal Patterning in the Drosophila Appendages	93.859	5R01GM058575-18		0	320,576
Experimentally Guided Ribosomal RNA Modeling	93.859	5R01GM055440-19		0	317,946
Training Program in Molecular Biophysics	93.859	5T32GM008281-28		0	317,515
Protein Motions in Recognition, Regulation and catalysis	93.859	5R01GM059273-17		0	313,348
The population genetics of disease risk and other quantitative traits	93.859	5R01GM115889-02		0	311,522
Structural and Functional Studies of Potassium Channels by Solid State NMR	93.859	5R01GM088724-07		0	302,873
Recombination Rate Variation and Evolution in Primates	93.859	5R01GM083098-08		50,126	302,018
Lipid biosynthesis and modification by integral-membrane enzymes	93.859	5R01GM111980-02		45,949	298,853
Carbon monoxide exposure and anesthesia-induced neurotoxicity	93.859	5R01GM103842-05		0	295,326
Regulation of Protein Synthesis in Bacteria by Ser/Thr Phosphorylation	93.859	5R01GM114213-02		0	292,653
Studies of Riboswitch-Mediated Transcriptional Control Using Single-Molecule Field-Effect Transistors	93.859	5R01GM107417-03		0	292,393
Break-induced replication and genome rearrangements	93.859	5R01GM094386-07		0	284,277
Function of the Bromodomain Protein Brdt in Spermatogenesis	93.859	5R01GM081767-06		0	283,315
Mechanisms of cell competition that regulate growth during development	93.859	5R01GM078464-10		0	270,226
Molecular Basis of Cadherin Mediated Cell Adhesion	93.859	5R01GM062270-13		0	266,156
Regulation of RNA processing and transcription by endogenous RNAi	93.859	5R01GM107056-02		0	265,542
Mechanism of Notch activation by Epsin-dependent ligand endocytosis in Drosophila	93.859	5R01GM109183-03		0	251,105
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	250,470

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Studies of Riboswitch-Mediated Transcriptional Control Using Single-Molecule Field-Effect Transistors	93.859	5R01GM107417-03		0	250,389
The structural basis of cis and trans protocadherin interactions	93.859	5R01GM107571-03		0	249,852
Small G-protein Regulation of Calcium Channels	93.859	5R01GM107585-03		0	239,087
Anesthesiology Research Training	93.859	4T32GM008464-24		0	231,673
Genetics of the formation of repair & recombination foci	93.859	5R01GM067055-12		0	230,264
Influenza Outbreak Prediction: Applying Data Assimilation Methodology to Make Skillful Forecast of an Inherently Chaotic Nonlinear System	93.859	5R01GM100467-05		32,560	228,446
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	219,863
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	219,373
Nanomechanics of bacterial adhesion	93.859	5R01GM116122-16		0	215,991
Modular assembly of cytochrome oxidase	93.859	5R01GM111864-03		0	208,364
Computer Studies of Protein Structure and Function	93.859	4R01GM030518-35		0	199,776
Continued development and maintenance of the 3DNA suite of programs	93.859	5R01GM096889-05		12,963	194,426
CysZ Proteins - A Family of Sulfate Transporters with Remarkable Architecture	93.859	4R01GM098617-05		1,754	194,366
Mechanisms of Renal Protection with Volatile Anesthetics	93.859	5R01GM067081-12		0	194,317
New modes and mechanisms of negative regulation of LIN-12/Notch in C. elegans	93.859	5R01GM114140-02		0	192,575
Regulation of SNF1/AMPK Pathway in Yeast	93.859	5R01GM034095-29		0	190,379
The structural basis of cis and trans protocadherin interactions	93.859	5R01GM107571-03		0	190,182
The structural dynamics of translation initiation	93.859	5R01GM084288-07		0	186,738
Visualizing the Dynamics of Chromatin and Chromatin Remodeling Proteins	93.859	4R01GM082848-08		0	186,424
Analyses of 120 nm Local Contractions Linked to Rigidity Sensing	93.859	5R01GM100282-04		0	177,947
Training Program in Computational Biology	93.859	5T32GM082797-08		0	176,070
Circadian regulation of phagocytosis	93.859	3R01GM105775-02S1		0	167,855
Regulation of Microtubule Dynamics	93.859	1R01GM115185-01		16,840	166,968
Structural Studies of Human Extracellular Calcium-Sensing Receptor	93.859	5R01GM112973-02		0	166,600
Visualizing the Dynamics of Chromatin and Chromatin Remodeling Proteins	93.859	5R01GM082848-08		0	165,731
Computer Studies of Protein Structure and Function	93.859	5R01GM030518-35		0	164,279

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Role of Nucleo-cytoskeleton Interactions in Cell Migration	93.859	2R01GM099481-05		0	163,245
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	160,577
Post-selection inference and trajectory analysis	93.859	5R01GM095722-06		0	159,756
Enantioselective Catalysis with Cyclopropenimines	93.859	4R01GM102611-04		0	146,365
Spatial, temporal and environmental regulation of early gonadogenesis in C. elegans	93.859	5R01GM115718-02		0	138,968
Uncovering the Structure of Evolution using the Topology of Genomic Data with Applications to HIV	93.859	5R01GM117591-03		0	135,941
Spatial, temporal and environmental regulation of early gonadogenesis in C. elegans	93.859	5R01GM115718-02		0	129,746
Fluorescence methods for HT validation and production of protein complexes	93.859	5R01GM097089-04		0	126,078
Extended Methods and Software Development for Health NLP	93.859	1R01GM114355-01A1		62,436	121,459
Mechanism of Spontaneous and DSB-induced Repair	93.859	5R37GM050237-22		0	112,685
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		125,096	109,778
Initiative for Maximizing Student Diversity (IMSD) (Abraido-Lanza/Fuller)	93.859	4R25GM062454-13		0	108,840
An integrative genomic strategy to infer global RNA regulatory networks	93.859	5R00GM095713-05		0	108,693
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-14		0	107,412
Assembly and Placement of the Cell Division Ring	93.859	2R01GM056836-18		0	105,160
Structural Studies of Metabotropic GABA Receptors	93.859	5R01GM088454-05		0	104,396
The Impact Of Prolonged Anesthetic Exposure On Tau Pathology And Function	93.859	5R01GM101698-04		0	100,079
Modeling Hydrophobic and Hydrophilic Interactions	93.859	5R01GM043340-23		0	98,896
RNA Biology in Oxytricha: a Complex Unicellular Model	93.859	5R01GM111933-02		0	97,013
Circadian regulation of phagocytosis	93.859	4R01GM105775-04		0	92,901
ER export and the quality control checkpoint during membrane protein biogenesis	93.859	5R01GM078186-09		45,629	83,652
Mitochondrial Motility and Inheritance	93.859	4R01GM045735-19		0	81,473
Modeling Contractile Ring Constriction in Fission Yeast	93.859	2R01GM086731-06A1		0	78,758
Modeling Contractile Ring Constriction in Fission Yeast	93.859	5R01GM086731-05		0	70,610
Point Impact and Sparsity in Functional Data Analysis	93.859	5R01GM095722-04		0	70,505
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	69,966

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Proximo-Distal Patterning in the Drosophila Appendages	93.859	5R01GM058575-18		0	67,429
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		48,146	65,994
The Impact Of Surgery-Induced Neuroinflammation On Tau Pathology And Function	93.859	2R01GM101698-05		0	63,025
Role of Nucleo-cytoskeleton Interactions in Cell Migration	93.859	5R01GM099481-04		0	62,681
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	62,145
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	62,113
Mitochondrial Motility and Inheritance	93.859	5R01GM045735-18		0	59,680
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	58,893
Molecular mechanisms of cargo capture into ER-derived transport vesicles	93.859	5R01GM085089-07		0	57,524
Enantioselective Catalysis with Cyclopropenimines	93.859	5R01GM102611-03		0	56,457
Hedgehog signaling in Drosophila	93.859	5R01GM041815-25		0	55,577
Quantitative studies of influenza evolution	93.859	5R01GM109018-03		0	51,888
Stochastic Events Regulating a Notch-Mediated Cell Fate Decision in Caenorhabditis elegans	93.859	5F32GM113368-02		0	49,736
Analyses of 120 nm Local Contractions Linked to Rigidity Sensing	93.859	5R01GM100282-04		0	47,309
Molecular mechanisms of cargo capture into ER-derived transport vesicles	93.859	4R01GM085089-08		0	47,128
Cell polarity and cytokinesis	93.859	1R01GM117407-01		0	45,795
A role for Hox-dependent chromatin architecture in defining cell-fate	93.859	5F32GM112326-03		0	43,638
Strategies for Heavy Metal Detoxification	93.859	5R01GM046502-17		0	43,403
Role of regulated mRNA degradation in the control of axonal mRNA localization and translation.	93.859	5F31GM116617-02		0	43,120
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	39,941
Dating ancient samples using the molecular clocks of mutation and recombination	93.859	5F32GM115006-02		0	39,755
Structural and functional studies of mRNA processing, stability and quality control	93.859	1R35GM118093-01		0	38,137
Evolutionary paths toward intrinsic antibiotic resistance	93.859	4F31GM108419-04		0	37,100
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	35,305
DNA ASSEMBLY VIA REITERATIVE RECOMBINATION	93.859	5R01GM096064-04		0	34,289
Mechanisms of Genome Integrity	93.859	1R35GM118026-01		0	34,136

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National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	30,226
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	29,546
PTEN/DAF-18 and FOXO/DAF-16 function in blast cell	93.859	1F31GM116508-01A1		0	26,734
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	26,437
Molecular mechanism of nucleobase/vitamin C transporters	93.859	1R01GM119396-01		0	25,600
Structure and function of 5' to 3' exonucleases	93.859	5R01GM090059-04		22,611	25,089
Structural Analysis of Macromolecular Assemblies	93.859	2R01GM029169-34		0	24,471
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	24,403
Mechanistic basis for amino acid discrimination by the translational machinery GON	93.859	5R01GM090126-04		0	23,755
Training Program in Molecular Biophysics	93.859	5T32GM008281-28		0	19,180
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	18,314
Anesthesiology Research Training	93.859	4T32GM008464-24		0	17,319
Transcriptional regulation by protein sumoylation	93.859	5R01GM097174-04		0	15,169
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	14,400
THERAPEUTIC TARGETING OF THE GABAA CHANNEL ON AIRWAY SMOOTH MUSCLE	93.859	5K08GM093137-05		0	14,120
Dating ancient samples using the molecular clocks of mutation and recombination	93.859	5F32GM115006-02		0	13,845
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	13,723
Assembly and Placement of the Cell Division Ring	93.859	5R01GM056836-17		0	12,950
CysZ Proteins - A Family of Sulfate Transporters with Remarkable Architecture	93.859	4R01GM098617-05		0	12,479
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	12,114
The structural dynamics of translation elongation and its regulation	93.859	1R01GM119386-01		0	10,456
Protein Motions in Recognition, Regulation and Catalysis	93.859	5R01GM059273-15		0	9,971
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03		0	9,962
Mitochondrial Motility and Inheritance	93.859	4R01GM045735-19		0	9,951
The structural basis of cis and trans protocadherin interactions	93.859	4R01GM107571-04		0	8,860
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10		0	8,802

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				R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Total Expenditures</u>
Cellular and molecular foundations of biomedical science	93.859	5T32GM008798-16	0	8,474
The structural basis of cis and trans protocadherin interactions	93.859	4R01GM107571-04	0	7,326
Medical Genetics Training Program	93.859	5T32GM082771-05	0	7,304
Developmental Control of Gene Expression and Nuclear Architecture by Cohesin	93.859	7F32GM108474-02	0	7,127
Training Program in Computational Biology	93.859	5T32GM082797-08	0	6,186
A role for Hox-dependent chromatin architecture in defining cell-fate	93.859	5F32GM112326-03	0	4,408
Development and Dissemination of Operational Real-Time Respiratory Virus Forecast	93.859	5U01GM110748-03	0	3,600
Evolutionary paths toward intrinsic antibiotic resistance	93.859	4F31GM108419-04	0	2,200
Fluorescence methods for HT validation and production of protein complexes	93.859	5R01GM097089-04	0	2,002
Interpreting and Deploying Genomic Information During Animal Development	93.859	1R35GM118336-01	0	1,900
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10	0	1,426
The Role of Notch in Behavioral Plasticity	93.859	5R01GM095797-04	0	1,093
National Center: Multiscale Analysis of Genomic and Cellular Networks (MAGNet)	93.859	5U54CA121852-10	0	736
CysZ Proteins - A Family of Sulfate Transporters with Remarkable Architecture	93.859	4R01GM098617-05	0	0
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-12	0	-22
Mechanisms of cell competition that regulate growth during development	93.859	5R01GM078464-08	0	-67
Mechanistics basis for amino acid discrimination by the translational machinery GON	93.859	5R01GM090126-04	0	-194
Training in Cellular, Molecular and Biomedical Studies	93.859	5T32GM008224-29	0	-253
mRNA synthesis in animal cells - 3' end formation	93.859	3R01GM028983-33S2	0	-287
Mechanisms of Anesthetic Effects on Tachykinin Induced Airway Tone	93.859	5R01GM065281-12	0	-646
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03	0	-661
Exon recognition during constitutive pre-mRNA splicing	93.859	5R01GM072740-08	0	-1,208
Experimentally Guided Ribosomal RNA Modeling	93.859	5R01GM055440-17	0	-2,003
DNA ASSEMBLY VIA REITERATIVE RECOMBINATION	93.859	5R01GM096064-04	0	-2,853
Training in Cellular, Molecular and Biomedical Studies	93.859	5T32GM008224-29	0	-6,400
Microtubule networks and Virus Trafficking	93.859	5P01GM105536-03	0	-40,519
			\$1,543,572	\$30,887,845

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Child Health and Human Development Extramural Research					
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-03		735,640	970,857
Single cell mapping of development trajectories underlying health and disease	93.865	5DP1HD084071-03		0	746,400
PRENATAL CYTOGENETIC DIAGNOSIS BY ARRAY-BASED COPY NUMBER ANALYSES: Follow-up	93.865	4U01HD055651-10		365,386	736,340
Predictors of High-Risk Behavior among Youth (MARTINS/BLANCO/CANINO/DUARTE)	93.865	5R01HD060072-08		381,061	634,851
Host epigenetic and mitochondrial function in HIV-infected children	93.865	5R01HD073952-04		372,570	630,928
Bridges to the Future: Economic Empowerment for AIDS-Orphaned Children in Uganda	93.865	5R01HD070727-05		177,818	612,263
Prenatal Alcohol in Sudden Infant Death Syndrome (SIDS) and Stillbirth (PASS) Network	93.865	5U01HD055155-10		195,953	591,832
Neonatal and Pediatric Platelet Function and Pharmacology	93.865	5R01HD081281-02		148,627	574,052
Strategies to Optimize ART Services for Maternal & Child Health: the MCH-ART Study (Abrams/Myer)	93.865	5R01HD074558-03		426,081	537,596
Determinants of Leukocyte Telomere Length at Birth (Susser/Factor-Litvak/Aviv)	93.865	5R01HD071180-05		207,793	533,813
Bone Health in Perinatally HIV-infected South African Children on Antiretrovirals	93.865	5R01HD073977-04		189,198	517,578
Adolescent and Parental Attitudes About STI Prevention Trial Participation	93.865	5R01HD067287-05		150,313	516,778
Treatment Options for Protease Inhibitor Exposed Children	93.865	5R01HD061255-05		86,400	486,801
Columbia University/Aga Khan University Global Network Research Unit	93.865	5U10HD078438-03		363,237	462,882
Evaluating a Youth focused economic empowerment approach to HIV Treatment	93.865	4R01HD074949-04		190,969	418,229
Neurobiology and Behavior Research Training Grant	93.865	4T32HD007430-19		0	417,572
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		37,299	342,912
Prevention and Planning Linkages (SANTELLI)	93.865	4R01HD072695-05		6,426	342,506
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		20,600	335,658
Columbia-Vietnam Social Science Training and Research Partnership: STAR II (Hirsch/Parker/Van)	93.865	5R24HD056691-08		165,670	334,364
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		72,504	322,253
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	283,003
PRENATAL CYTOGENETIC DIAGNOSIS BY ARRAY-BASED COPY NUMBER ANALYSES: Follow-up	93.865	4U01HD055651-10		261,092	271,278
Evaluating a Youth focused Economic Empowerment Approach to HIV Treatment	93.865	5R01HD074949-03		0	257,720
Maternal Fetal Medicine Unit Network at CUMC	93.865	5U10HD040485-16		0	245,951

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Role of Cyclin As in mammalian gametogenesis	93.865	4R01HD034915-17		0	233,848
Role of T-box Genes in Mouse Development	93.865	5R37HD033082-19		0	215,603
Columbia Population Research Center	93.865	5P2CHD058486-08		0	212,519
An Expanded Dataset to Study Psychosocial Influences on Health Disparities	93.865	5R21HD075664-02		45,019	210,081
Mechanisms underlying loss of neural stem cell competence	93.865	5R00HD072035-05		0	206,216
Retinoid Receptor Antagonists as Novel Male Contraceptives	93.865	5U01HD060479-08		0	202,863
Role of T-box genes in mouse development	93.865	4R37HD033082-20		0	200,630
The Development of Emotion Regulation Mechanisms Impacting Health	93.865	5R01HD069178-05		5,361	196,882
A Longitudinal Study of Loss of Imprinting in First Trimester CVS Samples Compared to Placental at Birth	93.865	7R21HD068873-03		116,188	170,519
Prevention of Preterm Birth in high Risk Nulliparous Patients	93.865	5U10HD063047-04		163,514	164,788
Early Neonatal treatment and immune quiescence	93.865	5U01HD080441-03		149,319	149,401
Mentored Clinical Scientist Research Career Development Award	93.865	5K08HD082287-02		0	119,157
The Nucleocytoskeleton in Progeria and Aging	93.865	5R01HD070713-03		0	110,982
Migration and Child Health and Development: Effects and Mechanisms	93.865	4K01HD073318-05		0	106,104
Decisions around chronic ventilation for children with life-limiting conditions	93.865	5K23HD082361-01		0	105,661
Linking Dynamic Environments with Childhood Obesity	93.865	5K01HD067390-05		0	101,366
Prenatal Alcohol in Sudden Infant Death Syndrome (SIDS) and Stillbirth (PASS) Network	93.865	5U01HD055155-10		58,612	92,887
GSH Training Grant	93.865	5T32HD049339-09		0	91,101
Motor Proteins in Brain Development	93.865	4R01HD040182-16		0	90,942
The Nucleocytoskeleton in Progeria and Aging	93.865	5R01HD070713-03		0	88,836
SES & Allostatic Load: Pregnancy Outcomes and Maternal Neurobehavior	93.865	5K99HD079668-02		0	83,304
Retinoid Receptor Antagonists as Novel Male Contraceptives	93.865	5U01HD060479-08		0	81,989
Role of Cyclin A s in mammalian gametogenesis	93.865	4R01HD034915-17		0	81,445
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	76,678
Strategies to Optimize ART Services for Maternal & Child Health: the MCH-ART Study (Abrams/Myer)	93.865	5R01HD074558-03		68,662	76,070
Columbia University/Aga Khan University Global Network Research Unit	93.865	5U10HD078438-03		74,066	74,066

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Fragile Families Summer Data Workshops Series 2013 to 2017	93.865	4R25HD074544-04		0	62,758
Maternal-Fetal Medicine Units (MFMU) Network	93.865	2UG1HD040485-17		0	55,938
Mitochondrial Encephalomyopathies and Mental Retardation	93.865	5P01HD032062-20		39,344	55,100
Bone Health in Perinatally HIV-infected South African Children on Antiretrovirals	93.865	5R01HD073977-04		0	54,089
Determinants of Leukocyte Telomere Length at Birth (Susser/Factor-Litvak/Aviv)	93.865	4R01HD071180-05		0	51,298
Unemployment, the Great Recession, Fragile Families and Child Development	93.865	5R01HD066054-03		8,455	48,080
Determinants of Leukocyte Telomere Length at Birth (Susser/Factor-Litvak/Aviv)	93.865	5R01HD071180-05		0	47,251
The development and regualtion of moral emotions	93.865	5F32HD081960-03		0	46,759
Mother and Infant Retention for Health (MIR4Health) - NY	93.865	5R01HD075163-02		0	41,361
Neurobiology and Behavior Research Training Grant	93.865	4T32HD007430-19		0	41,256
Calcium activated chloride channel modulation of myometrial excitability	93.865	1R01HD082251-01A1		0	38,391
Bacterial Vaginosis: Vitamin D Links Mucosal Immunity and Patient Risk	93.865	5K23HD065844-05		0	36,841
Fragile Families Summer Data Workshops Series 2013 to 2017	93.865	4R25HD074544-04		0	35,971
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	33,577
Columbia Population Research Center	93.865	5P2CHD058486-08		0	32,385
Motor Proteins in Brain Development	93.865	5R01HD040182-15		0	29,425
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	20,877
Columbia University/Aga Khan University Global Network Research Unit	93.865	4U10HD078438-04		0	20,683
Determinants of Leukocyte Telomere Length at Birth (Susser/Factor-Litvak/Aviv)	93.865	4R01HD071180-05		0	19,756
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	19,145
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	14,865
Development of an Interactive Feedback System to Improve Neonatal Resuscitation	93.865	5R21HD072878-03		0	13,478
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	10,731
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	10,685
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	10,634
Mother and Infant Retention for Health (MIR4Health) - NY	93.865	5R01HD075163-02		0	8,601

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Columbia Population Research Center	93.865	5P2CHD058486-08		0	7,920
The development and regualtion of moral emotions	93.865	5F32HD081960-03		0	5,113
Columbia Population Research Center	93.865	5P2CHD058486-08		0	4,895
PRENATAL CYTOGENETIC DIAGNOSIS BY ARRAY-BASED COPY NUMBER ANALYSES: Follow-up	93.865	4U01HD055651-10		0	4,827
Molecular Pathogenesis and Treatment of MNGIE	93.865	5R01HD056103-05		0	4,472
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	3,525
Single cell mapping of development trajectories underlying health and disease	93.865	5DP1HD084071-03		0	3,206
Mother and Infant Retention for Health (MIR4Health) - NY	93.865	5R01HD075163-02		0	2,400
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	2,171
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	2,029
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	1,947
Investigating the Pathogenesis of CoQ10 Deficiencies	93.865	5K23HD065871-05		0	1,032
Mitochondrial Encephalomyopathies: Approaches to Treatment	93.865	5P01HD080642-03		0	83
Mitochondrial Encephalomyopathies and Mental Retardation	93.865	5P01HD032062-20		0	12
Prenatal Alcohol in Sudden Infant Death Syndrome (SIDS) and Stillbirth (PASS) Network	93.865	5U01HD055155-10		0	0
GSH Training Grant	93.865	5T32HD049339-09		0	-1
A Lifecourse Approach to Emerging Health Disparities in a US Birth Cohort (Link/Cohn)	93.865	5R01HD058515-05		0	-138
Osteocalcin: the hormonal link between bone and reproduction	93.865	5R01HD065439-20		0	-505
Neurobiology and Behavior Research Training Grant	93.865	4T32HD007430-19		0	-5,400
Mitochondrial Encephalomyopathies and Mental Retardation	93.865	5P01HD032062-20		0	-102,647
				\$5,283,177	\$16,463,231

Aging Research

Exploring Cognitive Aging Using Reference Ability Neural Networks	93.866	5R01AG038465-05		0	941,284
Long Life Family Study: Columbia University	93.866	5U01AG023749-11		0	868,490
Epidemiology of Familial Late-Onset Alzheimer s Disease	93.866	5R01AG041797-04		333,160	786,119
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	774,861

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Predictors of Severity in Alzheimer s Disease	93.866	5R01AG007370-25		193,145	670,862
Entorhinal-hippocampal circuit dysfunction in AD mice	93.866	5R01AG050425-02		0	662,020
Imaging of Cognition, Learning and Memory in Aging	93.866	5R01AG026158-10		0	639,945
Exercise, aging, and cognition: Effect and mechanisms	93.866	5R01AG033546-05		0	624,022
Olfactory deficits and donepezil treatment in cognitively impaired elderly	93.866	5R01AG041795-03		0	597,617
Communities Designed to Support Cardiovascular Health for Older Adults	93.866	5R01AG049970-02		58,940	544,969
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-02		0	530,047
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	511,638
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	511,404
Hematopoietic Stems Cells and Longevity	93.866	5R01AG029626-09		62,757	430,807
Gene-Environment Interaction in Cognition in Venezuelan Families	93.866	5R01AG036469-05		66,110	429,462
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-02		78,566	429,049
Characterization of a receptor mediating adiponectin functions on bone	93.866	1R56AG049681-01		0	414,082
Human Induced Neuronal Stem Cell Models of Familial Alzheimer s Disease	93.866	5R01AG042317-04		0	407,686
Prenatal Under Nutrition and Mortality Through Age 63 Project	93.866	5R01AG028593-07		106,571	373,241
Genetic Studies of Alzheimer s Disease in Caribbean Hispanics	93.866	2RF1AG015473-16A1		0	358,955
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	335,126
Hippocampal Neurogenesis, Pattern separation & age- Related cognitive impairments.	93.866	5R01AG043688-03		188,087	312,460
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	289,384
Epidemiology of Biomarkers of Risk and Progression in LOAD	93.866	5R01AG037212-05		91	274,170
Diabetes Status and Brain Amyloid in Middle Aged Hispanics	93.866	5R01AG050440-02		50,220	265,203
Can Ventricular Assist Devices Reverse the Frailty Phenotype	93.866	5R21AG046703-02		118,493	230,280
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	229,566
Interdisciplinary Research to Understand the Interplay of Diabetes, Cerebrovascular disease and Alzheimer s disease	93.866	1RF1AG051556-01		122,639	225,817
Dietary Factors and Neuroimaging Markers	93.866	5R00AG042483-04		0	221,119
Aging of tissue-specific clocks in the immune system of Drosophila	93.866	5R01AG045842-03		0	217,795

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Metabolite profiling to identify AD-relevant pathways affected by apoe variants	93.866	5R21AG048408-02		65,631	212,639
Assessment of ultrasound-facilitated neurotherapeutics	93.866	5R01AG038961-05		0	201,837
The role of a novel atypical monoamine transporter in Alzheimer s disease	93.866	5K01AG047954-03		0	199,610
Extracellular tau oligomers and Alzheimer disease	93.866	5R01AG049402-02		0	197,623
Understanding cognitive mechanisms of emotion regulation in aging	93.866	5R01AG043463-03		0	186,207
Exercise, Age-Related Memory Decline, and Hippocampal Function	93.866	5R01AG035015-05		0	176,169
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	168,434
A systems approach to DNA methylation, gene expression, and cognitive dysfunction in Alzheimer s disease	93.866	5K08AG049938-02		0	162,137
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		35,962	159,968
Exercise, aging, and cognition: Effect and mechanisms	93.866	5R01AG033546-05		0	158,506
Exercise, Age-Related Memory Decline, and Hippocampal Function	93.866	5R01AG035015-05		0	158,051
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	146,923
Frailty, Palliative Care Needs, and Outcomes in Older Survivors of Critical Illness	93.866	5K23AG045560-03		0	136,696
Prenatally Induced DNA Methylation Profiles and Disease Risk at Age 60	93.866	5R01AG042190-03		131,134	130,519
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	130,137
Psychosocial Protective factors in cognitive and brain aging	93.866	5K99AG047963-02		0	130,060
Midcareer Mentoring Award for Patient Oriented Research in Geriatric Cardiology	93.866	5K24AG036778-07		0	120,789
fMRI and Mouse Models of Alzheimer s Disease	93.866	5R01AG025161-09		0	119,470
Epidemiology of Familial Late-Onset Alzheimer s Disease	93.866	4R01AG041797-05		0	119,231
Epidemiology of Biomarkers of Risk and Progression in LOAD	93.866	5R01AG037212-05		0	119,065
Endoplasmic Reticulum Mitochondrial membranes in Alzheimer s Disease	93.866	5K01AG045335-02		0	117,968
Analyzing age-related changes of brain activation in subjects native space	93.866	5K01AG044467-03		0	117,120
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	116,175
DASH-SRD Post Acute Decompensated Heart Failure Hospitalization	93.866	5R21AG047939-02		66,616	108,756
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	102,543
Determinants of Critical Care Intensity for Hospitalized Older Adults: the Effect of Hospital-based Palliative Care Services	93.866	5K08AG051184-02		0	98,644

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The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	93,404
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	90,826
Relation of estrogen pathway genes to cognitive decline in elderly women and men	93.866	5K23AG041214-02		0	87,521
Genetic Epidemiology of Alzheimers Disease in African Americans	93.866	5R01AG028786-05		0	86,000
Allele-specific Mapping in Alzheimer s Disease	93.866	5R01AG035020-05		42,231	84,788
Neuropsychology and Cognition in Aging	93.866	5T32AG000261-15		0	82,387
White matter hyperintensities in aging and dementia	93.866	5R01AG034189-05		0	78,666
Immediate-early intra-axonal signaling in neurodegeneration	93.866	5R36AG050696-02		0	77,882
Contribution of Organ Size to Adaptive Thermogenesis during Caloric Restriction	93.866	7R01AG045761-03		0	70,256
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-02		0	69,232
Long Life Family Study: Columbia University	93.866	5U01AG023749-11		0	60,660
Understanding cognitive mechanisms of emotion regulation in aging	93.866	5R01AG043463-03		0	60,658
Low Magnitude Mechanical Stimulation to Increase Muscle Strength Among Frail Adults	93.866	5K23AG040168-04		0	57,179
Hematopoietic Stems Cells and Longevity	93.866	4R01AG029626-10		0	56,021
Biomarkers of Alzheimer s Disease in Adults with Down Syndrome	93.866	5U01AG051412-02		0	55,097
Imaging of Cognition, Learning and Memory in Aging	93.866	5R01AG026158-10		0	54,514
Metabolomic/lipidomic analysis of apoE isoform effects in AD-linked brain regions	93.866	5F32AG047797-02		0	54,450
Long Life Family Study: Columbia University	93.866	5U01AG023749-11		0	52,469
Use of intensive care services for elderly patients undergoing high-risk surgical procedures	93.866	5K08AG038477-05		0	52,211
Columbia University Science of Behavior Change Resource and Coordinating Center	93.866	5U24AG052175-02		0	52,076
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	49,917
Mechanisms underlying selective motor pool vulnerability in mouse and human SMA	93.866	5F30AG044989-03		0	48,925
A cellular basis for age-related impaired tactile acuity	93.866	5R21AG044633-02		0	48,853
Metabolomic/lipidomic analysis of apoE isoform effects in AD-linked brain regions	93.866	5F32AG047797-02		0	48,496
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	47,595
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	46,468

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The Brief Research in Aging and Interdisciplinary Neurosciences	93.866	4T35AG044303-04		0	45,976
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	45,625
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	42,913
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	42,482
APP ubiquitination and implications for AB generation	93.866	5F30AG047748-03		0	42,338
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	39,173
A study of ZCCHC17 regulation of synaptic genes in Alzheimers disease	93.866	5R03AG048077-02		0	35,872
Assessment of ultrasound-facilitated Neurotherapeutics in Alzheimer s Disease	93.866	2R01AG038961-06		0	34,816
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	28,224
Control of liver autophagy by phosphatidic acid signaling	93.866	5R21AG045020-02		0	27,345
Imaging inflammation and tau in elders with different clinical and biomarker profiles of Alzheimer s disease	93.866	1K23AG052633-01		0	25,751
Calcium Leak-Dependent Muscle Function Loss in Aged C. elegans	93.866	1F31AG052312-01		0	25,280
Longevity and turnover of human naive T cells in lymphoid tissue	93.866	5F31AG047003-03		0	25,077
Integrating neuroimaging with studies of cognitive aging in the Dominican Republic	93.866	5R21AG043337-02		0	24,800
Olfactory deficits and donepezil treatment in cognitively impaired elderly	93.866	4R01AG041795-04		0	24,701
The Brief Research in Aging and Interdisciplinary Neurosciences	93.866	5T35AG044303-03		0	23,147
Psychosocial Factors & Aging: Effects on Resting/Reflexive Cardiovascular Control	93.866	5R21AG044260-02		13,428	22,822
MIDCAREER MENTORING AWARD FOR PATIENT ORIENTED RESEARCH IN GERIATRIC CARDIOLOGY	93.866	5K24AG036778-05		0	20,545
Aging of tissue-specific clocks in the immune system of Drosophila	93.866	4R01AG045842-04		0	19,148
The Dialogue Between Bone and the Brain: Endocrine and Molecular Bases	93.866	5P01AG032959-07		0	17,520
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	12,697
Hippocampal Neurogenesis, Pattern separation & age- Related cognitive impairments	93.866	4R01AG043688-04		0	11,236
Analyzing age-related changes of brain activation in subjects native space	93.866	4K01AG044467-04		0	10,318
Gene-Environment Interaction in Cognition in Venezuelan Families	93.866	5R01AG036469-05		0	9,999
Genetic Studies of Alzheimer s Disease in Caribbean Hispanics	93.866	2RF1AG015473-16A1		0	9,379
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	8,025

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Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	7,028
Genetic Epidemiology of Alzheimer s Disease in Hispanics	93.866	5R37AG015473-15		0	7,000
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	5,828
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	5,597
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	5,114
Understanding cognitive mechanisms of emotion regulation in aging	93.866	4R01AG043463-04		0	3,992
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	3,257
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	3,215
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	3,173
fMRI and Mouse Models of Alzheimer s Disease	93.866	5R01AG025161-09		0	2,198
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	1,960
APP ubiquitination and implications for AB generation	93.866	5F30AG047748-03		0	1,874
Long Life Family Study: Columbia University	93.866	5U01AG023749-11		0	1,850
Dietary Factors and Neuroimaging Markers	93.866	5K99AG042483-02		0	1,845
Mechanisms underlying selective motor pool vulnerability in mouse and human SMA	93.866	5F30AG044989-03		0	1,535
Alzheimer s Disease Research Center - Overall	93.866	5P50AG008702-27		0	741
Long Life Family Study: Columbia University	93.866	5U01AG023749-11		0	12
Extrinsic regulation of adult neural stem cells	93.866	5R21AG042671-02		0	0
Serotonin as a Regulator of bone Mass Accrual: basic and Clinical	93.866	5P01AG032959-05		0	0
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	-179
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	-3,322
Dissecting the aging of endogenous hematopoietic stem cells by in vivo genetic tracing	93.866	1R01AG049074-01		0	-5,388
Serotonin as a Regulator of bone Mass Accrual: basic and Clinical	93.866	5P01AG032959-05		0	-5,701
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	-13,641
Genetic Epidemiology of Alzheimers Disease in African Americans	93.866	5R01AG028786-05		0	-25,000
Alzheimer s Disease Research Center At Columbia University	93.866	5P50AG008702-25		0	-41,426

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Neuropsychology and Cognition in Aging	93.866	5T32AG000261-15		0	-82,477
				\$1,733,781	\$20,123,602
Vision Research					
Therapeutic Approaches for ABCA4-associated Disorders	93.867	5R24EY019861-05		367,013	973,538
Measures of Human Receptor and Post Receptor Activity	93.867	5R01EY009076-24		272,469	584,321
The Neurophysiology of Visual Search: Oculomotor and Visual Mechanisms	93.867	5R01EY017039-08		0	560,474
Ultrasound perfusion imaging in glaucoma	93.867	5R01EY025215-02		104,061	528,518
Impact of Lipofuscin in Retinal Pigment Epithelial Cells	93.867	5R01EY012951-14		0	494,500
Genetics of refractive error development in the mouse model	93.867	5R01EY023839-03		43,452	452,726
The Role of Zic Genes in Patterning the Binocular Projection	93.867	5R01EY015290-12		0	421,009
Quantitative Fundus Autofluorescence in Retinal Disorders	93.867	5R01EY024091-03		126,617	420,056
Elastographic Imaging of the Retina/Choroid in Age-Related Macular Degeneration	93.867	5R01EY021529-04		206,457	408,854
Regulation of FGF signaling in lacrimal gland develop	93.867	5R01EY018868-08		0	386,196
The Role and Mechanisms of Lipfuscin Formation in Macular Degeneration	93.867	5R01EY021207-05		0	364,713
Top-down selection of task-relevant cues: neural mechanisms in the frontal and parietal lobes	93.867	5R01EY025965-02		0	361,464
Therapeutic Corneal Cross-linking Using Aliphatic Beta-Nitroalcohols	93.867	5R01EY020495-05		0	347,045
Growth and Guidance of Retinal Axon	93.867	5R01EY012736-27		0	340,926
Gene Silencing and Gene Editing in Phototransduction	93.867	5R01EY024698-02		0	331,681
Structural and Functional Progression of Glaucomatous Damage to the Macula	93.867	5R01EY025253-02		0	331,534
Defining Barriers to Gene Therapy	93.867	5R01EY018213-08		0	320,030
Mechanisms of Visual Perception	93.867	4R01EY011378-19		0	311,058
Signaling Mechanisms of Lens Development	93.867	5R01EY017061-11		0	308,333
Imaging functional connectivity in visual cortex	93.867	5R01EY011787-15		0	307,853
PDGF signaling in lens development	93.867	5R01EY025933-02		0	302,641
Photoreceptor specification in the Drosophila eye	93.867	5R01EY023635-03		0	266,099
Core Grant for Vision Research	93.867	5P30EY019007-05		0	264,975

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Mechanisms of Visual Perception	93.867	5R01EY011378-18		25,942	245,380
Novel Approaches in the Therapy of Pathologic Myopia	93.867	5K08EY023595-03		0	222,506
Oxidative Stress in Neurodegeneration and Neuroproection in Glaucoma	93.867	5R21EY024105-02		0	203,587
RPE-Neural Retina Interactions in the Developing Albino Mouse Eye	93.867	5R21EY023714-02		0	185,296
Vision Sciences Training Grant	93.867	5T32EY013933-15		0	180,129
Endogenous neural activity: neurophysiology, optical imaging, fMRI, and behavior.	93.867	1R01EY025330-01A1		0	177,394
Completing genetic analysis of the ABCA4 locus	93.867	5R01EY021163-04		0	163,550
Role of oculomotor proprioception in spatial processing by the parietal cortex	93.867	5K08EY023265-03		0	159,994
Studying Models and Mechanisms of Optic Nerve Diseases	93.867	5R01EY002115-38		49,779	159,088
Therapeutic Approaches for ABCA4-associated Disorders	93.867	5R24EY019861-05		110,768	156,169
Anticipatory Hemodynamic Signals in Primary Visual Cortex	93.867	2R01EY019500-05A1		0	133,738
Imaging the circuit mechanisms of perceptual learning in the visual cortex	93.867	5K99EY024653-02		0	121,888
Core Grant for Vision Research	93.867	5P30EY019007-05		0	112,267
Neurophysiology of Active Vision in humans	93.867	5R21EY024776-02		0	94,726
Studying models and mechanisms of optic nerve diseases	93.867	2R01EY002115-39		0	82,721
Structure-function Analysis of Bestrophins	93.867	1K99EY025290-01		0	61,115
Role of oculomotor proprioception in spatial processing by the parietal cortex	93.867	4K08EY023265-04		0	46,328
Signaling Mechanisms of Lens Development	93.867	7R01EY017061-09		0	12,213
Early Detection of Keratoconus	93.867	5R01EY019055-05		0	5,916
Vision Sciences Training Grant	93.867	5T32EY013933-15		0	1,269
Therapeutic Corneal Cross-linking Using Aliphatic Beta-Nitroalcohols	93.867	5R01EY020495-05		0	93
Early Detection of Keratoconus	93.867	5R01EY019055-05		0	-222
				\$1,306,558	\$11,913,689
Medical Library Assistance					
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-24		0	1,010,183
Bridging the Semantic Gap Between Research Eligibility Criteria and Clinical Data	93.879	5R01LM009886-07		37,167	467,976

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					R&D Cluster
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Pharmacovigilance Methods: Leveraging Heterogeneous Adverse Drug Reaction Data	93.879	5R01LM010016-07		29,803	453,278
Discovering and Applying Knowledge in Clinical Databases	93.879	5R01LM006910-17		0	439,968
Discovering and Applying Knowledge in Clinical Databases	93.879	5R01LM006910-17		0	59,987
Training in Biomedical Informatics at Columbia University	93.879	5T15LM007079-24		0	19,561
Disaster and the the Reinvention of Public Health in France	93.879	5G13LM010931-03		0	17,402
Developing flexible EHR plug-ins to re-engineer clinical care and research workflow	93.879	5R01LM010815-04		0	12,070
Developing flexible EHR plug-ins to re-engineer clinical care and research workflow	93.879	5R01LM010815-04		0	-2,926
				\$66,970	\$2,477,499

International Research and Research Training

Columbia University - Southern African AIDS International Training/Research Program	93.989	5D43TW000231-20		50,057	94,010
Climate Variability and Change: Implications for Malaria Control in East Africa	93.989	5R21TW009537-02		0	85,651
Columbia University - Southern African AIDS International Training/Research Program	93.989	5D43TW000231-20		45,722	47,540
				\$95,779	\$227,201
Total Direct Award Programs				\$48,717,448	\$357,750,077

Pass-through Awards

National Cancer Institute/NIH/DHHS

Integrative analysis genomic and proteomic data from The Cancer Genome Atlas	93	LEIDOS 15X036	HHSN261200800001E	0	191,147
Integrative analysis genomic and proteomic data from The Cancer Genome Atlas	93	LEIDOS 15X036	HHSN261200800001E	0	124,956
Designing a Prototype of N-of1 trials of Depressive symptom management in Cancer Survivors	93	LEIDOS 15X142	HHSN261200800001E	0	63,505
Designing a Prototype of N-of1 trials of Depressive symptom management in Cancer Survivors	93	LEIDOS 15X142	HHSN261200800001E	0	58,284
Assessing synergistic compound activity in glioblastoma	93	LEIDOS 15X181	HHSN261200800001E	0	52,920
Chemoprevention of Esophageal Cancer in a Mouse Model of Barrett s Esophagus	93	CUMC 16040641-01	HHSN26120150000391	0	33,058
Phase II Study of (DHA) in Patients with a History of Breast Cancer, Premalignant Lesions or Benign Breast Disease	93	UTMDA 00002489	HHSN2612012000341	0	6,310

National Heart, Lung, and Blood Institute/NIH/DHHS

Multi-Ethnic Study of Atherosclerosis (MESA) - Field Center	93	UWASH UWSC8537	HHSN268201500003I	0	405,933
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A Nanotherapeutic Approach to Defective Inflammation Resolution in Atherosclerosis.	93	MSSM 0258-3921-4609	HHSN268201000045C	0	168,725
Systolic Blood Pressure Intervention Trial (SPRINT)	93	UAB 000336417-027	HHSN268200900047C	0	100,534
Systolic Blood Pressure Intervention Trial (SPRINT)	93	UAB 000336417-027	HHSN268200900047C	0	39,635
Systolic Blood Pressure Intervention Trial (SPRINT)	93	UAB 000336417-027	HHSN268200900047C	0	33,711
Phantoms for CT Volumetry of Hepatic and Nodal Metastasis	93	RSNA HHSN268201300071C (L)	HHSN268201300071C	0	32,164
Revive-It Corelab/Gatekeeper	93	UMICHG 3001889775	HHSN268201100026C	0	29,285
Systolic Blood Pressure Intervention Trial (SPRINT)	93	UAB 000336417-027	HHSN268200900047C	0	11,304
(ACCORD) Follow-On Study-Action to Control Cardiovascular Risk in Diabetes	93	WFUHS 33000	HHSN268201100027C	7,290	10,943
Development of Molecular Imaging Agents and Methods	93	STINC CU13-3507	HHSN268201400041C	0	1,045
(ACCORD) Follow-On Study-Action to Control Cardiovascular Risk in Diabetes	93	WFUHS 33000	HHSN268201100027C	0	-169
National Institute of Allergy and Infectious Diseases/NIH/DHHS					
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	42,624
The Collaborative Network for Clinical Research in Immune Tolerance	93	CUCSF 107521	N01-AI-15416	0	-85
ITN Steering Committee Member	93	UCSF 105891	N01 AI15416	0	-1,220
National Institute of Child Health and Human Development/NIH/DHHS					
Antibiotic Safety in Infants with Complicated Intra-Abdominal Infections	93	DUKE 201316	HHSN-275201000031	0	3,130
National Institute of Environmental Health Sciences/NIH/DHHS					
Gulf Long-Term Follow-Up Study (:GoLF STUDY)	93	SSSI HSR-S-13-003546	N01-ES-55553	0	28,736
NTP Protocol Outline for the Perinatal Study Evaluating Indices of Puberty, Thyroid Hormone Status and Brain Inflammation for Triphenyl Phosphate (TPP) and Isopropylated Phenyl Phosphate (IPP) in Spra	93	BMI 497987	HHSN273201400015C	0	12,057
National Institute of Mental Health/NIH/DHHS					
RAISE-IES: Duration of Untreated Psychosis Study	93	SRFMH 25762	HHSN-271-2009-00020-C	0	12,202
				\$7,290	\$1,460,734
Environmental Health					
A Nested Case-Control Study of Prostate Carcinogenesis	93.113	HFHS CU13-3167	2R01ES011126-11A1	0	227,466
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	141,615

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Phenotyping/Epigenetic studies of PAH-associated Treg impairment in asthma	93.113	SU 60289635-52089-B	5R01ES02092602-02	0	118,245
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	72,161
Personal Environmental Exposure Assessment using Wristbands for Epidemiological Studies in Disadvant	93.113	OREGSU P0391A-B	1R21ES024718-01	0	48,001
SPIROMICS - Air Polution Study	93.113	JH 2002161671	1R01ES023500-01	0	45,761
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	40,788
Molecular and Clinical Endocrine Impacts of Arsenic Exposure in Children	93.113	UIL CU13-2606	1R01ES024423-01	0	37,323
Consequences of prenatal toxicant exposure on	93.113	RC105428CU	1R21ES026022-01	0	30,752
Synergistic Immunosuppression by PAHs and Arsenite: Project 3 - Santella	93.113	UNMEX 3RJ12	3R01ES019968-03S1	0	15,041
Stress-Lead Interactions and Child Development	93.113	MSSM 0255-5543-4609	4R01ES013744-10	0	14,059
Validation of a Genomic Biomarker of Response to Environmental Tobacco Smoke	93.113	BUMC 9500300401	1R01ES020425-01	0	-854
				\$0	\$790,358
Oral Diseases and Disorders Research					
Integrating Social & Systems Science Approaches to Promote Oral Health Equity	93.121	NYU CU12-0650	1R01DE023072-01	0	186,244
Secondary Analysis of EHR data to Enhance care of dental patients with Diabetes	93.121	MCRFDN 47313	1R03DE024239-01A1	0	54,586
Secondary Analysis of EHR data to Enhance care of dental patients with Diabetes	93.121	MCRFDN 47313	1R03DE024239-01A1	0	23,676
				\$0	\$264,506
Human Genome Research					
Genomics of Gene Regulation in Prgenitor to Differentiated Keratinocytes	93.172	SU 60897358-114114	1U01HG007919-01	0	184,910
Sequencing by transcription using single-molecule field effect transistors	93.172	EBM CU-R43HG007871	R43HG007871	0	115,674
Incorporating Local Haplotype Sharing to Detect Genetic Associations	93.172	BCMH 102115423	1R01HG008157-01A1	0	64,877
The goals and practices for next generation prenatal testing	93.172	HASTINGS CU14-2995	1R01HG008805-01A1	0	37,749
Biorepository for Genomic Medicine in Diverse Communities	93.172	MSSM 0255-4327-4609	5U01HG006380-04	0	-2,608
				\$0	\$400,602
Research and Training in Complementary and Integrative Health					
Creatine Safety, Tolerability & Efficacy in Huntington s Disease: CREST-E	93.213	MGH CU15-1889	2U01AT000613-12	0	1,440
Creatine Safety, Tolerability & Efficacy in Huntington s Disease (CREST-E)	93.213	MGH CU09-3943	5 U01 AT000613	0	-2,215

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				\$0	\$-775
National Center on Sleep Disorders Research					
Tailored Sleep Health Education: A Community-Engaged Approach	93.233	NYUMC 13-A0-001803-01	1R25HL116378-01	0	17,212
Tailored Sleep Health Education: A Community-Engaged Approach	93.233	NYUMC 13-A0-001803-01	1R25HL116378-01	0	3,191
				\$0	\$20,403
Mental Health Research Grants					
Functional Consequences of GABAergic Inhibition of Dendritic Spines at Puberty	93.242	RFSUNY 1109936-74156	5R01MH100561-03	0	345,844
Interagency Collaboration to Implement Effective Behavioral Interventions -DEBIs	93.242	UMICH 3003874015	5R01MH095676	0	209,243
Common and Rare Genetic Factors in an Ethnically Homogenous Schizophrenia Cohort	93.242	FIMR 500615-COL-01	1R01MH095458-01A1	0	172,477
Towards a Complete Description of the Circuitry Underlying Memory Replay	93.242	SU 61104073-121247	7U01NS090583-02	0	160,000
A Holographic Module for Multiphoton Microscopes in Neuroscience	93.242	BNLS CU14-4060	2R44MH109187-03	0	158,664
EEG/MRI Controlled TMS Real-Time Neural Feedback in Anti-Depressive Treatment	93.242	MUSC15-020	1R21MH106775-01	0	153,266
Weight suppression, dieting and bulimia nervosa: A biobehavioral study	93.242	DREXEL 232547-3684	5R01MH095982-04	0	146,143
Characterizing Placebo Response	93.242	NYUMC 12-01978	1R01MH099003-01	0	138,615
Characterizing Placebo Response	93.242	NYUMC 12-01978	1R01MH099003-01	0	138,377
Neurodevelopmental Profiling of the Epigenome in Human and Rhesus	93.242	MSSM 0255-6211-4609	7R01MH094774-03	0	100,960
Electrocardiography markers of social function	93.242	UPENN 566640	5P50MH096891-03	0	92,456
Optimizing Youth Suicide Risk Screening in the Emergency Department	93.242	UMICH 3003330094	UMH104311	0	88,117
ED-SAFE-2: Translating Safety Planning into Practice	93.242	UMASS WA00318982/RFS2016003	5R01MH106726-02	0	60,969
Electrophysiology of human spatial cognition	93.242	UPENN 563386	5R01MH061975-13	0	57,247
Functional Consequences of GABAergic Inhibition of Dendritic Spines at Puberty	93.242	RFSUNY 1109936-74156	5R01MH100561-03	0	56,542
Electrophysiology of human spatial cognition	93.242	UPENN 563386	5R01MH061975-13	0	54,906
Determinants for Resilience in Youth with HIV infection and Youth affected by HIV	93.242	HJFAMM 832613	1R01MH102151-01	0	54,560
A D1 Agonist for Working Memory Enhancement in the Schizophrenia Spectrum	93.242	MSSM 0255-5881-4609	1R01MH097799-01A1	0	37,412
An fMRI Study of the Enhancement of Emotion regulation in Borderline Patients	93.242	MSSM 0255-1622-4609	2 R01 MH077813-05A1	0	31,261
3D Virtual Slide System for Creation and Analysis of Focusable Digital Slides	93.242	MBFBIO CU16-0080	5R44MH076188-06	0	29,749

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Promoting Research Training During Psychiatry Residency	93.242	BROWNU 00000705	5R25MH101076-03	0	29,276
Fetal Exposure to Maternal Stress and Inflammation: Effects on Neurodevelopment	93.242	TEMPLE 360762-CU	1R01MH096478-01A1	0	27,194
Assessing causality: Is PTSD cardiotoxic	93.242	HARVARD 114204-5095446	7R01MH101269-02	0	26,222
Statistical models for fine mapping and functional interpretation of loci associated to schizophre	93.242	NYGC 14-3011	R01MH106842	0	25,063
Outcomes in Callers to the VA s 24/7 Veterans Crisis Line	93.242	CNYCF 1R34MH096854-01A1COL	1R34MH096854-01A1	0	21,215
Neuropathogenesis of Clade C HIV in South Africa	93.242	UMISS 00051696-01	5R01MH085604	0	20,000
1/2 - A Comparison of Long-Acting Injectable Medications for Schizophrenia (ACLAIMS)	93.242	DUKEU 2032500	1R01MH081234	0	19,812
Suicide Risk Reduction in the Year Following Jail Release	93.242	MSU RC105383CU	1U01MH106660-01A1	0	18,611
HealthMpowerment.org: a Novel Internet and Mobile Phone HIV Intervention for Young Black MSM	93.242	UNC-CH 5031798	R01 MH093275	0	17,083
Connecting Brain and Behavior in the Very Brief Exposure Effect	93.242	RFCUNY 260-1123541-70896	7R21MH101564-02	0	16,594
Risk for Depression, Neighborhood Characteristics, and Physical Activity	93.242	NYAMED CU10-1401	R01 MH085131	0	15,760
Africa Focus on Intervention Research for Mental Health (AFFIRM)	93.242	UCT 5	U19 MH095699	0	13,741
Scale-up on an Online Randomized Controlled Trial for HIV+ Gay and Bisexual Men	93.242	PUBHS CU13-1395	R01MH100973	0	11,770
Genetics of normal human variation: implications for disease	93.242	DUKE 3020787	5K01MH098126-03	0	11,012
A D1 Agonist for Working Memory Enhancement in the Schizophrenia Spectrum	93.242	MSSM 0255-5881-4609	1R01MH097799-01A1	0	10,310
Africa Focus on Intervention Research for Mental Health (AFFIRM)	93.242	UCT 5	U19 MH095699	0	10,262
Novel medication strategies targeting brain mechanisms in pediatric OCD	93.242	CUMC 120100300	1R34MH095377-01A1	0	8,410
Electrophysiology of human spatial cognition	93.242	UPENN 563386	5R01MH061975-13	0	7,869
Optimizing Youth Suicide Risk Screening in the Emergency Department	93.242	UMICH 3003330094	UMH104311	0	6,230
Bluntant and Discordant Affect: A Transdiagnositc Construct in Psychopathology	93.242	UPMC 0025282(123087-2)	1R01MH096334-01	0	3,942
				\$0	\$2,607,184

Alcohol Research Programs

Next Generation Rare Variant Discovery in Multiplex AD Families	93.273	UPITT 0045432	1R01AA021746-01	0	232,537
Alcohol-induced Human Striatal Dopamine Release Related to Alcoholism Vulnerability and Habitual Use	93.273	YU MI2A11309	5P50AA012870-14	0	191,557
Gene network perturbations in alcohol dependence - A systems biology approach	93.273	TSRI PO No. 5-52429	1R01AA021667-01A1	0	152,043
Alcohol-induced Human Striatal Dopamine Release Related to Alcoholism Vulnerability and Habitual Use	93.273	YU MI2A11309	5P50AA012870-14	0	110,487

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Translational Research in Alcoholic Hepatitis	93.273	UNC-CH 5033483	5U01AA021908-03	0	70,301
Gene network perturbations in alcohol dependence - A systems biology approach	93.273	TSRI PO No. 5-52429	1R01AA021667-01A1	0	55,914
Integrated approaches for identifying Molecular Targets in Alcoholic Hepatitis	93.273	UNC-CH 5104585	5U01AA021908-02	0	25,760
Integrated approaches for identifying Molecular Targets in Alcoholic Hepatitis	93.273	UNC-CH 5104585	5U01AA021908-02	0	9,600
Teen Alcohol Screening in the Pediatric Emergency Care Applied Research Network	93.273	RIH 7017137111-5-NY	1R01AA021900-01	0	4,869
				\$0	\$853,068

Drug Abuse and Addiction Research Programs

Florida Node Alliance of the Drug Abuse Clinic Trials Network	93.279	UMIAMI 667528	3UG1DA013720-16S1	0	321,027
CRCNS: Computational and neural mechanisms of memory-guided decisions	93.279	NYU F4300-01	1R01DA038891-01	0	301,577
Presynaptic Plasticity of Vesicular Dopamine Release	93.279	UCSF 555843-29279	5P01DA010154-19	0	272,661
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	185,281
Florida Node Alliance of the Drug Abuse Clinic Trials Network - Infrastructure	93.279	UMIAMI CU12-3426	2U10DA013720-11	0	178,673
Florida Node Alliance of Drug Abuse Clinic Trials Network - CTN 0049	93.279	UMIAMI CU12-3439	2U10DA013720-11	0	152,363
Florida Node Alliance of the Drug Abuse Clinic Trials Network	93.279	MIAMI 667527	3UG1DA013720-16S1	0	115,724
A Computerized family-based youth HIV and drug abuse prevention in Kazakhstan	93.279	FP052892	R34DA033201	0	114,961
Florida Node Alliance of the Drug Abuse Clinic Trials Network	93.279	UMIAMI 665571	2UG1DA013720-16	0	114,893
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	75,137
Impact of the growing mental health disparity in smoking on the enduring tobacco epidemic	93.279	RFCUNY 41896A	2R01DA020892-05A1	0	55,955
New York State Health Home Impact on HIV Treatment Cascade	93.279	CASAC CU13-3389	5R01DA038193-02	0	50,778
Economic Analysis of Rapid HIV and HCV Testing in Drug Abuse Treatment Programs	93.279	CUMC 14111560-2	2R01DA027379-04	0	47,294
Center for Prevention Intervention Methodology	93.279	60035189 CU	5P30DA027828-05	0	40,970
Evaluating ART for all HIV Seropositives: Can it work with the Hardest Cases?	93.279	SLRIHS CU12-3799	1R01DA035707-01	0	38,825
Clinical Trials Network: Greater New York Node	93.279	15-A0-00-003671-01	2UG1DA013035-14	0	35,276
Monitoring the Future: Drug Use and Lifestyles of American Youth	93.279	UMICHG 3002376099	2R01DA001411	0	34,361
Impact of Health Reform on Outpatient Substance Abuse Treatment Programs	93.279	RIH 701-5530	1R01DA034634-01	0	34,095
Trending Social Media Analysis to Monitor Cannabis and Synthetic Cannabinoid Use	93.279	WRIGHTSU CU14-0818	1R01DA039454-01	0	25,889

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Economic Analysis of Rapid HIV and HCV Testing in Drug Abuse Treatment Programs	93.279	CUMC 14111560-2	2R01DA027379-04	0	22,881
Evaluating ART for all HIV Seropositive: Can it work with the Hardest Case?	93.279	ISMMS 0255-0781-4609	7R01DA035707-04	0	20,200
Vaccines for Prescription Opiod and Heroin Abuse	93.279	MNMRF 07377-2	1U01DA038876-01	0	19,236
Clinical Trials Network: Greater New York Node	93.279	15-A0-00-003671-01	2UG1DA013035-14	0	18,123
Impact of Health reform on outpatient substance abuse treatment programs	93.279	BAY 15258-CU	7R01DA034634-04	0	12,838
Florida Node Alliance of the Drug Abuse Clinic Trials Network - Infrastructure	93.279	UMIAMI CU12-3426	2U10DA013720-11	0	11,217
Metropolitan Trajectories of HIV Epidemics, Drug Use, and Responses in US Key Populations	93.279	EMORYU CU15-2960	5R01DA037568-02	0	11,181
Mentoring Early-Career Scientist for Drug Abuse Research Careers	93.279	UCSF 8643sc	1R25DA035163-01A1	0	8,589
Novel Longitudinal Methods for SMART Studies of Drug Abuse an HIV	93.279	UMICH 3003778400	1R01DA039901-01	0	6,923
Translational Research Traninig on Addiction for Racial/ Ethnic Minorities	93.279	RFCUNY 41848-A	5R25DA035161-03	0	0
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	-12
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	-211
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	-479
Florida Node Alliance of the Drug Abuse Clinic Trials Network - Infrastructure	93.279	UMIAMI CU12-3426	2U10DA013720-11	0	-896
Structure and Function of Neurotransmitter Transporters	93.279	CUMC 15070987-2	5P01DA012408-13	0	-1,617
Florida Node Alliance of the Drug Abuse Clinic Trials Network - Infrastructure	93.279	UMIAMI CU12-3426	2U10DA013720-11	0	-1,917
A Computerized family-based youth HIV and drug abuse prevention in Kazakhstan	93.279	FP052892	R34DA033201	0	-7,736
Florida Node Alliance of the Drug Abuse Clinic Trials Network - Infrastructure	93.279	UMIAMI CU12-3426	2U10DA013720-11	0	-19,556
				\$0	\$2,294,504

Discovery and Applied Research for Technological Innovations to Improve Human Health

Tissue Engineering Resource Center (TERC)	93.286	TUFTS P41EB002520	2P41EB002520-11	0	560,617
Longitudinal Causal Inferencer for fMRI	93.286	JHU 2003011601	R01EB016061	0	63,761
Cross-Scale Interactions Between Mineral and Collagen for Tendon-Bone Attachment	93.286	WU-16-140	5U01EB016422-03	0	58,068
An Optical Imaging Unity for Spatial In Vivo Quantification of Bacterial Infections	93.286	INVIVO CU14-1106	1R34EB018644-01A1	0	-874
				\$0	\$681,572

Minority Health and Health Disparities Research

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Racial Disparity Reduction in the National Kidney Allocation Policy	93.307	EMORY T436682	1R01MD010290-01	0	37,598
Genomic Analysis of Enhanced Response to Heart Failure Therapy in African Americans	93.307	UPITT 0041119	1R01MD009118-01	0	18,663
State and county level income inequality and infant mortality risk	93.307	UNR-16-16	1R15MD010223-01	0	12,373
				\$0	\$68,634

Trans-NIH Research Support

An integrated and diverse genomic medicine program for undiagnosed diseases	93.310	DUKEU 2031865	1U01HG007672-01	0	205,598
Central IRBs: Enhanced Protections for Human Research Participants?	93.310	UMASS WA00250104/RFS2015109	1R01GM113640-01	0	102,874
An integrated and diverse genomic medicine program for undiagnosed diseases	93.310	DUKEU 2031865	1U01HG007672-01	0	0
				\$0	\$308,472

National Center for Advancing Translational Sciences

Circulatory system and integrated muscle tissue for drug and tissue toxicity	93.350	203-4567	UH3TR000505-03	0	186,640
University of Pittsburgh Clinical and Translationa	93.350	UP 9010570	5UL1TR000005-09	0	15,953
				\$0	\$202,593

Research Infrastructure Programs

The Jackson Laboratory Center for Precision Genetics: From New Models to Novel Therapeutics	93.351	JACKSONLAB CU16-1083	1U54OD020351-01	0	52,393
The Jackson Laboratory Center for Precision Genetics: From New Models to Noel Therapeutics	93.351	JACKSONLAB CU14-2766	1U54OD020351-01	0	15,778
				\$0	\$68,171

Nursing Research

Home ECG Monitoring to Detect Allograft Rejection Following Heart Transplantation	93.361	UCSF 6572sc	5R01NR012003-05	0	125,341
Understanding Delayed Access to HIV Prevention Services among Black MSM	93.361	UPITT 0029591 (127125-3)	1R01NR013865-01A1	0	30,349
				\$0	\$155,690

Cancer Cause and Prevention Research

Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	337,171
Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	212,291
Returning genetic research panel results for breast cancer susceptibility	93.393	UPENN 565533	1R01CA19871-01 REVISED	0	206,586

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Role of the p53 C-terminal domain in tissue homeostasis, tumor suppression, and oncogenesis	93.393	ISMMS 0255-0481-4609	1R01CA196234-01A1	0	141,828
Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	122,174
Validation and extension of the PREMM model for mismatch repair genes	93.393	DFCI 1150005	5R01CA132829-05	0	64,848
The NYU Womens Health Study	93.393	14-A0-00-001427	1UM1CA182934-01A1	0	63,323
Defining the Role of ERG in Modulating the AR Cistrome and Antiandrogen Sensitivity	93.393	MSKCC BD517911	1R01CA193837-01	0	56,233
MicroRNA and Breast Cancer: Functional Characterization in a Population-Based Study	93.393	MSSM 0255-6601-4609	1R01CA172460-01A1	0	50,110
Insulin Resistance and Breast Cancer Prognosis in Black & White Women	93.393	ISMMS 0255-4841-4609	5R01CA171558-04	0	40,555
Chemoprevention of Arsenic-Induced Skin Cancer	93.393	UCHICA 44706-E	R01 CA107431	0	34,255
Breast Cancer Family Registry Cohort - NY Cohort	93.393	CPIC 1UM1CA164920-01A1-COLUMBI	UM1CA164920	0	22,369
Epidemiologic study of Hepatocellular Carcinoma in the US	93.393	HAWAII KA0090	5R01CA138698-05	0	21,775
Returning genetic research panel results for breast cancer susceptibility	93.393	UPENN 565533	1R01CA19871-01 REVISED	0	16,947
Validation and extension of the PREMM model for mismatch repair genes	93.393	DFCI 1150005	5R01CA132829-05	0	14,295
Risk and Penetrance of Mutations from Breast Cancer Testing Panels	93.393	MAORO 63846740	1R01CA192393-01	0	8,570
MicroRNA and Breast Cancer: Functional Characterization in a Population-Based Study	93.393	MSSM 0255-6601-4609	1R01CA172460-01A1	0	3,668
				\$0	\$1,416,998

Cancer Detection and Diagnosis Research

Computational modeling of tumor burden by CT to advance cancer therapeutics	93.394	UCHICA FP057159-A	R01CA194783-01	0	161,583
Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & Discovery	93.394	MGH 224943	5U24CA180927-02	0	153,640
MicroRNAs and Early Prostate Cancer Detection	93.394	FIMR 500626COL	1R21CA178864-01	0	68,713
caCDE-QA: A Quality Assurance Platform for Cancer Study Common Data Elements	93.394	MAORO COL-192324-01	5U01CA180940-02	0	35,752
Informatics Tools for Optimized Imaging Biomarkers for Cancer Research & Discovery	93.394	MGH 224943	5U24CA180927-02	0	24,733
caCDE-QA: A Quality Assurance Platform for Cancer Study Common Data Elements	93.394	MAORO COL-192324-01	5U01CA180940-02	0	4,788
Nanotrap Technology for One Step Preservation and Amplification of Cancer Biomarkers	93.394	GMU E2028561	1R33CA173359-01	0	143
				\$0	\$449,352

Cancer Treatment Research

The coding genome of HIV associaed plasmablastic lymphomas in South Africa	93.395	WITS D1404370-02	1R21CA192854-01	0	108,800
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Alliance for Clinical Trials in Oncology Operations Center	93.395	BWH 111278	5U10CA180821-02	0	74,856
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia	1UGCA189974-01	0	66,605
Support, NIH COG Phase 1 Grant	93.395	CHOP CU15-2115	UM1CA097452	0	51,332
Markers of Cognitive Decline During Treatment for Childhood ALL	93.395	AECM 310957	1R21CA187226-01A1	0	32,089
Anticancer agents from Diverse Natural products sources	93.395	UNCG 130239	2P01CA125066-06A1	0	29,259
Engineered gene circuits for basic science and biotechnology	93.395	UCSD CU16-0221	NIH CU16-0221	0	21,950
Understanding Therapeutic Optimism and its Impact on Risk-Benefit Assessment	93.395	ORHSUN 1002304 columbiaU	1R01CA166556-01A1	0	18,323
Per Case Reimbursement and Patient Studies	93.395	CHOP CU15-2114	UM1CA097452	0	16,966
Psychosocial Approaches to Better Understanding & End Stage Cancer Care (PROTECT)	93.395	CUMC 15050714-02	1R35CA197730-01	0	10,540
SCIENTIFIC LEADERSHIP: COG NCORP Research Base	93.395	CHPHI 961554-RSUB	1UG1CA189955-01	0	7,308
SWOG NCORP Research Base	93.395	ORHSUN 1005019 Columbia	1UGCA189974-01	0	7,168
Lifestyle and Molecular Factor of Bone Health in Breast Cancer Survivors	93.395	KFDNI 115-9991-01	1R01CA166701-01A1	0	6,468
MPD Research Consortium	93.395	ISMMS No. 0254-7377-4605	5P01CA108671-08	0	3,226
COG Master for Non-Industry Studies	93.395	CHOP 13-0834	U10CA098543	0	2,000
Prognostic biomarkers and disease drivers in T-cell acute lymphoblastic leukemia	93.395	MMC CU16-1319	5U10CA180827-03	0	1,263
NIH National Clinical Trials Network (NCTN) PCR	93.395	CHPHI 9500080215-12c	1U10CA098543-01	0	960
COG Master for Non-Industry Studies	93.395	CHOP 13-0834	U10CA098543	0	-2,000
COG Master for Non-Industry Studies	93.395	CHOP 13-0834	U10CA098543	0	-3,900
				\$0	\$453,213

Cancer Biology Research

GI Tract Dysbiosis and Breast Cancer	93.396	MIT 5710003957	1U01CA164337-01	0	191,166
Cadherin-11 in cancer and rheumatoid Arthritis: Common target, common therapies	93.396	GU RX 4424-007-CU	1R01CA170653-01	0	60,874
p53 Regulators and Effectors Project 2 Anti-repression mechanisms in p53-mediated stress responses	93.396	MSSM 0254-3115-4609	5 P01 CA080058-14	0	40,352
GI Tract Dysbiosis and Breast Cancer	93.396	MIT 5710003957	1U01CA164337-01	0	1,994
p53 Regulators and Effectors Project 2 Anti-repression mechanisms in p53-mediated stress responses	93.396	MSSM 0254-3115-4609	5 P01 CA080058-14	0	-4
				\$0	\$294,382

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Cancer Centers Support Grants					
SARC Sarcoma SPORE	93.397	SARC CU11-3160	1U54CA168512-01	0	24,383
DF/HCC SPORE in Gastrointestinal Cancer	93.397	DFCI 1132406	2P50CA127003-06A1	0	18,019
				\$0	\$42,402
Cancer Research Manpower					
SWOG-Purchase Service Agreement	93.398	CCOP18743	NCI SWOG9921	0	761
				\$0	\$761
Trans-NIH Recovery Act Research Support					
Children s Oncology Group-Kelly- Chair s Grant	93.701	CHPHI 961661-RSUB	U10CA098543	0	28,867
ARRA -USF 6119-1211-00-G	93.701	USF 6119-1211-00-G	3 U01 HD051997-04S1	0	-2,416
				\$0	\$26,451
Cardiovascular Diseases Research					
nuMoM2b Heart Health Study (nuMoM2b-HHS)	93.837	RTI CU14-3218	1U10HL119991-01	195,148	404,748
Clinical & Basic Science Studies in Long QT Syndrome Type 3 (LQT3)	93.837	ROCHSTR 416473-G	1R01HL123483-01	0	255,877
Calmodulin regulation of Na+ channels in neurons and cardiomyocytes	93.837	DUMC 2034418	1R01HL122967-01A1	0	251,032
Ripple Effect of Lifestyle Intervention During Pregnancy on Partners Weight	93.837	CALPC 15-4-45222	1R01HL118208-01	0	240,213
EHD Proteins in Cardiac Membrane Protein Targeting and Remodeling	93.837	OSU 60038336	1R01HL114383-01A1	0	214,999
Clinical & Basic Science Studies in Long QT Syndrome Type 3 (LQT3)	93.837	ROCHSTR 416473-G	1R01HL123483-01	0	125,034
Treatment Options For Type 2 Diabetes In Adolescents and Youth (Today) Trial T2P2	93.837	GWU CU15-2730	2U01DK061230-12	0	124,768
THE METABOLIC IMPACT OF CONGENITAL HETEROZYGOUS APOC-III DEFICIENCE IN HUMANS	93.837	UMARY SR00001540	1 R01 HL104193-01A1	0	123,875
NHLBI AsthmaNet - BARD	93.837	BWH CU14-1907	5U10HL098102-05	0	114,278
Incorporation of a Hypertension Working Group into the Jackson Heart Study	93.837	UAB 000436171-001	1R01HL117323-01	0	101,457
Probabilistic Modeling of steno tic aortic valve intervention	93.837	GIT RE698-G3	7R01HL104080-04	0	92,116
New approaches to cardiothoracic tolerance induction	93.837	MGH 225421	2P01HL018646-36A1	0	82,264
Statistical Methods for Biosignals with Varying Domains	93.837	JH 2002309393	1R01HL123407-01	0	81,267

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NHLBI AsthmaNet SIENA	93.837	BWH CU14-2527	5U10HL098102-06	0	78,516
Pediatric Heart Network	93.837	NERI CU11-2689	U10 HL068270	0	58,552
Surgical Ablation vs. No Surgical Ablation for Patients with Persistent or Longstanding Persistent Atrial Fibrillation Undergoing Mitral Valve Surgery	93.837	MSSM 0255-3106-4605	5U01HL088942-08	0	50,594
Incorporation of a Hypertension Working Group into the Jackson Heart Study	93.837	UAB 000436171-001	1R01HL117323-01	0	48,017
Chronic Hypertension and Pregnancy-CHAP Clinical Coordinating Center	93.837	UAB 000503570-002	5U01HL120338-02	3,767	43,459
Sorafenib for Hepatopulmonary Syndrome	93.837	UPENN 567266	5UM1HL116886-02	0	36,066
New approaches to cardiothoracic tolerance induction	93.837	MGH 225421	2P01HL018646-36A1	0	35,505
REPRIEVE A5332 and A5333S	93.837	BWH CU15-0282	1U01HL123336-01	0	35,253
Steering Committee Chair for the Pediatric Cardiac Genomics Consortium (PCGC)	93.837	NERI CU11-1621	U01 HL098188	0	33,516
Chronic Hypertension and Pregnancy-CHAP Clinical Coordinating Center	93.837	UAB 000503570-002	5U01HL120338-02	0	33,510
Pediatric Heart Network	93.837	NERI CU11-2689	U10 HL068270	0	31,229
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
Vulnerable Plaque Optical Analyzer	93.837	ERCO CU15-1495	1R41HL126568-01A1	0	29,190
Project Eat-IV: Eating and Activity in Adolescents and Young Adults	93.837	P003427501	5R01HL116892-02	0	26,897
CMR Myocardial Tissue Based on Prediction of Ischemic MR Revascularization Response	93.837	CUMC 15040456-04	1R01HL128278-01	0	24,395
Steering Committee Chair for the Pediatric Cardiac Genomics Consortium (PCGC)	93.837	NERI CU11-1621	U01 HL098188	0	24,273
Hepatic Wnt/LRP6 Regulation of Plasma Lipids	93.837	YU M15A12105(A10170)	1R01HL22822-01A1	0	18,822
RAGE: Macrophages & HDL Metabolism	93.837	NYUMC CU12-1919	1R01HL118565-01	0	18,346
RLDC: Molecular Pathway-Driven Diagnostics & Therapeutics for Rare Lung Diseases	93.837	CINCMC 135461	1U54HL127672-01	0	18,124
Mucus Microstructure and Osmotic Pressure: Biomarkers for CB in COPD	93.837	JH 2002883011	1R01HL125169-01A1	0	17,679
Cardiac Biomarkers in Pediatric Cardiomyopathy	93.837	WAYNE WSU14112-A1	7R01HL109090	0	15,261
Pediatric Heart Transplantation: Transitioning to Adult Care	93.837	901477-COLUMBIA	5R34HL111492-02	0	14,981
Confirmation Core the Congenital Heart Disease Genetic Network Study (CHD GENES) for the Pediatric Cardiac Genomics Consortium (PCGC)	93.837	NERI CU12-2238	U01-HL098188	0	13,217
Surgical Ablation vs. No Surgical Ablation for Patients with Persistent or Longstanding Persistent Atrial Fibrillation Undergoing Mitral Valve Surgery	93.837	MSSM 0255-3106-4605	5U01HL088942-08	0	11,922
Ezh2-mediated Epigenetic Effects and Alloimmunity	93.837	TEMPLE 257154-00-01	1R01HL127351-01A1	0	11,388
Confirmation Core the Congenital Heart Disease Genetic Network Study (CHD GENES) for the Pediatric Cardiac Genomics Consortium (PCGC)	93.837	NERI CU12-2238	U01-HL098188	0	10,504

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Pregency as a Window to Future Cardiovascular Health	93.837	NWU 60041435 CU	3U10HL119992-03S1	0	10,062
Transitioning from Risk Factors to Heart Failure: Prevalence, Pathogenesis, and Phenomics	93.837	WUHS 114487	1R01HL127028-01	0	6,213
Proof of Principal Evaluation of IV Gallium Nitrate (Ganite) in Patients with Cystic Fibrosis	93.837	SCRI 11233SUB	1UM1HL119073-01	0	5,163
Surgical Treatment for Ischemic Heart Failure	93.837	DUKEU #169819	R01 HL105853	0	3,650
Genotype-Phenotype Associations in Pediatric Cardiomyopathy	93.837	WSU15059	5R01HL111459-05	0	3,477
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	2,000
Pediatric Heart Transplantation: Transitioning to Adult Care	93.837	901477-COLUMBIA	5R34HL111492-02	0	1,300
STRESS, GENE-ENVIRONMENT INTERACTION, AND CARDIOVASCULAR DISEASE	93.837	UMICHG 3001509884	R01 HL101161-01	0	1,138
Sorafenib for Hepatopulmonary Syndrome	93.837	UPENN 567266	5UM1HL116886-02	0	644
RLDC molecular pathway-driven diagnostic and therapeutics for rare lung diseases	93.837	LAMF CU16-0725	5U54HL127672-02	0	110
Pediatric Heart Transplantation: Transitioning to Adult Care	93.837	901477-COLUMBIA	5R34HL111492-02	0	96
RLDC: Molecular Pathway-Driven Diagnostics & Therapeutics for Rare Lung Diseases	93.837	CINCMC 135461	1U54HL127672-01	0	0
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	0
Atrial fibrillation burden, vascular disease of the brain and cardiac MRI in MESA	93.837	UWASH UWSC8531	1R01HL127659-01	0	0
Antibody tolerance by mixed chimerism induction	93.837	MGH 213753	5 P01 HL018646	0	0
EFFECTS OF EXERCISING ON CELL AGING	93.837	UCSF 6745sc	01 R01 HL108821-01	0	-8
Hydroxyurea to Prevent CNS Complications of Sickle Cell Disease in Children	93.837	JHU CU15-0087	3R34HL108756-02S1	0	-1,522
Cardiovascular Inflammation Reduction Trial	93.837	BWH CU13-3251	5U01HL101422	0	-2,021
A Highly Sensitive and Targeted Non-Invasive test for the Surveillance of Rejection in Cardiac Transplant Recipients	93.837	MCW 1	1R01HL119747-01	0	-6,773
Sorafenib for Hepatopulmonary Syndrome	93.837	UPENN 567266	5UM1HL116886-02	0	-60,117
				\$198,915	\$2,945,289

Lung Diseases Research

Secondhand smoke and asthma: Mechanistic outcomes of DNA methylation in T cells	93.838	SU 60519233-107979	1R01HL118612-01	0	241,641
Data Fusion: A Sustainable Scalable, Open Source Registry Advancing PVD Research	93.838	UCOL FY15-.369.010	1U01HL121518-01	0	100,837
Genetic Epidemiology of Chronic Obstructive Pulmonary Disease	93.838	NJMRCCS 24021506	2R01HL089897-06A1	0	86,723
Hormonal, Metabolic and Signaling Interactions in PAH	93.838	VUMC 40614	1P01HL108880-01A1	0	86,639

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Non-invasive measurement of pulmonary ventilation and perfusion using Electrical Impedance Tomography (EIT)	93.838	GENELE 400096285	R01 HL109854-01	0	56,442
Clinical Risk Factors for Primary Graft Dysfunction	93.838	UPENN 565138	2R01HL087115-06A1	0	53,802
HALF-PINT Heart and Lung Failure - Pediatric INSulin Titration Trial	93.838	CHMCB PO#0000648055	1 U01 HL107681-01	0	53,714
Development of new drugs for asthma by targeting GABA(A) receptors in the lungs	93.838	UW 153405520	5R01HL118561-02	0	30,188
Foxp3+ Treg Cells and Primary Graft Dysfunction in Clinical Lung Transplant Recipients	93.838	CHILDREN 320960	1 R01 HL114468-01	0	25,379
Mobile Technology and Online Tools to Improve Asthma Control in Adolescents	93.838	3CISD CU15-2143	1R44HL127826-01	0	24,539
Defining Epithelial Clues that Direct Cell Fate	93.838	BU 4500001668	1R01HL124392-01	0	24,224
Design and Testing of Practical Tools to ID individuals at high risk for COPD	93.838	CUMC 14101439-01	7R01HL114055-03	0	21,753
Compliant Thoracic Artificial Lungs	93.838	CMU 1090409-334670	5R01HL089043-06	0	17,399
Defining the role of early pulmonary vascular disease in COPD	93.838	UIO W000812667	1R01HL126838-01	0	16,005
OPTIMIZing Treatment Early Pseudomonas aeruginosa Infection in Cystic Fibrosis	93.838	SCH 11281SUB	1U01HL114623-01A1	0	9,583
Clinical Risk Factors for Primary Graft Dysfunction	93.838	UPENN 565138	2R01HL087115-06A1	0	4,364
OPTIMIZing - Treatment for Early Pseudomonas aeruginosa Infection in Cystic Fibrosis: The OPTIMIZE Multicenter, Placebo-Controlled, Randomized Trail	93.838	SCH 11102SUB	1U01HL114623-01A1	0	3,796
Defining the role of early pulmonary vascular disease in COPD	93.838	UIO W000812667	1R01HL126838-01	0	2,880
Development of new drugs for asthma by targeting GABA(A) receptors in the lungs	93.838	UW 153405520	5R01HL118561-02	0	1,442
HALF-PINT Heart and Lung Failure - Pediatric INSulin Titration Trial	93.838	CHMCB PO#0000648055	1 U01 HL107681-01	0	217
HALF-PINT Heart and Lung Failure - Pediatric INSulin Titration Trial	93.838	CHMCB PO#0000648055	1 U01 HL107681-01	0	-217
OPTIMIZing - Treatment for Early Pseudomonas aeruginosa Infection in Cystic Fibrosis: The OPTIMIZE Multicenter, Placebo-Controlled, Randomized Trail	93.838	SCH 11102SUB	1U01HL114623-01A1	0	-2,073
				\$0	\$859,277

Blood Diseases and Resources Research

Oral Therapy for Hemophilia	93.839	UFDSP00010637	5R01HL109442-04	0	271,873
FGF23 and the Risk of Stroke and Cognitive Decline	93.839	UMIAM 66917H	1 R01HL108623-01A1	0	55,389
Trafficking Signals in P. falciparum	93.839	UND 202452CU	5R01HL069630-12	0	39,000
FGF-23 and Phosphorus in stroke, subclinical vascular damage, and cognition	93.839	UMIAM CU11-1180	R01HL108623	0	28,266
				\$0	\$394,528

Arthritis, Musculoskeletal and Skin Diseases Research

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Electrotherapeutic Strategies for Connective Tissue Repair	93.846	TUFTS HS1988	1R01AR061988	0
Treatments Against RA and Effect on FDG PET/Ct: The Target Trial	93.846	BWH 113296	1U01AR068043-01	0
Nanofiber Scaffolds With Gradations In Mineral Content For Rotator Cuff Repair	93.846	GIT RC995-G2	5R01AR060820-05	0
ENHANCED TENDON HEALING THROUGH GROWTH FACTOR AND CELL THERAPIES	93.846	WU-16-63	5R01AR062947-04	0
Treat To Target to Reduce Atherosclerosis in Rheumatoid Arthritis	93.846	BWH 109100	5U34AR063911-02	0
Electrotherapeutic Strategies for Connective Tissue Repair	93.846	TUFTS HS1988	1R01AR061988	0
RhEumatoid Arthritis SynOvial tissue Network (REASON)	93.846	NWU 60038979 CU	1UH2AR067687-01	0
Electrotherapeutic Strategies for Connective Tissue Repair	93.846	TUFTS HS1988	1R01AR061988	0
Nelfinavir in SLE: A Pilot Phase IIa Clinical Trial	93.846	FIMR 500613CUMC	5R21AR063929-02	0
A New System for Ultrasonic Assessment of the Calcaneus	93.846	CYBER CU14-4014	5R44AR064113-03	0
				\$0
				\$443,273

Diabetes, Digestive, and Kidney Diseases Extramural Research

Glycemic Reduction Approaches in Diabetes (GRADE) Study	93.847	GWU SGRD1213-EA7	5U01DK098246-02	0
NIDDK Type 1 Diabetes TrialNet Data Coordinating Center	93.847	USF 6119-1295-00-B	1UC4DK097835-01	0
Incidence and Implications of Subclinical Kidney Injury with Tenofovir-based PrEP	93.847	ISMMS 0255-7481-4609	1R01DK100272-01A1	0
Epigenetic, Protein, and Cellular Biomarkers of Beta Cell Function in T1D	93.847	YU CU14-0736	1UC4DK104205-01	0
Epigenetic, Protein, and Cellular Biomarkers of Beta Cell Function in T1D	93.847	YU CU14-0736	1UC4DK104205-01	0
siRNA Protection of Islet rafts in Baboons	93.847	MGH 226597	1R01DK105503-01A1	0
Glycemic Reduction Approaches for Diabetes: A Comparative Effective Study	93.847	GWU S-GRD1314-EA41	1U01DK098246-01	0
siRNA Protection of Composite Islet Kidney Transplant in Baboons	93.847	MGH 226596	1R01DK105468-01A1	0
Glycemic Reduction Approaches in Diabetes (GRADE) Study	93.847	GWU SGRD1213-EA7	5U01DK098246-02	0
The Pathogenesis of HIV Associated Nephropathy	93.847	BCMH 5600650039	5P01DK056492-16	0
A twin study of obesity pathogenesis using fM	93.847	UWASH UWSC8832	5R01DK089036-05	0
Predicting Response to Standard Pediatric Colitis Therapy: The PROTECT Study	93.847	CCMC 16-179296-06	5U01DK095745-04	0
Treatment Options for Type 2 Diabetes in Adolescents and Youth (Today) Trial	93.847	GWU 23438-9-CCLS20573F	U01DK061230	0
The Glycemia Reduction Approaches for Diabetes: A Comparative Effectiveness Study	93.847	SLRIHS CU15-1115	5U01DK098246-03	0

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Targeting RAGE-MDia1 Signal Transduction in Diabetic Complications: Mechanisms and Therapeutics	93.847	NYUMC 14-A0-00-002489-01	5R24DK103032-03	0	20,222
Supplement to Urinary Biomarkers of Lower Urinary Tract Symptoms (LUTS) in Men	93.847	UWIMAD 556K496	3P20DK097826-02S2	0	14,849
Treatment Options for Type 2 Diabetes in Adolescents and Youth (Today) Trial	93.847	GWU 23438-9-CCLS20573F	U01DK061230	0	13,524
TrialNet Type 1 Diabetes Natural History Study	93.847	UFLRDA CU09-4618	NIDDK	0	12,803
TrialNet Type 1 Diabetes Natural History Study	93.847	UFLRDA CU09-4618	NIDDK-U01	0	10,934
The Glycemia Reduction Approaches for Diabetes: A Comparative Effectiveness Study	93.847	SLRIHS CU15-1115	5U01DK098246-03	0	6,035
DiaCompSummer Student Funding Program	93.847	GRU 25732-66	5U24DK076169-09	0	5,906
Diabetes Prevention Program Outcomes Study (DPPOS)	93.847	GWU S-DPP1617-JB22	2U01DK048489-23	0	3,230
THE NEPHROTIC SYNDROME STUDY NETWORK	93.847	MICHG 3001819806	U54 DK083912	0	3,212
Targeting RAGE-MDia1 Signal Transduction in Diabetic Complications: Mechanisms and Therapeutics	93.847	NYUMC 14-A0-00-002489-01	5R24DK103032-03	0	3,106
Collaborative Islet Transplant Registry (CITR)	93.847	EMMES CU15-2628	1UC4DK098086-01	0	1,979
Glycemic Reduction Approaches for Diabetes: A Comparative Effective Study	93.847	GWU S-GRD1314-EA41	1U01DK098246-01	0	455
The Pathogenesis of HIV-Associated Nephropathy -Project 3	93.847	BCMh CU11-1063	7 P01 DK056492-12	0	180
TrialNet Type 1 Diabetes Natural History Study	93.847	UFLRDA CU09-4618	NIDDK-U01	0	111
DiaComp Summer Student Funding Program	93.847	GRU 25034-85	5U24DK076169-10	0	108
A2ALL-Patient Safety System Improvements in Living Donor Liver Transplant	93.847	NWU 60029589CUNY	5R01DK090129-04	0	0
A2ALL-Patient Safety System Improvements in Living Donor Liver Transplant	93.847	NWU 60029589CUNY	5R01DK090129-04	0	0
A2ALL-Patient Safety System Improvements in Living Donor Liver Transplant	93.847	NWU 60029589CUNY	5R01DK090129-04	0	0
A2ALL-Patient Safety System Improvements in Living Donor Liver Transplant	93.847	NWU 60029589CUNY	5R01DK090129-04	0	0
Ion Chelators Predicated on Desferrithiocin	93.847	UFDSP 00010419	4 R37 DK049108-16	0	-6,474
NIDDK Type 1 Diabetes TrialNet Data Coordinating Center	93.847	USF 6119-1295-00-B	1UC4DK097835-01	0	-19,538
Subcontract to InfoSciTex Corp: Wearable Artificial Kidney STTR Phase 2	93.847	Vivonics 1483-S001	2R42DK072646-02A1	0	-24,438
				\$0	\$1,842,422

Extramural Research Programs in the Neurosciences and Neurological Disorders

Stroke Incidence and Risk Factors in a Tri-Ethnic Region	93.853	UMIAMI 662756	2R01NS029993-23A1	0	715,984
PATHOLOGOMICS: ESSENTIAL TREMOR IN THE BROADER CONTEXT OF NEURODEGENERATION	93.853	YALE M15A12205 (A10281)	7R01NS088257-02	0	496,325

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Stroke Incidence and Risk Factors in a Tri-Ethnic Region	93.853	UMIAMI 662756	R37NS029993-20	0	251,244
Center for Stroke Disaparities Solution, Project III	93.853	NYU 12-02247 101974	1U54NS081765-01	0	245,556
Neurological Emergencies Treatment Trials (NETT)-SHINE	93.853	UMICHG 3002925824-SHN	5U01NS069498-03	0	240,629
CONSEQUENCES OF PROLONGED FEBRILE SEIZURES IN CHILDHOOD	93.853	AECM 310873/310995	2R37NS043209-11	0	218,931
Close-loop intervention in epileptogenesis	93.853	SU 61104536-120534	1R01NS094668-01	0	214,185
Center for Stroke Disparities Solution (Core A)	93.853	NYU 12-02247 101975	1U54NS081765-01	0	186,443
Molecular Motors and Glioma Dispersion	93.853	CCLC 615-SUB	5R01NS073610-03	0	167,347
Modular nanophotonic probes for dense, large-scale neural recording with single-cell resolution	93.853	CALTECH 43B-1095745	U01 NS090596	0	150,805
A versatile system for cell-specific gene expression control in the fly brain	93.853	SU 60545612-111633	1R24NS086564	0	115,538
High-speed volumetric imaging of neuronal network activity at depth using Multiplexed Scanned Temporal Focusing (MuST)	93.853	RFU 1U01NS094263-02	1U01NS094263-01	0	107,359
Using Cell-Penetrant Peptides to Target ATF5 in Mouse Glioma Models	93.853	UCD 201303503-01	5R01NS083795-02	0	107,223
Transitioning Early Career Neurosurgeons to Scientific Independence-Cognitive Control in the human Prefrontal Cortex	93.853	MGH 220901	5K12NS080223-03	0	103,382
Functional Mapping of Pathways for Sensory-Motor Integration	93.853	CALTECH 21B-1095811	5U01NS090514-02	0	99,293
Clinical-Pathological Study of Cognitive Impairment in Essential Tremor	93.853	YU M16A12367	R01NS086736	0	95,497
Lab To-Marketplace: Commercialization of a stretchable microelectrode array	93.853	BMSEED-1R43NS086118-01A1-CU	1R43NS086118-01A1	0	76,895
Functional Mapping of Pathways for Sensory-Motor Integration	93.853	CALTECH 21B-1095811	5U01NS090514-02	0	76,809
CREST-2 Clinical Coordinating Center	93.853	MAOJF COL 187276-02	1U01NS080168-01A1	0	70,100
Spinal Muscular Atrophy (SMA) Biomarkers in the Immediate Postnatal Period of Development NN101	93.853	NEURONEXT NN101	1U10NS077423-01	0	64,172
SUDEP Translational Research Allciance (SUTRA): The Central Autonomic Network, Serotonin, and Adenosine: SUTRA 4 of 7	93.853	UCL CU14-1548	5U01NS090415-02	0	64,063
Customized cortical stimulation therapy in the rehabilitation of stroke patients	93.853	EU T467956	1R01NS090677-01A1	0	55,517
Safety Evaluation Of 3K3AAPC In Ischemic Stroke-Rhapsody-NEURONEXT	93.853	CSMCLA CU15-3417	5U01NS088312-02	0	55,053
Center for Stroke Disaparities Solution, Project III	93.853	NYU 12-02247 101974	1U54NS081765-01	0	54,969
Center for SUDEP Research (CSR): Autonomic and Imaging Biomarkers of SUDEP	93.853	CWRU RES509423	5R01NS090407-01	0	53,435
Center for Stroke Disparities Solution (Core A)	93.853	NYU 12-02247 101975	1U54NS081765-01	0	40,962
A versatile system for cell-specific gene expression control in the fly brain	93.853	SU 60545612-111633	1R24NS086564	0	33,797
Neurological Emergencies Treatment Trials (NETT)	93.853	UMICHG 3003041952-ISPOT	1U01NS079077-01A1	0	29,952

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An Information Fusion Approach to Longitudinal Health Records	93.853	OSU 60035751	5R01LM011116-04	0	28,489
Anti-hypertensive Treatment of Acute Cerebral Hemorrhage ATACH II	93.853	UMINN N000936904	U01 NS062091-01A2	0	25,986
Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs	93.853	EMORYU S917796	2U01NS038455-11A1	0	25,105
Stroke Incidence and Risk Factors in a Tri-Ethnic Region	93.853	UMIAM I 662756	2R01NS029993-23A1	0	24,300
Clinical Coordination Center for STEADY-PD3	93.853	NWU 60036745 CU	1U01NS080818-01A1	0	23,988
Discovery Healthcare Innovations to Address Disparities in Stroke (DIADS)	93.853	UCSF 8621sc	1U54NS081760-01	0	21,901
NIH Stroke Net National Coordinating Center - Administrative Collaborating Agreement	93.853	UCIN 008822	1U01NS086872-01	0	18,795
The Frontotemporal Lobar Degeneration Clinical Research Consortium	93.853	UCSF 8570SC	1U54NS092089-01	0	17,970
EPI4K - Phenotyping and Clinical Informatics Core	93.853	UCSF 6867SC	5U01NS077276-03	0	15,936
Neurological Emergencies Treatment Trials (NETT)- ProTECT	93.853	SUBK00002807-PIII	U01NS062778	0	15,737
Clot Lysis: Evaluating Accelerated Resolution of Intraventricular Hemorrhage, Phase III	93.853	JHU 2000743955	U01 NS062851-01A1	0	13,359
The trajectory of functional status and quality of life before and after stroke	93.853	MSSM 0253-9491-4609	1K23NS079422-01A1	0	11,610
Coenzyme Q10 in Huntington s Disease: 2CARE	93.853	MGH CU13-1030	2U01NS052592-06	0	9,231
SUDEP Translational Research Alliances (SUTRA): The Central Autonomic Network, Serotonin, and Adenosine: SUTRA 4 of 7	93.853	UCL CU14-1548	5U01NS090415-02	0	9,156
Futility Study of Deferoxamine Mesylate in Intracerebral Hemorrhage (I-DEF)	93.853	BIDMC CU15-0742	5U01NS074425-03	0	8,234
Hypothermia in Acute Stroke with Thrombolysis imaging Evaluationof Revasculariza (HASTER)	93.853	UCLA 1580 G RD901	5R01NS077706-02	0	6,634
in Vivo Quantification of Cerebellar GABA and NAA in Essential Tremor	93.853	YALE CU15-0753	5R01NS085136-02	0	6,545
Neurological Emergencies Treatment Trials (NETT)-Point	93.853	UMICHG 3002925634-PNT	5U01NS062835-04	0	6,149
Minorities with ICH	93.853	UCINCM CU09-2753	5U01NS069763-05	0	5,278
Carotid Revascularization Endarterectomy vs. Stent Trial	93.853	UMDNJ CU11-3191	1 R01 NS038384 01	0	3,477
EPI4K - Phenotyping and Clinical Informatics Core	93.853	UCSF 6867SC	5U01NS077276-03	0	3,188
PlexinB2 function in glioma invasion and glioma stem cell maintenance	93.853	ISMMS 0255-0821-4609	1R01NS092735-01A1	0	3,108
CTE and Post Traumatic Neurodegeneration: Neuropathology and Ex Vivo Imaging	93.853	BUMC 4500002025	1U01NS086659-01	0	2,990
CTE and Post Traumatic Neurodegeneration: Neuropathology and Ex Vivo Imaging	93.853	BUMC 4500002025	1U01NS086659-01	0	2,968
The Frontotemporal Lobar Degeneration Clinical Research Consortium	93.853	UCSF 8570SC	1U54NS092089-01	0	2,731
Maternal Outcomes and Neurodevelopmental Effects of Antiepileptic Drugs	93.853	EMORYU S917796	2U01NS038455-11A1	0	2,618

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Spinal Muscular Atrophy (SMA) Biomarkers in the Immediate Postnatal Period of Development NN101	93.853	NEURONEXT NN101	1U10NS077423-01	0
Established Status Epilepticus Treatment Trial (ESSETT)	93.853	UV GB10094-151272	1U01NS088031-01	0
The Frontotemporal Lobar Degeneration Clinical Research Consortium	93.853	UCSF 8570SC	1U54NS092089-01	0
Towards a Complete Description of the Circuitry Underlying Memory Replay	93.853	UCI No.2014-3142	1U01NS090583-01	0
Minorities with ICH	93.853	UCINCM CU09-2753	5U01NS069763-05	0
Mechanisms of Early Recurrence in Intracranial Atherosclerotic Disease	93.853	UM CU13-2275	1R01NS084288-01A1	0
Spinal Muscular Atrophy (SMA) Biomarkers in the Immediate Postnatal Period of Development NN101	93.853	NEURONEXT NN101	1U10NS077423-01	0
A model system for studying the interaction of multiple processes for motor learning	93.853	PU CU13-0458	1R01NS084948-01	0
Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2) Trial (	93.853	MAOJF 187276-01	5U01NS080168-02	0
Stroke Incidence and Risk Factors in a Tri-Ethnic Region	93.853	UMIAMI 662756	R37NS029993-20	0
The Intravascular Cooling in the Treatment of Stroke 2/3 (ICTus 2/3) Trial	93.853	UCSD P000144	P50 NS044148	0
Neurobiological Predictors of Huntington s Disease	93.853	UIO CU08-4421	2 R01 NS40068-08	0
Towards a Complete Description of the Circuitry Underlying Memory Replay	93.853	UCI No.2014-3142	1U01NS090583-01	0
Spinal Muscular Atrophy (SMA) Biomarkers in the Immediate Postnatal Period of Development NN101	93.853	NEURONEXT NN101	1U10NS077423-01	0
				\$0
				\$4,488,986

Allergy, Immunology and Transplantation Research

INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0
HPTN076 Protocol	93.855	PO15001918	UM1 AI068619	0
High resolution analyses of Env-directed B cells to accelerate vaccine design-P2	93.855	SCRIPPS 5-52613	5P01AI104722-03	0
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0
HPTN 085 - Harlem Prevention Center CRS	93.855	FHID 15004260	UM1AI068619	0
Approaches to Tolerance of Allogeneic Kidney and Islet Transplants	93.855	MGH 228402	5U19AI102405-04	0
HPTN 085 - Bronx Pevention Center CRS	93.855	FHID PO15004262	UM1AI068619	0
Units for HIV/AIDS Clinical Trials Network	93.855	CAPRISA1 2002 024027 08	2UM1AI069469-08	0
Targeting matrix metalloproteinases to limit imunopathology in airborne infection	93.855	USH 2	5R33AI102239-04	0
Defining the targets of broad intervention antimalarial agents	93.855	UCAL 42374631	1R01AI103058-01A1	0

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HVTN 703/ HPTN 081 Site Readiness	93.855	FHCRC 0000853369	5UM1AI068614-09	0	187,946
Mouse Allergen and Asthma Intervention Trial	93.855	JH 2001003650	5 U01 AI083238-03	31,344	184,827
AIDS Clinical Trials Group Protocol Funds	93.855	BWH CU14-1723	2UM1AI068636-08	0	184,375
Listeria monocytogenes physiology and host pathogen interactions	93.855	UWASH UWSC8286	1R01AI116669-01	0	178,484
High resolution analyses of Env-directed B cells to accelerate vaccine design-P2	93.855	SCRIPPS 5-52613	5P01AI104722-03	0	172,458
HPTN076 Protocol	93.855	PO15001918	UM1 AI068619	0	164,011
Delivery of Rectal Enema as Microbicide	93.855	JHU 2002342875	1U19AI113127-01	0	152,879
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.855	AECM 310838	1R01AI116665-01	0	143,448
Miami Womens Interagency HIV Study (WIHS)	93.855	UMIAMI 666133	1U01AI103397-01	0	137,203
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	113,820
Rituximab Plus Cyclophosphamide Followed by Belimumab for the Treatment of Lupus Nephritis	93.855	BRI FY15ITN152	5UM1AI109565-02	0	113,318
Mapping Drug Resistance Genes in Plasmodium Falciparum	93.855	TBRI 13-01112.008	5R37AI048071-13	0	97,861
Units for HIV/AIDS Clinical Trials Network	93.855	CAPRISA1 2002 024027 08	2UM1AI069469-08	0	93,366
Impact of HIV on breast cancer treatment and outcomes in South Africa	93.855	WHCL 14-1162	1R01CA192627-01	0	88,254
HVTN Scientific Leadership (Hammer)	93.855	FHCRC 0000791118	2UM1AI068614-08	0	86,979
HVTN Research And Mentorship Program (RAMP)	93.855	FHCRC 0000834204	5UM1AI068614-09	0	85,533
Lyme Point-of-care phase II	93.855	ITI CU13-2663	2R44AI096551-03	0	84,883
AIDS Clinical Trials Group Protocol Funds	93.855	BWH CU14-1723	2UM1AI068636-08	0	84,065
Miami Womens Interagency HIV Study (WIHS)	93.855	UMIAMI 666133	1U01AI103397-01	0	81,691
Center for HIV/AIDS Vaccine Immunology and Immunogen Discovery (CHAVI-ID)	93.855	SCRIPPS 5-50912	5UM1AI100663-03	0	81,665
Evolution of Glycan - Reactive Broadly Neutralizing Anti-V2 Antibodies in HIV Infection	93.855	WITS D1307700-06	5R01AI104387-04	0	80,752
Immune Tolerance Network	93.855	BENRI FY16ITN194	1UM1AI109565-01	0	79,546
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	68,695
Safety, pharmacokinetics, and resistace to bedaquiline in XDR TB and HIV	93.855	AECM 14-2397	1R01AI114304-01A1	0	63,626
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.855	AECM 310838	1R01AI116665-01	0	63,612
HVTN Scientific Leadership (Hammer)	93.855	FHCRC 0000791118	2UM1AI068614-08	0	62,099

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Chronic Graft Destruction: The Complex Interplay of Alloantibodies, Autoantibodies, and Non-Adherence	93.855	VUMC 40877	U01A1104336-03	0	61,154
Immunosuppression Withdrawal for Stable Pediatric Liver Transplant Recipients	93.855	UCSF 7230sc	5U01AI100807-03	0	57,440
Immune Tolerance Network	93.855	BRI FY16ITN109	5UM1AI109565-02	0	54,086
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	53,824
HIV/AIDS Prevention Trials Network (HPTN) Leadership Group	93.855	FHI 860/0080.0015	UM1AI068619	0	43,488
Function of antimalarial drug resistance proteins	93.855	GU 411310	2R01AI056312-10A1	0	40,699
Immune Tolerance Network	93.855	BENRI FY16ITN194	1UM1AI109565-01	0	40,058
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	39,622
Zoster Vaccine and Risk Factors of Zoster and Post-Herpetic Neuralgia	93.855	KFDNI 5981-CU-01	5R01AI089930-02	0	38,595
HPTN Leadership and Operations Center	93.855	FHI FCO 104112/ID 0080.0239	UM1AI068619	0	37,226
MECHANISMS OF B CELL RESPONSES IN AUTOIMMUNE DISEASE: C14-AS01-OSU	93.855	DUMC C14-ASC01-OSU	5U19AI056363-10	0	34,051
East Africa leDEA Regional Consortium	93.855	INDU IN-4685241CU	U01AI069911	0	33,967
Microbicide Trials Networks	93.855	MWRI 9395	2UM1A1068633-08	0	30,346
Women s Interagency HIV Study (WIHS)-Longitudinal Cohort	93.855	EU T481588	5U01AI103408-03	0	27,656
Immune Tolerance Network	93.855	FY15ITN159	5UM1AI109565-02	0	26,145
International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT)	93.855	JH 2002127548	UM1AI068632	0	25,107
Immune Tolerance Network	93.855	FY15ITN159	5UM1AI109565-02	0	25,050
Chronic Graft Destruction: The Complex Interplay of Alloantibodies, Autoantibodies, and Non-Adherence	93.855	VUMC 40877	U01A1104336-03	0	19,091
International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT)	93.855	JH 2002127548	UM1AI068632	0	19,040
HIV Prevention Trials Network: Protocol Leadership: HPTN078	93.855	FHI PO15000459	UM1AI068619	0	17,525
Targeting matrix metalloproteinases to limit immunopathology in airborne infection	93.855	USH 2	5R33AI102239-04	0	16,949
HVTN Scientific Leadership (Sobieszcayk)	93.855	FHCRC 0000851189	5UMAI068614-09	0	15,776
Probing the natural genomic diversity of Babesia microti	93.855	YU C15A12235(A10294)	1R21AI112938-01A1	0	15,760
HVTN Protocol Funding	93.855	FHCRC 0000858542	2UMAI068614-08	0	14,918
East Africa leDEA Regional Consortium	93.855	INDU IN-4685241CU	U01AI069911	0	14,662
Sofosbuvir and Ledipasvir in HIV/HCV Coinfected Pre & Post Liver Transplant	93.855	UCSF 8658sc	1U01AI115714-01	0	11,907

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HVTN Scientific Leadership (Sobieszcayk)	93.855	FHCRC 0000851189	5UMAIO68614-09	0	10,850
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	10,376
Translational and Naive CD4 T Cells and B Cells in Infant Vaccine Responses	93.855	SU 61088763-104252	5R01AI100121-04	0	10,082
A Tolerance Approach to Xenotransplantation	93.855	MGH 218549	2 P01 AI045897-11A1	0	9,642
Monochromatic 222nm UV light: Development of safe, cost-effective technology for the efficient reduction of bacterial and viral infection and transmission	93.855	EPI20160404-CUNY	1R41AI25006-01	0	9,210
Prevalence and Mechanisms of baseline notroinidazole in MDR and XDR TB	93.855	BWH CU16-0243	5UM1AI068636-10	0	8,378
Building Towards Scientific Expertise in Substance Related Risks for HIV Transmission in HPTN Protocols	93.855	UCSD 72534530	5UM1AI068619-10	0	7,372
HVTN 703/ HPTN 081 Site Readiness	93.855	FHCRC 0000853369	5UM1AI068614-09	0	6,837
Health Promotion for Township MSM in South Africa	93.855	UCSF 138342-4000	5R01AI089292-05	0	6,713
Core C: Small Animal Core, A Tolerance Approach to Xenotransplanlation	93.855	MGH 218553	5 P01 AI045897-13	0	6,100
Type IV Pilus: A Switch that determines consequences of Neisseria colonization	93.855	UA 223700	5R01AI107966-01	0	5,153
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	4,371
Mouse Allergen and Asthma Intervention Trial	93.855	JH 2001003650	5 U01 AI083238-03	0	3,542
Aging and Fracture Risk among HIV-Infected and HIV-Uninfected Men	93.855	JHU 2001578619	5R01AI093520-02	0	2,469
INNER CITY ASTHMA CONSORTIUM (ICAC3): CORE	93.855	UWIS 693K000	1UM1AI114271-01	0	1,851
Delivery of Rectal Enema as Microbicide	93.855	JHU 2002342875	1U19AI113127-01	0	168
Immunosupression Withdrawl for Stable Pediatric Liver Transplant Recipients	93.855	UCSF 7230sc	5U01AI100807-03	0	34
HIV/AIDS Prevention Trials Network (HPTN) Leadership Group	93.855	FHI 860/0080.0015	UM1AI068619	0	0
Immunosupression Withdrawl for Stable Pediatric Liver Transplant Recipients	93.855	UCSF 7230sc	5U01AI100807-03	0	-34
Stem Cell-Based Therapies for Mitigation of Acute Radiation Syndromes	93.855	AECMYU 31525T	5U19AI091175-04	0	-356
High resolution analyses of Env-directed B cells to accelerate vaccine design-P2	93.855	SCRIPPS 5-52613	5P01AI104722-03	0	-10,730
Mouse Allergen and Asthma Intervention Trial	93.855	JH 2001003650	5 U01 AI083238-03	0	-34,154
HPTN 076 Protocol Funding	93.855	HPTN CU14-1964	2UM1AI068619-08	0	-132,410
				\$31,344	\$7,099,575
Biomedical Research and Research Training					
A minimally invasive synthetic biology-driven approach for natural products discovery	93.859	RFU CU14-2989	U01GM110714-01A1	0	440,893

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Modulation of KCNQ1 Channel Activity	93.859	UMIAMI CU13-1303	1R01GM109762-01	0	193,741
Structure-Based Antagonism of HIV-1 Envelope Function in Cell Entry	93.859	DREXEL 232659-Columbia	5P01GM056550-19	0	178,761
FEBio- Finite Elements for Biomechanics and Biophy	93.859	UTAH 10026950-COLUMBIA	2R01GM083925-05	0	158,307
MIDAS Center for Communicable Disease Dynamics	93.859	HARVARD 114182-5094456	2U54GM088558-06	0	151,484
Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0	144,950
Spatial Models of Cell Regulatory Networks	93.859	ISMMS 0225-0651-4609	2R01GM072853-09	0	141,542
The Transport Cycle in Neurotransmitter Uptake Systems (Bridge 3.1)	93.859	UCHIC FP043359-B	2U54GM087519-06	0	127,968
Maturation of the Large Ribosomal Subunit in Yeast	93.859	UTEXAUS UTA14-000554	5R01GM053655-19	0	119,602
Spectral revelations of mitochondrial Ca2+ flux interactome Ca2+ interactome	93.859	TEMPLE 361067-04710-02	1R01GM109882-01	0	106,941
Yeast Chromatin structure and function	93.859	UMASS WA00278414-RFS2015144	2R01GM054096	0	92,918
NYSBC Structural Genomics of Membrane Proteins	93.859	NYSBC NYSBCG02005-1	5U54GM095315-05	0	75,983
Regulation of Adenylyl Cyclase Signaling Pathways	93.859	UTEXHOUS 0009812A	5R01GM060419-16	0	64,360
Genomic Bases of Behavioral Learning: Single Cell Approaches	93.859	UFLRDA UF11169	1 R01 GM097502-01	0	58,166
Structure-Based Antagonism of HIV-1 Envelope Function in Cell Entry	93.859	DREXEL 232659-Columbia	5P01GM056550-19	0	49,875
Semiparametric regression analysis of censored data	93.859	UNC-CH-5-30759	4R37GM047845-20	0	38,166
Manipulation of cellular translation machinery by viral RNAs	93.859	UCOL FY.13.612.001	1R01GM097333-01A1	0	33,750
NYSBC Structural Genomics of Membrane Proteins	93.859	NYSBC NYSBCG02005-1	5U54GM095315-05	0	14,598
Semiparametric analysis of censored data in current medical studies	93.859	UNC-CH-5101930	2R01GM047845-25	0	8,834
NYSBC Structural Genomics of Membrane Proteins	93.859	NYSBC NYSBCG02005-1	5U54GM095315-05	0	4,852
Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0	1,979
The Membrane Protein Structural Dynamics Consortium	93.859	UCHICA 43359-5-31486-8608	U54 GM087519	0	367
Manipulation of cellular translation machinery by viral RNAs	93.859	UCOL FY.13.612.001	1R01GM097333-01A1	0	0
NYSBC Structural Genomics of Membrane Proteins	93.859	NYSBC NYSBCG02005-1	5U54GM095315-05	0	-499
Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0	-731
NYSBC Structural Genomics of Membrane Proteins	93.859	NYSBC NYSBCG02005-1	5U54GM095315-05	0	-1,039
Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0	-1,108

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Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0
The Membrane Protein Structural Dynamics Consortium	93.859	UCHICA 43359-5-31486-8608	U54 GM087519	0
The Membrane Protein Structural Dynamics Consortium	93.859	UCHICA 43359-5-31486-8608	U54 GM087519	0
Structural Genomics of Eukaryotic Domain Families	93.859	RUTGER 5469	5U54GM074597-05	0
				\$0
				\$2,193,701

Child Health and Human Development Extramural Research

The Maternal Fetal Medicine Unit Network	93.865	GWU CU14-1338	2U10HD036801-16	727,640	1,488,806
Nutritional Primary Prevention of Type 1 Diabetes	93.865	UPITT #0019592(125895-1)	5U01HD042444-14	0	332,773
Aging and Dementia in Adults with Down syndrome	93.865	KKINS 231.234H	5 P01 HD035897-24	0	192,890
The Vuka Family Program: Supporting the health and behavior of South African HIV+ youth	93.865	NYU F7107-01	1R01HD074052-01	0	172,417
Identity Stress and Health in Three Cohorts of Lesbians Gay Men and Bisexuals	93.865	UCLA 1215 G SA078	1R01HD78526-01A1	0	147,894
Multigenerational Familial and Environmental Risk for Autism (MINERVA)	93.865	MSSM 0255-5365-4609	U01HD073978-01	0	136,307
Pediatric Critical Care and Trauma Scientist Development Program (PCCTSDP)	93.865	UUTAH 10034012-COLM	2K12HD047349-11 REVISED	0	118,215
MD-INMD-CV Predictive Informatics Monitoring in the Neonatal Intensive Care Unit	93.865	UV GB10057 147305	1R01HD072071-01A1	0	116,131
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.865	AECM 310838	1R01AI116665-01	0	91,213
Impact of Perinatal Depression Treatment on Child Developmental Outcomes	93.865	DUKEU 2033874	1R01HD075875-01A1	0	89,429
Molecular mediators of group B streptococcal chorioamnionitis and vertical transmission	93.865	CHMCO 130474	5K12HD000850-30	0	87,951
Study of Oxytocin in Autism to Improve Reciprocal Social Behaviors (SOAR-B)	93.865	UNC S102182	5U01HD073984-03	0	84,662
PEDIATRIC SCIENTIST DEVELOPMENT PROGRAM (PSDP) K12	93.865	CINCMC 130474	5K12HD000850-31	0	76,685
Fragile Families and Child Well-being in Adolescence	93.865	PU 00002107	2R01HD036916-11A1	0	59,077
Improving Outcomes for HIV-infected Children in South Africa and Cote d'Ivoire	93.865	MGH 224642	1R01HD079214-01	0	55,698
Genetic and Epigenetic Modifiers in Down Syndrome	93.865	KKINS CU10-2531	5P01HD035897-26	0	52,541
Clinical Diagnostic Sequencing of Structural Variation	93.865	MGH 225991	1R01HD081256-01A1	0	46,883
Women s Empowerment and Intimate Partner Violence in Bangladesh: A Multilevel Study	93.865	FHID 4350-04-Columbia-01	6 R01 HD061630-02	0	37,748
ATN Coordinating Center	93.865	UAB 000388010-023	5 U01 HD040533-12	0	34,884
The Vuka Family Program: Supporting the health and behavior of South African HIV+ youth	93.865	NYU F7107-01	1R01HD074052-01	0	25,478

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<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Inhibitors of Purine Import into Plasmodium falciparum Kill Malaria Parasites	93.865	AECM 310838	1R01AI116665-01	0	20,917
Aging & Dementia in Adults with Down Syndrome	93.865	KKINS CU15-3865	PO1HD035897-26	0	20,900
Minority Stress and Mental Health among Same-Sex Couples	93.865	SFSU S12-0003	R01HD070357	0	17,092
Multi-center trial of Augmented Sensory Feedback in Children with Dyskinetic CP	93.865	USC 60622748	1R01HD081346-01A1	0	15,315
Innate and Adaptive Immunity to HCV in Human Pregnancy	93.865	UCOL FY14.284.004	5R01HD075549-02	0	14,247
Identity Stress and Health in Three Cohorts of LGB Individuals	93.865	UCLA 1215GSA161	5R01HD078526	0	13,186
The Pediatric HIV/AIDS Cohort Study (PHACS)	93.865	TUL-HSC-553702-15/16	2U01HD052104-11	0	12,240
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	11,909
Control of the Neonatal Septisome and Hydrocephalus in sub Saharan Africa	93.865	COLHD086071	5DP1HD086071-02	0	9,366
Coordinating Center for the Pediatrics HIV/AIDS cohort Study	93.865	TUL-HSC-553393-14/15	5U01HD052104-09	0	5,509
Comparative Effectiveness of Development-Bhavioral Screening Instruments	93.865	TUSM 5007836-SERV	5R01HD072778-03	0	5,227
Identity Stress and Health in Three Cohorts of Lesbians Gay Men and Bisexuals	93.865	UCLA 1215 G SA078	1R01HD78526-01A1	0	4,586
Triggers of Abruptio Placentae: A Case-Crossover Design of an Ischemic Placental Disorder	93.865	SWEDMC 803033 C	5R01HD059827-05	0	4,484
Impact of Emergency Department Probiotic Treatment of Pediatric Gastroenteritis	93.865	WU-14-226	1R01HD071915-01A1	0	1,462
Impact of Emergency Department Probiotic Treatment of Pediatric Gastroenteritis	93.865	WU-14-226	1R01HD071915-01A1	0	1,382
Pediatric Critical Care and Trauma Scientist Development Program (PCCTSDP)	93.865	UTAH 10034012-COLM	2K12HD047349-11 REVISED	0	1,334
Genetic and Epigenetic Modifiers in Down Syndrome	93.865	KKINS CU10-2531	5P01HD035897-26	0	122
Molecular mediators of group B streptococcal chorioamnionitis and vertical transmission	93.865	CHMCO 130474	5K12HD000850-30	0	0
FLUCONAZOLE PROPHYLAXIS FOR THE PREVENTION OF CANDIDIASIS IN INFANTS < T50 GRAMS BIRTH WEIGHT	93.865	DUKEU CU 09-4467	R01 HD057956-01	0	-46
nuMOM2b-Sleep Disordered Breathing Substudy	93.865	RTI 2-312-0212512	U10 HD063036	0	-1,266
Cesarean Section Optimal Antibiotic Prophylaxis (C/SOAP) Trial	93.865	UAB 000378020-009	5R01HD064729-04	0	-29,451
nuMoM2b Capitation Funding - MOU	93.865	RTI CU10-3538	5U01HD063047-02	0	-56,229
				\$727,640	\$3,519,968

Aging Research

Preclinical Alzheimer s Disease Drug Development of Novel MAPK Inhibitors	93.866	NWU 60032608 CUMC	1U01AG043415-01	0	662,291
Consortium for Alzheimer s Sequence Analysis (CASA) Project 2	93.866	UPENN 564315	1UF1AG047133-01	0	250,260

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The Trustees of Columbia University in the City of New York
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	R&D Cluster			
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Total Expenditures</u>
Alzheimer s Disease Genetics Consortium	93.866	UPENN 566914/568785	2U01AG032984-06	213,732
Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS)	93.866	MAORO TRU-194007-01	1U01AG045390-01A1	169,268
Dissecting the Genetic and Molecular Networks Underlying Longevity and Aging	93.866	PU SUB0000093	1R56AG047344-01A1	137,492
Benfotiamine in Alzheimer s Disease: A pilot study	93.866	WMBMRI CU15-1104	1R01AG043679-01A1	132,638
Dominantly Inherited Alzheimer	93.866	WASHU WU-15-186	2UF1AG032438-07	63,334
MRI, Genetic and Cognitive Precursors of AD and Dementia	93.866	BUSM 4500001205	2R01AG016495-11	46,281
Alzheimer s Disease Genetics Consortium	93.866	UPENN 566914/568785	2U01AG032984-06	42,093
Integrative Pathways to Health & Illness: Testing Older Cohort Hypotheses	93.866	UWIS 618K170	5P01AG020166	35,461
National Alzheimer s Coordinating Center	93.866	UWASH UWSC7720	2U01AGB016976-16	26,779
BDNF val66met Genotype and Age: Impact on Biomarkers and Exercise-based Treatment	93.866	FIMR 500532CU	1R01AG038734-02	18,976
Alzheimer s Disease Neuroimaging Initiative, (ADNI)	93.866	UCSD ADNI-02401	2U01AG024904-06	17,148
Deconstructing Cohort Differences in Cognitive Disparities across African Americans and Whites	93.866	RUMC CU15-1108	5P30AG010161-25	14,993
Research Supplements to Promote Diversity in Health Related Research: Cornell Roybal Center - Translational Research Institute on Pain in Later Life - II	93.866	JSWMCU 15121985-03	5P30AG022845-12	14,012
Frailty and Functional Status in Older Liver Transplant Patients	93.866	UCSF 8976sc	5K23AG048337-02	10,692
Benfotiamine in Alzheimer s Disease: A pilot study	93.866	WMBMRI no.2	1R01AG043679-01A1	9,319
Non-Invasive Treatment of Abdominal Aortic Aneurysm Clinical Trial (N-TA3CT)	93.866	UNEMED 36-5360-2141-111	5R01AG037120-03	9,303
Integrative Pathways to Health & Illness: Testing Older Cohort Hypotheses	93.866	UWIS 618K170	5P01AG020166	2,727
Nutrient Signaling and Stem Cell Maintenance in Aging Epithelia	93.866	BIFROA SA31100-CU	1R01AG047497-01A1	1,806
Consortium for Alzheimer s Sequence Analysis (CASA) U19 PENN	93.866	UPENN 564315	1UF1AG047133-01	1,307
National Alzheimer s Coordinating Center	93.866	UWASH UWSC7720	2U01AGB016976-16	276
Integrative Pathways to Health & Illness: Testing Older Cohort Hypotheses	93.866	UWIS 618K170	5P01AG020166	0
National Alzheimer s Coordinating Center	93.866	UWASH UWSC7720	2U01AGB016976-16	-381
Preclinical Alzheimer s Disease Drug Development of Novel MAPK Inhibitors	93.866	NWU 60032608 CUMC	1U01AG043415-01	-3,671
Preclinical Alzheimer s Disease Drug Development of Novel MAPK Inhibitors	93.866	NWU 60032608 CUMC	1U01AG043415-01	-5,242
			\$0	\$1,870,894

Vision Research

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	R&D Cluster				
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
xADAGES III: Contribution of genotype to glaucoma phenotype in African Americans	93.867	UCSD 601152595	1R01EY023704	0	316,610
Retinal Mechanisms	93.867	ROCHSTR CU11-1173	2R01EY00436727	0	148,183
Multiple Scales of Representation in V1	93.867	NYU F4415-01	1R01EY025673-01	0	131,916
Clinical and genetic analysis of retinopathy of prematurity	93.867	1005935 COLUMBIA	2R01EY019474-04	0	109,992
Quantitative characterization of vitreous in vitreous degeneration in Myopia	93.867	NYO.G01141P.013088.16	1R21EY024434-01A1	0	40,467
An all-optical photacoustic imaging system for the eye	93.867	GMU E2033621	7R21EY023012-02	0	33,469
Quantitative characterization of vitreous in vitreous degeneration in Myopia	93.867	NYO.G01141P.013088.16	1R21EY024434-01A1	0	28,914
Pathogenesis of Glaucomatous Optic Nerve Damage	93.867	JHU 2002382450	5R01EY002120-35	0	-549
Clinical and genetic analysis of retinopathy of prematurity	93.867	GCAEI0288A CU	7 R01 EY019474-02	0	-20,260
				\$0	\$788,742
Medical Library Assistance					
Casual Inference in Large - Scale Time - Series with Rare Events and Latent Variables	93.879	SIT 2102255-01	2R01LM011826-04	0	59,943
Tempral relation discovery for clinical text	93.879	CHMCB RSTFD0000653987	2R01LM010090-05	0	19,794
				\$0	\$79,737
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	380,715
TLC-Plus: A Study to Evaluate the Feasibility of an Enhanced Test, Link to Care Plus Treat Approach for HIV Prevention in the United States	93.936	FHI 822/0080.0067	U01 AI068619	0	115,113
				\$0	\$495,828
International Research and Research Training					
ENHANCING, TRAINING, RESEARCH CAPACITY AND EXPERTISE IN HIV CARE-ENTREE MEDICAL EDUCATION PARTNERSHIP INITIATIVE	93.989	UKZNIC MEPI CU 01	1 R24 TW0088663-02	0	17,874
				\$0	\$17,874
Total Pass-through Programs				\$965,189	\$39,899,369
Total: National Institute of Health				\$49,682,637	\$397,649,446

State / City Government

Direct Awards

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Maternal and Child Health Services Block Grant to the States					
Provision of Prenatal and Clinical Genetic Counseling Services	93.994	SDH C029422		0	49,930
				\$0	\$49,930
Total Direct Award Programs				\$0	\$49,930
Pass-through Awards					
Department of Health & Human Services					
New Experimental Medicine Studies FAST-FAIL in Trials in Psychotic Spectrum disorders (FAST-PS)	93	RFMH 25521	HHS-N-271-2012-00007-I	0	374,910
New Experimental Medicine Studies FAST-FAIL in Trials in Psychotic Spectrum disorders (FAST-PS)	93	RFMH 25521	HHS-N-271-2012-00007-I	0	41,255
New Experimental Medicine Studies FAST-FAIL in Trials in Psychotic Spectrum disorders (FAST-PS)	93	RFMH 25521	HHS-N-271-2012-00007-I	0	34,044
				\$0	\$450,209
Mental Health Research Grants					
Early Cortical Processing in Schizophrenia	93.242	RFMH 25602	5R01MH049334-23	0	555,200
Seratonergic Modulation of Brain Development: Genetic and Pharmacologic Influences on Structure, Function, and Behavior	93.242	RFMH CU09-3988	P50MH090966	0	385,628
Adult Hippocampal Neuroplasticity and Depression	93.242	RFMH 25938	5R01MH083862-07	0	363,715
Antecedents of Suicidal Behavior related Neurobiology	93.242	RFMH 25949	5P50MH090964-02	0	250,294
2/2 Familial Early-Onset Suicide Attempt Biomarkers	93.242	RFMH 26230	1R01MH108032-01	0	227,674
Postmortem Neurochemical Studies in Suicide	93.242	RFMH 26452	4R01MH040210-30	0	183,084
Antecedents of Suicidal Behavior Related Neurobiology	93.242	SRFHM 26160	5P50MH090964-03	0	179,985
A Longitudinal Multimodal MRI Study of Adolescents with Bulimia Nervosa	93.242	RFMH 25207	5R01MH090062-05	0	156,343
Structure and function of dopamine receptors	93.242	SRFHM 25781	5R01MH054137-19	0	146,717
Children at High and at Low Risk for Depression	93.242	RFMH 25004	5 R01 MH036197-25	0	143,977
Mechanisms of Antidepressant NonResponse in Late Life Depression	93.242	RFMH 25816	5R01MH102293-02	0	120,927
Antecedents of Suicidal Behavior Related Neurobiology	93.242	SRFHM 26160	5P50MH090964-03	0	115,299
Neurochemical and Clinical Effects of Glutamate Modulation in Schizophrenia	93.242	RFMH 25834	5R21MH099508-02	0	108,880
Developmental regulation of mood states by 5-HT1A heteroreceptors	93.242	SRFHM 26235	1R01MH105675-01	0	105,866

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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Probing dopamine D2 receptor trafficking in schizophrenia	93.242	SRFMH 25771	5R21MH099509-02	0	99,992
Control and Reward Circuits as Targets for Repetitive Thoughts and Behaviors	93.242	RFMH 25991	R01MH104648	0	92,533
Ketamine vs Midazolam: Testing Rapid Relief of Suicide Risk in Depression	93.242	RFMH 26254	7R01MH096784-05	0	90,954
The functioning of overlapping frontostriatal circuits in children with OCD	93.242	RFMH 25939	1R21MH101441-01A1	0	83,638
Mechanisms and significance of neural stem cell fate plasticity in the adult hippocampus	93.242	SRFMH 25032	5 R01 MH091844-02	0	81,866
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Y	2P30MH043520-25	0	81,748
A Late Sensitive Period for the Development of Anxiety Disorders	93.242	SRFMH 25022	5R01MH091427-05	0	72,185
Attaining and Maintaining Wellness in OCD	93.242	RFMH 25479	5R01MH045436-21	0	59,489
Neural Mechanisms of Food Choice in Anorexia Nervosa	93.242	SRFMH 26227	1R01MH105452-01A1	0	57,315
Neural Signature of Fear Overgeneralization in Trauma Exposed Adults	93.242	SRFMH 124376	1R01MH105355-01A1	0	57,106
Imaging Stimulant Effects on Emotional Liability in Children with ADHD	93.242	SRFMH 25753	1R01MH101172-01	0	52,970
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Y	2P30MH043520-25	0	51,134
HIV Center for Clinical and Behavioral Studies	93.242	RFMH 112561	2P30MH043520-25	0	50,000
1/2-Novel Medication Strategies Targeting Brain Mechanisms in Pediatric OCD	93.242	RFMH 25451	5R34MH095502-02	0	48,947
Masivukeni: A Multimedia ART Adherence Intervention in Resource-Limited Settings	93.242	RFMH 101442	1R01MH095576-01	0	34,654
Return to Work RCT: Counseling After Fatigue Treatment in HIV/AIDS	93.242	RFMH 25887	5R01MH102161-02	0	32,183
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Z	2P30MH043520-25	0	31,008
Multimodal Imaging of the Mesocortical System I Anorexia Nervosa	93.242	SRFMH 25824	5R21MH099388-02	0	22,586
Distinct & Common Neural Correlates of Fear Disorders, OCD, & Eating Disorders	93.242	RFMH 25220	5R01MH091694-03	0	17,905
Cognitive Skills Training to Improve Vocational Outcome in Homeless Youth	93.242	SRFMH 107612	1R21MH092569-01A1	0	17,311
HIV Center for Clinical and Behavioral Studies	93.242	SRFMH 903-1318Z	2P30MH043520-25	0	14,790
Brazilian HIV/STI Prevention for Adolescents with Mental Health Disorder	93.242	SRFMH 25477	5R34MH94163-02	0	13,653
Cognitive Training for ECT-related Memory Impairment	93.242	RFMH 25462	5R21MH096104	0	8,815
Olanzapine versus Placebo for Outpatients with Anorexia Nervosa	93.242	RFMH 25034	5 R01 MH085921-02	0	80
Antecedents of Suicidal Behavior Related Neurobiology	93.242	SRFHM 25949	5P50MH090964-02	0	-581
Seratonergic Modulation of Brain Development: Genetic and Pharmacologic Influences on Structure, Function, and Behavior	93.242	RFMH CU09-3988	P50MH090966	0	-17,462
				\$0	\$4,198,408

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Substance Abuse and Mental Health Services Projects of Regional and National Significance					
National Suicide Prevention Evaluation	93.243	RFMH 26269	HHSS2832012000071/HHSS28342002	0	190,610
Improving Life Trajectories for Youth with Early Psychosis	93.243	RFMH 26005	1H79SM061900-01	0	53,177
Improving Life Trajectories for Youth with Early Psychosis	93.243	RFMH 26005	1H79SM061900-01	0	18,582
				\$0	\$262,369
Alcohol Research Programs					
HealthCall: Enhancing brief intervention for HIV primary care alcohol dependence	93.273	RFMH 25998	1R01AA023163-01	0	145,496
				\$0	\$145,496
Drug Abuse and Addiction Research Programs					
Shared Pharmacotherapeutic Strategies for Cannabinoid & Opioid Use Disorders	93.279	RFMH 26184	5U54DA037842-03	0	193,210
Improved Strategies for Outpatient Opioid Detoxification	93.279	SRFMH 25188	5 R01 DA030484-05	0	182,712
Medical Marijuana Laws and MTF Teen Marijuana Use and Attitudes Since 1991	93.279	SRFMH CU11-0649	R01DA034244	0	151,429
A Sequenced Behavioral and Medication Intervention for Cocaine Dependence	93.279	RFMH 25770	5R01DA034087-03	0	131,554
Hypocretin (Orexin) Antagonists as a Novel Approach to Medication Development	93.279	RFMH 25131	5 R01 DA0296180-04	0	126,997
Impulsivity in Cocaine Abusers: Relationship to Drug-Taking and Treatment Outcome	93.279	RFMH 25925	1R01DA035846-01	0	103,871
Functional connectome analysis of amphetamine action at dopamine neuron synapses	93.279	RFMH 26054	1R01DA038966	0	90,177
Stress-Induced Marijuana Self-Administration: Role of Sex and Oxytocin	93.279	RFMH 25768	4R01DA035850-03	0	82,523
Synthesis of Smokable Synthetic Cannabinoids (Spice) for Human Study	93.279	RFMH 25971	1R21DA036809-01A1	0	67,677
Substance Use/Abuse & HIV/STI Risk Behaviors in Puerto Rican Youth Growing Up	93.279	RFMH 25391	4R01DA033172-05	0	67,031
DSM-IV and DSM-5 Alcohol/Substance Disorders: Reliability, Validity in NESARC-III	93.279	RFMH 25962	2R01DA018652-06A1	0	56,314
Imaging the Neurobiology of a Behavioral Treatment for Cocaine Dependence	93.279	SRFMH 25760	2R01DA020855-05A1	0	52,369
Clinical Trials Network: Greater New York Node	93.279	SRFMH 903-1545M	2 U10 DA013035-09	0	33,009
Risk and Benefits of Overdose Education and Naloxone Prescribing to Heroin Users	93.279	SRFMH 903-1856A	1R01DA035207-01A1	0	28,234
1/2 Multicenter Trial of Combined Pharmacotherapy to Treat Cocaine Dependence	93.279	RFMH 25639	5U01DA033310-03	0	23,912
Imaging the Effects of rTMS on Brain Activity in Cocaine Abusers	93.279	SRFMH 25484	1R21DA034433-01	0	21,394
Quetiapine Treatment for Cannabis Dependence	93.279	RFMH 25475	5R01DA031826-04	0	18,440

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				R&D Cluster	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Dynamic Contrast-Enhanced MRI to Measure Blood-Brain Barrier Permeability in Substance Abusers	93.279	RFMH 26155	1R21DA040436-01	0	18,376
Family Engagement, Cross-System Linkage to SU treatment for Juvenile Probationers	93.279	RFMH 26142	5R34DA039316-02	0	9,708
Clinical Trials Network: Greater New York Node	93.279	RFMH 25056	U10 DA013035-09	0	8,385
Clinical Trials Network: Greater New York Node	93.279	SRFMH 903-1545M	2 U10 DA013035-09	0	6,346
Cognitive Control in Children of SUD Parents: A Longitudinal Multimodal MRI Study	93.279	RFMH 26191	1R01DA038154-01A1	0	3,998
Shared Pharmacotherapeutic Strategies for Cannabinoid & Opioid Use Disorders	93.279	RFMH 26184	5U54DA037842-03	0	-2,299
Clinical Trials Network: Greater New York Node	93.279	RFMH 25056	U10 DA013035-09	0	-4,112
				\$0	\$1,471,255

Cancer Treatment Research

Interpersonal Psychotherapy for Depressed Minority Breast Cancer Survivors	93.395	SRFMH 1008207-1-24877	5 R01 CA133050-02	0	12,290
				\$0	\$12,290

Child Health and Human Development Extramural Research

Perinatal Assessment of At-Risk Populations	93.865	SRFMH 105340	5R37HD032774-18	0	93,259
				\$0	\$93,259

International Research and Research Training

PALOP MH Implementation Research Training Program	93.989	RFMH 25941	5D43TW009675-02	0	46,311
				\$0	\$46,311

Total Pass-through Programs

Total: State / City Government

\$0	\$46,311
\$0	\$6,679,597
\$0	\$6,729,527

National Science Foundation

Direct Awards

Engineering Grants

Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		101,798	478,181
MRI: Acquisition of Chlorine Reactive Ion Etching System	47.041	ECES-1428960		0	241,615
GOALI: Laser Scribing of Multilayer Thin Films in Solar CellsL Defect Formation and Mitigation	47.041	CMMI-1333241		0	219,352

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R&D Cluster					
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Strength and Reliability of Large Area CVD Graphene Produced Using Industrially Scalable Methods	47.041	CMMI-1437450		0	184,895
Wireless control of implantable microdevices	47.041	ECCS-1509748		52,762	180,980
Chain-Structured Strain and Fracture Sensor for Bridge Structural Health Monitoring	47.041	CMMI-1301288		0	177,164
Fitting Time-Varying Queueing Models to Service System data: Accounting for Dependence in the Arrival and Service Processes	47.041	CMMI-1265070		0	157,347
SusChEM: Long chain hydrocarbons from CO2 and electricity via genetic modification of a chemolithoautotrophic bacterium	47.041	CBET-1438263		0	143,966
Simplifying metabolic pathways by wiring redox proteins together	47.041	CBET-1402913		0	141,198
Model Updating of Structural Systems with Incomplete Information: Global Identifiability, Optimal Instrumentation and Uncertainty Quantification	47.041	CMMI-1363360		0	137,540
CAREER: Stochastic processes in high dimensions: from asymptotic analysis to algorithms	47.041	CMMI-1551829		108,492	131,838
Lithographically Patterned Heteromolecular Arrays with Single-Molecule Resolution	47.041	CMMI-1300590		0	125,468
Switched-Mode Signal Processing: An Innovative Paradigm for High Performance Analog in Nanoscal CMOS	47.041	ECCS-1309721		0	119,619
Career:Computational Nanoengineering of few-layer system via strain	47.041	CMMI-1150795		0	110,789
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	109,666
SusChEM: Rational design of aqueous interfaces of Earth abundant and nontoxic	47.041	CBET-1336845		0	106,450
GOALI/Collaborative Research: Interfacial Mechanics of Atomically-Thin Graphene in Multi ayered Laminate Composites	47.041	CMMI-1363093		0	102,614
Collaborative Research: Tunable Nanoscale Ferroelectric Photonic Crystals: Materials and Fabrication Photonic Crystal Structures, and Devices	47.041	ECCS-1302488		0	101,212
SusChEM/Collaborative Research: Fundamental Understanding of Foaming Process towards a New Warm Mix Asphalt Technology	47.041	CMMI-1301160		0	100,068
Reconfigurable flat optics	47.041	ECCS-1307948		0	99,512
Directed Evolution of an Intrinsically Disordered Peptide for Reversible Protein Binding: An Allosterically-Regulated Biomolecular Recognition Element	47.041	CBET-1402656		0	98,414
CAREER: Structure and Functional Imaging of the Atrial Myocardium	47.041	CBET-1454365		0	97,303
Matching and Allocation Problems: An Axiomatic Approach with Applications	47.041	CMMI-1201045		0	95,013
GOALI: Low-Power, Multi-Tiered, Shared-Spectrum Access Terminals using CCompressive Scanning and On-Top-of-CMOS BAW Filter Banks	47.041	ECCS-1343282		0	89,473
CAREER: A Data-driven Robust Approach for Large Scale Dynamic Optimization	47.041	CMMI-1351838		0	88,162
GOALI: Strategies for Design, Startup and Control of Field-Scale Anammox Reactors	47.041	CBET-1066860		0	87,427
A Dynamic Model for Systemic Risk in Networks Subject to Contagion	47.041	CMMI-1462495		0	85,493
CAREER: Growth and Remodeling of the Uterine Cervix During Pregnancy	47.041	CMMI-1454412		0	81,282
Sustainable co-generation of COx-free hydrogen and biochar from biomass via novel alkaline thermal treatment	47.041	CBET-1336567		0	76,884

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EARS: Cross Layering in Full Duplex - From Integrated Circuits to Networking	47.041	ECCS-1547406		0	74,394
GOALI: Low-Power, Multi-Tiered, Shared-Spectrum Access Terminals using CCompressive Scanning and On-Top-of-CMOS BAW Filter Banks	47.041	ECCS-1343282		0	74,170
Collaborative Research: Management of Transitional Care Units to Improve Hospital Outcomes	47.041	CMMI 1233547		0	73,407
RCN-SEES: Multidisciplinary Approaches to Carbon Capture, Utilization and Storage	47.041	CBET-1231393		0	70,597
Career: Interventional Microscopy for In-vivo Investigations of Brain Function	47.041	CBET-0954796		0	70,537
Collaborative Research: Exploiting Void Symmetries to Control the Self-Assembly of Nanoparticles	47.041	CBET-1403049		0	65,478
Queues in Cloud Computing	47.041	CMMI-1537638		0	61,991
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	58,979
Managing Patient Flows with Congestion Effect	47.041	CMMI-1350059		18,028	58,452
Enhanced Modeling of the Rocking and Overturning of Objects on a Moving Base	47.041	CMMI-1200859		0	56,286
Integrated CMOS Terahertz Spectroscopy of Biomolecules	47.041	ECCS-1202488		0	53,791
New Methodologies for Dynamic Optimization	47.041	CMMI-1201116		0	50,827
Hazards SEES Type1 Predicting landslide runoff and granular flow hazard: Enhanced-g centrifuge experiments contact dynamics model development and theoretical study	47.041	CMMI-1331499		0	49,252
GOALI: Inter-laminar Toughening of Composite Structures: Bonding Mechanisms and Delamination Resistance	47.041	CMMI-1363328		0	46,977
Collaborative Research: A Contact Lens-Based Glucose Nanosensor Using Affinity Polymer-Functionalized Graphene	47.041	ECCS-1509760		0	43,420
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	43,296
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	42,610
CDI-Type II: Computing with Biomolecules: From Network Motifs to Complex and Adaptive Systems	47.041	ECCS-1026591		0	41,163
GOALI: Low-Power, Multi-Tiered, Shared-Spectrum Access Terminals using CCompressive Scanning and On-Top-of-CMOS BAW Filter Banks	47.041	ECCS-1343282		0	39,494
Online algorithms for service systems	47.041	CMMI-1538088		0	35,109
BRIGE: Characterizing the rheological and microstructural evolution of oil well cement slurries under elevated temperature and pressure conditions	47.041	EEC-1342377		0	33,772
Integrated CMOS Terahertz Spectroscopy of Biomolecules	47.041	ECCS-1202488		0	33,046
Hazards SEES Type1 Predicting landslide runoff and granular flow hazard: Enhanced-g centrifuge experiments contact dynamics model development and theoretical study	47.041	CMMI-1331499		0	32,037
Collaborative Research: Probing active fraction and metabolic function to elucidate mechanisms of pharmaceutical biotransformations during nitrification-denitrification	47.041	CBET-1438578		0	30,108
GOALI: Dissimilar Metal Joining for Micro-Scale Medical Devices	47.041	CMMI-1130564		0	30,035
CAREER: High-Performance Optimization Methods for Power Systems	47.041	ECCS-1351279		0	29,529

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Collaborative Research: Joint UFL/CUI/UCR Center for Particulate and Surfactant Systems	47.041	IIP-1362078		0	28,407
Understanding the load transfer mechanisms	47.041	CMMI-1233885		0	26,750
Characterization of the human myocardium by optical coherence tomography	47.041	EEC-1342273		0	26,725
Forming, Advancing, and Sustaining Teacher-Engineer Relationships (FASTER)	47.041	EEC-1201060		0	24,000
Forming, Advancing, and Sustaining Teacher-Engineer Relationships (FASTER)	47.041	EEC-1201060		0	22,404
Bayesian Based Strategies for Inspection and Maintenance to Optimize Structural Life-Cycle Performan	47.041	CMMI-1354194		0	17,457
Topology optimization of structures accounting for damage uncertainties	47.041	CMMI-1334857		0	16,727
SusChEM/Collaborative Research: Fundamental Understanding of Foaming Process towards a New Warm Mix Asphalt Technology	47.041	CMMI-1301160		0	16,264
EARS: Cross Layering in Full Duplex - From Integrated Circuits to Networking	47.041	ECCS-1547406		0	13,255
Career: Interventional Microscopy for In-vivo Investigations of Brain Function	47.041	CBET-0954796		0	13,206
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	12,568
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	10,615
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	10,225
High-Bandwidth, Single-Molecule Bioelectronics Using A Multiplexed, Field-Effect Sensing Platform	47.041	ECCS-1202320		0	9,870
Advances Signal Processing for Smart Grid and Renewable Energy Sources	47.041	ECCS-1405327		0	7,822
Collaborative ResearchL Strategic Planning of Internet Services in the Presence of User-Initiated Innovations: Implications for Network Neutrality	47.041	CMMI-1435378		0	7,758
Optimization Based Methods for Systemic Risk Management	47.041	CMMI-1235023		0	7,200
Collaborative Research: Modeling and Analyzing Extreme Risks in Insurance and Finance	47.041	CMMI-1436700		0	6,944
Data Fusion of Heterogeneous Sensor Measurments for Enhanced Structural Modeling	47.041	CMMI-1100321		0	6,549
Forming, Advancing, and Sustaining Teacher-Engineer Relationships (FASTER)	47.041	EEC-1201060		0	6,381
Collaborative Research: Tunable Nanoscale Ferroelectric Photonic Crystals: Materials and Fabrication Photonic Crystal Structures, and Devices	47.041	ECCS-1302488		0	6,156
Switched-Mode Signal Processing: An Innovative Paradigm for High Performance Analog in Nanoscal CMOS	47.041	ECCS-1309721		0	5,581
BRIGE: Characterizing the rheological and microstructural evolution of oil well cement slurries under elevated temperature and pressure conditions	47.041	EEC-1342377		0	5,000
New Methodologies for Dynamic Optimization	47.041	CMMI-1201116		0	5,000
GOALI: Laser Scribing of Multilayer Thin Films in Solar CellsL Defect Formation and Mitigation	47.041	CMMI-1333241		0	4,984
GOALI: Laser Scribing of Multilayer Thin Films in Solar CellsL Defect Formation and Mitigation	47.041	CMMI-1333241		0	4,800

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Collaborative Research in Biophotonics: Implantable Sensor for Brain Blood Flow Mapping	47.041	CBET-1264927		0	4,365
International Workshop on Multiscale Mechanobiology	47.041	CMMI-1427519		0	3,341
GOALI: Inter-laminar Toughening of Composite Structures: Bonding Mechanisms and Delamination Resistance	47.041	CMMI-1363328		0	2,500
A phase field Arlequin model for resolving nonlocal hydromechanical effects of porous media across time and spatial scales	47.041	CMMI-1462760		0	2,487
Travel Grant Proposal to Support Participation of US Researchers at the International water Association Conference, Global Challenges: Sustainable Wastewater Treatment and Resource Recovery, October 2	47.041	CBET-1441476		0	2,370
High-Bandwidth, Single-Molecule Bioelectronics Using A Multiplexed, Field-Effect Sensing Platform	47.041	ECCS-1202320		0	2,109
Collaborative Research: Experimental and computational foundations for nonlinear pattern formation in the deposition of elastic rods	47.041	CMMI-1129917		0	2,058
Career: Energy in Sustainable Infrastructure-Multi-scale/physical Approach to a Novel Hybrid Solar Roofing Panel	47.041	CMMI 0954717		0	197
Hazards SEES Type1 Predicting landslide runout and granular flow hazard: Enhanced-g centrifuge experiments contact dynamics model development and theoretical study	47.041	CMMI-1331499		0	64
I Corps: High Frame rate Fluorescence Lifetime Imaging Microscopy	47.041	IIP-1243899		0	-86
On-Chip Magnetics for Power Management and Delivery	47.041	ECCS-0903466		0	-4,548
Integrated Selection of Thermally Responsive Aptamers for Specific Purification and Enrichment of Biomolecules	47.041	CBET-0854030		0	-4,900
Coastal SEES (Track 2) Collaborative: Developing High Performance Green Infrastructure Systems to Sustain Coastal Cities	47.041	CMMI-1325676		0	-36,947
Hazards SEES Type1 Predicting landslide runout and granular flow hazard: Enhanced-g centrifuge experiments contact dynamics model development and theoretical study	47.041	CMMI-1331499		0	-37,983
RCN-SEES: Multidisciplinary Approaches to Carbon Capture, Utilization and Storage	47.041	CBET-1231393		0	-82,443
				\$281,080	\$5,442,914

Mathematical and Physical Sciences

US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		6,332,390	6,509,698
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		0	1,104,914
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	927,501
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		376,350	686,323
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	532,023
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		411,664	464,037
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	317,063
Polyacetals: Water-Soluble pH-Degradable Polymers with Remarkable Thermoresponsive Behavior	47.049	DMR-1505164		0	262,074
Functional, Atomically-defined Nanowires and Nanoribbons of Silicon	47.049	CHE-1404922		0	248,354

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CAREER: Precision Measurements with Ultracold Diatomic Molecules	47.049	PHY-1349725		0	239,696
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	230,050
Sum Frequency studies of liquid interfaces	47.049	CHE-1360969		0	228,893
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	214,700
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	213,687
The XENON1T Dark Matter Project: A Project Proposal from the US Institutions of the XENON Collaboration	47.049	PHY-1209979		0	199,596
Elucidating Time and Length Scales of Spatiotemporal Heterogeneity in Supercooled Liquids	47.049	CHE-1213242		0	196,948
Radiative Shocks in Gamma-Ray Bursts	47.049	AST-1412485		0	186,771
CAREER: Searching for Dark Matter and Studying Galactic Particle Accelerators with VERITAS	47.049	PHY-1352567		0	184,587
SusChem: IUPAC: Sustainable Transition-Metal Catalysts for Radical Reactions	47.049	CHE-1401049		0	180,364
Excitations in Landau Levels of Two-dimensional Quantum Fluids	47.049	DMR-1306976		0	177,661
CAREER: Fixing Stellar Chronometers with Open Clusters	47.049	AST-1255419		0	169,115
Metallacarbatrane, Hydride Fluoride, and Metal-Metal Bonded Compounds of the Main Group Elements: Synthesis and Applications	47.049	CHE-1465095		0	167,796
Dynamics and Transport in Strongly InterfacinG Condensed Phase Systems	47.049	CHE-1464802		0	167,367
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	167,163
Questions in Stochastic Process Theory Arising from Mathematical Finance	47.049	DMS-1308483		0	166,654
CAREER: Visualizing the Formation of the Charge Density Wave Phase at the Atomic Scale	47.049	DMR-1056527		0	166,385
Cosmology from Non-Linear Weak Lensing	47.049	AST-1210877		0	158,869
DMREF/Collaborative Research: Designing, Understanding and Functionalizing Novel Superconductors and Magnetic Derivatives	47.049	DMR-1436095		0	152,481
NEB: Novel Quantum Switches Using Heterogeneous Atomically Layered Nanostructures	47.049	DMR-1124894		136,156	151,156
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	151,093
New Platforms for Catalysis	47.049	CHE-1464992		0	150,213
US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		0	147,649
Testing the Millisecond Magnetar Model for Gamma-Ray Bursts and Superluminous Supernovae	47.049	AST-1410950		0	141,358
Waves in Complex Media and Applications	47.049	DMS-1412560		0	139,553
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	132,691

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Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	131,982
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	127,125
Crystal Size Effects on the Lattice Parameter of Nano-scaled Oxides	47.049	DMR-1206764		0	126,570
US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		0	117,057
Automorphic Galois Representations and Automorphic L-functions	47.049	DMS-1404769		0	113,602
Stochastic Controls, Portfolios, and Competing Particle Systems	47.049	DMS-1405210		0	112,628
Modeling Solute Diffusion in Polymeric Membranes for Gas Separations	47.049	DMR-1507030		0	108,714
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	107,529
Coulomb drag in ultra-clean and strongly interacting van der Waals materials: toward exciton condensation	47.049	DMR-1507788		0	105,859
Problems in Complex Analysis and Complex Geometry	47.049	DMS-1266033		0	105,191
Link homology, cohomological operations, and categorification at roots of unity	47.049	DMS-1406065		0	104,583
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	100,609
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	98,981
Controlling Nanocomposite Properties by Nanoparticle Assembly	47.049	DMR-1408323		0	97,877
Dynamics of Organic Reactions	47.049	CHE-1465040		0	97,328
Development of ultrathin intermetallic phases for giant spin Hall effects	47.049	DMR-1411160		0	96,840
REU Site: Nevis Labs, Columbia University for Summers 2014 - 2016	47.049	PHY-1359059		0	95,905
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	94,186
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	93,567
Photoactivator Chemistry in Atmospheric Aerosols	47.049	CHE-1506789		68,684	91,870
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	90,133
Ongoing Accretion on a Galactic Disk and primordial Galaxies	47.049	AST-1410800		0	89,195
CAREER: Fractal Bandstructure by Superlattice Patterning	47.049	DMR-1462383		0	86,776
Propagation of Stochasticity in PDE s and Hybrid Inverse Problems	47.049	DMS-1408867		0	86,665
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	84,983
Maximizing the Early-Detection Science of Advanced LIGO	47.049	PHY-1404462		0	83,759

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Collaborative Research: Polarization Sensitive, Multi-Chronic MKIDs	47.049	AST-1509211		0	83,668
CAREER: Nonparametric methods in multiple dimensions: shape restrictions, bootstrap and beyond	47.049	DMS-1150435		0	82,408
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	81,822
A Novel Statistical Framework For Big Data Prediction	47.049	DMS-1513408		0	81,810
Collaborative Research: Role of Polyoxotungstates in enhanced solubility and Transport of Tungsten in the Environment	47.049	CHE-1310368		0	81,705
SELF-ASSEMBLY OF ACTIVE NANOPARTICLES	47.049	DMR-1408259		0	81,553
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	80,972
Collaborative Research: Stellar Clouds as New Probes of the Milky Way s Accretion History and Mass Distribution	47.049	AST-1312196		0	80,601
DMREF: Deblurring our View of Atomic Arrangements in Complex Materials for Advanced Technologies	47.049	DMR-1534910		0	79,784
CHaS: The Circumgalactic H-alpha Spectrograph	47.049	AST-1407652		0	78,271
Development of ultrathin intermetallic phases for giant spin Hall effects	47.049	DMR-1411160		0	77,548
Application of geometric analysis to general relativity and geometric flows	47.049	DMS-1405152		0	74,647
Algebraic Cycles and L-functions	47.049	DMS-1301848		0	72,234
Model Uncertainty and Optimal Transport	47.049	DMS-1512900		0	71,208
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	70,996
Nonlinear parabolic equations and related geometric problems	47.049	DMS-1266172		0	70,126
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	68,392
Algebraic structures in Floer theory	47.049	DMS-1308179		0	66,473
Collaborative Research: Perception and Control of Infrared Radiation by Insects	47.049	PHY-1411445		0	65,915
Beyond Single-Molecule Conductance: Understanding and Controlling Charge Transport by External Stimuli and Supramolecular Interactions	47.049	DMR-1507440		0	65,584
p-adic Automorphic forms, p-adic L-functions and Selmer groups	47.049	DMS-1407239		0	65,310
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	64,297
CAREER: Semiconductor Macromolecules and Nanocrystals: Chemistry at the Interface of Small Molecules and Quantum Dots	47.049	CHE-1151172		0	64,060
Beyond Single-Molecule Conductance: Understanding and Controlling Charge Transport by External Stimuli and Supramolecular Interactions	47.049	DMR-1507440		0	63,795
Regularity problems in the calculus of variations and elliptic PDEs	47.049	DMS-1500438		0	63,107
HyPra: Anchoring the Rotation-Activity Relation at 600 Myr	47.049	AST-1517367		0	61,286

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Enumerative geometry of moduli spaces and applications	47.049	DMS-1405217		0	61,008
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	59,835
Dynamic Self-Assembly of Glycolipids for Unveiling Complex Glycan-Protein Interactions	47.049	CHE-1312646		45,080	58,133
US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		0	56,829
CAREER: Molecular Engineering of Charge Transfer in Polymeric Materials	47.049	DMR-1351293		0	56,548
Foundations of Algebraic Stacks	47.049	DMS-1303247		0	56,305
Maximizing the Early-Detection Science of Advanced LIGO	47.049	PHY-1404462		0	51,578
Directly Testing the Presence of Large-Scale Multiphase Flows in the Galactic Halo	47.049	AST-1312888		0	51,262
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	50,756
NEB: Novel Quantum Switches Using Heterogeneous Atomically Layered Nanostructures	47.049	DMR-1124894		0	50,573
Algebraic Stacks	47.049	DMS-0970108		0	49,236
Collaborative Research: Polarization Sensitive, Multi-Chronic MKIDs	47.049	AST-1509211		0	45,485
DMREF: Deblurring our View of Atomic Arrangements in Complex Materials for Advanced Technologies	47.049	DMR-1534910		0	43,291
US ATLAS Operations Programs: Empowering University Physicists to make Discoveries at the Energy Frontier	47.049	PHY-1119200		0	43,231
Collaborative Research: Continuation of the XENON100 Dark Matter Search at the Gran Sasso Underground Laboratory	47.049	PHY-1104740		0	42,337
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	40,667
Construction of the TPC Readout Electronics for the LAr1-ND Experiment	47.049	PHY-1505313		0	39,941
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	39,786
Optimal Treatment Policies and Adaptive Screening for Functional Predictors	47.049	DMS-1307838		0	39,037
Heegaard Floer homology, concordance, and categorification	47.049	DMS-1307879		0	38,547
Collaborative Research: A Survey of Galaxy Evolution and Star Formation over the Past 4.6 Billion Years	47.049	AST-1413102		0	37,892
Symplectic topology, symmetries and singularities	47.049	DMS-1505798		0	36,799
Problems in Mathematical General Relativity	47.049	DMS-1308164		0	36,612
Collaborative Research: Optimal Monte Carlo Estimation via Randomized Multilevel Methods	47.049	DMS-1320550		0	36,522
NEB: Novel Quantum Switches Using Heterogeneous Atomically Layered Nanostructures	47.049	DMR-1124894		0	36,357
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	36,299

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FRG: Collaborative Research: Vertorial and geometric problems in the calculus of variations	47.049	DMS-1361131		0	35,049
Beyond Spherical Cows: Using Radio Observations to Write the Next Chapter on Novae	47.049	AST-1211778		12,001	34,388
Fully nonlinear geometric partial differential equations	47.049	DMS-1308136		0	33,441
CAREER: Flober-theoretic approaches to low-dimensional topology	47.049	DMS-1149800		0	33,256
A Bridge to the Future	47.049	AST-1539931		0	32,097
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	30,759
Tractability of High dimensional Problems for Quantum and Classical Computers	47.049	DMS-1215987		0	30,730
Discrete models and conformally invariant limits	47.049	DMS-1512853		0	30,045
Probability Density Function of Dislocation Free Path Length: Experimental Determination through GND Measurements	47.049	DMR-1310503		0	28,766
Collaborative Research: Continuation of the XENON Dark Matter Search at LNGS	47.049	PHY-1413495		0	27,400
CHaS: The Circumgalactic H-alpha Spectrograph	47.049	AST-1407652		0	27,376
Construction of the TPC Readout Electronics for the LAr1-ND Experiment	47.049	PHY-1505313		0	27,178
MuSR Studies of Exotic Spin and Charge Behaviors in Novel Superconducting, Metals, and Semiconductors	47.049	DMR-1105961		0	25,745
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	25,374
NEB: Novel Quantum Switches Using Heterogeneous Atomically Layered Nanostructures	47.049	DMR-1124894		0	24,769
Conference: Topological and Quantitative Aspects of Symplectic Manifolds Columbia University and Barnard College, March 17-20, 2016	47.049	DMS-1554820		0	24,300
Periodic Phenomena in Cataclysmic Binaries	47.049	AST-1211129		0	23,134
Nonparametric classification, tuning parameter selection, and asymptotic stability for high-dimensional data	47.049	DMS-1308566		0	22,074
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	21,651
Open Mirror Symmetry for Toric Varieties	47.049	DMS-1206667		0	20,690
Collaborative Research: Continuation of the XENON100 Dark Matter Search at the Gran Sasso Underground Laboratory	47.049	PHY-1104740		0	20,460
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	20,073
The Law and Politics of Antitrust in Open Economies	47.049	SES-1228453		0	19,012
Statistical Methods for Screening Individual Childhood Growth Paths	47.049	DMS-1209023		0	18,431
Quantum Critical Phenomena and Non Fermi Liquid Physics	47.049	DMR-1308236		0	18,254
Stochastic Controls, Games and Portfolios	47.049	DMS-0905754		0	16,346

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Understanding the Design and conduction of Materials for Organic Electronics at the Molecular Level	47.049	DMR-1206202		0	15,252
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	13,479
FRG: Collaborative Research: Gromov-Witten Theory	47.049	DMS-1159416		0	11,063
Dynamics of Organic Reactions	47.049	CHE-1213976		0	10,794
Collaborative Research: GOALI: Graphene	47.049	DMR-1411107		0	9,494
Collaborative Research: Cavity-enhanced exciton emission from ultraclean carbon nanotubes in the intrinsic regime	47.049	DMR-1507423		0	8,884
Kinetics of Polymer Interfacial Reactions	47.049	DMR-1206191		0	8,348
COLLABORATIVE RESEARCH: EMSW21-RTG: JOINT COLUMBIA-CUNY-NYU RESEARCH TRAINING GROUP IN NUMBER THEORY	47.049	DMS-0739400		0	8,300
CAREER: Fractal Bandstructure by Superlattice Patterning	47.049	DMR-1462383		0	7,000
Perspectives on Complex Algebraic Geometry	47.049	DMS-1502166		0	6,825
CAREER: Flober-theoretic approaches to low-dimensional topology	47.049	DMS-1149800		0	6,500
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		4,697	4,697
Collaborative Research: SusChEM:Rational Design of Non-Precious Metal Catalysts for a Future Biorefining industry	47.049	CHE-1566104		0	4,674
CAREER: Fractal Bandstructure by Superlattice Patterning	47.049	DMR-1462383		0	4,400
Critical planar systems and conformal invariance	47.049	DMS-1005749		0	3,637
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.049	PHY-1404209		0	3,584
FRG: Collaborative Research: Vertorial and geometric problems in the calculus of variations	47.049	DMS-1361131		0	2,335
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	2,323
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	2,245
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	1,911
Resolving AGN accretion and feedback in cool core clusters with parsec-scale simulations	47.049	AST-1210890		0	1,473
Problems in general relativity and geometric flows	47.049	DMS-1105483		0	1,265
Collaborative Research: Continuation of the XENON100 Dark Matter Search at the Gran Sasso Underground Laboratory	47.049	PHY-1104740		0	1,159
Degenerate Elliptic Problems in Analysis and Geometry	47.049	DMS-1200701		0	720
Columbia University Materials Research Science and Engineering Center	47.049	DMR-1420634		0	653
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	498

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					R&D Cluster
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CAREER: Multimessenger astronomy through gravitational-waves: a student centered approach	47.049	PHY-0847182		0	491
Collaborative Research: Understanding Turbulent Mixing in Laboratory Magnetospheres	47.049	PHY-1201874		0	457
Exact solvability of the Kardar-Paroso-Zhang stochastic partial differential equation	47.049	DMS-1438867		0	372
CAREER: Visualizing the Formation of the Charge Density Wave Phase at the Atomic Scale	47.049	DMR-1056527		0	41
MuSR Studies of Exotic Spin and Charge Behaviors in Novel Superconducting, Metals, and Semiconductors	47.049	DMR-1105961		0	6
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	-1,141
FRG: Collaborative Research: Gromov-Witten Theory	47.049	DMS-1159416		0	-4,106
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	-4,888
MIRT: Building Functional Nanoarchitectures in van der Waals Materials	47.049	DMR-1122594		0	-18,684
NEB: Novel Quantum Switches Using Heterogeneous Atomically Layered Nanostructures	47.049	DMR-1124894		38,138	-40,091
				\$7,425,160	\$22,121,203

Geosciences

Oceanographic Technical Services, R/V Marcus G. Langseth, 2012-2016	47.050	OCE-1214328		1,277,509	4,585,992
Ship Operations 2012-2017	47.050	OCE-1211494		0	4,549,409
A Proposal to Manage the U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP)	47.050	OCE-1450528		1,446,023	2,912,956
R/V MARCUS G, LANGSETH-OCEANOGRAPHIC INSTRUMENTATION 2015 II (Streamer)	47.050	OCE-1535871		0	1,796,070
Ship Operations 2012-2017	47.050	OCE-1211494		0	1,594,398
L TER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelagic Ecosystem	47.050	PLR-1440435		663,652	958,358
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	PLR-1443534		26,378	858,996
Ship Operations 2012-2017	47.050	OCE-1211494		0	854,623
Ship Operations 2012-2017	47.050	OCE-1211494		0	824,356
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		330,906	764,428
FESD Type 1: Pliocene Maximum Sea Level (PLIOMAX): Dynamic Ice Sheet-Earth Response in a Warmer World	47.050	OCE-1202632		405,173	718,643
Rolling Deck to Repository (R2R) 2014-2019	47.050	OCE-1447797		351,770	571,278
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	538,657
Collaborative Research: Global Ocean Repeat Hydrography, Carbon and Tracer Measurements 2009-2014	47.050	OCE-0752980		368,310	519,257

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WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		31,487	461,337
Collaborative Research: Tectonic and Magmatic Processes During Early-Stage Rifting: An Integrated Study of Northern Lake Malawi, Africa	47.050	EAR-1110921		0	446,644
MRI: Acquisition of an CRF Core Scanner for the Lamont-Doherty Core Respository	47.050	OCE-1531436		0	419,300
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		36,906	372,649
Provision of log data reduction and database serves fo scientific ocean drilling	47.050	OCE-1440495		0	349,457
Inter-Disciplinary Earth Data Alliance (IEDA)	47.050	OCE-1561175		18,282	334,586
Oceanic Response to a Coastal Polynya, Terra Nova Bay, Antarctica	47.050	PLR-1341688		0	332,299
Inter-Disciplinary Earth Data Alliance (IEDA)	47.050	OCE-1561175		26,712	298,253
Collaborative Research Flow, Turbulence and mixing in Mid-Ocean ridge Fracture Zone Canyons	47.050	OCE-1235094		0	298,063
Support for the U.S. GEOTRACES Project Office	47.050	OCE-1129603		0	288,980
Lamont, Doherty Core Repository: Curation, Service, Professional Development, Outreach	47.050	OCE-1259124		0	286,845
Surface signatures of stratospheric variability and trends	47.050	AGS-1322439		0	280,582
Ship Operations 2012-2017	47.050	OCE-1211494		0	242,246
Thermohaline Circulation and Deep Ocean Carbonate Chemistry across the Mid-Pleistocene Transition	47.050	OCE-1436079		0	231,235
Strategic Ozone Depletion and Recovery and Antarctic Climate Change	47.050	PLR-1341657		0	227,374
Tropical Cyclones and Climate - A Model Intercomparison Project	47.050	AGS-1143959		0	219,021
Collaborative Research: P2C2-Tree-Ring Reconstructions of Western North Pacific Climate Dynamics	47.050	AGS-1159430		2,039	214,342
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	194,433
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	192,757
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	187,432
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	186,950
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		23,581	185,692
Continental scale droughts in North America: Their frequency, character and causes over the past millennium and near term future	47.050	AGS-1401400		0	184,164
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	181,016
Inter-Disciplinary Earth Data Alliance (IEDA)	47.050	OCE-1561175		0	177,974
L TER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelafic Ecosystem	47.050	PLR-1440435		0	177,393

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Collaborative Research: US GEOTRACES Pacific Section: Analysis of 230Th, 232Th and 231Pa	47.050	OCE-1233688		0	174,400
Collaborative Research: Alteration of mantle peridotite: Geochemical fluxes and dynamics of far from equilibrium transport	47.050	EAR-1516300		0	173,206
North Atlantic Bottom Water Temperature and Ice Volume Records from the Mid-Pleistocene Transition	47.050	OCE-1436014		0	161,528
Collaborative Research: Contributions of Prydz Bay Shelf Water to Antarctic Bottom Water Formation	47.050	PLR-1443444		0	156,270
Interannual and Orbital-Scale Climate Variability in the Early Miocene: Physical, Chemical and Biological investigations of the Foulden Maar Diatomite	47.050	EAR-1349659		0	153,240
Collaborative Research: Chemical and biological characterizations of phosphonate and polyphosphonate dynamics in marine phytoplankton	47.050	OCE-1316036		0	145,103
EaSM-3 Collaborative Research: Local and remote regional climate responses to regional forcings from short-lived climate drivers	47.050	AGS-1419398		19,117	135,765
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	133,910
Collaborative Research: Seismic Study of the Galicia S Detachment	47.050	OCE-1030650		0	132,890
Ship Operations 2012-2017	47.050	OCE-1211494		0	129,848
REU Site: Research Experience for Undergraduates: Analyzing Global Databases	47.050	OCE-1359194		0	128,470
Collaborative Proposal: Combined Influence of Snow cover and ENSO on North African/Mediterranean Temperature and Precipitation	47.050	AGS-1303542		0	127,722
Role of variable picoplankton cellular phosphorus turnover and allocation in marine phosphorus cycling	47.050	OCE-1434914		0	125,558
Collaborative Research: A community seismic experiment targeting the pre-, syn- and post-rift evolution of the Mid-Atlantic US margin	47.050	OCE-1347498		0	124,930
Collaborative Research: Testing Mechanisms of Tropical Climate Change and Variability using New Cores from the Line Islands	47.050	OCE-1401649		0	124,061
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	122,569
Collaborative Research: From the Slab to the Surface: Origin, Storage, Accent and Eruption of Volatile-Bearing Magmas	47.050	EAR-1456814		0	121,608
Response of high-latitude forests to a warmer and CO2-enriched atmosphere: tree rings in a process-based model	47.050	PLR-1504134		0	121,096
Collaborative Research: Ocean Acidification: Impacts of evolution on the response of phytoplankton populations to rising CO2	47.050	OCE-1314336		0	120,854
Stratospheric and Tropical Influences on the Mid-Latitude Circulation Response to Rising Greenhouse	47.050	AGS-1317469		0	120,796
Algorithms and computation for rare events in complex systems	47.050	DMS-1558744		0	116,758
Ship Operations 2012-2017	47.050	OCE-1211494		0	115,350
EarthCube Building Blocks: Collaborative Proposal: Geolink- Leveraging Semantics and Linked Data for Data Sharing and Discovery	47.050	ICER-1440221		0	113,903
Collaborative Research: Advanced modeling for understanding fluid and magma migration in subduction zones	47.050	OCE-1358091		0	113,199
Water diffusion in olivine: Experiments and application to phenocrysts	47.050	EAR-1449699		0	113,116
Fibrous diamonds through time-insights into mantle fluids and metasomatism	47.050	EAR-1348045		0	112,695

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Active lava lakes as a window into magma and volcano dynamics	47.050	EAR-1348022		0	111,078
Collaborative Research: Testing Arctic Ice Sheet Sensitivity to Abrupt Climate Change	47.050	PLR-1417675		0	110,577
Collaborative Research: P2C2 Cool and Warm Season Moisture Reconstruction and Modeling over North America	47.050	AGS-1301587		0	108,763
Inter-Disciplinary Earth Data Alliance (IEDA)	47.050	OCE-1561175		0	107,397
Collaborative Research: Deglacial ice dynamics in the Weddell Sea embayment using sediment provenance	47.050	PLR-1342213		0	107,207
Collaborative Research: Dynamics and Variability of Freshwater Components in the Arctic Ocean	47.050	PLR-1504404		0	105,308
Collaborative Research: Simulating iceberg calving from ice shelves using a damage mechanics model	47.050	PLR-1341472		0	102,783
Career: Very Broadband Rheology and the Internal Dynamics of Plate boundaries on Earth	47.050	EAR-1056332		0	102,598
Development of Freeze Shoe Sampler to Recover Aquifer Sands with in situ Groundwater from up to 1000-ft Depth	47.050	EAR-1160753		97,852	100,892
Collaborative Research: Assessing Climate Model Simulations of Last Glacial Maximum Ocean Circulation with Carbon Isotopes	47.050	OCE-1234971		0	97,555
Collaborative Research: Role of small-sized protists in the microbial loop with emphasis on interactions between mixotrophic protists and picocyanobacteria	47.050	OCE-1458070		0	95,915
WSC-Category 3 Collaborative: America's Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	95,323
Surface-Wave Data Products from USArray	47.050	EAR-1460081		0	93,767
School-based Ecology and Environmental Discoveries (SEEDS)	47.050	GEO-1035037		0	93,310
Facility Support: The Global CMT Project	47.050	EAR-1249167		0	93,098
Wave Breaking in High Winds and its Effects on the Air-Sea Exchange of Gases of Varying Solubility	47.050	OCE-1537890		0	92,032
Testing geochemical proxy relationships under variable paleo-seawater chemical compositions	47.050	OCE-1232987		0	91,631
SHINE: Observational Constraints on Wave Heating of the Corona	47.050	AGS-1459247		0	91,289
Collaborative Research: Focused Study of Aleutian Plutons and their Host Rocks: Understanding the building blocks of continental crust	47.050	EAR-1457293		0	91,145
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	90,180
Collaborative Research: The 2015 Taan Fiord Landslide tsunami: An interdisciplinary study of cause & effect	47.050	EAR-1639643		61,919	89,288
Collaborative Research: Alteration of mantle peridotite: Geochemical fluxes and dynamics of far from equilibrium transport	47.050	EAR-1516300		0	86,411
A Critical Test of the Nd Paleocirculation Proxy	47.050	OCE-1260514		0	86,317
Thermal Structure, hydration and dehydration of the entire Juan de Fuca Plate	47.050	OCE-1334831		0	86,188
Constraining the Past and Future Ocean Sink of Anthropogenic Carbon with Observations	47.050	OCE-1060804		0	85,260
Unearthing Aftershocks: Physical Simulations Statistical Models, and New Observations	47.050	EAR-1447094		0	84,590

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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	83,618
Collaborative Research: Integrated Studies of Early Stages of Continental Extension: From Incipient (Okavango) to Young (Malawi) Rifts	47.050	EAR-1009839		0	82,998
Collaborative Research: West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from	47.050	PLR-1246207		0	82,524
Do Creeping Faults Ever Host Large Earthquakes? An investigation of Thermal Alteration in the SAFOD Drillcore	47.050	EAR-1358585		0	81,621
Collaborative Research: Climate and Glacier change in Bhutan: the last millennia, present and future	47.050	EAR-1304351		0	80,986
Collaborative Research Reconstruction of Carbon Monoxide in the Pre-Industrial Arctic Atmosphere from Ice Cores at Summit Greenland	47.050	PLR-1404158		0	80,717
Theoretical Studies of Spectroscopic Line Mixing in Remote Sensing Applications with Theoretical Support to Improve the Accuracy of the HITRAN H2O Database	47.050	AGS-1501297		0	80,048
Collaborative Resaerch: P2C2--Multi-Site Paleo-Reconstruction of Missouri River Streamflows from Tree Ring Data	47.050	AGS-1404188		0	79,864
Photoheterotrophy in unicellular cyanobacteria: ecological drivers and signigicance for marine biogeochemistry	47.050	OCE-1434916		0	78,686
School-based Ecology and Environmental Discoveries (SEEDS)	47.050	GEO-1035037		0	77,571
Thermal and melt structure of the Juan de Fuca plate from ridge to trench to arc, inferred from seismic attenuation across the Amphibious Array	47.050	OCE-1536566		0	75,984
Collaborative Research: Timescales for Large-Scale Tropispheric Transport	47.050	AGS-1402931		0	75,243
Collaborative Research: The Aleutian megathrust from trench to base of the seismogenic zone integration and synthesis of laboratory, geophysical and geological data	47.050	EAR-1347312		0	73,711
Collaborative Research: Evolution and Hydration of the Juan de Fuca Crust and Uppermost Mantle: A Plate-scale Seismic	47.050	OCE-1029411		0	73,597
Collaborative Research: Reconstructing Hydroclimatic Asian Monsoon Variability for the past Millennium from Tree Rings: Myanmar and Vicinity	47.050	AGS-1303976		0	70,004
Collaborative Research: Deep Structure of Three Continental Sutures in Eastern North America	47.050	EAR-1147742		0	69,291
Collaborative Research: Dissolved Phosphorus Processing by Trichodesmium Consortia: quantittative partitioning, role of microbial	47.050	OCE-1332912		0	67,809
EarthCube RCN: iSAmPLEs: The internet of Samples in the Earth Sciences	47.050	ICER-1440351		8,259	67,694
The response of the Subarctic North Pacific to abrupt climate change: Reconstructing dust flux and biological productivity during the last deglaciation	47.050	OCE-1060907		0	67,245
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	65,869
Mantle signals in arcs: Transport models from geochemistry and seismicity	47.050	EAR-1426820		0	65,504
Collaborative Research: Rifting, Magmatism, and Lithospheric Sutures Crustal Imaging of the South Georgia Basin and Suwanee Suture	47.050	EAR-1144534		0	64,996
Accomplishment Based Renewal: Temporal Evolution of Hydrothermal and Volcanic Processes at the East Pacific Rise from Microeathquake Data	47.050	OCE -0961594		0	64,454
Collaborative Research: The impact of time-dependent mantle rheology and 3-D structure on models and observations of glacial isostatic	47.050	EAR-1315254		0	63,622
Collaborative Research: Understanding the Spatio-Temporal Characteristics of Earthquakes at Axial Seamount Late in an Eruptive Cycle	47.050	OCE-1536320		0	62,667
Exploring the absolute pressure gauge data from the Cascadia Initiative OBS deployment for transient changes in searfloor elevation	47.050	OCE-1459691		0	61,499

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Collaborative Research: Spatiotemporal Variability of Northwestern North American Temperatures in Response to Climatic Forcing	47.050	AGS-1502150		0	58,415
EarthCube RCN: iSAmPLEs: The internet of Samples in the Earth Sciences	47.050	ICER-1440351		0	57,918
Collaborative Research: Past ocean-atmosphere variability from spatiotemporal patterns of North Atlantic climate during the Common Era	47.050	AGS-1502224		0	57,154
Drying Versus Wettening of the East African Climate	47.050	AGS-1252301		0	56,234
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	55,457
Support for th U.S. GEOTRACES Project Office	47.050	OCE-1536294		0	55,349
Support for the U.S. GEOTRACES Project Office	47.050	OCE-1129603		0	52,964
Imaging the Fine Structure of Earthquakes and Faults with High-Precision Aftershocks	47.050	EAR-1520680		0	50,932
Ocean Acidification- Category 1 Calibration and application of the boron isotope seawater - pH indicator in deep-water corals	47.050	OCE-1041133		0	50,406
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	48,931
R/V Marcus G. Langseth - Oceanographic Instrumentation 2016	47.050	OCE-1629821		0	48,479
Development and Testing of Pressure Gradient Sensors to Improve Shallow Seafloor Seismic Observation	47.050	OCE-1334746		0	46,938
Summer school on land-atmosphere interactions	47.050	AGS-1522174		0	46,935
Collaborative Research: Plate Tectonic and Geochemical Evolution of Young Walvis Ridge and Implications for African Plate Motion Modeling	47.050	OCE-0961450		0	46,927
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	46,875
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	44,472
CEDAR: Analysis of High Resolution Stratospheric Observations of Polar Mesospheric Clouds	47.050	AGS-1452183		10,214	43,588
Landslide dynamics from seismic wave inversion, satellite remote sensing, and numerical modeling	47.050	EAR-1227083		0	42,954
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	41,151
The Impact of Downward Wave Coupling on the Tropospheric Circulation	47.050	AGS-1129519		0	40,963
GEOTRACES Arctic Section: Using a multi-tracer approach to better understand the key factors that control anthropogenic radionuclide distribution in the Amerasian Basin	47.050	OCE-1439319		0	40,446
Collaborative Research: Evolution of Arctic Water Column Hydrography during the Holocene Based on a Novel Instrumentation Combination	47.050	PLR-1550041		0	40,358
Collaborative Research: An inverse and forward modeling synthesis of noble gases to better quantify biogeochemical cycles	47.050	OCE-1129973		0	39,743
Improved locations for global seismic events using surface waves	47.050	EAR-1520657		0	39,310
Dynamical coupling of deformation and melt transport in the Earth: A combined theoretical and experimental study	47.050	EAR-1141976		0	38,923
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	38,198

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R&D Cluster					
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Ocean Acidification: Collaborative Research: Establishing the Magnitude of Sea-Surface Acidification During The Paleocene-Eocene Thermal Maximum	47.050	OCE-1220554		0	38,173
REU Site: Research Experience for Undergraduates: Analyzing Global Databases	47.050	OCE-1359194		0	35,514
Constraints on the Composition of the Subducting Oceanic Crust in the Northwest Pacific Ocean Basin	47.050	OCE-0961359		0	35,187
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.050	PHY-1067934		0	34,454
CAREER: Evolution of Ocean Mesoscale Turbulence in a Changing Climate	47.050	OCE-1553593		0	34,324
Was Subantarctic dust a major driver of past CO2 variability	47.050	PLR-1405204		0	33,978
Supply and removal of trace elements in the subtropical South Pacific (UltraPac)	47.050	OCE-1555726		0	32,785
A Combined Experimental and Theoretical investigation of reactive flow in brittle media with applications to solid Earth geodynamics	47.050	EAR-1520732		0	32,761
The Madden Julian Oscillation and the Maritime Continent	47.050	AGS-1543932		0	32,751
Geochemical Calibration of Modern Isopora and Acropora Corals from the Great Barrier Reef and Application to IODP Leg 325 Fossil Corals	47.050	OCE-1356948		0	32,466
Multi-Scale Climate Information for Agricultural Planning in Southeastern South America for Coming Decades	47.050	AGS-1049066		0	31,716
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	31,164
EarthCube RCN: C4P: Collaboration and cyberinfrastructure for Paleogeosciences	47.050	ICER-1340301		0	30,450
Shipboard Scientific Support Equipment 2015	47.050	OCE-1533967		0	29,966
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	28,719
A global survey of long term organic carbon decomposition in marine sediments: constraints to methanogenesis, gas hydrate formation and C cycle budget	47.050	OCE -1259274		0	28,612
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	28,155
Collaborative Research: Experimental investigation of magmatic processes at Volcan Quizapu	47.050	EAR-1347880		0	28,068
EarthCube Domain End-User Workshop: Community-Based Cyberinfrastructure for Petrology and Geochemistry	47.050	EAR-1321723		0	27,556
Collaborative Research: An Experimental Investigation of Reactive Melt channelization in Partially Molten Rocks	47.050	OCE-1459664		0	27,207
Eager: Collaborative Research: EarthCube Building Blocks, Leveraging Semantics and Linked Data for Geoscience Data Sharing and Discovery	47.050	ICER-1354990		0	26,730
Collaborative Research: Holocene Indian Summer Monsoon Variability Reconstructed for Decadally Resolved Tibetan Lake Sediments	47.050	EAR-1402133		0	26,350
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	26,316
Seismic imaging of the interplate boundary and deformation within the overriding Aegean lithosphere at the Hellenic subduction zone west of Crete (Greece)	47.050	OCE-1607104		0	25,901
A global survey of marine magnetic anomalies to constrain the late Cretaceous-Survey of Marine Magnetic Anomalies	47.050	OCE-1535937		0	25,558
Shipboard Scientific Support Equipment 2013	47.050	OCE-1317524		0	25,386

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Collaborative Research: Developing a Continous Replicated Reconstruction of Tropical Pacific Climate Over the Last 500-700 Years: Analysis of Massive Porites Corals from American Samoa	47.050	OCE-1203783		0	25,068
Collaborative Research: Climate and Glacier change in Bhutan: the last millennia, present and future	47.050	EAR-1304351		0	24,902
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	24,386
EAGER: Collaborative Research:SAVI Leveraging the Ocean Data Interoperability Platform (ODIP) for International Marine Science	47.050	OCE-1341929		0	23,678
A Combined Experimental and Theoretical investigation of reactive flow in brittle media with applications to solid Earth geodynamics	47.050	EAR-1520732		0	23,405
LDEO/Lowered Acoustic Doppler Current Profiler Oceanographic Instrumentation	47.050	OCE-1523728		0	22,588
Dynamics and Predictability of Tropical weather and climate from convective to intraseasonal scales through cloud-resolving ensemble analysis of sounding and radar observation from dynamo	47.050	AGS-1305788		0	21,978
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	20,989
New constraints on and models of global and plate-scale anisotropic mantle structure	47.050	EAR-1315984		0	20,881
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	20,716
Collaborative Research: Dust interaction with climate in the African Humid Period	47.050	AGS-1003505		0	20,179
Collaborative Research: Rifting, Magmatism, and Lithospheric Sutures Crustal Imaging of the South Georgia Basin and Suwanee Suture	47.050	EAR-1144534		0	20,034
Workshop Monsoons & ITCZ: the annual cycle int he Holocene and the future	47.050	AGS-1536461		0	19,812
R/V Marcus G. Langseth-Oceanographic Instrumentation 2015	47.050	OCE-1520666		0	19,361
Rolling Deck to Repository (R2R) 2014-2019	47.050	OCE-1447797		0	18,549
Collaborative Research: Understanding the Spatio-Temporal Characteristics of Earthquakes at Axial Seamount Late in an Eruptive Cycle	47.050	OCE-1536320		0	18,104
EarthCube Building Blocks: Collaborative Proposal: A Geo-Semantic Framework for Integrating Long-Tail Data and Models	47.050	ICER-1440229		0	17,223
Collaborative Research: The Behavior of sulfur during magma mixing and implications for magma degassing and ore formation	47.050	EAR-1250414		0	16,815
Collaborative Research: Hikurangi Ocean Bottom Investigation of Tremor and Slow Slip (HOBITSS).	47.050	OCE-1333311		0	16,411
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	16,296
Collaborative Research: A field, laboratory and theoretical study of mixed bedrock-alluvial meandering rivers	47.050	EAR-1124114		0	15,999
EarthCube RCN: C4P: Collaboration and cyberinfrastructure for Paleogeosciences	47.050	ICER-1340301		0	15,094
Collaborative Research: GEOTRACES Pacific Section-Nd isotopes and REEs in the South Pacific	47.050	OCE-1234687		0	14,948
Collaborative Research: Filling the triassic geochronologic gap: A continuous cored record of continental environmental change in western north america	47.050	EAR-0958976		8,453	14,907
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	13,557
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	13,482

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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		0	12,835
Collaborative Research: Immersive audio-visualization of seismic wave fields in the Earth (Earthscope Education & Outreachs)	47.050	EAR-1147763		0	12,829
LTER: Palmer Antarctica LTER: Climate Change, Ecosystem Migration and Telecommunication in an Ice-Dominated Environment	47.050	PLR-1344502		15,524	12,702
Collaborative Research: Reconstructing Hydroclimatic Asian Monsoon Variability for the past Millennium from Tree Rings: Myanmar and Vicinity	47.050	AGS-1303976		0	12,270
Collaborative Research: Fluid Transport and Fluid-Rock Interactions Preserved in Two Serpentinite Melanges in the Guatemala Suture Zone	47.050	EAR-1119456		0	12,161
2013 Oceanographic Instrumentation	47.050	OCE-1317119		0	12,010
Comprehensive high-precision relocation of global seismicity	47.050	EAR-1547560		0	11,958
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	11,567
Collaborative Research: Establishing Community Standards for Underwater Video Acquisition , Tagging, Archiving and Access	47.050	OCE-1549546		0	11,187
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	10,839
Magma ascent and eruption in the Aleutian arc	47.050	EAR-1551868		0	10,047
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	9,876
Shipboard Scientific Support Equipment 2012	47.050	OCE-1217210		0	9,026
Collaborative Research: A community seismic experiment targeting the pre-, syn- and post-rift evolution of the Mid-Atlantic US margin	47.050	OCE-1347498		0	8,196
CAREER: Departure from Monin-Obukhov Similarity Theory (MOST) using high-resolution turbulence models	47.050	EAR-1552304		0	8,177
Oceanographic Instrumentation 2014	47.050	OCE-1418857		0	8,007
Collaborative Research: Optimizing Multibeam Data Acquisition Operations and Quality for the U.S. Academic Research Fleet	47.050	OCE-1150520		0	7,533
Collaborative Research: Tectonic and Magmatic Processes During Early-Stage Rifting: An Integrated Study of Northern Lake Malawi, Africa	47.050	EAR-1110921		0	7,483
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.050	PHY-1067934		0	7,303
Renewal Request to ANT 09-58658: MRI-R2: Development of an ice Imaging System for Monitoring Changing Ice Sheets Mounted on the NYANG LC-130	47.050	PLR-1444690		0	7,258
L TER Palmer, Antarctica (PAL) Land-Shelf-Ocean Connections, Ecosystem Resilience and Transformation in a Sea-Ice Influenced Pelagic Ecosystem	47.050	PLR-1440435		0	7,165
WSC-Category 3 Collaborative: America s Water-The Changing Landscape of Risk, Competing Demands and Climate	47.050	EAR-1360446		0	6,782
Collaborative Research: U.S. Geotraces Arctic Section: 230th, 232th and 231Pa tracers of trace element supply and removal	47.050	OCE-1434479		0	6,554
Collaborative Research: Understanding Madden-Julian Oscillation (MJO) Initiation with dynamics of the madden Julian Oscillation (DYNAMO) Observations and a Hierarchy of Models	47.050	AGS-1062206		0	6,316
Collaborative Research: Deep Structure of Three Continental Sutures in Eastern North America	47.050	EAR-1147742		0	6,111
Collaborative Research: Evaluating hydrologic and ecologic responses to late-Glacial (9-33ka) abrupt climatic transitions in the coastal southwest United States	47.050	EAR-1203545		0	6,028

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Experimental Physics Research Program at Columbia University/Nevis Laboratories	47.050	PHY-1067934		5,896	5,896
Collaaborative Research: Ecosystem dynamics of Western Pacific hydrothermal vent communities associated with polymetallic sulfide deposits	47.050	OCE-1536650		0	5,346
Collaborative Research: Arctic GEOTRACES - Nd isotopes and REEs in the Arctic	47.050	OCE-1459716		0	5,207
Modeling aqueous secondary organic aerosol formation	47.050	AGS-1546136		0	4,674
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	4,352
Love-wave propragation in oceanic upper mantle: constraints on radial anisotropy and implications for dynamics of the asthenosphere	47.050	OCE-1538229		0	4,240
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	4,157
Collaborative Research: Global Ocean Repeat Hydrography, Carbon and Tracer Measurements 2009-2014	47.050	OCE-0752980		0	3,388
Collaborative Research: Establishing Community Standards for Underwater Video Acquisition , Tagging, Archiving and Access	47.050	OCE-1549546		0	3,264
A global survey of marine magnetic anomalies to constrain the late Cretaceous-Survey of Marine Magnetic Anomalies	47.050	OCE-1535937		0	2,845
Collaborative Research: Quantifying the ocean s response to solar forcing: Multidecadal to century-scale variability of North Atlantic SST s over recent millennia	47.050	OCE-1103519		0	2,546
SHINE: Observational Constraints on Wave Heating of the Corona	47.050	AGS-1459247		0	2,487
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	2,411
Collaborative Research: Evaluating Controls on Holocene Glacier Flucations and Climate Variability in the Southern Peruvian Andes	47.050	EAR-1103486		0	2,193
Collaborative Research: Automated Continous Measurment of CFC and SF6 Saturations in Surface Waters	47.050	OCE-1035311		0	1,834
Idealized models for tropical climate dynamics	47.050	AGS-1008847		0	1,339
Towards mass balancing arc magmatic fluxes-insights from the central Mecican Volcanic Belt	47.050	EAR-1220481		0	1,068
Collaborative Research: Development and support of the MB-System software package for processing and display of swatch mapping	47.050	OCE-1260599		0	955
Collaborative Research: Catching the quake: Investing samples fromthe JFAST expedition for evidence of the 2011 Tohoku Earthquake	47.050	OCE-1260555		0	869
Comprehensive High-Precision Relocation of Global Seismicity	47.050	EAR-1141986		0	97
SHINE: Observationally Constraining the Physical Processes that Generate the Solar Wind	47.050	AGS-1060194		0	72
Collaborative Research: Developing New Instrumentation ot Accurately Measure Heat and Mass Flux of Hydrothermal Fluids	47.050	OCE-1131455		0	68
LTER: Palmer Antarctica LTER: Climate Change, Ecosystem Migration and Telecommunication in an Ice-Dominated Environment	47.050	PLR-1344502		0	65
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	0
Collaborative Research: ETBC: Amazon Influence on the Atlantic Carbon Exports From Nitrogen Fixation by Diatom Symbioses	47.050	OCE-1133277		0	-2
Collaborative Research: ETBC: Amazon Influence on the Atlantic Carbon Exports From Nitrogen Fixation by Diatom Symbioses	47.050	OCE-1133277		0	-2,919

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Collaborative Research: Rolling Deck to Repository (R2R): Transforming the Academic Fleet Into an Integrated Global Observing System	47.050	OCE-0947877		-5,224
COLLABORATIVE PROPOSAL: MOORED OBSERVATIONS OF TURBULENT KIN ETIC ENERGY DISSIPATION IN AND BELOW THE MIXED LAYER DURING	47.050	OCE-07-45442		-10,652
Collaborative Research: Tectonic and Magmatic Processes During Early-Stage Rifting: An Integrated Study of Northern Lake Malawi, Africa	47.050	EAR-1110921		-12,143
			\$5,235,962	\$39,625,296

Computer and Information Science and Engineering

TWC: Small: Auditing Pliin the Cloud with CloudFence	47.070	CCF-1222748	0	432,066
CIF: Medium Projects: Events- Triggered Sampl	47.070	CCF-1064575	0	372,284
CSR: Medium: A Virtual Smartphone and Tablet System Architecture	47.070	CNS-1162447	0	362,176
SHF: MEDIUM: Achieving Software Reliability without True Test Oracles	47.070	CCF-1161079	0	332,050
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	273,389
SCH:INT: Large -Scale Probabilistic Phenotyping Applied to Patient Record Summarization	47.070	IIS-1344668	0	271,564
AF: Small: Computational Aspects of Markets. Equilibria, and Fixed Points	47.070	CCF-1320654	0	240,154
CHS: Small: Making sense of information in online discussion boards with novel social computing platforms	47.070	IIS-1422381	0	239,306
NSF Career: Trustworthy hardware from untrustworthy components	47.070	CCF-1054844	0	223,204
Synthesis-Driven Methods Reuse, Integration, and Programming of Specialized Accelerators in Systems-on-Chip	47.070	CCF-1219001	0	218,451
III Small: Database Processing on GPUs	47.070	IIS-1218222	0	205,231
TWC: Frontier: Collaborative: CORE: Center for Obfuscation Research	47.070	CNS-1413971	0	193,368
CHS: Medium: Collaborative Research: Computational Design and 3D Printing of Textiles	47.070	IIS-1409286	0	190,703
AF: Small: On the Complexity of Optimal Pricing and Mechanism Design	47.070	CCF-1423100	0	188,653
CPS: Synergy: Collaborative Research: Hybrid Continous-Discrete Computer for Cyber-Physical Systems	47.070	CNS-1239134	0	182,134
RI: Small: Describing Disasters and the Ensuing Personal Toll	47.070	IIS-1422863	0	181,757
BD Hubs: NORTHEAST: The Northeast Big Data Innovation Hub	47.070	IIS-1550284	0	171,535
Collaborative Research: CRI: IAD: A Testbed for Research and Development of Next Generation 9-1-1	47.070	CNS-07-51094	0	155,176
SHF: Small: An Asynchronous Network on Chip Methodology for Cost Effective and Fault Tolerant Heterogeneous SoC Architectures	47.070	CCF-1527796	0	153,971
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153	0	150,268
SHF: Medium: Compiling Parallel Algorithms to Memory Systems	47.070	CCF-1162124	0	149,734

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SHF: Medium: RacePro: Automatically Detecting API Races in Deployed Systems	47.070	CCF-1162021		0	148,730
Algorithmic Foundations: learning and Testing Classes of Distributions	47.070	CCF-1319788		0	145,196
HCC: CGV Small: Mesh-Based Simulation of Thin Liquid Structures	47.070	IIS-1319483		0	143,398
CHS: Medium: Collaborative Research: Augmented Reality for Multiple People Perspectives, Platforms, and Tasks	47.070	IIS-1514429		0	136,017
Small automatic lyric transcription for music audio	47.070	IIS-1117015		0	135,268
Career: Networking Rechargeable Devices- Analysis and Performance Evaluation	47.070	CNS-1054856		0	133,248
AF: Small: Scheduling and Routing: Algorithms with novel cost measures	47.070	CCF-1421161		0	126,165
RI: Medium: Assessing Speaker and Teacher Effectiveness Through Gestural Analysis, EEG Recordings, and Eye Tracking	47.070	IIS-1513853		7,951	123,355
NeTS: Small: Dynamic Optical Networks - from Theory to Experimentation	47.070	CNS-1423105		0	118,848
Continuous Time Digital Computation and Signal Processing	47.070	CCF-1419949		0	115,228
SHF: Medium: Compiling Parallel Algorithms to Memory Systems	47.070	CCF-1162124		0	112,694
NRI: Collaborative Research: Dynamic Braces for Quantification and Treatment of Abnormal Curves in the Human Spine	47.070	IIS-1527087		0	107,277
CIF: Small: Collaborative Research: Towards universal signal recovery algorithms	47.070	CFF-1420328		0	105,391
RI: Small: Dexterous Manipulation Using Predictive Thin-Shell Modeling	47.070	IIS-1217904		0	100,627
CAREER: Abstractions for Energy Management: Vision, Architecture and Tools	47.070	CCF-1253772		0	98,784
CPS: Synergy: Collaborative Research: Hybrid Continous-Discrete Computer for Cyber-Physical Systems	47.070	CNS-1239134		0	97,704
SHF: Medium: RacePro: Automatically Detecting API Races in Deployed Systems	47.070	CCF-1162021		0	96,758
CPS: Synergy: Collaborative Research: Hybrid Continous-Discrete Computer for Cyber-Physical Systems	47.070	CNS-1239134		0	95,847
III: small: Database Algorithms for Modern CPU Memory Hierarchies	47.070	IIS-1422488		0	94,768
BIGDATA:F:IA:Robust Convolutional Modeling for Massive-Scale Electron Microscopy Data	47.070	IIS-1546411		0	94,673
CAREER: Making Threats More Deterministic by Memoizing Schedules	47.070	CNS-1054906		0	94,211
CPS: Breakthrough: Safe Protocols in Cyber-Physical Systems (CPS)	47.070	CNS-1329593		0	92,067
Carer: Banalytics: Behavioral Network Analytics with Data Transparency	47.070	CNS-1254035		0	90,628
AF: Small Linear and polynomial Threshold Functions: Structural Analysis and Algorithmic Applications	47.070	CCF-1420349		0	90,465
CAREER: Simulating Nonlinear Audiovisual Dynamics for Simulated Enviroments and Interactive Applications	47.070	IIS-1453101		0	87,591
RI: Medium : Collaborative Research: Write A Classifier: Learning Fine-Grained Visual Classifiers from Text and Images	47.070	IIS-1409257		0	86,891

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R&D Cluster					
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BIGDATA: Mid-Scale ESCE: Collaborative Research: Discovery and Socail Analytics for Large-Scale Scientific Literature	47.070	IIS-1502780		0	85,881
Promoting Secondary spectrum markets via profitability-driven methods and algorithms	47.070	CCF-0964170		0	85,308
CIF: Small: Structured Signal Modeling via Nonconvex Optimization	47.070	CCF-1527809		0	83,808
CAREER: New Abstractions for Sensitive Data Management in Modern Operating Systems	47.070	CNS-1351089		0	80,414
A Novel Light-weight Cable-driven Active Leg Exoskeleton (C-ALEX) for training of Human Gait	47.070	IIS-1339666		0	79,731
SCH:INT: Large -Scale Probabilistic Phenotyping Applied to Patient Record Summarization	47.070	IIS-1344668		0	79,084
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	77,228
Advanced Peak Demand Forecast and Battery Dispatch Algorithms to Integrate Storage-Based Demand Response with Building Automation Systems	47.070	CNS-1524628		0	74,856
SHF: Medium: Type-Specific Instruction Processing	47.070	CCF-1065338		0	74,317
SaTC: Small: New Challenges in Functional Encryption	47.070	CNS-1445424		0	73,926
EAGER: Topic Models for Population Genetics	47.070	CCF-1547120		0	73,805
AF: Small: Minimalist cryptography	47.070	CCF-1423306		0	73,342
NeTS: Small: Do You See What I See: Finding and Fixing Faults in the Internet	47.070	CNS-1218977		0	70,682
NRI: Active Tendon-driven Orthosis for Prehensile Manipulation after Stroke	47.070	IIS-1526960		0	69,643
TWC: Medium: Collaborative: Studying journalists to identify requirements for usable, secure, and t	47.070	CNS-1513663		0	65,418
CCF: SHF: Medium: Automatic Graphical Analysis of Programs to Discover and Program New	47.070	CCF-1302269		0	60,455
SHF: Small: Integrated Infrastructures for On-Chip Communication and Power Management in Message-Passing Multicore Processors	47.070	CCF-1018236		0	54,754
Eager: Collaborative Research: Advanced Machine Learning for Prediction of Preterm Birth	47.070	IIS-1454855		0	50,255
RI: Medium: Assessing Speaker and Teacher Effectiveness Through Gestural Analysis, EEG Recordings, and Eye Tracking	47.070	IIS-1513853		0	44,048
CCF: SHF: Medium: Automatic Graphical Analysis of Programs to Discover and Program New	47.070	CCF-1302269		0	43,783
SHF: Small: Rethinking CAD for System-Level Design via Interactivity, Learning, and Collaboration	47.070	CCF-1527821		0	41,068
CCF: SHF: Medium: Automatic Graphical Analysis of Programs to Discover and Program New	47.070	CCF-1302269		0	40,305
Molecular Computing in Real Life	47.070	CCF-1518715		0	36,133
CAREER: Bridging Game Theory, Economics and Computer Science: Equilibra, Fixed Points, and Beyond	47.070	CCF-1149257		0	35,680
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153		0	34,841
CIF: Small: Structured Signal Modeling via Nonconvex Optimization	47.070	CCF-1527809		0	33,292

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III: Small: Collaborative Research: Towards Interactive Data Visualization Management Systems	47.070	IIS-1527765		0	27,993
SHF: Small: Designing Low-Latency and Robust Interconnection Networks with Fine-Grain Dynamic Adaptivity Using Asynchronous Techniques	47.070	CCF-1219013		0	27,754
CAREER: Addressing Emerging Variability Challenges for Margin-Free VLSI Computing Platform Design	47.070	CCF-1453142		0	26,956
NRI: Active Tendon-driven Orthosis for Prehensile Manipulation after Stroke	47.070	IIS-1526960		0	24,700
SCH: EAGER: Improving Nutritional Literacy and Decision Making with Learner-Centered Crowdsourcing	47.070	IIS-1551708		0	24,569
SHF: Medium: Type-Specific Instruction Processing	47.070	CCF-1065338		0	21,044
RI: Small: Describing Disasters and the Ensuing Personal Toll	47.070	IIS-1422863		0	18,187
SHF: Small: Integrated Infrastructures for On-Chip Communication and Power Management in Message-Passing Multicore Processors	47.070	CCF-1018236		0	15,366
HCC: CGV Small: Mesh-Based Simulation of Thin Liquid Structures	47.070	IIS-1319483		0	15,190
NAACL-HLT 2015 Student Research Workshop	47.070	IIS-1542303		0	15,000
TWC: Small: Virtual Private Social Networks	47.070	CNS-1318415		0	14,059
RI: Small: Dexterous Manipulation Using Predictive Thin-Shell Modeling	47.070	IIS-1217904		0	13,064
CAP: Advancing Technology and Practce for Learning Reading and Writing Skills in Secondary Science Education	47.070	IIS-1455533		0	11,192
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	9,000
SHF: Medium: Type-Specific Instruction Processing	47.070	CCF-1065338		0	8,882
NeTS: Small: Dynamic Optical Networks - from Theory to Experimentation	47.070	CNS-1423105		0	8,581
Carer: Banalytics: Behavioral Network Analytics with Data Transparency	47.070	CNS-1254035		0	8,000
RI: Small: Dexterous Manipulation Using Predictive Thin-Shell Modeling	47.070	IIS-1217904		0	7,880
AF: Medium: Collaborative Research: Circuit Lower Bounds via Projections	47.070	CCF-1563155		0	7,816
Naturalistic computation and signaling by neural populations in the primate retina	47.070	IIS-1430239		0	6,764
Career: Networking Rechargeable Devices- Analysis and Performance Evaluation	47.070	CNS-1054856		0	6,125
CAREER: Simulating Nonlinear Audiovisual Dynamics for Simulated Enviroments and Interactive Applications	47.070	IIS-1453101		0	5,430
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	5,275
CAREER: Unifying Provable Security Techniques for Advanced Cryptographic Systems	47.070	CNS-1552932		0	5,008
TWC: Small: Auditing PII in the Cloud with CloudFence	47.070	CCF-1222748		0	5,000
BIGDATA:F:IA:Robust Convolutional Modeling for Massive-Scale Electron Microscopy Data	47.070	IIS-1546411		0	4,790

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Continuous Time Digital Computation and Signal Processing	47.070	CCF-1419949		0	4,607
NRI-Small: Collaborative Research: Assistive Robotics for Grasping and Manipulation using Novel Brain Computer Interfaces	47.070	IIS-1208153		0	4,320
CGV: Small: Discrete Variational Contact, Impact, and Dissipative Dynamics	47.070	IIS-1117257		0	4,220
Creating Speech Synthesizers for Low Resource Languages	47.070	IIS-1548092		0	3,617
AF: Small: Minimalist cryptography	47.070	CCF-1423306		0	3,516
EAGER: majorization Methods for Machine Learning	47.070	IIS-1451500		0	2,938
Collaborative Research: CI-P: Reciprosody - A Repository for Prosodically Annotated Material	47.070	CNS-1205450		0	2,245
III: Small: Collaborative Research: Towards Interactive Data Visualization Management Systems	47.070	IIS-1527765		0	2,000
CAP: Advancing Technology and Practce for Learning Reading and Writing Skills in Secondary Science Education	47.070	IIS-1455533		0	634
CI-ADDO-NEW: Stan, Scalable Software for Bayesian Modeling	47.070	CNS-1205516		0	-1,046
RI: Small: Statistical machine translation through a tree adjoining grammar with flexible parsing operations	47.070	IIS-1161814		0	-5,122
CGV: Small: Discrete Variational Contact, Impact, and Dissipative Dynamics	47.070	IIS-1117257		0	-6,378
III: Small: Avoiding Contention on Multicore Machines	47.070	IIS-0915956		0	-6,397
				\$7,951	\$9,733,839

Biological Sciences

IDBR: CMOS camera for high-frame-rate time-correlated single-photon counting	47.074	DBI-1063315		0	500,028
Using DNA Curtains to Reveal the Mechanisms of Target Site Location by DNA Binding Proteins	47.074	MCB-1154511		0	372,069
From sensation to perception: cellular and circuit mechanisms underlying prey detection in an electric fish	47.074	IOS-1430065		0	354,933
BREAD: Assessing, Understanding and Targeting Non-responsive Soils for Improved Crop Production in Smallholder Farms in Sub-Saharan Africa	47.074	IOS-1212623		228,609	331,948
Collaborative Research: Does a transition in nitrogen fixation strategy explain the latitudinal distribution of nitrogen-fixing trees?	47.074	DEB-1457650		312	301,955
Characterizing a Landscape of Signal Processing in the Immune System	47.074	MCB-1149728		0	291,910
IDBR:High throughput single molecule AFM force-spectrometer	47.074	DBI-1252857		0	231,771
Collaborative: The Digital Fruit Fly Brain	47.074	DBI-1544383		0	208,546
Environmental, Endocrine and Epigenetic Drivers of Sociality in Birds	47.074	IOS-1257530		0	180,524
The Molecular Basis of Cadherin-Mediated Cell Adhesion	47.074	MCB-1412472		0	161,025
Assignment and Structural Characterization of Uniformly Labeled proteins by Solid State NMR	47.074	MCB-1412253		0	131,874

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Collaborative Research: Climate Change Impacts on Forest Biodiversity: Individual Risk to Subcontinental Impacts	47.074	EF-1137239		0	121,534
A systems Approach to Study Horizontal Acquisition of Regulatory DNA	47.074	MCB-1453219		0	118,276
Large-Scale CMOS electrochemical imagers for the study of metabolites in multicellular films	47.074	DBI-1353553		0	81,809
Coupling of sodium and substrate fluxes in the Na+/multivitamin transporter	47.074	MCB-1330730		0	74,588
Collaborative Research: BIOMAPS Control of Spindle Positioning and Cytokinesis	47.074	MCB-1244441		0	67,339
CAREER: The Mechanistic Interplay Between Biofilm Metabolism and Morphogenesis	47.074	MCB-1553023		0	65,865
Bilateral BBSRC-NSF/BIO Regulation of cell size in fission yeast	47.074	MCB-1548264		0	23,386
Dissertation Research: Environmental Quality and The Costs of Reproduction: An Experimental Test in a Cooperatively Breeding Bird	47.074	IOS-1501257		0	16,713
Collaborative Research: Kin Structure, conflict and caste formation: the evolution of sociality in Synalpheus	47.074	IOS-1121435		0	14,867
Meeting: New frontiers for the integrative study of animal behavior, New York Genome Center, New york, NY, August 6-9, 2014	47.074	IOS-1439985		0	14,790
Collaborative Research: An Integrated Approach Towards Understanding Iron Uptake in Marine Eukaryotic Phytoplankton	47.074	IOS-1558030		0	5,301
Meeting: New frontiers for the integrative study of animal behavior, New York Genome Center, New york, NY, August 6-9, 2014	47.074	IOS-1439985		0	-1,721
CAREER: Using Advanced Statistical Techniques to Decipher the Neural Code	47.074	IOS-0641912		0	-9,660
				\$228,921	\$3,659,670

Social, Behavioral, and Economic Sciences

Understanding and improving environmental decisions	47.075	SES-0951516		336,967	561,798
Relative Pay Comparisons in the Workplace: Field Evidence on Effort and Labor Supply	47.075	SES-1459928		175,000	238,535
Using Multilevel Regression and Poststratification to Measure and Study Dynamic Public Opinion	47.075	SES-1424962		0	141,200
Integrating Micro and Macro Evidence on Price Dynamics	47.075	SES-1056107		0	128,623
Understanding and improving environmental decisions	47.075	SES-0951516		0	124,836
The Role of Tacit Knowledge in Scientific Experimentation	47.075	SES-1430843		0	120,314
New Approaches for Dynamic Panel Data Analysis	47.075	SES-1357598		0	101,571
Would More Information Reduce Disagreement? Theory and Applications	47.075	SES-1459877		0	94,747
Fields of Study, School-Work Linkages, and Inequality: A Comparative Approach	47.075	SES-1423828		0	90,655
Statistical Analysis for Cognitive Diagnosis - Theory and Applications	47.075	SES-1323977		0	89,294
The Dynamics of Controversial Practices: SEC Sunshine, Aspirational Pay, and the Evolution of Executive Compensation Networks	47.075	SES-1359666		0	85,667

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CRED Renewal: Center for Research on Environmental Decisions - Understanding and Improving Environmental Decisions	47.075	SES-1463122		0	85,480
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	82,113
Decisions From Experience and the Role of Feedback in Environmental Decisions	47.075	SES-1227462		0	79,487
Information-Constrained Dynamic Models of Choice Behavior	47.075	SES-1426168		0	73,451
Non-Standard Issues in Regression Discontinuity Designs	47.075	SES-1559058		0	66,132
CAREER: Integrating Neuroimaging and Patient Studies of Learning Decision Making	47.075	BCS-0955494		0	65,180
Language, Laws, and Labor Contracts in the 20th Century	47.075	SES-1459932		0	63,364
Latent Space Models for Aggregated Relational Data in Social Sciences	47.075	SES-1023176		0	62,324
Collaborative Research: Testing the Orbital Theory of Ice Ages using glacial deposits in southern South America and numerical modeling	47.075	BCS-1263474		0	55,887
Protected Family and Medical Job Leave: Evidence from US Administrative Data	47.075	SES-1357608		0	53,780
A Study Into the Effect of Employment Conditions Upon Judicial Behavior and Performance	47.075	SES-1260875		0	46,640
Risk-neutral distributions for inflation and their uses	47.075	SES-1459775		0	46,341
Attention Networks and Cognitive Challenges: Positional Advantages in Complex and Distant Search	47.075	SES-1236931		0	45,280
Matching Theory and College Admissions	47.075	SES-1260937		0	44,732
Political Communication and Accountability	47.075	SES-1260631		32,259	44,210
Prices in Space and Time	47.075	SES-1127493		0	37,648
Understanding the determinants of household default decisions in the mortgage crisis	47.075	SES-1124188		0	28,331
The Well-being of Migrant Children and Children Left Behind	47.075	SES-1027048		0	25,523
Collaborative Research: Voter Mobilization and Electoral Subversion in the Workplace	47.075	SES-1324281		0	25,093
The Role of Tacit Knowledge in Scientific Experimentation	47.075	SES-1430843		0	22,132
Understanding and improving environmental decisions	47.075	SES-0951516		0	19,330
Group size and reproductive success of femal and male blue monkeys	47.075	BCS-1028471		0	19,309
Doctoral Dissertation Research in DRMS: The Psychology of Political Risk in Repressive Regimes	47.075	SES-1530777		0	17,184
Group size and reproductive success of femal and male blue monkeys	47.075	BCS-1028471		0	16,829
Doctoral Dissertation Research: Accountability in Rebel Regimes	47.075	SES-1535598		0	16,821
Heterogeneity individual decision making and matching equilibria under uncertinty	47.075	SES-1124277		0	12,715

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Attention Networks and Cognitive Challenges: Positional Advantages in Complex and Distant Search	47.075	SES-1236931		0	12,600
Doctoral Dissertation Improvement Award: Long Term Environmental, Subsistence And Urbanization Interactions	47.075	BCS-1546947		0	11,489
Doctoral Dissertation Research Deciphering hydroclimatic convergence in semi-and Mongolia using a multiparameter tree-ring approach	47.075	BCS-1458213		0	11,165
Two Projects on Market Design	47.075	SES-1023818		0	10,830
Collaborative Research: Multilevel Regression and Poststratification: A United Framework for Survey Weighted Interface	47.075	SES-1534414		0	10,231
Education and Earnings Trajectories Across Generations	47.075	SES-1226546		0	9,912
Doctoral Dissertation Research: Return Migration and Post-Conflict Governance	47.075	SES-1535577		0	9,877
Understanding and improving environmental decisions	47.075	SES-0951516		0	9,590
Doctoral Dissertation Research: Privacy Concerns Regarding the Use of Home Diagnostic Technologies	47.075	SES-1430884		0	7,870
Information Transmission and Aggregation	47.075	SES-1155931		0	7,763
Doctoral Dissertation Research: Understanding Organizational Anticipation and Response to Disaster Risks	47.075	SES-1519280		0	6,846
Doctoral Dissertation Research: Social and Cultural Effects of Remaking Urban Environments	47.075	BCS-1425679		0	5,198
Dissertation Research: Chemical, Microbiological and Biological Evaluation of Nutritional Deficiencies	47.075	SES-1331190		0	3,877
Doctoral Dissertation Research: Novel Graph Models for Studying Mobilization	47.075	SES-1435138		0	3,469
Doctoral Dissertation Research: Black Spots : Roads and Accidents in Kenya	47.075	BCS-1225907		0	3,289
Doctoral Dissertation Research: Entomology and Agricultural Improvement	47.075	SES-1431363		0	2,841
Scholars Award: The Coming of Age: The Formation of the Global Science and Policy of Aging	47.075	SES-1230524		0	2,737
How Network Structures Explain Creativity	47.075	SES-1123807		0	1,782
				\$544,226	\$3,063,922

Education and Human Resources

Graduate Research Fellowship Program (GRFP)	47.076	DGE-1144155		0	5,095,629
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		556,115	1,005,504
IGERT: From Data to Solutions: A New PhD Program in Transformational Data & Information	47.076	DGE-1144854		0	491,219
Reducing Racial and Gender Achievement Gaps in STEM: Use of Natural Language Processing to Understand Why Affirmation Interventions Improve Performance	47.076	DRL-1420446		121,723	370,958
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		0	180,466
IGERT: Engineering Photons for a Sustainable Future	47.076	DGE-1069240		10,164	158,664

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SEGUE Scholars Program	47.076	DUE-1154372		0	156,500
IGERT: Optical techniques for actuation, sensing and Imaging of biological systems	47.076	DGE-0801530		0	133,064
IGERT: From Data to Solutions: A New PhD Program in Transformational Data & Information	47.076	DGE-1144854		13,097	113,704
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	109,927
IGERT: Engineering Photons for a Sustainable Future	47.076	DGE-1069240		0	90,483
IGERT: Optical techniques for actuation, sensing and Imaging of biological systems	47.076	DGE-0801530		0	82,838
IGERT: Solving Urbanization Challenges by Design - A New PhD Program Between Architecture and Engine	47.076	DGE-0903597		0	56,281
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		0	48,704
Collaborative Research: Developing a Visualization Framework for Chemical Reactions	47.076	DUE-1525475		0	42,051
Collaborative Research: Development of adaptable web modules to stimulate active learning in hydrology using data and model stimulation	47.076	DUE-1123039		0	31,066
CCEP-II:Polar learning and responding polar climate educationpartnership	47.076	DUE-1239783		0	19,811
Collaborative Research: Developing a Visualization Framework for Chemical Reactions	47.076	DUE-1525475		0	750
IGERT: Solving Urbanization Challenges by Design - A New PhD Program Between Architecture and Engine	47.076	DGE-0903597		0	-11,760
IGERT: Solving Urbanization Challenges by Design - A New PhD Program Between Architecture and Engine	47.076	DGE-0903597		0	-39,414
SEGUE Scholars Program	47.076	DUE-1154372		0	-58,288
				\$701,099	\$8,078,157

Polar Programs

Vulnerability of East Antarctic ice streams to warm Ocean Water Incursions	47.078	ANT-1245879		0	145,484
Geophysical constraints on the crust and upper-mantle structure of Greenland	47.078	ARC-1304346		0	128,681
Laboratory study of ice deformation under tidal loading conditions with application to Antarctic glaciers	47.078	PLR-1245871		0	95,807
Long-term Observations in the Switchyard Region of the Arctic Ocean as Part of the Arctic Observing Network (AON)	47.078	ARC-1023529		0	68,984
Collaborative Research: Terrestrial Geological Context for Glacier change in the Northeast Antarctica Peninsula	47.078	ANT-1142002		0	68,595
Collaborative Research: Totten Glacier System and the Marine Record of Cryosphere - Ocean Dynamics	47.078	ANT-1143834		0	67,661
Long-term carbon storage shifts in high-latitude peatlands with paleoclimate change: Linking peatland modeling with paleocology and paleohydrology	47.078	ARC-1022979		0	51,915
The seasonal cycle of export production in an Antarctic costal marine ecosystem	47.078	ANT-1340886		0	45,829
A Study of Atmospheric Dust in the WAIS Divide Ice Core Based on Sr-Nd-Pb-He Isotopes	47.078	ANT-1043471		0	42,425

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US/Chinese Collaborative Study: Investigation of Bottom Water Formation in Prydz Bay, Antarctica	47.078	ANT-1043669		0	31,983
Dynamic and geochemical evolution of the lithospheric mantle beneath the Western Ross Sea Area, Antarctica	47.078	PLR-1043540		0	25,109
Collaborative Research: Multi-nuclide approach to systematically evaluate the scatter in surface	47.078	PLR-1043589		0	16,154
Subglacial drainage and slip modeling in Antarctica: relating lakes to ice discharge	47.078	ANT-1043481		0	15,964
Collaborative Research: Effects of warming induced increases in shrub abundance and changing seasonality on migratory songbirds in Alaskan arctic tundra	47.078	ARC-0908444		0	13,053
COLLABORATIVE RESEARCH: RESOLVING CENTENNIAL-TO-MILLENNIAL-S CALE TRENDS IN GLACIER EXTENT AND LAKE SEDIMENTATION IN THE	47.078	ARC-1107885		0	11,677
Subglacial drainage and slip modeling in Antarctica: relating lakes to ice discharge	47.078	ANT-1043481		0	715
COLLABORATIVE RESEARCH: IPY GAMBIT: GAMBURSTEV GAMBURSTEV AEROGEOPHYSICAL MAPPING	47.078	ANT-0632292		0	5
COLLABORATIVE RESEARCH: IPY GAMBIT: GAMBURSTEV GAMBURSTEV AEROGEOPHYSICAL MAPPING	47.078	ANT-0632292		0	0
COLLABORATIVE RESEARCH: IPY GAMBIT: GAMBURSTEV GAMBURSTEV AEROGEOPHYSICAL MAPPING	47.078	ANT-0632292		0	-1
				\$0	\$830,040

Office of International and Integrative Activities

Life on a Tectonically Active Delta0Convergence of Earth Science and Geohazard Research in Bangladesh with Education and Capacity Building	47.079	OISE-0968354		275,591	602,785
PIRE: International consortium for probing novel superconductors with neutrons, muons, photons and STM	47.079	OISE-0968226		0	24,432
Life on a Tectonically Active Delta0Convergence of Earth Science and Geohazard Research in Bangladesh with Education and Capacity Building	47.079	OISE-0968354		0	7,923
PIRE: International consortium for probing novel superconductors with neutrons, muons, photons and STM	47.079	OISE-0968226		0	3,270
				\$275,591	\$638,410

Office of Cyberinfrastructure

RCN-SEES: Network for Utilization of Social Science Research on Sustainability and Energy	47.080	OCI-1140174		0	-1,347
				\$0	\$-1,347
Total Direct Award Programs				\$14,699,990	\$93,192,104

Pass-through Awards

Engineering Grants

SRN: Integrated Urban Infrastructure Solutions for Environmentally Sustainable, Healthy and Livable Cities	47.041	UMINN A0005261801	CBET-1444745	0	218,486
NSF Engineering Research Center for Integrated Access Networks (CIAN)	47.041	UA Y503160	EEC-0812072	0	175,303
NSF Engineering Research Center for Integrated Access Networks (CIAN)	47.041	UA Y503160	EEC-0812072	0	129,655

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NSF Engineering Research Center for Integrated Access Networks (CIAN)	47.041	UA Y503160	EEC-0812072	0	103,525
SBIR Phase I: Area & energy efficient error floor free low-density parity-check codes decoder architecture for flash based storage	47.041	TLDPC CU15-1144	IIP-1520137	0	19,218
Intentional Defaults For More Sustainable Infrastructure: Extending Study of Cognitive Biases and Interventions to Upstream, Multi-stakeholder Decisions	47.041	CLEMSON 1811-206-2010792	CBET-1531041	0	2,147
				\$0	\$648,334

Mathematical and Physical Sciences

ATLAS Phase - I Upgrades	47.049	SUNYSB 68790	1345157	0	297,755
ATLAS Phase - I Upgrades	47.049	SUNYSB 68790	1345157	0	150,354
Subcontract Cornell Center for Materials Research-CEMRI	47.049	CU 63016-9679	DMR-110296	0	84,730
Particle Astrophysics at TeV Energies with VERITAS	47.049	BARNARD CU-1505811	NSF-1505811	0	68,984
Foundations of the theory of J-holomorphic curves	47.049	CU-1308669	NSF-1308669	0	63,198
Collaborative Research: MRI Consortium: Development of a Novel Telescope for Very High-Energy Gamma-Ray Astrophysics	47.049	BARNARD CU12-0519	PHY-1229205	0	25,688
Joint Undertaking for an African Materials Institute	47.049	SP0032553-PROJ0008694	DMR-1539724	0	16,770
				\$0	\$707,479

Geosciences

Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	497,867
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	284,017
The impact of the ozone hole on the climate of the Southern Hemisphere	47.050	MIT 5710003465	OCE-1338814	0	259,231
Studies of Turbulence and Mixing in the Antarctic Circumpolar Current, A Continuation of DIMES	47.050	WHOI A100976	OCE-1232962	0	228,123
Collaborative Research: Global Ocean Repeat Hydrography Carbon & Tracer Measurements, 2015-2020	47.050	UWSC8202	OCE-1433922	0	191,363
LADCP Measurments on Global Ocean Repeat Hydrography Cruises	47.050	UCSD 59692302	OCE-1437015	0	141,889
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	126,641
Integrated Data Management System for Critical Zone Observatories	47.050	SWRC 340039-55900	EAR-1332257	0	122,856
FESD Type: VOICE: Volcano, Ocean, Ice, and Carbon Experiments	47.050	Harvard 130783-5069512	AGS-1338832	0	108,141
Supertech sampling support on the US GEOTRACES Arctic Cruise	47.050	FIU 800005163-01	OCE-1455924	0	100,807
Reconciling substrate specific difference in the carbon isotope Excursion marking the Palecone-Eocene thermal maximum	47.050	UWIS 623K814	OCE-1405224	0	89,200
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	82,887

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Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	68,618
Evolution of the Galapagos Mantle Plume	47.050	VPTISU 478672-19020	EAR-1201903	0	64,016
FESD Type: VOICE: Volcano, Ocean, Ice, and Carbon Experiments	47.050	Harvard 130783-5069512	AGS-1338832	0	54,050
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	47,777
EarthCube Building Blocks: Deploying Web Services Across Multiple Geoscience Domains	47.050	IRIS 91-Columbia-ECBB	ICER-1343709	0	35,319
Support for the Cascade Initiative Expedition Team	47.050	208991F	OCE-1139701	0	34,963
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	34,813
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	31,050
Fault Zone Widths as a Parameter in Seismic Hazard Estimates	47.050	USC Y86189	EAR-1033462	0	27,999
Fault Zone Widths as a Parameter in Seismic Hazard Estimates	47.050	USC Y86189	EAR-1033462	0	27,450
How Cloud Processes Alter the Effects of Midlatitude Cyclones on the Atmospheric General Circulation	47.050	RFCUNY 40C96-A	AGS-1240643	0	26,591
Fault Zone Widths as a Parameter in Seismic Hazard Estimates	47.050	USC Y86189	EAR-1033462	0	26,323
Operation Densification and Upgrade of Continuous GPS Stations in Russia	47.050	IRIS 01-Coulmbia-SAGE	EAR-1261681	0	25,242
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	22,644
Processing and QC of 2012 IOPAS LADCP Data set	47.050	WHOI 85938100	OCE-0959381	0	22,363
Earthcube IA: Oceans of Data: Bringing EarthCube to the Science User	47.050	UCSD 66925508	ICER-1540966	0	22,081
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	17,702
FESD Type I: Earthquake Fault System Dynamics	47.050	UCR S-000512	EAR-1135455	0	15,347
STEAMSEAS: Science, Technology, Engineering, and Math Student Experiences Aboard Ships	47.050	IUP 1415-543-001	GEO-1540645	0	14,896
IODP Expedition 350 Izu Bonin Mariana: Reararc aboard the JOIDES Resolution	47.050	T350A34	OCE-0652315	0	12,000
Ocean Leadership, IODP Expedition #354 Bengal-Fan	47.050	COCEANL T354A34	OCE-0652315	0	11,982
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	8,556
Participation Plan for IODP Expedition 344 (CRISP II)	47.050	COCEANL T344A34	OCE-0652615	0	8,308
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	7,861
Sub-award for Geo-informatics Project WF-2175	47.050	UTSU 12053601	EAR-1224638	0	6,048
EarthCube Building Blocks: Community Inventory of EarthCube Resources for Geoscience Interoperability (CINERGI)	47.050	UCSD 44142633	ICER-1343813	0	3,922

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Integrated Ocean Drilling Program - PDM	47.050	JSC 4-03	OCE-03-52500	0	3,656
RCN: Building a sediment experimentalist network (SEN)	47.050	UTA13-000851	EAR-1324760	0	3,109
IODP Expedition 350 Izu Bonin Mariana: Reararc aboard the JOIDES Resolution	47.050	T350A34	OCE-0652315	0	2,647
Present horizontal stress orientation in the Costa Rica subduction margin from borehole breakout analysis	47.050	COCEANIL T344B34	OCE-0652615	0	967
Integrated Data Management System for Critical Zone Observatories	47.050	SWRC 340039-55900	EAR-1332257	0	622
Collaborative Research: Reconstructing changes in Asian monsoon circulation during the last millennium from stable isotopes in tropical tree rings	47.050	WHOI A101032	AGS-1338734	0	508
Ocean Leadership, IODP Expedition #354 Bengal-Fan	47.050	COCEANL T354A34	OCE-0652315	0	0
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	0
Operation of the LDEO Ocean-bottom Seismometer Institutional Instrument Center: Wiens Recovery Costs	47.050	IRIS 57-OMO	OCE-1112722	0	-1,928
Integrated Ocean Drilling Program - PDM	47.050	JSC 4-03	OCE-03-52500	0	-2,411
Integrated Ocean Drilling Program - PDM	47.050	JSC 4-03	OCE-03-52500	0	-5,232
Integrated Ocean Drilling Program - PDM	47.050	JSC 4-03	OCE-03-52500	0	-16,521
				\$0	\$2,896,360

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	0	202,201
CPS: Synergy: Multi-Robot Cyberphysical System for Assisting Young Developmentally-Delayed Children in Learning to Walk	47.070	HARVARD 167879-5068379	CNS-1329363	0	95,291
NRI: Deep Learning UAVS for High-Throughput Agricultural Disease Phenotyping	47.070	CU 74852-10552	IIS-1527232	0	79,114
Subaward for BD Hub Industry-Academic Collaboration	47.070	CRA BDhub002	1019343	0	70,478
BIGDATA: Small: DCM: Patient-level predictive modeling from massive longitudinal databases	47.070	UCLA 1440GRA574	IIS1251151	0	48,868
CI-ADDO-NEW: Collaborative Research for the Creation of a large Multilingual Multi Layered Representational Repository of Linguistic Code Switch Data	47.070	GWU 13-S29	CNS-1343530	0	46,616
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	16,333
Teaching Computers to Follow Verbal Instructions	47.070	BROWN 00000673	IIS-1414931	0	13,138
				\$0	\$572,039

Biological Sciences

Center for Microbial Oceanography: Research and Education (CMORE)	47.074	HWAIRC Z10049920	DBI-0424599	0	58,803
Translational Enhancement by a Multifunctional tRNA Mimic	47.074	UMARY 22182-Z4445001	NSF 1411836	0	36,056

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Luquillo Long-Term Ecological Research	47.074	UPRRP 2014-0	DEB-1239764	0	33,357
UC Center for environmental Implications of Nanotechnology	47.074	UCLA 0521 G RA124	DBI-1266377	0	19,282
Building Capacity n Bayesian Analysis for Practicing Ecologists	47.074	UCOL G-9646-2	DEB-114520	930	1,171
				\$930	\$148,669

Social, Behavioral, and Economic Sciences

Robot Enhanced Mobility II: The Emergence of Mobility and Socialization in Young Children	47.075	UD 33955	BSC-1252876	0	75,984
Rebound in Gateway Effects of Pro-Environmental Behavior	47.075	UCOL 1551637	SES1447274	0	19,765
CNH: Pluvials, Droughts, Energetics and the Mongol Empire	47.075	WVC 12-285-CU	BCS-1210360	0	14,554
				\$0	\$110,303

Education and Human Resources

InTeGrate: Interdisciplinary Teaching of Geoscience for Sustainable Future	47.076	Carleton CU15-0195	DUE-1125331	0	122,089
BOP-STEM-C Curriculum and Community Enterprise for New York Harbor Restoration in New York City Public Schools	47.076	PU CW2284704	DRL-1440869	0	100,844
IGERT - Inerdisciplinary Evolution Primatology: Conservation and Human Evolution Join Behavior, Bones and Genes	47.076	RFCUNY 40A66C	DGE-0966166	0	92,258
DIP: Interaction Research in Complex Informal Learning Environments (IRCILE)	47.076	NYSCI 1	IIS-1123832	0	48,644
Urban Climate Education Partnership	47.076	FRANKLIN CU12-1201	DUE-1239782	0	27,437
BOP-STEM-C Curriculum and Community Enterprise for New York Harbor Restoration in New York City Public Schools	47.076	PU CW2284704	DRL-1440869	0	0
				\$0	\$391,272

Office of International and Integrative Activities

PIER: International Collaboration for Education, Training, and Research in Ice Core Science(ICE-ICS)	47.079	OREGSU S1315A-D	OISE-0968391	0	81,491
PRIE: Land-use, Ecosystems Services and the Fate of Marginal lands in the Globalized World	47.079	BROWNU 00000359	OISE-0968211	0	-5,316
				\$0	\$76,175

Office of Cyberinfrastructure

I-Corps Node: New York City Regional Innovation Node (NYCRIN)	47.080	RFCUNY 40D14-A	NSF OIA-1305023	0	200,706
Terra Populus: A Global Population/Environment Data Network	47.080	H002341901	OCI-0940818	0	101,824
				\$0	\$302,530

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National Science Foundation					
PIRE: Dust simulated drawdown of atmospheric CO2 as a trigger for Northern Hemisphere Glaciation	47.083	UR 416748-G	OISE 1545854	0	134
				\$0	\$134
Total Pass-through Programs				\$930	\$5,853,295
Total: National Science Foundation				\$14,700,920	\$99,045,399

National Aeronautics & Space Administration

Direct Awards

National Aeronautics & Space Administration

Socioeconomic Data and Applications Distributed Active Archive Center (DAAC) for the EOS Data and Information Systems	43	NNG13HQ04C		0	4,832,391
Development of Climate Analysis Section for the Presidents Malaria Initiative Impact Evaluation Reports in Three Countries	43	NNM14AA11C		0	238,264
Development of Climate Analysis Section for the Presidents Malaria Initiative Impact Evaluation Reports in Three Countries	43	NNM14AA11C		0	79,455
Socioeconomic Data and Applications Distributed Active Archive Center (DAAC) for the EOS Data and Information Systems	43	NNG13HQ04C		0	10,420
Development of Climate Analysis Section for the Presidents Malaria Initiative Impact Evaluation Reports in Three Countries	43	NNM14AA11C		0	9,900
Voxel Advanced Digital-manufacturing for Earth and Regolith in Space (VADERS)	43	NNK16MA12P		0	4,780
				\$0	\$5,175,210

Science

Modeling and Observations of Atmospheric Circulation, Cloud, and aerosol processes, Ocean Circulations and Carbon Cycle	43.001	NNX15AJ05A		22,601	1,904,687
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	1,365,227
IceBridge 2012-2015: Gravity and Magnetism	43.001	NNX13AD25A		0	544,950
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	447,521
A Time series of sea surface nitrate and nitrate based new production in the global	43.001	NNX13AI29A		115,490	330,773
Laboratory Measurements of Electron Impact Ionization in Support of the NASA Heliophysics Research Program	43.001	NNX12AD95G		0	286,823
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	267,338
Bayesian integration of multiple geodetic data types for investigation of the coupled impact of climate change on Earth systems	43.001	NNX14AP33G		92,087	264,372
Regional Indicators of Daily-to-Yearly Variability in Background Ozone to Inform Air Quality Standard Setting and Decision-Making.	43.001	NNX12AF15G		42,958	255,627

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Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	244,132
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		75,141	229,030
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	214,559
Intraseasonal variability and tropical cyclones in the NASA GISS General Circulation Model	43.001	NNX13AM18G		80,164	212,202
Linking Remote Sensing Data and Energy Balance Models for Scalable agriculture Insurance Systems for sub-Saharan Africa	43.001	NNX14AD62G		0	209,259
MoonDB: Restoration and synthesis of Lunar Petrological Data to Empower Future Science	43.001	NNX15AI99G		0	198,666
Spatial and temporal Characteristics of Sea surface Salinity Fluctuations and Links to the Marine Hydrological cycle Aquarius	43.001	NNX14AI90G		0	183,300
Rocky Planet Habitability: Insights from Solar System Climate Dynamics Through Time	43.001	NNX15AK95G		0	178,122
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	171,875
Linking NASA Models and Missions to Global Change	43.001	NNX12AR20A		19,979	166,824
Spitzer, Gaia and the Potential of the Milky Way	43.001	NNX15AK78G		0	154,277
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		0	147,289
Synergistic ice cloud observations from eMAS and RSP	43.001	NNX15AD44G		100,394	146,500
Mechanism of Magnetar Activity	43.001	NNX13AI34G		0	144,231
RIGOROUS COMBINATION OF GRACE AND OTHER DATA TYPES FOR SIMULTANEOUS ESTIMATION OF TEMPORARILY AND SPATIALLY VARIABLE MELTING AND GLACIAL ISOSTATIC ADJUSTMENT	43.001	NNX12AF34G		0	138,383
The fate and effects of forest fire emissions injected directly into the stratosphere	43.001	NNX13AK46G		0	136,634
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	132,556
Reconstructions of a Snowball Earth: A Data/Model Perspective	43.001	NNX14AK24G		0	128,556
Improved Surface Mass Balance Mapping of Antarctica by Quantifying Wind-blown and Sublimated Snow	43.001	NNX14AH79G		23,016	128,450
Atmospheric Circulation of Hot Exoplanets	43.001	NNX11AD65G		0	126,278
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	121,602
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		37,509	117,997
NRA: Research Opportunities in Space and Sciences - Roses 2009	43.001	NNX11AH98G		0	113,807
Goldstone Bosons & Broken Symetries in Cosmology	43.001	NNX16AB27G		0	111,263
Quantifying Surface Diapycnal Mixing by Mesoscale Eddies Using Satellite Observations	43.001	NNX14AI46G		0	110,900
A unified parameterization of dry and moist convection	43.001	NNX14AI36G		0	99,637

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Atmospheric Correction for Retrieval of Ocean Spectra from Space (ACROSS)	43.001	NNX15AD30G		0	98,279
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	97,033
Research Opportunities In Space And Earth Sciences 2010 (ROSES-2010)	43.001	NNX12AF33G		30,961	96,611
Confronting Simulations of Dwarf Galaxy Formation with Observations of Resolved Stellar Populations	43.001	NNX12AH41G		0	93,424
Laboratory Study of sheer heating on faults and ridges of icy satelities using transient friction experiments	43.001	NNX13AL01G		0	91,702
Radiative transfer in gamma-ray bursts	43.001	NNX15AE26G		0	91,092
The Power at the Heart of Symbiotic Stars -- Interpreting a Megasecond of X-ray and UV Observations	43.001	NNX15AF19G		0	86,197
Global variation of the fundamental radiative properties of ice clouds	43.001	NNX14AJ28G		0	82,346
Accretion Disk Outflows from Compact Object Mergers	43.001	NNX16AB30G		0	79,024
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	77,245
FIREBALL-2: Pioneering Space UV Baryon Mapping (Columbia Univ., Co-I Institution)	43.001	NNX16AF04G		0	76,858
High-resolution measurements of phytoplankton size, functional types and photosynthetic competency over time and space in support of GEOCAPE	43.001	NNX16AD40G		0	75,066
Faint Young Sun Paradoxes and Habitable Worlds: Comparative Climatology of Early Earth and Mars	43.001	NNX15AP16G		0	72,618
Laboratory Studies of Dissociative Recombinationa in Interstellar Clouds in Support of the NASA Astrophysics Missions	43.001	NNX15AL73G		0	69,420
FAINT INTERGALACTIC REDSHIFTED EMISSION BALLOON (FIREBALL) -2: FLIGHT TEST OF NEXT GENERATION UV DETECTOR AND SPECTROGRAPH	43.001	NNX15AN03G		0	67,040
Self-Consistent Models for Primordial Star-Formation and Reionization	43.001	NNX15AB19G		0	65,597
Long-Term Monitoring of the First Transient AXP, XTE J1810-197	43.001	NNX15AE63G		0	64,561
PROBING PARTICLE ACCELERATION AT NON-RELATIVISTIC SHOCKS WITH GAMMA-RAY NOVAE	43.001	NNX15AU77G		0	56,675
Self-Consistent Models for Primordial Star-Formation and Reionization	43.001	NNX15AB19G		0	56,221
FIREBALL-2: A Path to Flight for Future UV Missions (Co-I proposal)	43.001	NNX12AF29G		0	55,366
The Response of Circumbinary Disk to a Black Hole Merger	43.001	NNX11AE05G		46,901	53,065
Probing the Accretion History of the Transition Object PSR J1023+0038	43.001	NNX15AJ50G		0	53,046
Nuclear Burning in Colapsar Disks and the Origin of Gamma-Ray Burst Supermovae	43.001	NNX15AR47G		0	42,708
Ultradeep X-ray Spectroscopy of the CircumGalactic Medium and Local IGM	43.001	NNX15AF07G		0	39,316
High Resolution X-ray Spectroscopic Investigations of Cosmic Sources with Hitomi	43.001	NNX16AH43G		0	38,404
The Redback Binary PSR J1723-2837: A Laboratory for Pulsar Wind and Shock Physics	43.001	NNX15AV28G		0	38,319

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For year ended June 30, 2016

R&D Cluster					
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
GISS/Sobel Cooperative Agreement (Institutional)	43.001	NNX12AB87A		30,320	36,820
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		0	36,534
The Impact of Cosmic Ray Pressure on Galactic Disk Dynamics and Outflows	43.001	NNX15AB20G		0	35,123
FAINT INTERGALACTIC REDSHIFTED EMISSION BALLOON (FIREBALL) -2: FLIGHT TEST OF NEXT GENERATION UV DETECTOR AND SPECTROGRAPH	43.001	NNX15AN03G		0	32,945
Spatio-temporal Dynamics of the Ganges Brahmaputra Delta: Field-validated, multi sensor analysis of interannual flooding and channel movement.	43.001	NNX12AM20G		0	32,791
Global variation of the fundamental radiative properties of ice clouds	43.001	NNX14AJ28G		25,770	32,270
Investigating the Physics of Hard X-ray Outburst from Sgr A* with NuSTAR	43.001	NNX13AM31H		0	31,719
BERNARD LIPAT GRADUATE STUDENT RESEARCH PROGRAM	43.001	NNX15AN69H		0	30,000
Assessign the causes for the rise in abundance and seasonal productivity of the green mixotrophic dinoflagellate Noctiluca int the Arabian Sea ecosystem	43.001	NNX13AN81H		0	29,583
Investigating the influence of subglacial hydrologic conditions on seasonal velocity in Northwest Greenland	43.001	NNX15AN28H		0	29,225
Oceanic freshwater flux within the upper limit limb of the shallow overturning cell	43.001	NNX14AP29H		0	28,669
Lumped-Element Kinetic Inductance Detectors for Cosmic Microwave Background Polarimetry	43.001	NNX15AR85H		0	28,199
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	27,000
Mechanisms of change in global ocean heat uptake	43.001	NNX14AK96H		0	27,000
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		0	24,903
FIREBALL-2: Pioneering Space UV Baryon Mapping (Columbia Univ., Co-I Institution)	43.001	NNX16AF04G		0	24,533
Uncovering Dark Matter Subhalos with FERMI-LAT and Veritas	43.001	NNX14AQ70G		0	22,687
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	20,566
HESS J1626-490: Dark Accelerator or Pulsar Wind Nebula	43.001	NNX15AG28G		0	20,108
Model analysis of the factors regulating the trends and variability of methan, CO2 and OH	43.001	NNX14AM38G		0	20,002
Laboratory Studies of Dissociative Recombinationa in Interstellar Clouds in Support of the NASA Astrophysics Missions	43.001	NNX15AL73G		0	19,401
Multi-source imaging of infrastructure and urban growth using Landsat, Sentinel and SRTM	43.001	NNX15AT65G		0	19,233
Leveraging CMIPS and NASA/GMAO Coupled Modeling Capacity for SERVIR East Africa Climate Projections.	43.001	NNX12AR39G		0	18,534
4-D AEROSOLS: occurrence, type and evolution study using the GISS-E2 model and space/ground based observation	43.001	NNX15AE36G		0	18,083
Science and Calibration Support for the Reflection Granting Spectrometer on the XMM-Newton Observatory	43.001	NNX13AP89G		0	17,666
GISS/Sobel Cooperative Agreement (Institutional)	43.001	NNX12AB87A		17,144	17,144

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Iced sheet Sliding Constrained by Assimilation of Stratigraphic Data	43.001	NNX13AN57H		0	13,500
Climate and chemistry changes from 1975 to 2000 as observed and modeled in the coupled chemistry-aerosol-climate GISS ModelE Earth System Model	43.001	NNX09AK32G		0	12,765
Vulnerability of the U.S. Atlantic coast to hazards associated with extreme weather storms	43.001	NNX14AD48G		0	12,671
EdGCM: A Realistic Global Climate Modeling Experience for Educational Institutions	43.001	NNX10AT85A		0	12,498
Spatial and temporal Characteristics of Sea surface Salinity Fluctuations and Links to the Marine Hydrological cycle Aquarius	43.001	NNX14AI90G		0	11,991
Gamma - Ray Novae as Probes of Shock Acceleration	43.001	NNX14AQ68G		0	10,950
Analysis of GPM observations to improve our understanding of midlatitude precipitation: A process-oriented study of extratropical cyclones	43.001	NNX16AD82G		8,035	10,124
Optical and Gamma-Ray Monitoring of PSR J1023+0038 and Other X-Ray Binary/Recycled Pulsar Transitions Objects	43.001	NNX14AQ25G		0	8,115
First View of the Accretion Disks in Normal Symbiotic Stars	43.001	NNX15AC38G		0	5,607
Trying Again to Complete a Study of the Brightest CCOs	43.001	NNX15AC39G		0	4,906
Mechanism of Gamma-Ray Emission from Pulsars	43.001	NNX15AU71G		0	4,790
Radio Timing of Fermi Millisecond Pulsars	43.001	NNX15AC57G		0	4,424
High Energy Spectroscopy of the Exceptional Millisecond Pulsar PSR B1821-24	43.001	NNX15AV29G		0	4,000
Understanding the fundamental processes controlling the surface mass balance of the Greenland ice sheet and improving estimates	43.001	NNX16AH38G		0	3,995
Subpolar N. Atlantic air-sea fluxes associated with mid-latitude cyclones and their effect on AMOC	43.001	NNX16AC93G		2,243	2,826
Atmospheric Tomography Experiment (ATom)	43.001	NNX15AG58A		0	2,767
Interdisciplinary Research on Climate. Climate Modeling and the Impacts of Climate Change	43.001	NNX14AB99A		0	2,555
GISS/Sobel Cooperative Agreement (Institutional)	43.001	NNX12AB87A		1,950	1,950
Phytoplankton and Natural Hydrocarbon Seeps	43.001	NNX16AJ08G		0	1,238
Laboratory Measurements of Electron Impact Ionization in Support of the NASA Heliophysics Research Program	43.001	NNX12AD95G		0	87
Improving Decision-Making Activities for Malaria and Meningitis Risk Mapping-Integration of NASA Products/Platforms (SERVIR) and UN WHO-OpenHealth	43.001	NNX11AF68G		0	-519
Millisecond Pulsar Searches at Arecibo in Unidentified Fermi Sources at High Latitudes	43.001	NNX15AE13G		0	-3,124
GISS/Sobel Cooperative Agreement (Institutional)	43.001	NNX12AB87A		0	-4,787
Green Bank Telescope Timing of Fermi Millisecond Pulsars	43.001	NNX15AC56G		0	-6,974
GISS/Sobel Cooperative Agreement (Institutional)	43.001	NNX12AB87A		0	-27,808
FIREBALL-2: A Path to Flight for Future UV Missions (Co-I proposal)	43.001	NNX12AF29G		0	-37,364
				\$772,663	\$12,282,801

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Exploration					
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	320,871
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	161,633
Effects of Space Radiation on the Function of Human Brain Capillaries and the Blood-Brain-Barrier: Implications for Neurodegenerative Disorders	43.003	NNX11AR03G		0	30,670
				\$0	\$513,174
Cross Agency Support					
BioWires: DNA-based nanowires for conductivity-enhanced, self- assembling nanoelectronics	43.009	NNX14AM51H		0	63,598
				\$0	\$63,598
Space Technology					
Ultra-Low Power CMOS-comparable Integrated Photonic Platform for Terabit-Scale Communications	43.012	NNX16AD16G		0	72,595
Versatile Manipulation for Assistive Free-Flyers	43.012	NNX16AD13G		0	6,175
Ultra-Low Power CMOS-comparable Integrated Photonic Platform for Terabit-Scale Communications	43.012	NNX16AD16G		0	5,093
				\$0	\$83,863
Total Direct Award Programs				\$772,663	\$18,118,646

Pass-through Awards

National Aeronautics & Space Administration

Support of the MESSENGER Principal Investigator	43	CIW DTM-3250-1123	NASW-0002	0	117,393
Operation, Densification, and Upgrade of Continuous GNSS Stations in Russia in the Framework of MOU between LDEO & JPL	43	JPLCIT 1452786	NAS7-03001	43,305	96,936
Downscaling of Flooded Fraction Derived from Low-Resolution Microwave Measurements	43	AER P1635-1	NNH13CH27C	0	89,591
Developing the Next Generation Models for Gas-Phase Processes for Cosmological Hydrodynamical Simulations	43	HST-HF2-51341.001-A	NAS5-26555	0	77,920
Stellar Dynamics Goes Cosmology	43	HST-HF-51323.001-A	NAS5-26555	0	75,030
High Efficiency Detectors for Photon Counting & Large FPA s	43	JPLCIT 1518372	NNN12AA01C	0	73,866
Kinetic Inductance Detector Arrays for Very Sensitive Millimeter-Wave	43	JPLCIT 1533216	NNN12AA01C	0	56,275
Warm Gas Flows in the Coma Cluster	43	HST-GO-13382.001-A	NAS5-26555	0	42,308
Stellar Dynamics Goes Cosmology	43	HST-HF-51323.001-A	NAS5-26555	0	42,084

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Developing the Next Generation Models for Gas-Phase Processes for Cosmological Hydrodynamical Simulations	43	HST-HF2-51341.001-A	NAS5-26555	0	38,755
Measuring the Properties of Dwarf Streams	43	HST-GO-13383.001-A	NAS5-26555	0	37,765
Light Echoes and Environment of SN 2014J in M82	43	HST-GO-13626.001-A	NAS5-26555	0	36,909
Carbon Biosignatures of Early Ecosystems: Picomolar Scale Compound-Specific Isotope Analyses (Pico-CSIA)	43	UPENN 4856-CU-NASA-I80G	NNX13AI80G	0	35,843
Imaging Spectroscopy of the Gamma-Ray Nova V959 Mon	43	HST-GO-13715.001-A	NAS5-26555	0	35,782
Mega Urban Changes and Impacts in the Decade of the 2000 s	43	JPLCIT 1466462	NASA NNN13D876T	0	24,883
Fused Passive/Active 3D Tomography of the Earth's Particulate Atmosphere Using Multi-Pixel/Multi-Angle Spectro- Polarimetric Techniques	43	JPL 1497551	NNN12AA01C	0	24,014
Deep Imaging of M37, A Better Hyades	43	SAO GO2-13025A	NAS8-03060	0	23,565
Production of a Climate Data Record for Cloud Water Path	43	JPL 1524741	NNN12AA01C	0	19,916
Understanding New Structures Ejected from Recurrent Nova T Pyx	43	HST-GO-13796.001-A	NAS5-26555	0	15,557
Gravity Science Working Group (GSWG)	43	JPL 1540313	NNN12AA01C	0	9,476
Connecting Precipitation to Clouds and the Large-Scale Circulation by Atmospheric Processes: Water Budget Oriented Analysis	43	JPL 1548062	NNN12AA01C	0	7,358
The Surprising Ejecta Geometry of Recurrent Nova T Pyx	43	STSCI HST-GO-13400.01-A	NAS5-26555	0	6,609
Measuring the Proper Motion of the Quiet Pulsar Calvera	43	SAO GO4-15053X	NAS8-03060	0	2,040
Time-Resolved Ultraviolet Spectroscopy of the Missing Link Pulsar/LMXB PSR J1023	43	HST-GO-13630-002.A	NAS5-26555	0	1,311
SMASH: Spitzer Merger History and Shape of the Galactic Halo	43	JPLCIT 1501911	NNN12AA01C	0	932
East Africa Drought and Agricultural Productivity Assessment and Prediction System	43	JPLCIT 1471837	NNN13D785T	0	23
				\$43,305	\$992,141

Science

Gravity recovery and Interior Laboratory	43.001	MIT 5710003521	NNM08AA18C	0	163,648
Columbia University Participation in The Nuclear Spectroscopic Telescope Array (NuSTAR): Bringing the High Energy Universe Into Focus (Bridge Phase)	43.001	CALTECH 44A-1085100	NNG08FD60C	0	161,619
Search for Signatures of Inflation with the EBEX Balloon-Borne Instrument	43.001	UMINN A003457302	NNX13AE49G	0	151,412
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	86,723
Genetic Determinants of Radiation Cataract Risk	43.001	CSU G-1980-2	NNX12AB54G-000001	0	82,002
Quantifying thresholds in arctic tundra vegetation structure & ecosystem function using LIDAR & multispectral remote sensing	43.001	UOFA GNK882-SB-001	NNX12AK83G	0	80,666
Climate-driven impacts on the marine ecology, biogeochemistry, and carbon cycle of the West Antarctic Peninsula	43.001	WHOI A101144	NNX14AL86G	0	77,359

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Stage 2: Developing Global Building Exposure for Disaster Forecasting, Mitigation and Response	43.001	IMAGE 14-94-02:02	NNX14AQ13G	0	75,737
Computational Technologies: Feasibility Studies of a Quantum Enabled Annealing Algorithms For Estimating Terrestrial Carbon Fluxes From OCO-2 And the LIS Model	43.001	UMARY 00009758	NNX15AK58G	0	74,015
Einstein Postdoctoral Fellowship for Dr. Nicholas Stone: Stellar Dynamics Near Supermassive Black Holes	43.001	SAO PF5-160145	NAS8-03060	0	71,641
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	63,649
HESS-J1640-464: Powering the Most Luminous Gamma-Ray Source in the Galaxy	43.001	SAO GO5-16061X	NAS8-03060	0	55,767
Storms, Forms, and Complexity of the Urban Canopy: How Land Use, Settlement Patterns and the Shapes of Cities Influences Severe Weather	43.001	SDASU 3TC330	NNX12AM89G	0	44,422
A Deep Subarray Exposure of X7 in 47 Tuc: Towards Constraining Neutron Star Structure	43.001	SAO GO4-15029A	NAS8-03060	0	43,036
Galactic Accretion Unveiled: A Unique Opportunity with COS and M33	43.001	HST-GO-13706.002-A	NAS5-26555	0	41,631
The Detection of Hidden Worlds in Kepler Data	43.001	SRI No. J99019CO	NNX15AF09G	0	39,899
The Lives and Death of Planets and Stars in the Value-Added UV Photon Catalog	43.001	NYU F7079-01	NNX12AI50G	0	36,231
3He Measurements for the Project Collab Res: Seasonal Variability in Dissolved Inorganic Carbon Fluxes in a Mangrove Ecosystem	43.001	HWAIRC MA150010	NNX14AJ92G	0	32,999
Remote Sensing and Ecosystem Modeling: Research Technology Development and Applications for Earth System Science & Education	43.001	131015-5037501A-S-A	NNX12AO18A	0	30,026
Predicting Climatic/Hydrologic Extremes in the Greater Horn of Africa Under Evolving Climate Conditions to Support Mitigation and Adaptation Strategies	43.001	25-6238-0676-003	NNX14AD30G	0	29,833
Collaborative Research: Earth Venture Suborbital -2 Oceans Melting Greenland (OMG)	43.001	JPL 1525063	NNN12AA01C	0	27,939
Mutual Influence between the Two Stars in T Pyxidis	43.001	SAO GO5-16027X	NAS8-03060	0	26,680
Continuation of AMASR-E Earth Science Data Records with JAXA AMSR2	43.001	UOA 2016-044	NNX13AN44GG	0	26,620
The Massive Companions of Low-Mass White Dwarfs	43.001	GO6-17039X	NAS8-03060	0	25,856
A Fifteen-Year Ephemeris for the CCO Pulsar in Puppis A	43.001	SAO GO4-15054X	NAS8-03060	0	21,258
Lunar Impact Melt Flows: Geological Mapping, Experimental Simulation, and Numerical Modeling	43.001	UA 295634	NNX15AL60G	0	18,521
LIDAR, passive spectral, and ecophysiological approaches to link Forest Tundra Ecotone structure and function	43.001	UI GTK006-SB-001	NNX15AT86A	0	17,751
Einstein Postdoctoral Fellowship for Dr. Nicholas Stone: Stellar Dynamics Near Supermassive Black Holes	43.001	SAO PF5-160145	NAS8-03060	0	11,361
East Africa Drought and Agricultural Productivity Assessment and Prediction System	43.001	MSU RC105521	NNN12AA01C	0	10,047
The Energetic Magnetar in HESS J1713-381/CTB 37B	43.001	SAO GO5-16057X	NAS8-03060	0	5,036
The Accretion Disk of a Rare Jet-Driving Symbiotic Binary During its Brightest Outburst in a ~ Century	43.001	SAO DD6-17080X	NAS8-03060	0	4,790
Columbia University Participation in The Nuclear Spectroscopic Telescope Array (NuSTAR): Bringing the High Energy Universe Into Focus (Bridge Phase)	43.001	CALTECH 44A-1085100	NNG08FD60C	0	2,798
Using NASA Earth Science Datasets for National Climate Assessment Indicators: Urban Impacts of Heat Waves	43.001	BMI L398061	NNX13AN71G	0	397

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Implications of changing sea ice on phytoplankton and zooplankton biomass and community structure in the Bering Sea	43.001	MTU 1406043Z1	NNX14AN78G	0	-3,744
				\$0	\$1,637,625
Aeronautics					
Inverse Modeling and Attainment Analysis for Improved Decision Support of PM2.5 Air Quality Regulations	43.002	UCOL 154-6102	NASA NNX09AN77G	0	1,116
				\$0	\$1,116
Exploration					
Space radiation and gastrointestinal cancer: A comprehensive strategy for risk assessment and model development	43.003	GU 410967 GR410946-CU-Project	NNX15AI21G	0	81,437
				\$0	\$81,437
Education					
NASA / NEW YORK SPACE GRANT CONSORTIUM: NATIONAL SPACE GRANT COLLEGE AND FELLOWSHIP PROGRAM 2015-18	43.008	CU 76156-10486	NNX15AK07H	0	19,999
				\$0	\$19,999
Total Pass-through Programs				\$43,305	\$2,732,318
Total:				\$815,968	\$20,850,964

Department of Energy

Direct Awards

Office of Science Financial Assistance Program

Theoretical High Energy Physics	81.049	DE-SC0011941		0	865,594
Jet and Heavy Flavor Probes of the Quark-Gluon Plasma	81.049	DE-FG02-86ER40281		0	842,892
HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	654,065
MAGNETOHYDRODYNAMICS MODE CONTROL RESEARCH IN DIII-D	81.049	DE-FG02-04ER54761		0	458,961
MAGNETO HYDRODYNAM STABILITY/ACTIVE MODE CONTROL- OFF CAMPUS THE NATIONAL SPHERICAL TORUS EXPERIMENT	81.049	DE-FG02-99ER54524		0	422,416
DNA Grafting Building Blocks Designed to Self-Assemble into Desired Nanostructures	81.049	DE-SC0008772		0	355,030
Cross-Scal Land-Atmosphere Experiment (CSLAEX)	81.049	DE-SC0014203		0	290,234
Dedicated Beamline Facilities for Catalytic Research: Synchrotron Catalysis Consortium (SCC)	81.049	DE-SC0012653		28,006	282,926
Theory of Surface and Interface Physics of Correlated Electron Materials	81.049	DE-FG02-04ER46169		0	258,935

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HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	229,834
Quantum Field Theories for Cosmology	81.049	DE-SC0006395		0	226,642
Building a Toolbox of Singlet Fission Molecules for Solar Energy Conversion	81.049	DE-SC0014563		0	183,694
MAGNETO HYDRODYNAM STABILITY/ACTIVE MODE CONTROL- OFF CAMPUS THE NATIONAL SPHERICAL TORUS EXPERIMENT	81.049	DE-FG02-99ER54524		0	176,539
Theory of Ultra-Dense Matter and the Dynamics of High Energy Interactions Involving Nuclei	81.049	DE-FG02-93ER40764		0	171,465
Spectroscopy of charge carriers and traps in field-doped single crystal organic semiconductors	81.049	DE-SC0010693		81,848	167,737
RESISTIVE WALL MODES AND ERROR FIELD AMPLIFICATION	81.049	DE-FG02-03ER54696		0	162,657
Catalytic Growth of Molecular-Scale Wiring	81.049	DE-FG02-01ER15264		0	157,998
Physics and Control of Locked Modes in the DIII-D Tokamak	81.049	DE-SC0008520		0	154,676
Artificially Structured Semiconductors to Model Novel Quantum Phenomena	81.049	DE-SC0010695		0	153,581
Structure-property relationship in metal carbides and bimetallic alloys	81.049	DE-SC0009476		0	152,304
Graphene Charge transfer and chemical reactions	81.049	DE-SC0006521		0	121,622
Fundamental Studies of Metal Centered Transformations Relavant to Catalysis	81.049	DE-FG02-93ER14339		0	119,213
Mapping the Electron Response of Nanomaterials	81.049	DE-FG02-04ER46157		0	116,051
Laser Dynamic Studies of Photoreactions of Single-Crystal and Nanostructured Surfaces	81.049	DE-FG02-90ER14104		0	112,134
Charge carrier dynamics in hybrid organic-inorganic semiconductors	81.049	DE-SC0010692		0	112,120
Assembling Microorganisms into Energy Converting Materials	81.049	DE-SC0007999		0	108,095
Collaborative research on ecophysiological controls on Amazonian precipitation seasonality and variability	81.049	DE-SC0011094		0	105,764
Understanding recent global hydroclimate change using multivariate detection & attribution techniques & GCM experiments	81.049	DE-SC0014423		0	97,480
Regularized Finite Element Formulations for Shear Band Instabilities in Metals	81.049	DE-SC0008196		0	93,190
Theoretical Studies of Photoactive Molecular Systems: Electron Transfer, Energy Transport, and Optical Spectroscopy	81.049	DE-FG02-90ER14162		0	83,213
Catalytic Applications of H Atom Transfer from Transition-Metal Hydride Complexes	81.049	DE-FG02-97ER14807		0	81,450
Stability and Control of Burning Tokamak Plasmas with Resistive Walls	81.049	DE-SC0014119		0	76,577
HIGH BETA TOKAMAK RESEARCH	81.049	DE-FG02-86ER53222		0	75,101
STELLARATORY THEORY DESIGN	81.049	DE-FG02-95ER54333		0	70,794
Artificially Structured Semiconductors to Model Novel Quantum Phenomena	81.049	DE-SC0010695		0	70,254

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Understanding recent global hydroclimate change using multivariate detection & attribution techniques & GCM experiments	81.049	DE-SC0014423		0	49,045
Nonlinear Dynamics of Strong Interchange Instabilities in a Rotating Dipole-Confined Plasma	81.049	DE-FG02-00ER54585		0	46,751
Theoretical Studies of Photoactive Molecular Systems: Electron Transfer, Energy Transport, and Optical Spectroscopy	81.049	DE-FG02-90ER14162		0	37,434
Laser Dynamic Studies of Photoreactions of Single-Crystal and Nanostructured Surfaces	81.049	DE-FG02-90ER14104		0	36,630
Advancing cloud lifecycle representation in numerical models using innovative analysis met hods that bridge arm observation over a breadth of scales	81.049	DE-SC0006712		0	27,856
STELLARATORY THEORY DESIGN	81.049	DE-FG02-95ER54333		0	26,082
Jet and Heavy Flavor Probes of the Quark-Gluon Plasma	81.049	DE-FG02-86ER40281		0	23,101
Measuring the importance of valence to chemistry of nanocrystal surfaces	81.049	DE-SC0006410		0	20,776
ARRA -DE-SC0001085	81.049	DE-SC0001085		0	9,499
STELLARATORY THEORY DESIGN	81.049	DE-FG02-95ER54333		0	8,502
Fundamental Studies of Metal Centered Transformations Relavant to Catalysis	81.049	DE-FG02-93ER14339		0	6,763
CMCSN: Many Body Methods from Chemistry to Physics: Novel Computational Techniques for Materials-Specific Modeling a Computational Materials and Chemical Science Network	81.049	DE-SC0006613		0	5,807
STELLARATORY THEORY DESIGN	81.049	DE-FG02-95ER54333		0	5,764
Mapping the Electron Response of Nanomaterials	81.049	DE-FG02-04ER46157		0	544
Catalytic Applications of H Atom Transfer from Transition-Metal Hydride Complexes	81.049	DE-FG02-97ER14807		0	-61
ARRA -DE-SC0001085	81.049	DE-SC0001085		-62	-62
Improving the representationof soluble iron in climate models	81.049	DE-SC0006713		0	-4,775
ARRA -DE-SC0001085	81.049	DE-SC0001085		0	-9,503
Mapping the Electron Response of Nanomaterials	81.049	DE-FG02-04ER46157		0	-14,049
ARRA -DE-SC0001085	81.049	DE-SC0001085		0	-69,569
				\$109,792	\$8,017,773
Fossil Energy Research and Development					
Radiocarbon as a reactive tracer for tracking permanent CO2 storage in basaltic rocks	81.089	DE-FE0004847		0	70,841
				\$0	\$70,841
Advanced Research Projects Agency - Energy					
Vertical GaN transistors using controlled spalling for substrate heterogeneity	81.135	DE-AR0000452		477,456	668,916

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

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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Co-Generation of Fuels During Copper Bioleaching	81.135	DE-AR0000553		0	194,697
Can so con photonics offer a path to low power computing after all?	81.135	DE-AR0000720		0	75,457
Can so con photonics offer a path to low power computing after all?	81.135	DE-AR0000720		0	57,451
Demonstration of Near-Field Thermophotovolatiuc (TPV) Energy Generation	81.135	DE-AR0000731		0	1,846
Biofuels from C02 using ammonia-oxidizin-bacteria in a reseverse microbial fuel cell (NON ARRA FUNDS	81.135	DE-AR0000060 -01		0	-5,301
				\$477,456	\$993,066
Total Direct Award Programs				\$587,248	\$9,081,680

Pass-through Awards

Department of Energy

The Nanostructure Problem in Strongly Correlated Electron and Related Materials	81	BNL CU08-9027	DE-AC02-98CH10886	0	281,561
Geomechanical properties of Mesozoic Rift Basins: Application to geosequestration	81	SANDIA 23334-02	DE-FE0023334	0	262,026
Joint Appointment agreement between BSA/BNL and Columbia for Jingguang Chen s Salary	81	BNL CU13-1454	DE-AC02-98CH10886	0	253,231
sPHENIX detector at RHIC in FY14/15	81	BNL 268332	DE-AC02-98CH10886	0	160,808
The Nanostructure Problem in Strongly Correlated Electron and Related Materials	81	BNL CU08-9027	DE-AC02-98CH10886	0	157,351
Design of Carbide and Bimetallic Catalysts and Electrocatalysts	81	BNL NO.233521	DE-AC02-98CH10886	0	147,974
Grid Science - Power System Control Under Uncertainty	81	LANL 252599	DE-AC52-06NAA25396	0	116,215
Dynamical Mean Field Theory for Oxide Heterostructures	81	ARGNTL 3F-31382	DE-AC02-06CH11357	0	82,210
Data Movement Dominates: Advanced Memory Technology to Address the Real Exascale Power Problem	81	SANDIA 1426332	DOE	0	63,736
Incorporating Silicon Photonics at the System Level	81	SANDIA 1319001	DE-AC04-94AL85000	0	57,255
Joint Brookhaven-Columbia Appointment for Dr. Zhihua Dong	81	BNL CU16-0940	DE-SC0012704	0	49,004
Latent Gaussian embedding models of text and related data	81	LLNL B616449	DE-AC52-07NA27344	0	42,056
New Calorimeter Readout and Trigger System Subsystem	81	BNL 229854	DE-AC02-98CH10886	0	41,953
Joint Appointment agreement between BSA/BNL and Columbia for Jingguang Chen s Salary	81	BNL CU13-1454	DE-AC02-98CH10886	0	40,195
Photonic Integrated Circuits for Terabit per Second Optical Packet Switching	81	FREEDOMP CU15-0479	DE-FOA-0001250	0	40,022
Integrated Modeling and Co-Design Environment for Photonic Interconnected Multi-Level Memory Computing Systems	81	LBNL No.7257488	DE-AC02-05CH11231	0	37,664
Prototypes for the TPC Digital Boards LAr1-ND	81	FERMI No.621940	DE-AC02-07CH11359	0	33,626

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					R&D Cluster
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BNL LDRD Complex Modeling Student sub	81	BNL 254938	DE-AC02-98CH10886	0	28,948
sPHENIX detector at RHIC in FY14/15	81	BNL 268332	DE-AC02-98CH10886	0	28,914
LLNL Subcontract Laser Meterology	81	LLNL B607933	DE-AC52-07NA27344	0	28,642
A discrete-continuum coupling method for environmental-driven fracture in rock	81	SNL PO1557089	DE-AC04-94AL85000	0	20,955
Prototypes for the TPC Digital Boards LAr1-ND	81	FERMI No.621940	DE-AC02-07CH11359	0	19,098
New Contract to Support Graduate Student	81	BNL 294734	DE-CU15-3139	0	13,631
Latent Gaussian embedding models of text related data	81	LLNL B613746	DE-AC52-07NA27344	0	13,512
				\$0	\$2,020,587

Office of Science Financial Assistance Program

Mid-Atlantic Offshore Carbon Storage Resource Assessment Project	81.049	BMI 504916	DE-FE0026087	75,000	173,071
Ultrafast Infrared Nano-spectroscopy and Nano-imaging of Unconventional Superconductivity in Cuprate and Pnictide High-Tc Systems	81.049	UCSD 54554030	DE-SC0012592	0	111,289
Dynamic Visualization and Control of Emergent Phases in Complex Oxide Heterostructures	81.049	PSU 5064-CU-DOE-2375	DE-SC0012375	0	99,892
Ultrafast Infrared Nano-spectroscopy and Nano-imaging of Unconventional Superconductivity in Cuprate and Pnictide High-Tc Systems	81.049	UCSD 54554030	DE-SC0012592	0	84,972
EFRC: Center for Mesoscale Conductivity	81.049	RFSUNY 68856	DE-SC0012673	0	83,276
Compact inexpensive micro-reformers for distributed GTL	81.049	RTI 888-14-05-33	DOE	0	78,172
Rational Design of Innovative Catalytic Technologies for Biomass Derivative Utilization	81.049	UD 32826	DE-SC0001004	0	56,099
EFRC: Center for Mesoscale Conductivity	81.049	RFSUNY 68856	DE-SC0012673	0	39,692
Synthesis and engineering of submonolayer type-ii quantum dots to enhance material properties of wide bandgap semiconductors	81.049	RFCUNY 47829A	DE-SC0003739	0	27,551
Rational Design of Innovative Catalytic Technologies for Biomass Derivative Utilization	81.049	UD 32826	DE-SC0001004	0	1,646
				\$75,000	\$755,660

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	226,468
Mechanisms for methane transport and hydrate accumulation in coarse-grained reservoirs	81.089	UTA13-001088	DE-FE0013919	0	88,526
Big Sky Regional Carbon Sequestration Partnership - Phase III	81.089	G132-12-W3521	DE-FC26-05NT42587	0	4,555
				\$0	\$319,549

Defense Nuclear Nonproliferation Research

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Consortium for Verification Technology	81.113	UMICHG 3003222364	DE-NA002534	0	246,572
				\$0	\$246,572
Advanced Research Projects Agency - Energy					
Developing Low-Cost, Robust, and Multifunctional Battery System for Electric Vehicles: A Non-Chemical Approach	81.135	UCSD 48161882	DE-AR0000396	0	80,361
Developing Low-Cost, Robust, and Multifunctional Battery System for Electric Vehicles: A Non-Chemical Approach	81.135	UCSD 48161882	DE-AR0000396	0	32,990
Developing Low-Cost, Robust, and Multifunctional Battery System for Electric Vehicles: A Non-Chemical Approach	81.135	UCSD 48161882	DE-AR0000396	0	-7,967
				\$0	\$105,384
Total Pass-through Programs				\$75,000	\$3,447,752
Total: Department of Energy				\$662,248	\$12,529,432

Department of Defense

Direct Awards

Defense Advanced Research Projects Agency

ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		600,328	961,555
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	368,468
A scalable peptide/GPCR communication language	12	HR0011-15-2-0032		211,324	358,540
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	247,838
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	200,317
MEERKATS: Maintaining EnterprisE Resiliency via Kaleidoscopic Adaptation and Transformation of Software Services	12	FA8650-11-C-7190		58,002	153,417
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	136,712
MEERKATS: Maintaining EnterprisE Resiliency via Kaleidoscopic Adaptation and Transformation of Software Services	12	FA8650-11-C-7190		0	129,077
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032		0	98,590
MEERKATS: Maintaining EnterprisE Resiliency via Kaleidoscopic Adaptation and Transformation of Software Services	12	FA8650-11-C-7190		0	82,847
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003		0	78,919
MEERKATS: Maintaining EnterprisE Resiliency via Kaleidoscopic Adaptation and Transformation of Software Services	12	FA8650-11-C-7190		0	77,908
MEERKATS: Maintaining EnterprisE Resiliency via Kaleidoscopic Adaptation and Transformation of Software Services	12	FA8650-11-C-7190		0	60,288

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				R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
Deciphering the Cortex: Circuit inference from large-scale brain activity data	12	N66001-15-C-4032	0	59,561
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003	0	54,063
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003	0	44,884
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003	0	-1,286
ESP: Embedded Scalable Platforms for Terascale Energy-Efficient Computing	12	HR0011-13-C-0003	-10,660	-10,660
Defense Threat Reduction Agency				
Developing Real-Time Forecasts of Infectious Diseases	12	DTRA HDTRA 1-15-C-0018	0	489,064
Developing Real-Time Forecasts of Infectious Diseases	12	DTRA HDTRA 1-15-C-0018	0	160,411
Department of Defense				
Using Aptamer Coated Nanoparticles Encapsulating Prostate tumor antigen encoding NRNA to Target dend	12	DOD CU15-2380	0	60,557
Department of the Army				
Advanced Head/Neck Protection Against Traumatic Brain Injury	12	W911QY-12-C-0114	0	182,301
Automated Non-Destructive Testing and Evaluation Method for Helmets	12	W91CRB-13-C-0060	0	9,874
Department of the Army, Army Corps of Engineers				
US Army Corps of Engineers Institute for Water Research IPA	12	IPA-15-0016	0	10,168
Intelligence Advanced Research ProjectsActivity				
IARPA StoneSoup - Minestrone	12	FA8650-10-C-7024	76,455	46,626
UNITED STATES MILITARY ACADEMY AT WESTPOINT				
Personnel Mobility Agreement	12	USMA CU15-3585	0	18,293
			\$935,449	\$4,078,332
Basic and Applied Scientific Research				
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347	450,676	726,419
Culture in Power Transitions: Sino-American Conflict in the 21st Century	12.300	N00014-15-1-0039/N00014-16-1-2	312,009	568,590
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347	0	278,781

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Electronics from One-dimensional Nanostructures of Two-Dimensional Materials	12.300	N00014-14-1-0501		0	243,740
A Foundational Synthetic Biology Toolbox for Engineering Human But Microbiota towards Enhancing Warfighter Capabililtes	12.300	N00014-15-1-2704		0	231,046
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		64,318	216,475
The YOLO Approach to Resilient Cyber Physical Systems	12.300	N00014-15-1-2173		0	193,080
Symbiotic, Polymorphic, Autotomic, Resilient, Clean-Slate, Host Security (SPARCHS)	12.300	FA8750-10-2-0253		94,748	175,559
Analysis of Riverine Skin Temperature Response to Surface and Subsurface Processes	12.300	N00014-15-1-2153		0	166,078
Transparently Extending Programs at Compilation to Prevent Bugs	12.300	N00014-12-1-0166		0	152,915
Next-Generation Variational Methods: Active Inference, Streaming Inference, and Assessing Model Fitness	12.300	N00014-15-1-2209		0	136,777
Collaborative Dexterous Manipulation: Mechanisms and Interfaces	12.300	N00014-16-1-2026		0	136,592
Basic science with an ultracold molecule clock: forbidden transitions, nonadiabatic physics, and precision metrology	12.300	N00014-14-1-0802		0	135,658
Development of Semiconductor Spin Clocks	12.300	N00014-13-1-0316		0	113,438
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		23,346	103,617
Atomically Clean Graphene/Boron Nitride Heterostrucures for Ultrahigh Performance and Multilayer Circuit Architecture	12.300	N00014-13-1-0662		0	102,761
DRATS: Detecting Relations and Anomalies in Text and Speech	12.300	FA8750-12-2-0347		0	100,925
New frontiers of nano-photonics: multi-THz imaging and spectroscopy of graphene based nanostructure	12.300	N00014-15-1-2671		6,061	99,584
SOLAR: Sparse and Low-Rank Object Approximation	12.300	N00014-13-1-0492		0	96,189
Nonconvex Combinatorial Nonlinear Optimization: New Methodologies and Critical Applications	12.300	N00014-13-1-0042		0	95,088
Towards Flexible Sheet Cameras	12.300	N00014-16-1-2152		0	93,444
Transparently Extending Programs at Compilation to Prevent Bugs	12.300	N00014-12-1-0166		0	87,975
Filtered near-field thermal radiation: Isolating surface phonon polariton resonances in near-field radiative transfer	12.300	N00014-12-1-0996		0	77,901
Development of Singlet Fission Materials for Third-Generation Solar Cells	12.300	N00014-15-1-2532		0	75,000
Generalized factor analysis, exact Hamiltonian Monte Carlo methods, and spike-and-slab models for non-Gaussian multivariate analysis	12.300	N00014-16-1-2176		0	69,022
Basic science with an ultracold molecule clock: forbidden transitions, nonadiabatic physics, and precision metrology	12.300	N00014-14-1-0802		0	66,829
Development of predictive modeling and simulation capabilities	12.300	N00014-15-1-2053		0	64,713
Decentralized Signal Processing based on Very-low-rate Sampling: Theory and Applications	12.300	N00014-14-1-0667		0	61,465
Graphene-Silicon Photonics for Extreme Sensitivity, Cryogenic-Room Temperature Dense WDM Interconnects	12.300	N00014-16-1-2219		0	60,559

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A Lagrangian Approach to Emerging Dynamics in the Marginal Ice Zone	12.300	N00014-11-1-0977		0	59,544
Generalized factor analysis, exact Hamiltonian Monte Carlo methods, and spike-and-slab models for non-Gaussian multivariate analysis	12.300	N00014-16-1-2176		0	58,466
Engineered systems consisting of biological electronic devices integrated with CMOS nanoelectronics	12.300	N00014-13-1-0375		0	55,048
Low Latitude Indian to Western Pacific, From 40E to 160E	12.300	N00014-16-1-2480		0	40,121
Laser Propagation in Heterogeneous media and applications to off-axis reconstructions	12.300	N00014-15-1-2679		0	36,610
Phase-Change Correlated Perovskites as a New Platform for Photonics	12.300	N00014-16-1-2442		0	34,855
Bay of Bengal Surface and Thermocline and the Arabian Sea	12.300	N00014-14-1-0065		0	34,467
Symbiotic, Polymorphic, Autotomic, Resilient, Clean-Slate, Host Security (SPARCHS)	12.300	FA8750-10-2-0253		0	32,914
Towards Flexible Sheet Cameras	12.300	N00014-16-1-2152		33,015	30,403
Measuring Turbulence Mixing in Indonesian Seas using Microstructure EM-APEX Floats	12.300	N00014-15-1-2307		0	26,972
A Lagrangian Approach to Emerging Dynamics in the Marginal Ice Zone	12.300	N00014-11-1-0977		0	16,726
Fabrication of Large Format Imaging Systems	12.300	N00014-15-1-2902		0	15,020
A Lagrangian Approach to Emerging Dynamics in the Marginal Ice Zone	12.300	N00014-11-1-0977		0	14,871
Nonlinear Channelizer: tunable RF Filters, integrated detectors, and coupled oscillators based on ultrahigh-Q optoelectronic oscillators in the CMOS Platform	12.300	N00014-14-1-0041		0	12,722
ONR Tempus Medical Device Group	12.300	N00014-14-1-0677		0	4,796
Optimizing Energy Absorption in Hybrid Metal-Polymer-Composite-Ceramics (MPC2) Plates	12.300	N00014-12-1-0558		0	4,332
Symbiotic, Polymorphic, Autotomic, Resilient, Clean-Slate, Host Security (SPARCHS)	12.300	FA8750-10-2-0253		0	4,026
Informative priors for Bayesian inference and regularization	12.300	N00014-15-1-2541		0	2,408
Validation of Biogeochemical Measurements in the Arctic Ocean from Virginia and Sea Wolf Class Submarines	12.300	N00014-11-1-0517		0	598
Integrated Molecular-Scale Electronic Devices via DNA Nanostructure Assembly	12.300	N00014-09-1-1117		0	391
Integrated Molecular-Scale Electronic Devices via DNA Nanostructure Assembly	12.300	N00014-09-1-1117		0	378
Integrated Molecular-Scale Electronic Devices via DNA Nanostructure Assembly	12.300	N00014-09-1-1117		0	250
Graphene-Silicon Photonics for Extreme Sensitivity, Cryogenic-Room Temperature Dense WDM Interconnects	12.300	N00014-16-1-2219		0	15
Integrated Molecular-Scale Electronic Devices via DNA Nanostructure Assembly	12.300	N00014-09-1-1117		0	0
The role of water in moisture swing absorption of CO2	12.300	N00014-14-1-0700		0	-2,280
Symbiotic, Polymorphic, Autotomic, Resilient, Clean-Slate, Host Security (SPARCHS)	12.300	FA8750-10-2-0253		0	-25,067
				\$984,173	\$5,188,806

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Basic Scientific Research - Combating Weapons of Mass Destruction				
Investigation of Data-Intensive Discovery Methods for Improved Seismic Monitoring	12.351	HDTRA1-11-1-0027		46,663
Power Grid Vulnerability and Resilience to Geographically Correlated Failures	12.351	HDTRA1-13-1-0021		135,128
Power Grid Vulnerability and Resilience to Geographically Correlated Failures	12.351	HDTRA1-13-1-0021		0
Improving Sensing with Tethered Capture and Surface Diffusion	12.351	HDTRA 1-12-1-0037		0
DTRA2013-Enzyme Cascades	12.351	HDTRA1-14-1-0051		0
DTRA2013-Enzyme Cascades	12.351	HDTRA1-14-1-0051		0
				\$181,791
				\$878,952
Military Medical Research and Development				
A cell-based assay to identify neuroprotective molecules for the treatment of amyotrophic lateral sclerosis	12.420	W81XWH-13-1-0416		0
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
GREAT-SF (Grief REsilience Activities and Training For Surviving Families): an Online Selective Intervention for Bereaved Military Families	12.420	W81XWH-15-2-0043		0
Establishment of donor Chimerism Using Allogeneic Bone Marrow with AMP Cell Co-infusion	12.420	W81XWH-15-1-0234		0
Racial Disparities in the Initiation and Intensity of Adjuvant Therapy for Breast Cancer	12.420	DDEF W81XWH-0510399		0
Preclinical testing of a Translocator Protein ligand for the treatment of amyotrophic lateral sclerosis	12.420	W81XWH-14-1-0375		0
The loss of proprioception as a mechanism underlying the SMA phenotype	12.420	W81XWH-11-1-0689		0
Integrative Device for Treating Rotator Cuff Tendon Injuries	12.420	W81XWH-15-1-0685		0
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
Molecular mechanisms underlying the epileptogenesis and seizure progression in Tuberous Sclerosis Complex 1 deficient mouse models	12.420	W81XWH-15-1-0112		0
Identification of master regulators of advanced and castrate-resistant prostrate cancer under treatment with Abiraterone.	12.420	W81XWH-13-1-0422		0
Proteomic Mapping of the Immune Response to Gluten in Children with Autism	12.420	W81XWH-14-1-0293		0
Electric Field Stimulation Enhances Healing of Post-Traumatic Osteoarthritic Cartilage	12.420	W81XWH-14-1-0591		59,254
Altered Astrocyte-Neuron Interactions and Epileptogenesis in Tuberous Sclerosis Complex Disorder	12.420	W81XWH-12-1-0196		0
Hippocampal and cognitive Function, Exercise, and Ovarian Cancer: A Pilot Study	12.420	W81XWH-14-1-0236		0
Ready-to-Use Tissue Construct for Military Bone and Cartilage Trauma	12.420	W81XWH-10-1-0933		0
RACIAL DISPARITIES IN PALLIATIVE CARE FOR PROSTATE CANCER	12.420	W81XWH-10-1-0802		0

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Targeting MEK5 Enhances Radiosensitivity of Human Prostate Cancer and Impairs Tumor Associated Angiogenesis	12.420	W81XWH-15-1-0296	0	90,472
Central and Peripheral Mechanisms of Antipsychotic Medication-Induced Metabolic Dysregulation	12.420	W81XWH-15-1-0556	0	81,548
Electric Field Stimulation Enhances Healing of Post-Traumatic Osteoarthritic Cartilage	12.420	W81XWH-14-1-0591	0	77,400
Chemokine Receptor Signatures in Allogeneic Stem Cell Transplantation	12.420	W81XWH-13-1-0204	0	74,881
Molecular mechanisms underlying the epileptogenesis and seizure progression in Tuberous Sclerosis Complex 1 deficient mouse models	12.420	W81XWH-15-1-0112	0	73,158
Retinoid X receptor gamma s a potential therapeutic target for fragile X syndrome	12.420	W81XWH-15-1-0404	0	69,270
TBI-Induced Formation of Toxic Tau and Its Biochemical Similarities to Tau in AD Brains	12.420	W81XWH-15-1-0550	0	68,705
Functional Identification of Master Regulators of Prostate Cancer Metastasis through CRISPR/CAS9 screening	12.420	W81XWH-15-1-0185	0	61,530
Identification and validation of maser regulators of castration resistant prostate cancer	12.420	W81XWH-15-1-0474	0	52,085
Mitochondrial dysfunction and disease progression	12.420	W81XWH-15-1-0450	28,242	50,465
TBI-Induced Formation of Toxic Tau and Its Biochemical Similarities to Tau in AD Brains	12.420	W81XWH-15-1-0550	0	46,138
Olfactory Deficits in MCI as Predictor of Improved Cognition on Donepezil	12.420	W81XWH-12-1-0142	0	30,599
Motor Neuron-Protecting Agents as Therapeutics for Treating ALS	12.420	W81XWH-16-1-0204	0	28,614
Columbia SMA project: 4-AP as a potential SMA therapeutic agent and biological mechanisms of action	12.420	W81XWH-11-1-0753	0	19,811
Columbia SMA project: 4-AP as a potential SMA therapeutic agent and biological mechanisms of action	12.420	W81XWH-11-1-0753	0	1,603
PREDICT: Pattern Representation and Evaluation of Data through Integration, Correlation, and Transformation	12.420	W81XWH-13-1-0056	0	344
Columbia SMA project: 4-AP as a potential SMA therapeutic agent and biological mechanisms of action	12.420	W81XWH-11-1-0753	0	-2,966
Interaction of Synuclein and Inflammation in Dopaminergic Neurodegeration	12.420	W81XWH-08-1-0465	0	-178,327
			\$87,496	\$5,021,573

Basic Scientific Research

Imaging how a neuron computes	12.431	W911NF-12-1-0594	218,705	794,573
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	662,559
Cortical Networks Underlying Rapid Decision Making	12.431	W911NF-11-1-0219	158,770	268,024
Acquisition of instrumentation for terahertz pump-probe nano-spectroscopy and nano-imaging of novel materials	12.431	W911NF-15-1-0532	0	236,426
Nano-SICM: A novel scanning ion conductance microscope for high-resolution functional imaging of neurons	12.431	W911NF-15-1-0406	0	221,840
The role of ApoE in Alzheimer disease and in traumatic brain injury	12.431	W911NF-15-1-0169	0	133,363

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Cryo-mechanics of unsaturated frozed soils during freeze-thaw cycles	12.431	W911NF-15-1-0442	0	108,552
High Strain Rate Failure Modeling Incorporating Shear Banding and Fracture	12.431	W911NF-13-1-0238	0	99,133
Imaging how a neuron computes	12.431	W911NF-12-1-0594	0	76,880
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	68,440
Rare-event Analysis and Computational Methods for Stochastic Systems Driven by Random Fields	12.431	W911NF-15-1-0159	0	52,486
Understanding hydro-mechanical coupling mechanism of wetted granular matters beyond the pendular regime	12.431	W911NF-15-1-0581	0	49,383
Projects on Human-Bot Communication, Arabic and other Low resources Languages, and Computational Social Science	12.431	W911NF-15-2-0129	0	46,821
Imaging how a neuron computes	12.431	W911NF-12-1-0594	0	40,607
Synthetic Nanoparticles as Antimicrobial Surface Modifiers	12.431	W911NF-14-1-0137	0	35,916
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	27,815
Distributed High Performance Algorithms for Mobile Ad Hoc Networks	12.431	W911NF-16-1-0259	0	27,269
Imaging how a neuron computes	12.431	W911NF-12-1-0594	0	22,297
A multiscale analysis on the moisture effect of dynamics responses of granular matters	12.431	W911NF-14-1-0658	0	21,475
Imaging how a neuron computes	12.431	W911NF-12-1-0594	0	10,871
Imaging how a neuron computes	12.431	W911NF-12-1-0594	0	4,673
Increased ER-Mitochondrial Communication in the Pathogenesis of Alzheimer Disease	12.431	W911NF-12-1-0159	0	3,712
Modular Assembly of Hierarchically Structured Polymers by Solid Phase Synthesis	12.431	W911NF-11-1-0372	0	2,958
Engineering of an Extremely Thermostable Alpha/Beta Barrel Scaffold To Serve as a High Molecular Recognition Element for Use in Sensor Applications	12.431	W911NF-12-1-0279	0	368
Cortical Networks Underlying Rapid Decision Making	12.431	W911NF-11-1-0219	0	0
Breaking the Neural Code	12.431	W911NF-14-1-0269	0	-16,814
			\$377,475	\$2,999,627
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	247,532
			\$0	\$247,532
Air Force Defense Research Sciences Program				
3-D Enzymatic Nanomaterial Architectures for Energy Harvesting	12.800	AFOSR FA950-12-10112	624,535	895,584

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Artificial Atoms, Molecules, and Solids: Multiple Functions and Emergent Properties	12.800	FA9550-14-1-0381		0	522,145
Fundamental Studies of Microresonator-Based Parametric Frequency Combs	12.800	FA9550-15-1-0303		0	392,295
Identifying Deceptive Speech Across Cultures	12.800	FA9550-11-1-0120		78,239	357,281
(PECASE) Microscopic Electronic and Mechanical Properties of Ultra-thin Layered Materials	12.800	FA9550-11-1-0010		0	352,132
Fundamental Mechanisms of NeuroInformation Processing: Inverse Problems and Spike Processing	12.800	FA9550-12-1-0232		0	221,856
Designing for Measurable Security	12.800	FA9550-12-1-0162		79,401	204,622
Statistical models of graph and relational data from probabilistic symmetries	12.800	FA9550-15-1-0074		0	155,721
Polaritonic Metamaterials Based on Van Der WAALS Heteostructures	12.800	FA9550-15-1-0478		0	121,634
Concurrency Attacks and Defenses	12.800	FA9550-12-1-0346		0	94,396
Characterizing Neural Code From a Minimum-Description-Length Pererspective	12.800	FA9550-15-1-0439		12,308	93,002
Intelligent Learning	12.800	FA9550-15-1-0502		30,762	80,571
Fundamental Studies of Microresonator-Based Parametric Frequency Combs	12.800	FA9550-15-1-0303		0	72,768
Designing for Measurable Security	12.800	FA9550-12-1-0162		0	53,853
New Materials Approaches for Future Graphene-Based Devices	12.800	FA9550-09-1-0705		0	-60
				\$825,245	\$3,617,800

Language Grant Program

Hindi Online Modules Project: 2015 Startalk Infrastructure Grant	12.900	NSA H98230-15-1-0198		0	39,806
				\$0	\$39,806

Mathematical Sciences Grants Program

Trace Formulae: L-Functions, and Analytic Number Theory	12.901	H98230-15-1-0035		0	31,675
Fast Likelihood Estimation of Very Large Species/Population Trees through Order of Divergence	12.901	H98230-15-1-0320		0	8,019
Trace Formulae L-functions, and Analytic Number Theory	12.901	H98230-16-1-0009		0	3,085
				\$0	\$42,779

Research and Technology Development

Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		0	374,309
The Virome of Manhattan: A Testbed for Radically Advancing Understanding and Forecast of Viral Respiratory Infections	12.910	W911NF-16-2-0035		0	359,373

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Hybrid Silicon-on-Sapphire/Scaled COMS Interference Mitigatio Front-End based on Simultaneous Noise-Cancellation, Active-Interference-Cancellation and N-path-Mixer Filtering	12.910	FA8650-14-1-7414		0	333,587
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		0	282,193
A Bayesian Network Model of Financial, Social and News Stream Under Stress Conditions	12.910	N66001-15-2-4026		0	273,487
CMOS RF Field-programmable full-duplex t/r Module	12.910	DARPA HR0011-12-1-0006		0	236,423
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		0	235,664
SEEM: Inferring Sentiment bElief pErsperspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		31,772	223,257
Metasurface-Based Spatial Light Modulators	12.910	D15AP00111		0	165,566
Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		138,184	153,184
CMOS RF Field-programmable full-duplex t/r Module	12.910	DARPA HR0011-12-1-0006		0	146,981
An actively mode-locked chip-scale electronic-photonic Kerr comb synthesizer	12.910	HR0011-15-2-0014		0	141,845
Breaking the loss limitation of SIN resonators	12.910	N66001-15-1-4052		0	125,222
PULSE: Phased-array Ultrasound for Electroceuticals	12.910	HR0011-15-2-0054		0	116,492
SEEM: Inferring Sentiment bElief pErsperspective and eMothin for Low Resource Languages	12.910	HR0011-15-2-0041		0	104,216
The Two-Dimensional Limit of Strongly-Correlated Materials	12.910	N66001-12-1-4216		0	72,831
Breaking the loss limitation of SIN resonators	12.910	N66001-15-1-4052		52,394	67,394
Novel Functionality in oxides via Jahn-Teller ions: a DFT+DMFT study	12.910	D13AP00051		0	64,256
Development and Application of Silicon-Chip-Based Mid-Infrared Frequency Combs	12.910	W31P4Q-16-1-0002		0	35,553
DARPA SEED: Development of Ultraflow Power Supercontinuum Platform Based on Silicon Nitride	12.910	N66001-16-1-4055		0	3,416
CMOS RF Field-programmable full-duplex t/r Module	12.910	DARPA HR0011-12-1-0006		0	-1,466
An actively mode-locked chip-scale electronic-photonic Kerr comb synthesizer	12.910	HR0011-15-2-0014		0	-4,617
				\$222,350	\$3,509,166
Total Direct Award Programs				\$3,613,979	\$25,624,373

Pass-through Awards

Air Force Office of Scientific Research

Investigating the robustness of the eigenstrain method of residual stress prediction: Uncertainty budgeting and the influence of stress measurement technique	12	UTC 15-S2606-04-C29	FA8650-10-D-3037	0	95,466
DIMAGIC: Data Infrastructure for Materials Genome with Innovation and Certification	12	MGINC CU15-2402	FA8650-15-M-5034	0	52,995

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Integrated High-Complexity Systems in Silicon Photonics phase II STTR	12	PBP CU13-1285	FA9550-12-C-0079	0	41,391
STTR: Particulate Composite Mixing Processes	12	GEMI FFP-2014-CU-0904	FA9550-14-C-0058	0	0
Experimenting with the CU Core BARTER I	12	ACS 2013010S	FA8750-14-C-0019	0	-45,772
Defense Advanced Research Projects Agency					
Domain-specific Insight Graphs	12	USC-PO55630053	FA8750-14-C-0240	0	146,704
The Potential for Decoupling Explosions in Fractured Hard Rock: Examples from Kazakhstan Historical Data and a New Field Study	12	WPGC CU11-1523	HDTRA1-08-10-BRCWMD-BAA	0	113,685
CONCEAL: Cryptographic Obfuscation of Code and Algorithms	12	IBM 4915012804	W911NF-15-C-0236	0	108,088
Democratizing DDos Defenses Using Secure Indirection Networks	12	GMU E203809-01	HR0011-16-C-0055	0	83,333
DARPA Probabilistic for Advanced Machine Learning (PPAML)	12	ACS 2013012S	FA8750-14-C-0019	0	58,378
Scene Recovery Using An Extended Plenoptic Function	12	UWM No.673K573	HR011-16-C-0025	0	56,489
Social Media in Strategic Communication	12	IBM 4912038357	W911NF-12-C-0028	0	1,174
Social Media in Strategic Communication	12	IBM 4912038357	W911NF-12-C-0028	0	541
Department of Defense					
STTR: Particulate Composite Mixing Processes	12	GEMI FFP-2016-CU-0401	FA9550-16-C-0018	0	32,701
Department of the Air Force, Air Force Research Laboratory					
Develop physics-based damage, oxidation, and coupled mechanical oxidation models	12	UTC PSA-1205265 PO2603158	FA8650-13C-5213	0	76,884
Agreement from Northrop	12	NGSC 7600018484	FA8650-10-C-7027	0	26,492
Intelligence Advanced Research ProjectsActivity					
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	306,737
Automated Low Level Analysis and Description of Divers Intelligence Video Program	12	BBN 9500010799	D11PC20071	0	305,309
Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	284,687
Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	209,132
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	95,352
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	79,697
Cortical Architecture and Algorithms for Machine Listening	12	HARVARD 167937-5093338	D16PC0008	0	51,656

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Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	50,325
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	50,316
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	39,400
Sparse Heterogeneous Representations and Domain Adaptive Matching for Unconstrained Face Recognition	12	UMD 21444-Z9885004	IARPA 2014-1407 1600012	0	26,700
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	14,172
Reverse Engineering Neocortical Intelligence	12	BCM PO7000000059	D16PC0000	0	7,576
IARPA-IBM Babel Program	12	IBM 4912046923	W911NF-12-C-0012	0	-187
Office of Naval Research					
SBIR N122-126 Phase II: Innovative Method for Wirelessly Powering RFID Tags Located on Rotorcraf	12	TDA-2006-001-2	N68335-14-C-0090	0	79,016
MAGANIMOS: Integrated magnetic, Gan, and SOI CMOS for power conversion and RF power amplification	12	IBM 4913900053	N00014-13-C-0167	0	63,470
				\$0	\$2,511,907
Basic and Applied Scientific Research					
Extended-Range Prediction with Low-Dimensional, Stochastic-Dynamic Models: A Data-driven Approach	12.300	UCLA 2090 G QA272	N00014-16-1-2073	0	568,732
Extended-Range Prediction with Low-Dimensional, Stochastic-Dynamic Models: A Data-driven Approach	12.300	UCLA 2090 G QA272	N00014-16-1-2073	0	538,074
Graphene photonics and nano-plasmonics	12.300	UCSD 38072517	N00014-13-1-0464	0	243,321
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 22539-S1	N00014-11-1-0683	32,803	205,847
RATIONAL DESIGN of Advanced Capacitor Films	12.300	UCONN 6966	N00014-10-1-0944	0	154,384
Augmented Reality for Maintenance and Training in NUWC Industrial Operations	12.300	PSU S15-31	N00024-12-D-6404/0167	0	81,077
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 22539-S1	N00014-11-1-0683	0	48,572
Embedasploit: A Pen-Test in a Box for Industrial Control Systems	12.300	GIT RF823-G2	N00014-15-1-2180	0	1,164
				\$32,803	\$1,841,171
Basic Scientific Research - Combating Weapons of Mass Destruction					
Deep Characterization of Roussettu 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	71,103
Investigation of Radiation Resistance Mechanisms in Melanized Fungi	12.351	AECM 321009	HDTRA1-15-0058	0	62,717
				\$0	\$133,820

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Military Medical Research and Development					
Translational Mouse Models of PTSD and Comorbid Substance Use	12.420	UCSF 8741sc	W81XWH-12-2-0048	0	400,577
Identifying Novel Glioma Therapeutic Targets Using an Ecosystems Approach	12.420	WU-16-216	W81XWH1310094	0	55,690
Whole Exome Analysis of Early Onset Alzheimer s Disease	12.420	UMIAMI 665409	W81XWH1210013	0	45,652
LAM Pilot study with Imatinib Mesylate (LAMP-1)	12.420	MUSC14-051	W81XWH-14-1-0132	0	12,797
Alzheimer s Disease Neuroimaging Initiative	12.420	10-CMPC DOD-ADNI M-00	W81XWH-12-2-0012	0	11,480
Direct 3D Printing of Integrated Electro Mechanical Systems	12.420	IMOD P.O.#444/0729085	DOD CU15-3453	0	6,307
Organizing Cellular & Molecular Heterogeneity in High-Grade Serous Ovarian Cancer by Mass Cytometry	12.420	60167544-104703-B	W81XWH-12-1-0591	0	129
Organizing Cellular & Molecular Heterogeneity in High-Grade Serous Ovarian Cancer by Mass Cytometry	12.420	60167544-104703-B	W81XWH-12-1-0591	0	-57
				\$0	\$532,575
Basic Scientific Research					
Information Engines: Nanoscale Control, Computing, and Communication Out of Equilibrium	12.431	UCD 201301045	W911NF-13-1-0390	0	252,205
Multivariate Heavy Tail Phenomena: Modeling, Diagnostics, and Applications in Tactical Operations	12.431	CU 66220-9900	W911NF-12-1-0385	0	251,195
Bias Induced Threshold for Neural neTworks (BITNet)	12.431	UPENN 555860	W911NF-10-1-0526	0	242,227
Bio-inspired Design of Adaptive Catalysis Center	12.431	UUTAH10034220-04	W911NF-14-1-0263	0	221,854
Image Database and Neuroimaging Data Collection for Rapid Visual Decision Making	12.431	APX03-S005	W911NF-10-D-0002	0	142,392
Fractional PDEs for Conservation Laws and Beyond: Theory, Numerics and Applications	12.431	BROWN 00000825	W911NF1510562	0	94,156
Toward Accurate Models of Wet Granular Media in Nature	12.431	MIT 5710004052	W911NF-15-1-0598	0	12,016
Image Database and Neuroimaging Data Collection for Rapid Visual Decision Making	12.431	APX03-S005	W911NF-10-D-0002	0	10,507
Image Database and Neuroimaging Data Collection for Rapid Visual Decision Making	12.431	APX03-S005	W911NF-10-D-0002	0	2,598
				\$0	\$1,229,150
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	535,735
Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	107,675
Climate-informed Estimation of Hydrologic Extremes for Robust Adaptation to Non-s	12.630	16-009040 A 00	W912HQ-15-C-0052	0	84,928
Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	36,303

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Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	10,649
Constructing Mutually-derived Situational Awareness via EEG-informed Graph Based Transductive Inference	12.630	APX02-N004	W911-NF-10-2-0022	0	-5,299
				\$0	\$769,991

Air Force Defense Research Sciences Program

The Next Generation of Probabilistic Programming: Massive Data, Data Streams, and Model Diagnostics	12.800	SUB 0000028	FA8750-14-2-0009	0	413,021
MURI Center for Material Failure Prediction through peridynamics	12.800	UOARIZONA-PO225829	FA9550-14-1-0073	0	243,103
AFSOR DURIP: Multi-Terabit-Capable Silicon Photonic Interconnected End-to-End System	12.800	UDELAWARE 39344	FA9550-14-1-0198	0	219,792
Science and Emerging Technology of 2D Atomic Layered Materials and Devices	12.800	RICEU R18643	FA9550-14-1-0268	0	154,626
Active Metasurfaces for Advanced Wavefront Engineering and Waveguiding	12.800	HARVARD-123885-5079402	FA9550-14-1-0389	0	130,640
Very High Speed Digital Data and Communication Links	12.800	RFSUNY CU16-1030	AFOSR CU16-1030	0	123,323
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	116,809
AIM MCE Stand-up Phase	12.800	RFSUNY CU15-2845	FA8650-15-2-5220	0	108,421
MURI Center for Dynamic Megneto-Optics	12.800	UMICH 3003042215	FA9550-14-1-0040	0	91,074
Science and Emerging Technology of 2D Atomic Layered Materials and Devices	12.800	RICEU R18643	FA9550-14-1-0268	0	81,318
Hydrogen Storage via Functionalizad Nanoporous Materials	12.800	UTEXAS FA9550-12-1-0159-03	FA9550-12-1-0159	0	78,162
Prototype Packaging High-Density Fiber I/O to SIP PIC	12.800	RFSUNY CU16-1029	AFOSR CU16-1029	0	56,005
Functional Testing Development for Automated Scaled Manufacturing	12.800	RFSUNY CU15-1693	FA8650-15-2-5220	0	55,893
Prototype Packaging High-Density Fiber I/O to SIP PIC	12.800	RFSUNY CU16-1029	AFOSR CU16-1029	0	51,672
Silicon Photonic-Electronic System Level Integration	12.800	PSI SC-6547-0001	FA9550-14-C-0063	0	18,521
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	11,229
				\$0	\$1,953,609

Research and Technology Development

Memory Enhancement with Modeling, electrophysiology, and simulation (MEMES)	12.910	UPENN 564000	N66001-14-2-4032	0	312,428
Memory Enhancement with Modeling, electrophysiology, and simulation (MEMES)	12.910	UPENN 564000	N66001-14-2-4032	0	115,884
An Investigator-initiated, Prospective Study of Direct Brain Recording and Stimulation for memory Enhancement	12.910	UPENN 569456	N66001-14-2-4-31	0	85,666
Diamond Micro-Combs and Applications	12.910	HARVARD 123926-5097294	W31P4Q-15-1-0013	0	81,187

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Tabletop Coherent X-ray Nano-bio Imaging atr the Space-time Limits (NANO-X)	12.910	BOULDER 1554093	W31P4Q-13-1-0015	0	5,952
Hybrid Analog-Digital Co-Processor for Scientific Computation	12.910	ALLEGORY No. 201601	D16PC00089	0	4,673
				\$0	\$605,790
Total Pass-through Programs				\$32,803	\$9,578,013
Total: Department of Defense				\$3,646,782	\$35,202,386

Department of Commerce

Direct Awards

National Oceanic & AtmosphericAdministration/Department of Commerce

Rolling Deck to Repository (R2R0 Catalog Services for the NOAA Fleet a prototype	11	NEEH3000-14-00627		0	17,127
				\$0	\$17,127

NOAA Mission-Related Education Awards

Communicating about NOAA NOS Educational Resources and Programs through NESTA s Online and Conference Presentations, and Earth2Class Workshops	11.008	NA15NOS0080223		0	14,776
				\$0	\$14,776

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	9,499
				\$0	\$9,499

Climate and Atmospheric Research

IRAP: Integrating Climate Information and Decision Processes for regional Climate Resilience	11.431	NA13OAR4310184		726,043	1,539,170
Supporting Regional Implementation of Intefrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		79,574	213,872
Advancing Predictive understanding of North American Drought: The Role of the North Atlantic SST	11.431	NA14OAR4310223		0	210,728
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		132,433	175,553
The Dynamical Machanisms and Potential Predictability of Indian and Pacific Ocean Influences on Seasonal North American Draught	11.431	NA14OAR4310232		0	164,028
Diagnostics, Trends and Climate Model Projections of U.S. Summer Heat Waves	11.431	NA14OAR4310204		27,011	153,214
Improved Probabilistic Forecast Products for the MMME Seasonal Forecast System	11.431	NA14OAR4310188		0	140,702
Collaborative Research: Tropical Cyclone Tracks in Present and Future Climates	11.431	NA11OAR4310093		0	94,994

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

The Trustees of Columbia University in the City of New York

Supplemental Schedule of Expenditures of Federal Awards

For year ended June 30, 2016

				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Global Decadal Hydroclimate Variability, Predictability and Change: A Data-Enriched Modeling Study	11.431	NA10OAR4310137		0	80,313
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	68,025
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		0	62,891
Enhancing Seasonal Drought Prediction Capabilities for the US and the Globe Using the National Multi-Model Ensemble	11.431	NA12OAR4310088		0	59,084
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		0	48,324
Predictability of Atlantic Hurricane Activity by the NMME Coupled Models	11.431	NA12OAR4310076		0	48,034
Identifying Thresholds for Humanitarian Action in Response to Seasonal Rainfall Forecasts	11.431	NA14OAR4310256		0	42,644
Process Oriented Diagnostics of Tropical Cyclones in Climate Models	11.431	NA15OAR4310095		0	41,187
Developing an Optimum multi-model ENSO prediction	11.431	NA12OAR4310082		0	33,227
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	30,645
Advancing Predictive understanding of North American Drought: The Role of the North Atlantic SST	11.431	NA14OAR4310223		0	30,301
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	29,438
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	24,040
Process Oriented Diagnostics of Tropical Cyclones in Climate Models	11.431	NA15OAR4310095		0	18,173
Sub-seasonal to seasonal Predictability of Weather Statistics Using NMME	11.431	NA15OAR4310076		0	14,643
Assessment of CFS predictions of severe weather activity	11.431	NA14OAR4310185		0	11,635
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		0	9,340
Supporting Regional Implementation of Integrated Climate Resilience: Consortium for Climate Risk in the Urban Northeast Phase II	11.431	NA15OAR4310147		0	9,133
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		0	8,676
U.S. National Multi-Model Ensemble ISI Prediction System	11.431	NA12OAR4310091		0	4,768
Consortium for Climate Risk in the Urban Northeast	11.431	NA10OAR4310212		0	4,377
Best Practices for Estimating Forecast Uncertainty in Seasonal-to-Decadal Predictions	11.431	NA12OAR4310086		0	1,124
Building resilience to storm surges and sea level rise: A comparative study of coastal zones in New York City and Boston	11.431	NA12OAR4310107		0	-1,975
Building resilience to storm surges and sea level rise: A comparative study of coastal zones in New York City and Boston	11.431	NA12OAR4310107		0	-10,620
				\$965,061	\$3,359,688

Applied Meteorological Research

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

R&D Cluster					
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Development and testing of a multi-model ensemble prediction system for sub-monthly forecasts	11.468	NA15NWS4680014		0	216,808
Development and testing of a multi-model ensemble prediction system for sub-monthly forecasts	11.468	NA15NWS4680014		0	26,749
				\$0	\$243,557
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	36,498
				\$0	\$36,498
Measurement and Engineering Research and Standards					
Space-time multiscale-multiphysics modeling and simulation of heterogeneous materials	11.609	70NANB14H281		0	89,776
				\$0	\$89,776
Science, Technology, Business and/or Education Outreach					
FY 2016 Summer Undergraduate Research Fellowship ITL and MML/NCNR-ChemBio	11.620	70NANB16H081		0	10,000
				\$0	\$10,000
Total Direct Award Programs				\$965,061	\$3,780,921
Pass-through Awards					
National Oceanic & AtmosphericAdministration/Department of Commerce					
2015 University of New Hampshire Langseth Sea Floor Mapping- Ship Operation	11	UNH-P16UZN22	NOAA CU15-2574	0	227,623
2015 University of New Hampshire Langseth Sea Floor Mapping- Ship Operation	11	UNH-P16UZN22	NOAA CU15-2574	0	66,890
2015 University of New Hampshire Langseth Sea Floor Mapping- Ship Operation	11	UNH-P16UZN22	NOAA CU15-2574	0	35,853
2015 University of New Hampshire Langseth Sea Floor Mapping- Ship Operation	11	UNH-P16UZN22	NOAA CU15-2574	0	31,849
				\$0	\$362,215
Climate and Atmospheric Research					
Monitoring the Indonesian Throughflow and Weddell Sea Deep and Bottom Water Outflow	11.431	UCAR Z15-17551	NA11OAR4310213	0	403,578
The Role of Social Features in Urban Neighborhoods in Resilience to Flooding	11.431	TPL CU14-2092	NA14NOS483005	0	78,445
Climate Extremes: Improving Data Access to Accelerate Science	11.431	UCAR Z14-18904	NA11OAR4310213	0	66,906
The Role of Green Infrastructure in Resilience to Urban Flooding	11.431	TPL CU14-2143	NA14NOS483005	0	57,857

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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
A Water Management Knowledge Network for the Urban Northeast	11.431	UMASSAMH 13-007351 A 00	NA120AR4310132	0	20,805
Quantifying the Value and Communicating the Protective Service of Living Shorelines using Flood Risk Assessments	11.431	SIT 2102310-01	NA13OAR4310144	0	13,244
ISCCO Radiation Budget CDR	11.431	GST SA14-CUNYC01-14-2264	DG133E-10-CQ-0034	0	-5,699
				\$0	\$635,136

National Oceanic and Atmospheric Administration (NOAA) Cooperative Institutes

Surface Water pCO2 Measurements from ships	11.432	UM S14-0014	NA10OAR4320143	204,675	273,233
Surface Water pC)2 measurements from Ships	11.432	UMIAMI S16-29	NA15OAR4320064	16,493	212,214
Implementation and testing of dust models for regional and global forecasting	11.432	PRINCETON SUB0000065	NA14OAR4320106	0	46,758
Atlantic Ocean Acidification Test-Bed	11.432	S14-0012	NA10OAR4320143	0	17,247
Surface Water pC)2 measurements from Ships	11.432	UMIAMI S16-29	NA15OAR4320064	0	9,609
				\$221,168	\$559,061

Total Pass-through Programs

Total: Department of Commerce

\$221,168	\$1,556,412
\$1,186,229	\$5,337,333

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	P015B140111-16		0	234,865
Foreign Language and Area Studies Fellowships	84.015	P015B140108-16		0	226,388
Foreign Language and Area Studies Fellowships	84.015	P015B140110-16		0	205,716
National Resource Centers	84.015	P015A140115-16		143,853	200,286
Foreign Language and Area Studies Fellowships	84.015	P015B140115-16		58,000	172,972
National Resource Centers	84.015	P015A140108-16		39,506	158,366
Foreign Language and Area Studies Fellowships	84.015	P015B140115-16		126,603	126,943
National Resource Center	84.015	P015A140111-16		0	108,395
National Resource Centers	84.015	P015A140108-16		0	65,538

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R&D Cluster					
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
National Resource Center	84.015	P015A140111-16		0	48,044
National Resource Center	84.015	P015A140111-16		0	47,765
Foreign Language and Area Studies Fellowships	84.015	P015B140110-16		0	24,000
National Resource Centers	84.015	P015A140115-16		0	22,445
National Resource Center	84.015	P015A140111-16		0	21,600
National Resource Centers	84.015	P015A140108-16		0	20,590
Foreign Language and Area Studies Fellowships	84.015	P015B140111-16		0	20,000
National Resource Centers	84.015	P015A140115-16		0	13,615
National Resource Centers	84.015	P015A140108-16		0	11,499
National Resource Centers	84.015	P015A140108-16		0	10,390
National Resource Center	84.015	P015A140111-16		0	7,470
National Resource Centers and Fellowships Program for Language and Area or Language and International Studies	84.015	DE P015A100153		5,688	7,327
National Resource Center	84.015	P015A140111-16		0	6,863
National Resource Center	84.015	P015A140111-16		0	4,570
National Resource Center	84.015	P015A140111-16		0	2,376
National Resource Center	84.015	P015A140111-16		0	-2,057
				\$373,650	\$1,765,966
Overseas Programs - Doctoral Dissertation Research Abroad					
Fulbright-Hays Doctoral Dissertation Research Abroad	84.022	P022A150048		0	44,891
Fulbright-Hays Doctoral Dissertation Research	84.022	P022A140047		0	42,492
				\$0	\$87,383
Department of Education					
Jacob K. Javits Fellows	84.170	P170B110004-14		0	100,507
				\$0	\$100,507
Education Research, Development and Dissemination					
Learning from Errors	84.305	R305A150467-16		0	383,319

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The Trustees of Columbia University in the City of New York
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				R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
Solving Difficult Bayesian Computation Problems in Education Research Using STAN	84.305	DE R305D140059-16		231,543
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		24,285
			\$80,412	\$639,147
Total Direct Award Programs			\$454,062	\$2,593,003
Total: Department of Education			\$454,062	\$2,593,003

Corporation for National and Community Service

Pass-through Awards

Social Innovation Fund

AmidaCONNECT Project Evaluation	94.019	AMIDA CU11-3186	CORPNCS 10SIHDC0001	0	22,059
				\$0	\$22,059
Total Pass-through Programs				\$0	\$22,059
Total: Corporation for National and Community Service				\$0	\$22,059

Department of Agriculture

Direct Awards

Agricultural Research Basic and Applied Research

Agricultural Model Intercomparison and Improvement Project- The Future of Food and Farming in South Asia and Sub Saharan Africa	10.001	USDA 595030-5-019	0	385,863
Agricultural Model Intercomparison and Improvement Project- The Future of Food and Farming in South Asia and Sub Saharan Africa	10.001	USDA 595030-5-019	0	79,552
Evaluation of the Impact of Changing Climate on Food Security Through Global Agriculture Models	10.001	USDA No. 58-3625-0-646	0	74,560
Evaluation of the Impact of Changing Climate on Food Security Through Global Agriculture Models	10.001	USDA No. 58-3625-0-646	0	-68,333
			\$0	\$471,642

Agricultural and Rural Economic Research, Cooperative Agreements and Collaborations

Towards an Understanding of Supply Chains in Agriculture	10.250	USDA 58-3000-4-0046	30,922	78,304
			<u>\$30,922</u>	<u>\$78,304</u>
Total Direct Award Programs			<u>\$30,922</u>	<u>\$549,946</u>

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The Trustees of Columbia University in the City of New York
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				R&D Cluster	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Pass-through Awards					
Department of Agriculture					
Aquaculture and greenhouse gases	10	RCUH CU13-0642	USDA CU13-0642	0	39,783
				\$0	\$39,783
Small Business Innovation Research					
Development and Expansion of Melt Organic Baking Fat for Oxidative Stability and Reducing Childhood Obesity	10.212	POFI CU14-3045	USDA 2013-33610-21049	0	46,391
				\$0	\$46,391
Research Innovation and Development Grants in Economic (RIDGE)					
The Effect of SNAP Participation on Non-Food Consumption: An Instrumental Variables Approach	10.255	UWIMAD 613K734	59-5000-5-0012	0	17,760
				\$0	\$17,760
Agriculture and Food Research Initiative (AFRI)					
New Tools and Incentives for Carbon, Nitrogen, and Greenhouse Gas Accounting and Management in Corn Cropping Systems	10.310	62583-9571	2011-67003-30205	0	54,778
Enhancing Food Security of Underserved Populations in the Northeast through Sustainable Regional Food Systems	10.310	PSU 4399CUUSDA0057	USDA 2011-68004-30057	0	51,778
				\$0	\$106,556
Total Pass-through Programs				\$0	\$210,490
Total: Department of Agriculture				\$30,922	\$760,436
Department of Homeland Security					
Pass-through Awards					
Centers for Homeland Security					
Center of Excellence for Emerging and Zoonotic Animal Disease (CEEZAD)	97.061	KSUNI S11045.04	2010-ST-061-AG0001	0	185,398
				\$0	\$185,398
Total Pass-through Programs				\$0	\$185,398
Total: Department of Homeland Security				\$0	\$185,398
Department of Interior					

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				R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Total Expenditures</u>
Direct Awards				
U.S. GEOLOGICAL SURVEY/DEPARTMENT OF THEINTERIOR				
Measurement of Tritum, Helium, Neon, 3He/4He and Noble Gases in Groundwater Samples	15	USGS G11PC00051	0	154,829
USGS Charter contract for R/V Langseth (Ship OPS)	15	USGS G14PC00043	79,998	79,998
IPA between Columbia University and USGS - Lentrichia	15	USGS CU15-2797	0	14,309
IPA between Columbia University and USGS	15	USGS CU14-2794	0	13,641
IPA between Columbia University and USGS - Nettles	15	USGS CU12-2726	0	8,204
			\$79,998	\$270,981
Endangered Species Conservation – Recovery Implementation Funds				
Conservation and Recovery of Knieskern s Beaked-rush(Rhynchospora knieskernil)	15.657	DI FWS 52421-A-J033	0	6,265
			\$0	\$6,265
Earthquake Hazards Research Grants				
Operation of the Lamont Cooperative Seismographic Network and the Northeastern United States Earthquake Data Center	15.807	USGS G15AC00045	0	311,843
Near-shore Evaluation of Holocene Faulting and Geohazard in the New York City Metropolitan Region: Collaborative Research with University of Rhode Island and Columbia University	15.807	USGS G16AP00127	0	21,211
Near-Real Time Monitoring and Analysis of Repeating Earthquakes in Northern California	15.807	G16AP00017	0	17,257
			\$0	\$350,311
U.S. Geological Survey Research and Data Collection				
USGS -IEDA Partnership to Support a Data Lifecycle Framework and Tools	15.808	USGS G13AC00381	0	36,412
A Guide to Natural Hazards Communication	15.808	USGS G15AC00449	0	4,846
			\$0	\$41,258
Cooperative Research and Training Programs Resources of the National Park System				
Conduct Historical Research for Governors Island National Monument	15.945	NPS P12AC10964	0	4,113
			\$0	\$4,113
Total Direct Award Programs			\$79,998	\$672,928
Pass-through Awards				

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					R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
National Climate Change and Wildlife Science Center					
A Proposal to the Department of Interior to Establish The Northeast Climate Science Center	15.820	UMASS 12007036D00	G12AC00001	0	103,093
Facilitating regional and local decision-making for managing coastal wetlands and waterbird habitats in the face of sea level rise and increased coastal flooding	15.820	UMASSAMH 1400788 A 00	G13AC00410	0	-3,654
				\$0	\$99,439
Cooperative Research and Training Programs Resources of the National Park System					
The Jamaica Bay Observing system: Process studies and Groundwork for Long-Term Ecosystem Studies and Resilience	15.945	RFCUNY49267-A	P14AC01416	0	126,882
Detecting Water Quality Regime Shifts in Jamaica Bay	15.945	RFCUNY49268-A	P14AC01445	0	84,312
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	54,847
				\$0	\$266,041
Total Pass-through Programs				\$0	\$365,480
Total: Department of Interior				\$79,998	\$1,038,408
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	44,156
Underground Gun Markets in Chicago	16.560	UCHICA FP058335-A	2014-MU-CX-0014	0	27,683
				\$0	\$71,839
Total Pass-through Programs				\$0	\$71,839
Total: Department of Justice				\$0	\$71,839
Department of Labor					
Pass-through Awards					
Department of Labor					
Special Analyses on the Effects of Paid Leave Policies	17	L&M COLUMBIA PL-2014-01	DOL OPS-14-C-0003	0	53,400
				\$0	\$53,400
Total Pass-through Programs				\$0	\$53,400

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					R&D Cluster
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Total: Department of Labor				\$0	\$53,400
Department of State					
Direct Awards					
Department of State					
Evaluation of Smart Phone Sensors for Explosion Monitoring	19	DS SAQMMA14M2068		0	65,222
				\$0	\$65,222
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	133,785
				\$0	\$133,785
Total Direct Award Programs				\$0	\$199,007
Total: Department of State				\$0	\$199,007
Department of Transportation					
Direct Awards					
Highway Training and Education					
Dwight David Eisenhower Transportation Fellowship Program Graduate Fellowship	20.215	DTFH6415G00015		0	11,500
				\$0	\$11,500
University Transportation Centers Program					
Intelligent Wireless Charging for Electric Buses in Smart City	20.701	UTRC 49198-41-27		0	60,078
				\$0	\$60,078
Pipeline Safety Research Competitive Academic Agreement Program (CAAP)					
Mitigating external corrosion of pipelines through nano-modified cement-based coatings	20.724	DTPH56-13-H-CAA06		0	-4,551
				\$0	\$-4,551
Total Direct Award Programs				\$0	\$67,027
Pass-through Awards					

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					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Department of Transportation					
Alternatives to Nuclear Density Testing	20	ROWAN CU13-1223	NJDOT 2013-02	0	32,291
				\$0	\$32,291
Highway Research and Development Program					
Environmental Impacts of RAP	20.200	Rowan CU14-0265	DOT	0	105,725
A Novel Vision Sensor for Remote Measurement of Bridge Displacement	20.200	NCHRP-189	DTFH61-13-H-00024	0	61,082
Environmental Impacts of RAP	20.200	Rowan CU14-0265	DOT	0	47,052
Understanding Transit Finance: An Analysis of Transit Funding Around the World	20.200	UTRC 49198-22-26	DTRT13-G-UT32	0	20,355
				\$0	\$234,214
University Transportation Centers Program					
Rutgers Center for Advanced Infrastructure and Transportation	20.701	RUTGERS S1760914	DTRT12-G-UTC16	0	19,077
Rutgers Center for Advanced Infrastructure and Transportation	20.701	RUTGERS S1760914	DTRT12-G-UTC16	0	17,720
Characterization and Modeling of Photon Absorption in Asphalt Material for Improved Accuracy and Consistency of Nuclear Density Measurement	20.701	UTRC LOG15477 TO49198-13-26	DTRT13-G-UT32	0	11,740
				\$0	\$48,537
Total Pass-through Programs				\$0	\$315,042
Total: Department of Transportation				\$0	\$382,069
Department of Treasury					
Direct Awards					
Department of Treasury					
Department of the Treasury Office of Financial Research -Urooj Khan	21	DT CU14-3710		0	16,983
				\$0	\$16,983
Total Direct Award Programs				\$0	\$16,983
Total: Department of Treasury				\$0	\$16,983
Dept. of Housing and Urban Development					
Direct Awards					

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	R&D Cluster			
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Total Expenditures</u>
General Research and Technology Activity				
Understanding the Market for Reverse Mortgages	14.506	HUD RP-14-NY-002	0	108,800
			\$0	\$108,800
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	28,383	53,735
			\$28,383	\$53,735
Healthy Homes Technical Studies Grants				
Fungal Exposure, Allergy Sensitization and Asthma Among Middle Income Children in NYC	14.906	NYHHU0021-13	0	125,292
Fungal Exposure in N.Y.C. Low-Income Housing Pre-and Post- Intervention	14.906	NYHHU0030-15	0	616
			\$0	\$125,908
Total Direct Award Programs			\$28,383	\$288,443
Total: Dept. of Housing and Urban Development			\$28,383	\$288,443
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	66.500	EP-15-C-000016	0	4,477
			\$0	\$4,477
Science To Achieve Results (STAR) Research Program				
Predicting Extreme US Air Pollution Events	66.509	EPA 83520601	0	237,214
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401	0	73,958
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3	0	45,920
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401	0	40,557
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401	0	35,455
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3	0	23,848
Quantifying Risks From Changing U.S. PM2.5 Distributions Due to Climate Variability and Warming with Large Multi-Model Ensembles and High-Resolution Downscaling	66.509	EPA RD83587801	0	19,706

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
The Columbia Center for Children s Environmental Health	66.509	EPA 83615401		0	3,203
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3		0	893
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3		0	-835
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3		0	-1,018
Columbia Center for Children Environmental Health - Admin Core	66.509	EPA RD-83450901-3		0	-8,252
				\$0	\$470,649
Total Direct Award Programs				\$0	\$475,126
Pass-through Awards					
National Estuary Program					
A Standard Protocol for Assessing the Habitat Quality of Ecologically Enhanced Urban Shorelines	66.456	HUDSON FY 13#2	EPA	0	1,048
				\$0	\$1,048
Science To Achieve Results (STAR) Research Program					
Development and Implementation of a Process Technology toolbox for sustainable biological nitrogen removal using mainstream deammonification	66.509	WERF STAR N2R14	RD-83556701	0	249,580
A Global Map of Feasible Residential Solutions-emphasizing Stoves with space Heating Uses	66.509	UIL 2012-06652-02	83542301	0	46,401
Collaborative Research on Producing and Characterizing a Biosurfactant with Potentially Lower Environmental Impact for Salt Water Applications	66.509	IOWA 429-40-01A	EPA #83518101	0	8,649
				\$0	\$304,630
Hazardous Waste Management Grant Program for Tribes					
Molecular Level through Whole Reactor Level Characterization of Greenhouse Nitrogen Emission from Wastewater Treatment Operations	66.812	WERF U4R07	EPA	0	3,729
				\$0	\$3,729
Total Pass-through Programs				\$0	\$309,407
Total: Environmental Protection Agency				\$0	\$784,533
Japan US Friendship Commission					
Direct Awards					
Japan-U.S. Friendship Commission Grants					
2015 - 2016 Japan-U.S. Friendship Commission Prize for theTranslation of Japanese Literature	90.300	JAPUS 15-26		0	12,004

The accompanying footnotes are an integral part of the Supplemental 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, 2016

					R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
2015 - 2016 Japan-U.S. Friendship Commission Prize for theTranslation of Japanese Literature	90.300	JAPUS 15-26		0	6,000
				\$0	\$18,004
Total Direct Award Programs				\$0	\$18,004
Total: Japan US Friendship Commission				\$0	\$18,004

Nat. Endowment for the Humanities

Direct Awards

Promotion of the Humanities Division of Preservation and Access

Encyclopaedia Iranica Online Project	45.149	NEH PW-51507-13		0	149,842
Language and Culture Archive of Ashkenazic Jewry: Digitizing the Data	45.149	PW-228212-15		0	70,323
				\$0	\$220,165

Promotion of the Humanities Research

Relocating Heart Disease in the Tropics: Race, and Modernization in Post-Independence India	45.161	RZ-51759-14		30,416	80,394
The Selected Papers of John Jay	45.161	RQ-50738-13		0	60,438
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	39,114
Outbreak Anxieties. The Contingent Politics of Panic and Crisis in America	45.161	RZ-51757-14		0	10,487
The Guhyasamaja Tantra: A foundation Buddhist Tantra in the Context of the Pradipoddyotana	45.161	RQ-50600-11		0	-1,581
				\$30,416	\$188,852

Promotion of the Humanities Office of Digital Humanities

SARIT: Enriching Digital Text Collections in Infology	45.169	NEH HG-50041-13		0	117,935
				\$0	\$117,935
Total Direct Award Programs				\$30,416	\$526,952
Total: Nat. Endowment for the Humanities				\$30,416	\$526,952

National Archives and Records Administration

Direct Awards

National Historical Publications and Records Grants

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				R&D Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>
The Selected Papers of John Jay, Year 12	89.003	NAR15-PD-50002-15		0
				109,536
				\$0
				\$109,536
Total Direct Award Programs				\$0
Total: National Archives and Records Administration				\$0
				\$109,536

Other Agencies / Gov't

Direct Awards

CONSUMER FINANCIAL PROTECTION BUREAU

Consumer Financial Protection Bureau-Mobility	99	CFPB CU14-3714		0
				38,372
				\$0
				\$38,372
Total Direct Award Programs				\$0
				\$38,372

Pass-through Awards

Small Business Development Centers

SBDC-RFSUNY project	59.037	SUNYRF 72782	1127895	0
				146,301
				\$0
				\$146,301

NATIONAL CENTER FOR EMERGING AND ZOONOTI

Influenza and other respiratory viral disease in pediatric chronic care facilities infection contro	99	HPHC 2011-N-13526	200-2011-42037	0
				62,513

RESEARCH FOUNDATION OF THE STATE UNIVERSITY OF NEW YORK

Support NYS Research Area 1.4-Cascading Dynamics	99	POLYTECH S3337-03	RFSUNY 67784-1-1117044	0
				71,505
				\$0
				\$134,018
Total Pass-through Programs				\$0
				\$280,319
Total: Other Agencies / Gov't				\$0
				\$318,691

Social Security Administration

Pass-through Awards

Social Security Research and Demonstration

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

The Trustees of Columbia University in the City of New York

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				R&D Cluster	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Incorporating Assets into Measures of Retirement Income, Poverty, and Medical Economic Risk Among the Elderly	96.007	BOSTON 5002099-2048-S2	RRC08098402-06-00	0	18,212
				\$0	\$18,212
Total Pass-through Programs				\$0	\$18,212
Total: Social Security Administration				\$0	\$18,212

United States Agency for International Development

Direct Awards

U.S. Agency for International Development

Training Program for Afghan Lawyers	98	USAID CU15-2838		0	14,686
				\$0	\$14,686

USAID Foreign Assistance for Programs Overseas

Combination Intervention Strategy For Linkage And Retention - Mozambique (NY)	98.001	AID-OAA-A-12-00027		380,774	427,435
Novel Frontline Diagnostic Service for Antenatal Care	98.001	AID-OAA-A-12-00007		0	378,509
Supporting Universities to Partner Across the Pacific	98.001	AID-497-A-12-00009		200,852	354,818
Situkulwane Lesiphephile - Safe Generations: Swaziland (NY)	98.001	AID-OAA-A-12-00020		105,756	333,079
Colored Bleach Mist Formula to Endure Proper Decontamination of Healthcare Workers	98.001	USAID AID-OAA-F-15-00026		0	299,560
Micro-Solar Utilities for Small-Scale Irrigation in Mali	98.001	AID-OAA-A-13-00063		15,023	293,060
Weather and Climate Information for Climate-resilient Development	98.001	AID-OAA-A-11-00011		0	278,569
Water-Agriculture-Livelihood Security in India	98.001	AID-386-A-12-00001		0	268,280
Restoration and conversation of biodiversity in El Salvador through the adaptation and dissemination of slash and mulch agroforestry	98.001	AID-519-A-12-00002		192,770	253,664
Situkulwane Lesiphephile - Safe Generations: Swaziland (NY)	98.001	AID-OAA-A-12-00020		0	236,705
Combination Intervention Strategy For Linkage And Retention - Mozambique (NY)	98.001	AID-OAA-A-12-00027		0	147,231
SAINs: School Action for innovations in Science	98.001	AID-497-A-13-00001		34,787	104,585
Colored Bleach Mist Formula to Endure Proper Decontamination of Healthcare Workers	98.001	USAID AID-OAA-F-15-00026		0	79,141
Novel Frontline Diagnostic Service for Antenatal Care	98.001	AID-OAA-A-12-00007		0	50,855
Research Study on Tuberculosis Factors in Central Asia Migrants	98.001	AID-176-G-13-00002-00		0	32,370
Micro-Solar Utilities for Small-Scale Irrigation in Mali	98.001	AID-OAA-A-13-00063		0	14,555

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

The Trustees of Columbia University in the City of New York

Supplemental Schedule of Expenditures of Federal Awards

For year ended June 30, 2016

				R&D Cluster
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
Research Study on Tuberculosis Factors in Central Asia Migrants	98.001	AID-176-G-13-00002-00		8,979
Research Study on Tuberculosis Factors in Central Asia Migrants	98.001	AID-176-G-13-00002-00		8,242
Research Study on Tuberculosis Factors in Central Asia Migrants	98.001	AID-176-G-13-00002-00		1,067
			\$929,962	\$3,570,704
Total Direct Award Programs			\$929,962	\$3,585,390

Pass-through Awards

U.S. Agency for International Development

West Africa Biodiversity and Climate Change	98	TETRA WA BICC	AID-OAA-I-13-0058	0	227,403
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	18,205	95,153
Better Futures, Better Lives: Reducing Child and Maternal Mortality in Liberia	98	IRC CU12-1515	AID-OAA-A-12-00094	0	45,649
Planning and resilience in east africa through policy, adaptation, research and economic development	98	1075-TTARD-CIESIN-1301	AID-623-C-13-00003	0	42,720
Understanding the Role of Agricultural Biodiverstiy in Promoting Human Nutrition and Ecological Sustainability	98	PURDUNIV 206766	AID CU13-3396	0	25,023
Partnership Agreement Between the Center for International Forestry Research and Columbia University - Post Doc	98	CIFOR CU13-0514	MTO 069018	0	17,225
Increasing the Global Climate Change Teams Technical Support Capacity to Global Climate Change-Program Management, CLIN5	98	101038.5010-IQC-IRI	EPP-1-00-04-0024	0	4,171
Insuring Intensification: Climate Variability, Water Stress and Sustainability of Small Holder Agriculture in East Africa	98	PURDUNIV 8000066666	AID CU15-0449	0	3,444
Increasing the Global Climate Change Team s Technical Support Capacity to Global Climate Change, Adaptation, and Development Issues	98	45000.5010-IQC-IRI	EPP-I-00-04-00024-00	0	-518
Increasing the Global Climate Change Teams Technical Support Capacity to Global Climate Change-Program Management, CLIN5	98	101038.5010-IQC-IRI	EPP-1-00-04-0024	0	-4,306
				\$18,205	\$455,964

USAID Foreign Assistance for Programs Overseas

SoilDoc System Malawi, Mozambique and Tanzania	98.001	2015 SSTP 025	USAID CU15-1753	111,277	645,086
Predict 2	98.001	ECOHA PREDICT 2	AID CU15-0064	0	573,576
National Pilot Activity - Measuring Children Outside of Family Care (COFC)	98.001	JSI APC-GM-0060	AID-OAA-A-12-00047	242,599	452,522
Predict 2	98.001	ECOHA PREDICT 2	AID CU15-0064	0	245,960
Building Mail Meteo s capacity to deliver improved climate services	98.001	CIAT C-038-15	USIAD	0	207,597
Elucidation of Genetic Markets to Detect P. falciparum Resistance to MMV-Supported Antimalarials (Enabling Technologies)	98.001	MMV CU09-1816	AID CU09-1816	0	170,784
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	68,942	161,134

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
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R&D Cluster					
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Sustainability Indicators	98.001	KSU S15219	AID-OAA-L-14-00006	0	147,699
CS4D: Climate Resiliency and Index Insurance for Small Farmers	98.001	CIAT C-051-15	USAID	0	137,529
Climate Services for Agriculture-Rwanda	98.001	CIAT C-165-15	USAID CU15-3757	0	129,361
Climate Services Partnership: Climate & Malaria Data Analysis	98.001	CIAT C-004-15	USAID	0	118,643
Letter of Agreement (LoA) for Research Project entitled	98.001	CIFOR CU14-3598	USAID	0	86,766
PREDICT-2 Davis	98.001	UCD 201403200-09	AID-OAA-A-14-00102	0	83,605
PREDICT-2 Davis	98.001	UCD 201403200-09	AID-OAA-A-14-00102	0	65,264
Building Mail Meteo s capacity to deliver improved climate services	98.001	CIAT C-038-15	USIAD	0	52,292
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	0	46,391
Translating Research into Action (TRAction)	98.001	URC FY13-G01-6990	AID GHS-A-00-09-00015-00	0	44,438
Connect-FP: Operations Research on Community-based Distribution of Family Planning	98.001	IHI CU16-1342	AID-621-A-13-00006	0	42,301
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	0	38,135
CityLinks Climate Adaptation Partnership Program	98.001	AID-OAA-L-11-00008-ICMA-007	AID-OAA-L-11-00008	0	35,214
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	34,795
Climate Services for Africa	98.001	CIAT C-009-16	USAID CU16-0337	0	14,698
Joint CCAFS-AGIMP Activities	98.001	CIAT C-084-14	USAID CU14-1667	0	8,475
Monitoring Militaries: The Role of Citizen Accountability in Reducing Army Abuse	98.001	TAMU 06-S150614	AID-OAA-A-13-00003	0	8,066
Joint CCAFS-AGIMP Activities	98.001	CIAT C-084-14	USAID CU14-1667	0	3,994
ADVANCE Climate-Smart Landscape Planning in Asia s High Mountains	98.001	WWF #WF85	AID-OAA-LA-12-00003	0	2,767
				\$422,818	\$3,557,092
Cooperative Development Program (CDP)					
Implementation Research: Tackling Disrespect and Abuse in Facility-Based Childbirth	98.002	URC FY11-G02-6990	AID GHS-A-00-09-00015-00	94,800	174,462
Assessing LPG Adoption in Rural Ghana	98.002	FY15-G09-6990	GHS-A-00-09-00015-00	0	9,007
				\$94,800	\$183,469
Global Development Alliance					
Phase II Trial to Assess the Safety and Acceptability of the long-acting Injectable HIV Integrase Inhibitor, Calbategravir (GSK126744), in HIV Uninfected Women I KwaZulu Natal, South Africa	98.011	CAPRISA CU16-0163	AID-OAA-A-15-00040	0	221,162

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				R&D Cluster	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
				\$0	\$221,162
USAID Development Partnerships for University Cooperation and Development					
Building Capacity to Manage Water Resources and Climate Risk in the Caribbean	98.012	HED-149-9751-PHI-12-01	AEG-A-00-05-00007	119,624	138,718
				\$119,624	\$138,718
Total Pass-through Programs				\$655,447	\$4,556,405
Total: United States Agency for International Development				\$1,585,409	\$8,141,795
Total: Research & Development Cluster				\$74,178,498	\$605,377,445

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Student Financial Aid Cluster				
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
Student Financial Assistance Cluster				
Department of Health & Human Services				
Direct Awards				
Health Professions Student Loans, Including Primary Care Loans/Loans for Disadvantaged Students				
HPSL - Dentistry	93.342		0	10,161,882
HPSL - Dentistry - GRANT TYPE	93.342	E11HP27286-02-00	0	16,074
			\$0	\$10,177,956
Nursing Student Loans				
Nursing Students	93.364		0	1,602,941
NSL - Graduate Nursing - GRANT TYPE	93.364	4 E4DHP17942-02-00	0	12,538
			\$0	\$1,615,479
Total Direct Award Programs			\$0	\$11,793,435
Total: Department of Health & Human Services (Excluding NIH)			\$0	\$11,793,435
Department of Education				
Direct Awards				
Federal Supplemental Educational Opportunity Grants				
Federal Supplemental Education Opportunity Grant (FSEOG) 2015-2016	84.007	P007A152737	0	1,147,033
			\$0	\$1,147,033
Federal Work-Study Program				
Federal Work Study 2015-2016	84.033	P033A152737	0	6,749,983
			\$0	\$6,749,983
Federal Perkins Loan Program				
Federal Perkins Loans	84.038		0	72,585,148

The accompanying footnotes are an integral part of the Supplemental 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, 2016

Student Financial Aid Cluster						
<u>Federal Grantor / Pass-through Grantor</u>		<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
					\$0	\$72,585,148
Federal Pell Grant Program						
Pell Grant Program 2015/2016		84.063	P063P151840		0	8,607,703
					\$0	\$8,607,703
Federal Direct Student Loans						
Federal Direct Loan 2015-2016		84.268	P268K161840		0	278,035,385
					\$0	\$278,035,385
Total Direct Award Programs					\$0	\$367,125,252
Total: Department of Education					\$0	\$367,125,252
Total: Student Financial Assistance Cluster					\$0	\$378,918,687

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Child Care Development Cluster				
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
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	90YE0143-03-03	436,418	1,020,983
Child Care and Early Education Research Connections - ACF	93.575	90YE0143-03-03	334,272	516,977
Total Direct Award Programs			\$770,690	\$1,537,960
Total: Department of Health & Human Services (Excluding NIH)			\$770,690	\$1,537,960
Total: Child Care & Development Fund Cluster			\$770,690	\$1,537,960

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

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Foreign Food Donation-USAID Cluster					
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Foreign Food Aid Donation Cluster (USAID)					
United States Agency for International Development					
Pass-through Awards					
Food for Peace Development Assistance Program (DAP)					
A Quasi -Experimental Post-Mortem Study of a discontinued Insurance Product in Haiti	98.007	201121454-18	AID-OAA-L-12-00001	0	63,967
				\$0	\$63,967
Food for Peace Emergency Program (EP)					
Measuring Separation in Emergencies	98.008	SCF 999000925	AID-OFDA-G15-00176	0	167,653
				\$0	\$167,653
Total Pass-through Programs				\$0	\$231,620
Total: United States Agency for International Development				\$0	\$231,620
Total: Foreign Food Aid Donation Cluster (USAID)				\$0	\$231,620

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

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For year ended June 30, 2016

Hurricane Sandy Cluster				
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Total Expenditures
Hurricane Sandy Relief Cluster				
Department of Health & Human Services				
Direct Awards				
HHS Programs for Disaster Relief Appropriations Act - Non Construction				
Fungal Exposure in NYC Homes Damaged by Hurricane Sandy and Respiratory Outcomes in Asthmatic Children	93.095	1U01TP000582-01		289,217
Metagenomic Approach to Assess Fungi in New York City Homes Damaged by Hurricane Sandy	93.095	1 HITEP140018-01-00		221,353
Assessing and Strengthening Resilience in Response to Disaster Among Residents of NYC High Rise Public Housing	93.095	1 HITEP130009-01-00		116,091
Visualizing Social Media: New Tools for Research and Practice	93.095	1HITEP140023-01-00		73,559
Evaluation of Public Health System Response to Hurricane Sandy in NYC Area	93.095	1U01TP000589		70,394
Community Factors that Promoted Resilience in the Aftermath of Hurricane Sandy	93.095	1 HITEP130003-01-00		51,268
Evaluation of Public Health System Response to Hurricane Sandy in NYC Area	93.095	1U01TP000589		1,096
			\$218,340	\$822,978
Total Direct Award Programs			\$218,340	\$822,978
Pass-through Awards				
HHS Programs for Disaster Relief Appropriations Act - Non Construction				
Impact of Health Department worker Safety Training on Health Impacts after Sandy	93.095	NYMC 41-259-1	1U01OH010625-01	87,795
			\$27,205	\$87,795
Total Pass-through Programs			\$27,205	\$87,795
National Institute of Health				
Pass-through Awards				
HHS Programs for Disaster Relief Appropriations Act - Non Construction				
Diabetes-mediated effects on myeloid precursors and vascular complications	93.095	NYUMC CU11-02463	3R01DK095684-02S2	54,168
Role of CGK11 in AMPA Receptor Transport	93.095	NYUMC 13-A0-S1-081248	3R01MH067229-10S1	800
			\$0	\$54,968

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					Hurricane Sandy Cluster
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Total Pass-through Programs				\$0	\$54,968
Total: Hurricane Sandy Relief Cluster				\$245,545	\$965,741

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

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For year ended June 30, 2016

					MEDICAID
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Medicaid Cluster					
State / City Government					
Pass-through Awards					
Medical Assistance Program					
CAPP Component B: Improving Community Healthcare for Adolescents	93.778	SDH C-027009	CMS 05-1105-NY5-ADM	79,917	364,513
CAPP Component B: Improving Community Healthcare for Adolescents	93.778	SDH C-027009	CMS 05-1105-NY5-ADM	0	24,056
CAPP Component B: Improving Community Healthcare for Adolescents	93.778	SDH C-027009	CMS 05-1105-NY5-ADM	0	-7,533
				\$79,917	\$381,036
Total Pass-through Programs				\$79,917	\$381,036
Total: State / City Government				\$79,917	\$381,036
Total: Medicaid Cluster				\$79,917	\$381,036

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
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				TRIO Cluster	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
TRIO Cluster					
Department of Education					
Direct Awards					
TRIO Talent Search					
Talent Search Program	84.044	P044A111023		0	342,443
				\$0	\$342,443
TRIO Upward Bound					
Upward Bound Program	84.047	P047A121775		0	842,698
				\$0	\$842,698
Total Direct Award Programs				\$0	\$1,185,141
Total: Department of Education				\$0	\$1,185,141
Total: TRIO Cluster				\$0	\$1,185,141

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

The Trustees of Columbia University in the City of New York
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				Other Programs	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
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	292,907
Evaluation of Integrated Community-Based and Clinical HIV/AIDS Interventions in Sinazongwe, Zambia (ESIS Task Order 0004)	93	CDC 200-2011-37935/0004		137,768	151,039
				\$137,768	\$443,946
Global AIDS					
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		7,788,860	22,375,097
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	10,560,892
Ethiopia Technical Assistance 1036 (NY)	93.067	5 U2GGH001036-04-00		991,718	10,242,864
Ethiopia Technical Assistance 1036 (NY)	93.067	5 U2GGH001036-04-00		87,097	7,807,246
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		403,696	7,478,852
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		1,065,557	5,380,461
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		1,661,242	5,184,223
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		2,473,267	4,561,935
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		2,990,689	4,196,729
CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-05		129,026	3,951,231
Tanzania Endeleva 1998 - NY	93.067	5U2GPS001998-05		429,926	3,769,240
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	5NU2GGH001351-02-00		173,166	3,669,974
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		338,789	3,281,519
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		1,624,726	2,914,647
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	2,692,123
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		431,231	2,612,522
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		842,847	2,374,815

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

The Trustees of Columbia University in the City of New York
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	Other Programs				
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
UTAP 2 CONGO: NY	93.067	5U2GPS001526-05		0	2,062,472
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	1,801,378
Swaziland - Quality-Assured (NY)	93.067	5U2GGH001433-02		235,307	1,795,301
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	1,686,623
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		15,314	1,525,610
South Sudan Scale-Up (NY)	93.067	5U2GGH001335-02		0	1,427,930
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		793,168	1,367,875
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		109,493	1,351,000
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	1,227,344
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	1,206,108
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	1,101,763
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	1,057,270
CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-05		9,609	1,036,671
Swaziland HIV/TB Lab (NY)	93.067	6NU2GGH001307-02-02		23,640	907,745
Swaziland Rapid Scale Up 2005 (NY)	93.067	5U2GPS002005-05		651,578	904,498
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	874,275
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	697,738
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5U2GGH001128-03		0	679,035
Ethiopia Technical Assistance 1036 (NY)	93.067	5 U2GGH001036-04-00		0	640,952
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		0	626,575
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	622,394
UTAP 2 CONGO: NY	93.067	5U2GPS001526-05		0	612,847
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		0	556,554
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	538,580
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		103,413	534,517
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	534,456

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	Other Programs				
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	524,924
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	502,698
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	472,806
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	470,490
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		0	466,770
Swaziland - Quality-Assured (NY)	93.067	5U2GGH001433-02		0	447,522
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	447,146
Swaziland - Quality-Assured (NY)	93.067	5U2GGH001433-02		0	436,775
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	419,037
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		0	414,793
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	402,593
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	394,922
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		74,288	388,958
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	388,373
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-05		309,048	385,549
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	378,306
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	375,453
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	349,518
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	338,066
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	331,205
CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-05		0	305,779
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	5NU2GGH001351-02-00		0	281,046
Swaziland HIV/TB Lab (NY)	93.067	6NU2GGH001307-02-02		0	280,840
South Sudan Scale-Up (NY)	93.067	5U2GGH001335-02		0	268,213
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	233,613
MZ Tech Assistance - NY	93.067	5U2GPS002828-05		0	225,412

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	Other Programs				
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Tanzania Endeleva 1998 - NY	93.067	5U2GPS001998-05		0	221,395
Tanzania Endeleva 1998 - NY	93.067	5U2GPS001998-05		0	215,563
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	206,181
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	203,926
Tanzania Peds TB/HIV 0193 - NY	93.067	5U2GGH000193-04		119,949	177,208
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	176,003
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	157,212
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		0	153,671
Tanzania Peds TB/HIV 0193 - NY	93.067	5U2GGH000193-03		0	150,590
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	145,347
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-05		43,316	144,548
Swaziland - Quality-Assured (NY)	93.067	5U2GGH001433-02		0	134,591
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	134,446
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	130,664
Ethiopia Technical Assistance 1036 (NY)	93.067	5 U2GGH001036-04-00		0	128,992
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	124,175
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	120,278
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	116,636
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	115,370
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	114,328
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	109,593
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	104,674
CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-05		0	104,136
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	98,965
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	98,866
Swaziland HIV/TB Lab (NY)	93.067	6NU2GGH001307-02-02		0	98,489

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Other Programs					
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	97,608
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	94,080
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5U2GGH001128-03		0	92,472
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	91,915
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	87,109
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	86,619
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	85,234
UTAP 2 CONGO: NY	93.067	5U2GPS001526-05		0	84,125
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	80,830
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	80,819
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	76,480
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	75,588
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	73,922
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	71,665
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	70,863
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	68,062
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	67,690
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	63,827
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5U2GGH001128-03		0	61,375
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	61,341
Mali Strategic Info 0398 (NY)	93.067	6NU2GGH000398-05-01		0	57,468
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	57,429
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	56,147
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		0	54,505
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	54,432
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	52,463

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Other Programs					
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MZ Tech Assistance - NY	93.067	5U2GPS002828-05		0	51,622
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	50,079
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	49,574
Mali Strategic Info 0398 (NY)	93.067	6NU2GGH000398-05-01		48,702	49,231
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	48,225
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	48,169
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	47,912
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	47,849
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		0	47,703
South Sudan Scale-Up (NY)	93.067	5U2GGH001335-02		0	47,202
MZ Technical Assistance 0424 (NY)	93.067	5U2GGH000424-04		0	46,612
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	45,513
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	45,321
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	44,814
Swaziland HIV/TB Lab (NY)	93.067	6NU2GGH001307-02-02		0	44,454
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	42,068
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	41,667
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-05		0	41,569
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	41,540
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	41,286
South Sudan Scale-Up (NY)	93.067	5U2GGH001335-02		0	39,898
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	39,698
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	37,683
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	37,048
Central Asia Care & Treatment - NY	93.067	5U2GPS003074-05		0	36,379
TB/HIV Lesotho 2011 - NY	93.067	5U2GPS002011-05		53,363	36,214

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GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	35,547
South Africa TB Training 0388 - NY	93.067	5U2GGH000388-05		29,000	35,500
South Africa TB Training 0388 - NY	93.067	5U2GGH000388-05		0	34,411
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	30,292
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	30,288
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	30,282
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	29,409
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	29,233
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	28,850
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	28,794
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	28,080
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	27,630
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	27,602
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	26,357
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	24,564
Swaziland Nat Epid (NY)	93.067	5U2GGH001271-02		0	23,874
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	23,404
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	22,647
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	22,272
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	22,189
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	21,737
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	21,401
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	20,696
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	20,283
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5U2GGH001128-03		0	20,183
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	19,604

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Mali Strategic Info 0398 (NY)	93.067	6NU2GGH000398-05-01		0	19,134
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	17,628
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	17,528
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	17,252
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	16,309
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	16,241
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	15,538
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	15,294
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	15,169
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	14,704
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		11,569	14,183
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	13,727
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	12,800
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	12,703
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	12,686
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	12,390
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	11,675
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	11,371
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	10,913
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	10,892
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	10,329
South Africa MSM 0249 (NY)	93.067	5U2GGH000249-03		0	10,275
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	10,077
Central Asia Strategic Info - Tajikistan	93.067	5U2GPS003031-05		0	9,819
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	9,647
Cameroon - Option B+ Services (NY)	93.067	6NU2GGH001352-02-01		0	9,541

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Other Programs					
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	9,181
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	7,929
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	6,818
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	6,471
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	6,331
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		0	5,997
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	5,771
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	4,868
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	4,243
Eastern Kenya 1987 - NY	93.067	5U2GPS001987-05		0	4,111
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	3,946
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-05		0	3,689
Tanzania Peds TB/HIV 0193 - NY	93.067	5U2GGH000193-04		0	3,542
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	3,003
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	2,811
Central Asia Care & Treatment 3074 - NY	93.067	5U2GPS003074-05		0	2,764
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		2,739	2,739
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	2,565
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	2,019
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	1,566
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	1,565
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	1,318
Population-based Impact Assessments in Resource-Constrained Settings under the Presidents Emergency	93.067	5 NU2GGH001226-03-00		0	1,260
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	998
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	868
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	523

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CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-03		0	84
Technical Assistance Program Area #2 1194 (NY)	93.067	5U2GGH001194-03		0	1
Mali Strategic Info 0398 (NY)	93.067	6NU2GGH000398-05-01		0	0
Strengthening Strategic Information Activities in the Kingdom of Lesotho under PEPFAR (NY)	93.067	5U2GGH001128-03		0	0
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-159
Central Asia Care & Treatment - NY	93.067	5U2GPS003074-05		0	-309
TB/HIV Lesotho 2011 - NY	93.067	5U2GPS002011-05		0	-611
UTAP 2: TANZANIA (NY)	93.067	5U2GPS001521-05		0	-721
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-828
Swaziland Rapid Scale Up 2005 (NY)	93.067	5U2GPS002005-05		0	-1,815
MZ Tech Assistance - NY	93.067	5U2GPS002828-05		0	-1,873
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	-1,994
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	-2,624
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-2,656
Central Asia Care & Treatment - NY	93.067	5U2GPS003074-05		0	-2,764
Ethiopia Technical Assistance 0204 (NY)	93.067	5U2GGH000204-03		0	-3,160
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	-3,210
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	-3,988
CI Care & Treatment 0119 (NY)	93.067	5U2GGH000119-05		0	-6,015
Central Asia Care & Treatment - NY	93.067	5U2GPS003074-05		0	-9,181
Eastern Kenya 1987 - NY	93.067	6NU2GPS001987-05-16		0	-9,710
Eastern Kenya 1987 - NY	93.067	5U2GPS001987-05		0	-9,749
South Africa MSM 0249 (NY)	93.067	6 NU2GGH000249-05-03		0	-10,275
Central Asia Care & Treatment - NY	93.067	5U2GPS003074-05		0	-10,329
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-12,934
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-15,301

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Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
TB/HIV Lesotho 2011 - NY	93.067	5U2GPS002011-05		0	-19,656
GH13-1368 Global Technical Assistance - NY	93.067	6NU2GGH000994-03-03		0	-22,373
South Africa TB Training 0388 - NY	93.067	6NU2GGH000388-05-05		0	-34,411
South Africa MSM 0249 (NY)	93.067	5U2GGH000249-03		0	-44,301
MZ Technical Assistance 0424 (NY)	93.067	6NU2GGH000424-05-05		0	-46,612
Swaziland Rapid Scale Up 2005 (NY)	93.067	5U2GPS002005-05		0	-54,058
Building Mozambican Capacity - NY	93.067	5U2GPS002756-05		-128	-54,633
UTAP 2: HQ - New York PMTCT	93.067	5U2GPS001537-05		0	-73,867
Tanzania Endeleva 1998 - NY	93.067	5U2GPS001998-05		-104,456	-104,456
Tanzania Peds TB/HIV 0193 - NY	93.067	5U2GGH000193-04		0	-150,590
Tanzania Endeleva 1998 - NY	93.067	5U2GPS001998-05		0	-243,377
UTAP 2 CONGO: NY	93.067	5U2GPS001526-05		0	-612,847
				\$23,960,749	\$146,660,481
Public Health Emergency Preparedness					
NCDP Preparedness and Emergency Response Learning Center	93.069	5U90TP000419-05		0	243,441
NCDP Preparedness and Emergency Response Learning Center	93.069	5U90TP000419-05		0	-39,627
				\$0	\$203,814
Nurse Anesthetist Traineeships					
Nurse Anesthetist Traineeship Program (NAT)	93.124	6 A22HP28607-01-01		0	33,840
				\$0	\$33,840
Emergency Medical Services for Children					
EMSC NETWORK DEVELOPMENT DEMONSTRATION PROJECT (NDDP)	93.127	5 U03MC00007-16-00		83,815	325,037
EMSC Network Development Demonstration Project (NDDP)	93.127	6U03MC00007-14-02		100,094	150,196
				\$183,909	\$475,233
AIDS Education and Training Centers					
AIDS Education and Training Centers Program	93.145	5U10HA29291-02-00		1,148,998	2,319,874

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New York/New Jersey AIDS Education and Training Center	93.145	6H4AHA00071-13-07		960,987	1,124,028
New York/New Jersey AIDS Education and Training Center	93.145	6H4AHA00071-13-07		-2,700	-2,700
				\$2,107,285	\$3,441,202
Research on Healthcare Costs, Quality and Outcomes					
Developing ICD-11: Coding of Quality and Patient Safety Data to support health Services and outcomes research in the US and internationally.	93.226	5R13HS023339-02		0	39,288
				\$0	\$39,288
Substance Abuse and Mental Health Services Projects of Regional and National Significance					
Training Medical and Dental Students in SBIRT	93.243	5H79TI025937-02		0	12,936
				\$0	\$12,936
Health Systems Strengthening and HIV/AIDS Prevention, Care and Treatment under the President's Emergency Plan for AIDS Relief					
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	1,926,451
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		341,609	1,184,450
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		126,857	965,428
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		24,355	956,693
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		382,735	876,395
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		268,068	542,332
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		405,320	482,984
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	245,779
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	245,530
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	239,793
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	209,909
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	167,972
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	122,235
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	107,054
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	95,753
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	80,121

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Other Programs					
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	45,339
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	41,607
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	40,301
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	36,121
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	34,130
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	33,498
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	32,372
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	32,372
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	19,867
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	14,803
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		-13,744	10,798
Global HIV/AIDS Nursing Initiative	93.266	6 U92HA127772-07-17		0	6,101
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	5,671
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	2,873
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	0
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	0
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	0
Quality Improvement Center	93.266	6 U1NHA28555- 02 -01		0	0
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-72
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-423
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		-639	-639
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-4,587
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-5,671
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-5,679
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-7,203
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-44,349

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Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-58,023
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-64,444
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-67,415
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-171,334
Global HIV/AIDS Nursing Initiative - NEPI NY (Coordinating Center CORE)	93.266	6U92HA12772-07-04		0	-203,596
				\$1,534,561	\$8,171,297

Complex Humanitarian Emergency and War-Related Injury Public Health Activities

Enumerating and monitoring vulnerable sub-populations	93.269	5U01GH001644-02		0	59,926
				\$0	\$59,926

Centers for Disease Control and Prevention Investigations and Technical Assistance

MN11-1101, NATIONAL MINORITY UNDERGRADUATE STUDENT PROGRAMS	93.283	6 NU50MN000018-05-01		0	303,267
MN11-1101, NATIONAL MINORITY UNDERGRADUATE STUDENT PROGRAMS	93.283	6 NU50MN000018-05-01		0	255,420
A Public Health Workplace Experience to Increase Minority Student Interest in Public Health	93.283	5U50MN000018-05		0	-18,921
				\$0	\$539,766

Protecting and Improving Health Globally: Building and Strengthening Public Health Impact, Systems, Capacity and Security

Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-02-01		12	997,325
Ebola Emergency Response in Sierra Leone	93.318	6NU19GH001581-02-01		0	232,204
				\$12	\$1,229,529

Advanced Education Nursing Traineeships

Advanced Education Nursing Traineeship	93.358	4 A10HP27185-02-01		0	332,640
				\$0	\$332,640

Nurse Education, Practice Quality and Retention Grants

Nurse Education, Practice, Quality, and Retention InterprofessionalCollborative Practice	93.359	6 UD7HP26907-03-01		124,684	536,641
Nurse Education, Practice, Quality, and Retention InterprofessionalCollborative Practice	93.359	6 UD7HP26907-03-01		29,114	30,422
				\$153,798	\$567,063

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Affordable Care Act (ACA) Public Health Training Centers Program					
Affordable Care Act (ACA) Public Health Training Centers	93.516	5UB6HP27878-03-00		110,964	361,076
Affordable Care Act (ACA) Public Health Training Centers	93.516	5UB6HP27878-03-00		88,760	210,897
Affordable Care Act (ACA) Public Health Training Centers	93.516	5UB6HP27878-03-00		0	101,690
Affordable Care Act (ACA) Public Health Training Centers	93.516	5UB6HP27878-03-00		0	3,803
				\$199,724	\$677,466
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	1,851,648
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	489,645
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	348,675
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	320,735
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	282,784
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	58,981
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	58,325
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	55,276
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	636
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	41
Headstart - Programmatic Expenses	93.600	02CH3042-04-00		0	-57
Columbia University Head Start - Program Expense	93.600	02CH3022/04		0	-686
				\$0	\$3,466,003
ARRA - Health Information Technology Professionals in Health Care					
Columbia University Workforce Training to Educate Healthcare Professionals	93.721	90WT0004/01-01		0	265,916
Columbia University Workforce Training to Educate Healthcare Professionals	93.721	90WT0004/01-01		0	33,376
				\$0	\$299,292

Grants for Primary Care Training and Enhancement

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Primary Care Training and Enhancement	93.884	5T0BHP29302- 02 -00		0	71,421
				\$0	\$71,421

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	5H65HA00014-15-00		129,762	313,868
Dental Care for Hard-to-Reach HIV/AIDS Populations in Harlem & South Bronx	93.924	5H65HA00014-15-00		73,529	73,561
Ryan White HIV Dental Reimbursement Program	93.924	1T22HA28922-01-00		0	57,796
Dental Care for Hard-to-Reach HIV/AIDS Populations in Harlem & South Bronx	93.924	5H65HA00014-13-00		0	-2
				\$203,291	\$445,223
Total Direct Award Programs				\$28,481,097	\$167,170,366

Pass-through Awards

Centers for Disease Control and Prevention/DHHS

Human Resources for Health, Rwanda	93	MHRW CU14-1787	CDC CU14-1787	0	126,378
Human Resources for Health, Rwanda	93	MHRW CU14-1787	CDC CU14-1787	0	17,468
Human Resources for Health, Rwanda	93	MHRW CU14-1787	CDC CU14-1787	0	8,062

Health Resources and Services Administration/DHHS

Project for the Enhancement and Alignment of the Continuum of Care for HIV-Infected Youth (PEACOC)	93	NYPH CU14-1625	1 H12HA24850-01-00	0	12,285
Project for the Enhancement and Alignment of the Continuum of Care for HIV-Infected Youth (PEACOC)	93	NYPH CU14-1625	1 H12HA24850-01-00	0	8,793

NAT CTR FOR HIV, STD, AND TB PREVENTION

Disseminating integrated CONNECT with PRIDE Components: Couples-based HIV prevention with MSM, heterosexual and HIV discordant couples	93	DII-0299-NPIN-COLUMBIA	CDC 200-2014-61016	0	46,138
				\$0	\$219,124

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	638,738
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	31,774
				\$0	\$670,512

Substance Abuse and Mental Health Services Projects of Regional and National Significance

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				Other Programs	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
New York City Project LAUNCH (Evaluation subcontract)	93.243	FPHNY 80496	5 H79 SM060274-03	0	16,346
				\$0	\$16,346
Health Careers Opportunity Program					
Health Careers Opportunity Program	93.822	MSSM 0253-6297-4089	6D18HP10627-06-01	0	90,693
Health Careers Opportunity Program	93.822	ISMMS 0253-6641-4609	1D18HP29036-01-00	0	84,632
				\$0	\$175,325
Special Projects of National Significance					
Stimulataing Transformation of Technology and Team Structure to Reach PLWH	93.928	NYPH CU15-2461	SPNS CU15-2461	0	18,645
Stimulataing Transformation of Technology and Team Structure to Reach PLWH	93.928	NYPH CU15-2461	SPNS CU15-2461	0	17,443
				\$0	\$36,088
HIV Prevention Activities Non-Governmental Organization Based					
Comprehensive High-Impact HIV Prevention Projects for Community- Based Organizations	93.939	ASCNYC CU161123	U65PS004743	0	33,801
				\$0	\$33,801
PPHF Geriatric Education Centers					
Geriatric Education Centers	93.969	MSSM 0253-6157-4609	5UB4HP19194-02-00	0	1,179
				\$0	\$1,179
Preventive Health Services Sexually Transmitted Diseases Control Grants					
Region II - NYC STD/HIV Prevention Training Center (PTC)	93.977	PUBHS 14-COLUMBIA-01	1U62PS004576-01	0	161,214
				\$0	\$161,214
Total Pass-through Programs				\$0	\$1,313,589
Total: Department of Health & Human Services (Excluding NIH)				\$28,481,097	\$168,483,955
National Institute of Health					
Direct Awards					
Mental Health Research Grants					
Genetic and Neural Complexity in Psychiatry	93.242	5R13MH091947-05		0	6,767

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

					Other Programs
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
				\$0	\$6,767
Trans-NIH Research Support					
HIV and Health Systems: Fostering Quality and Quality improvement in the Context of HIV Scale-up	93.310	OAR CU14-1912		0	75,903
				\$0	\$75,903
Cardiovascular Diseases Research					
Macromolecular Local Signaling Complexes	93.837	1R13HL129726-01		0	16,000
				\$0	\$16,000
Extramural Research Programs in the Neurosciences and Neurological Disorders					
ALS Clinical Trials Guidelines	93.853	1U13NS093847-01		0	19,833
				\$0	\$19,833
Child Health and Human Development Extramural Research					
Inter-City Study of Community Engagement in Parks, Children and Adolescent Health	93.865	5R13HD071388-03		14,714	26,052
Second Meeting of The Lancet Adolescent Health and Wellbeing Commission	93.865	1R13HD081897-01A1		0	6,000
				\$14,714	\$32,052
Aging Research					
Interdisciplinary Lifecourse Approaches to African American Cognitive Aging	93.866	5R13AG044140-02		0	18,395
				\$0	\$18,395
Total Direct Award Programs				\$14,714	\$168,950
Total: National Institute of Health				\$14,714	\$168,950
State / City Government					
Pass-through Awards					
Maternal and Child Health Services Block Grant to the States					
NYSDOH Preventive Dental Services Program	93.994	SDH C027547	HRSA	0	51,299
NYSDOH Preventive Dental Services Program	93.994	SDH C027547	HRSA	0	-75
				\$0	\$51,224

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

					Other Programs
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Total Pass-through Programs				\$0	\$51,224
Total: State / City Government				\$0	\$51,224

National Science Foundation

Direct Awards

Mathematical and Physical Sciences

Travel Grant: EPQHS-6 Conference, Tata Institute, Mumbai, India, January 7 - 9, 2016	47.049	DMR-1613778		0	4,415
				\$0	\$4,415

Education and Human Resources

NSF Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (Gerard Parkin) (PAESMEM)	47.076	DUE-0933971		0	46
				\$0	\$46

Total Direct Award Programs				\$0	\$4,461
Total: National Science Foundation				\$0	\$4,461

National Aeronautics & Space Administration

Direct Awards

Science

Asian Monsson Response to the Changing Climate Role of Anthropogenic Forcing	43.001	NNX15AP01H		0	30,000
				\$0	\$30,000

Total Direct Award Programs				\$0	\$30,000
Total: National Aeronautics & Space Administration				\$0	\$30,000

Department of Energy

Direct Awards

Office of Science Financial Assistance Program

2015 AAAR Conference Symposium Sponsorship: The Role of Water in Aerosol Chemistry	81.049	DE-SC0014420		0	2,986
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The accompanying footnotes are an integral part of the Supplemental Schedule of Expenditures of Federal Awards

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				Other Programs	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
				\$0	\$2,986
Total Direct Award Programs				\$0	\$2,986
Total: Department of Energy				\$0	\$2,986

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	P015A140110-16		0	168,063
National Resource Centers	84.015	P015A140110-16		0	13,883
				\$0	\$181,946

Department of Education

Jacob K. Javits Fellowship 2010-14	84.170	P170B100003-14		0	62,170
				\$0	\$62,170
Total Direct Award Programs				\$0	\$244,116
Total: Department of Education				\$0	\$244,116

Department of Homeland Security

Pass-through Awards

Assistance to Firefighters Grant

Home Fire Safety Patriots: Kids and Families Sound Off for Fire Safety	97.044	NMCHCCDR G-30400-115-504200	DHS EMW-2013-FP-00810	793	96,317
Home Fire Safety Patriots: Kids and Families Sound Off for Fire Safety	97.044	NMCHCCDR G-30400-115-504200	DHS EMW-2013-FP-00810	14,605	32,811
				\$15,398	\$129,128
Total Pass-through Programs				\$15,398	\$129,128
Total: Department of Homeland Security				\$15,398	\$129,128

Department of State

Direct Awards

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				Other Programs	
Federal Grantor / Pass-through Grantor	CFDA	Project No	Pass-through Contract Number	Subrecipients	Total Expenditures
UNITED STATES EMBASSY IN FIJI					
Fiji WISE (Workshop on International Science Education)	19	FIJI CU14-0923		0	1,600
				\$0	\$1,600
Professional and Cultural Exchange Programs - Special Professional and Cultural Programs					
Ngwang Choephel Fellows Program	19.012	DS S-ECAGD-15-GR-1070		0	156,301
Ngwang Choephel Fellows Program	19.012	DS S-ECAGD-15-GR-1070		0	12,363
				\$0	\$168,664
Department of State					
GS Info Tech DOS Global Cohort 10	19.202	DS S-LMAQM-10-GR-076		0	210
				\$0	\$210
International Programs to Support Democracy, Human Rights and Labor					
Citezen s Rights, the Rule of Law, and Access to Justice Myanmar	19.345	S-LMAQM-13-GR-1165		0	6,891
				\$0	\$6,891
Professional and Cultural Exchange Programs - Citizen Exchanges					
Tibet Ecotourism and Small Business Training Project, 2014-16	19.415	S-ECAGD-14-GR-1135		0	69,835
Tibet Ecotourism and Small Business Training Project, 2014-16	19.415	S-ECAGD-14-GR-1135		0	21,898
				\$0	\$91,733
Total Direct Award Programs				\$0	\$269,098
Total: Department of State				\$0	\$269,098
Department of Veterans Affairs					
Direct Awards					
Department of Veterans Affairs					
IPA for Lisa Dixon - VISN 3 MIRECC	64	DVAMC CU12-2962		0	59,420
JAMES J PETERS VA MEDICAL CENTER					

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

					Other Programs
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
Suicide Safety Planning Group Treatment-Project Life Force	64	JJPVA CU16-0809		0	8,718
VA, MARYLAND HEALTH CARE SYSTEM					
IPA for Lisa Dixon - VISN 5 MIRECC	64	VAMHS CU13-0024		0	29,360
IPA for Lisa Dixon - VISN 5 MIRECC	64	VAMHS CU13-0024		0	7,628
VA, NEW JERSEY HEALTH CARE SYSTEM					
Mindfulness-Based Cognitive Therapy for Preventing Suicide in Military Veterans	64	VANJ CU13-2538		0	40,110
Mindfulness-Based Cognitive Therapy for Preventing Suicide in Military Veterans	64	VANJ CU13-2538		0	2,046
				\$0	\$147,282
Total Direct Award Programs				\$0	\$147,282
Total: Department of Veterans Affairs				\$0	\$147,282
Nat. Endowment for the Arts					
Direct Awards					
Promotion of the Arts Grants to Organizations and Individuals					
FY16 National Endowment for the Arts: Art Works (Music)	45.024	NEA 16-3100-7013		0	30,000
				\$0	\$30,000
Total Direct Award Programs				\$0	\$30,000
Total: Nat. Endowment for the Arts				\$0	\$30,000
Other Agencies / Gov't					
Pass-through Awards					
Small Business Development Centers					
SBDC 2014-15	59.037	RFSUNY 69510 PN 1120825	SBAHQ-15-B-0029	0	35,015
RFSUNY Award 66290-NYS Hurrican Sandy Small Business Revitalization Assistance	59.037	RFSUNY 66290	1113974	0	34,048
				\$0	\$69,063
Total Pass-through Programs				\$0	\$69,063
Total: Other Agencies / Gov't				\$0	\$69,063

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

	Other Programs				
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
United States Agency for International Development					
Direct Awards					
USAID Foreign Assistance for Programs Overseas					
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	1,249,008
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	510,278
Healthcare Management and Administration (HMA) Education Twinning in Mozambique - COUNTRY	98.001	AID-656-A-14-00002		0	364,658
Combination Intervention Package to Enhance Antiretroviral Therapy Uptake and Retention During TB Treatment in Lesotho (NY)	98.001	AID-OAA-A-12-00022		0	190,576
Combination Intervention Package to Enhance Antiretroviral Therapy Uptake and Retention During TB Treatment in Lesotho (NY)	98.001	AID-OAA-A-12-00022		0	171,964
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	45,854
Malaria Laboratory Diagnosis and Monitoring Project - ONSITE	98.001	AID 663-A-00-08-00433-00		0	26,002
Healthcare Management and Administration (HMA) Education Twinning in Mozambique - COUNTRY	98.001	AID-656-A-14-00002		0	23,071
Healthcare Management and Administration (HMA) Education Twinning in Mozambique - COUNTRY	98.001	AID-656-A-14-00002		0	3,529
Healthcare Management and Administration (HMA) Education Twinning in Mozambique - COUNTRY	98.001	AID-656-A-14-00002		0	-5,019
				\$0	\$2,579,921
Total Direct Award Programs				\$0	\$2,579,921
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	157,839
				\$0	\$157,839
USAID Foreign Assistance for Programs Overseas					
Simplification of Linkage to and Delivery of Antiretroviral Therapy in USAID-PEPFAR Supported Programs	98.001	WHC CU15-2779	AID-OAA-A-15-0069	0	135,092
USAID/KENYA APHIAplus, Health Service Delivery Projects (NY)	98.001	JHPIEGO 11-SBA-014	AID CU10-2068	0	52,677
Transforming Households: Reducing Incidence of Violence in Emergencies (THRIVE)	98.001	UNICEF CU15-3526	USAID AID-OFDA-10-14-00033	0	21,475
USAID/KENYA APHIAplus, Health Service Delivery Projects (NY)	98.001	JHPIEGO 11-SBA-014	AID CU10-2068	0	3,619
USAID/KENYA APHIAplus, Health Service Delivery Projects (NY)	98.001	JHPIEGO 11-SBA-014	AID CU10-2068	0	-330

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

The Trustees of Columbia University in the City of New York
Supplemental Schedule of Expenditures of Federal Awards
For year ended June 30, 2016

				Other Programs	
<u>Federal Grantor / Pass-through Grantor</u>	<u>CFDA</u>	<u>Project No</u>	<u>Pass-through Contract Number</u>	<u>Subrecipients</u>	<u>Total Expenditures</u>
				\$0	\$212,533
Total Pass-through Programs				\$0	\$370,372
Total: United States Agency for International Development				\$0	\$2,950,293
Total: Other Programs				\$28,511,209	\$172,580,556
Total Federal Award Expenditures:				\$103,785,859	\$1,161,178,186

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

The Trustees of Columbia University in the City of New York

Notes to Supplemental Schedule of Expenditures of Federal Awards

Year ended June 30, 2016 (expenditures in thousands)

1. Basis of Presentation

The accompanying Supplemental Schedule of Expenditures of Federal Awards (the “Schedule”) has been prepared in accordance with OMB Uniform Guidance, Cost Principles, Audit, and Administrative Requirements for Federal Awards. 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, 2016, 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 applicable.

2. Subrecipients

During fiscal year 2016, the University provided \$103,786 to subrecipients in the following programs:

<u>Program or Cluster</u>	<u>CFDA No.</u>	<u>Amount</u>
Research & Development Cluster	Various	\$ 75,275
HIV Demonstration, Research, Public and Professional Education Projects	93	137
	93.067	23,961
	93.127	184
	93.318	0
	93.865	15
	93.044	15
Other	93.145	2,107
	93.266	1,535
	93.359	154
	93.516	200
	93.924	203
Total		<u>\$ 103,786</u>

The Trustees of Columbia University in the City of New York

Notes to Supplemental Schedule of Expenditures of Federal Awards

Year ended June 30, 2016 (expenditures in thousands)

3. 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 following University F&A cost rates were established as provisional rates until such time as a new F&A cost rate agreement is negotiated with the Federal government:

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%

4. 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 loaned to students during the year ended June 30, 2016. It is not practical to estimate the outstanding balance of loans under this program.

5. Student Loan Programs

The University is responsible for the oversight and management of the U.S. Department of Education's Federal Title IV Program (which includes Federal Work Study, Federal Supplemental Education program, Federal PELL Grant program, Federal Direct Loans and Federal Perkins Loan Programs). The University is also responsible for Health Resources and Services Administration (HRSA) Title VII and Title VIII loan programs. These include the Health Professional and Nursing Student Loan Funds funded by the Department of Health and Human Services.

Federal Agency	Loan Program	Federal CFDA No.	Outstanding Principal Balance at June 30, 2016
Education	Perkins Loan	84.038	\$ 61,343
DHHS	Health Professionals	93.342	9,245
DHHS	Nursing Students	93.364	1,407
			<u>\$ 71,995</u>

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, 2016 was \$734. This expense was charged to two programs; the Federal Work Study Program in the amount of \$350, and Federal Perkins for \$384. 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 expended and 3% on expenditures over \$5.5.



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, 2016, 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 11, 2016.

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 11, 2016



**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, 2016. 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, 2016.

Other Matters

The results of our auditing procedures disclosed instances of noncompliance, which are required to be reported in accordance with the Uniform Guidance and which are described in the accompanying schedule of findings and questioned costs as item 2016-001. Our opinion on each major federal program is not modified with respect to these matters.



The University's response to the noncompliance findings identified in our audit is described in the accompanying Management's Views and Corrective Action Plan. The University's response was not subjected to the auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

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 1, 2017

The Trustees of Columbia University in the City of New York
Summary of Independent Auditors' Results
For year ended June 30, 2016

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? X Yes _____ No

Identification of major programs:

<u>CFDA Number(s)</u>	<u>Name of Federal Program or Cluster</u>
Various	Research and Development Cluster
Various	Student Financial Assistance Cluster
93.067	Global Aids
93.266	Health Systems Strengthening and HIV/AIDS Prevention, Care and Treatment under the President's Emergency Plan for AIDS Relief
93.318	Protecting and Improving Health Globally: Building and Strengthening Public Health Impact, Systems, Capacity and Security
93.575	Child Care and Development Fund Cluster

Dollar threshold used to distinguish between
Type A and Type B programs: \$3,483,535

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
For year ended June 30, 2016

Section II—Financial Statement Findings

None noted.

Section III—Federal Award Findings and Questioned Costs

2016-001 – Allowable Costs – Cost transfers

Applies to CFDA 11.431 (IRAP: Integrating Climate Information and Decision Processes for Regional Climate Resilience/Project Number: NA130AR4310184), CFDA 93.853 (Gene Environment Interactions in an Autism Birth Cohort Project Number: 5UO1NS047537-08), CFDA 12.300 (DRATS: Detecting Relations and Anomalies in Text and Speech/Project Number: FA8750-12-2-0347), CFDA 43.001 (Interdisciplinary research on climate, climate modeling, and the impacts of climate change/Project Number NNX14AB99A) within the Research and Development Cluster for award year 2015-2016.

Condition

Of the 60 cost transfers selected for testing, it was noted that for 11 salary cost transfers the justification explaining the reason for the cost transfer was not formally documented and maintained on file (the cost transfers and the respective CFDA's are noted in the table below). These salary cost transfers were true ups of estimates to actuals as part of normal effort reporting procedures. Management documented and provided the justification for each of these salary cost transfers at the time of the audit.

	CFDA#	Project #	Activity Code(*)	Transfer Amount	Total by Activity Code
1	11.431	NA130AR4310184	01	\$3,349	
2	11.431	NA130AR4310184	01	\$4,841	\$8,190
3	93.853	5UO1NS047537-08	02	-\$4,950	-\$4,950
4	12.300	FA8750-12-2-0347	01	\$10,987	\$10,987
5	43.001	NNX14AB99A	10	\$459	
6	43.001	NNX14AB99A	10	\$2,814	
7	43.001	NNX14AB99A	10	\$1,165	\$4,437
8	43.001	NNX14AB99A	04	\$549	\$549
9	43.001	NNX14AB99A	05	\$1,176	\$1,176
10	43.001	NNX14AB99A	07	\$28,245	
11	43.001	NNX14AB99A	07	\$2,532	\$30,777
(*)Activity Codes further segregate expenses within a project					
The 11 exceptions covered 4 CFDA #s and 7 Activity Codes.					

It was noted that 9 of the 11 exceptions above related to one operating unit within the University. Additionally, as per the prior year finding 2015-001, during the last quarter of fiscal year 2016, the University instituted additional tools and implemented monitoring processes to standardize contemporaneous documentation of the justification explaining the reason for cost transfers. No exceptions were noted for 3 salary cost transfers, dated subsequent to June 1, 2016, that were tested within the 60 cost transfers selected for testing.

The Trustees of Columbia University in the City of New York
Schedule of Findings and Questioned Costs
For year ended June 30, 2016

Criteria

The NIH Grants Policy Statement, Part 7, Cost Considerations, "Cost Transfers, Overruns, and Accelerated and Delayed Expenditures" requires, cost transfers to NIH grants by grantees, consortium participants, or contractors under grants must be supported by documentation that fully explains how the cost transfer occurred and a certification of the correctness of the new charge by a responsible organizational official of the grantee, consortium participant, or contractor. Recipients must maintain documentation of cost transfers, pursuant to 45 CFR 75.364, and must make it available for audit or other review.

Cause

For the instances noted above, documentation explaining the cost transfer was not maintained in sufficient detail at the department level. These instances occurred prior to the University implementing new tools and monitoring processes and fully operationalizing and training on the new processes. Additionally, the 9 instances related to one operating unit within the University, was due to the responsible parties not fully understanding the requirement to formally maintain contemporaneous written explanation of all cost transfers.

Questioned Cost

Not applicable. The instances noted above related to documentation only and not a questioned cost.

Effect

The lack of supporting documentation justifying the cost transfers did not provide formal contemporaneous documentary evidence of the cost transfers.

Recommendation

We recommend that the University continue to enforce its new policy, tools and monitoring processes to ensure that contemporaneous documentation explaining the reason for cost transfers is maintained, and that the University also continue training and communication on the University's policies and procedures.

Management's Views and Corrective Action Plan

Management's view and corrective action plan are included within this report.

2015 – 001 Allowable Costs – Cost Transfers

Applies to CFDA 93.389 (Clinical and Transitional Science Award/Project Number: 5UL1TR000040-10), CFDA 93.397 (Cancer Center Support Grant/Project Number: 5P30CA013696-41), CFDA 93.855 (Center for Research in Diagnostics and Discovery-Administrative Core/Project Number: 5U19AI109761-02) within the Research and Development Cluster

Condition: Of the 60 cost transfers selected for testing, it was noted that for 5 salary cost transfers the justification explaining the reason for the cost transfer was not formally documented and maintained on file.

Status: Completed - On March 31, 2016, the University issued a revision to its Policy on Sponsored Projects Cost Transfers further clarifying the documentation requirements related to salary cost transfers and including templates designed to facilitate compliance with the policy. In addition to enhancing the existing policy, on June 30, 2016, the University implemented a quarterly monitoring and review program managed by the Research Policy and Indirect Cost team designed to assess the University's compliance with the salary cost transfer documentation requirements of the policy. The monitoring program tests, on a quarterly basis, a sample of salary cost transfers from across the University. These selections are reviewed for compliance with the revised Policy. If exceptions are noted, requirements of the policy are reviewed with individual processors and/or departments as necessary; documentation is updated accordingly.

COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

ANNE SULLIVAN

EXECUTIVE VICE PRESIDENT FOR FINANCE AND INFORMATION TECHNOLOGY

**Management's Response and Corrective Action Plan Regarding Uniform Guidance Audit
Findings for the Year Ended June 30, 2016**

2016-001

Management acknowledges that for the eleven salary cost transfers noted, of which nine are related to a single operating unit, sufficient contemporaneous documentation was not retained and agrees that this is an opportunity to further enhance the University's training related to the Policy on Sponsored Projects Cost Transfers including targeted training for the unit where multiple exceptions have been noted.

Management took a number of steps in the second half of fiscal 2016 to address these issues. On March 31, 2016, in accordance with its remediation plan, the University issued an update to its Policy on Sponsored Projects Cost Transfers and launched an enhanced training program related to the policy. Training included specific guidance on documentation requirements and provided templates to facilitate compliance with these requirements. Separately, as of June 30, 2016, the University implemented a program to monitor compliance with the enhanced policy. The monitoring program tests, on a quarterly basis, a sample of salary cost transfers from across the University. These selections are reviewed for compliance with the revised Policy. If exceptions are noted, requirements of the policy are reviewed with individual processors and documentation is updated accordingly. In addition, on a quarterly basis, beginning in January 2017, detail salary cost transfer reports were distributed to the various operating units of the University to further facilitate the monitoring of compliance with the policy at the operating unit level.

Management notes that the exceptions noted in this report occurred prior to the full implementation of the University's enhanced policy and training and monitoring programs. Management also notes that nine of the eleven exceptions were managed within a single operating unit at the University. Management will develop and implement a plan to provide enhanced training as well as expand its monitoring of compliance with the Policy on Sponsored Projects Cost Transfers for this unit by March 31, 2017.

On a University-wide level, management will modify the transactional screens associated with processing cost transfers to reinforce the documentation requirements. The University will further enhance its campus wide training efforts through the development of an online training course, including a knowledge assessment, which will be required for all users with the ability to process salary cost transfers. The online training requirement will be available by June 2017, and rolled out to relevant staff over a 60-day period.

Responsible person contact name: Renotta L. Young, Controller's Office, contact number (212) 854-4684.

A handwritten signature in cursive script, appearing to read "Anne Sullivan".

Anne R. Sullivan
Executive Vice President for Finance and Information Technology
The Trustees of Columbia University in the City of New York