

**University of California Berkeley
Research Administration and Compliance**

**Sponsored Projects Office
Annual Report
Fiscal Year 2011**



The University of California, Berkeley

Chancellor

Robert J. Birgeneau

Executive Vice Chancellor and Provost

George W. Breslauer

Vice Chancellor for Research

Graham R. Fleming

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Assistant Vice Chancellor - Research Administration and Compliance: Patrick Schlesinger

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Annual Report, Fiscal Year 2011

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The Campanile, seen from the hills east of campus.
Photograph by Steve McConnell / University of California, Berkeley

Research Administration and Compliance Overview

The **University of California, Berkeley** is one of the world's leading universities in research, teaching, and public service, with an enrollment of 25,540 undergraduates and 10,298 graduate students in Fall 2010. The campus employs 1,582 full-time and 500 part-time faculty in more than 130 academic departments and more than 80 interdisciplinary research units. UC Berkeley is divided into 14 colleges and schools, most of which are subdivided into departments. The campus offers over 7,000 courses in 350 degree programs and produces more Ph.D.s annually than any other U.S. university.

The Research Administration and Compliance Office (RAC), led by Assistant Vice Chancellor Patrick Schlesinger, is the administrative office at UC Berkeley responsible for facilitating and ensuring campus compliance with federal, state, and university regulations pertaining to research administration, including policies governing research animal care and use, human research subjects protection, financial conflict of interest in research, export controls, and grants and contracts administration. RAC is under the purview of the Office of the Vice Chancellor for Research.

The Sponsored Projects Office (SPO) at UC Berkeley is responsible for endorsing and authorizing proposals to and interpreting, negotiating, and accepting contracts and grants for projects funded by federal and state agencies, foundations, and other public and private sources. SPO prepares and negotiates all subawards for collaborative research. SPO also provides resources for finding funding opportunities, and coordinates application to programs with institutional limits on proposals.

Berkeley Coeus is the campus research contract and grant system of record and is managed by the RAC Information Systems team. The Berkeley Coeus web site, <http://coeus.spo.berkeley.edu/>, provides UC Berkeley departments and organized research units with reports on contract and grant proposals and awards administered within the unit, based on current information in the Berkeley Coeus database system. The Berkeley Coeus web site also provides reports on funding by sponsor category and funding by department that can be accessed by the public.

The Animal Care and Use Committee (ACUC) at UC Berkeley is the institutional committee charged with reviewing and approving all proposed uses of live vertebrate animals in teaching and research. The ACUC's activities are mandated by the U.S. Animal Welfare Act and Public Health Service Policy. The RAC Office for Animal Care and Use (OACU) provides the administrative infrastructure required to support the Committee's work to review, approve, and administer those activities.

The Committee for Protection of Human Subjects (CPHS) serves as the institutional review board (IRB) at UC Berkeley. The IRB must review and approve the use of human subjects in research. The process is designed to ensure that the rights and welfare of human subjects are protected throughout their participation in research projects. UC Berkeley operates within the regulations and guidelines set forth by federal authorities, primarily the Office for Human Research Protections and the Food and Drug Administration, as well as other bodies. The Office for the Protection of Human Subjects (OPHS) provides operational and staffing support to the CPHS and administers all human subjects research performed on behalf of UC Berkeley.

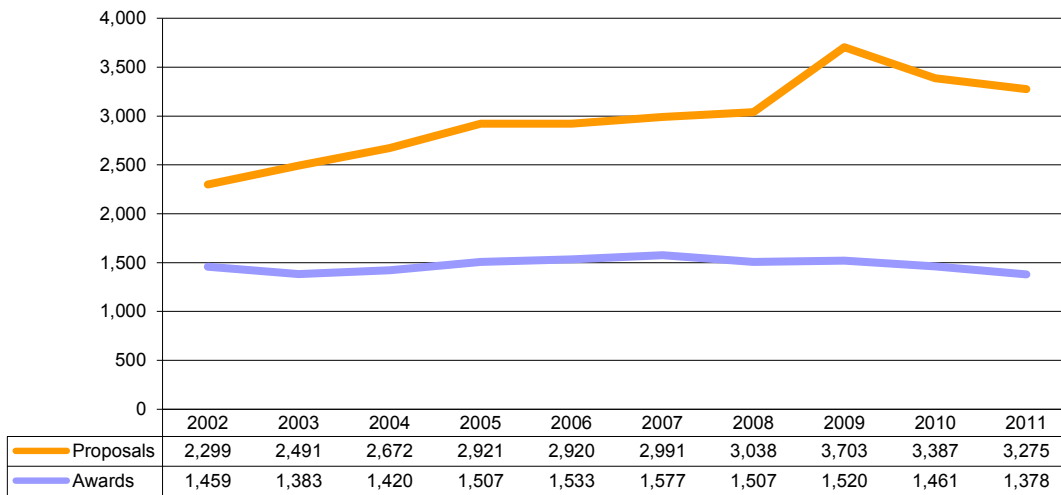
The faculty Conflict of Interest Committee is responsible for the review and assessment of all financial disclosures related to research projects at UC Berkeley and for determining any actions required to ensure that real or perceived financial conflicts of interest are managed or eliminated. RAC staff provide the operational support required to implement and administer COI Committee decisions.

Research Proposals and Awards, Fiscal Year 2011

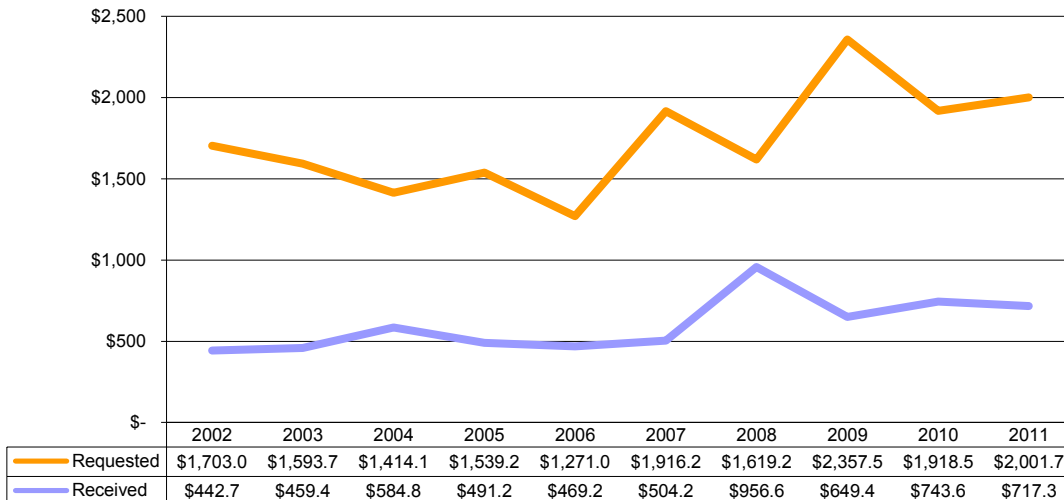
Funding Overview

The Research Administration and Compliance Office is pleased to present this annual report on Berkeley’s sponsored research, teaching, and public service for fiscal year 2011, from July 1, 2010 through June 30, 2011. In fiscal year 2011, the Berkeley campus received \$717.3 million in contract and grant awards, a decrease of slightly more than 4 percent from the prior year funding of \$743.6 million. One factor contributing to the decrease was the American Recovery and Reinvestment Act (ARRA), enacted in 2009, which resulted in \$12 million in fiscal year 2011 awards. The campus has received \$90.5 million in total ARRA funding from May 1, 2009, the date of the first ARRA award, through June 30, 2011. Excluding ARRA funds, the campus showed an increase of 6 percent over fiscal year 2010, from \$665 million in fiscal year 2010 to \$705.3 million in fiscal year 2011. The campus submitted 3,275 proposals requesting \$2 billion in fiscal year 2011, with the number of submissions down less than 4 percent and the requested funding up more than 4 percent from the prior year.

Number of Proposals Submitted Compared with Awards Received, FY 2002 - 2011



**Funding Dollars Requested Compared with Funding Received, FY 2002 - 2011
(dollars in millions)**

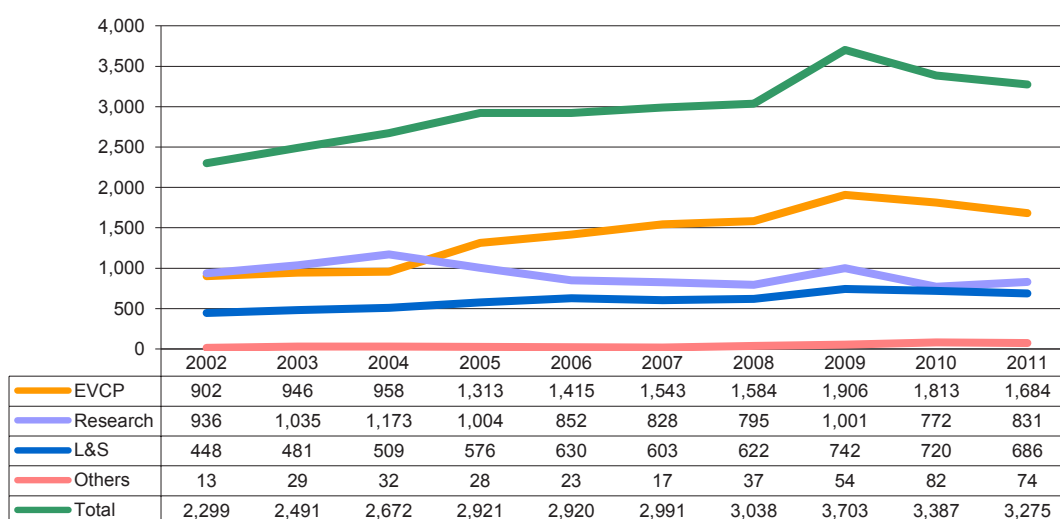


Research Proposals and Awards, Fiscal Year 2011

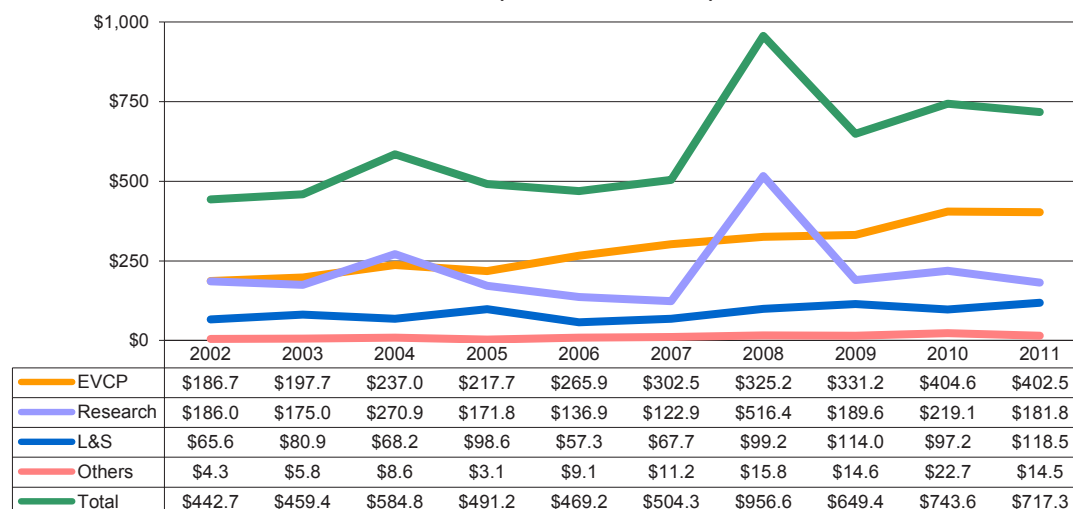
Campus Control Units

The following statistics reflect funding activity for campus control units in fiscal year 2011. Departments reporting to the Executive Vice Chancellor and Provost (EVCP) include the Colleges of Chemistry, Engineering, Natural Resources, and Environmental Design, as well as Optometry, Law, Journalism, Public Policy, Public Health, Education, Business, Social Welfare, and others. Organized Research Units (ORUs) report to the Vice Chancellor for Research and span many disciplines. These institutes, centers, and departments exist primarily to conduct research, and include the Space Sciences Laboratory, the Institute of Transportation Studies, the Berkeley Seismological Laboratory, and many others. The College of Letters and Science, or L&S, includes Biological, Physical, Social Science, and Arts and Humanities Divisions.

Number of Proposals Submitted by Control Unit, FY 2002 - 2011



Ten Year Funding Dollar Summary by Control Unit, FY 2002 - 2011
(dollars in millions)



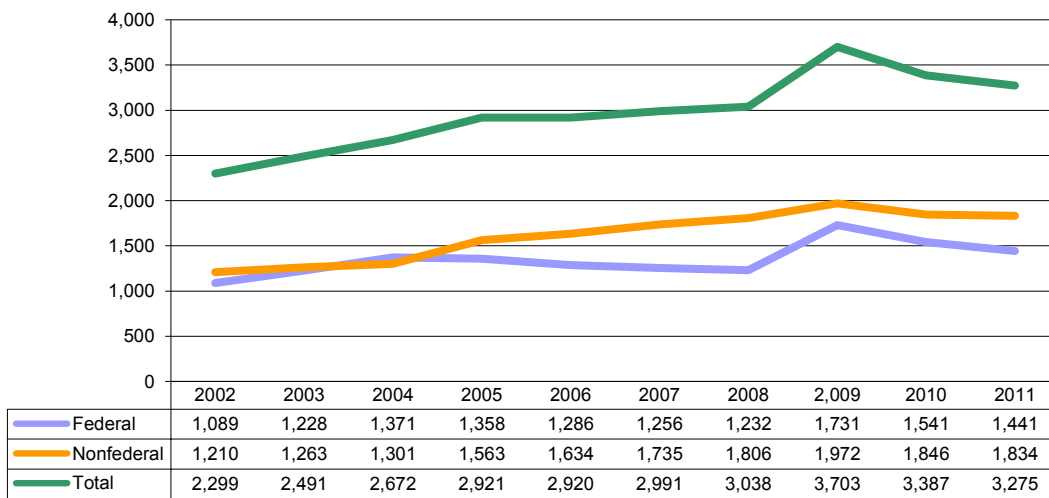
Research Contracts and Grants by Funding Source Overview - All Sponsors

In fiscal year 2011, federal funding once again comprised the largest portion of the total amount received, at 63 percent of the total, unchanged from the previous year despite a decrease in the amount of ARRA funding.

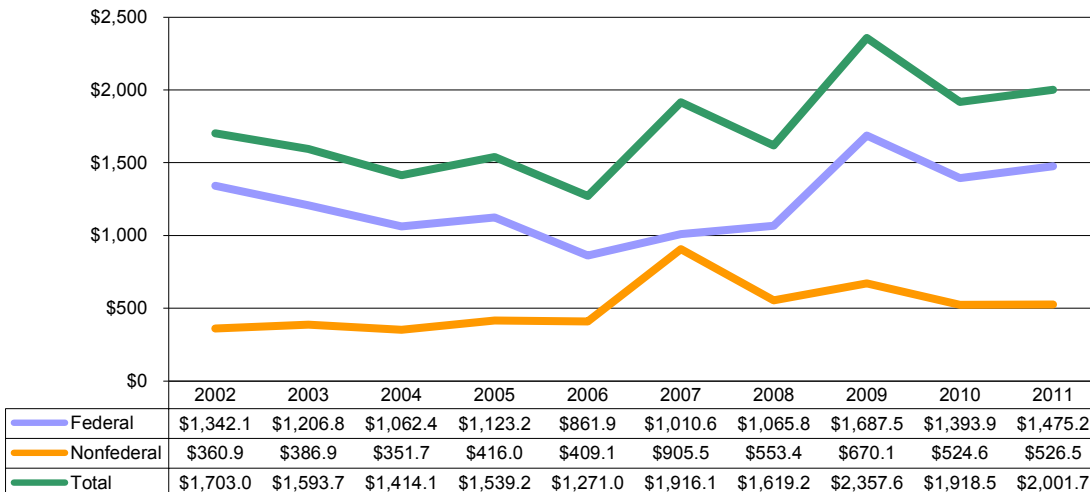
Of the nonfederal funding, \$58.9 million came from charitable organizations and \$41.1 million from universities outside the UC system. Industry sponsors awarded \$45.2 million.

Funding from nonfederal governmental sources included \$100.8 million from State of California agencies and \$3.1 million from foreign governments.

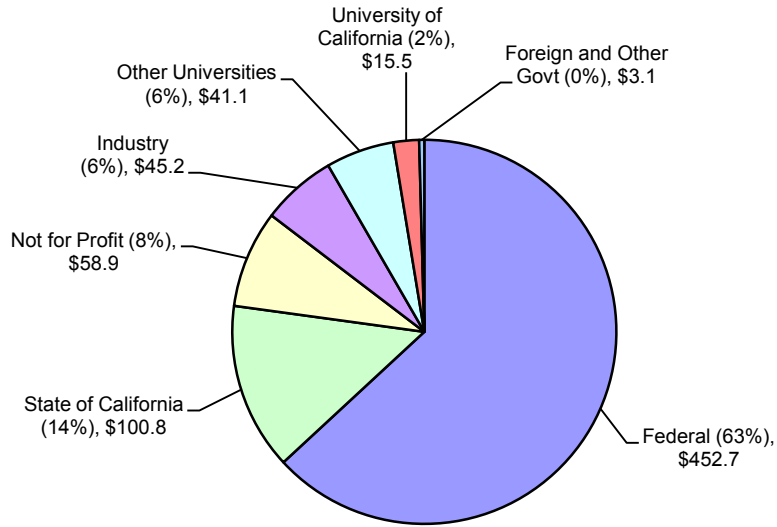
Number of Proposals Submitted by Sponsor Category, FY 2002 - 2011



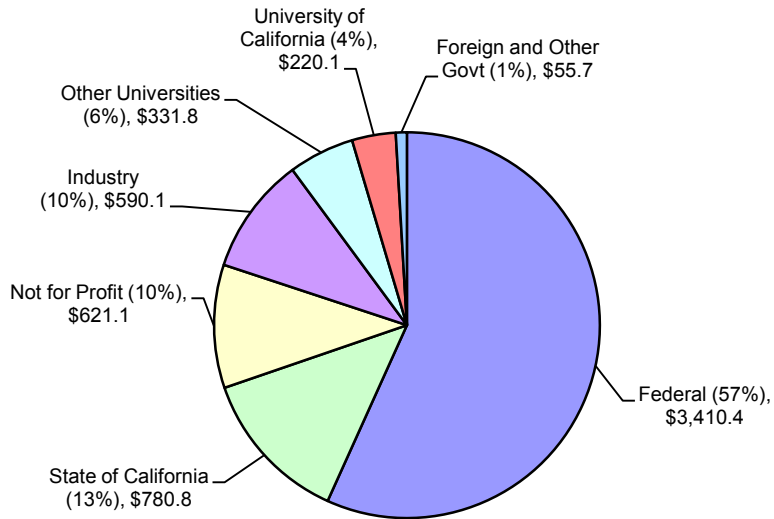
**Funding Dollars Requested by Sponsor Category, FY 2002 - 2011
(dollars in millions)**



**Fiscal Year 2011 Funding Dollars by Sponsor Category
(\$717.3 million total - dollars in millions)**



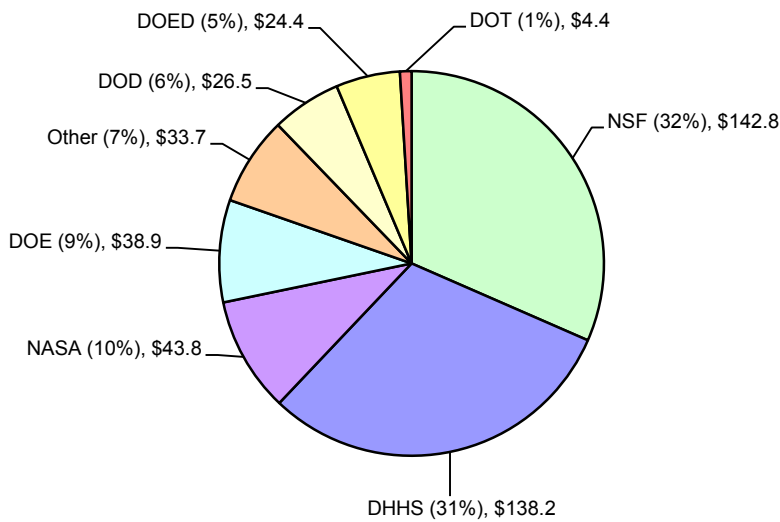
**Ten Year Funding Dollar Summary by Sponsor Category,
FY 2002 - 2011 (\$6 billion total - dollars in millions)**



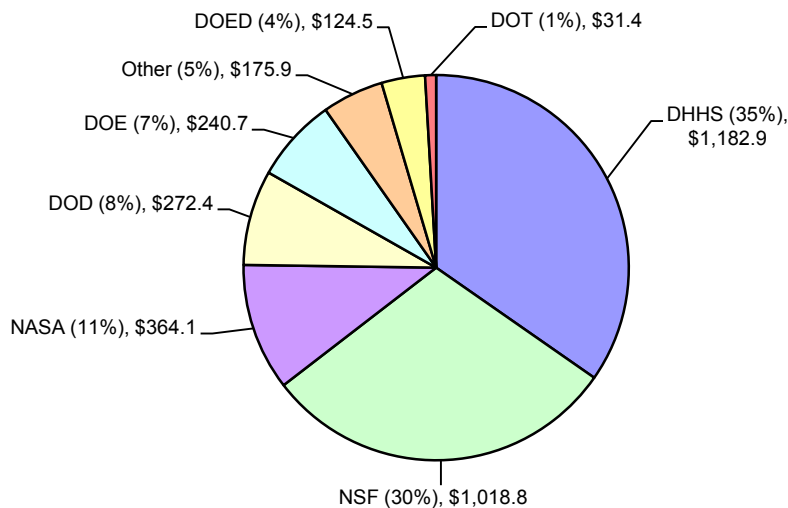
Research Contracts and Grants by Funding Source Federal Agencies

Funding from federal sources totaled \$452.7 million in fiscal year 2011, a decrease of over 3 percent from the record \$468.4 million received in fiscal year 2010. The National Science Foundation awarded 32 percent of federal funding with \$142.8 million. The Department of Health and Human Services provided 31 percent with \$138.2 million in funding. National Aeronautics and Space Administration funding of \$43.8 million nearly doubled from the prior year. Department of Defense agencies decreased sharply to a total of \$26.5 million after a sharp increase in fiscal year 2010.

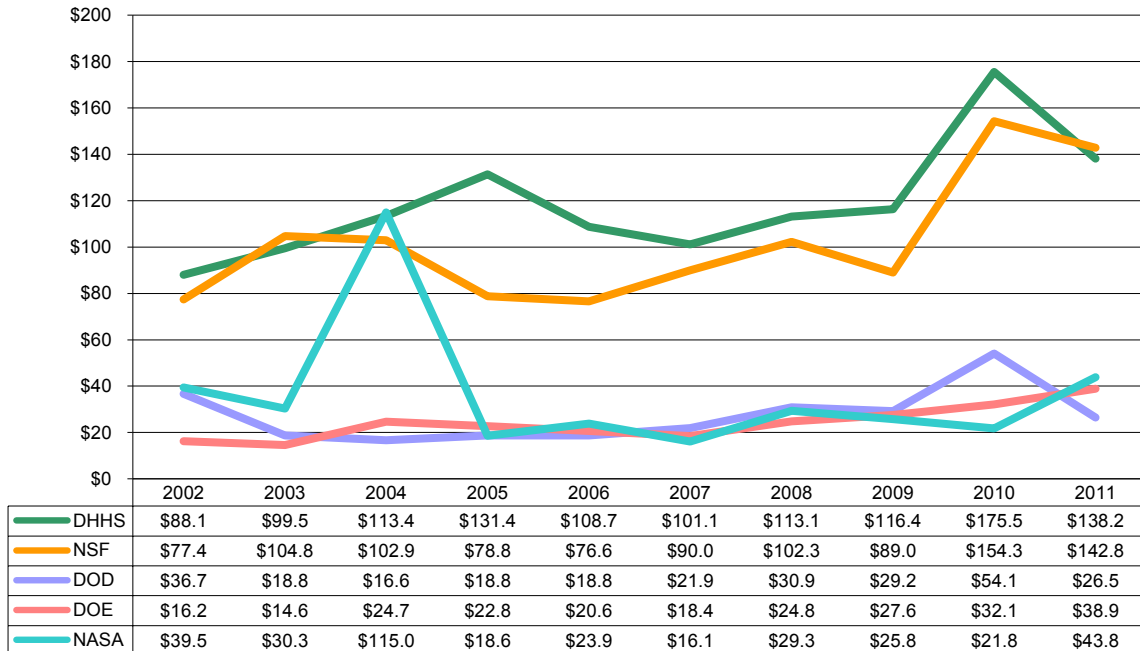
**Fiscal Year 2011 Funding Dollar Summary by Federal Sponsor
(\$452.7 million total - dollars in millions)**



**Ten Year Funding Dollar Summary by Federal Sponsor, FY 2002 - 2011
(\$3.4 billion total - dollars in millions)**



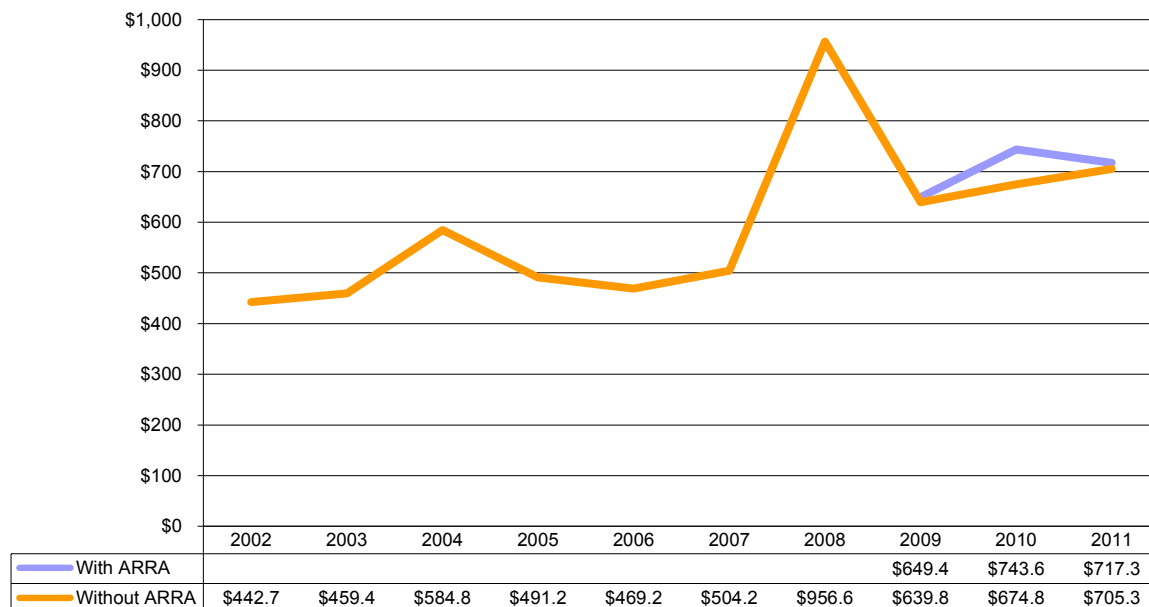
Ten-Year Funding Dollar Summary for Top 5 Federal Sponsors, FY 2002 - 2011
(dollars in millions)



American Recovery and Reinvestment Act of 2009 (ARRA)

ARRA was enacted in February 2009. In fiscal year 2011, the campus requested less than \$1 million as funding for ARRA was winding down. The \$12 million received in fiscal year 2011 included \$1.8 million from the National Science Foundation, \$1.6 million from the National Institutes of Health, \$1.8 million from other universities, and \$1.9 million from industry. Since ARRA was enacted the campus has submitted 435 proposals requesting \$329.2 million; \$90.5 million has been received in total and more than \$7.5 million has been sub-awarded to other organizations through June 30, 2011.

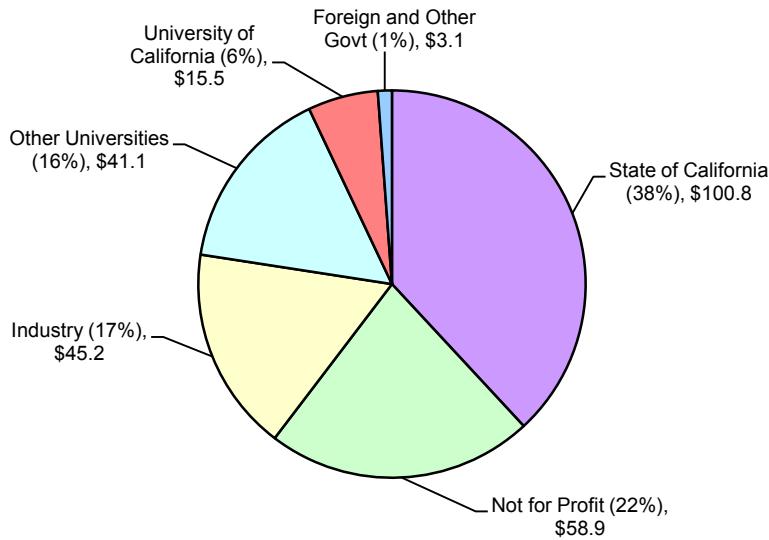
Ten-Year Funding Dollar Summary Showing ARRA Impact, FY 2002 - 2011
(dollars in millions)



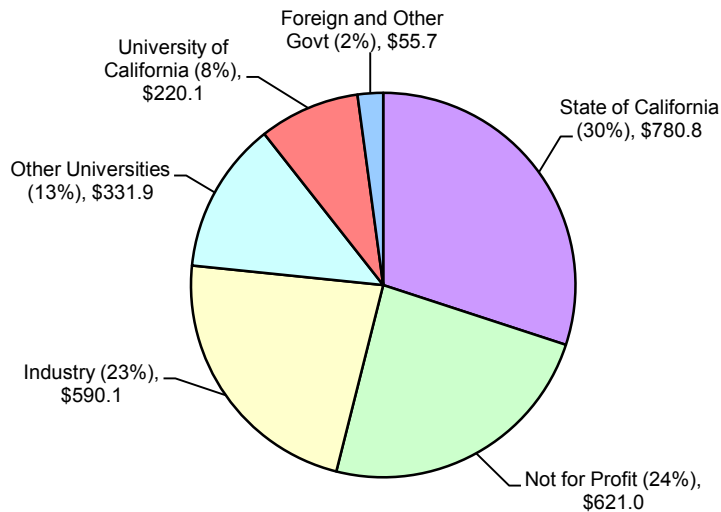
Research Contracts and Grants by Funding Source Nonfederal Agencies

Funding from nonfederal sources totaled \$264.6 million in fiscal year 2011, down 4 percent from the previous year. Of the \$264.6 million, \$160.7 million came from non-profit, non-governmental sources, including \$58.9 million from charitable organizations, \$41.1 million from universities outside the UC system, and \$45.2 million from industry sources.

**Fiscal Year 2011 Funding Dollar Summary by Nonfederal Sponsor
(\$264.6 million total - dollars in millions)**



**Ten Year Funding Dollar Summary by Nonfederal Sponsor,
FY 2002 - 2011 (\$2.6 billion total - dollars in millions)**



Funding by Sponsor - Five-Year Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Federal					
Agriculture	\$3,754,302	\$3,781,047	\$6,143,314	\$6,996,752	\$3,542,326
Commerce	80,981	809,992	11,486,398	923,739	1,434,551
Defense	21,913,073	30,922,189	29,188,030	54,078,069	26,520,550
Education	22,902,566	7,312,265	8,228,159	6,877,414	24,393,606
Energy	9,065,929	4,197,711	5,525,739	19,342,668	20,871,045
Environmental Protection Agency	76,998	1,003,414	374,921	928,385	8,548,007
Health and Human Services	101,050,776	113,056,292	116,367,931	175,522,394	138,238,583
Interior	1,345,170	1,627,843	1,499,058	6,513,849	1,264,267
National Aeronautics and Space Administration	16,076,459	29,278,087	25,810,247	21,771,876	43,783,361
National Endowments for the Arts and Humanities, Institute of Museum and Library Services	2,114,073	1,547,996	1,225,119	1,234,191	1,079,324
National Science Foundation	89,959,672	102,286,247	88,983,109	154,295,580	142,793,198
Other	10,640,470	22,864,898	26,971,541	17,590,266	35,923,019
Transportation	3,329,328	3,865,672	3,357,402	2,333,575	4,355,516
Subtotal	282,309,797	322,553,653	325,160,968	468,408,758	453,747,423
Industry					
Foreign Industry	10,331,009	352,975,698	4,453,485	6,165,252	11,152,075
U.S. Industry	21,677,263	31,554,819	17,392,719	33,121,249	34,013,810
Subtotal	32,008,272	384,530,517	21,846,204	39,286,501	45,165,885
Nonfederal Governmental					
Foreign Government Agencies	3,816,745	3,006,848	4,852,570	2,204,657	1,030,059
Local Agencies and Schools	2,710,522	9,545,104	1,131,942	603,005	1,210,093
Other U.S. Government Agencies	229,108	240,969	448,379	214,875	903,858
State Agencies	64,394,770	78,505,619	145,484,866	101,468,369	100,751,627
Subtotal	71,151,145	91,298,540	151,917,757	104,490,906	103,895,637
Not for Profit					
Foreign Organizations	2,935,529	16,858,767	9,438,823	6,325,592	4,912,024
Other U.S. Organizations	22,025,646	15,855,643	19,934,800	23,259,706	8,618,833
U.S. Foundations and Charities	44,261,339	55,906,970	45,610,004	49,395,803	47,240,829
U.S. Institutes of Higher Education	26,368,727	32,405,088	46,033,446	33,151,952	39,208,177
Subtotal	95,591,241	121,026,468	121,017,073	112,133,053	99,979,863
University of California					
Subtotal	23,204,061	37,143,980	29,485,529	19,295,117	15,461,607
Total	\$504,264,516	\$956,553,158	\$649,427,531	\$743,614,335	\$717,250,415

Campus Control Units - Five-Year Funding Summary

Control Unit	Division	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Executive Vice Chancellor and Provost (EVCP)						
	BAM/PFA	\$619,337	\$797,501	\$555,630	\$611,709	\$724,358
	Cal Performances/SMA	288,500	1,324,500	634,000	774,000	772,500
	College of Natural Resources	30,820,872	31,063,361	35,411,141	38,270,393	37,183,569
	College of Chemistry	28,834,580	26,611,323	30,039,465	30,269,304	29,423,841
	College of Engineering	78,580,684	121,220,404	94,149,039	146,447,668	130,592,566
	College of Environmental Design	4,800,551	139,511	290,190	10,000	28,608
	Division of Undergraduate Education	1,794,528	2,617,393	515,052	2,958,382	4,087,392
	Executive Vice Chancellor and Provost	514,000		50,000	200,000	65,000
	Goldman School of Public Policy	447,471	1,367,291	708,009	687,566	790,731
	Graduate Division	16,329,324	17,136,203	17,934,515	10,509,168	36,253,370
	Graduate School of Education	6,302,592	7,019,514	13,381,485	18,446,201	10,390,826
	Haas School of Business		24,000	45,000	700,246	528,485
	International and Area Studies	18,221,153	3,929,824	3,330,837	3,558,878	9,192,657
	School of Information	40,000	11,700	680,956	1,049,177	1,009,921
	School of Journalism	568,602	3,503,364	1,956,175	700,925	1,469,375
	School of Law	1,855,000	3,912,692	2,524,773	2,715,798	3,217,792
	School of Optometry	5,608,357	10,090,828	11,021,107	9,035,883	13,428,484
	School of Public Health	56,210,830	40,064,685	38,838,683	87,306,424	58,504,556
	School of Social Welfare	34,948,119	36,978,642	54,332,202	33,599,934	52,073,058
	The Library	2,088,861	1,871,780	7,614,619	1,557,856	2,576,004
	Vice Provost Academic Affairs and Faculty Welfare	12,475,917	15,448,639	17,183,248	14,907,115	9,758,309
	Vice Provost Academic Planning and Facilities	1,112,827	35,440		250,000	357,849
Subtotal		302,462,105	325,168,595	331,196,126	404,566,627	402,429,251
College of Letters and Science (L&S)						
	College of Letters and Science	1,000,000		2,330,000	105,000	68,100
	Division of Arts and Humanities	3,134,281	983,113	2,197,496	2,330,266	890,912
	Division of Physical Sciences	20,948,673	50,929,750	39,793,403	36,388,966	36,774,812
	Division of Social Sciences	3,048,022	3,241,700	5,930,990	4,544,948	6,492,945
	Biological Sciences	39,606,540	42,033,924	63,768,106	53,839,381	74,252,220
	Undergraduate Division		2,051,347		6,900	
Subtotal		67,737,516	99,239,834	114,019,995	97,215,461	118,478,989

Control Unit	Division	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Vice Chancellor - Administration						
	Associate VC - Business and Administrative Services					
	Associate VC - Health and Human Services	287,043		509,600	1,446,208	1,879,689
	Intercollegiate Athletics Division			500,000	(485,000)	25,000
	Office of the Vice Chancellor - Administration				50,000	
	Public Safety		99,487		25,000	
Subtotal		287,043	99,487	1,009,600	1,036,208	1,904,689
Vice Chancellor - Research						
	VC Administrative Units		2,084,720	3,642,985	778,499	3,406,368
	Other Research Units	38,086,036	59,370,220	82,008,626	112,893,083	51,007,020
	VC Research		5,512,500	(100,000)	82,568	597,474
	Museums and Field Stations	4,407,351	1,595,179	3,087,030	3,231,471	5,343,174
	Vice Chancellor for Research ORUs	80,415,176	447,825,735	100,993,121	102,125,211	121,488,446
Subtotal		122,908,563	516,388,354	189,631,762	219,110,832	181,842,482
Vice Chancellor - Student Affairs						
	Admissions and Enrollment	1,977,415	3,080,573	3,844,994	935,892	2,283,653
	Residential and Student Services Programs	30,000		30,000	1,006,820	
	Vice Chancellor - Student Affairs Division	8,861,874	11,068,323	7,344,737	8,924,367	5,547,445
Subtotal		10,869,289	14,148,896	11,219,731	10,867,079	7,831,098
Vice Chancellor for Equity and Inclusion						
	Office of Equity and Inclusion		800,000	1,719,211	568,128	
Subtotal			800,000	1,719,211	568,128	
Other						
	Capital Projects				10,250,000	2,750,000
	Information Services & Technology		707,992	631,106		2,013,906
			707,992	631,106	10,250,000	4,763,906
Total		\$504,264,516	\$956,553,158	\$649,427,531	\$743,614,335	\$717,250,415

Largest Awards, Fiscal Year 2011

Midanik, Lorraine T., School of Social Welfare, "Title IV-E Social Work Training Program," State of California Department of Social Services, \$33,454,962

Yablonovitch, Eli, Engineering Research Support Organization, "Center for Energy Efficient Electronics Science (Center for E3S)," National Science Foundation, \$25,000,000

Isacoff, Ehud, Molecular and Cell Biology, "NDC for the Optical Control of Biological Function," National Eye Institute, \$24,571,294

Lin, Robert P., Space Sciences Laboratory, "Phase B/C/D for the Mars Atmosphere and Volatile Evolution (MAVEN) Mission," National Aeronautics and Space Administration, \$16,023,889

Angelopoulos, Vassilis, Space Sciences Laboratory, "Time History of Events and Macroscale Interactions during Substorms (THEMIS)," National Aeronautics and Space Administration, \$14,587,112

Szeri, Andrew J., Graduate Division Dean, "Graduate Research Fellowship Program," National Science Foundation, \$13,238,917

Moore, Donald S., Institute of Business and Economic Research, "Exploring the Optimal Forecasting Frontier: How Much Room is There to Improve Subjective Forecasting Accuracy?," Intelligence Advanced Research Projects Activity, \$11,561,109

Balmes, John R., Labor Occupational Health Program, "Occupational Safety and Health Education and Research Centers," Centers for Disease Control and Prevention, \$6,860,042

Polse, Kenneth A., School of Optometry, "Berkeley Clinical Scientist Development Program," National Eye Institute, \$6,055,560

Ragland, David, School of Public Health, "Sobriety Checkpoint Mini-Grant Program 2010-2011," State of California Office of Traffic Safety, \$5,297,059

Yeh, Wen-Hsin, Institute of East Asian Studies, "Academic Exchange and Cooperation Project between the Top University Strategic Alliance Program in the Republic of China (Taiwan) and the University of California, Berkeley," Government of Taiwan, Republic of China, \$4,867,500

Tirrell, Matthew V., Bioengineering, "Synthetic Biology Institute," Agilent Technologies, \$4,000,000

Bloom, Joan R., School of Public Health, "Alameda County Network Program for Reducing Cancer Disparities," National Cancer Institute, \$3,813,716

Yu, Bin, Engineering Research Support Organization, "Emerging Frontiers of Science of Information," Purdue University, \$3,750,000

Nikaido, Hiroshi, Molecular and Cell Biology, "Biochemistry of Bacterial Cell Membranes," National Institute of Allergy and Infectious Diseases, \$3,474,579

Harris, Eva, School of Public Health, "Epidemiology, Transmission, and Phylogenetics of Influenza in a Tropical Country," National Institute of Allergy and Infectious Diseases, \$3,296,832

Oxendine, Jeffrey, School of Public Health, "California-Pacific Public Health Training Center," Health Resources and Services Administration, \$3,249,129

Ellwood, John W., School of Public Health, "Robert Wood Johnson Foundation Scholars in Health Policy Research," Robert Wood Johnson Foundation, \$2,936,700

Botchan, Michael, Molecular and Cell Biology, "Regulatory Interactions between Tumor Viruses and Cells," National Cancer Institute, \$2,787,237

Thorner, Jeremy W., Molecular and Cell Biology, "Yeast MARK Signaling Networks: Specificity, Regulation and Function," National Institute of General Medical Sciences, \$2,768,609

Basri, Gibor, Academic Achievement Division, "Student Support Service Program," Department of Education, \$2,453,050

Bautista, Diana, Molecular and Cell Biology, "New Approaches to Identity Molecular Mechanisms of Touch and Pain in Mammals," National Institutes of Health Office of the Director, \$2,302,500

Herr, Amy, Institute for Quantitative Biomedical Research, "Towards High Throughput Proteomics: A Micro/Nanofluidic Framework for Blotless Western Technology," National Institutes of Health Office of the Director, \$2,302,500

Iglesia, Enrique, Chemical and Biomolecular Engineering, "Catalysts and Processes for the Conversion of Carbon Feedstocks to Fuels and Chemicals," BP Group, \$2,300,000

Shortell, Stephen M., School of Public Health, "National Study of Physician Organizations 3 (NSPO3)," Robert Wood Johnson Foundation, \$2,200,000

Zilberman, Daniel, Plant and Microbial Biology, "GEPR: Epigenetic Mechanisms Regulating Gene Imprinting in Rice Seeds," National Science Foundation, \$2,106,725

Bell, Alexis T., Chemical and Biomolecular Engineering, "Catalytic Chemistry for the Utilization of Synthesis Gas," BP Group, \$2,100,000

Wallis, Jonathan D., Helen Wills Neuroscience Institute, "Neural Representation of Reward in Frontal Cortex," National Institute on Drug Abuse, \$2,088,852

Gutierrez, Maria P., Center for Environmental Design Research, "EFRI-SEED: Solar Optics-Based Active Pasteurization (SOAP) for Greywater Reuse and Integrated Thermal (GRIT) Building Control," National Science Foundation, \$2,000,000

Li, Song, Institute for Quantitative Biomedical Research, "Multipotent Stem Cells for Tissue Regeneration," National Institutes of Health, \$1,984,007

Organista, Kurt C., Institute of Business and Economic Research, "Structural-Environmental Factors, Alcohol and HIV Risk in Latino Migrant Laborers," National Institute on Alcohol Abuse and Alcoholism, \$1,959,259

Stephens, Richard S., School of Public Health, "Mechanisms of Host Cell Infection by Chlamydia," National Institute of Allergy and Infectious Diseases, \$1,918,750

Jagust, William J., Helen Wills Neuroscience Institute, "PET/CT Imaging System," National Center for Research Resources, \$1,896,426

Hybiske, Kevin, School of Public Health, "Molecular Determinants of Chlamydia Extrusion from Host Cells," National Institute of Allergy and Infectious Diseases, \$1,877,560

Zhou, Qiang, Molecular and Cell Biology, "Tat Cofactors and Control of HIV-1 Latency," National Institute of Allergy and Infectious Diseases, \$1,876,454

Stahl, Andreas, Nutritional Sciences and Toxicology, "Dependence of Thermogenesis and Brown Adipose Tissue Function on FatP1 and CD36," National Institute of Diabetes and Digestive and Kidney Diseases, \$1,873,076

Robey, Ellen A., Molecular and Cell Biology, "Signals that Control Thymocyte Migration," National Institute of Allergy and Infectious Diseases, \$1,872,184

Cicero, Carla, Museum of Vertebrate Zoology, "ABI Development: Collaborative Research: VertNet, a New Model for Biodiversity Networks," National Science Foundation, \$1,871,968

Miller, Craig T., Molecular and Cell Biology, "Developmental Genetics of Tooth Number Variation in Sticklebacks," National Institute of Dental and Craniofacial Research, \$1,790,572

Auslander, David M., Engineering Research Support Organization, "Recovery Act: Distributed Intelligent Automated Demand Response (DIADR) Building Management System," Department of Energy, \$1,787,674

Chang, Christopher, Chemistry Department, "Development of an Integrated Microbial-Electrocatalytic (MED) System for Liquid Diofuel Production from CO₂," Department of Energy, \$1,781,190

Koshland, Douglas E., Molecular and Cell Biology, "Establishment of Sister Chromatid Cohesion," National Institute of General Medical Sciences, \$1,771,315

Westphal, Andrew, Space Sciences Laboratory, "Coordinated Synchrotron X-Ray Microprobe, TEM, and Ion Microprobe Analysis of Stardust Cometary Samples," National Aeronautics and Space Administration, \$1,720,000

Nguyen, Clark T. C., Engineering Research Support Organization, "Q-Boosted Optomechanical Resonators," Defense Advanced Research Projects Agency, \$1,707,427

Winoto, Astar, Cancer Research Laboratory, "Programmed Cell Death in Normal and Malignant T Cells," National Cancer Institute, \$1,693,256

Cohen, Marvin L., Physics, "Theoretical Solid State Physics," National Science Foundation, \$1,690,000

Crommie, Michael F., Physics, "Infrastructure Upgrade for UC Berkeley Atomic, Nanoscale, and Quantum Characterization Facility," National Science Foundation, \$1,682,741

Levi, Dennis, School of Optometry, "A New Approach to Restoring Visual Acuity and Steropsis in Adult and Children with Amblyopia," National Eye Institute, \$1,675,162

Garriga, Gian, Molecular and Cell Biology, "Wnt Regulation of C. Elegans Neuroblast and Neuronal Polarity," National Institute of Neurological Disorders and Stroke, \$1,646,180

Largest Awards, Fiscal Year 2011 (continued)

Ngai, John, Molecular and Cell Biology, "Programs of Gene Expression in Olfactory Neurogenesis," National Institute on Deafness and Other Communication Disorders, \$1,630,940

Banfield, Jill F., Earth and Planetary Science, "Development and Integration of Genome-Enabled Techniques to Track and Predict the Cycling of Carbon in Model Microbial Communities," Department of Energy, \$1,624,867

Firestone, Mary K., Environmental Science, Policy and Management: Ecosystem Sciences, "Plant Stimulation of Soil Microbial Community Succession: How Sequential Expression Mediates Soil Carbon Stabilization and Turnover," DOE Department of Energy Miscellaneous Offices & Programs, \$1,609,401

Wilson, Mark, Graduate School of Education, "Learning Progressions in Middle School Science Instruction and Assessment," Department of Education, \$1,599,931

Cohen, Ronald C., Chemistry Department, "DISCOVER-AQ (Deriving Information on Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality)," National Aeronautics and Space Administration, \$1,581,062

Fleiszig, Suzanne M. J., School of Optometry, "Bacterial Interactions with Corneal Epithelium in Health and Disease," National Eye Institute, \$1,535,000

Sadoulet, Bernard, Physics, "SuperCDMS Soudan," National Science Foundation, \$1,531,109

Robey, Ellen A., Molecular and Cell Biology, "Visualizing of Immune Responses to Toxoplasma Gondii," National Institute of Allergy and Infectious Diseases, \$1,523,489

Poo, Mu-Ming, Molecular and Cell Biology, "Spike Timing-Dependent Plasticity of Neural Circuits," National Institute of Neurological Disorders and Stroke, \$1,511,015

Basri, Gibor, Disabled Students' Program, "Disabled Students' Program TRIO/Student Support Services Project," Department of Education, \$1,507,420

Pisano, Albert P., Engineering Research Support Organization, "Phase II - III: The Microcoluminated Loop Heat Pipe (mLHP): The Future of Electronic Substrates," Defense Advanced Research Projects Agency, \$1,500,000

Covello, Claudia, University Health Services, "Berkeley Builds Capacity (BBC)," Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention, \$1,500,000

Schaffer, David, Institute for Quantitative Biomedical Research, "Engineering Defined and Scalable Systems for Dopaminergic Neuron Differentiation of hPSCs," California Institute for Regenerative Medicine, \$1,493,928

Abrams, Barbara F., College of Natural Resources, "Intergenerational Obesity: Do Early Adversity and Pregnancy Explain Disparities?," National Center on Minority Health and Health Disparities, \$1,493,110

Harris, Eva, School of Public Health, "Determinants of Protection and Enhancement of Dengue Infection/Disease in Vivo," National Institute of Allergy and Infectious Diseases, \$1,491,103

Wilmoth, John R., Institute of Business and Economic Research, "Studies in Global Mortality," National Institute on Aging, \$1,477,690

Lee, Luke P., Engineering Research Support Organization, "Integrated Microfluidic Universal Sample Preparation and Pre-concentration (USP) Module for Parallel Diagnostics of Infectious Diseases," Bill and Melinda Gates Foundation, \$1,465,210

Conolly, Steven, Institute for Quantitative Biomedical Research, "Magnetic Particle Imaging: A Novel Ultra-Sensitive Imaging Scanner for Tracking Stem Cells in Vivo," California Institute for Regenerative Medicine, \$1,452,360

Bruns, Thomas Dickinson, Plant and Microbial Biology, "To Investigate the Processes and Source Responsible for Indoor Microbial Communities and Indoor Air Quality," Alfred P. Sloan Foundation, \$1,451,191

Bale, Stuart, Space Sciences Laboratory, "FIELDS Investigation Solar Probe Plus Phase A Efforts," Johns Hopkins University, \$1,442,880

Morse, Edward C., Engineering Research Support Organization, "ARI/LA: Domestic Nuclear Security Technology," Department of Homeland Security, \$1,435,126

Yildiz, Ahmet, Institute for Quantitative Biomedical Research, "Mechanism and Coordination of Cytoplasmic Dynein Motility," National Institute of General Medical Sciences, \$1,422,894

Barnes, Georjana, Molecular and Cell Biology, "Saccharomyces Cerevisiae Microtubule Cytoskeleton," National Institute of General Medical Sciences, \$1,418,292

Hadler, Jeffrey, Graduate Division Dean, "UCB - UCLA Consortium for the Southeast Asia Studies National Resource Center and Foreign Language and Areas Studies Fellowship Program," Department of Education, \$1,416,000

Sjolander, Kimmen V., Institute for Quantitative Biomedical Research, "Phylogenomic Tools and Web Resources for the Systems Biology Knowledgebase," DOE Department of Energy Chicago Field Office, \$1,412,313

Toste, Dean, Chemistry Department, "Catalytic Methods for Carbon-Carbon and Carbon-Heteroatom Bond Formation," National Institute of General Medical Sciences, \$1,395,388

Staskawicz, Brian J., Plant and Microbial Biology, "Molecular Basis of NLR-Mediated Innate Immunity in Arabidopsis Thaliana," National Institute of General Medical Sciences, \$1,355,911

Kaskutas, Lee A., School of Public Health, "Graduate Research Training on Alcohol Problems," National Institute on Alcohol Abuse and Alcoholism, \$1,353,010

Bokor, Jeffrey, Engineering Research Support Organization, "Nanomagnet Logic," University of Notre Dame, \$1,350,000

Stahl, Andreas, Nutritional Sciences and Toxicology, "Molecular Physiology of Liver Fatty Acid Transporters," National Institute of Diabetes and Digestive and Kidney Diseases, \$1,329,731

Ray, Raka, Graduate Division Dean, "National Resource Center and Foreign Language and Area Studies Fellowship - Center for South Asia Studies," Department of Education, \$1,326,000

Slezkine, Yuri, Graduate Division Dean, "National Resource Centers (NRC) Program for Foreign Language and Area Studies and Foreign Language and Area Studies (FLAS) Fellowships Program," Department of Education, \$1,326,000

Hintzen, Percy C., Graduate Division Dean, "Comprehensive National Resource Center and Foreign Language and Area Studies Fellowships- Center for African Studies," Department of Education, \$1,326,000

Leonard, Thomas C., University Library, "Public Health Library Information Services Agreement," State of California Department of Public Health, \$1,319,647

Buehring, Gertrude C., School of Public Health, "UC Berkeley - Public Health Lab Directors Training," State of California Department of Public Health, \$1,310,000

Feldman, Daniel E., Helen Wills Neuroscience Institute, "Neural Mechanisms of Tactile Sensation in Rodent Somatosensory Cortex," National Institute of Neurological Disorders and Stroke, \$1,306,493

Cascardi, Anthony J., Data Services, "Bamboo Technology Proposal: Phase 1," Andrew W. Mellon Foundation, \$1,293,000

Firestone, Gary L., Center for Educational Partnerships, "Berkeley Bridges to the Baccalaureate," National Institute of General Medical Sciences, \$1,259,564

Lee, Ronald D., Institute of Business and Economic Research, "Interdisciplinary Training in Demography," National Institute of Child Health and Human Development, \$1,256,331

Breslauer, George W., Physical Sciences Dean, "I3 Berkeley Science Connections Program," National Science Foundation, \$1,248,798

Varaiya, Pravin P., Institute of Transportation Studies, "Tools for Operation Planning (TOPL4): Real Time Operations," State of California Department of Transportation, \$1,248,646

Collins, Kathleen, Molecular and Cell Biology, "Structure and Function of Telomerase," National Institute of General Medical Sciences, \$1,241,635

Eichengreen, Barry J., Economics, "Berkeley Economic History Laboratory," Institute for New Economic Thinking, \$1,239,700

Schaffer, David, Institute for Quantitative Biomedical Research, "Investigation of Promoter Sequence-Function Relationships in a Model Retrovirus," National Institute of General Medical Sciences, \$1,230,540

Burgmann, Roland, Berkeley Seismological Laboratory, "TremorScope: Imaging the Deep Workings of the San Andreas Fault," Gordon and Betty Moore Foundation, \$1,228,785

Gong, Xiaohua, School of Optometry, "Mechanisms of Lens Growth Regulation," National Eye Institute, \$1,228,000

Luo, Kunxin, Molecular and Cell Biology, "Systems Analysis of TGFbeta Signaling and SnoN Function in Liver," National Institute of Diabetes and Digestive and Kidney Diseases, \$1,223,832

Harland, Richard M., Molecular and Cell Biology, "A Genome Assembly for Xenopus Laevis," National Institute of Child Health and Human Development, \$1,222,507

Haiman, Mark, Center for Pure and Applied Mathematics, "EMSW21-RTG: Research Training Group in Interactions of Representation Theory, Geometry and Combinatorics," National Science Foundation, \$1,200,079

Largest Awards, Fiscal Year 2011 (continued)

Weir, Margaret M., Institute of Governmental Studies, "Research Network on Building Resilient Regions, Phase III," John D. and Catherine T. MacArthur Foundation, \$1,200,000

Song, Xiaodong Dawn, Engineering Research Support Organization, "Software Protection in Contaminated Environments," Science Applications International Corporation, \$1,200,000

Walker, Gretchen H., Lawrence Hall of Science, "Activating Science Learners in Their Communities: A Pilot Project," Gordon and Betty Moore Foundation, \$1,200,000

Agrawala, Maneesh, Engineering Research Support Organization, "Intel Science and Technology - Visual Computing," Intel Corporation, \$1,200,000

Keasling, Jay, Institute for Quantitative Biomedical Research, "Engineering E. Coli as an Electrofuels Chassis for Isooctane Production," Ginkgo BioWorks, \$1,200,000

Rio, Donald C., Molecular and Cell Biology, "Methods for Purification of Individual Nuclear Pre-Messenger RNA-Protein Complexes," National Institute of General Medical Sciences, \$1,195,927

Bishop, James K., Earth and Planetary Science, "Autonomous Particulate Inorganic Carbon Sensor and Carbon Explorer Deployment," National Science Foundation, \$1,165,324

Sadoulet, Bernard, Physics, "SuperCDMS Operation at Soudan," National Science Foundation, \$1,154,213

Fisher, George H., Space Sciences Laboratory, "The Connections between the Solar Interior and the Solar Atmosphere," National Aeronautics and Space Administration, \$1,150,500

Wu, Ming, Engineering Research Support Organization, "MEMS SWEEPER with High Contrast Grating Mirrors," Defense Advanced Research Projects Agency, \$1,142,789

Banks, Martin S., School of Optometry, "Blur, Accommodation, and Vision," National Eye Institute, \$1,125,785

Patterson, David A., Engineering Research Support Organization, "Universal Parallel Computing Research Center," UC Discovery Grant, \$1,125,000

Madanat, Samer M., Institute of Transportation Studies, "Hybrid Data Traffic Collection Roadmap: Pilot Procurement of Third Party Traffic Data (Task Order 1)," State of California Department of Transportation, \$1,101,276

Werthimer, Dan, Space Sciences Laboratory, "Advanced Multibeam Spectrometer for the GBT," National Science Foundation, \$1,100,000

Gilbert, Neil, Center for Child and Youth Policy, "National Resource Center for Programs Serving Abandoned Infants, Infants at Risk of Abandonment and Infants at Risk of Maltreatment and Their Families," Administration for Children and Families, \$1,099,997

Bilder, David, Molecular and Cell Biology, "Mechanisms of Drosophila Tumor Suppression," National Institute of General Medical Sciences, \$1,094,761

Robey, Ellen A., Molecular and Cell Biology, "Human Immune System Mouse Models as Preclinical Platforms for Stem Cells Derived Grafts," California Institute for Regenerative Medicine, \$1,079,393

Fernandez-Pello, A. Carlos, Graduate Division, "Jacob K. Javits Fellowship," Department of Education, \$1,050,120

Battles, John J., Center for Forestry, "SNAMP - 1. Public Participation Facilitation and Research," USDA Forest Service, \$1,041,000

Cuff, Kevin E., Lawrence Hall of Science, "Clean Energy Literacy and Leadership," National Science Foundation, \$1,040,661

Ray, Raka, Center for South Asian Studies, "National Resource Center and Foreign Language and Area Studies Fellowship - Center for South Asia Studies," Department of Education, \$1,036,764

Klein, Stanley A., Optometry, "Processes and Mechanisms of Perceptual Learning in Normal and Compromised Vision," National Eye Institute, \$1,024,613

Totino, Joanna, Lawrence Hall of Science, "Collaborative Approach to Learning: Bridging Language and Science Teaching (CAL:BLAST)," State of California Department of Education, \$1,011,017

Baldocchi, Dennis, Natural Resources Dean, "Using Regional Cluster of AmeriFlux Sites in Central California to Advance Our Knowledge on Decadal-Scale Ecosystem-Atmosphere Carbon Dioxide Exchange," Department of Energy, \$1,002,405

Schlissel, Mark, Biological Sciences Dean, "UC Berkeley Amgen Scholars Program," Amgen Foundation, \$1,000,000

Honors to Individual Faculty, Fiscal Year 2011

American Academy of Arts and Sciences

Claude Fischer, Sociology
Martin Head-Gordon, Chemistry
Michael Jordan, Electrical Engineering and Computer Sciences and Statistics

American Association for the Advancement of Science

Benito de Lumen, Nutritional Science and Toxicology
Eugene Wong, Electrical Engineering and Computer Sciences
Patricia Claire Zambryski, Plant and Microbial Biology

American Philosophical Society

Svetlana Leontief Alpers, History of Art
Paula Fass, History
Graham Fleming, Chemistry

BBVA Foundation Frontiers of Knowledge Award in Basic Sciences

Gabor Somorjai, Chemistry

Benjamin Franklin Medal in Earth and Environmental Science

Jillian Banfield, Earth and Planetary Science and Environmental Science, Policy, and Management

Einstein Medal, Albert Einstein Society

Saul Perlmutter, Physics

Global Energy International Prize

Arthur Rosenfeld, Physics (shared with Philip Rutberg, Institute for Electrophysics and Electric Power, St. Petersburg)

Gruber Cosmology Prize

Marc Davis, Astronomy and Physics (shared with George Efstathiou, Kavli Institute for Cosmology in Cambridge; Carlos Frenk, Institute for Computational Cosmology at Durham University; and Simon White, Max Planck Institute for Astrophysics)

John Simon Guggenheim Memorial Foundation Fellow

Martin White, Physics and Astronomy

Institute of Medicine

Jennifer Doudna, Molecular and Cell Biology

L'Oréal-UNESCO "For Women in Science" Award

Jillian Banfield, Earth and Planetary Science and Environmental Science, Policy, and Management

The John D. and Catherine T. MacArthur Foundation MacArthur Fellows

Emmanuel Saez, Economics
Dawn Song, Electrical Engineering and Computer Sciences

National Academy of Sciences

James Demmel, Mathematics and Electrical Engineering and Computer Sciences
Michael Hanemann, Agricultural and Resource Economics
Athanasios Theologis, Plant and Microbial Biology

National Academy of Education

Mark Wilson, Education

National Academy of Engineering

Armen Der Kiureghian, Civil and Environmental Engineering
Jitendra Malik, Electrical Engineering and Computer Sciences and Statistics
Ramamoorthy Ramesh, Materials Science and Engineering and Physics

David and Lucile Packard Foundation Fellowship in Science and Engineering

Feng Wang, Physics

Pew Scholars in the Biomedical Sciences

Craig Miller, Molecular and Cell Biology

Presidential Early Career Award for Scientists and Engineers (PECASE)

Alexandre Bayen, Electrical Engineering and Computer Sciences and Civil and Environmental Engineering

Alfred P. Sloan Foundation Research Fellows

Pieter Abbeel, Electrical Engineering and Computer Sciences
Per-Olof Persson, Mathematics
David Savage, Molecular and Cell Biology
Koushik Sen, Electrical Engineering and Computer Sciences