
# Accountability Subreport on the UC Research Enterprise

*Steven Beckwith*

*VP for Research & Graduate Studies*

# UC's Recent Research Stature

2009 Nobel Prize in Physiology or Medicine
**Elizabeth Blackburn, UCSF**
"for the discovery of how chromosomes are protected by telomeres and the enzyme telomerase"

2009 Nobel Prize in Economics
**Oliver E. Williamson, UC Berkeley**
"for his analysis of economic governance, especially the boundaries of the firm"

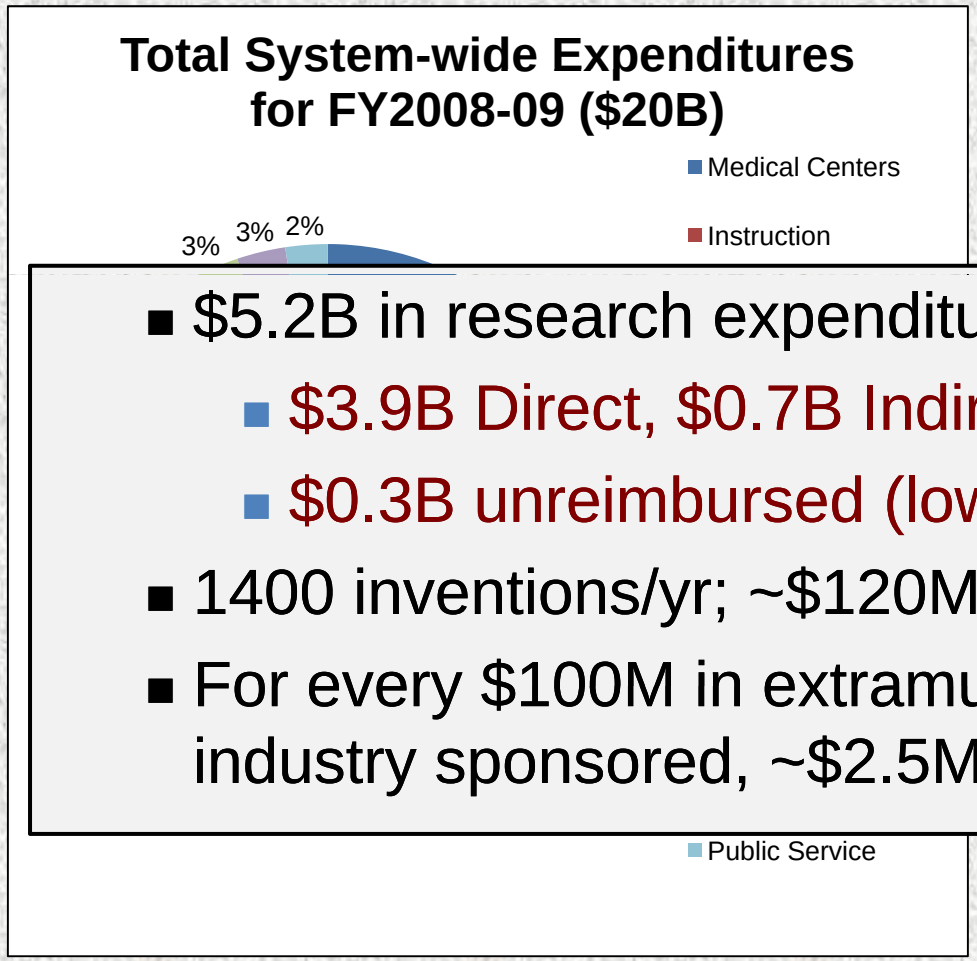
Also in 2009

- 16 new members of the National Academy of Sciences
- 3 new members of the National Academy of Engineering
- 6 new members of the National Academies Institute of Medicine
- 2 MacArthur Fellows

*More Nobel Laureates than any other University System*

*More National Academy Members than any other University System*

# Size and Scope of UC Research Enterprise




- Research distinguishes the University of California among California public
- comparisons among universities

- $5.2B in research expenditures, ~25% of UC budget
  - $3.9B Direct, $0.7B Indirect costs recovered
  - $0.3B unreimbursed (low rates), $0.3B ICR waived
- 1400 inventions/yr; ~$120M/yr income
- For every $100M in extramural funds: ~$5M is industry sponsored, ~$2.5M is income from inventions

*Source: Institutional Research, Current Fund Expenditures by Function and Fund Source Location*

# Supporting Indirect Research Costs

| Campus | Proposed IDC Rate (2010) | Negotiated IDC Rate (2010) | Difference |
|---|---|---|---|
| MIT | 68% | 68% | 0 |
| Harvard | 76.9% | 68% | -8.9 |
| Stanford | 65.8% | 58% | -7.8 |
| Yale | 72% | 65.5% | -6.5 |
| Illinois | 59.8% | 58.5% | -1.3 |
| SUNY - Buffalo | 69.5% | 58.5% | -11 |
| Michigan | 62.7% | 54.5% | -8.2 |
| UC Berkeley | 70.1% | 53.5% | -16.6 |
| UC Davis | 71.2% | 52% | -19.2 |
| UC Irvine | 56.6% | 53% | -3.3 |
| UCLA | 62.3% | 54% | -8.3 |
| UCSF | 62.4% | 54.5% | -7.9 |

THE CHRONICLE of Higher Education

**Commentary**

Home Opinion & Ideas Commentary

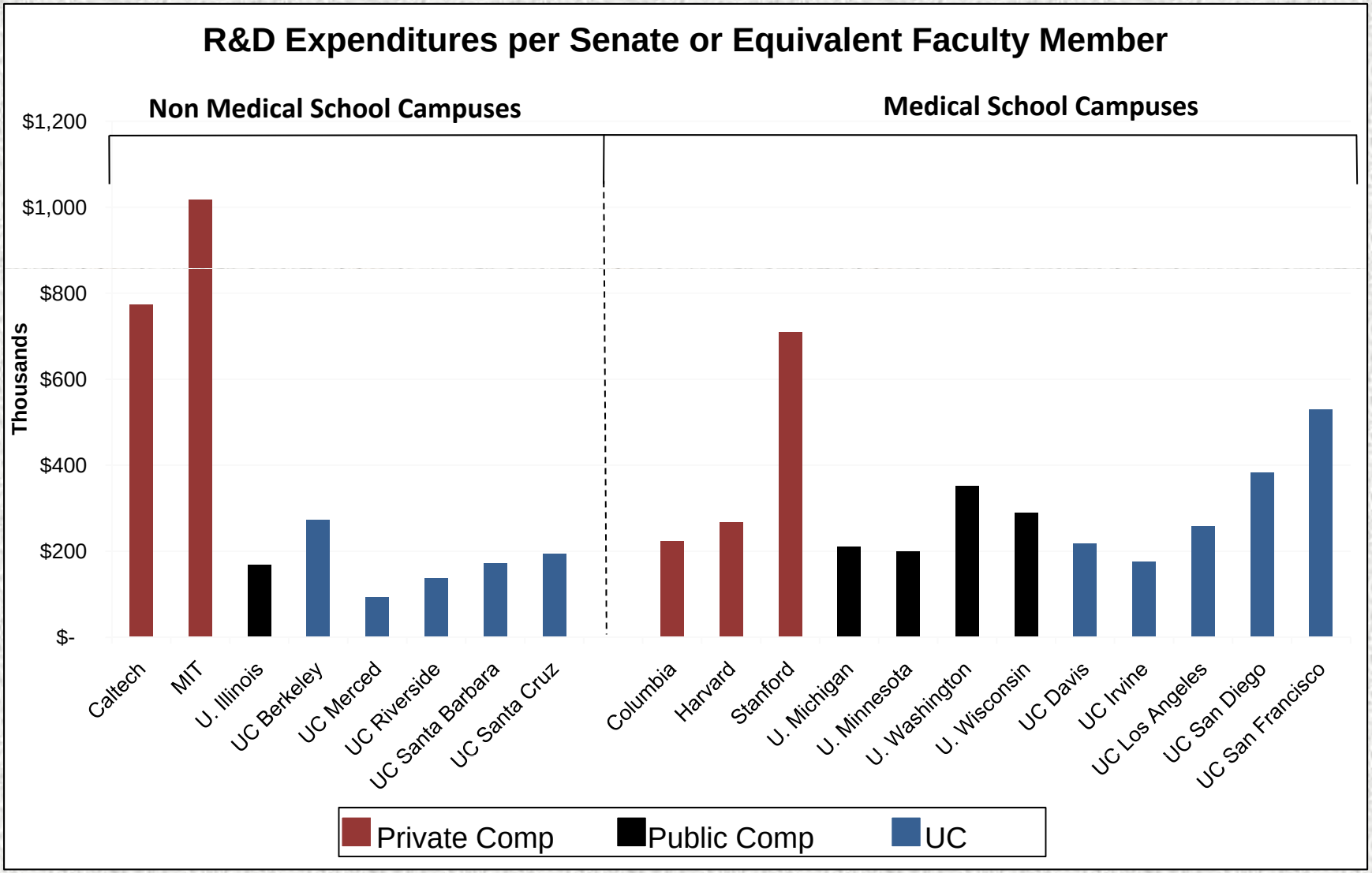
January 3, 2010

**The Federal Stimulus Should Support Research at Public Universities**

*By Christopher Newfield and Gerald Barnett*

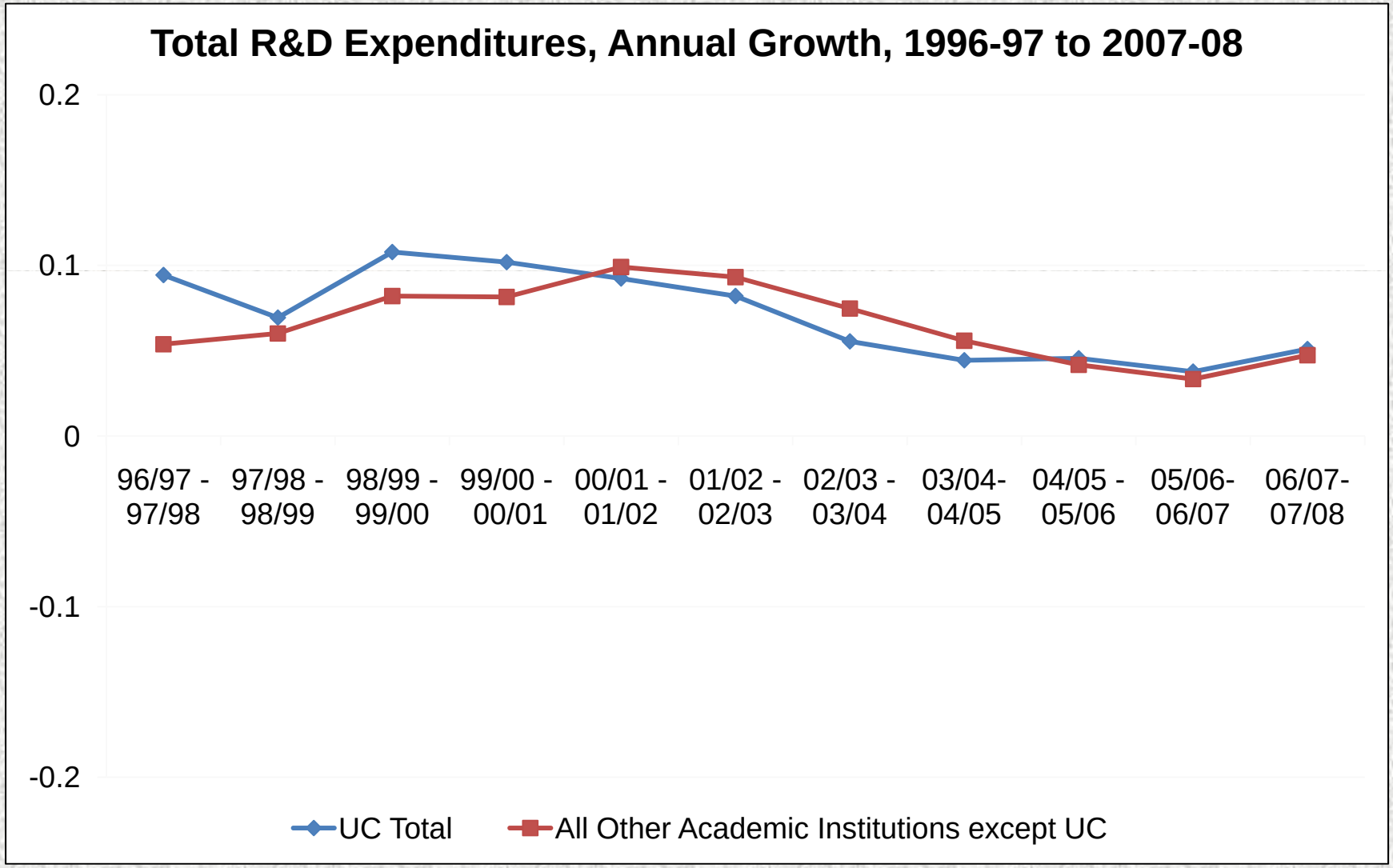
"In a recent year, Harvard University said that indirect costs ran about 73 cents for every dollar of direct costs, but it actually recovered 67 cents, using a rate set by the National Institutes of Health. That means that Harvard had to supply 6 cents of its own money for every dollar it received."

# Research Expenditure Comparison



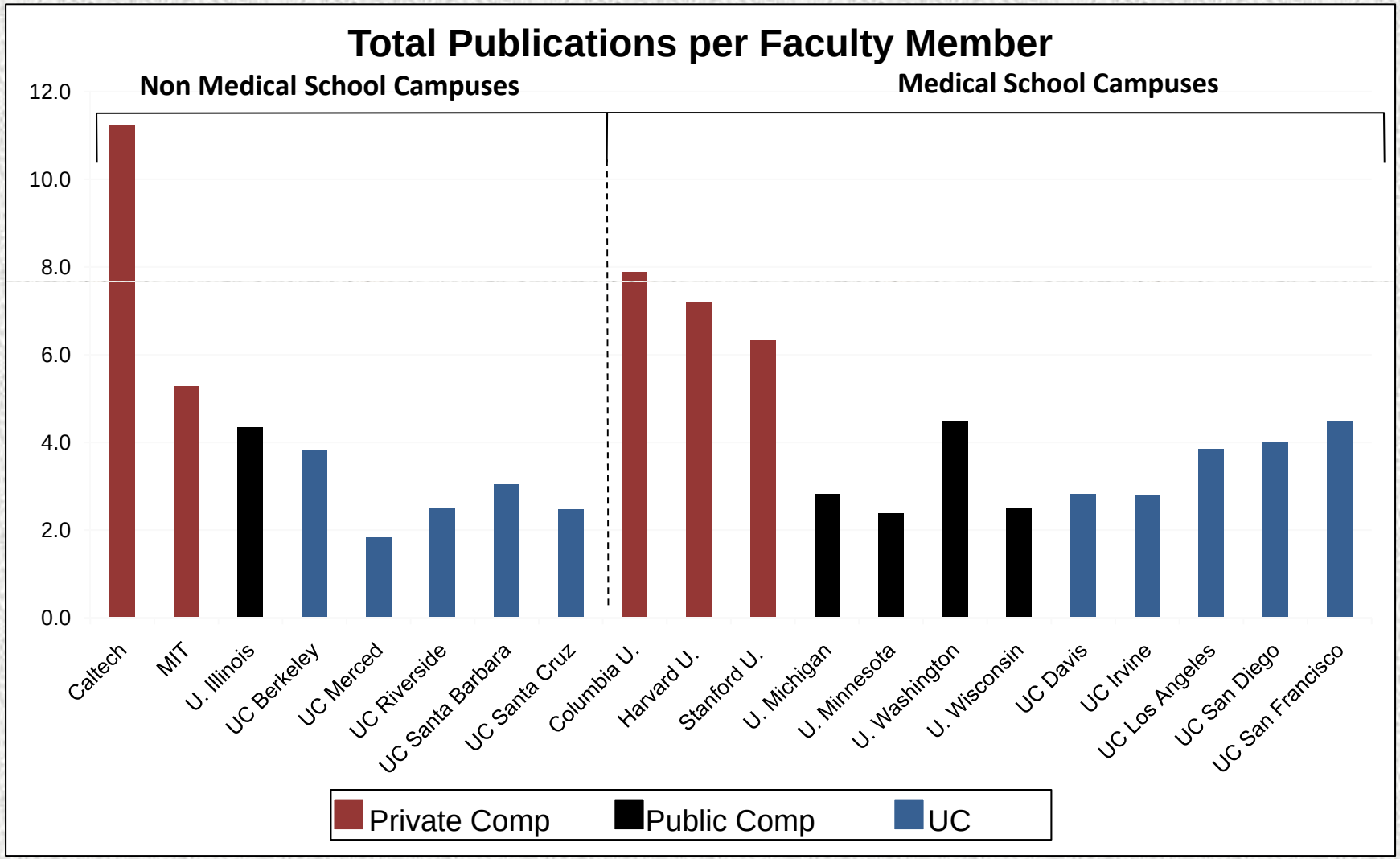

*Source: NSF R&D Survey, IPEDS Fall Staff Surveys, Fall 2007 (private) and Fall 2008 (public)*

# Research Expenditure Comparison




*Source: Institutional Research, NSF R&D Survey*

# Total Research Publications per Faculty Member, CY2008

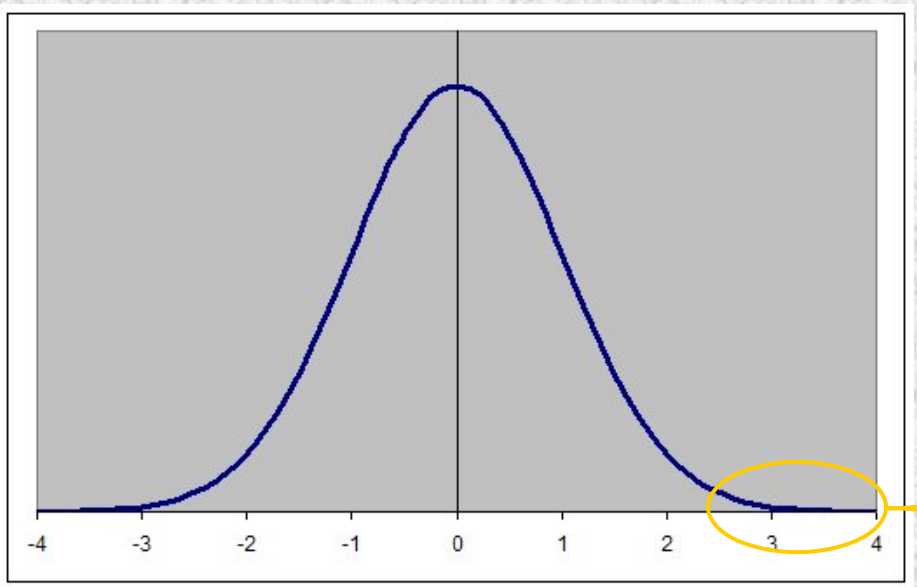



*Source: Scopus: multi-disciplinary abstract and citation database and IPEDS Fall Staff Surveys, Fall 2007 (private) and Fall 2008 (public)*

# Shanghai Jiao Tong University 2009 Academic Ranking of World Universities

| World Rank 2009 | Institution | Relative Rank by $/faculty | Relative Rank by Pub/faculty |
|---|---|---|---|
| 1 | Harvard University | 9 | 3 |
| 2 | Stanford University | 3 | 4 |
| **3** | **University of California, Berkeley** | **8** | **10** |
| 5 | Massachusetts Institute of Technology (MIT) | 1 | 5 |
| 6 | California Institute of Technology | 2 | 1 |
| 7 | Columbia University | 11 | 2 |
| **13** | **University of California, Los Angeles** | **10** | **10** |
| **14** | **University of California, San Diego** | **5** | **9** |
| 16 | University of Washington | 6 | 6 |
| 17 | University of Wisconsin - Madison | 7 | 17 |
| **18** | **University of California, San Francisco** | **4** | **6** |
| 22 | University of Michigan - Ann Arbor | 13 | 13 |
| 25 | University of Illinois at Urbana-Champaign | 18 | 8 |
| 28 | University of Minnesota, Twin Cities | 14 | 19 |
| **35** | **University of California, Santa Barbara** | **17** | **12** |
| **46** | **University of California, Irvine** | **16** | **13** |
| **49** | **University of California, Davis** | **12** | **13** |
| **101151** | **University of California, Riverside** | **19** | **17** |
| **101151** | **University of California, Santa Cruz** | **15** | **17** |

# Measuring the Outliers

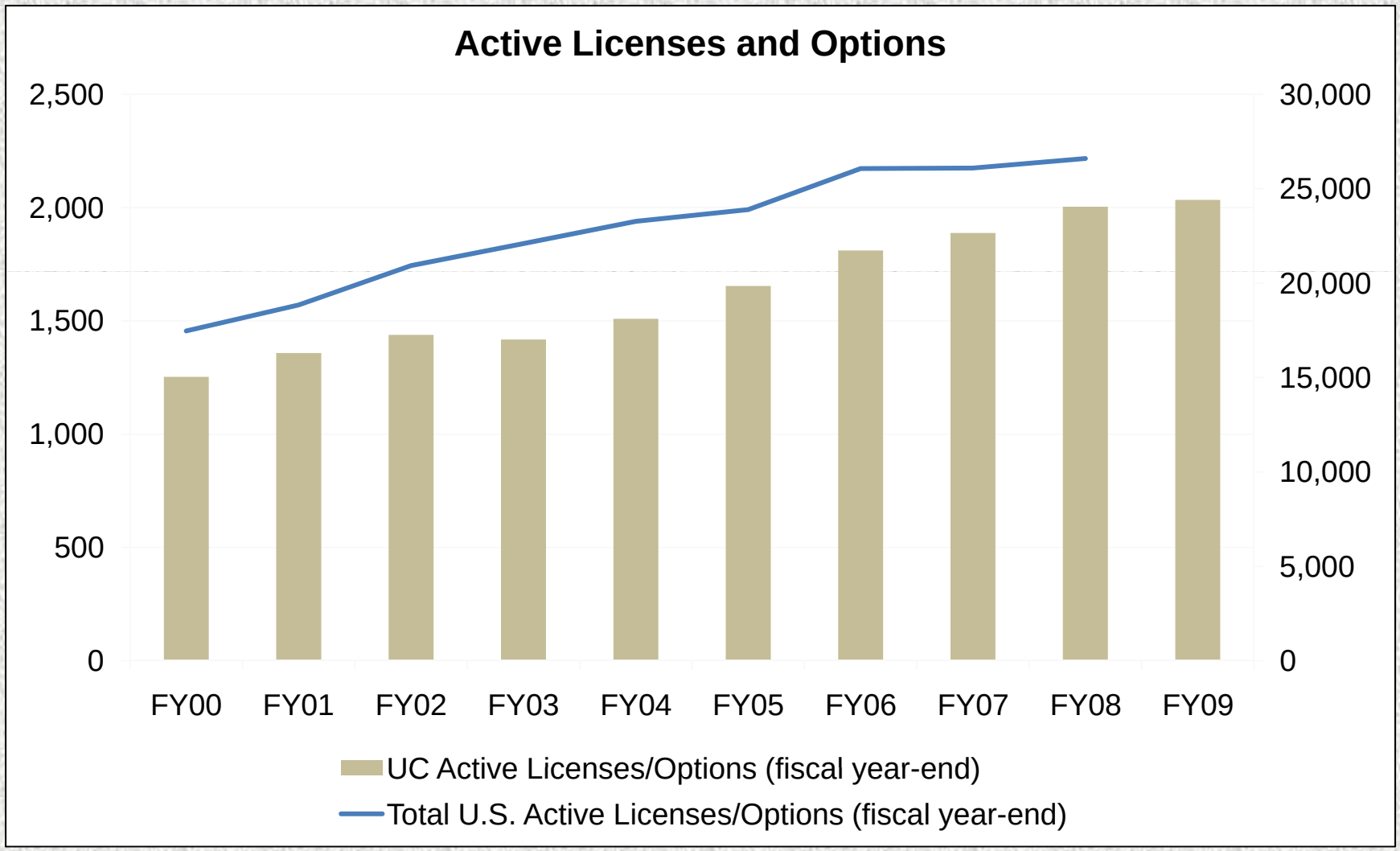



| Criteria | Indicator | Weight |
|---|---|---|
| Quality of Education | Alumni of an institution winning Nobel Prizes and Fields Medals | 10% |
| **Quality of Faculty** | **Staff of an institution winning Nobel Prizes and Fields Medals** | **20%** |
| | **Highly cited researchers in 21 broad subject categories** | **20%** |
| **Research Output** | **Papers published in Nature and Science** | **20%** |
| | **Papers indexed in Science Citation Index-expanded and Social Science Citation Index** | **20%** |
| Per Capita Performance | Per capita academic performance of an institution | 10% |
| Total | | 100% |

# Shanghai Jiao Tong University 2009 Academic Ranking of World Universities

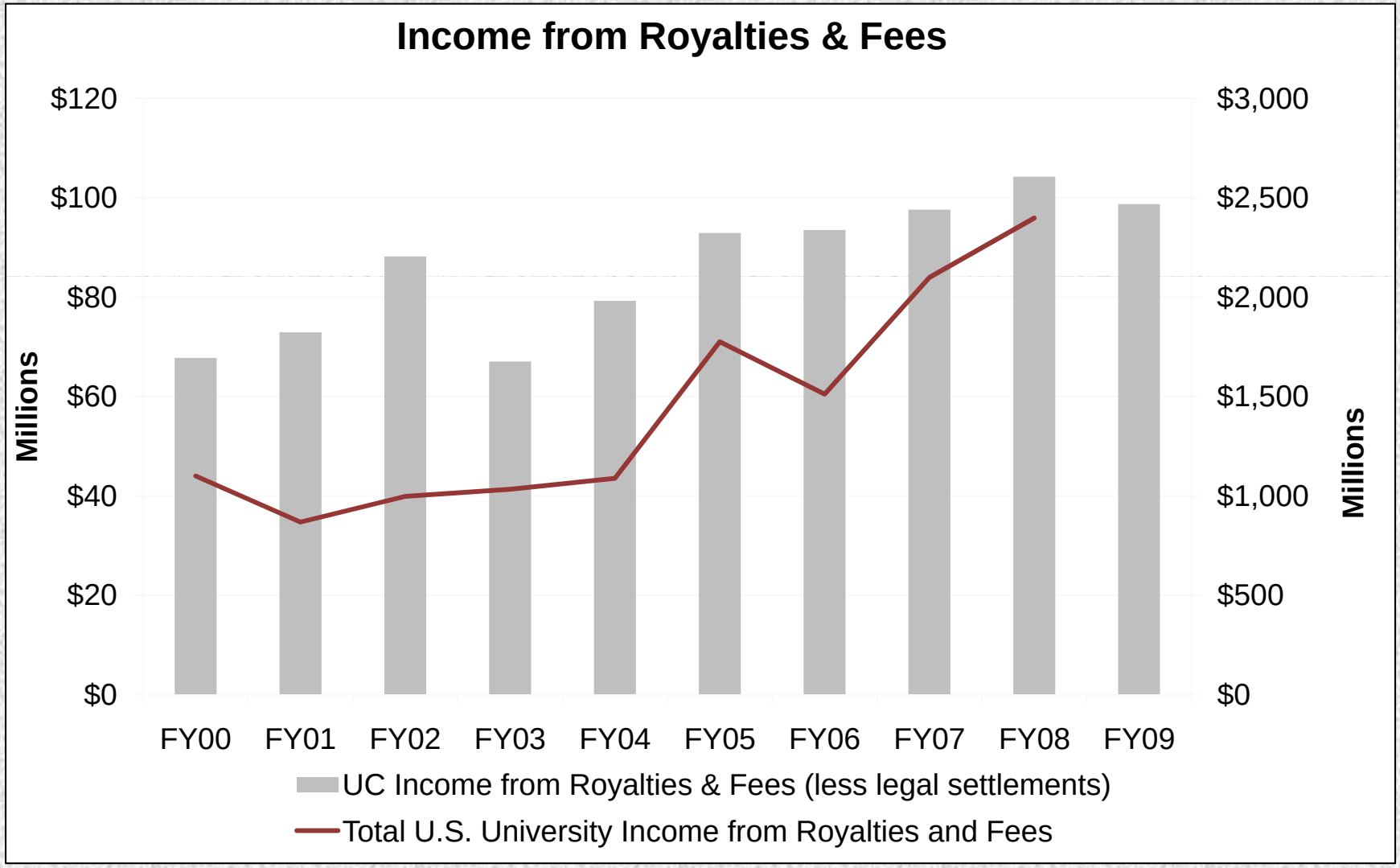
| Institution's World Rank 2004 | | Institution's World Rank 2009 | |
|---|---|---|---|
| 1 | Harvard University | 1 | Harvard University |
| 2 | Stanford University | 2 | Stanford University |
| 3 | University of Cambridge | **3** | **University of California, Berkeley** |
| **4** | **University of California, Berkeley** | 4 | University of Cambridge |
| 5 | Massachusetts Institute of Technology (MIT) | 5 | Massachusetts Institute of Technology (MIT) |
| 6 | California Institute of Technology | 6 | California Institute of Technology |
| 9 | Columbia University | 7 | Columbia University |
| **13** | **University of California, San Diego** | **13** | **University of California, Los Angeles** |
| **16** | **University of California, Los Angeles** | **14** | **University of California, San Diego** |
| **17** | **University of California, San Francisco** | 16 | University of Washington |
| 18 | University of Wisconsin - Madison | 17 | University of Wisconsin - Madison |
| 19 | University of Michigan - Ann Arbor | **18** | **University of California, San Francisco** |
| 20 | University of Washington | 22 | University of Michigan - Ann Arbor |
| 25 | University of Illinois at Urbana-Champaign | 25 | University of Illinois at Urbana-Champaign |
| 33 | University of Minnesota, Twin Cities | 28 | University of Minnesota, Twin Cities |
| **35** | **University of California, Santa Barbara** | **35** | **University of California, Santa Barbara** |
| **42** | **University of California, Davis** | **46** | **University of California, Irvine** |
| **55** | **University of California, Irvine** | **49** | **University of California, Davis** |
| **101-151** | **University of California, Riverside** | **101-151** | **University of California, Riverside** |
| **101-151** | **University of California, Santa Cruz** | **101-151** | **University of California, Santa Cruz** |

# Technology Licenses at UC



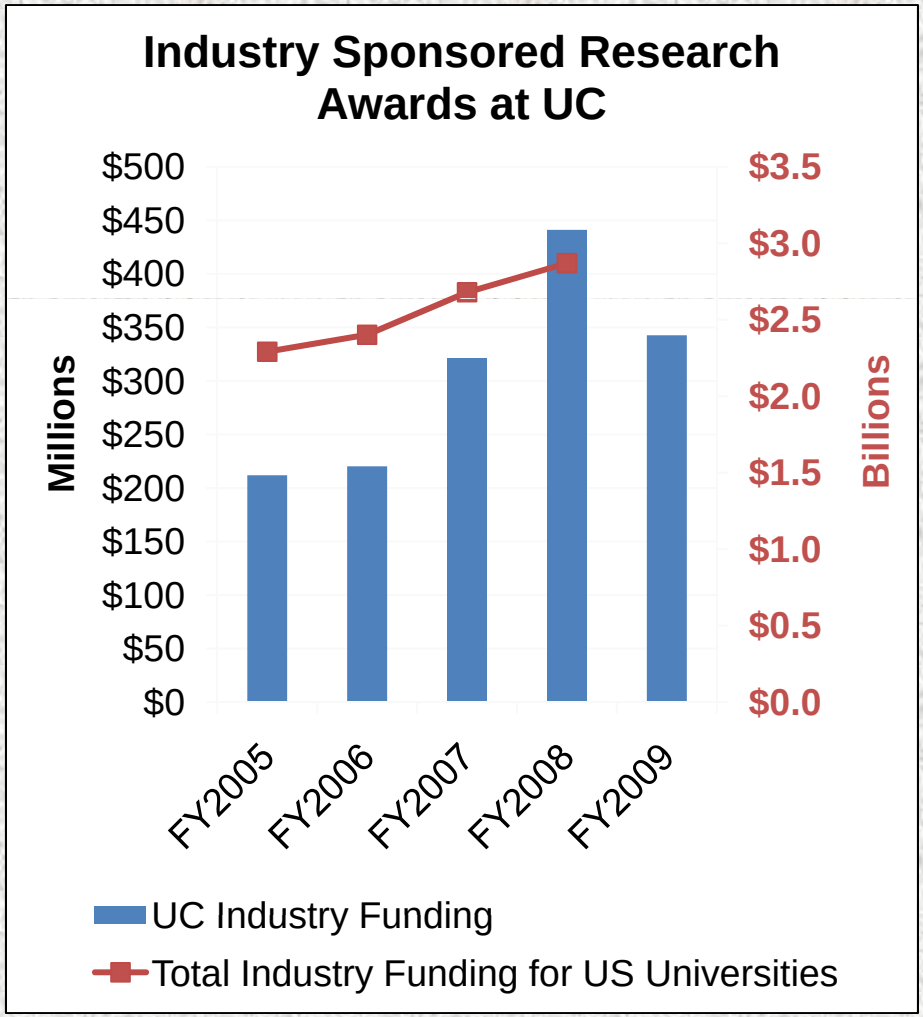

*Source: Innovation Alliances and Services, 2009 Annual Report ; AUTM Annual Survey*

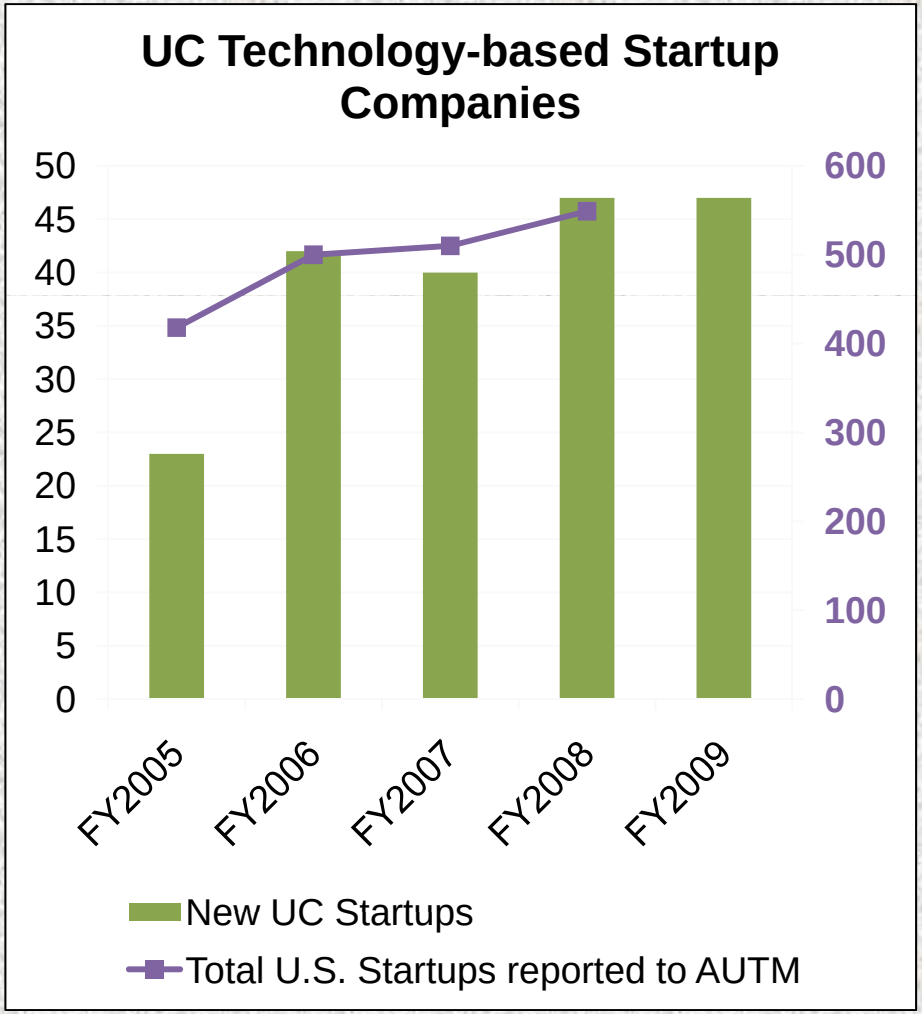
# Technology Licenses at UC




*Source: Innovation Alliances and Services, 2009 Annual Report ; AUTM Annual Survey*

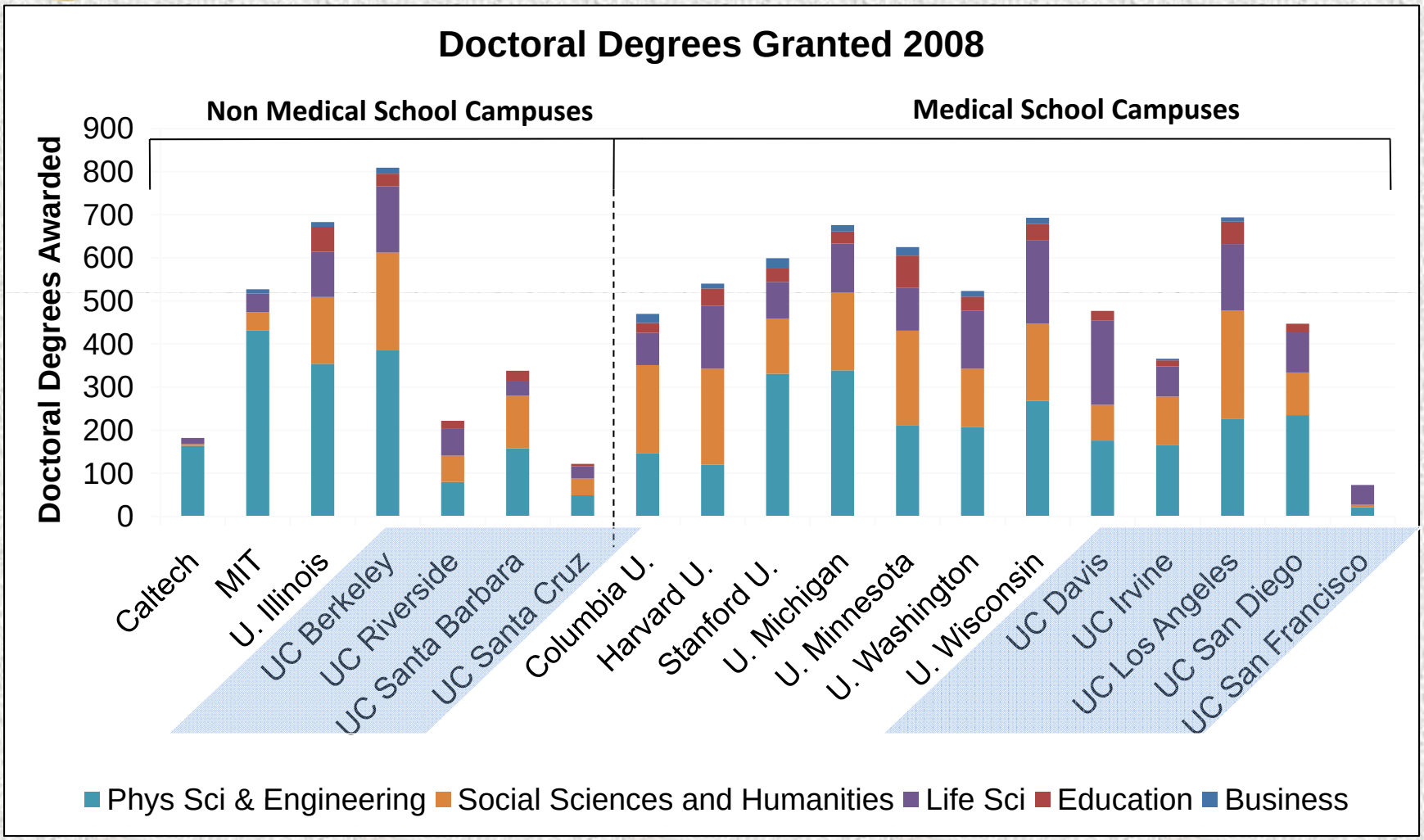
# Research Sponsorship and New Ventures




*Source: NSF R&D Survey; Institutional Research, Industry Sponsors Of Research, FY2005-2009 and Innovation Alliances and Services, 2009 Annual Report*

# Training CA's Innovators




*Source: Institutional Research, Source: IPEDS 2008 Completions Survey. Includes all doctoral degrees except professional practice doctorates (J.D., M.D., etc.)*

# UC Researchers Creating New Sciences – Jay Keasling

- Professor, Department of Chemical Engineering and Bioengineering
- Director, Physical Biosciences Division, LBL and Synthetic Biology Engineering Research Center
- CEO, Joint BioEnergy Institute

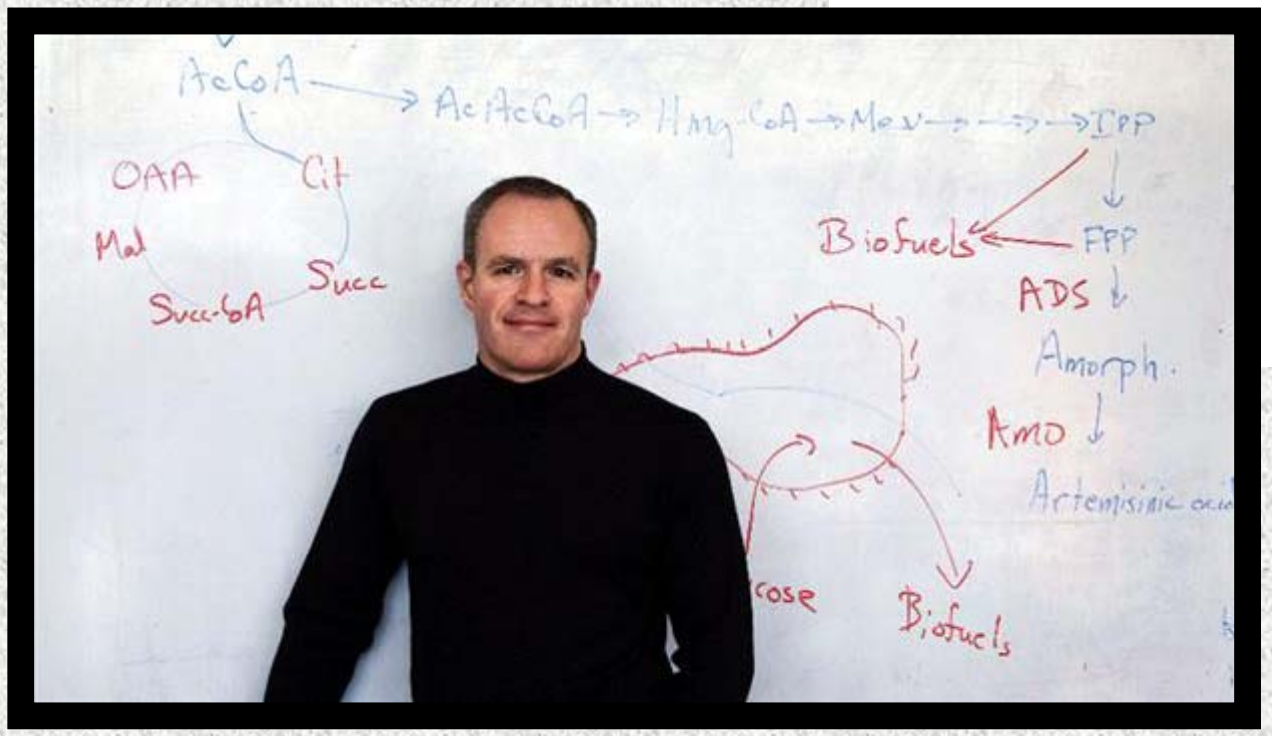
THE NEW YORKER

ANNALS OF SCIENCE

**A LIFE OF ITS OWN**

*Where will synthetic biology lead us?*

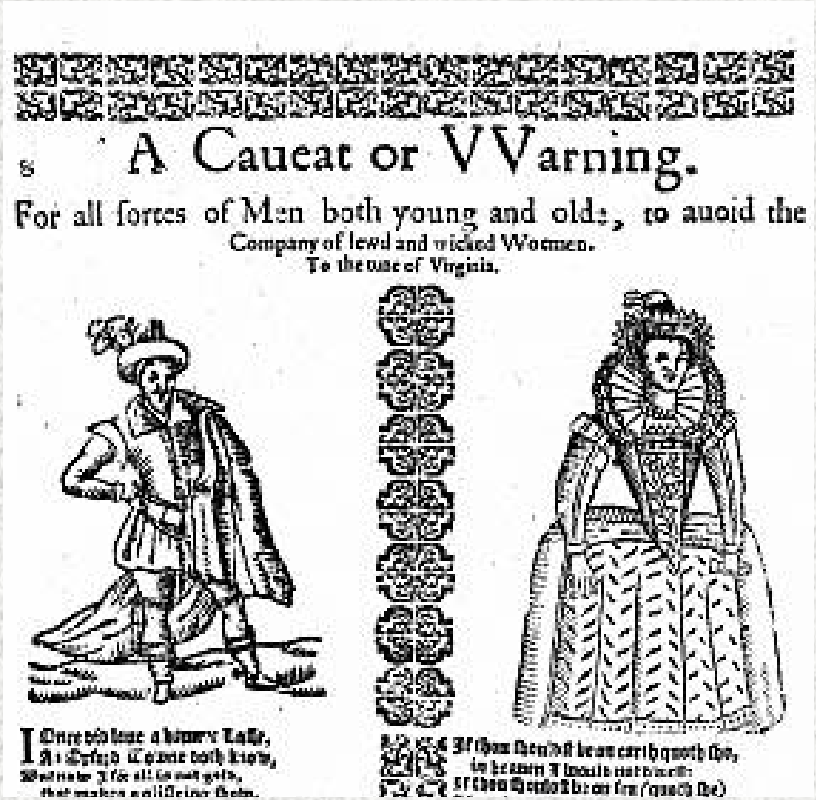
by Michael Specter




"Jay Keasling [is] creating a new discipline, synthetic biology, which—by combining elements of engineering, chemistry, computer science, and molecular biology—seeks to assemble the biological tools necessary to redesign the living world." *–September 28, 2009*

# UC Researchers Using Digital Humanities to Preserve Culture – Patricia Fumerton

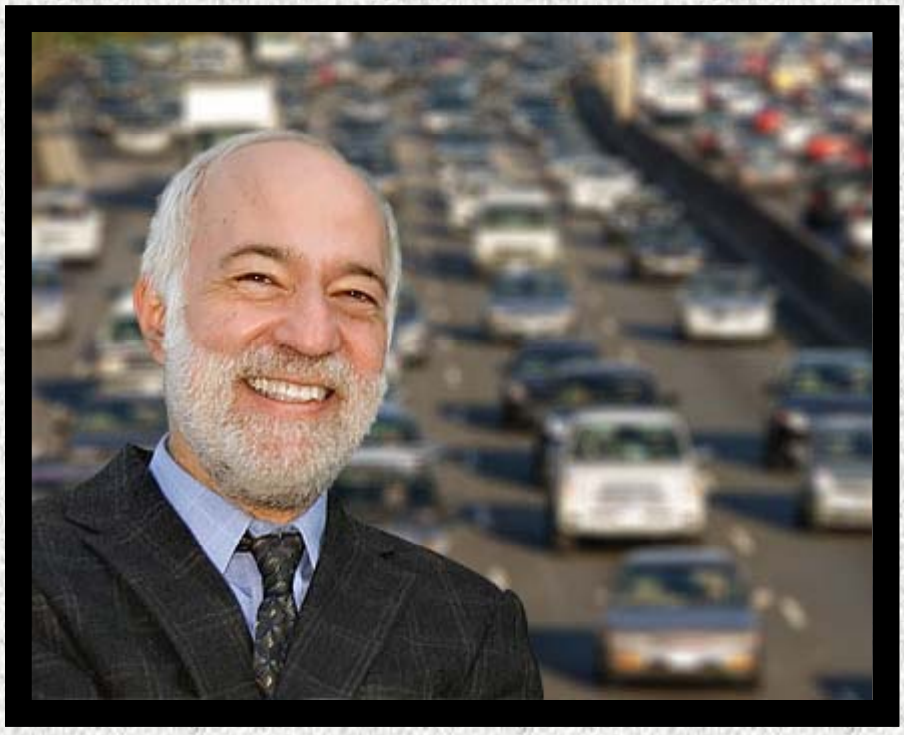
- Professor of English, UC Santa Barbara
- Founding Director, UCSB Early Modern Center and English Broadside Ballad Archive
- National Endowment for the Humanities (NEH) and Guggenheim Fellow
- 2009 Digital Eighteenth Century Prize, British Society for Eighteenth Century Studies

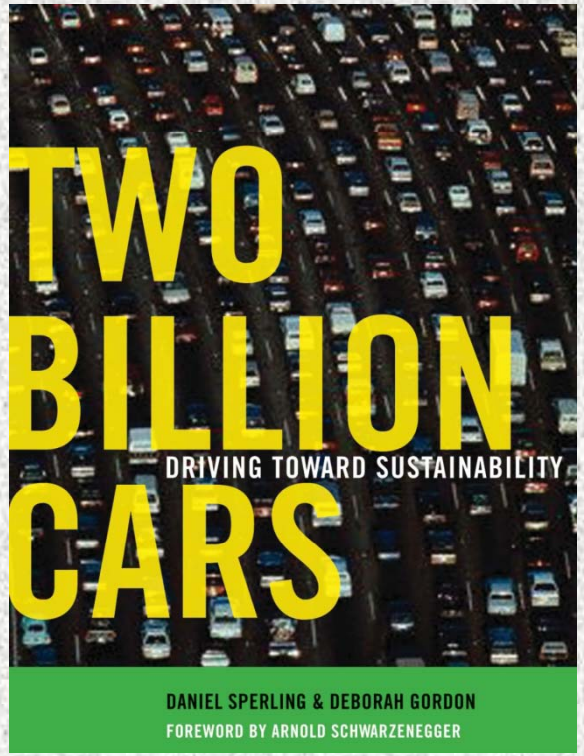



*The English Broadside Ballad Archive is making 17th century broadside ballads accessible as texts, art, music, and cultural records of the period. The ballads document the period when the modern world emerged, a time of social and political transition. This project helps us to understand the revolution in media and information technology in contemporary culture.*

# UC Researchers Influencing National Policy – Daniel Sperling

- Professor of Civil Engineering and Environmental Science and Policy
- Founding Director of the Institute of Transportation Studies at the UC Davis
- Acting Director of the UC Davis Energy Efficiency Center



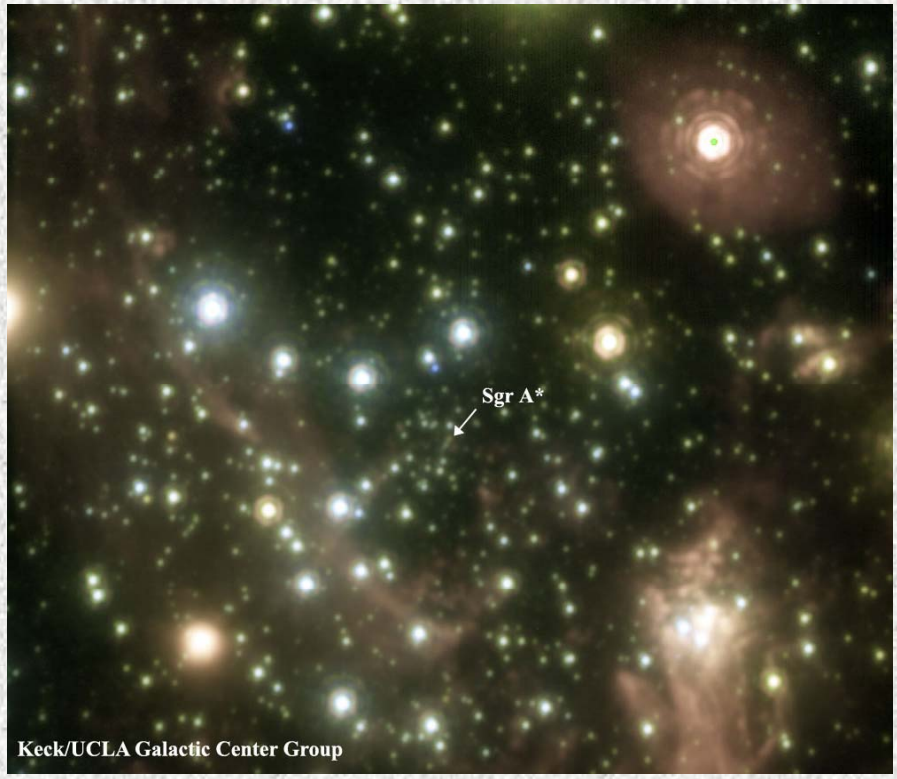



*Dr. Sperling is recognized as a leading international expert on transportation technology assessment, energy and environmental aspects of transportation, and transportation policy.*

# UC Researchers Making Discoveries – Andrea Ghez

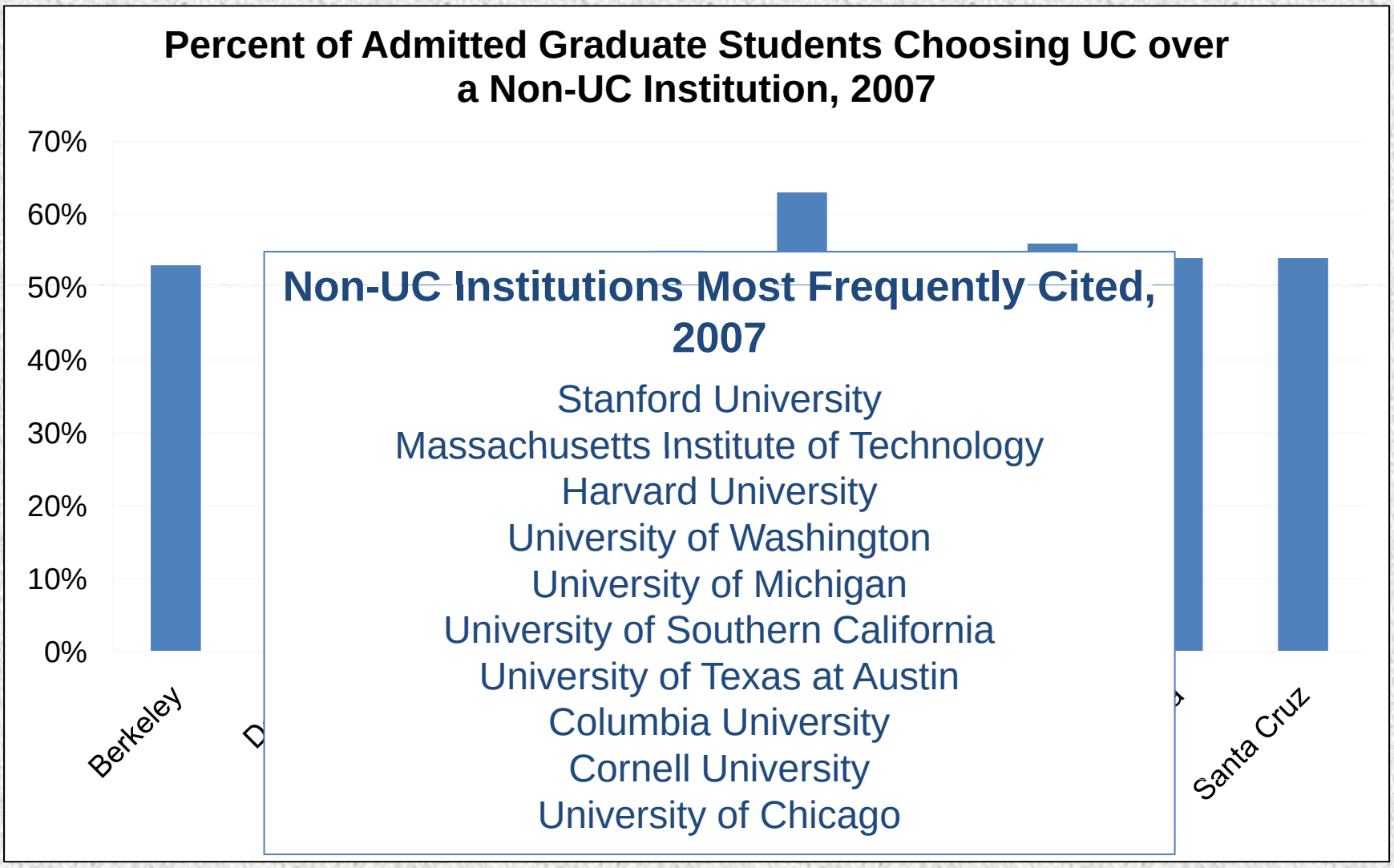
Ghez uses novel, ground-based telescopic techniques to identify thousands of new star systems and illuminate the role of supermassive black holes in the evolution of galaxies.

- Professor of Physics & Astronomy, UCLA
- 2008 MacArthur Fellow
- Member, National Academy of Sciences
- 1996 Packard Fellow
- 1996 Sloan Fellow
- 1994 NSF Young Investigator




# Supplemental Slides

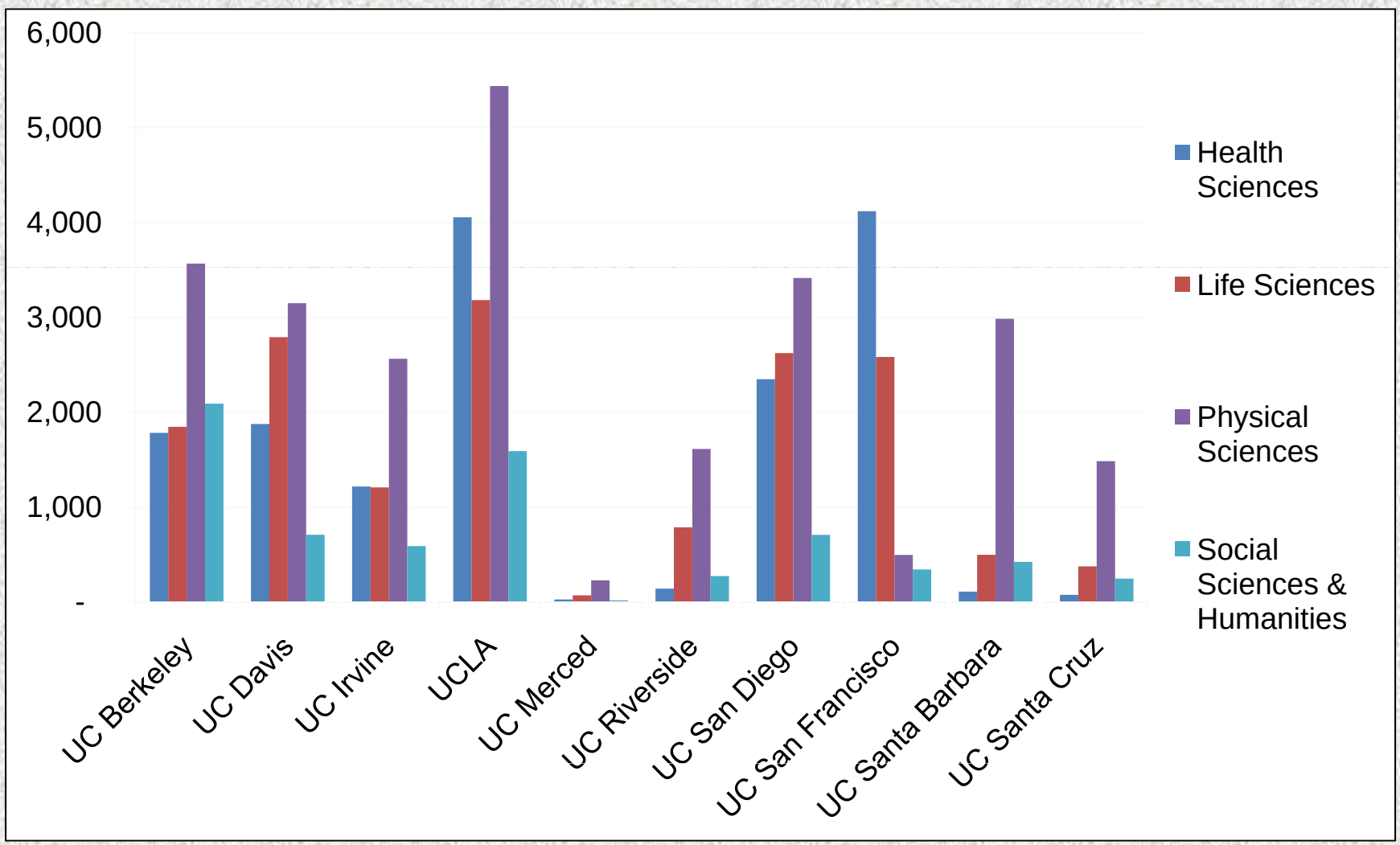
# Graduate Student Recruitment




*Source: Student Affairs, Graduate Student Support Survey; Trends in the Comparability of Graduate Student Stipends 2004 and 2007*

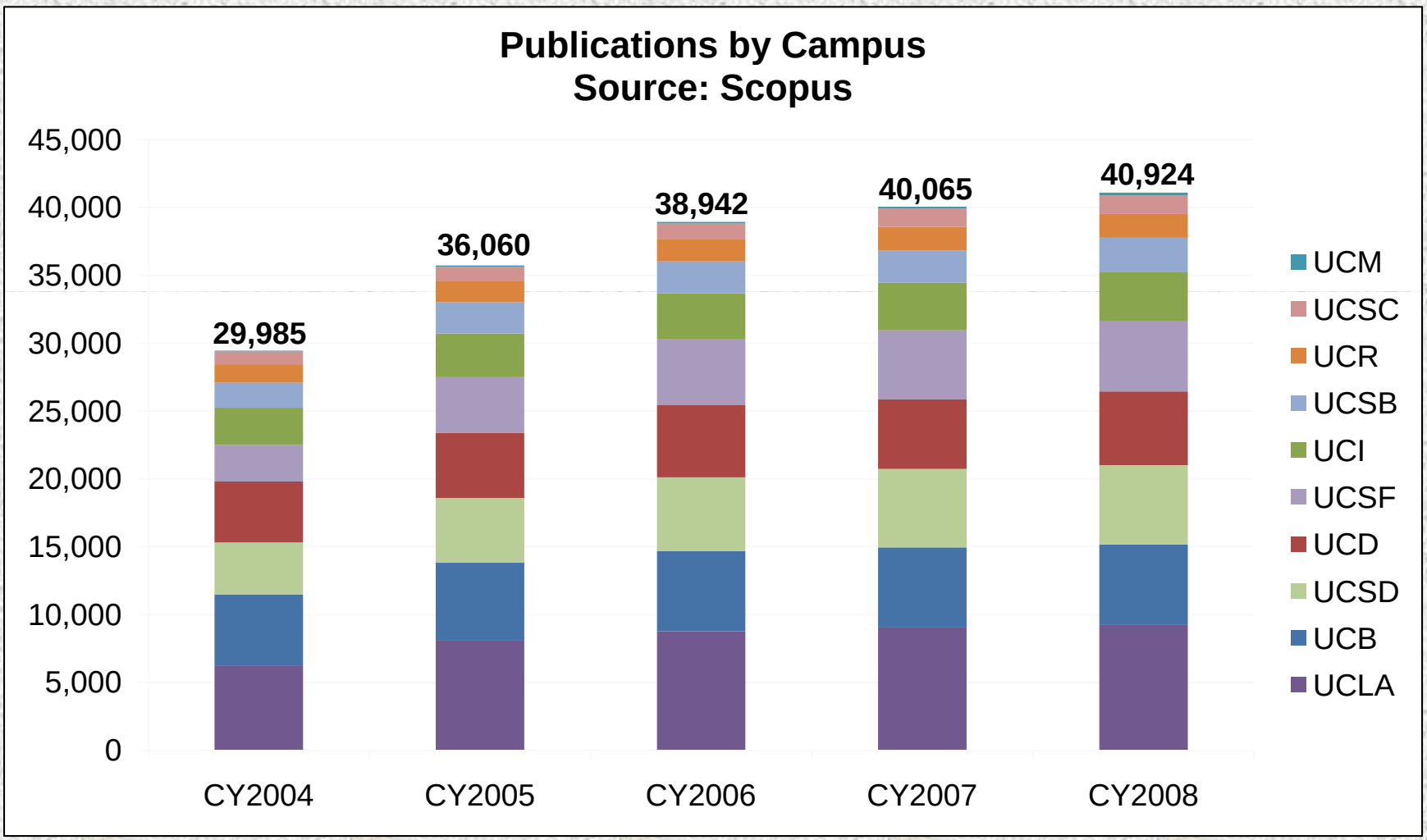
# UC Research Publications

## By Broad Discipline, CY2008




*Source: Scopus: multi-disciplinary abstract and citation database*

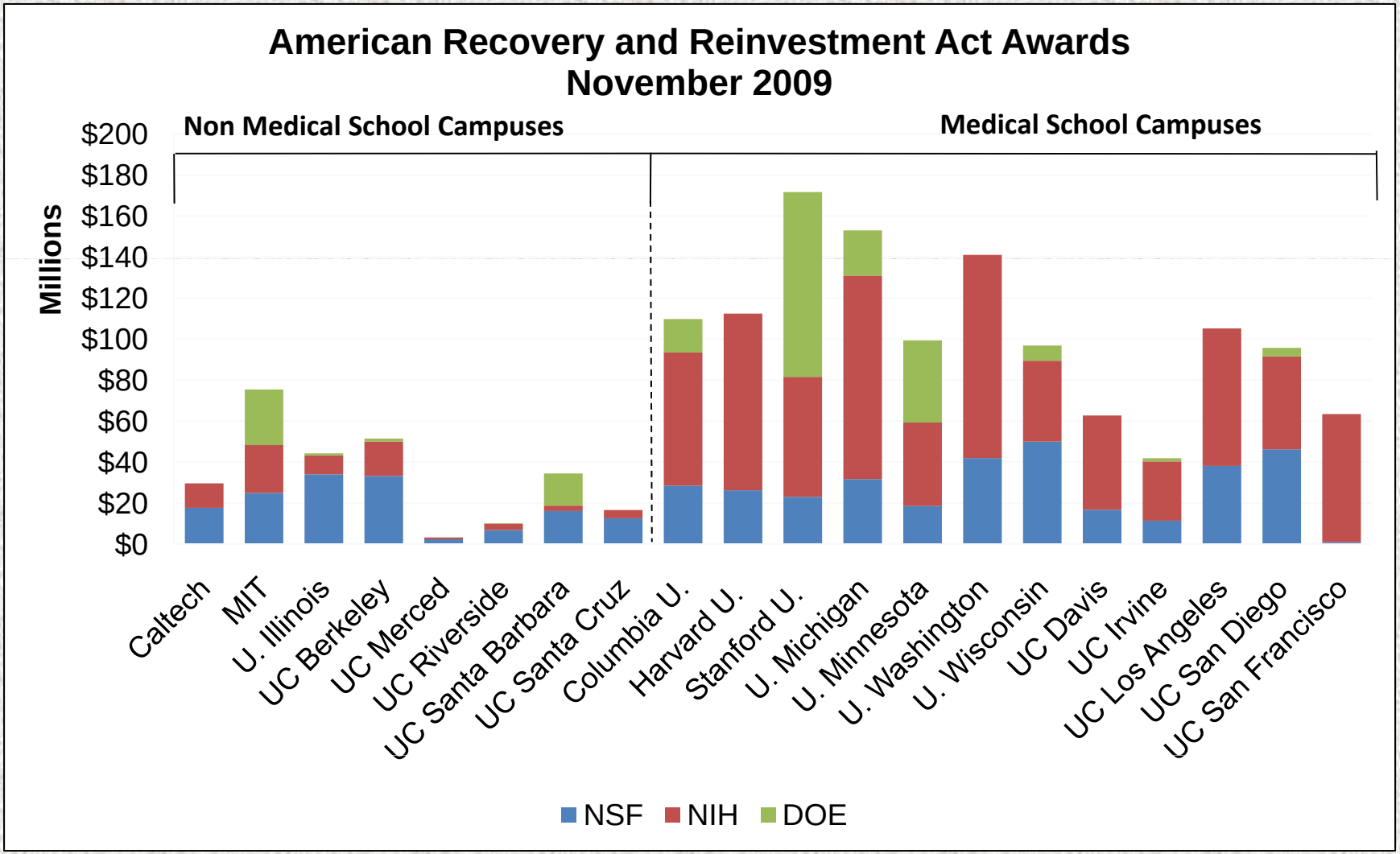
# UC Research Publications




*Source: Scopus: multi-disciplinary abstract and citation database*

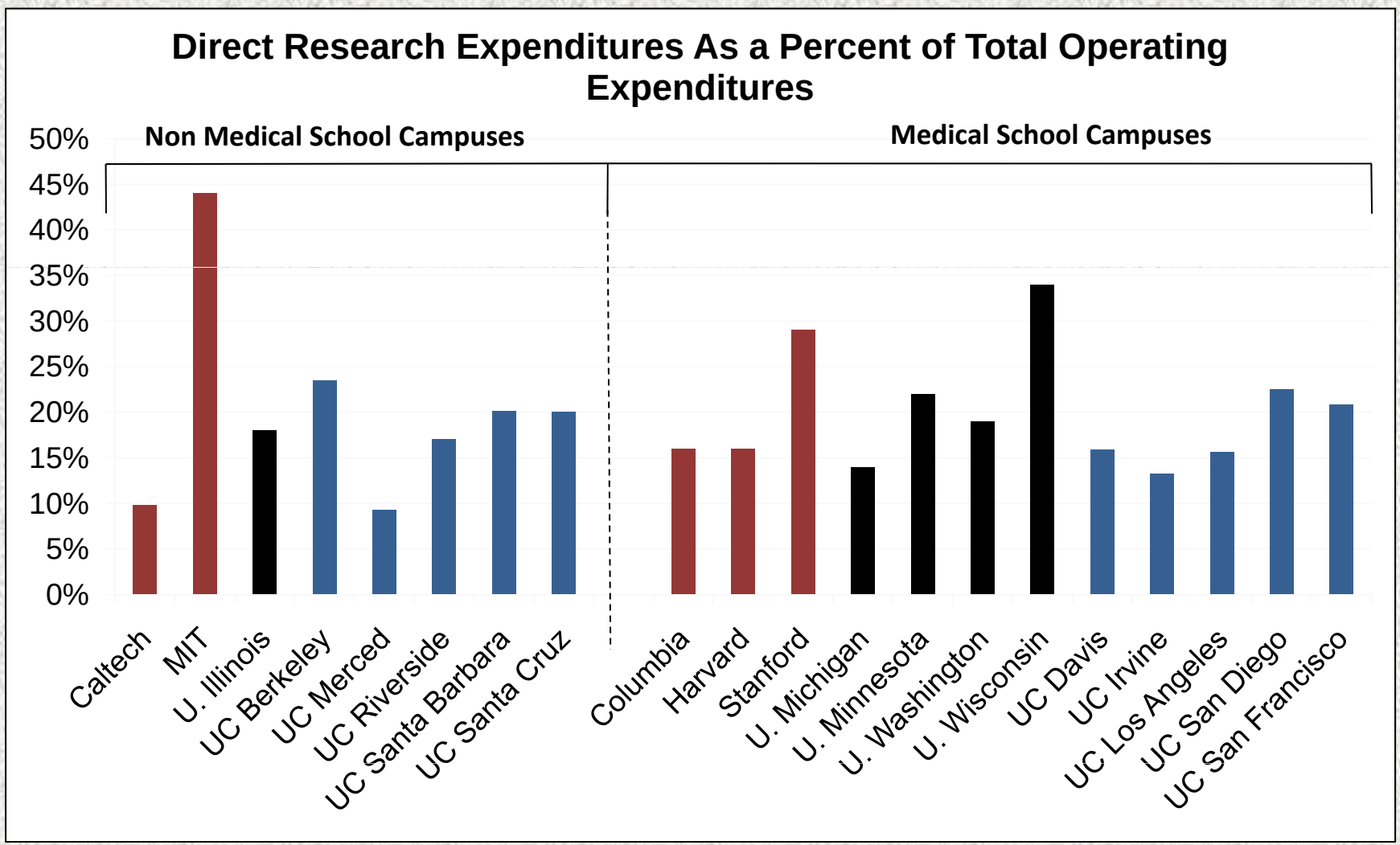
# UC & Comparator Institutions ARRA Awards Captured

November 2009




*Source: Research Policy Analysis and Coordination, Federal Agency-reported data.*

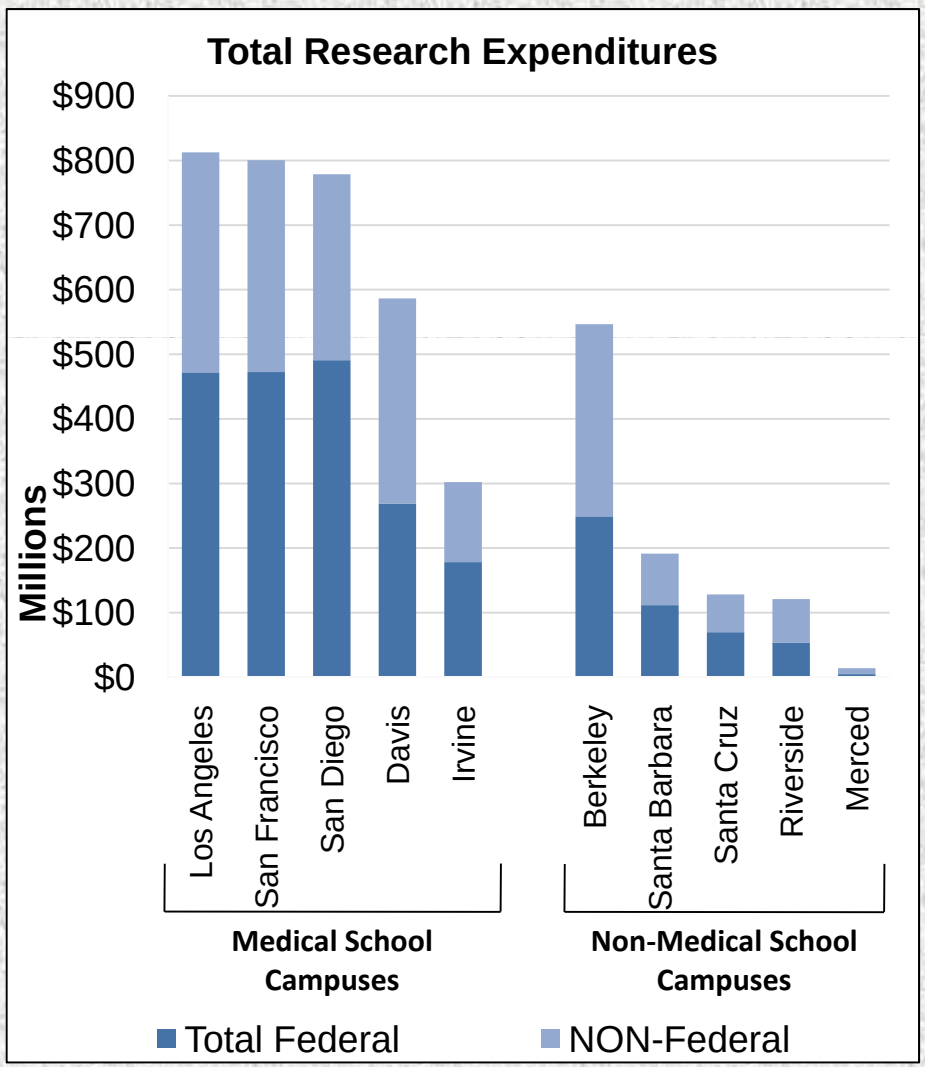
# Research Expenditures

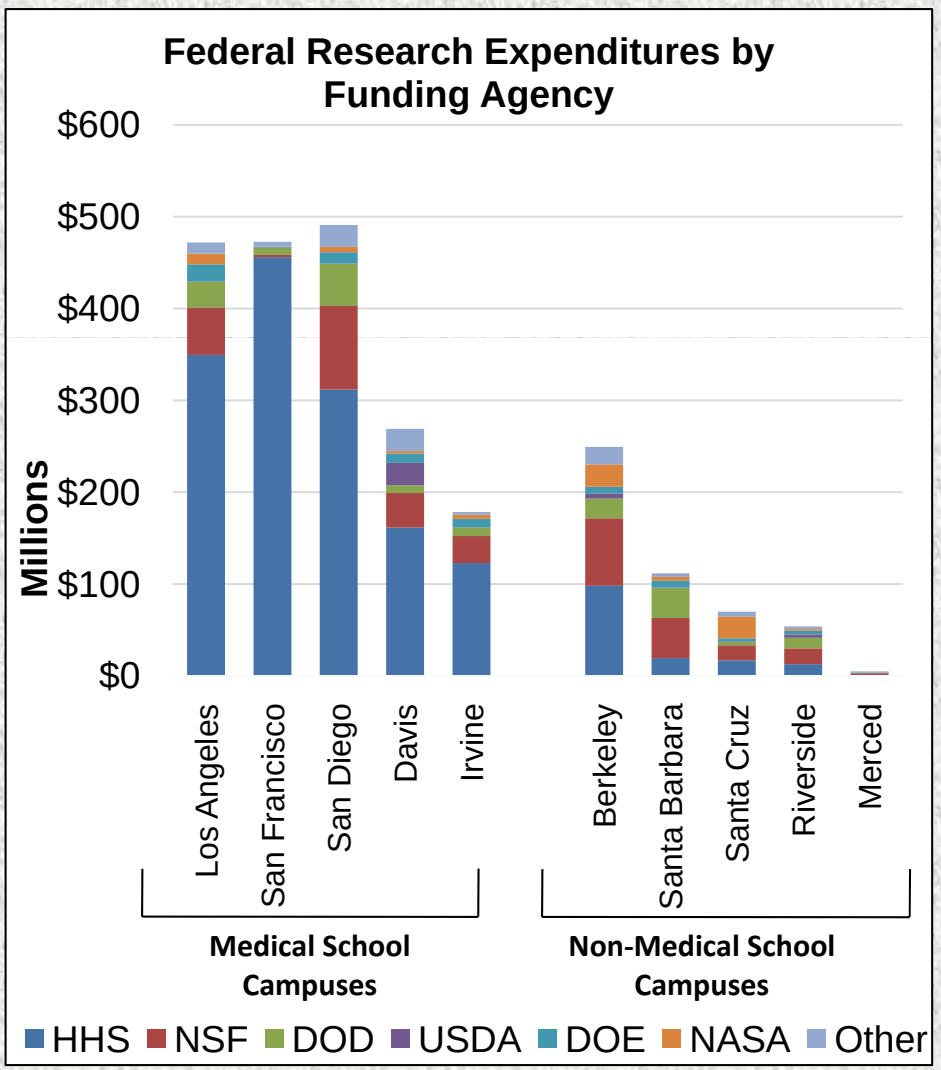



*Source: Institutional Research, NSF R&D Survey*

# UC R&D Expenditures

## FY2007-8




*Source: Institutional Research, Research Expenditures (Direct and Indirect) by Campus*