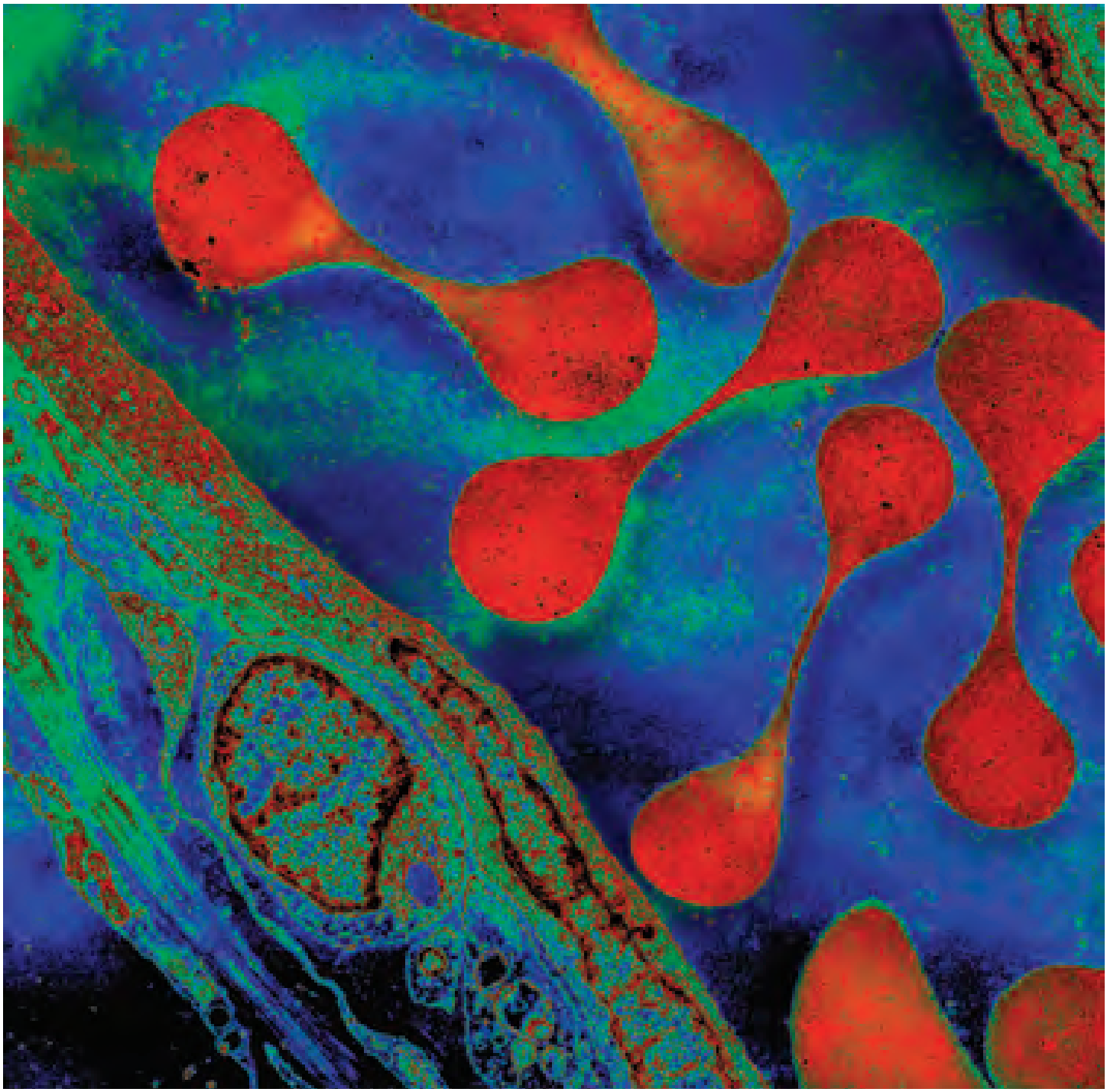
California Biomedical Industry

2013 Report



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Defining the California Biomedical Industry

California's biomedical community exemplifies the state's defining strengths—entrepreneurial spirit and taking risk, academic research producing new inventions and a translational environment supported by investors and a skilled workforce.

Biomedical Industry
in California, 2011

Total revenue*	**$69.2 billion**
Total employment*	**152,806**
Total wages and salaries*	**$15.5 billion**
Average annual biomedical industry wage	**$101,658**
Total biomedical exports	**$20 billion**
Number of biomedical companies	**2,321**

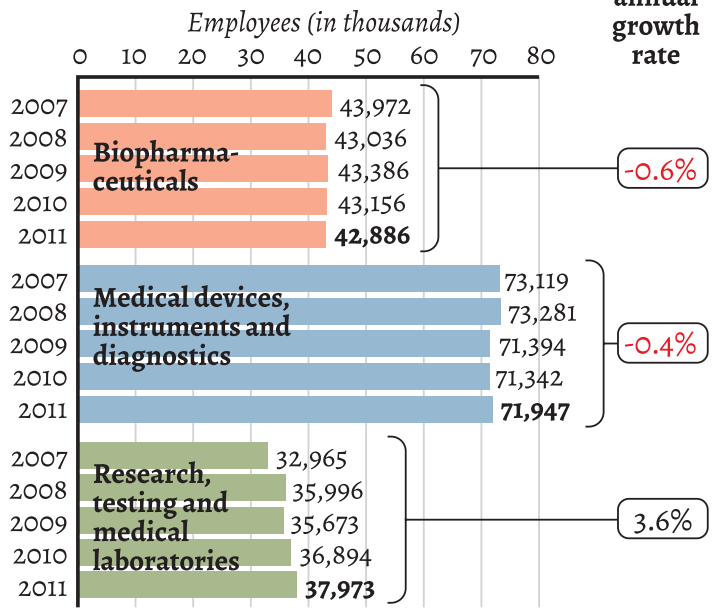
* Estimated

SOURCES: Bureau of Labor Statistics Quarterly Census of Employment and Wages; 2007 Economic Census

A look at employment trends over a five-year period shows that the biomedical industry has been resilient through the Great Recession. Its average annual growth rate is up about half a percent.

In 2011, employment gains in the research development and testing laboratories segments were offset by marginal losses in biopharmaceuticals, medical devices, instruments and diagnostics.

Total Biomedical Employees
in California, 2007-2011

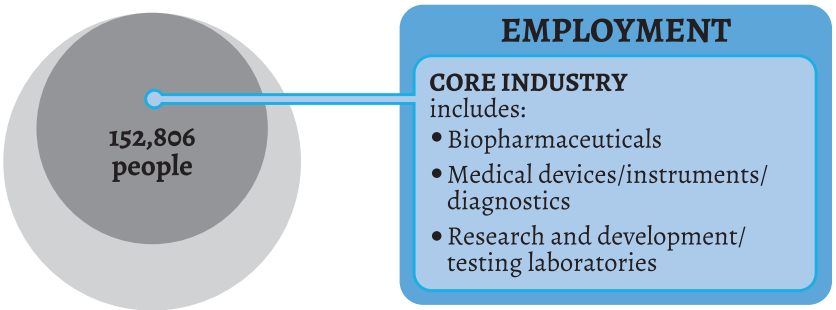


SOURCES: Bureau of Labor Statistics Quarterly Census of Employment and Wages; 2007 Economic Census

Employing Californians

For previous reports, CHI, BayBio and PwC defined the biomedical industry as not only including core sectors such as biopharmaceuticals and medical device manufacturers, but also portions of industries with peripheral contributions to California's biomedical hubs, such as glass container manufacturers, wholesalers, and diagnostic laboratories. Using this broad definition of the industry, total employment in 2011 was 269,997. This year, CHI, BayBio and PwC have moved to refine the definition of the biomedical industry to only include its core sectors. As a result, total employment in the core industry for 2011 is 152,806.

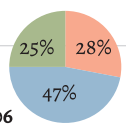
Employment in Core Industry vs. Core + Peripheral Industry



California's Biomedical Industry
TOTAL: 269,997

Total Biomedical Core Employment by Sector
in California, 2011

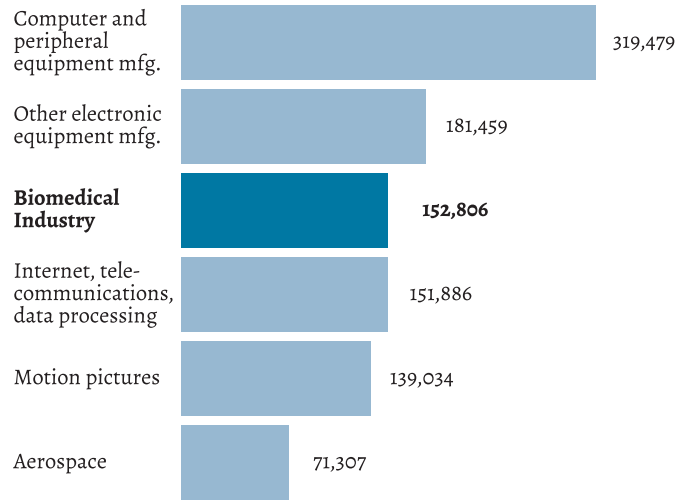
		Mass.	Minn.	N.J.	United States *(all)*
Biopharmaceuticals	42,886	8,537	3,578	30,032	269,865
Medical devices, instruments and diagnostics	71,947	22,953	29,443	15,279	409,585
Research, testing and medical laboratories	37,973	34,150	1,622	15,078	242,452
TOTAL	**152,806**	**65,640**	**34,643**	**60,389**	**921,902**



SOURCES: Bureau of Labor Statistics Quarterly Census of Employment and Wages; 2007 Economic Census

California's core biomedical industry, made up of occupations including biomedical engineers, biophysicists, chemists, technicians, microbiologists, laboratory directors, quality assurance personnel and regulatory affairs staff – along with a peripheral industry employing everyone from wholesale sales and distribution professionals, contract researchers and others – contribute to a life sciences ecosystem that has produced the kind of innovation other states and countries throughout the world view as a model. These high-value jobs in the core biomedical industry, with average salaries of $101,658, are dependent on biomedical clusters or innovation hubs that rely on intellectual capital coming out of universities and academic centers and investors willing to support breakthrough ideas.

Biomedical Employment vs. Other Key Sectors
in California, 2011



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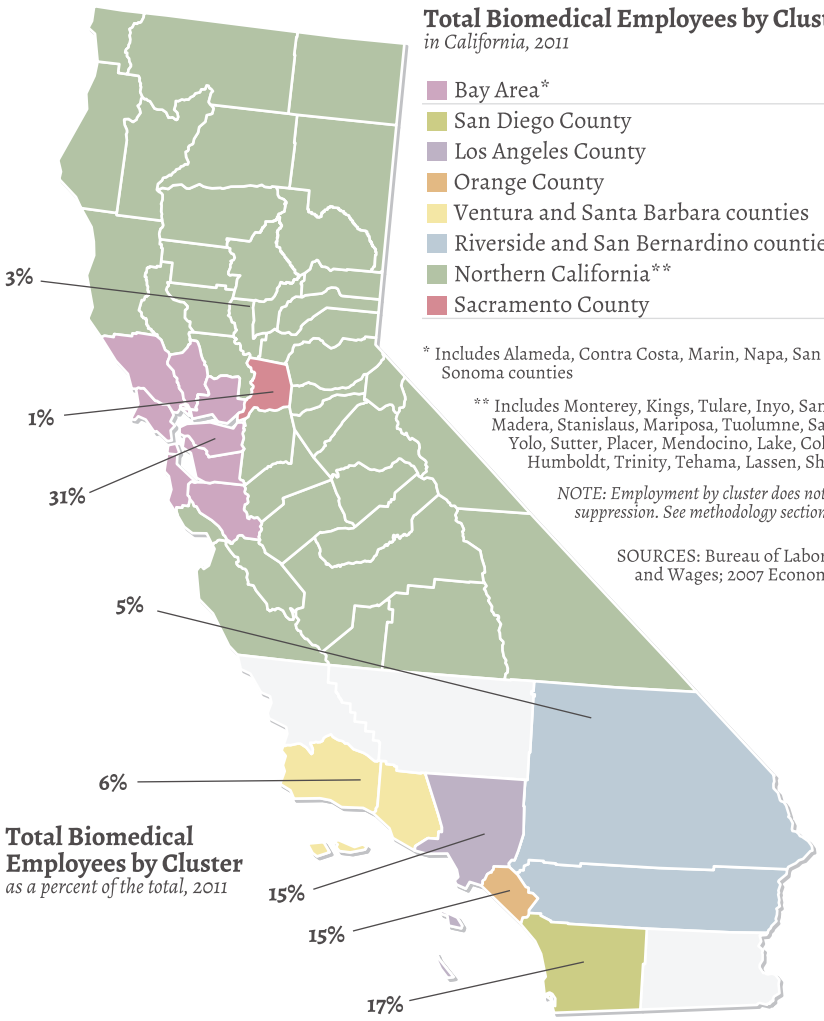


Total Biomedical Employees by Cluster
as a percent of the total, 2011

Total Biomedical Employees by Cluster
in California, 2011

	2011
Bay Area*	47,019
San Diego County	25,883
Los Angeles County	23,054
Orange County	23,004
Ventura and Santa Barbara counties	9,047
Riverside and San Bernardino counties	7,354
Northern California**	4,288
Sacramento County	1,979

* Includes Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma counties

** Includes Monterey, Kings, Tulare, Inyo, San Benito, Fresno, Mono, Santa Cruz, Merced, Madera, Stanislaus, Mariposa, Tuolumne, San Joaquin, Calaveras, Alpine, Amador, El Dorado, Yolo, Sutter, Placer, Mendocino, Lake, Colusa, Yuba, Nevada, Sierra, Glenn, Butte, Plumas, Humboldt, Trinity, Tehama, Lassen, Shasta, Del Norte, Siskiyou and Modoc Counties

NOTE: Employment by cluster does not sum to state total due to excluded counties and data suppression. See methodology section for more information.

SOURCES: Bureau of Labor Statistics Quarterly Census of Employment and Wages; 2007 Economic Census

In 2011, the biomedical industry altogether employed 269,997 Californians, with a core industry of 152,806 employees.

Investing in the industry

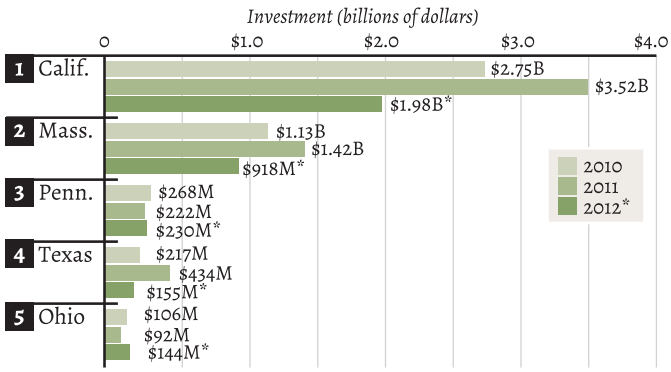
Biomedical innovation is dependent on venture capital to support the research and development of new ideas. Since the average novel drug takes $1.9 billion ($146 million a year) and 13 years to reach the market, biomedical investors must be willing to accept a high degree of risk in return for potentially high rewards.

Biomedical companies demand a highly skilled workforce, specialized equipment and controlled work environments – all expenses that come in addition to the high cost of clinical trials, once a company reaches the stage of human testing.

California leads the country in total life sciences investment. For the first three quarters of the year, California attracted $1.98 billion, which is more than the combined total of the next eight states (Mass., Penn., Texas, Ohio, Wash., N.J., Minn. and Ill.) Of that total, $1.18 billion went into biotechnology, and the remaining $799 million went into medical devices.

Top 5 States for Life Sciences Venture Capital Investment

*2010-2012**



*Data for 2012 represents the first 3 quarters

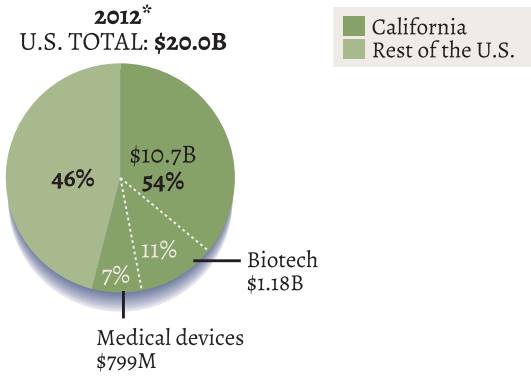
SOURCE: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report based on data from Thomson Reuters

The percentage of early- and seed-stage biotech deals in the U.S. steadily declined from 65 percent to 58 percent from 2010 to 2012. In California, however, the percentage of early- and seed-stage deals increased from 60 percent to 63 percent.

More of California's biomedical companies are pursuing foundation funding, corporate partnering, corporate venture and angel investors than in years past.

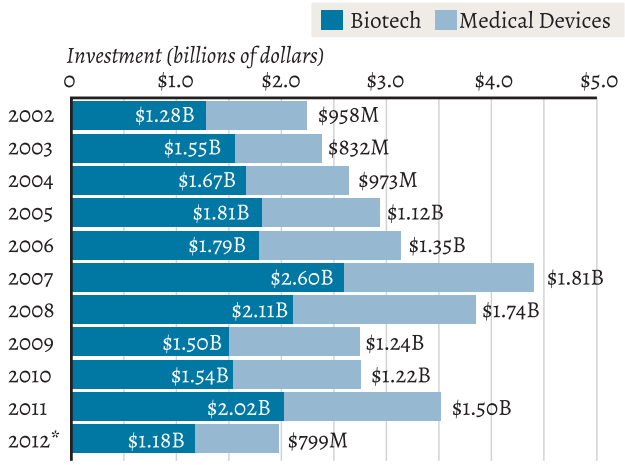
All Venture Capital Investments

*California and U.S., 2012**



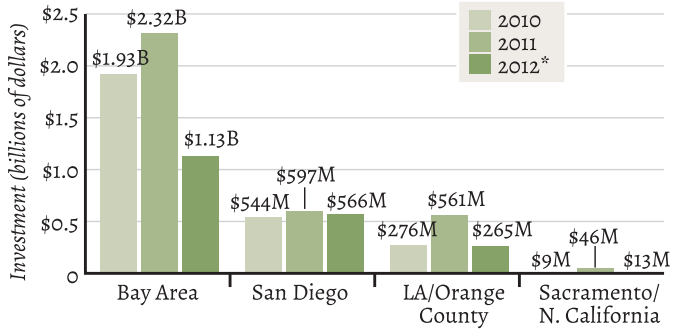
California Life Sciences Venture Capital Investment

*by major sector, 2002-2012**



California Life Sciences Venture Capital Investment

*by region, 2010-2012**



*Data for 2012 represents the first 3 quarters

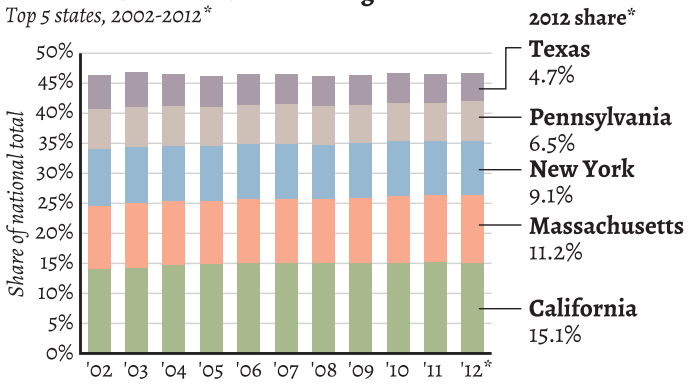
SOURCE: PricewaterhouseCoopers/National Venture Capital Association MoneyTree™ Report based on data from Thomson Reuters

View details and additional information at www.CaliforniaBiomedReport.com

Funding Basic Research

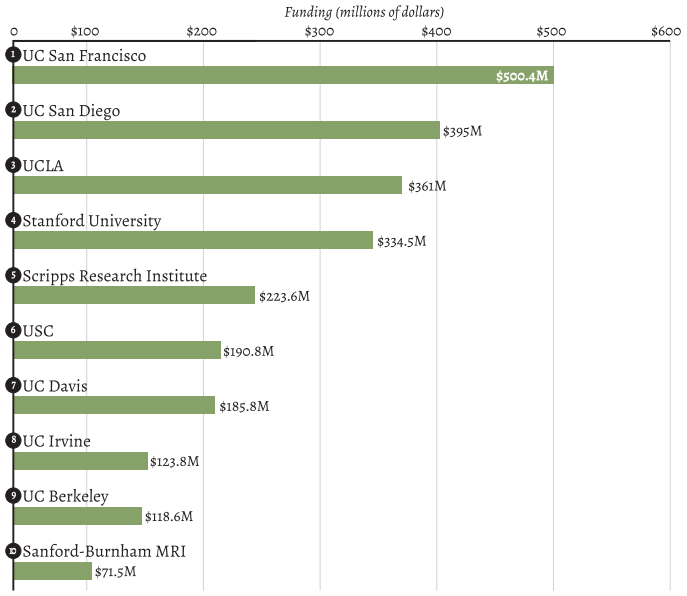
NIH funded research is the foundation of California's life sciences industry. California's biomedical research centers lead the nation in NIH grant funding and commercial licensing agreements, and for decades its scientists have engineered life-saving therapies, diagnostic tools, drug delivery systems, and medical devices. In total, the state is home to more than 100 academic research institutions, which, fueled by NIH and other federal research funding, pursue groundbreaking research that expands the world's scientific knowledge, spearheads tomorrow's disease treatments, and plants the seeds of company formation and job creation. NIH grants fund the research upon which the biomedical industry is built.

Share of National NIH Funding
*Top 5 states, 2002-2012**



Note: Data excludes R&D contracts and projects funded through the American Recovery and Reinvestment Act
*Updated through October 15, 2012
SOURCE: National Institutes of Health

Top 10 California Organizations Receiving NIH Funding
2012*

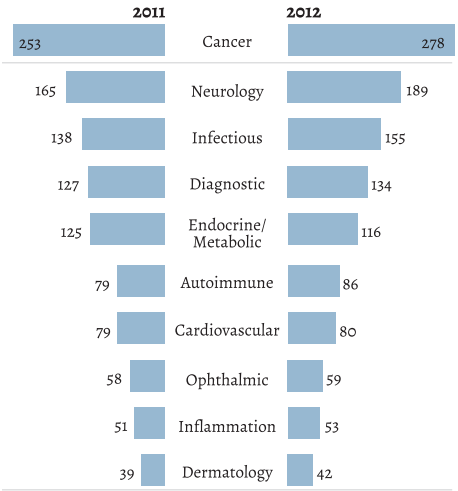


Note: Data excludes R&D contracts and projects funded through the American Recovery and Reinvestment Act
*Updated through October 15, 2012
SOURCE: National Institutes of Health

The top 10 California universities and private research institutions received more than $2.5 billion in NIH funding through mid-October 2012. Altogether, NIH grants awarded to California organizations totaled more than $3.33 billion, on par with 2011 award levels. Nationally, California received the most SBIR and STTR NIH funding in 2012, more than $1.27 million, which is 60 percent more than the No. 2 state, Massachusetts, and 215 percent more than the No. 3 state, New York.

Developing New Products

Top 10 California Products by Disease Area of Focus
all phases of development, 2011 vs.2012



SOURCES: BioCentury Online Intelligence (BCIQ)

Biotechnology, medical device and pharmaceutical companies lead the translation of breakthrough science into new medical products and treatments that improve health care of patients across the world.

From discovery to market, California has more than 1,400 biomedical products in the development pipeline.

In 2012, California companies were responsible for nine of the FDA's 39 approved new molecular entities (NME), or almost a quarter of all novel medicines. As of Nov. 17, California accounted for 63 approved drugs and diagnostics, 208 marketed products and 28 in registration. Total product sales were $35 billion in 2011. Revenues totaled $69.2 billion.

In the 21st century, the life sciences industry is converging with other high-tech industries — Internet, nanotechnology, wireless and social networking. As these industries make important advances, such as the miniaturization of sensors, the life sciences industry is cross-pollinated and therefore able to discover and develop products that integrate technologies from different fields, like ingestible sensors to monitor drug response.

Methodology

The most recent full year for which wage and employment data were available for the publication of this report was 2011. Quarterly Census of Employment and Wages (QCEW) employment and wage data are identified for selected North American Industry Classification System (NAICS codes) used to define the biomedical industry. For NAICS codes where less than 100% of the employment and wages are used, the total employment and wages reported in the QCEW are then multiplied by the portion of the industry taken into account. This portion was derived by PwC from 2007 Economic Census data separately for each state considered in this analysis.

To protect the confidentiality of individual firms, QCEW data are suppressed if there are too few firms in a given industry in a given geographical area or if data could be used to derive sensitive information. For employment and wage statistics by cluster, PwC attempted to minimize the suppression issue by relying on state level industry employment and reported employment totals by county at the 4-digit and 3-digit NAICS code levels.

About California Healthcare Institute

CHI is a non-profit public policy research organization for California's biomedical R&D industry. CHI represents leading biotechnology, diagnostics, medical device and pharmaceutical companies and public and private academic biomedical research organizations. CHI's mission is to advance responsible public policies that foster medical innovation and promote scientific discovery. For more information visit:www.chi.org

About PwC

PwC's Pharmaceutical and Life Sciences Industry Group is dedicated to delivering effective solutions to the complex strategic, operational and compliance challenges facing pharmaceutical, biotechnology and medical device companies. We provide industry focused assurance, tax and advisory services to build public trust and enhance value for our clients and their stakeholders. More than 180,000 people in 158 countries across our network of firms share their thinking, experience and solutions to develop fresh perspectives and practical advice. For more information visit:www.pwc.com/us/pharma and www.pwc.com/us/medtech.

About BayBio

BayBio brings together the collective strength and experience of the world's most innovative and productive life science cluster, helping companies grow, connect and advocate to solve some of humanity's most pressing challenges. BayBio provides comprehensive support and solutions tailored to the unique needs of nearly 1000 Bay Area life science companies and institutions, delivering tangible value through group purchasing savings, capital access, government affairs & advocacy, networking and best-practice sharing. BayBio also supports the future of bioscience innovation through the BayBio Institute's work in science education, career development and entrepreneurship. For more information visit:www.baybio.org

View details and additional information at www.CaliforniaBiomedReport.com

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