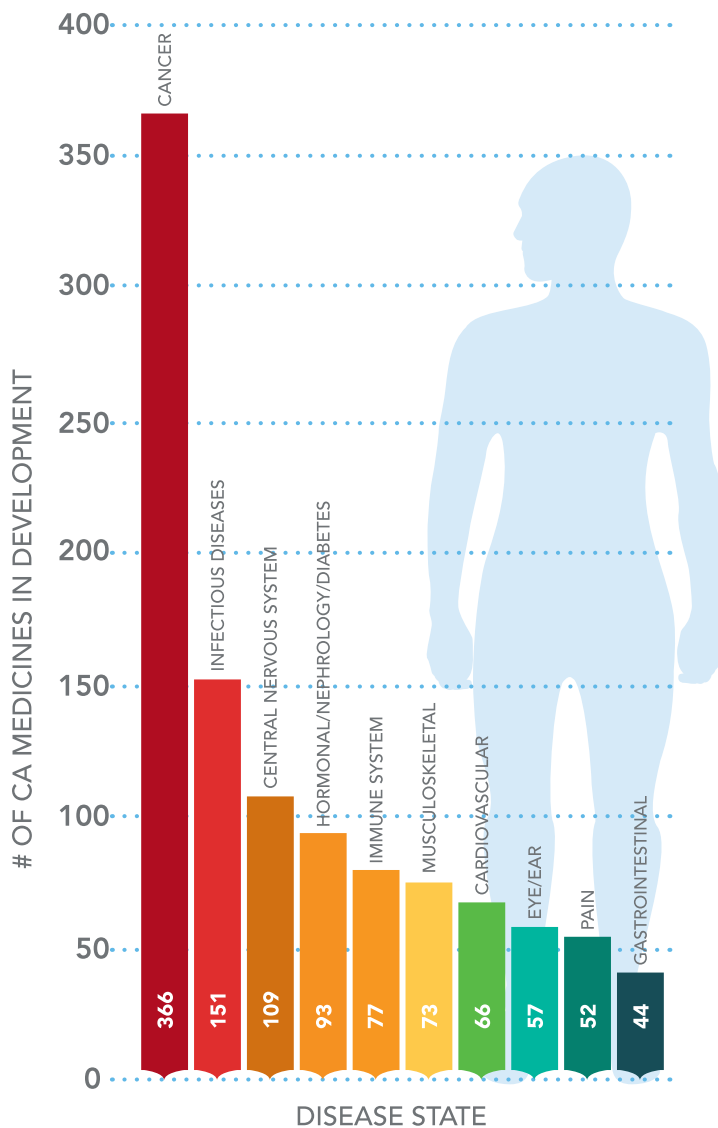


## California Biotech Company Investments in Research and Development Drive Medical Innovation

**California is the proud birthplace of biotechnology** and is home to the largest life sciences cluster in the nation. California’s biotech companies are leading the investments needed to develop the next wave of precision medicine that will revolutionize health care throughout the world. California is home to over 2,800 biotechnology companies that generate \$258 billion in revenue and provide jobs to more than 300,000 Californians.



**Treatments and cures for diseases that were once considered a death sentence come at a significant investment.**



In 2014, California biotech companies invested \$11.5 billion on research and development of new medicines. That’s in addition to the \$38 billion that companies invest in employee wages and salaries and state and federal taxes.



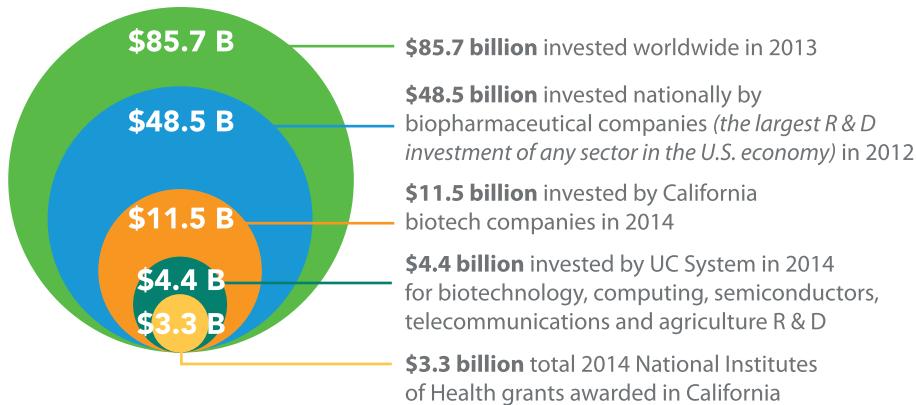
This is four times greater than the R & D investments made by the University of California system, a valued member of California’s life science industry, which collectively invested more than \$4.4 billion of grant funding and other sources in 2014. Funded by a combination of federal and private dollars, and grants from California’s life science companies, UC research in nanotechnology, neuroscience, genomics and medicine is helping drive the next wave of health care advances.

Sources: California Healthcare Institute. California Biomedical Industry Report 2015; California Life Sciences Association: 2016 California Life Sciences Industry Report.

**While companies are working** to reduce the time and investment it takes to advance one potential new medicine from a research concept to an FDA-approved treatment, it can cost **\$2.6 billion** and **95 percent of candidates entering clinical trials will eventually fail**. Additionally, more than **90 percent of biotech companies in the U.S. do not earn a profit**.

If biotech companies were to reduce research and development investments, the price of drugs could be potentially reduced. But in doing so, hundreds of life-saving therapies would never come to market. Cures for many devastating diseases would be left on the drawing board, never reaching patients who could benefit from the treatment.

### Research and Development: By the Numbers



	BILLIONS
Novartis	9.9
Roche	9.2
Pfizer	8.6
Johnson & Johnson	8.5
AstraZeneca	4.9
Bristol Meyer Squibb	4.5
University of California	4.4
Amgen	4.3
Illumina	3.9
Takeda	3.8
Eli Lilly	3.7
National Institutes of Health	3.3
AbbVie	3.3
Boehringer Ingelheim	3.0
Gilead	2.6
Celgene	2.4
Bayer	2.5

Source: 2014 Company Annual Reports and/or Securities and Exchange Commission filings

### Life-saving Discoveries Will Only Exist With Public Policy Support



**To keep and strengthen California's position** as a world leader in the advancement of life-saving medical treatments, investment capital is needed for biotech research and public policies that support the industry must be maintained.

**According to Dr. Daniel Lowenstein**, UCSF executive vice chancellor and provost, the collaboration between academia and the biotech industry provides access to significant expertise and resources and can support the critical early stage in the continuum of research, from proof of concept to clinical development. "This is a novel approach to engaging with a significant industry partner to translate biological discoveries into new therapies for patients."

Source: *San Francisco Business Times*. Deal puts Big Pharma, UCSF researchers side by side targeting cancer, obesity and more. Ron Leuty. 10/19/15.

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