

# THE CALIFORNIA LIFE SCIENCE ECOSYSTEM

**CLSI** CALIFORNIA  
LIFE  
SCIENCES  
INSTITUTE

CULTIVATING LIFE SCIENCES INNOVATION

# California's Life-Saving Therapeutics & Devices

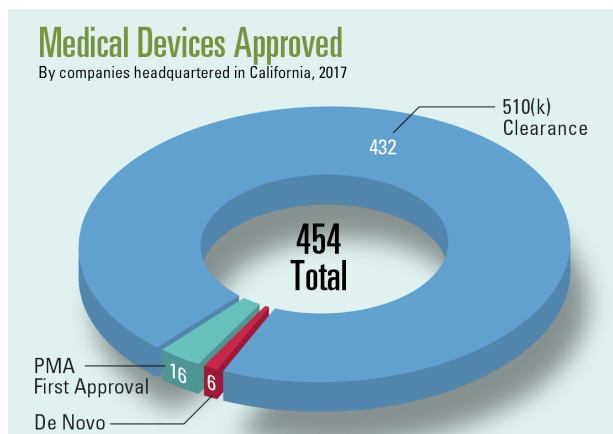
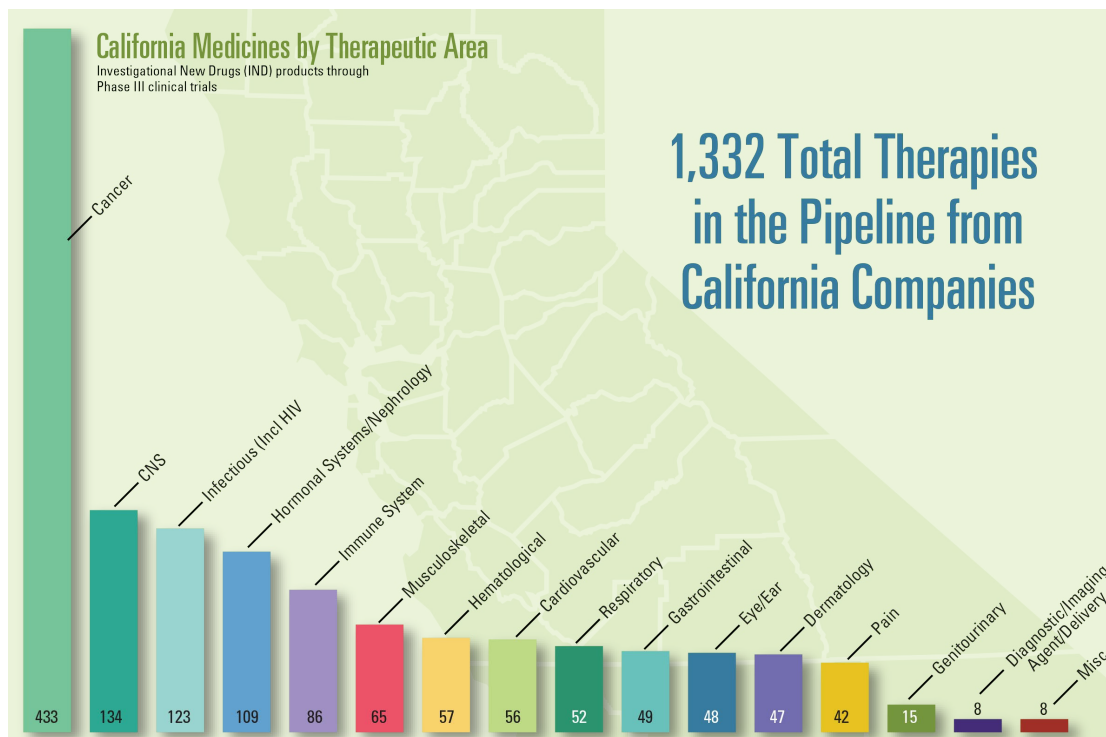
California leads the nation in new drugs, therapeutics and medicines in the pipeline.

1,332 Investigational New Drug (IND) applications were filed in California in 2018.

The most active area was cancer, which had 433 applications.

28 Expedited Approvals by the FDA

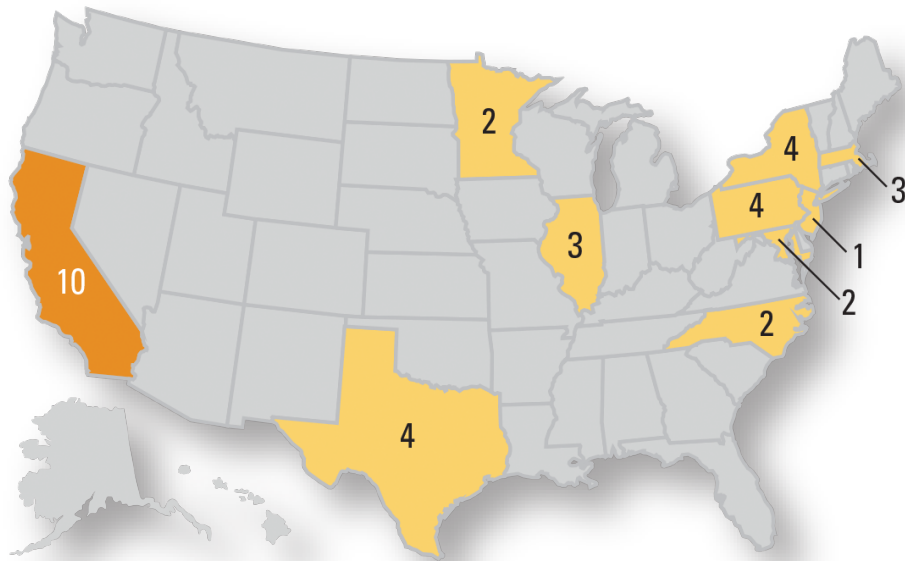
450+ Medical Devices Approved by CA Headquartered Companies.



# Academic Support

## Number of Universities in the World Top 100

Shanghai Index, 2018 Rankings

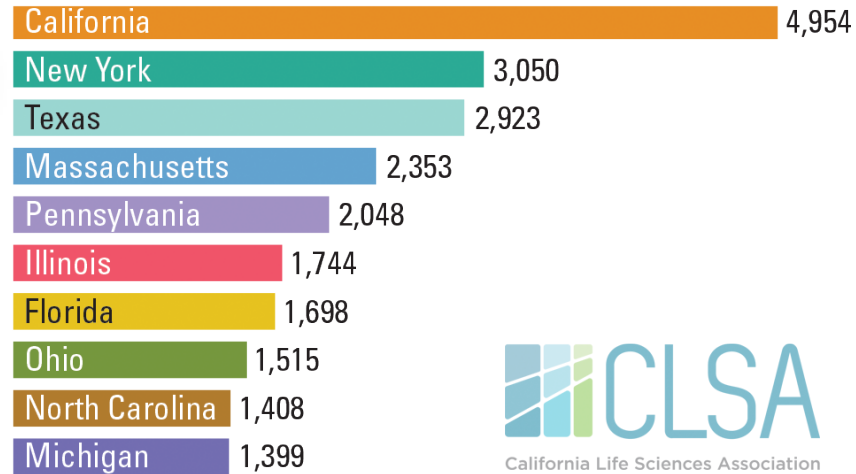


<b>California</b>	<b>10*</b>	Illinois	3	Minnesota	2
New York	4	Massachusetts	3	North Carolina	2
Pennsylvania	4	Maryland	2	New Jersey	1
Texas	4				

\*Stanford University, UC Berkeley, California Institute of Technology, UCLA, UC San Diego, UC San Francisco, UC Santa Barbara, USC, UC Irvine and UC Davis.

Source: Academic Ranking of World Universities (ARWU) 2018, Shanghai Ranking Consultancy.

## Top 10 States with Doctoral Recipients in Sciences & Engineering



### No. 1 in top ranked universities & research institutions:

The state boasts 10 institutions in the Shanghai Index of the world's 100 top universities, leading the nation.

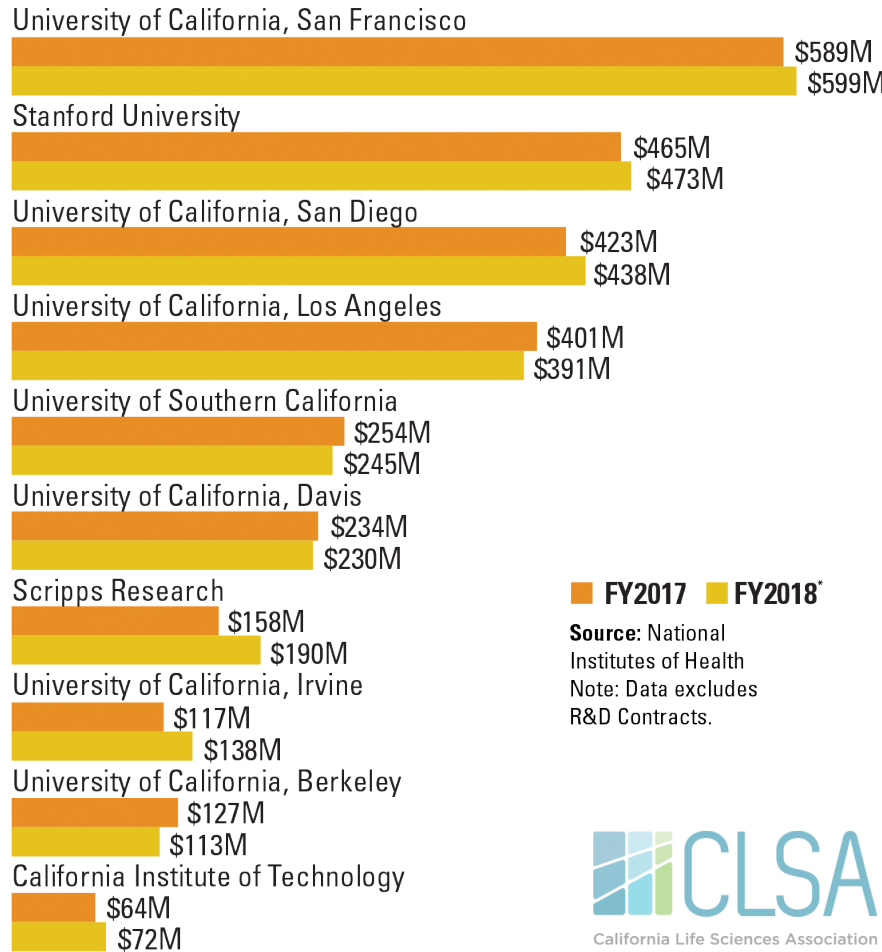
In 2016, California graduated more than 4,900 science and engineering PhDs.

These degrees include study in the fields of biomedical sciences and health sciences, agricultural science and natural resources.



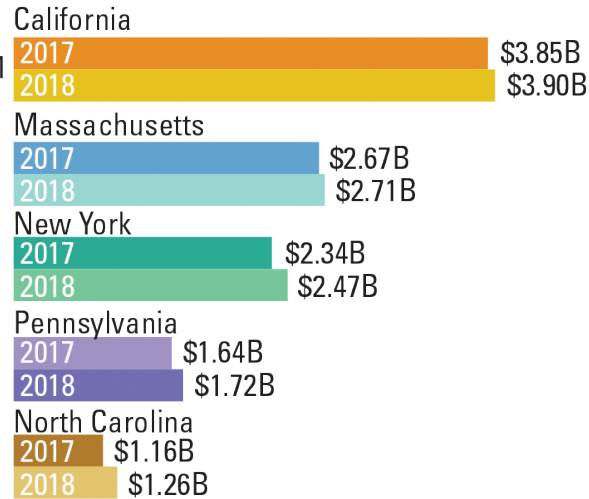
# Science Funding from the NIH

## Top 10 California Organizations Receiving NIH Funding

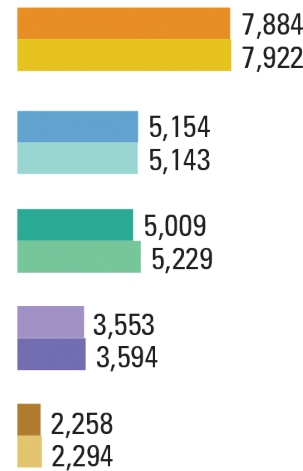


■ FY2017 ■ FY2018\*

**Source:** National Institutes of Health  
**Note:** Data excludes R&D Contracts.



### Awards



**No. 1 in NIH grants:** California scientists received over \$3.9 billion in NIH research grants in federal fiscal year 2018—the most of any state in the nation.

Massachusetts received \$2.71 billion, over \$1 billion less.

California receives 15% of all NIH dollars, which play an enormous role in supporting life sciences innovation in the Golden State.

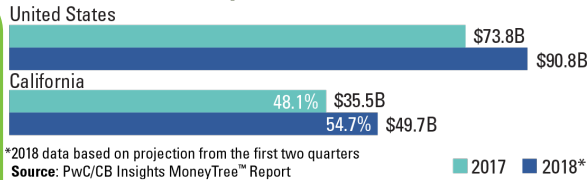
# Attracting Venture Capital

California is projected to secure the most VC life sciences funding in the nation, with \$7.6 billion expected in 2018.

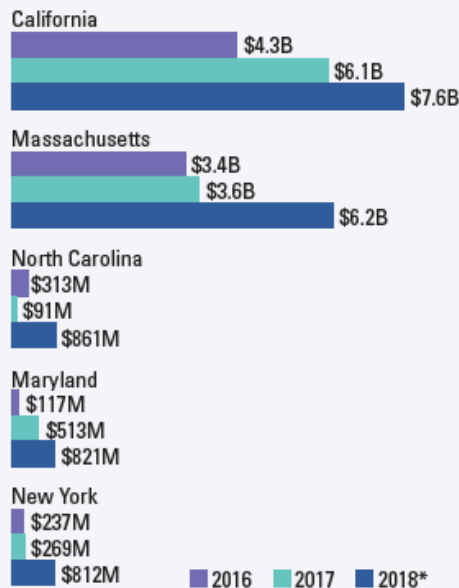
This is an increase of approximately \$1.5 billion, and 39% of the nation's entire expected life sciences VC investment in 2018.

Massachusetts is projected to be second with \$6.2 billion.

## Total US Venture Capital Investment in California



## Top 5 States for Life Sciences VC Investments



## VC Investment, Biotech & Medical Devices

by stage, U.S. and California 2016-2018\*

BIOTECH		MEDICAL DEVICES	
Seed Stage			
\$54M	\$109M	2016	\$52M \$25M
\$40M	\$116M	2017	\$54M \$18M
\$109M	\$352M	2018	\$42M \$26M
Early Stage			
\$935M	\$2.81B	2016	\$239M \$148M
\$675M	\$2.51B	2017	\$292M \$154M
\$1.87B	\$6.44B	2018	\$165M \$60M
Expansion Stage			
\$1.56B	\$3.07B	2016	\$767M \$572M
\$2.78B	\$5.24B	2017	\$1.14B \$502M
\$3.11B	\$6.61B	2018	\$970M \$683M
Later Stage			
\$418M	\$1.67B	2016	\$1.05B \$472M
\$931M	\$2.32B	2017	\$1.27B \$755M
\$433M	\$2.19B	2018	\$1.16B \$514M

Legend: California (Yellow), United States (Teal)



Access the Full 2019 California Life Sciences Industry Report:  
[www.califesciencesindustry.com](http://www.califesciencesindustry.com)



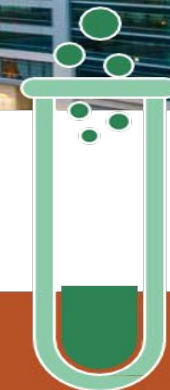


# San Francisco Bay Area.



California Companies Have More Than 1,300 New Therapies in the Pipeline

The Bay Area is a hotbed for innovation. With emerging biotechs around UC San Francisco, established companies in South San Francisco, and digital pioneers in Silicon Valley, the region boasts one of the most robust biomedical hubs in the world and supports 27% of California's life sciences jobs.



## Life Sciences Jobs

82,568 jobs



15.6% more than the prior year

Average Annual Life Sciences Industry Wage

\$164,123

32,181  
Research & Development and Testing Laboratories



20,006  
Medical Devices, Instruments and Diagnostics



18,096  
Biopharmaceuticals



6,423  
Wholesale Trade



4,652  
Academic Research



1,210  
Biorenewables



Digital Health VC Investment: \$3.6 billion

Life Sciences VC Funding: \$5.6 billion

## Top Institutions for NIH Funding



UCSF  
\$599,447,610



Stanford  
\$472,643,765



UC Berkeley  
\$112,773,060



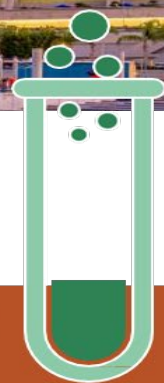
UC Lawrence Berkeley Lab  
\$27,023,868



# San Diego County.

## California Companies Have More Than 1,300 New Therapies in the Pipeline

One of the world's preeminent biotech hubs, San Diego combines a highly collaborative environment, a committed investment community and an unparalleled academic research infrastructure. Institutions like Scripps Research, UC San Diego, Salk and Sanford Burnham Prebys produce entrepreneurs and well-trained workforce. The city attracts VCs and angel investors, as well as large life sciences companies.



### Life Sciences Jobs

**48,430** jobs



**15.4%** more than the prior year

**21,217**  
Research & Development and Testing Laboratories



**10,284** Medical Devices, Instruments & Diagnostics



**7,088** Biopharmaceuticals



**4,725** Academic Research



**4,474** Wholesale Trade



**642** Biorenewables

Average Annual Life Sciences Industry Wage

**\$118,719**

Digital Health VC Investment: **\$36 million**

Life Sciences VC Funding: **\$1.45 billion**

### Top Institutions for NIH Funding



UC San Diego  
\$437,573,780



Scripps Research  
\$190,070,339



Sanford Burnham Prebys Medical Discovery Institute  
\$51,232,013



Salk Institute for Biological Studies  
\$47,932,211



La Jolla Institute for Allergy and Immunology  
\$32,296,177



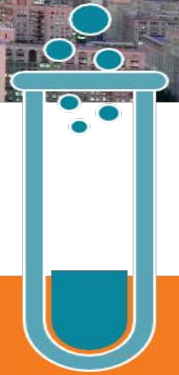


# Los Angeles County.



California Companies Have More Than 1,300 New Therapies in the Pipeline

Though a relative newcomer to the life sciences, Los Angeles is flexing its muscles, and showing consistent growth. The county ranks second in employment, with **18 percent** of life sciences jobs in California. Additionally, the metro area produces more biology graduates than any other city in America.



## Life Sciences Jobs

**57,117** jobs



**15.5%** more than the prior year

**13,564**  
Wholesale Trade



**13,133**  
Academic Research



**11,756** Medical Devices, Instruments & Diagnostics



**10,921** Research & Development & Testing Laboratories



**7,351** Biopharmaceuticals



**424** Biorenewables



Average Annual Life Sciences Industry Wage  
**\$88,523**

Life Sciences VC Funding: \$52 million

Digital Health VC Investment: \$87 million

## Top Institutions for NIH Funding



UCLA  
\$391,019,228



USC  
\$245,189,593



California Institute of Technology  
\$71,674,643



Cedars-Sinai  
\$62,770,585



Beckman City of Hope  
\$56,794,739



RAND Corporation  
\$36,669,447



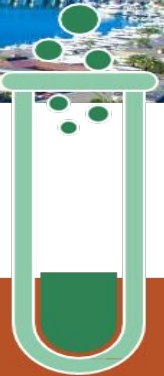


# Orange County.



**California Companies Have More Than 1,300 New Therapies in the Pipeline**

With their focus on medical devices and digital health, life sciences companies are becoming an increasingly important chapter in the Orange County story. The region combines large-capital anchors and hundreds of entrepreneurial startups, setting the stage for sustainable growth for years to come.



## Life Sciences Jobs

**44,957** jobs



**11%** more than the prior year

Average Annual Life Sciences Industry Wage

**\$91,523**

**23,122**

Medical Devices, Instruments and Diagnostics



**8,734** Wholesale Trade



**5,463** Research & Development and Testing Laboratories



**4,256** Biopharmaceuticals



**2,992** Academic Research



**390** Biorenewables

Digital Health VC Investment: **\$16 million**

Life Sciences VC Funding: **\$296 million**

Top Institution for NIH Funding



UC Irvine  
**\$137,680,738**

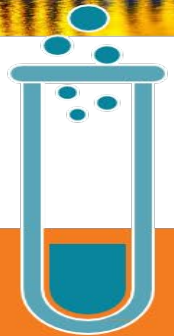


# Sacramento Area.



**California Companies Have More Than 1,300 New Therapies in the Pipeline**

California leads the world in life sciences innovation. Premier research institutions combine with a unique entrepreneurial spirit to develop new technologies and therapies, attract investors and push the state's economy to greater heights. With more than **100 life sciences companies** supporting thousands of jobs in the region, Sacramento plays an integral role in California's life sciences innovation ecosystem.



Average Annual Life Sciences Industry Wage  
**\$123,585**

## Life Sciences Jobs

**10,912 jobs**



**25.2%** more than the prior year

**4,778**  
Biopharmaceuticals



**2,042**  
Medical Devices, Instruments & Diagnostics



**1,887** Wholesale Trade



**839** Research & Development & Testing Laboratories



**837** Academic Research



**530** Biorenewables



**Digital Health VC Investment: \$39 million**

**Life Sciences VC Funding: \$122 million**

**Top Institution for NIH Funding**



**UC Davis**  
**\$229,983,746**



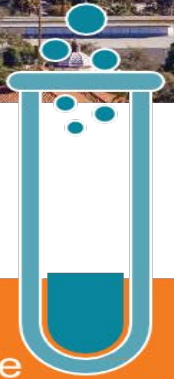


# Ventura & Santa Barbara Counties.



**California Companies Have More Than 1,300 New Therapies in the Pipeline**

California leads the world in life sciences innovation. Premier research institutions combine with a unique entrepreneurial spirit to develop new technologies and therapies, attract investors and push the state's economy to greater heights. It's critical that we protect this pioneering activity to continue bringing hope to patients everywhere.



## Life Sciences Jobs

**12,054 jobs**



**5,724**  
Biopharmaceuticals



**2,658** Medical Devices, Instruments & Diagnostics



**1,946** Wholesale Trade



**907** Research & Development & Testing Laboratories



**400** Biorenewables



**379** Academic Research



Average Annual Life Sciences Industry Wage

**\$155,711**

Digital Health VC Investment: \$112 million

California Life Sciences VC Funding: \$7.6 billion

**Total California NIH Investment in California: \$3.9 billion**

# THE CALIFORNIA LIFE SCIENCE INSTITUTE

SUPPORTING THE CALIFORNIA INNOVATION ECOSYSTEM



CULTIVATING LIFE SCIENCES INNOVATION



# Supporting the Industry

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## California Life Sciences Institute (CLSI)

- Provides advisory services for entrepreneurs in California and globally through advice from veteran life sciences professionals
- Serving academic programs and early stage companies this fall from the EU, Japan and Canada

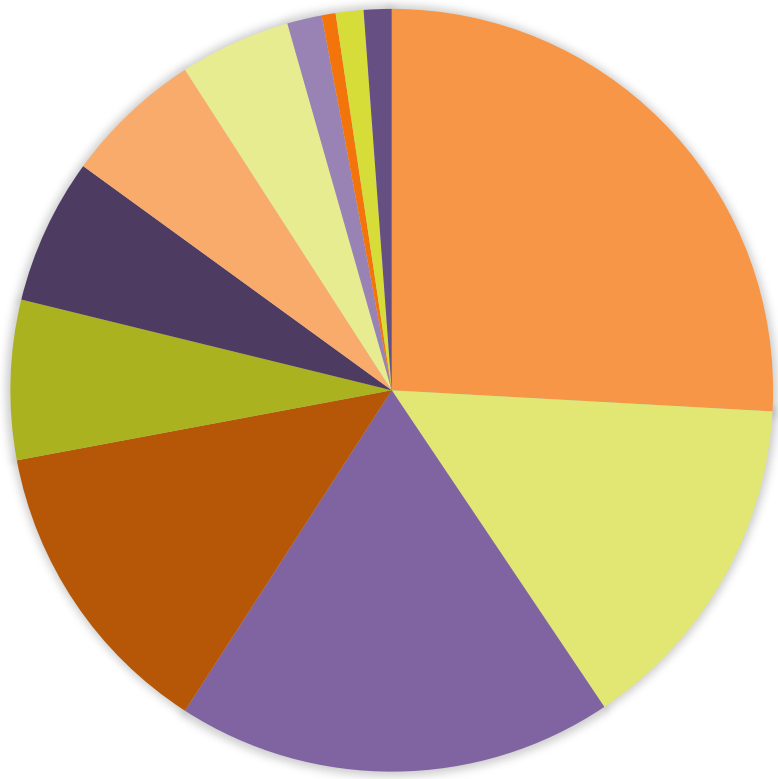
## California Accelerator Program

- Pairs industry professionals with life science startups to help them commercialize their discoveries

## >400 industry professional mentors

- Working to give back to the industry

>400 industry professional mentors



## By Title

- CEO (26%)
- Other C-Level (15%)
- VP/Executive Director (19%)
- Director (13%)
- Senior Director (7%)
- Manager (6%)
- Finance / Legal (6%)
- Sr Finance / Legal (5%)
- Independent Expert (1%)
- Professor (1%)
- Physician (1%)
- Senior Partner (1%)

**73** FAST graduates

**>\$1.4B** in funds raised / **28** Series A investments

**14** FAST graduates are producing revenue /

**18** strategic partnerships / **4** acquisitions / **2** IPOs

**460** jobs created (over 300% growth)

**7900** hours of pro bono mentoring valued at **> \$1.7M**

**>400** industry professionals

**70** Student Project Leaders



## **FAST International opens doors for ex-US startups**

- Helps early stage foreign companies **set up operations in CA**
- Utilizes **CA's** position as the **global leader in life science innovation**
- Varied in-person / virtual / hybrid programs **customized** to partner needs

**Canadian Technology Accelerator Life Science program** - companies receive customized advising and in-market program to advance commercialization strategies

**Univ. of Edinburgh Healthcare Technology Accelerator Facility (HTAF)** - 7 early stage research projects receive advising with goal of commercial spin-offs

**NOME (Accelerace)** – Scandinavian accelerator-based companies receive intensive commercialization sessions

**Bayer Japan** - Assisting Japanese startups to enter the US

## **For private research and academic institutions seeking to develop spin-out companies**

- CLSI provides company-building advisory services to help life science researchers translate discoveries into successful commercial enterprises

# For More Information

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