



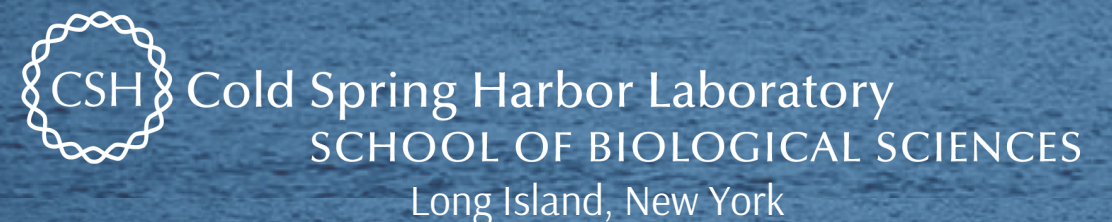
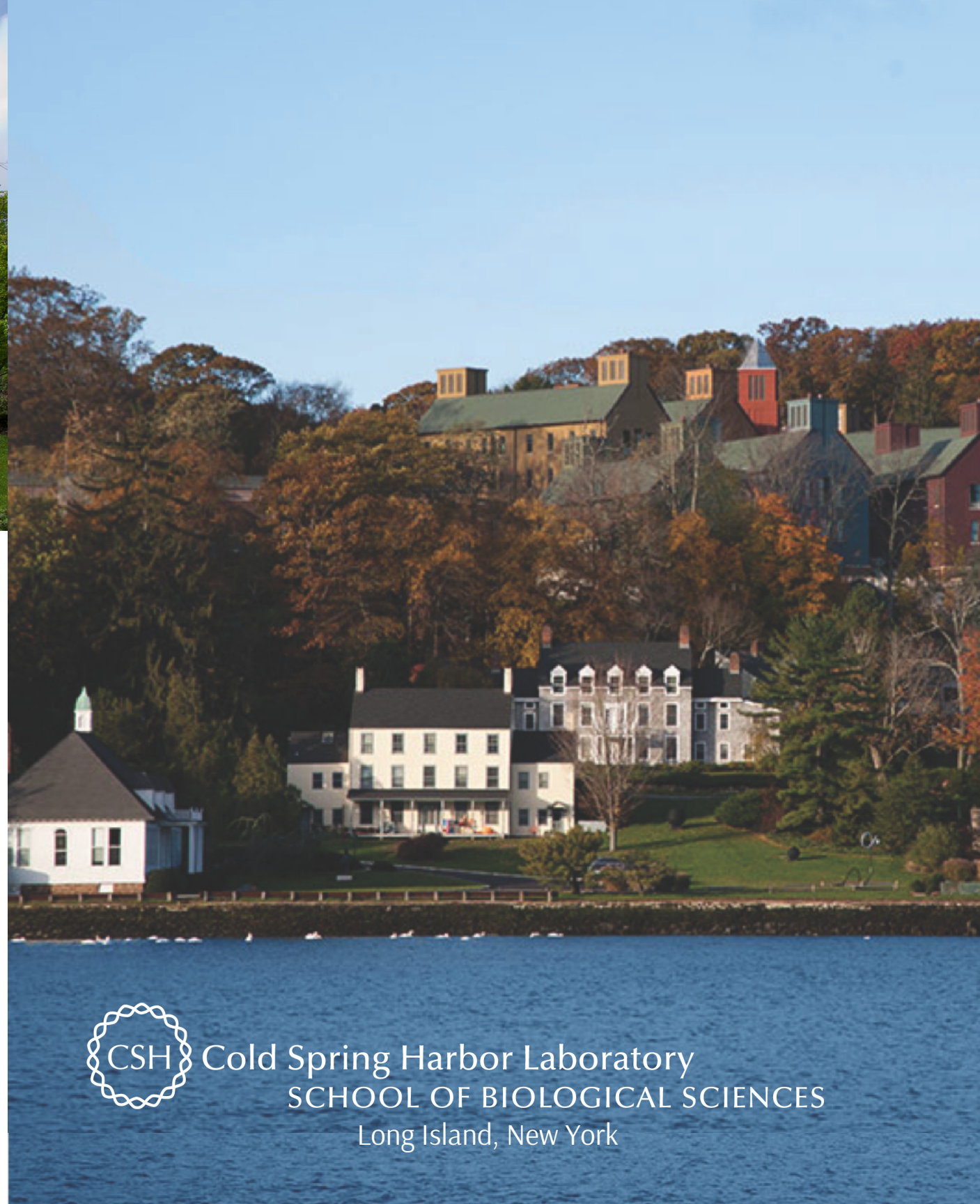
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Cold Spring Harbor Laboratory School of Biological Sciences does not discriminate on the basis of race, color, creed, religion, sex, pregnancy status, citizenship status, marital status, national origin, mental or physical disability, age, veteran or military status, familial status, sexual orientation, gender identity or expression, genetic information, sexual and reproductive health decision making, status as a victim of domestic violence, sex offenses or stalking, or any other characteristic protected by law in administration of its admissions and educational policies, or any school-administered programs.

Cold Spring Harbor Laboratory is institutionally accredited by the New York State Board of Regents and the Commissioner of Education, a nationally recognized accrediting agency, located at:

89 Washington Avenue  
Albany, NY 12234  
(518) 474-1551





Cold Spring Harbor Laboratory (CSHL) has a long and exceptional history of educating outstanding scientists who conduct ground-breaking biomedical research. The School of Biological Sciences offers scientific training for graduate students, as well as high school students, undergraduates, and postdoctoral fellows. Research at CSHL focuses on:

**Cancer & Molecular Biology**

One of the most influential cancer research centers in the world, CSHL has made landmark developments ranging from new genomic technologies to breakthrough therapeutic strategies. Fundamental research into basic molecular mechanisms of cell physiology has greatly enhanced the understanding of the underlying causes of cancer and other diseases and has helped to identify new clinical targets. CSHL is a National Cancer Institute (NCI) designated Cancer Center.

**Genetics & Genomics**

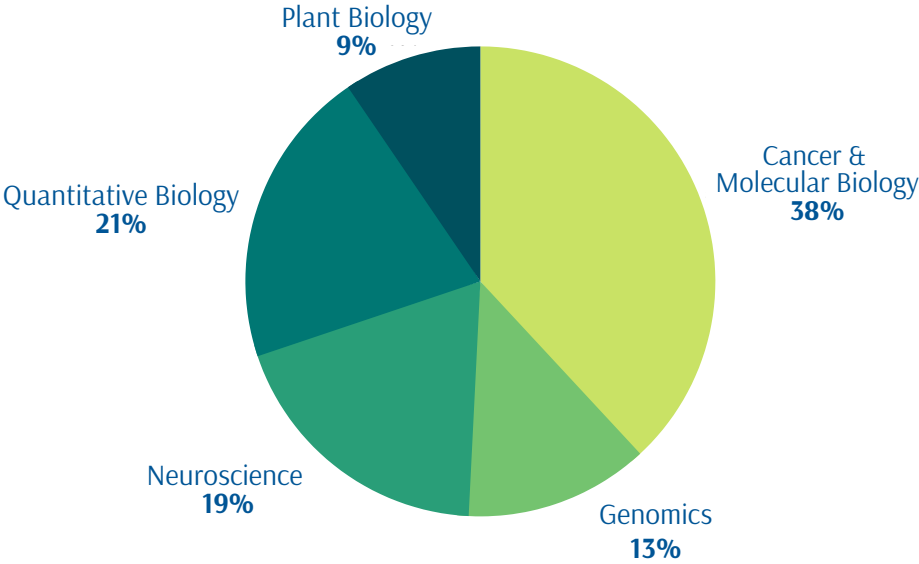
The CSHL approach to understanding complex developmental decisions involves an intersection of multiple disciplines including forward and reverse genetics, functional genomics, and bioinformatics. These approaches have led to the development of novel experimental techniques and analysis tools that have informed the understanding of normal development and disease.

**Scientists at CSHL**

The research faculty at CSHL has contributed some of the most fundamental discoveries in cancer & molecular biology, genetics, and neuroscience. Current faculty members lead cutting-edge laboratories in a broad range of topics. Their discoveries are consistently recognized for their impact at a very high level. Thomson Reuters ranked CSHL first among molecular and cellular biology research institutes for literature citations. CSHL faculty are awarded approximately \$30 million in federal research funds and \$60 million in public support each year.

**Research areas at CSHL**

(Percentage calculated with respect to total number of labs on campus\*)



\*Most faculty conduct research across multiple areas

## About Cold Spring Harbor Laboratory

Since 1890, Cold Spring Harbor Laboratory has been a global leader in research and education. The international scientific community at the Laboratory provides a unique atmosphere for research – an environment where students, postdocs, and faculty work together on the most important unanswered biological questions. The School is committed to providing its students with the means to become successful, independent scientists and leaders in society.

The Laboratory is located 35 miles east of New York City and easily accessible via direct train from NY Penn Station. Restaurants, shops, movie theaters, and venues for live music in the village of Huntington are located just minutes away from CSHL, and Long Island's sandy South Shore beaches are a short drive away. The Laboratory itself offers many amenities, both cultural and recreational.



### Neuroscience

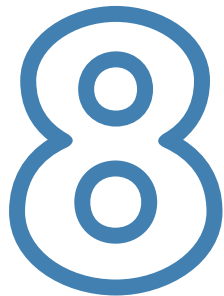
CSHL is leading research into how neural networks affect behavior and how their disruption contributes to cognitive disorders. Fundamental discoveries have focused on systems-level understanding of memory, sensory processing, decision-making, and pathologies, such as autism, Alzheimer's, schizophrenia, and depression.

### Plant Biology

CSHL has long been contributing essential knowledge to understanding the genetic basis of plant development. Discoveries are making a direct impact on boosting crop yield and developing biofuels, with implications for food production, biodiversity, and climate change.

### Quantitative Biology

CSHL is encouraging the search for new solutions to important, unsolved problems in biology through quantitative approaches. A cross-disciplinary group of researchers with expertise in applied mathematics, computer science, theoretical physics, and engineering are using their unique perspectives to understand human genetics, neural system architecture, and complex diseases.



#### Scientists who have worked at CSHL and are Nobel Laureates in Physiology or Medicine:

- James Watson, 1962
- Alfred Hershey, 1969
- Max Delbrück, 1969
- Salvador Luria, 1969
- Barbara McClintock, 1983
- Phillip Sharp, 1993
- Richard Roberts, 1993
- Carol Greider, 2009

## The Ph.D. Program

The Ph.D. Program at CSHL is an accelerated graduate training program offering several unique features:

- Approximately 5 years from matriculation to Ph.D.
- Broad representation of the biological sciences
- Coursework and laboratory rotations in separate phases completed in the first 10 months
- Elective advanced courses
- Two-tier mentoring and scheduled thesis committee meetings
- Funding completely covered by the School to provide students with the flexibility to select their choice of research projects

Around 10 students join the program each year and they come from all over the world, representing more than 20 US states and 30 countries. Any student with an undergraduate degree from an accredited academic institution is eligible. Applicants from any academic background are encouraged to apply; including non-bioscience majors like computer science, engineering, math, chemistry, and physics.

Applications must be submitted online by **December 1**, and there is no application fee. The application requires official transcripts, a personal statement, and three letters of recommendation. Students from non-English language universities must submit TOEFL or IELTS test scores. GRE general test scores can be included, but are not required.

[cshl.edu/phd-program](https://cshl.edu/phd-program)  
[gradschool@cshl.edu](mailto:gradschool@cshl.edu)

## Postdoctoral Fellows

Postdoctoral Fellows are integral to the scientific community at CSHL. They benefit from the exceptional infrastructure and intellectual environment at CSHL and gain a marked advantage in the competitive job market. In recent years, many CSHL postdocs have taken up tenure-track positions at major research universities in the US and abroad, and others have pursued college teaching positions, editorial positions, and careers in biotechnology.

Postdocs at CSHL are eligible for benefits, including comprehensive health and dental insurance, on-site child care, and housing subsidies – regardless of their source of funding.

[cshl.edu/research/postdoctoral-research](https://cshl.edu/research/postdoctoral-research)



*"When I made the decision to do my postdoctoral fellowship at CSHL, I knew the decision would be best suited for me to grow as a scientist, as well as professionally. Doing research comes with its own set of challenges, but being immersed in an innovative and collaborative environment, such as CSHL, I've always felt that my contribution to the scientific community was well received and respected. Through my research, as well as my service to the lab, I look forward to inspiring the next generation of scientists to become independent and own their awesomeness."*

Dr. Leah Banks - Mills Lab



## Undergraduate Research Program

The 10-week Undergraduate Research Program (URP) at CSHL provides 20 undergraduate scientists from around the world the opportunity to conduct first-rate research. Participating students (also known as URPs) learn the scientific process, technical methods and theoretical principles, and communicate their discoveries to other scientists. URPs live and work among CSHL scientists and finish the program with first-hand experience of a career in scientific research.

In addition to free room and board, URPs receive a \$6,000 stipend for the summer. Applications must be submitted online by **January 15**, and any matriculated college sophomore or junior may apply.

[cshl.edu/URP](http://cshl.edu/URP)  
[urpadmin@cshl.edu](mailto:urpadmin@cshl.edu)



*"To carry out research in such an idyllic location, amongst such knowledgeable and driven scientists, and to be part of a program that brings together such a diverse group of highly motivated undergraduates has been an honour. Being an URP not only allows you to immerse yourself into the 'nerdy' aspects of the scientific community...but it also offers a seamless transition to the volleyball court to blow off some steam. And perhaps most importantly, it gives you hope that you can survive a Ph.D.!"*

Asad. A. Lakhani - Egeblad Lab

## Degree Requirements

### Coursework

- Introductory Bootcamps
  - Molecular & Cell Biology
  - Quantitative Biology
- Scientific Reasoning & Logic
  - Development
  - Gene Expression
  - Grants Study Section
  - Macromolecular Structure
  - Neurobiology
- Scientific Exposition & Ethics
- Specialized Disciplines
  - Cancer Biology
  - Genetics & Genomics
  - Quantitative Biology
  - Systems Neuroscience
- Topics in Biology (4 courses)
  - Evolution; Immunology; Microbes in Health & Disease; Physical Biology of the Cell
- Career Exploration & Skills

Seminars & Symposia

Integrated Fall Term Exam

Laboratory Rotations (3)

Teaching at DNA Learning Center

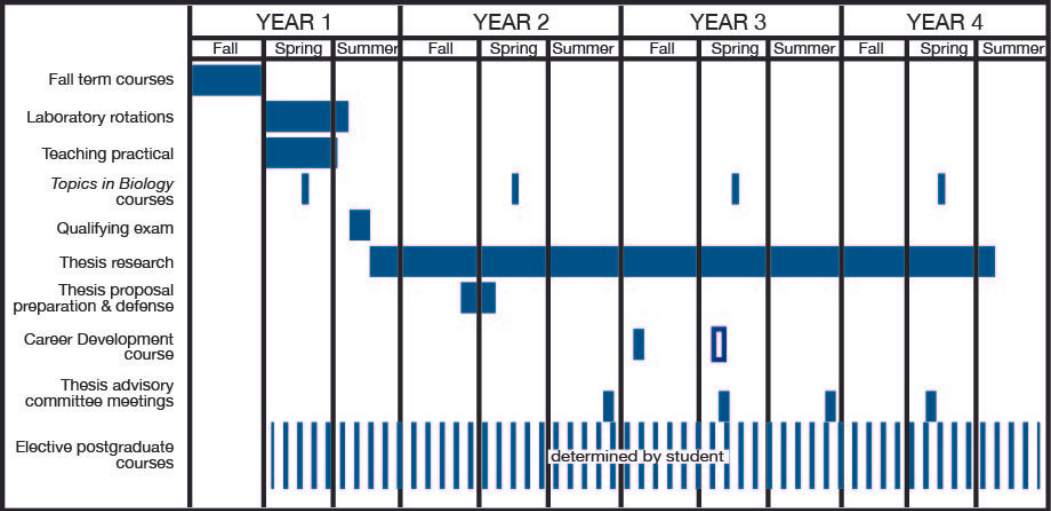
Qualifying Exam

Elective Postgraduate Course (3)

Thesis Proposal

Thesis Dissertation

These Defense



## Stipend

The Ph.D. Program stipend is adjusted annually and is currently \$35,000 per year. The School pays all tuition costs and associated study fees for its students, including a new laptop, software, and textbooks which roughly totals to \$3,500 of materials. Once students join a research lab, the School continues to pay the stipend. In addition, each student also receives an annual \$8,000 discretionary fund for research and educational advancement.

Those awarded an external fellowship receive \$38,500 or the amount of their fellowship stipend (whichever is higher). Though not required, many students successfully compete for independent fellowships. Nearly 25% have been awarded NSF, NIH, DoD, NSERC, BIF, or similar fellowships to support their studies.

# \$35K+

Students receive a \$35,000 annual stipend from the School plus \$8,000 to help with their studies

Student stipends are paid directly by the School, granting students the **flexibility to choose a lab and project without regard for the PI's funding.**

## Life at CSHL



**CSHL Press** publishes materials for the scientific community, with a catalog of journals, books, and manuals used in academic institutions worldwide. It also operates bioRxiv, an online source for unpublished preprints in the life sciences. [cshlpress.com](http://cshlpress.com)



**Banbury Center** conferences bring together influential leaders and global experts to guide science and public policy. Ph.D. students may be invited to attend conferences related to their interests. [cshl.edu/banbury](http://cshl.edu/banbury)



**CSHL Library** maintains extensive print and online resources for scientists at the Laboratory. Librarians can help with bibliographic tools, literature searches, and article requests. The Archives is a rich collection of writings, photographs, and video interviews documenting the history of molecular biology at CSHL and beyond. [library.cshl.edu](http://library.cshl.edu)



Each year, the **CSHL Meetings & Courses** program attracts over 10,000 scientists and students from around the world to learn new technologies and share advances in biological research. Students are free to attend the lectures, poster sessions, and social events at the meetings. [meetings.cshl.edu](http://meetings.cshl.edu)



## Diversity & Inclusion at CSHL

Cold Spring Harbor Laboratory is an incredibly diverse place to work, train, and conduct science, with employees who hail from more than sixty countries throughout the world. Indeed, diversity is central to our mission of advancing discovery in biology research and education. From secondary education and enrichment programs run through the DNA Learning Center, to the laboratories of our faculty and principal investigators, CSHL thrives by assembling a rich mix of people who are provided the resources and creative freedom to develop new ideas, solve problems, and advance science.

CSHL's **Office of Diversity, Equity & Inclusion** (DEI) integrates and oversees efforts across multiple divisions to promote equitable and inclusive working environments on campus. In addition to the DEI office, there are two affinity groups that are devoted to supporting and advocating for groups historically underrepresented or marginalized in science.

- **Women in Science & Engineering (WiSE)** is a network of scientists building a more supportive, collaborative, and equal scientific community for all. They provide a platform for professional development and empowerment through mentorship, career planning, and educational opportunities tailored toward issues disproportionately affecting women. WiSE is open to all members of the CSHL community. [cshlwise.org](http://cshlwise.org)
- **Diversity Initiative for the Advancement of STEM (DIAS)** aims to support, empower, and advocate for underrepresented (UR) scientists, in particular scientists from historically marginalized racial/ethnic groups (Black/African-American, Hispanic/LatinX, American Indian/Native American/Alaska Native, and Native Hawaiian/Pacific Islander), as well as LGBTQIA scientists. They do this by raising awareness of issues that disproportionately affect these groups, hosting on-campus seminars by prominent UR speakers, and conducting outreach activities to nearby community colleges. DIAS is open to all members of the CSHL community. [twitter.com/dias\\_org1](https://twitter.com/dias_org1)

## Benefits

Students are eligible for full health and dental benefits, and an on-campus health center offers routine medical and wellness services. Students have access to affordable on-site child care. First-year students are housed in one of the two harbor-side houses. CSHL offers relocation costs and housing subsidies of \$175 per month. Dining services at the Laboratory are also subsidized.

CSHL has a free on-campus gym, and students receive an annual recreational allowance of \$350. In addition to student-organized bands, dance groups, and sports teams, there are numerous recreational activities on campus: tennis and volleyball courts, kayaks, private beaches, hiking trails, and quiet back roads for running or cycling. Students are invited to classical music performances sponsored by the Laboratory and, in the summer, the Laboratory offers gardening plots.



*"A generous stipend from the School means that I have access to state-of-the-art equipment and freedom to pursue bold and innovative ideas. I am able to attend scientific meetings and courses abroad, where I can not only learn from the leaders in my field, but also share my findings with the community."*

Martyna Sroka - Vakoc lab  
Undergraduate: University of Aberdeen, UK



Emiliano Rial Verde '04  
VP, Food & Ingredients Strategy  
Bunge Ltd



Elena Ezhkova '05  
Professor  
Mt. Sinai School of Medicine



Elizabeth Murchsion '07  
Professor  
Cambridge University



Christopher Harvey '08  
Associate Professor  
Harvard University



Keisha John '09  
Associate Dean, DEI  
University of Virginia



Oliver Fregoso '10  
Assistant Professor  
UCLA



Felix Schlesinger '13  
Bioinformatics Lead  
Scale Bio, Inc.



Arkarup Banerjee '16  
Assistant Professor  
Cold Spring Harbor Laboratory

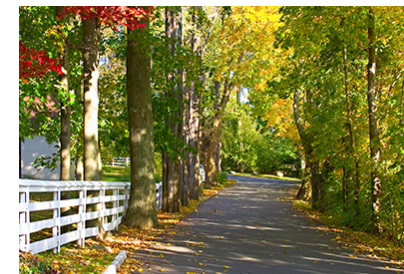
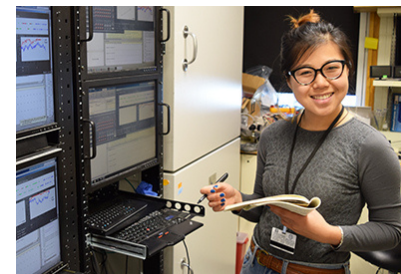


Maria Nattestad '17  
Software Engineer  
Google Brain Genomics

## Mentoring Opportunities & Outreach

Students have opportunities to gain teaching experience through activities within the School, CSHL, or at local educational institutions.

- Students work with educators at CSHL's **Dolan DNA Learning Center** (DNALC), helping develop curriculum and teaching laboratory classes. An innovator in science education for middle and high school students, the DNALC's hands-on program uses sophisticated laboratory and computer equipment to enable young scientists to perform experiments that will advance their level of knowledge and skills.  
*[dnalc.org](http://dnalc.org)*
- **Partners for the Future** is a mentorship program between CSHL and Long Island high school students interested in molecular biology and genetics. Spending several hours each week of their senior year, students are partnered with a CSHL scientist to conduct an original, mentored research project, as well as assist in the scientist's work.  
*[cshl.edu/education/partners-for-the-future](http://cshl.edu/education/partners-for-the-future)*





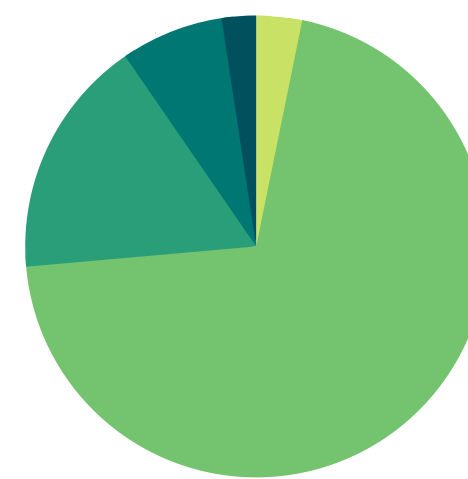
## Career & Professional Development

To help them refine their future careers, students are exposed to a variety of scientific career development opportunities and clubs:

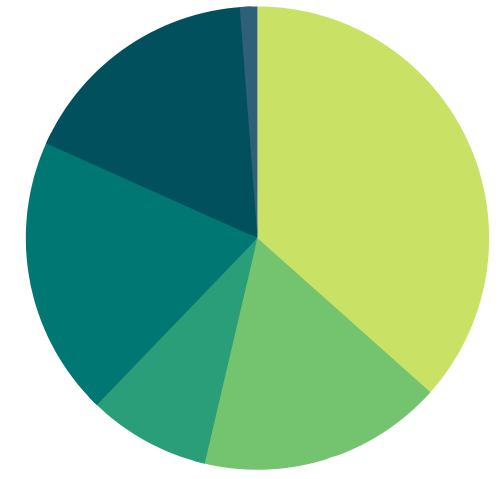
- The **Career Development Program** provides information about careers in academia, including the job search and transitioning to an independent position. They host workshops on preparing for interviews and a chalk talk, and “Getting to Know Your Faculty,” a series in which CSHL faculty members share stories of their careers and highlight their philosophies toward identifying interesting scientific questions, lab management, work-life balance, and what it takes to be successful.
- The **Bioscience Enterprise Club** (BEC) offers information for students and postdocs interested in non-academic scientific careers through a series of seminars and workshops that cover a wide range of non-academic and non-research careers. BEC has worked with local biotechnology start-up companies to offer on-campus recruiting interviews.
- **INet NYC** is an organization that aims to present opportunities for international STEM scientists affiliated with an institution in NYC. Its events focus on the challenges international scientists face in order to become successful within the US.



## Career Paths of Ph.D. Graduates



Immediately post-graduation  
2003-2021 (n=124)



Six or more years after graduation  
2003-2015 (n=82)

■ Faculty ■ Postdoc ■ Acad. Research ■ Pharma/Biotech ■ Other, scientific ■ Other

Since the first graduate in 2003, there have been more than 100 Ph.D.s awarded. Immediately after graduation, 71% of our alumni pursue postdoctoral training, 20% have taken independent positions in academia or industry, 6% have taken non-research positions in science, and 2% have taken other positions.

Of those who have graduated more than 6 years ago, 37% are faculty members in academic institutions around the world, 26% are in postdoctoral or staff positions in academic labs, 17% hold positions in non-research scientific careers such as journal editing, administration, scientific core management and business, 20% are in industry or biotech positions, and 1% are in non-science careers..

# 5

Average time to degree is approximately 5 years

# 124

124 Ph.D.s have been awarded as of August 2021

## Awards

Harold M. Weintraub Award (4) - P.E.O. Scholar Award (2)  
Newcomb Cleveland Prize by AAAS - RNA Society/Scaringe Award  
Keystone Symposium Travel Award - American Society for Cell Biology Scholar Award  
Golden Key Graduate Scholar Award - Regeneron Prize for Creative Innovation Finalist

## Fellowships

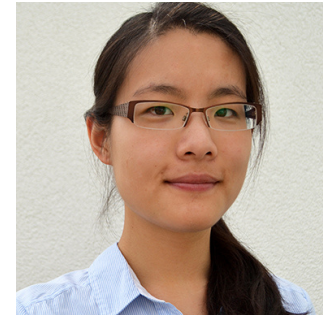
National Science Foundation Graduate Research Fellowships (12) - Boehringer Ingelheim Fonds (9)  
Natural Sciences and Engineering Research Council of Canada Graduate Scholarship (5)  
U.S. Army Medical Research and Materiel Command Predoctoral Fellowships (4)  
Ruth L. Kirschstein National Research Service Award Individual Fellowship (3)  
Ford Foundation Fellowship - American Foundation for Aging Research Fellowship  
IEEE-CS/ACM High Performance Computing Ph.D. Fellowship - La Caixa Foundation  
National Defense Science & Engineering Graduate Fellowship - HHMI Gilliam Fellowship - Fullbright Fellowship

# 50%

50% of the students are international, from over 30 different countries.

# 475

Over 475 publications with students as authors

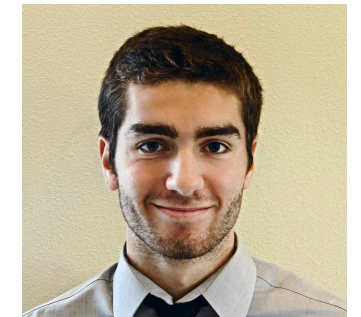


*"When I came to CSHL for my interviews, it was emphasized that the PIs do not just look for students, they look for future colleagues. While this idea was a little daunting at first, it proved to be very true - I do not think there would have been many places where my growth as a scientist could have been encouraged as much."*

Jue Xiang Wang - Furukawa lab  
Undergraduate: University of Cambridge, UK

*"The first four months are spent taking courses on a variety of topics, including cancer, neuroscience, quantitative biology, and genetics. It is rare for a graduate school program in life sciences to offer such a broad education... During this time, you also take an ethics and exposition course, in which you discuss the moral implications of research findings and learn how to communicate science with colleagues and the general public."*

Bruno Gegenhuber - Tollkuhn lab  
Undergraduate: Pacific University, OR



*"Since our class size is small, I got to ask so many questions I wouldn't have the nerve to ask in a big lecture room. This made the class very interactive and allowed us to dig deep. The professors paid a lot of attention to us. Importantly, this attention continues beyond the classes in first semester. My academic mentor has been so generous with her time whenever I need some advice. This two-tier mentoring system is really important when you embark on a difficult journey such as doing a Ph.D.."*

Ngoc (Tumi) Tran - Koulakov lab  
Undergraduate: San Jose State University, CA