Yale summer research opportunities and CV/resume workshop

12/4/23

Sandy Chang MD/PhD

Associate Dean of Science and QR Education, Yale College

Professor, Depts. of Lab Med, Pathology and MBB, Yale Medical School

Steps to conduct summer research at Yale

1. Are you sure you want to do independent research this summer at Yale? If yes…

2. Find a Yale research mentor

3. Apply for a summer fellowship

4. Work in a lab

Please use the SC/QR website!

https://science.yalecollege.yale.edu/

Instagram @yalesqr

Pathways to Yale Summer Research for First Years

First Year Summer Fellowship (89)

STARS Summer (30)

Summer Experiential Award (30)

Yale Summer Session Independent Research class

PBR (15)

PRPMS (15)

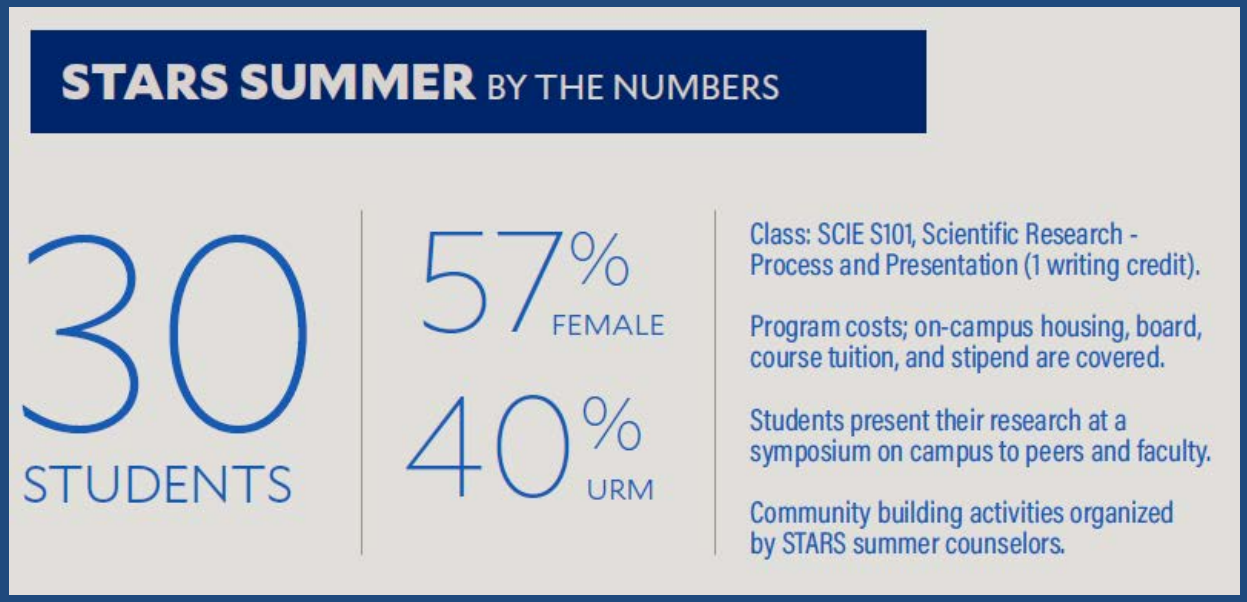
Summer research at Yale

Yale College First Year Summer Research Fellowships

- Everyone encouraged to apply-no prior research experience required.
- 10 weeks of independent research with Yale faculty.
- Fellowships pay $5,000. Can apply for a Richter from your Res College to get a total of $6,000.
- All basic science, CS, engineering research are eligible.
- ~95% of applicants receive funding.

STARS Summer

- 9-weeks of independent research with a Yale faculty
- SCIE 101 course on scientific communication (1 WR credit)
- Social events (weekend trips to CT attractions)
- Stipend ($2,500), tuition, and room and board provided



Yale Summer Experience Awards

- Supports all students on financial aid. Not competitive!
- Summer research fellowship in any discipline-you can work on research topics NOT covered by SC/QR fellowships, like clinical research
- $4,000 to do 8 weeks of research anywhere in the USA. $6,000 for international research
- I suggest that you save this and use in your sophomore or junior summer

How do you find the “right” research mentor?

What do you hope to get out of your research experience?

What do you expect of your mentor(s)?

What do your mentor(s) expect of you?

How do you find the “right” research mentor (PI)?

You will encounter many mentors in your scientific career.

- There is not one “right” mentor, just the right one for you.

You have to do some work to find a mentor

- Look at SC/QR Student Resources section
- Look at Dept. websites
- Look to senior undergrads for advice

Area of scientific interest matters much less than quality of a mentor

How do you find the “right” research mentor: questions to consider

Consider the scientific system the PI works on:

Simple model organisms (bacteria/yeast/flies/worms/cells) generally easier to generate data from than mice/primates.

Consider the PI’s track records with past undergrads-ask the PI for a list of undergrads who worked in his/her labs.

Will the PI be around over the summer?

Will the PI assign me to a daily mentor who will get along with me?

Steps to find the “right” mentor

Apply to at least 5 labs. Read research papers generated by the perspective mentors’ labs.

Send them your CV/resume along with a letter of introduction.

Be somewhat knowledgeable about the mentor’s research area before going to the interview.

Don’t be shy to showcase your own scientific talents during the interview-HS research, STEM courses taken at Yale, etc.

Sit in on a lab meeting to gauge lab dynamics.

Send a thank you note to everyone who took time to talk to you.

Potential cover letter

Dear Dean Chang,

I hope you're doing well! My name is Emily Whitehead. I'm a first-year at Yale hoping to study Molecular, Cellular, and Developmental Biology. I am looking to get involved in research and am incredibly interested in working with you.

Last summer, I had the privilege of working in the Vogelstein lab studying mutations in the p53 tumor suppressor in pediatric osteosarcomas. Through this research, I discovered that I have a passion for science. I am drawn to cancer research especially understanding the mechanisms governing cancer initiation. As such, I found your work on telomeres fascinating. I am especially interested in how telomere dysfunction promotes genome instability and cancer initiation, as you elegantly detailed in your 2023 Nature Communications paper..

I would love to meet with you to discuss potential summer research projects at your convenience. I have attached my resume below. I hope to hear back from you soon. Thank you so much for your consideration!

Sincerely,
Emily

What we look for in a summer fellowship applicant

Applicant's potential to be a future scientist

- 2 strong letters of recommendation-a mentor letter plus a second STEM recommender (non-STEM letter OK if that letter will be strong)
- past STEM activities
- "distance travelled"
- CV
- (grades)

Quality of the research proposal

- shows clear understanding of the science conducted
- shows collaboration between applicant and mentor

Quality of the mentoring environment

- What is the availability of PI and immediate mentor during the training period?
- mentor's letter must state how the applicant will be trained

2024 Summer research timeline

- Nov/Dec: Start looking for potential Yale mentors
- Jan 2024: finalize lab mentor
- Feb 2024: start working with your mentor on your grant proposal
- Feb 9: STARS Summer application due (only mentor rec letter needed, research proposal not required)
- March 6: First Year Summer Fellowship application due
- Feb 22: Dean’s Fellowship application due
- Feb 29: Tetelman Fellowship application due
- April 1: SEA application due

What is a CV?

Latin *Curriculum Vitae* (“the course of one’s life”): a **detailed description of all the academic activities and accomplishments** you have accumulated throughout life (since college)

What is a resume?

French *résumé* (“summary”): a strategic, targeted, and **concise overview** of the most relevant **skills** and experiences that **relate to the particular position to which you are applying**

CV

- Long (2+ pages)
- Product-oriented (what you've done)
- Includes
  - **Name & contact information**
  - Research interests
  - **Education**
  - **Research experience**
  - **Publications & presentations**
  - **Grants, honors, awards, & fellowships**
  - **Teaching experience**
  - Technical/specialized skills*
  - Non-academic employment*
  - Service to the University
  - Scholarly/professional memberships
  - **References**

Resume

- 1 page
- Process-oriented (what you can do)
- Includes
  - **Name & contact information**
  - Education, awards, relevant coursework
  - **Related work experience**
  - Leadership/volunteer experience
  - **Technical/specialized skills**
  - Languages, computer skills, interests

Formatting

- Within a section, list activities/events in reverse chronological order (most recent first)
- Use action words to describe experiences ("Studied...")
- Past jobs in past tense, present job in present tense
- Include dates (usually best on right side)
- Keep formatting consistent throughout document
- Review sample CVs in your field
- Restructure appropriate to the position you're applying!

References

- Separate section
- 3-4 qualified people
- ASK IN ADVANCE, PREPARE YOUR RECOMMENDERS

HANNAH CEVASCO

hannah.cevasco@yale.edu | (650) 868-0687 | Greater NYC Area | www.linkedin.com/in/hannah-cevasco

Education

Yale University, New Haven, CT **2019- 2023(expected)**
Bachelor of Science – Computational Biology (Special Divisional Major); Global Health Scholar

Harvard Medical School, Cambridge, MA **Summer 2018**
Certificate of Achievement – Immunology course, 96% final grade

Sacred Heart Preparatory, Atherton, CA **2015-2019**
High school diploma – Valedictorian

Relevant coursework: Topics in Cancer Biology; Molecular Hallmarks of Cancer; Biochemistry and Biophysics; Cell Biology; Genetics and Development; Ecology and Evolutionary Biology; Introduction to Computer Science; Mathematical Tools for Computer Science; Organic Chemistry (with lab); Calculus of Functions of Several Variables

Research interests & Lab-based skills

- Oncology & Immunology
  - Wrote grant proposal in Topics in Cancer Bio course titled "Targeting p53 mutations in hepatocellular carcinomas using CRISPR-associated transposases" and proposal in Genetics and Development course titled "T3-mediated PIN1 expression in hepatocellular carcinoma"
- Viral evolution and computational biology
  - Invited to participate in summer COVID19 workshop with Yale's Dean of STEM where my team wrote a grant proposal titled "Targeted Editing and Degradation of SARS-CoV2 RNA and Protein using dCas13-ADAR and RING-mediated Degradation"
- BEAST (Bayesian Evolutionary Analysis by Sampling Trees) phylogenetic analysis
- Python pipeline development
- Wimasis image analysis
- Simple Linux Utility for Resource Management
- Scratch wound heal assay
- Kirby-Bauer / Zone of Inhibition test

Research and Work Experience

Regeneron Pharmaceuticals **Incoming Summer 2022**
Oncology & Angio (Bio) Intern

Amgen **May 2021-August 2021**
Business Development Intern
Conducted a review of the Big Tech / biopharma partnerships landscape to inform emerging trends and implications for Amgen. Completed market research to inform decisions on another strategic area of interest for Amgen in the genetics space. Attended all Corporate Strategy team meetings as the only undergrad intern and presented findings to the SVP of Business Development, EVP of R&D, and VPs of Business Development.

Yale University, Computational Biology and Bioinformatics Department **May 2020-present**
Undergraduate Researcher, Gerstein Lab, New Haven, CT
Using computational tools and different growth models to analyze the spread of COVID19, with respect to genetic variation

- Developed Python pipeline to process metadata, sequence, and coordinates files for >100,000 Covid-19 genomes
- Compiled data sets in fasta and nexus format and utilized pipeline to run slurm (Simple Linux Utility for Resource Management) jobs using the MAFFT alignment software and the BEAST suite of programs to develop statistical models for COVID19 spread and evolution
- Analyzed output of Bayesian MCMC analysis using Tracer program and built phylogenetic trees using TreeAnnotator and FigTree

Stanford University, Division of Infectious Diseases **Summer 2017**
Research associate, Bollyky Lab, Stanford, CA
Attended lab meetings as summer research correspondent to further independent wound healing research

- Discussed cutting edge research on the innate immune response to infections and hydrogel usage in wound healing
- Presented independent research to lab PI on findings regarding Manuka honey's anti-inflammatory activity

Stanford University, Department of Microbiology and Immunology **September 2013-May 2016**
Research associate, Butte Lab, Stanford, CA
Demonstrated that the use of Manuka honey as a topical healing agent promotes faster cell migration using *in vitro* scratch wound heal assays and provides antibacterial activity comparable to that of Kanamycin

- Developed and executed independent research on the antibacterial and anti-inflammatory properties of Manuka honey
- Utilized scratch wound heal assays, Kirby-Bauer / Zone of Inhibition test, Wimasis image analysis
- Selected to compete at Broadcom Masters National Science Fair as one of the top 30 student scientists in the U.S. Earned 2nd place in science. Received 17 awards for scientific research.
- Mentored by the late Dr. Peter Molan and his team in New Zealand at the University of Waikato

Publications

L Salichos, J Warrell, H Cevasco, A Chung (pre-print 2021). "Genetic Determination of Regional Connectivity in Modelling the Spread of COVID-19 Outbreak for Improved Mitigation Strategies." https://doi.org/10.1101/2021.01.30.21250785

Biographical Sketch of Ella Abeel, written by Hannah Cevasco, Sode Smith, Danielle Sarkisian, Serene Williams and Pat Roberts. Included in *Online Biographical Dictionary of Militant Woman Suffragists, 1913-1920*, Database assembled and co-edited by Thomas Dublin and Kathryn Sklar. Biographical sketches have been crowdsourced. (Alexandria, VA: Alexander Street Press, 2015).

Grants & Honors

NIH R01 grant "COVID-19 viral evolution and the impact of mutations on protein binding"
National AP Scholar 2019
Coca-Cola Scholars Semifinalist 2019
Carson Scholar 2016, 2017, 2018, 2019
Elks Most Valuable Student Scholarship 2019
California-Hawaii Elks Scholarship 2019
Ronald Reagan Student Leader Award 2018
Top 30 student scientists in U.S. 2015
Champion for Children, Lucile Packard Children's Hospital at Stanford

Professional Leadership and Service

Global Research and Consulting Group 501(c)3

Global Director of Chapter Development & Head of Education **July 2021 – present**
Oversee chapter growth and development for the Yale, Brown, Columbia, Princeton, and Wharton consulting chapters. Develop consulting education materials distributed to 1,500+ students for associate consultant training.

Co-President & Co-Founder, Yale chapter **July 2020 – July 2021**
Led a 95-member team of consultants at Global Research and Consulting, Yale branch, a multi-campus research and consulting group that completes pro-bono projects for international non-profits and social impact startups. Oversaw the development and execution of project proposals for 11 clients, 23 projects, and 16 research insights articles.

Dean's Committee on Majors & Dean's Committee on STEM and Quantitative Reasoning **May 2020-present**

Work with a team of undergraduates and faculty to review and approve new majors and certificates at Yale. Propose areas for improvement in STEM education at Yale including increased undergraduate mentorship and expansion of career info sessions for industry, academia, and non-MD careers in STEM.

Sacred Heart Alumni Association, ***Board Member*****,** Atherton, CA **August 2019-present**

Elected to serve on the Alumni Board to increase young alumni engagement with the Alumni Association.

Yale Women in Computer Science, ***Board Member*****,** New Haven, CT **Feb. 2020-August 2021**

Secure sponsorships from leading tech companies including Facebook, Jane Street, and Five Rings LLC. Maintain resume database, plan and execute virtual info sessions and coffee chats with tech engineers for 350+ club members.

Yale First Year Class Council, ***Publicity Chair***, New Haven, CT **August 2019-May 2020**

Promoted all class council events through social media accounts. Designed and produced any and all promotional materials including cover photos and posters. Wrote emails that reach 1,500+ students.

Sacred Heart Preparatory, ***Student Body President*****, Atherton, CA** **August 2018-August 2019**

Ran on platform to create Veterans Day assembly, Express Lunch Program, freshmen student summit, and Christmas holiday treat and fulfilled promises. Ran as a political outsider to navigate across identity groups.

SHP Connections Program, ***Founder and Director***, Atherton, CA **June 2018-June 2019**

Networked with over 1,200 parents and Sacred Heart alumni to generate internship and shadow opportunities in the Silicon Valley. Created Adobe Spark website to connect students with these opportunities. Coordinated a career fair for the entire student body (600+ students); organized logistics, attendees, sent out emails, generated interest.

Lucile Packard Children's Hospital, ***volunteer***, Palo Alto, CA **January 2010-May 2019**

Became a "Champion for Children" through charitable works for Lucile Packard Children's Hospital (Stanford). Organized book donations, wrote holiday cards for hospital-bound kids, coordinated groups to stuff teddy bears.

References

Sandy Chang, MD, PhD
Yale College Associate Dean for Science & Quantitative Reasoning Education, Professor of Laboratory Medicine, Pathology and Molecular Biophysics and Biochemistry
Department of Laboratory Medicine
Yale University
310 Cedar Street
New Haven, CT 06510
(203) 737-4667
s.chang@yale.edu

Leonidas Salichos, PhD
Associate Research Scientist, Gerstein Lab
Yale Computational Biology and Bioinformatics Program, Departments of Molecular Biophysics & Biochemistry and Computer Science
Yale University
266 Whitney Ave, Bass 437
New Haven, CT 06520
(203) 432-5405 (out of office during Covid)
leonidas.salichos@yale.edu (preferred communication)

HANNAH CEVASCO

hannah.cevasco@yale.edu | (650) 868-0687 | Greater NYC Area | www.linkedin.com/in/hannah-cevasco

Education

Yale University, New Haven, CT **2019 – 2023 (expected)**

Bachelor of Science – Computational Biology; Global Health Scholar

- Relevant coursework: Topics in Cancer Biology; Molecular Hallmarks of Cancer; Biochemistry and Biophysics; Cell Biology; Genetics and Development; Ecology and Evolutionary Biology; Introduction to Computer Science; Mathematical Tools for Computer Science; Organic Chemistry (with lab); Calculus of Functions of Several Variables

Sacred Heart Preparatory, Atherton, CA **2015 - 2019**

- Valedictorian, GPA: 4.2
- Coca-Cola Scholars Semifinalist, Carson Scholarship, Ronald Reagan Student Leader Award

Harvard Medical School, Cambridge, MA **Summer 2018**

- Immunology course, Certificate of Achievement, 96% final grade

Research & Work Experience

Regeneron Pharmaceuticals, ***Oncology & Angio (Bio) Intern***, Tarrytown, NY **Incoming Summer 2022**

Amgen Inc., ***Business Development Intern***, Thousand Oaks, CA **May 2021 – August 2021**

Conducted a review of the Big Tech / biopharma partnerships landscape to inform emerging trends and implications for Amgen. Completed market research to inform decisions on another strategic area of interest for Amgen in the genetics space. Attended all Corporate Strategy team meetings as the only undergrad intern and presented findings to the SVP of Business Development, EVP of R&D, and VPs of Business Development.

Global Research and Consulting Group 501(c)3

Global Director of Chapter Development & Head of Education **July 2021 – present**

Oversee chapter growth and development for the Yale, Brown, Columbia, Princeton, and Wharton consulting chapters. Develop consulting education materials distributed to 1,500+ students for associate consultant training.

Co-President & Co-Founder, Yale chapter **July 2020 – July 2021**

Led a 95-member team of consultants at Global Research and Consulting, Yale branch, a multi-campus research and consulting group that completes pro-bono projects for international non-profits and social impact startups. Oversaw the development and execution of project proposals for 11 clients, 23 projects, and 16 research insights articles.

Gerstein Lab, ***Undergraduate Researcher***, New Haven, CT **May 2020 - present**

Using computational tools and Bayesian statistical models to analyze the spread of COVID19, with respect to genetic variation. The goal of this research is to estimate the direction and speed of the virus and to predict future hotspots.Transitioning to new project focused on the role of miRNAs in cancer.

Bollyky Lab, Stanford University, ***Research Associate***, Stanford, CA **Summer 2017**

Attended lab meetings as summer research correspondent to further independent wound healing research

Butte Lab, Stanford University, ***Independent Researcher***, Stanford, CA **September 2013 - May 2016**

Conducted independent research on the antibacterial, anti-inflammatory, and anti-cancer properties of Manuka honey. Selected to compete at Broadcom Masters National Science Fair as one of the top 30 student scientists in the U.S. Earned 2nd place in science. Received 17 awards for scientific research. Communicated with Dr. Peter Molan and his team in New Zealand regarding Manuka honey research.

Leadership and Service

Dean's Committee on Majors & Dean's Committee on STEM and Quantitative Reasoning **May 2020-present**

Work with a team of undergraduates and faculty to review and approve new majors and certificates at Yale. Propose areas for improvement in STEM education at Yale including increased undergraduate mentorship and expansion of career info sessions for industry, academia, and non-MD careers in STEM.

Sacred Heart Alumni Association, ***Board Member***, Atherton, CA **August 2019 - present**

Elected to serve on the Alumni Board to increase young alumni engagement with the Alumni Association.

Yale Women in Computer Science, ***Board Member***, New Haven, CT **February 2020 – August 2021**

Secured sponsorships from leading tech companies including Facebook, Jane Street, and Five Rings LLC. Maintain resume database, planned and executed virtual info sessions and coffee chats with tech engineers for 350+ club members.

Yale First Year Class Council, ***Publicity Chair***, New Haven, CT **August 2019-May 2020**

Promoted all class council events through social media accounts. Designed and produced all promotional materials including cover photos and posters. Wrote emails that reached 1,500+ students.

https://www.thebalancecareers.com/academic-curriculum-vitae-example-2060817