# Sudarshan Pinglay, PhD

pinglay@uw.edu / sudarshanpinglay.com

## Research positions

Faculty — Seattle Hub for Synthetic Biology — Jan 2024 – Present

Independent Research Fellow — University of Washington, Genome Sciences and Brotman Baty Institute — Aug 2023 – Present

Visiting Scientist — University of Washington, Genome Sciences — Jan 2023 – Aug 2023
Advisor: Jay Shendure, M.D., Ph.D.

Postdoctoral Fellow — New York University School of Medicine — Jan 2022 – Jan 2023
Advisor: Jef Boeke, Ph.D.

## Education and training

Ph.D. in Cell and Molecular Biology — New York University School of Medicine — Aug 2015 – Dec 2021
Advisors: Jef Boeke, Ph.D. and Liam Holt, Ph.D.

Member, HHMI Summer Research Institute — Marine Biological Lab, Woods Hole, MA — Jul 2017

B.S Molecular & Cellular Biology, B.A Philosophy — Johns Hopkins University — Aug 2011 – May 2015
Research advisors: Shukti Chakravarti, Ph.D. and Jef Boeke, Ph.D.

Research Intern — National Center for Biological Sciences, Bangalore, India — Jul - Aug 2012
Advisor: K. Vijay Raghavan, Ph.D.

## Research Publications

*indicates equal contribution, # indicates corresponding author

1. **Pinglay, S.**[#], J.B. Lalanne, R.M. Daza, J. Koeppel, X. Li, D.S. Lee and J. Shendure[#]. (2024). “Multiplex generation and single cell analysis of structural variants in a mammalian genome”. BioRxiv (https://doi.org/10.1101/2024.01.22.576756)

2. Lauer, S.*, J. Luo*….**S. Pinglay**…and J.D. Boeke[#]. (2023). “Context-dependent neocentromere activity in synthetic yeast chromosome VIII”. Cell Genomics (https://doi.org/10.1016/j.xgen.2023.100437)

3. **Pinglay, S**.*, M. Bulajic*, D. Rahe, E. Huang, R. Brosh, N. E. Mamrak, B. R. King, S. German, J. A. Cadley, L. Rieber, N. Easo, T. Lionnet, S. Mahony, M.T. Maurano, L.J. Holt, E. O. Mazzoni[#] and J.D. Boeke[#]. (2022). “Synthetic regulatory reconstitution reveals principles of mammalian *Hox* cluster regulation”. Science (doi.org/10.1126/science.abk2820)

4. German, S., **S. Pinglay**, B. Camellatto, D. Fenyo, J.D. Boeke[#]. (2022). “MenDEL: automated search of BAC sets covering long DNA regions of interest”. BioRxiv (doi.org/10.1101/2022.06.26.496179)

5. Trolle, J.*, R.M. McBee*, A. Kaufman, **S. Pinglay**, H. Berger, S. German, L. Liu, M.J. Shen, X. Guo, J.A. Martin, M. Pacold, D.R. Jones, J.D. Boeke#, H.H Wang[#]. (2022). “Resurrecting essential amino acid biosynthesis in a mammalian cell”. eLife (doi.org/10.7554/eLife.72847)

6. Mitchell, L. A., L. H. McCulloch*, **S. Pinglay***, H. Berger, M. Bulajic, J. A. Martin, M. S. Hogan, E. O. Mazzoni, M. T. Maurano and J. D. Boeke[#] (2021). "De novo assembly, delivery and expression of a 101 kb human gene in mouse cells." Genetics (doi.org/10.1093/genetics/iyab038)

7. Brosh, R*., J. M. Laurent*, R. Ordonez, E. Huang, M. S. Hogan, A. M. Hitchcock, L. A. Mitchell, **S. Pinglay**, J. A. Cadley, R. D. Luther, D. M. Truong, J.D. Boeke[#], M. T. Maurano. (2021) “A versatile platform for locus-scale genome rewriting and verification.” PNAS (doi.org/10.1073/pnas.2023952118)

8. Sang, D., **S. Pinglay**, R. P. Wiewiora, M. E. Selvan, H.J. Lou, J. D. Chodera, B. E. Turk, Z. H. Gümüş, and L. J. Holt[#]. (2019) "Ancestral Reconstruction Reveals Mechanisms of Erk Regulatory Evolution." eLife (doi.org/10.7554/elife.38805)

9. Delarue, M*., G. P. Brittingham*, S. Pfeffer*, I. V. Surovtsev, **S. Pinglay**, K. J. Kennedy, M. Schaffer, J. I. Gutierrez, D. Sang, G. Poterewicz, J. K. Chung, J. M. Plitzko, J. T. Groves, C. Jacobs-Wagner, B. D. Engel[#] and L. J. Holt[#] (2018). "mTORC1 Controls Phase Separation and the Biophysical Properties of the Cytoplasm by Tuning Crowding." Cell (doi.org/10.1016/j.cell.2018.05.042)

10. Kuang, Z., **S. Pinglay**, H. Ji[#] and J. D. Boeke[#] (2017). "Msn2/4 regulate expression of glycolytic enzymes and control transition from quiescence to growth." eLife (doi.org/10.7554/elife.29938)

11. Gowda, R. N., R. Redfern, J. Frikeche, **S. Pinglay**, J. W. Foster, C. Lema, L. Cope and S. Chakravarti[#] (2015). "Functions of Peptidoglycan Recognition Proteins (Pglyrps) at the Ocular Surface: Bacterial Keratitis in Gene-Targeted Mice Deficient in Pglyrp-2, -3 and -4." PLOS ONE (doi.org/10.1371/journal.pone.0137129)

## Other Publications

1. Laurent, J., **S. Pinglay**, L. A. Mitchell and R. Brosh (2019) "Probing the dark matter of the human genome with big DNA." The Biochemist (doi.org/10.1042/BIO04103046)

## Patents

1. S. Pinglay, J. Trolle. (2023) “Shotgun genetic engineering.” US Provisional Application No. 63/533,483

## Awards and Honors

| | | |
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| 1. | NIH DP5 Early Independence Award | 2023 |
| 2. | NYU University-Wide Outstanding Dissertation Award | 2022 |
| 3. | 1st place, Nucleate NYC start-up showcase | 2022 |
| 4. | Young Mahratta Award, Mahratta Education Fund | 2022 |
| 5. | Keystone Symposia Scholarship | 2021 |
| 6. | Vilcek Travel Award | 2017, 2018, 2019, 2020, 2021 |
| 7. | Student Government Association Travel Award | 2019 |
| 8. | Company of Biologists Workshop Scholarship | 2019 |
| 9. | Special MacCracken Award, Vilcek Institute at NYU School of Medicine | 2018 |
| 10. | Graduating university and departmental honors, Johns Hopkins University | 2015 |
| 11. | Beta Beta Beta Biological Honors Society, Johns Hopkins University | 2014 |
| 12. | National Society of Collegiate Scholars | 2012 |

## Talks

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| 1. | University of Washington, Genome Sciences | 2024 |
| 2. | Francis Crick Institute | 2023 |
| 3. | University of Edinburgh/European Synthetic Biology Society Seminar Series | 2023 |
| 4. | Salk Institute | 2023 |
| 5. | University of Southern California | 2023 |
| 6. | California Institute of Technology | 2023 |
| 7. | Synthetic Biology Young Speaker Seminar Series (SynBYSS) | 2022 |
| 8. | Keystone Symposium on Gene Regulation: From Emerging Technologies to New Models | 2022 |
| 9. | Virtual Epigenetics and gene regulation conference for early career scientists – GREECS | 2022 |
| 10. | Next-Generation Genomics Virtual Meeting | 2021 |
| 11. | Cold Spring Harbor Biology of Genomes Virtual Meeting | 2021 |

12. New York Genome Center 2021
13. Virtual American Society for Cell Biology Annual Meeting 2020
14. SynBioBeta - Virtual Panel Discussion 2020
15. NYU Institute for Systems Genetics Social Hour 2020
16. Centers of Excellence in Genomic Science 17th Annual Grantee Meeting. *Harvard Medical School* 2019
17. GP-Write and Sc2.0 Meeting 2019
18. Company of Biologists - Chromatin based regulation of development workshop 2019
19. Centers of Excellence in Genomic Science 16th Annual Grantee Meeting. *University of Chicago* 2018

## Entrepreneurship

1. Selected to Fifty50 – community of entrepreneurial minded scientists run by Fifty Years VC 2023
2. Selected to Nucleate Bio NYC – Training program for academics looking to spin out their research
   Received 1st place award at the culminating pitch showcase 2022
3. Selected to Frequency Bio Founder Workshop organized by Pillar + Petri 2021
4. Licensed technology: Pandemic Response Lab NYC – automated, miniature RT-PCR for
   SARS-CoV-2 detection. As part of ISG COVID-19 response SWAT Team 2020

## Leadership and outreach activities

1. Clear Direction Mentoring – Member of the Board of Directors and Mentor 2016 – Present

   This program pairs high school students from under-represented minorities in STEM with a Ph.D. or M.D. student, in order to expose them to various experiences in science and technology. I am part of the leadership team expanding this program beyond NYC – starting with a first additional chapter in Colorado, and approval as a 501c3 certified national non-profit.
   Previously, I mentored a high school student who had failed the 11th grade twice. After supporting her in finding the right school, she later graduated as valedictorian in 2018.

2. InspireScience Symposium NYU – Chair, Organizing Committee 2019 – 2021

   Organized half-day symposium for >200 attendees focused on promoting a positive work environment within academic science – an opportunity to celebrate what we love in a challenging career, and to think about the ways that we can make it better.

3. Contributor to the Sackler Messenger 2019 – 2021

   I have written articles for the graduate student newsletter at NYU School of Medicine.

4. Thread – Volunteer (Previously called Incentive Mentoring Program) 2012 – 2015

   The organization helps underprivileged kids in the bottom quartile of their class in Baltimore inner city high schools through school and into college by putting them with volunteer ‘families’. I served in two leadership roles – as Grandparent, responsible for coordinating 25 volunteers and as Head of Family, directing volunteers helping one high school student. During this time, we helped our student go from failing all his classes to passing all but one.

5. Secular Humanists of Hopkins – Founding President 2014 – 2015

   After recognizing the lack of a student group promoting a secular viewpoint on campus, I founded this organization to provide a stimulating environment for philosophical discussions, outreach and community service. Managed the organization on all fronts including recruitment (~55 members), finances, event organization, and serving as liaison with the university administration.

6. National Society of Collegiate Scholars at Johns Hopkins – Executive Board Member 2013 – 2015

Organized networking and recruitment events, managed the social media presence of the chapter.

7. Johns Hopkins University Model United Nations Conference – Editor in Chief, Press Corps 2014

   Was responsible for video and written coverage, including the publication of a daily newsletter for the largest Model UN in the US with ~2000 participants.

8. Alternative Winter Break – Student Coordinator 2013 – 2014

   Organized a community service trip for 10 participants focused on the rehabilitation of refugee populations in the greater Baltimore-DC area.

## Teaching Experience

1. Instructor – SynBio101, Genspace NYC 2019 – 2023

   Developed the curriculum, and currently teach, a recurring 3-day introductory synthetic biology course ("SynBio101") to a diverse group of students at a community DIY Bio lab space in Brooklyn.

2. Guest Lecturer 2019 – Present

   BioRocket Course, Genspace NYC
   Build-a-Genome Course, NYU
   Future Medical Leaders Club, Bard High School, Queens

3. Teaching Assistant – General Biology, Johns Hopkins University 2014 – 2015

   Responsible for mentoring students, including weekly review sessions and grading assignments.

## Mentoring/Supervision

1. Zihao Song, Graduate Student 2024 – Present
2. Jordan Knuth, Research Associate 2024 – Present
3. Tiffany Tsou. Graduate Student. 2021 – 2023
   Current: Graduate student, Boeke lab, NYU
4. Amy Wang. SURP Student. 2022
   Current: Undergraduate student, UCSB
5. Julie Trolle. Graduate Student. 2017 – 2022
   Current: Postdoctoral fellow, Boeke lab, NYU
6. Nicole Easo. Research Technician. 2020 – 2022
   Current: Medical Student, University of Pennsylvania
7. Brian Cho. Undergraduate Intern. 2019 – 2021
   Current: Undergraduate student, Northeastern University
8. Ryan Curtin. Rotation Student. 2020
   Current: Graduate student, Krogsgaard lab, NYU
9. Noor Chaloub. Rotation Student. 2019
   Current: Graduate student, Boeke lab, NYU
10. Aaron Schwartz. Rotation Student. 2018
    Current: Graduate student, Nance lab, NYU
11. Stephen Agbomson. Rotation Student. 2017
    Current: Graduate student, Armache lab, NYU
12. Nicholas Mamrak. Rotation Student. 2017
    Current: Graduate student, Lionnet lab, NYU

## Academic Service

Journal Reviewer - *Elife*, *Nature Communications, Mol Biol Cell, Nucleic Acids Research* 2017 – Present

Member - New York Academy of Sciences 2015 – 2023