Arkarup Banerjee

Assistant Professor
Cold Spring Harbor Laboratory, NY
Email: abanerjee@cshl.edu
Phone: 516-367-6878

A. POSITIONS AND EMPLOYMENT

Nov, 2020 -	Assistant Professor, Cold Spring Harbor Laboratory, NY
2017-2020	Junior Fellow, Simons Foundation Society of Fellows, NY
2016-2020	Post-doctoral Fellow, New York University School of Medicine, NY
Fall, 2016	Adjunct Faculty, Adelphi University, Garden City, NY

B. EDUCATION

2010-2016	Ph.D. (Neuroscience, 2010-2016). Cold Spring Harbor Laboratory, NY, USA.
2007-2010	Master of Science (Biophysics). Tata Institute of Fundamental Research, Mumbai, India.
2003-2007	Bachelor of Science (Biochemistry). University of Delhi, New Delhi, India.
2015	Advanced Course in Computational Neuroscience, Lisbon, Portugal.
2009	Harvard-NCBS Optogenetics course, Bangalore, India.

C. RESEARCH EXPERIENCE

2020-	Cold Spring Harbor Laboratory, USA (Group Leader) *Function and evolution of neural circuits underlying naturalistic behaviors*
2016-20	New York University School of Medicine, USA (Postdoctoral Fellow) *Neuroscience of vocal communication in a neo-tropical rodent Scotinomys teguina.*
2010-2016	Cold Spring Harbor Laboratory, USA (Ph.D. student) *Neural circuits for gain-control in the early olfactory system of mammals*
2007-2010	Tata Institute of Fundamental Research, India (Masters student) *Label-free imaging of cellular dopamine dynamics with multi photon microscopy.*
2007	Weizmann Institute of Science, Israel (Summer student) *Neuronal conduction velocity in one-dimensional hippocampal neuronal network.*
2005, 2006	Jawaharlal Nehru Center for Advanced Scientific Research, India (KVPY fellow) *Simulation and Modeling of Population Dynamics of Drosophila melanogaster.*

D. ACADEMIC AWARDS/HONORS

2025	McKnight Scholars Award
2025	National Academy of Science Kavli Fellow
2024	Winship Herr Award for Excellence in Teaching, School of Biological Sciences, CSHL
2023-2026	Klingenstein-Simons Fellowship Awards in Neurosciences
2022-2025	Searle Scholar, Searle Scholars Program
2020	Advances and Perspectives in Auditory Neuroscience Poster/Talk award
2017-2020	Junior Fellow, Simons Foundation Society of Fellows
2016	National Science Foundation Travel Award
2007	Karyn-Kupcinet International summer school fellowship, Weizmann Institute of Science, Israel
2007	University Gold Medal for ranking 1st in Bachelor of Science
2004-2007	KVPY National Fellowship, Government of India

E. PUBLICATIONS (ORCID number 0000-0003-1979-857X)

17. Xiaoyue Mike Zheng [#], Clifford E. Harpole [#], Martin B. Davis, **Arkarup Banerjee** *. (2025) Vocal repertoire expansion in singing mice by co-opting a conserved midbrain circuit node. Current Biology. 10.1016/j.cub.2025.10.036

16. **Banerjee A***, Phelps SM, Kebschull JM. (2025) The Unusual Effectiveness of Evolution in Systems Neuroscience. Cold Spring Harb Perspect Biol. Sep 22:a041510.

15. Matthew Koh, Francesca Anselmi, Sanjeev K. Kaushalya, Diego E. Hernandez, Walter Germ√°n Bast, Pablo S. Villar, Honggoo Chae, Martin B. Davis, Sadhu Sai Teja, Zhe Qu, Viviana Gradinaru, Priyanka Gupta, **Arkarup Banerjee***, Dinu F. Albeanu*. *Axially decoupled photo-stimulation and two photon readout (ADePT) for mapping functional connectivity of neural circuits.* bioRxiv 2025.02.24.639992;

14. Yang Shen [#], **Arkarup Banerjee** [#] *, Dinu F Albeanu *, Saket Navlakha *. *An evolutionarily conserved scheme for reformatting odor concentration in early olfactory circuits.* eLife 14:RP107228 https://doi.org/10.7554/eLife.107228.1

13. Emily C. Isko, Clifford E. Harpole, Xiaoyue Mike Zheng, Huiqing Zhan, Martin B. Davis, Anthony M. Zador *, **Arkarup Banerjee** *. *Selective expansion of motor cortical projections in the evolution of vocal novelty.* bioRxiv (2024)

12. **Banerjee, A.*** #, Chen, F. #, Druckmann, S., & Long, M. A.*(2024). *Temporal scaling of motor cortical dynamics reveals hierarchical control of vocal production.* Nat Neurosci 27, 527-535 (2024).

11. **Banerjee, A.***, & Vallentin, D.* (2022). *Convergent behavioral strategies and neural computations during vocal turn-taking across diverse species.* Current Opinion in Neurobiology, 73, 102529.

10. Chae, H. [#], **Banerjee, A**. [#], Dussauze, M., & Albeanu, D. F. (2022). *Long-range functional loops in the mouse olfactory system and their roles in computing odor identity.* Neuron, 110(23), 3970-3985.

9. **Banerjee, A.** [#], Egger, R. [#], & Long, M. A. (2021). *Using focal cooling to link neural dynamics and behavior.* Neuron, 110(23), 3970-3985.

8. **Banerjee, A.**, Phelps, S. M., & Long, M. A. (2019). *Singing mice*. Current Biology, 29(6), R212-R214.

7. Okobi, D. E. [#], **Banerjee, A.** [#], Matheson, A. M., Phelps, S. M., & Long, M. A. (2019). *Motor cortical control of vocal interactions in neotropical singing mice*. Science, 363(6430), 983-988.

6. **Banerjee, A.**, & Long, M. A. (2017). *Ready, steady, go! Imaging cortical activity during movement planning and execution*. Neuron, 94(3), 698-700.

5. **Banerjee, A.** [#], Marbach, F. [#], Anselmi, F., Koh, M. S., Davis, M. B., Oyibo, H. K., Gupta, P., & Albeanu, D. F. (2015). *Long-range interactions between short axon cells and external tufted cells gate glomerular output in the mouse olfactory bulb*. Neuron, 87(1), 193-207.

4. Anselmi, F., **Banerjee, A.**, & Albeanu, D. F. (2015). *Patterned photo-stimulation in the brain*. In New Techniques in Systems Neuroscience (pp. 157-174). Springer.

3. Sarkar, B. [#], **Banerjee, A.** [#], Das, A. K., Nag, S., Kaushalya, S. K., Tripathy, U., ... & Maiti, S. (2014). *Label-free dopamine imaging in live rat brain slices*. ACS Chemical Neuroscience, 5(4), 329-334.

2. Sarkar, B., Das, A. K., Arumugam, S., Kaushalya, S. K., **Bandyopadhyay, A.**, Balaji, J., & Maiti, S. (2012). *The dynamics of somatic exocytosis in monoaminergic neurons*. Frontiers in Physiology, 3, 41.

1. Nag, S., Sarkar, B., **Bandyopadhyay, A.**, Sahoo, B., Sreenivasan, V. K., Kombrabail, M., ... & Maiti, S. (2011). *Nature of the amyloid-beta monomer and the monomer-oligomer equilibrium*. Journal of Biological Chemistry, 286(15), 138

#: co-first author; *: co-corresponding author.

F. FUNDING SUPPORT

2025-2028	McKnight Scholars Award (PI)	225,000 USD DC
2023-2028	NIH BRAIN initiative 1RF1NS132046-01 (Lead-PI)	2.1M USD DC
2023-2026	Klingenstein-Simons Fellowship Awards in Neurosciences (PI).	350,000 USD DC
2023	Pershing Square Innovation Fund 2023 (PI).	~180,000 USD DC
2022-2025	Searle Scholar, Searle Scholars Program (PI).	300,000 USD DC
2017-2020	Simons Foundation Society of Fellows (PI).	~240,000 USD DC

G. SELECTED INVITED TALKS

2025 Psychology and Brain Sciences, Johns Hopkins University, Baltimore
2025 International Ethological Congress, Kolkata, India
2025 National Brain Research Center, Delhi, India
2025 Camp Sandbox, Workship with scientists and documentary film-makers, NY
2025 University of Pennsylvania, Biology department, Philadelphia
2024 Zuckerman Institute, Columbia University, NY
2024 Society of Fellows Alumni Meeting, Simons Foundation, NY
2024 International Neuroethology Conference, Berlin, German
2024 Max Planck Institute for Brain Research, Frankfurt, Germany
2024 Center for Mind, Brain and Culture. Emory University. Atlanta, US
2023 National Center for Biological Science (NCBS), India
2023 Indian Institute of Science (IISc), India
2023 Jawaharlal Nehru Center for Advanced Scientific Research (JNCASR), India
2023 Forum for the future of Neuroscience, Stockholm, Sweden
2023 Burke Neurological Institute, Weill Cornell, NY
2022 Society for Social Neuroscience, San Diego, US
2022 Gordon Conference, Neural Mechanisms of Acoustic Communication, Mt. Holyoke, US
2022 Neural Circuits Meeting, CSHL, NY
2021 Arizona State University, US
2021 University of California, Irvine
2021 Bridging Brains and Bioacoustics invited seminar series
2021 McGill University, Canada
2021 Max Planck Institute of Ornithology, Germany
2020 Neuromatch3.0 Conference
2020 Advances and Perspectives in Auditory Neuroscience (APAN)
2020 Motor Club, Columbia University
2020 U.T. Austin, Online
2020 Nencki Institute, Poland, Online
2020 Monsoon Brain Meeting, Online
2019 Gordon Research Seminar on Neuroethology, Vermont
2019 Simons Collaboration on the global brain, NY
2018 Birdsong and Animal Communication Annual Meeting, Millbrook, NY
2018 New York University Annual Retreat, Mohonk, NY
2018 Simons Society of Fellows Annual Retreat. South Carolina
2016 Research in Encoding and Decoding of Neuronal Ensembles (AREADNE), Greece
2016 Neuronal Circuits Meeting, CSHL, NY

H. OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

2012-present	Member, Society for Neuroscience
2019-present	Member, International Society for Neuroethology
2019-present	Member, Post-doctoral Planning Committee, NYU Medical Center, NY

I. TEACHING EXPERIENCE

1. **Instructor:** Systems neuroscience, School of Biological Sciences CSHL (2021-2024)
2. **Course Developer and Instructor:** Core Shared Principles of Biology, CSHL (2023-2024)
3. **Teaching Assistant**: CSHL Imaging Structure and Function in the Nervous System Course (2017-2019)
4. **Teaching Assistant**: Transylvanian Experimental Neuroscience Summer School (TENSS, Romania, 2016)
5. **Lead Instructor:** Cellular function and interaction in the nervous system, graduate course (Adelphi University, NY, USA, 2016)
6. **Teaching Assistant**: WSBS Optical Methods in Biology (CSHL, 2016)
7. **Organizer and Instructor**: "Neuroscience boot-camp" for 1st year graduate students (CSHL, 2014 and 2015)
8. **Teaching Assistant**: Biostatistics (TIFR, 2009, 2010)
9. **Teaching Assistant**: Fluorescence Correlation Spectroscopy Workshop (TIFR, 2008)

J. MENTORSHIP AND SERVICE

1. **Thesis advisor:** Emily Isko, Xiaoyue Mike Zheng, Yaman Thapa, Kristina Shaw
2. **Thesis committee member:** Chris Krasniak, Luqun Shen**,** DeeDee Rupert, Hoda Ansari**,** Iacopo Gentile
3. **Chair of the Executive committee**, School of Biological Sciences, CSHL
4. **External reviewer**: National Institute of Health, Nature, Nature Neuroscience, PNAS, Current Biology, Nature Communication, Cell Reports, PLOS ONE, eLife, Wellcome Trust.
5. **Faculty advisory member**: CSHL Diversity Initiative for the Advancement of STEM (DIAS)
6. **Faculty affiliate**: bioRxiv
7. **Member**: Post-doctoral Planning Committee, NYU Medical Center, NY (2019)
8. **Advisor**: Neuroscience Institute Committee for Diversity Initiative, NYU Medical Center, NY (2020)

K. SCIENCE OUTREACH

1. **Camp Sandbox:** 3-day workshop with Scientists and Filmmakers, Albany, 2025
2. **Public Event**: Screen a Movie with a Scientist. Cine Arts Center, Huntington 2024
3. **Public Talk**: Cocktails and Chromosomes, Huntington 2023
4. **Guest Speaker**: Town hall on Communication in mice and men (BioBus, NY, 2021)
5. **Author**: How topology *almost* made bacterial replication impossible, Cold Spring Harbor Student Magazine – Current exchange (CSHL, 2015)
6. **Co-organizer**: Graduate Student Symposium (CSHL, 2014)
7. **Co-editor**: Inaugural student magazine of TIFR "IMAGINE" (TIFR, Mumbai, 2010)
8. **Science Exhibitor**: Lab demonstrations at the Cold Spring Harbor Laboratory Open day (CSHL, 2015)
9. **Member**: Tata Institute of Fundamental Research-Science Outreach Committee (TIFR, 2007-2010).
10. **Member**: Student organizing committee of the second ASEAN Bioinformatics Workshop (University of Delhi, 2007).