

Curriculum Vitae

Keita Kamino

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Professional Experience

- Since 2022: Assistant Research Fellow at the Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan
- Since 2023: Joint-appointment Assistant Research Fellow at the Institute of Physics, Academia Sinica, Taipei, Taiwan
- Since 2021: Principal Investigator, PRESTO, Japan Science and Technology Agency
- 2019 - 2022: Associate Research Scientist at the Department of Molecular, Cellular and Developmental Biology, Yale University, New Haven, CT, USA. Advisor: Thierry Emonet
- 2017 - 2019: Postdoctoral Fellow at the Department of Molecular, Cellular and Developmental Biology, Yale University, New Haven, CT, USA. Advisor: Thierry Emonet
- 2013 - 2017: Postdoctoral Fellow at FOM Institute for Atomic and Molecular Physics (AMOLF), Amsterdam, Netherlands. Advisor: Tom Shimizu
- 2011 - 2013: Research fellow of Japanese Society for the Promotion of Science (DC2) at the Department of Basic Science, Graduate School of Arts and Sciences, the University of Tokyo, Tokyo, Japan. Advisor: Satoshi Sawai

Education & research

- 2013: Ph.D. in Biophysics at the Department of Basic Science, Graduate School of Arts and Sciences, the University of Tokyo, Tokyo, Japan. Thesis: A response-rescaling property revealed by single-cell analysis of cAMP signaling response in the social amoeba *Dictyostelium discoideum*. Advisor: Satoshi Sawai
- 2010: M.Sc. in Biophysics at the Department of Basic Science, Graduate School of Arts and Sciences, the University of Tokyo, Tokyo, Japan. Advisor: Satoshi Sawai
- 2008: B.Sc. in Physics at the Department of Physics, Faculty of Science & Graduate School of Science, The University of Tokyo, Tokyo, Japan.

Publications

Research articles

*equal contribution; #corresponding authors

1. Mattingly, H.H.*, **Kamino, K.***, Ong, J., Kottou, R., Emonet, T., & Machta, B.B. (2024) E. coli do not count single molecules. **arXiv**, <https://arxiv.org/abs/2407.07264>
2. Moore, J.P.*, **Kamino, K.***, Kottou, R., Shimizu, T.S., & Emonet, T. (2024) Signal integration and adaptive sensory diversity tuning in Escherichia coli chemotaxis. **Cell Systems**, <https://doi.org/10.1016/j.cels.2024.06.003>.
3. **Kamino, K.#**, Kadakia, N., Avgidis, F., Liu, Z. X., Aoki, K., Shimizu, T. S., & Emonet, T. # (2023). Optimal inference of molecular interaction dynamics in FRET microscopy. **PNAS**, 120(15), e2211807120.

4. Mattingly, H.H.*, **Kamino, K.***, Machta, B.B., & Emonet, T. (2021). *Escherichia coli* chemotaxis is information limited. **Nature Physics**, 17(12), 1426-1431; <https://doi.org/10.1038/s41567-021-01380-3>
5. **Kamino, K.**, Keegstra, J.M., Long, J., Emonet, T., & Shimizu, T.S. (2020). Adaptive Tuning of Cell Sensory Diversity without Changes in Gene Expression. **Science Advances**, 6(46), eabc1087
6. **Kamino, K.**[#], Kondo, Y., Nakajima, A., Honda-Kitahara, M., Kaneko, K., & Sawai, S.[#] (2017). Fold-change Detection and Scale-invariance of Cell-cell Singling in Social Amoeba. **PNAS**, 114: E4149-E4157
Highlighted and summarized in:
Adler, M. and Alon, U. (2018). Fold-change detection in biological systems. *Curr. Opin. Syst. Biol.*
7. Keegstra, J.M., **Kamino, K.**, Anquez, F., Lazova, M.D., Emonet, T., & Shimizu, T.S. (2017). Phenotypic diversity and temporal variability in a bacterial signaling network revealed by single-cell FRET. **ELife**, 6: e27455
8. **Kamino, K.**[#] & Kondo, Y.[#]. (2016). Rescaling of Spatio-temporal Sensing in Eukaryotic Chemotaxis. **PLoS One**, 11(10): e0164674,

Review Articles and Book Chapters

1. **Kamino, K.** (2022). Information Efficiency in E. coli Chemotaxis. **Seibutsu Butsuri** 62(5): 276-279; DOI: 10.2142/biophys.62.276
2. Moore, J.P., **Kamino, K.**, & Emonet, T. (2021). Non-genetic Diversity in Chemosensing and Chemotactic Behavior. **International Journal of Molecular Sciences**, 22(13), 6960
3. **Kamino, K.**, Kondo, Y., & Sawai, S. (2018). Scale-invariant Cell-to-cell Signaling. **Seibutsu Butsuri** 58: 316-318; DOI: 10.2142/biophys.58.316
4. **Kamino, K.**, Fujimoto, K., & Sawai, S. (2011). Collective Oscillations in Developing Cells - Insights from Simple Systems. **Development, Growth & Differentiation**, 53, 503-517

Grants and Awards:

- 2023: NSTC Research Project Grant
 - Period: 9/2023-8/2026 (3 years)
 - Subject: Probing cell-to-cell and temporal variations in bacterial chemotaxis signaling by integrating live single-cell imaging and probabilistic modeling
 - Budget: 7,934,000 TWD
- 2021: JST PRESTO
 - Period: 10/2021-4/2025 (3.5 years)
 - Subject: Interrogating noise and response in cellular signal transduction using optimal Bayesian inference of molecular interactions
 - Budget: 40,000,000 JPY (+ 4596K JPY as start-up funding, 1M JPY for a collaboration within PRESTO, 1.2M JPY for an international collaboration)
- 2019: Special Postdoctoral Researcher (SPRR) program, Riken (I was awarded but did not accept)
- 2011: Research Fellowship for Young Scientists (DC2), Japanese Society for the Promotion of Science

Academic service

- *Nature Chemistry*, referee
- *Physical Review Letters*, referee
- *PRX Life*, referee
- *eLife*, referee
- *Biophysical Journal*, referee
- *Physical Review E*, referee
- *Physical Biology*, referee

Conference organization

- 2023: STATPHYS28 Satellite Meeting – Emergence in Biological Networks, NCTS, National Taiwan University, Taipei, Taiwan

Invited conference talks

- 2024: EMBO Workshop Bacnet 24, Sant Feliu de Guixols, Spain (To be executed in September)
- 2024: Q-bio 2024 Conference, Shenzhen, China (To be executed in July)
- 2024: GSB Symposium on Molecular Systems Biology, National Taiwan University, Taipei, Taiwan
- 2024: The Joint Symposium of the Taiwan Biophysical Society and International Network of Protein Engineering Centers, National Synchrotron Radiation Research Center (NSRRC), Hsinchu, Taiwan
- 2024: 2024 Annual Meeting of the Physical Society of Taiwan, National Central University, Taoyuan, Taiwan
- 2023: The 16th IEEE International Conference on Nano/Molecular Medicine & Engineering, Okinawa, Japan
- 2023: The 61st Annual Meeting of the Biophysical Society of Japan, Nagoya, Aichi, Japan
- 2023: East Asia Joint Seminars on Statistical Physics 2023, Yokohama, Kanagawa, Japan
- 2023: STATPHYS28 Satellite Meeting – Emergence in Biological Networks, NCTS, National Taiwan University, Taipei, Taiwan
- 2023: Q-bio 2023 Conference, Shenzhen, China (I was invited but could not attend due to a visa issue)
- 2023: The 75th Annual Meeting of the Japanese Society for Cell Biology (JSCB), Nara city, Nara, Japan
- 2023: 2nd symposium of Physical Biology and Biological Physics, National Dong Hwa University, Hualien, Taiwan
- 2023: Workshop OT 2023, Optimal transport and related topics – from machine learning to thermodynamics optimization, University of Tokyo, Tokyo, Japan
- 2022: The 10th Japanese Society for Quantitative Biology, Hiroshima, Japan (Online)
- 2022: The Taiwan International Symposium on Statistical Physics and Complex Systems (StatPhys Taiwan), Taipei, Taiwan

Invited institutional talks

- 2024: Guest Speaker Talk at Max Planck Institute For Terrestrial Microbiology, Marburg, Germany
- 2024: BIOQUANT Seminar at BioQuant, Heidelberg University, Heidelberg, Germany
- 2023: Invited seminar for the TIGP (BIO) seminar series at the Institute of Statistical Science, Academia Sinica, Taipei, Taiwan
- 2023: Seminar for the TIGP-Nano program at the Institute of Physics, Academia Sinica, Taipei, Taiwan
- 2023: Special Talk, 2023 GSB retreat, Genome and System Biology Degree Program, Academia Sinica and National Taiwan University, Hsinchu, Taiwan
- 2023: New Faculty Talk, IMB retreat, Taipei, Taiwan
- 2023: Seminar at the Biological Physics Theory Unit (Greg Stephens), OIST Okinawa Institute of Science and Technology Graduate University, Okinawa, Japan
- 2023: The 30th ExCELLS seminar and the 39th IPB seminar, The Exploratory Research Center on Life and Living Systems, National Institutes of Natural Sciences, Okazaki, Aichi, Japan
- 2023: MiCS International seminar, Microbiology Research Center for Sustainability, University of Tsukuba, Ibaraki, Japan
- 2023: NCTS Journal Club of Interdisciplinary Research Part II, National Center for Theoretical Sciences Mathematics Division, Taipei, Taiwan
- 2023: ABRC-BCST seminar, Agricultural Biotechnology Research Center and Biotechnology Center in Southern Taiwan, Academia Sinica, Tainan, Taiwan (Hybrid meeting)

- 2023: Seminar at the Department of Life Science, National Taiwan University, Taipei, Taiwan
- 2023: NES-ESPCI Biophysics Seminar, École normale supérieure (ENS)/ESPCI, Paris, France
- 2023: Seminar at Institut Pasteur, Paris, France
- 2023: Seminar at Molecular Microbiology and Structural Biochemistry (MMSB), Lyon, France
- 2023: Seminar at Laboratoire de Chimie Bactérienne, CNRS, Marseille, France
- 2022: Seminar at the Department of Physics, Gakushuin University, Tokyo, Japan
- 2022: 49th PSBMB Annual Conversation, Young Scientists Forum, Central Mindanao University, Bukidnon, Philippines (Online)
- 2022: Advanced Seminar, Department of Physics, National Taiwan University, Taipei, Taiwan
- 2022: Seminar at the Department of Physics, National Central University, Taoyuan city, Taiwan
- 2022: Seminar at the Institute of Physics, National Yang Ming Chiao Tung University, Hsinchu City, Taiwan
- 2022: Seminar at the Institute of Physics, Academia Sinica, Taipei, Taiwan
- 2022: Seminar at the Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan (Online)
- 2022: Seminar at the Biodiversity Research Center, Academia Sinica, Taipei, Taiwan (Online)
- 2022: Seminar at the Institute of Plant and Microbial Biology, Academia Sinica, Taipei, Taiwan (Online)
- 2022: MSI SMALTalk, Microbial Science Institute, Yale University, CT, USA
- 2021: Neuroholism seminar series, Holism in neuroscience: Large-scale recording and simulation, Tokyo, Japan (Online)
- 2021: Universal Biology Institute and Information Physics of Living Matters Seminar Series, University of Tokyo, Tokyo, Japan (Online)
- 2021: Yale BioSoftmatter meeting, Yale University, CT, USA (Online)
- 2019: MCDB retreat, Department of molecular, Cellular and Developmental biology, Yale University, CT, USA
- 2019: Sackler Discussion Group, Department of Physics, Yale University, CT, USA
- 2018: MSI SMALTalk, Microbial Science Institute, Yale University, CT, USA
- 2017: Microscopy Symposium, Yale University, CT, USA
- 2014: AMOLF Colloquium, FOM Institute AMOLF, Netherlands
- 2013: Seminar at Masakazu Shimada lab, Graduate School of Arts and Sciences, University of Tokyo, Japan
- 2013: Department of Biological Sciences Seminar Series, Graduate School of Science, University of Tokyo, Japan
- 2013: Department of Biological Sciences Seminar Series, Graduate School of Science, Osaka University, Japan
- 2013: Seminar at Yoshihiro Murayama lab, Department of Applied Physics, Tokyo University of Agriculture and Technology, Japan
- 2012: Seminar at FOM Institute AMOLF, The Netherlands
- 2012: Seminar at Hiroyuki Noji lab, Department of Applied Chemistry, University of Tokyo, Japan

Contributed Talks:

- 2024: PRESTO 8th research area meeting (closed), Tokyo, Japan
- 2023: PRESTO 6th research area meeting (closed), Tokyo, Japan
- 2023: BLAST XVII meeting, Charleston, SC, USA
- 2023: JST PRESTO satellite meeting on Dynamic supra-assembly of biomolecular systems (online)
- 2022: PRESTO 5th research area meeting (closed), Numazu, Shizuoka, Japan
- 2022: PRESTO 4th research area meeting (closed), Tokyo, Japan (Online)
- 2021: APS March Meeting (Online)
- 2020: APS March Meeting (cancelled due to COVID-19)
- 2019: BLAST XV meeting, New Orleans, Louisiana, USA
- 2013: The 7th Q-bio Conference, Santa Fe, NM, USA
- 2011: The 34th Annual Meeting of the Molecular Biology Society of Japan, Yokohama, Japan
- 2011: Annual International Dictyostelium Conference, Baltimore, MD, USA

- 2011: The 5th Q-bio Summer School on Cellular Information Processing, Los Alamos, NM, US
- 2009: 12th Annual Meeting of Japanese Society for Dictyostelium, Yamaguchi, Japan