TAO LONG

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EDUCATION

Princeton University **2004 – 2010**

Ph.D. in Physics

Dissertation: Signal Processing in Bacterial Quorum Sensing

Advisors: Bonnie L. Bassler and Ned S. Wingreen

Peking University **2000 – 2004**

B.S. in Physics

Thesis: Dynamical Properties of *Saccharomyces cerevisiae* Cell Cycle Networks

Advisors: Chao Tang and Qi Ouyang

RESEARCH EXPERIENCE

Stanford University, Department of Developmental Biology, Stanford, CA **2010 – Present**

Post-doctoral scholar, Laboratory of Professor **Lucy Shapiro**

- Studying design principles of *Caulobacter crescentus* cell-cycle circuit by introducing genetic modifications into the circuit and applying live-cell time-lapse microscopy to track dynamics of fluorescently-labeled master cell-cycle regulators

Princeton University, Department of Molecular Biology, Princeton, NJ **2004 – 2009**

Graduate student, Laboratories of Professor **Bonnie Bassler** and Professor **Ned Wingreen**

- Studying multiple signal integration, information processing, noise control, and feedback loops in the *Vibrio harveyi* quorum-sensing circuit by single-cell microscopy.

Peking University, Center for Theoretical Biology, Beijing, China **2002 – 2004**

Chun-Tsung Scholar, Laboratories of Professor **Chao Tang** and Professor **Qi Ouyang**

- Studying the dynamical properties of the cell cycle network and the mating pathway in *Saccharomyces cerevisiae.*

FELLOWSHIPS AND AWARDS

Burroughs Wellcome Fellowship (2004-2009).

American Society of Microbiology Student Travel Grant, ASM Conference on Cell–Cell Communication in Bacteria (2007).

NSF Boulder School Fellowship, Boulder Summer School for Biophysics (2007).

Cold Spring Harbor Fellowship, Advanced Bacterial Genetics Course (2006).

Joseph Henry Merit Prize, Princeton University (2004).

Chun-Tsung Scholarship (2002-2004).

Excellent Student Scholarship, Peking University (2000-2002).

PUBLICATIONS

KC Tu*, **T Long***, SL Svenningsen, NS Wingreen, and BL Bassler, "Negative Feedback Loops Involving Small Regulatory RNAs Precisely Control the *Vibrio harveyi* Quorum-Sensing Response", *Molecular Cell* **37**, 567 (2010).

* These authors contributed equally to this work.

WL Ng, Y Wei, LJ Perez, J Cong, **T Long**, M Koch, MF Semmelhack, NS Wingreen, and BL Bassler, "Probing Bacterial Transmembrane Histidine Kinase Receptor-Ligand Interactions with Natural and Synthetic Molecules", *Proc. Nat. Acad. Sci. USA* **107**, 5575 (2010).

SW Teng, Y Wang, KC Tu, **T Long**, P Mehta, NS Wingreen, BL Bassler, and NP Ong, "Measurement of the Copy Number of the Master Quorum-Sensing Regulator of a Bacterial Cell", *Biophysics Journal* **98**, 2024 (2010)

P Mehta, S Goyal, **T Long**, BL Bassler, and NS Wingreen, "Information Processing and Signal Integration in the *Vibrio harveyi* Quorum-Sensing Circuit", *Molecular Systems Biology* **5**, 325 (2009).

T Long, KC Tu, Y Wang, P Mehta, NP Ong, BL Bassler, and NS Wingreen, "Quantifying the Integration of Quorum-Sensing Signals with Single-Cell Resolution", *PLoS Biology* **7**, e68 (2009).

F Li*, **T Long***, Y Lu*, Q Ouyang, and C Tang, "The Yeast Cell-Cycle Network Is Robustly Designed", *Proc. Nat. Acad. Sci. USA* **101,** 4781 (2004).

* These authors contributed equally to this work.

TALKS AND LECTURES

Aspen Center for Physics, Summer Workshop on Biophysics, Aspen, CO, Jun. 2011.

Shanghai Jiao Tong University, Center for Systems Biomedicine, Dec. 2010.

Cold Spring Harbor Lab Meeting, Engineering Principles in Biological Systems, Dec. 2008.

Princeton University, Department of Molecular Biology, Lecture on Optimization, Dec. 2008.

Princeton University, Lewis-Sigler Institute for Integrative Genomics, Integrated Science Shorts, Nov. 2008.

The 2nd Q-Bio Conference on Cellular Information Processing, Santa Fe, NM, Aug. 2008.

Princeton University, Department of Molecular Biology, Graduate Colloquium, May 2008.

The 3rd ASM Conference on Cell-Cell Communication, Austin, TX, Oct. 2007.

Princeton University, Department of Molecular Biology Annual Retreat, Sep. 2007.

The 1st Q-Bio Conference on Cellular Information Processing, Santa Fe, NM, Aug. 2007.

American Physical Society March Meeting, Biological Physics and Bacterial Behaviors, Denver, CO, Mar. 2007.