

Ang Li

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📍 Boston, MA, US  github.com/angli339

Research Interests:

High-throughput quantitative imaging · Gene regulation · Cellular signaling · Technology development

Education

Harvard University

Ph.D., Systems, Synthetic, and Quantitative Biology
Advisor: Dr. Michael Springer

Cambridge, MA
Sep 2016 – Feb 2026

Peking University

B.S., Physics
Yuanpei Program

Beijing, China
Sep 2009 – Jul 2013

Research Experiences

Postdoctoral Research Fellow - Harvard Medical School

Department of Systems Biology
Advisor: Dr. Michael Springer

Boston, MA
Feb 2026 – Sep 2026

Graduate Student - Harvard Medical School

Department of Systems Biology
Advisor: Dr. Michael Springer

Boston, MA
Jun 2017 – Dec 2025

Dissertation: Metabolic flux sensing of sugars in *Saccharomyces cerevisiae*

- Investigated GAL gene regulation through modeling and experiments. Identified transcription-factor expression tuning as a mechanism for controlling GAL gene induced level. (Findings became part of *Science* 2021)
- Elucidated the sensing role of galactokinase in the GAL pathway. Developed genome-editing, synthetic-biology, and reporter tools for pathway-scale perturbation and gene expression measurement. (*Nature Metabolism* 2025)
- Dissected glucose repression using high-throughput quantitative imaging and genetic perturbations. Established the flux-dependent nature of Mig1 repression and identified a non-canonical mechanism associated with its intrinsically disordered region. Constructed a large collection of plasmids and engineered yeast strains, developed control software for high-throughput microscopy with image-driven feedback; trained a U-Net model for rapid, accurate image segmentation; and analyzed large-scale imaging datasets. (*bioRxiv* 2026)
- Profiled protein kinase activities and key metabolites in glucose signaling using genetically encoded fluorescent biosensors. Identified candidate signaling molecules for controlling Mig1 activity.
- Developed an easy-to-use device for high-precision growth-curve measurements in shaking incubators.

Research Fellow - Harvard University

Department of Chemistry and Chemical Biology
Advisor: Dr. Xiaoliang Sunney Xie

Cambridge, MA
Sep 2014 – May 2016

- Designed a miniature handheld stimulated Raman scattering (SRS) microscope with improved epi-detection. Resolved fiber-induced background issue in laser delivery. Implemented FPGA-based signal processing.
- Collaborated on developing a fiber amplifier enabling simultaneous two-color SRS imaging. (*Optics Letters* 2017)

Research Assistant - Peking University

Biodynamic Optical Imaging Center (BIOPIC)
Advisor: Dr. Yanyi Huang

Beijing, China
Jul 2013 – Aug 2014

Undergraduate Student - Peking University

Biodynamic Optical Imaging Center (BIOPIC)

Beijing, China
Jun 2011 – Jul 2013

Advisor: Dr. Yanyi Huang

- Collaborated on optofluidic cytometer development. Fabricated microfluidic devices. Identified signal-detection bottleneck. (*Lab on a Chip* 2012)
- Optimized SRS detection electronics for mouse brain imaging, achieving shot-noise-limited, video-rate imaging at low laser intensity. Automated image acquisition.

Teaching Experiences**Teaching Fellow.** Boot Camp in Quantitative Methods (Neurobiology 306qc)

2017 Summer

Publications

9. **Ang Li**, and Michael Springer (2026). Glucose repression of *HXK1* is glucose flux-dependent via non-canonical regulation of Mig1. *bioRxiv*. 2026.08.09.743801. DOI: [10.64898/2026.08.09.743801](https://doi.org/10.64898/2026.08.09.743801)
8. Julius Palme, **Ang Li**, and Michael Springer (2025). The galactokinase enzyme of yeast senses metabolic flux to stabilize galactose pathway regulation. *Nature Metabolism*. **7**, 137–147. DOI: [10.1038/s42255-024-01181-x](https://doi.org/10.1038/s42255-024-01181-x)
7. Seungeun Oh, ChangHee Lee, Wenlong Yang, **Ang Li**, Avik Mukherjee, Markus Basan, Chongzhao Ran, Wei Yin, Clifford J. Tabin, Dan Fu, X. Sunney Xie, and Marc W. Kirschner (2022). Protein and lipid mass concentration measurement in tissues by stimulated Raman scattering microscopy. *Proceedings of the National Academy of Sciences of the U.S.A.* **119**, e2117938119. DOI: [10.1073/pnas.2117938119](https://doi.org/10.1073/pnas.2117938119)
6. Chiara Ricci-Tam, Ishay Ben-Zion, Jue Wang, Julius Palme, **Ang Li**, Yonatan Savir, and Michael Springer (2021). Decoupling transcription factor expression and activity enables dimmer switch gene regulation. *Science*. **372**, 292–295. DOI: [10.1126/science.aba7582](https://doi.org/10.1126/science.aba7582)
5. Wenlong Yang, **Ang Li**, Yuanzhen Suo, Fa-Ke Lu, and X. Sunney Xie (2017). Simultaneous two-color stimulated Raman scattering microscopy by adding a fiber amplifier to a 2 ps OPO-based SRS microscope. *Optics Letters*. **42**(3), 523–526. DOI: [10.1364/OL.42.000523](https://doi.org/10.1364/OL.42.000523)
4. Aaron Streets, **Ang Li**, Tao Chen, and Yanyi Huang (2014). Imaging without fluorescence: Non-linear optical microscopy for quantitative cellular imaging. *Analytical Chemistry*. **86**(17), 8506–8513. DOI: [10.1021/ac5013706](https://doi.org/10.1021/ac5013706)
3. Senlian Hong, Tao Chen, Yuntao Zhu, **Ang Li**, Yanyi Huang, and Xing Chen (2014). Live-Cell Stimulated Raman Scattering Imaging of Alkyne-Tagged Biomolecules. *Angewandte Chemie International Edition*. **53**(23), 5827–5831. DOI: [10.1002/anie.201400328](https://doi.org/10.1002/anie.201400328)
2. Jinglei Cai, Yanmei Zhang, Pengfei Liu, Shubin Chen, Xuan Wu, Yuhua Sun, **Ang Li**, Ke Huang, Rongping Luo, Lihui Wang, Ying Liu, Ting Zhou, Shicheng Wei, Guangjin Pan, and Duanqing Pei (2013). Generation of tooth-like structures from integration-free human urine induced pluripotent stem cells. *Cell Regeneration* **2**:6. DOI: [10.1186/2045-9769-2-6](https://doi.org/10.1186/2045-9769-2-6)
1. Peng Fei, Zitian Chen, Yongfan Men, **Ang Li**, Yiran Shen, and Yanyi Huang (2012). A compact optofluidic cytometer with integrated liquid-core/PDMS-cladding waveguides. *Lab on a Chip* **12**(19), 3700–3706. DOI: [10.1039/c2lc40329c](https://doi.org/10.1039/c2lc40329c)

Technical Skills

- Programming Language: C/C++, Python, Go, Typescript, MATLAB.
- Computer Vision and Deep Learning: OpenCV, scikit-image. TensorFlow. U-Net, VAE.
- Instrumentation: Circuit design & PCB layout (KiCAD, OrCAD/Allegro). Microcontroller (STM32), FPGA. CAD (SolidWorks), CAM (SolidCAM), CNC machining. Instrument control software development.
- Optics: Ultrafast laser. Laser-scanning microscopy. Raman spectroscopy. Optical design (ZEMAX).
- Biological Techniques: Plasmid construction, CRISPR/Cas9 genome editing in yeast. Protein expression and purification. Flow cytometry. Tecan liquid handler.