

BIOINFORMATICS SEMINAR

Jiqiang (Lanny) Ling

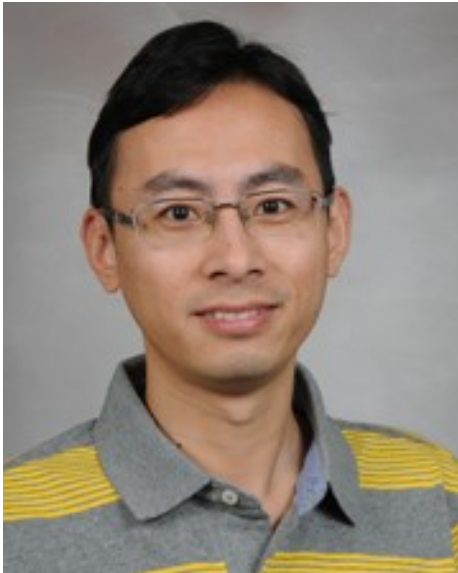
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FIDELITY DURING PROTEIN SYNTHESIS: FROM POPULATION TO SINGLE CELLS

Fidelity during protein synthesis is maintained by precise quality control mechanisms in all domains of life, and reduced translational fidelity can lead to growth defects in bacteria and neurodegeneration in mammals. Recently, growing evidence suggests that reduced translational fidelity may also benefit microorganisms under stress conditions. For example, we have shown that reduced ribosomal fidelity activates the general stress response in *Escherichia coli* and enhances bacterial tolerance to oxidative stress. To date, very little is known about how translational fidelity is regulated in single cells and affects host-pathogen interactions. Our recent data reveal that optimal translational fidelity is critical for bacterial pathogenesis and adaptation to host environments. We have also developed sensitive reporters to visualize translational fidelity in single bacterial cells, enabling us to study regulation of translational fidelity by environmental cues and its role in bacteria-host interactions.

BIOGRAPHY

Dr. Jiqiang (Lanny) Ling received his B.S. from Fudan University in Shanghai, China, and his Ph.D. from The Ohio State University in Columbus, OH in 2008. His Ph.D. work focused on quality control mechanisms of aminoacyl-tRNA synthetases. He continued to work on protein synthesis as a postdoctoral fellow at Yale University in New Haven, CT. Dr. Ling became a tenure-track assistant professor at The University of Texas Health Science Center at Houston in 2013, and moved his laboratory to The University of Maryland, College Park in 2018. Dr. Ling's lab is interested in studying the mechanisms and disease connection of the protein synthesis machinery.



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