

## BCH 251/252 Seminar Series



**Magnus Johansson, Associate Professor,  
Department of Cell and Molecular Biology,  
Uppsala University, Sweden**

**Seminar Title: "Single-molecule tracking  
approaches to study protein synthesis, targeting,  
and folding inside living bacterial cells"**

**Biography:** Magnus Johansson is an Associate Professor at the Department of Cell and Molecular Biology, Uppsala University, Sweden. The Johansson Lab ([link](#)) develops novel single-molecule tracking tools to study the dynamics of protein synthesis, folding, and targeting in living bacterial cells. The overall aim is to bridge the gap between molecular-level details and cell physiology and population biology.

During his PhD training in the Ehrenberg Lab (Uppsala), Magnus used traditional ensemble kinetics measurements in a reconstituted protein synthesis system to investigate the determinants of mRNA translation rate and accuracy. The limitations of ensemble biochemical experiments led Magnus to join the Puglisi Lab at Stanford University for his postdoctoral training. Puglisi had pioneered the use of in vitro single-molecule fluorescence techniques to study dynamics of the translation machinery.

Upon returning to Sweden, Magnus has focused on establishing an experimental and analytical single-molecule tracking system, enabling reaction kinetics measurements of protein synthesis directly within living cells. Ongoing technical developments in the lab include rapid, camera-based 3D tracking to accurately distinguish membrane-bound molecules, in vivo smFRET for unambiguous measurements of binding kinetics, and in vivo protein labeling using bioorthogonal click chemistry.

**Tuesday, June 3, 2025 12:00 p.m. - 12:50 p.m. PST**

**In-Person: Genomics Auditorium 1102A**

**Host: Dr. Sean O'Leary**