2018–2019 Student Research Positions Laboratory & Computational Biophysics of Ion Channels



Three types of **Research/Degree Projects** are currently available in the Science for Life Laboratory group headed by Professor **Erik Lindahl**.

Under the supervision of Dr Reba Howard, students will use **laboratory** or **computational** approaches to study the **structure** and **function** of proteins involved in cellular regulation and signaling, particularly the activation and modulation of ligand-gated **ion channels**.

Project 1: Electrophysiology of Allosteric Modulators

Express and characterize ion channels in a classic model system, using molecular biology and voltage-clamp recordings to quantify gating and modulation towards structure determination and/or drug development.





Project 2: Simulating Ion Channel Gating and Modulation

Harness recent structure-function data to simulate and analyze ion channel models, using methods such as molecular dynamics

and docking to probe structural changes, drug binding, and/or novel mutations.

Project 3: Methods Development in Cryo-Electron Microscopy

Optimize sample preparation, data collection, and/or image analysis to elucidate the atomic structure of technically challenging macromolecules, focusing on biochemistry or software methods in cryo-electron microscopy.



Applicants should have some theoretical and/or laboratory preparation in biophysics, biochemistry, or related fields at the Bachelor's or Master's levels, and an enthusiasm for interdisciplinary research and communication.

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