Molecular Mechanisms behind Cholesterol and Sugar Uptake

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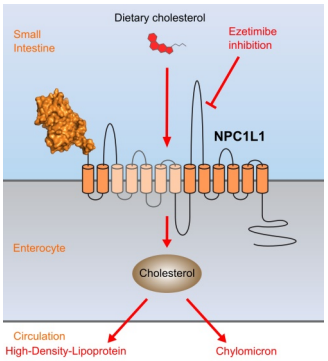
Molecular biology: Yes
Molecular medicine: Yes
Biotechnology: Yes

Cholesterol Uptake

Sterols are an integral component of membranes in eukaryotes, vital for membrane fluidity and integrity. The membrane protein Niemann-Pick C1-Like 1 (NPC1L1) mediates cholesterol uptake into the enterocyte from the small intestine.

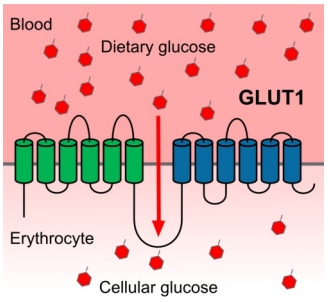
The molecular mechanism of NPC1L1-dependent cholesterol uptake is still almost completely unknown. The long-term objective of the lab is to elucidate the molecular mechanisms underlying NPC1L1-dependent cholesterol transport.



Sugar Uptake

Sugars are the major cellular source of energy and carbon, and facilitated sugar transport in humans is made possible by sugar transporters called GLUTs and SWEETs.

The long-term objective of the lab is to understand the molecular mechanism of energy-independent transport of sugar in humans by determining the structure of proteins in the GLUT and SWEET families, and use this information to guide studies of mechanism.



Methods and projects

Our group aims to elucidate the molecular mechanisms behind cholesterol and sugar uptake in humans using a combination of biochemistry, macromolecular crystallography and electron microscopy.

We are looking for highly motivated PhD/MSc students to join the group. You will be working with membrane proteins, one of the most challenging classes of proteins to work with.

The lab is a research-frontier lab, and our methodologies will make you a leading expert in protein-purification, structural biology methods, and large scale eukaryotic cell growths in bioreactors.