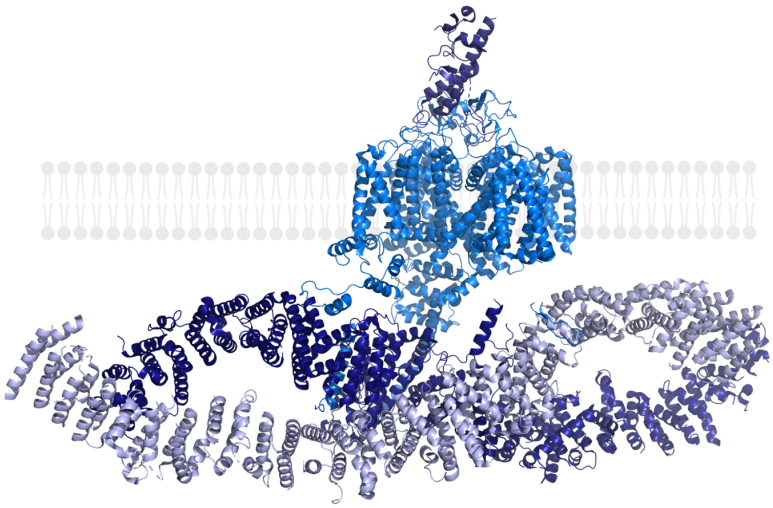
Plugging the leak – finding a cure for the incurable



Background:

Mutations in a massive and recently discovered NALCN ion channel complex cause devastating clinical phenotypes in humans. Patients suffer from severe neurodevelopmental defects and often die at a young age.

In collaboration with industry and academic partners we recently determined its function and 3D structure (Chua et al, *Science Adv*, 2020, Kschonsak et al, *Nature*, 2020 and Kschonsak et al, *Nature*, 2022). However, no drugs target this ion channel complex and not even a single compound is known to selectively and potently inhibit, activate or modulate the ion channel complex.

This complete lack of pharmacology is highly problematic, both for the patients, as well as basic research.

Project aim:

To identify the first ever peptide inhibitor of NALCN and characterise its effect on human patient mutations.

Methodology and approach:

Molecular biology, electrophysiology, peptide synthesis (if interested).