

FORSKERPRAKTIK 2024

Projekt 10

Name: Fabian Hink and Ciara Frances Pugh

Title: PhD Students

University: University of Copenhagen

Project head line:	Migraines Unlocked: Drug Development Targeting Ion Channels
Field of research or institute:	<i>Molecular and Structural Biology (the Integrative Structural Biology cluster at the University of Copenhagen)</i>
Language:	<i>English</i>
Courses/gymnasiefag in high school related to your subject:	<i>Biology</i>
Short resume of the project purpose – what are the students going to learn and do:	Explore the groundbreaking world of drug discovery aimed at treating migraines by targeting ion channels, specifically Acid-Sensing Ion Channels (ASICs). This project delves into innovative techniques to develop potential treatments for these debilitating headaches.
Further description:	<p>More than 1 in every 10 people suffer from migraines but, despite its high prevalence, drug development in this field has been slow.</p> <p>This project explores new treatments for migraines by targeting Acid-Sensing Ion Channels (ASICs). Ion channels are proteins that control ion flow in cells, crucial for communication between cells. ASICs specifically react to a decrease in pH outside neurons and are important in sensing pain and managing neuronal signaling. When overactivated, ASICs can heighten migraine symptoms by making pain pathways more intense and neurons more sensitive.</p> <p>In this project, students will explore ways to block these channels using methods like structure assisted drug design by cryogenic electron microscopy and mRNA display technology to develop effective migraine treatments.</p>