



## **IHS Research Grant 2019**

**Menstrual migraine: estrogen influences migraine susceptibility by affecting the balance of oxytocin and CGRP signaling**

**Principle investigator: Kristian A Haanes**

**Co-investigators: Lars Edvinsson (Lund, Sweden), Diana Krause (Irvine, USA)**

**Research location: Glostrup Research Park, Copenhagen University Hospital, Copenhagen, Denmark**

We will focus on the influence of changes in estrogen during the menstrual cycle, which are strongly associated with migraine attacks. Underlying molecular mechanisms for this hormonal effect, however, are unknown. We propose that estrogen influences migraine susceptibility by regulating oxytocin receptor (OTR) activity in the trigeminovascular (TGV) pain pathway. When estrogen drops so does oxytocin related signaling, and the OT's counteracting effects on CGRP (calcitonin-gene related peptide) signaling, a pro-migraine trigeminal transmitter, is lost. In this proposal, we use rat models to test predicted interactions of estrogen, OT and CGRP in the TGV system.

The research grant will be used to hire a post doc researcher, which will work in the newly formed Sensory Biology Unit, led by Senior Researcher Kristian A Haanes.

Collaboration across borders is an important aspect of the project, therefore immunological experiments will be performed in Lars Edvinsson's laboratories in Lund (Sweden), and additional project support from Diana Krause (UCLA, USA) is essential for the success of the project.