

## Discovery of novel mechanisms that cause migraines



Researchers at CNRS, Université Côte d'Azur and Inserm have demonstrated a new mechanism related to the onset of migraine. In fact, they found how a mutation, causes dysfunction in a protein which inhibits neuronal electrical activity, induces migraines. These results, published in *Neuron* on Dec. 17, 2018, open a new path for the development of anti-migraine medicines. Credit:



Guillaume Sandoz, CNRS

Researchers at CNRS, Université Côte d'Azur and Inserm have demonstrated a new mechanism related to the onset of migraine. They found how a mutation that causes dysfunction in a protein which inhibits neuronal electrical activity induces migraines. These results, published in *Neuron* on December 17, 2018, open a new path for the development of anti-migraine medicines.

Even though 15% of the <u>adult population</u> worldwide suffers from migraines, no long-term, effective, curative treatment has been marketed to date. Migraine episodes are related, among other factors, to electric hyperexcitability in <u>sensory neurons</u>. Their electrical activity is controlled by proteins that generate current called <u>ion channels</u> —specifically by the TRESK channel, which inhibits electrical activity. The researchers have shown that a mutation in the gene encoding for this protein causes a split between two dysfunctional proteins: one is inactive, and the other targets other ion channels (K2P2.1), inducing a intense stimulation of the neuronal electrical activity thus causing migraines.

Though researchers had already shown the hereditary nature of migraines, they did not understand the mechanism underlying them. By demonstrating that the TRESK split induces hyperexcitability in sensory neurons leading to migraine, this work—carried out at the Institut de Biologie Valrose (CNRS/Inserm/Université Côte d'Azur)—opens new research paths for the development of anti-migraine medicines.

A <u>patent application</u> has been filed, the scope of which is targeting K2P2.1 channels to reduce the <u>electrical activity</u> of neurons and prevent migraines from being triggered. What's more, the researchers propose that this new genetic mechanism, that is, in causing the formation of two



proteins instead of just one, should now be considered for the study of other genetic diseases and for their diagnosis.

Provided by CNRS

Citation: Discovery of novel mechanisms that cause migraines (2018, December 17) retrieved 6 May 2024 from <u>https://medicalxpress.com/news/2018-12-discovery-mechanisms-migraines.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.