NOVEL BIOMONITOR FOR ANTIDEPRESSANT EFFICACY

Invention: EEG-based monitoring of rapid acting antidepressant actions
Indications: Depression
IP Status: Patent application pending
Project status: Preclinical PoC studies completed, planning of the first clinical trial ongoing

Major depression is a highly disabling psychiatric condition, the most significant risk factor for suicide and one of the biggest contributors to the disease burden worldwide. Depression affects an estimated one in every 15 adults and at global level, over 300 million people are estimated to suffer from depression. Depressive disorders produce immeasurable human suffering and enormous economic burden. In the US alone, the economic burden caused by depression exceeds $200 billion. Depressed mood, anhedonia, lack of concentration, feelings of worthlessness and suicidal thoughts are common symptoms of depression. Traditional antidepressants take weeks to reduce these depressive symptoms, while some patients do not respond at all. Rapid-acting antidepressants produce immediate relief for many, but we lack the understanding to monitor treatment efficacy and to develop new treatments.

Tomi Rantamäki, Principal Investigator
Faculty of Biological and Environmental Sciences, University of Helsinki

New method to control and monitor activation of neuronal signaling responses implicated in antidepressant action using EEG signals

Team at the University of Helsinki has developed a patent pending, electroencephalography (EEG) based biomonitor for non-invasive monitoring of:

- detecting and optimizing rapid antidepressant responses
- guiding development of new rapid-acting antidepressant drugs

Biomonitor is based on hypothesis that transient cortical excitability and the subsequent regulation of TrkB and GSK3β signaling during homeostatic emergence of slow oscillations are critical components for rapid antidepressant responses

Key Publication