DIAGNOSTIC BIOMARKER AND TARGET FOR NARCOLEPSY

Invention: Peptide motif with a strong consensus sequence unique for narcolepsy patients
Unmet need: Fast, non-invasive and efficient diagnostic test for narcolepsy needed
IP Status: Patent application PCT/FI2017/050396, continued in US
Phase of development: We are currently evaluating the diagnostic marker with a larger, international panel of narcoleptic (vaccine-induced and sporadic) patients’ and control sera and characterizing the diagnostic peptide epitope and monoclonal antibodies towards them.

Narcolepsy is a chronic brain disorder that is affected by genetic and environmental factors and characterized by poor control of sleep-wake cycles. Currently ca 330 000 people yearly are diagnosed with narcolepsy and more than 3 million people suffer from this disorder worldwide. Diagnosis is typically delayed as symptoms resemble those of other illnesses, such as other sleep disorders, infections, and depression. Currently diagnosis is made based on symptoms, medical and family histories, a physical examination, and diagnostic tests that are either inaccurate (polysomnogram, multiple sleep latency test) or highly invasive (lumbar puncture to measure hypocretin levels in the cerebrospinal fluid). There is currently no specific treatment for narcolepsy.

Our research team has identified a peptide motif with a strong consensus sequence unique for narcolepsy patients. These peptides can be identified through detection of antibodies specific for them in the patient’s blood thus enabling the development of fast, non-invasive and efficient biomarker-based diagnostic test narcolepsy (ELISA or other serological assay). The information could also be used for diagnosis of relapsed patients as well as to develop novel narcolepsy treatments.

Figure 1. Blood samples from 48 H1N1-infected, -vaccinated or narcolepsy-diseased patients were used. The antibody response patterns were analyzed using MVA (Mimotope Variation Analysis) in reference to individuals with no diagnosed narcolepsy. Antibodies specific for consensus peptide signature are enriched in patients diseased with narcolepsy.

Key Publication
Sadam et al., EBioMedicine 29:47-59, 2018

We are seeking industrial partners and licensees for the diagnostic test and therapeutics development.