

# TECHNOLOGY OFFER

## Method for Prediction of Clinical Response to VNS Therapy in Epileptic Patients

### TECHNOLOGY SUMMARY

A statistical model based on relative power values calculated from standard preoperative interictal scalp electroencephalogram (EEG) recorded during a stimulation protocol with eight conditions (4 x rest, 2 x eyes opening, 1 x photic stimulation, and 1 x hyperventilation).

### INVENTION

The invention is a non-invasive prognostic method for patients suffering from epilepsy based on the analysis of data from routine paraclinical examination of patients with epilepsy (standard EEG record), therefore there is no increased patient burden in the investigation. This method allows with high reliability to predict whether patients will belong to a group of so-called responders or non-responders, i.e. VNS-sensitive or non-responding patients.

### FIELD OF APPLICATION

- Preoperative identification of responders to VNS therapy (VNS device manufacturers)
- Optimization of VNS financing
- The method might be interesting for EEG device manufacturers

### IP PROTECTION

Patent no. EP3437692B1

### STAGE OF DEVELOPMENT

TRL 4 - Technology validated in the lab

### INVENTORS PROFILE

Name of the Research Group & Inventor:

**Research Group: Behavioural and Social Neuroscience**  
**prof. MUDr. Milan Brázdil, Ph.D., FRCP**

### PUBLICATION LINK

Brazdil M, Dolezalova I, Koritakova E, Chladek J, Roman R, Pail M et al. EEG reactivity predicts individual efficacy of vagal nerve stimulation in intractable epileptics. *Front Neurol* (2019) 10:392. doi: 10.3389/fneur.2019.00392

### TECHNOLOGY TRANSFER

**Daniela Tršová**

daniela.trsova@ceitec.muni.cz

+420 777 472 878

### BACKGROUND

Patients with drug-resistant epilepsy may receive a "pacemaker" for chronic vagal nerve stimulation (VNS) as an epilepsy treatment. Approximately 50% of patients have a good effect of VNS, for the remaining 50% of patients, the vagal stimulator has no significant effect, these patients are evaluated as non-responders. At present, it is not possible to distinguish between future responders and non-responders based on presurgical data.

### FEATURES & BENEFITS

- Personalizing the VNS treatment
- Preventing surgery in VNS non-responders
- Saving significant costs of the health system

