



SuppHab \ \ IMPROVEMENT OF TREATMENT RESISTANT DEPRESSION BY SUPPRESSION OF LATERAL HABENULA ACTIVITY

Austria \ Canada \ Finland \ France \ Germany \ Italy \ Israel \ Luxemburg \ Poland \ Romania \ Spain

SUCCESSFUL PROJECTS

A significant proportion of patients with major depression is treatment-refractory, presenting a major clinical and societal challenge. Recently, deep brain stimulation (DBS) was tested as a new therapeutic approach for these severely ill patients. DBS, working with thin electrodes, which stimulate very specific brain regions, has been shown to improve motor symptoms in Parkinson's disease patients. It is nowadays a procedure with comparatively low risk due to its reversibility. Here we propose a well-controlled study, in an animal model of depression, to test the clinical therapeutic benefits of DBS of the lateral habenula (LHb). This little brain structure has recently been associated with stress responses, reward and emotional processing. Based on our and other preliminary results, we believe that hyperactivity of this structure plays a central role in depression by inhibiting dopaminergic and serotonergic transmission. This hypothesis will be tested by means of magnetic resonance imaging in a well-known animal model of depression and additionally, and identically, in depressed patients. To test the hypothesis we will first assess if activation and levels of dopamine and serotonin are altered, using imaging and microdialysis techniques, and second, whether these can be restored with DBS of the LHb.

We anticipate that the results of our study will be applicable to humans, since we have successfully performed DBS of the LHb on a first patient who achieved sustained remission.



COORDINATOR | ALEXANDER SARTORIUS

PROJECT PARTNERS:



Alexander Sartorius

Central Institute of Mental Health, Mannheim, Germany



Jean-Christophe Cassel

University of Strasbourg, Strasbourg, France



Gadi Goelman

Hadassah Hebrew University, Jerusalem, Israel



Martin Walter

Otto v. Guericke University, Magdeburg, Germany