

# Deep Brain Stimulation – Novel Technical Concepts and Clinical Indications

<https://www.neurodegenerationresearch.eu/survey/deep-brain-stimulation-novel-technical-concepts-and-clinical-indications/>

## Principal Investigators

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### Country

Sweden

## Title of project or programme

Deep Brain Stimulation - Novel Technical Concepts and Clinical Indications

## Source of funding information

Swedish Research Council

## Total sum awarded (Euro)

€ 293,799

## Start date of award

01/01/2014

## Total duration of award in years

4

## Keywords

### Research Abstract

The research will focus on theoretical and experimental techniques for significant improvement of deep brain stimulation (DBS) implantation and patient follow up. The work will be performed in parallel but interactive tracks according to: 1) Modelling and simulation of novel DBS electrode designs and stimulations modes for investigation of the relationship between neural activation and the distribution of the electric potential. 2) Development and evaluation of a functional brain atlas for visualization together with patient-specific anatomical images. 3) Patient-specific as well as brain target-specific simulation studies and map these to the anatomy and clinical symptoms including Parkinsons Disease and Gilles de la Tourette syndrome. 4)

Optical navigation for efficient and safe DBS implantations and fundamental studies of the brains microcirculation and biochemistry in established and new DBS targets. This Neuro-Engineering Project will give unique opportunities to investigate the anatomical spread of the DBS electrical field for new DBS electrodes and match it with the clinical and physiological assessments by means of anatomical and functional brain atlases. This will result in more efficient programming and tailoring of the electric field as well as contribute to an increase in the understanding of DBS mechanisms. Optical navigation techniques will help avoid bleedings and increase the fundamental knowledge of cerebral blood flow in deep brain structures.

**Further information available at:**

**Types:**

Investments < €500k

**Member States:**

Sweden

**Diseases:**

N/A

**Years:**

2016

**Database Categories:**

N/A

**Database Tags:**

N/A