



Directional Coordinated Reset Deep Brain Stimulation (DBS) (20180061)

Technology No. 20180061

IP Status: Pending US Patent; **Application #:** 16/258,264

Segmented DBS array with variable intensity stimulation

This technology is a system for coordinated reset deep brain stimulation (CR DBS) which uses a segmented DBS array electrodes and short-term electrical pulses delivered in a fixed or varying sequence. This therapy uses multiple contacts in different locations of the target brain structure to offer flexibility to CR contact configuration and intensity selection. In some cases, this can also provide flexibility to cross structure CR configuration. In addition, a novel stimulation strategy delivers high stimulation intensity at the beginning of treatment, until optimal therapeutic improvement is achieved, and then reduces the stimulation to a low intensity to maintain the therapeutic effect. Directional CR DBS could be used to treat nervous system or multiple movement disorders (e.g., Parkinson's disease, essential tremor, dystonia, and other neurological and/or psychiatric conditions).

Low stimulation intensity reduces power consumption

Traditional isochronal DBS, while a successful treatment for Parkinson's disease, has not changed for decades. Constant high frequency stimulation from the traditional DBS drains the device battery within several years, requiring risky battery replacement surgeries. In addition, current spread related side effects limit its application and therapeutic window. Directional CR DBS combines new DBS lead technology and a novel strategy to produce a comparable—or even better—therapeutic effect than traditional DBS therapies and with fewer side effects. Because it uses a very low stimulation intensity (one third or less than traditional isochronal DBS), it significantly reduces battery consumption.

Phase of Development

- Proof of concept. Preliminary pre-clinical test in non-human primate.

Benefits

- Provides comparable—or even better—therapeutic effects than traditional DBS therapies
- Fewer current spread related side effects

- Reduced power consumption allowing for longer battery life or smaller battery
- Flexibility to cross structure CR configuration

Features

- Directional coordinated reset deep brain stimulation (Directional CR DBS)
- Delivers short-term electrical pulses in a fixed or varying sequence using a segmented DBS array
- Novel stimulation strategy - high stimulation at beginning of treatment, then reduces stimulation to maintain therapeutic effect

Applications

- Deep brain stimulation (DBS)
- Nervous system or multiple movement disorders (e.g., Parkinson's disease, essential tremor, dystonia, and other neurological and/or psychiatric conditions)

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