Deep brain stimulation and memory functions

Statements

Belonging to the PhD thesis

Deep brain stimulation and memory functions

Majed Ahmad Aldehri

1. There are vital gaps in our understanding of the effect of electrical stimulation on memory-related functions that still exist and need to be addressed. (This thesis).

2. The potential mechanisms involved in enhancing memory functions by deep brain stimulation (DBS) involve synaptic plasticity, neurogenesis, volume increase, and increased acetylcholine release. (This thesis).

3. Fornix DBS induces long-term depression of hippocampal synaptophysin levels. (This thesis).

4. Intermittent DBS of the nucleus basalis of Meynert (NBM) is able to reverse memory impairment induced by scopolamine. These findings stress the clinical relevance of exploring the NBM neuromodulation with non-conventional stimulation paradigms. (This thesis).

5. Deep brain stimulation of the NBM increased the formation of newly formed cells in the hippocampus, which might contribute to one of the mechanisms of DBS-mediated behavioural effects. (This thesis).

6. Seeking knowledge is an obligation upon everyone: “Whoever travels a path in search of knowledge, God will make easy for him a path to Paradise” (The Prophet Mohammad).

7. Life is all memory, except for the one present moment that goes by you so quickly you hardly catch it going. (Sarah Hescham).

8. There is a single light of science, and to brighten it anywhere is to brighten it everywhere. (Isaac Asimov).

9. Success is the ability to go from one failure to another with no loss of enthusiasm. (Winston Churchill)

10. A person who never made a mistake never tried anything new. (Albert Einstein).

11. The science of today is the technology of tomorrow. (Edward Teller)