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**TITLE**

REPROGRAMMING OF ADULT HUMAN FIBROBLASTS FROM HEALTHY INDIVIDUALS AND PARKINSON´S DISEASE PATIENTS.

**ABSTRACT TEXT**

Parkinson’s disease (PD) is a neurodegenerative disease resulting from the progressive loss of dopaminergic cells within the nigrostriatal system. Previous work has shown that it is possible to generate dopaminergic (DA) neurons from fetal tissue and embryonic stem cells and, when transplanted into animal models of PD, these cells can integrate and provide improvement in motor symptoms. However, in order to translate these into clinical therapies there are a number of logistical and ethical concerns with using cells derived from embryonic sources. With new reprogramming technologies we can now generate DA neurons from somatic cell sources, which also allows for the possibility to use patient specific cells or matched donors. The main purpose of this project is to develop robust protocols for the generation of DA neurons from adult human fibroblasts, from both healthy individuals and PD patients. We will reprogram cells directly into induced neurons (iNs) and also via a pluripotent stem cell (iPSC) intermediate and investigate if there are any differences in gene expression, morphology or phenotype between the DA neurons generated from healthy, genetic PD, and sporadic PD donors. The results will provide a more robust protocol for the generation of reprogrammed DA neurons from adult donors and will help to pave the way for future research assessing their potential for brain repair and disease modelling.

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