Title of Project: Differentiation of mesenchymal stem cells along the neuron-glia lineage

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Short Description

Background
Mesenchymal stem cells in bone marrow and umbilical cord are realistic patient specific sources for stem cell-based transplantation therapy for central nervous system injuries and diseases. In order to be useful, the “transdifferentiation” of these cells to those of a neuronal or glia lineage needs to be understood in detail.

Project
1. To explore in detail the yet uncharacterized potential of cord lining stem cells (CLSCs) to differentiate along the neuron-glia lineage in culture. Methods established for differentiating embryonic stem cells, bone marrow mesenchymal stem cells (BMSCs) and human umbilical cord mesenchymal stem cells shall be tested for their efficacy in inducing neuronal (and glial) differentiation of CLSCs. Differentiation shall be monitored and assessed by standard means of marker characterization.

2. To understand the changes associated with BMSC/CLSC neuronal differentiation in terms of changes in the transcriptome, proteome and phosphoproteome by genomics and proteomics analysis.

Reading