Mesenchymal Stem Cell Conditioning Promotes Rat Oligodendroglial Cell Maturation

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What is MS?

- Multiple Sclerosis (MS) is a chronic neurological disease that is thought to affect more than 2.1 million people around the world.
- MS is caused by the demyelination of the axons of motor neurons in the central nervous system or CNS.
- Current treatments: Prednisone and dexamethasone
What are oligodendroglial cells?

- Oligodendroglial (aka: oligodendrocytes) are a type of neuroglial cell which provides support and insulation for the axon of motor neurons.

- Oligodendrocytes insulate the axon by creating the myelin sheath (which is 80% lipid and 20% protein)

- A singular oligodendrocyte can extend itself up to 50 different axons.
Neuron & Neuroglia

- Cell body (soma)
- Axon
- Oligodendrocyte
- Dendrites
- Astrocyte
- Axon terminals

MS Video
What is the overarching goal of this paper?

Hint: cause of MS

The goal is to use a combination of MSCs and OPC cells to treat multiple sclerosis by reversing the demyelination of the neurons and to reestablish the oligodendrocytes.
Figure 1
CNPase

Figure 2

DAPL CNPase

α-MEM

MSC-CM

9d

CNPase gene expression

1d 3d 6d 9d

α-MEM  MSC-CM

**  **  *  ***
MBP

Figure 3
Figure 5
Figure 6
Figure 8
What was the overall conclusion?

- MSCs acting on OPCs promote increased levels of oligodendrocyte differentiation