

Docket #: S03-159

The role of IGF-1 on oligodendrocyte differentiation in the adult CNS

Researchers have demonstrated that insulin-like growth factor-I (IGF-I) alone stimulates hippocampus-derived neural progenitor cells to differentiate into oligodendrocytes in an instructive (not selective) manner. The committed oligodendrocytes in cultures treated with IGF-I also show increased proliferation. With this technology, a single factor could potentially be used to robustly influence the fate of multipotent adult neural progenitor cells for therapeutic and research purposes. In addition, oligodendrocyte cultures generated with this technique could be used in drug screening assays.

Applications

- Method to culture oligodendrocytes
- Composition of a kit to culture oligodendrocytes, said composition is cheaper because it includes only one growth factor

Advantages

- **Single instructive factor**

Publications

- Hsieh J, Aimone JB, Kaspar BK, Kuwabara T, Nakashima K, Gage FH. ["IGF-I instructs multipotent adult neural progenitor cells to become oligodendrocytes."](#) *J Cell Biol.* 2004 Jan 5;164(1):111-22.
- U.S. Patent Application: "IGF-1 instructs multipotent adult CNS neural stem cells to an oligodendroglial lineage" (Publication No. [20050148069](#))

- What is claimed is:
- 1. A method of inducing differentiation of mammalian multipotent neural stem cells into oligodendrocytes, the method comprising the step of: contacting a population of mammalian multipotent neural stem cells with a physiologically acceptable composition comprising no more than one type of a recombinant growth factor, said recombinant growth factor consisting of recombinant IGF-1 in an amount sufficient to induce said mammalian multipotent neural stem cells to differentiate into oligodendrocytes; wherein said mammalian multipotent neural stem cells produce a differentiated cell population comprising at least about 10% oligodendrocytes.

Patents

- Published Application: [20050148069](#)

Innovators

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