Parkinson's and Huntington's Treatment

Technology #617

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Preventing cell death and promoting cell regrowth in neurodegenerative disorders: A number of debilitating conditions involve the death of neuronal cells and/or failure of neuronal cells to regrow after loss. Parkinson’s disease and Huntington’s disease are two common neurodegenerative conditions which are caused by neuronal cell death in the central nervous system (CNS). Additionally, the ability to regrow neurons in the CNS (brain and spinal cord) or peripheral nervous system (PNS) following trauma remains an elusive goal in the medical treatment of such trauma. Promoting neuronal regrowth in the CNS poses a greater challenge than in the PNS, but blocking the cell-death pathway (apoptosis) plays a crucial role in both processes. Currently, treatment of most neurodegenerative conditions relies on modulating or boosting existing neuronal cells rather than promoting regrowth or preventing death. This technology may provide a new method of preventing cell death and promoting regrowth by blocking apoptosis.

Oligonucleotide used to inhibit cell death and slow degeneration in neurodegenerative conditions: This technology is an antisense oligonucleotide to the protein Nedd2. Nedd2 is an aspartase expressed by neuronal cells and plays a crucial role in apoptosis. When neurons are deprived of cytokines such as nerve growth factor (NGF), Nedd2 expression is upregulated as part of the apoptotic pathway. This technology is an antisense oligonucleotide (ANedd) capable of blocking expression of Nedd2, thereby inhibiting apoptosis. The oligonucleotide has been linked to the vector peptide Penetratin1 which promotes its uptake by neuronal cells. This oligonucleotide may be used in a variety of neurodegenerative conditions to slow degeneration and improve long term functioning.

Applications:
• Arresting apoptosis and preventing cell death in neurodegenerative conditions such as Parkinson’s Disease and Huntington’s Disease.
• Promoting regrowth of neurons in the CNS and PNS after loss due to trauma
• Application as a research tool for further study of neuronal apoptosis and neuronal growth

Advantages:
• May lead to a substantial cure of neurodegenerative conditions rather than amelioration of symptoms, as current treatments do.
• Alters genes on the level of protein expression, rather than altering neurotransmitter release/function, thereby potentiating a more pronounced effect.

Patent Status: Patent Issued: #5,929,042 ~ see link below.

Licensing Status: Available for Licensing and Sponsored Research Support

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