URVentures

Novel Cell Therapy for Treating CNS Injury

A new cell therapy for treating damage to the central nervous system (CNS).

Problem Solved by This Technology

Damage to the CNS, whether through trauma or as a result of a neurodegenerative disease, creates a multitude of problems that include neurotoxicity, loss of synapses, disrupted axon growth, neuroinflammation, and cell death.

Applications

Researchers at the University of Rochester have developed a new therapeutic approach using a novel population of astrocytes to promote the survival and function of resident cells, thereby enabling tissue repair in multiple disease pathologies. Called Multimodal Precursor-derived AstroCytes, or MPACs, these astrocytes have proven exceptionally effective at repairing multiple aspects of traumatic spinal cord injury, including increased survival of diverse neuronal populations, growth of axons across the lesion site, suppression of scarring, and functional recovery. MPACs also appear to be of significant therapeutic promise for treatment of neurodegenerative disease, such as Parkinson's, and are the only therapeutic approach known to rescue multiple neuronal populations in the striatum. Consistent with the observed paracrine benefits, MPACs secrete several factors, many of which are known neurotrophic proteins that contribute to the multimodal properties of MPACs.

Technology Status

Recent experiments using delayed delivery of MPACs into traumatic or neurodegenerative models of CNS injury demonstrate the ability of MPACs to also promote functional recovery in chronic injuries, suggesting that MPACs act to restore the function of surviving but dysfunctional neural cell populations. This approach presents a novel paradigm that may provide significant and rapid therapeutic benefit, without the need for long-tract regeneration or neuronal replacement.

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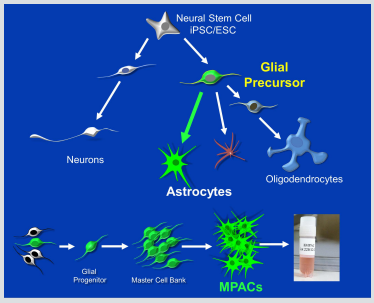

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