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Advances in treatment of neurodegenerative diseases: perspectives for combination of stem cells with neurotrophic factors

Jie Wang, Wei-Wei Hu, Zhi Jiang, Mei-Jiang Feng

**Abstract**

Neurodegenerative diseases, including Alzheimer's disease, Parkinson's disease, Huntington's disease and amyotrophic lateral sclerosis, are a group of incurable neurological disorders, characterized as such by the chronic progressive loss of different neuronal subtypes. However, despite their increasing prevalence among the ever-increasing aging population, the coincident immense efforts towards development of therapeutic agents have made very little progress. Research interest has more recently turned towards stem cells including stem cells-derived exosomes, neurotrophic factors, and their combination, especially stem cells genetically engineered to overexpress neurotrophic factors which not only exert combined protective effects but also address certain concerns involved with the direct and viral vector-mediated delivery of neurotrophic factors, as potential therapeutic agents in neurodegenerative diseases. In this review, we summarize the

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April M Weissmiller 1 and Chengbiao Wu 1, 2 1 **Department of Neurosciences**, University of California San Diego, School of Medicine, La Jolla, CA, 92093-0649, USA

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Over the past 20 years, **stem** cell technologies have become an increasingly attractive option to investigate and treat **neurodegenerative diseases**. In the current review, we discuss the process of extending basic **stem** cell research into translational therapies for patients suffering from **neurodegenerative diseases**.

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**Author:** J. Simon Lunn, Stacey A. Sakowski, Jung...

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## Neural stem cell-based treatment for neurodegenerative ...

<https://onlinelibrary.wiley.com/doi/abs/10.1111/neup.12020>

Although further research is still needed, cell and gene therapy based on **stem cells**, particularly using neurons and glia derived from iPSCs, ESCs or NSCs, will become a routine **treatment** for patients suffering from **neurodegenerative diseases** and also stroke and spinal cord injury.

**Cited by:** 163

**Author:** Seung U. Kim, Seung U. Kim, Hong J. Le...

**Publish Year:** 2013

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