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Human umbilical cord blood cell transplantation in neuroregenerative strategies

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Abstract

© 2017 Galieva, Mukhamedshina, Arkhipova and Rizvanov. At present there is no effective treatment of pathologies associated with the death of neurons and glial cells which take place as a result of physical trauma or ischemic lesions of the nervous system. Thus, researchers have high hopes for a treatment based on the use of stem cells (SC), which are potentially able to replace dead cells and synthesize neurotrophic factors and other molecules that stimulate neuroregeneration. We are often faced with ethical issues when selecting a source of SC. In addition to precluding these, human umbilical cord blood (hUCB) presents a number of advantages when compared with other sources of SC. In this review, we consider the key characteristics of hUCB, the results of various studies focused on the treatment of neurodegenerative diseases (Alzheimer's disease, Parkinson's disease, amyotrophic lateral sclerosis), ischemic (stroke) and traumatic injuries of the nervous system and the molecular mechanisms of hUCB-derived mononuclear and stem cells.

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Keywords

Human umbilical cord blood cells, Neurodegeneration diseases, Neuroregeneration strategies, Spinal cord injury, Stroke

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