

naNOals

Nanoparticle delivery system for neurodegenerative disorders

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Partner countries:



As a translational project, naNOals addresses the pressing need for improved treatment of ALS. The primary objective of the project is to develop a new therapeutic approach to treat early-stage ALS using nanoparticles loaded with mimetics to support motor neuron survival and antagonize the toxic effects of abnormal forms of the Cu/Zn superoxide dismutase 1 enzyme, which is implicated as a driving force in the progression of ALS. The generation of precursors of human motor neurons from human embryonic stem cells and their subsequent transplantation to the spinal cord, (where they are induced to differentiate to fully functional motor neurons and replace lost cells), will be tested for late stages of the disease. For transplantation, a special delivery device with multiple microfabricated needles will be used. We anticipate that the results of our studies can be translated to pre-clinical investigations preceding clinical trials. Utilizing nanomaterial-based research, this project provides a foundation for a combined therapeutic strategy, which independently tackles fundamental elements in the progression of ALS.

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