

Researchers generate functional neurons from somatic cells

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In a new study, researchers were able to generate functionally mature motor neurons from induced pluripotent stem (iPS) cells, which are engineered from adult somatic cells and can differentiate into most other cell types. A potential new source of motor neurons that does not require human eggs or embryos could be an enormous boon to research into conditions such as amyotrophic lateral sclerosis (ALS) and spinal cord injury and could open the door to eventual treatments. The study is published in *Stem Cells*.

This study is the first to use human iPS cells to generate electrically active motor neurons, a key hallmark of functional maturation that is essential for any future application of iPS cells. "To our knowledge, our results present the first demonstration of the electrical activity of iPS-derived neurons and further suggest the feasibility of using these cells to explore how changes in motor neuron activity contributes to the degeneration of these cells underlying these disorders," the authors state.

Led by William Lowry, and in collaboration with Bennett Novitch, Harley Kornblum, and Martina Wiedau-Pazos of the University of California Los Angeles, researchers compared the ability of different human cell lines to generate motor neuron progenitors and fully differentiated motor neurons. "These findings support the possibility that reprogrammed somatic cells might prove to be a viable alternative to embryo-derived cells in regenerative medicine," the authors note.

When measuring the electrophysical properties of the iPS-derived neurons, the researchers found that the iPS cells followed a normal developmental progression to mature, electrically active neurons.

More information: www3.interscience.wiley.com/jo.../grouphome/home.html

Source: Wiley

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