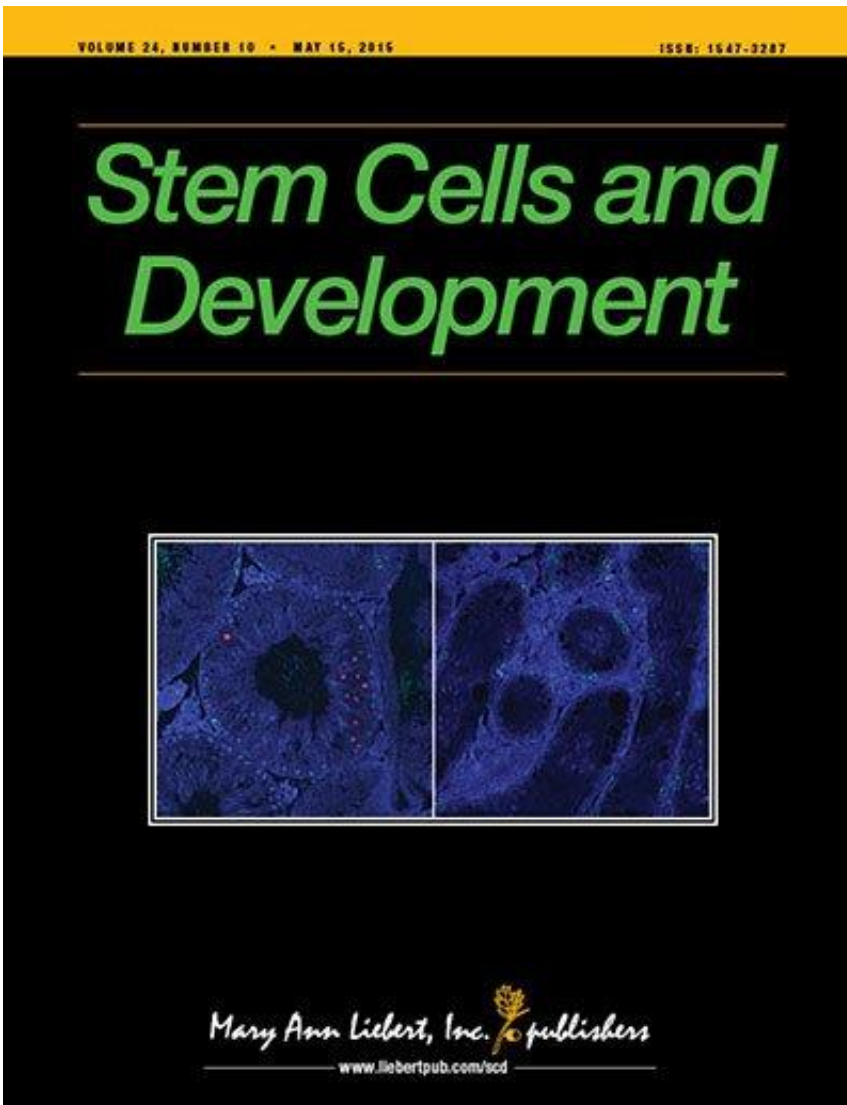


New techniques for reprogramming stem cells target neurological disease models

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Credit: Mary Ann Liebert, Inc., publishers

As scientists overcome the technical challenges in reprogramming stem cells to produce biologically precise models of human neurons, these emerging model systems will accelerate research on understanding neuronal activity, brain development, and neurological diseases, and will drive the discovery of new patient-specific, reprogramming-based therapies. Recent technological advances, current challenges, and future clinical applications are discussed in the Comprehensive Review article "[Advances in Reprogramming-Based Study of Neurologic Disorders](#)" published in *Stem Cells and Development*.

Anjana Nityanandam and Kristin K. Baldwin, The Scripps Research Institute, La Jolla, CA, describe the limitations of currently available reprogramming-based methods to reproduce accurate models of [neurological diseases](#). The authors review the latest advances in reprogramming-based technologies, particularly those related to human induced pluripotent [stem cells](#) (hiPSCs), and approaches to produce specific subtypes of neurons with high specificity and efficiency. Among the goals of future research discussed in this article are the development of methods to generate and combine multiple neural subtypes to create three-dimensional models of entire brain regions in the laboratory, to generate tissue structures that mimic the developing brain, to optimize gene editing techniques for correcting disease mutations, and to accelerate aging of hiPSC-derived neurons for use in the discovery of novel therapies targeting age-related [neurologic diseases](#).

"Neurologists and stem cell biologists alike should look to this excellent, truly comprehensive review as a tour de force of critical examination" says Editor-in-Chief Graham C. Parker, PhD, The Carman and Ann Adams Department of Pediatrics, Wayne State University School of Medicine, Detroit, MI.

More information: The article is available free on the *Stem Cells and*

Development website until June 20, 2015.

Provided by Mary Ann Liebert, Inc

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