

FULL SPEAKER BIOGRAPHY and ABSTRACT

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Dr. Steindler received his doctorate in Anatomy and Neurosciences from the University of California, San Francisco. After postdoctoral studies at the Max-Planck-Institute for Biophysical Chemistry in Germany, Dr. Steindler began his studies of brain development and injury as an Assistant Professor of Anatomy at Michigan State University. He is currently the Executive Director of the Evelyn F. and William L. McKnight Brain Institute of the University of Florida, and the Joseph J. Bagnor/Shands Professor of Medical Research, a member of the Program in Stem Cell Biology and Regenerative Medicine of the University of Florida College of Medicine, and a member of the Grants Working Group of the California Institute for Regenerative Medicine. He also serves on the scientific advisory board for the Michael J. Fox Foundation for Parkinson's Research. Besides directing a large developmental neurobiology group, Dr. Steindler has been studying the growth and transplantation of brain and stem cells for over 25 years. He is also responsible for reviewing manuscripts and grants for a variety of journals and funding agencies, including formerly chairing a brain repair and stem cell-related review panel at the National Institute of Neurological Diseases and Stroke, and he retains a position on the editorial boards of *The Journal of Neuroscience*, *GLIA*, *Experimental Neurology*, and *Brain Research*. His papers in *The Lancet*, and the *Proceedings of the National Academy of Sciences* set forth plans for the use of stem cells and regenerative medicine for a variety of neurological disorders, including Parkinson's Disease and cancer.

Astrocytic Stem/Progenitor Cells During Brain Development, Regeneration and Cancer

During brain development, radial cells and cells found within boundaries around forming functional units throughout the neuraxis exhibit astroglial and stem/progenitor cell properties. Astrocytic cells (e.g. Multipotent Astrocytic Stem Cells, or "MASCs" and Adult Human Neural Progenitor Cells, or "AHNPs") also can be stem and progenitor cells that contribute to persistent normal neurogenesis and injury-associated reactive neurogenesis in the adult central nervous system. Astrocytic stem/progenitor cells are thus involved in attempted regeneration following injury or disease and may be amenable, following in vitro isolation and expansion and in vivo recruitment or transplantation, to cell replacement and repair. Oncogenic transformation of potent astrocytic cells, acting as cancer stem-like cells, may also contribute to gliomagenesis. Therefore, there are potentially common programs for stem cell-like astrocytes during brain development, in neurogenic niches in the adult, during attempted reactive neurogenesis following brain injury or disease, and during brain tumorigenesis.

What is the central hypothesis of my presentation?

There are potent cells found throughout the adult neuraxis, that are lineage-associated with a neurogenic glial cell found during development, that have stem/progenitor cell attributes and are involved in persistent neurogenesis, regenerative attempts following injury or disease, and gliomagenesis.

What is the most important observation I will discuss?

The ability of human astrocytic progenitor cells to differentiate into neurons and functionally integrate within mature brain circuitries.

What is the translational significance?

Understanding the nature and differentiation plasticity of neurogenic astrocytes could provide clues into their ability to repair the injured or diseased CNS as well as contribute to brain tumorigenesis.