

FULL SPEAKER BIOGRAPHY and ABSTRACT

Sally Temple, PhD
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Sally Temple is originally from the north of England. She trained at Cambridge University, then did her graduate work at University College London with Martin Raff. Sally now lives in the beautiful upstate New York area. Her lab studies central nervous system (CNS) stem and progenitor cells and their role in generating the amazing neural cell diversity during development. In August 2007 she cofounded the non-profit New York Neural Stem Cell Institute with Jeff Stern, focused on stem cell research for CNS applications. A central mission of the institute is to develop stem cell-based therapeutics for neurodegenerative disease, including age-related macular degeneration and Parkinsons Disease, and for spinal cord injury.

Hidden gems-an embryonic like stem cell in the adult nervous system

Neural stem cells are the building blocks of the embryonic nervous system and in some areas of the adult nervous system they continue to make new cells throughout life. The types of cells that are generated depend on stage – early neural stem cells make fundamental projection neurons, while later they generate glia or smaller granule or interneurons. In some areas of the CNS, cells are laid down early in development do not undergo extensive division, but rather remain dormant throughout life. For example, the retinal pigment epithelium (RPE) is non-proliferative from the early embryonic period. We have shown that the RPE retains some of the property of early embryonic neuroepithelial cells, and I will discuss how this finding can lead to translational applications.

What is the central hypothesis of your presentation?

That the adult nervous system contains long-dormant progenitor cells with the potential of early neuroepithelial cells

What is the most important observation you will discuss?

The human retinal pigment epithelium contains cells that can be activated to proliferate and produce a surprising array of progeny.

What is the translational significance?

The RPESC provides us with a new and relatively accessible source of human CNS progenitor cells. This finding has value in modeling retinal disease, and in considering how the cell might be activated to combat diseases of the eye such as age-related macular degeneration, and potentially other CNS afflictions.