

Weekly Colloquium

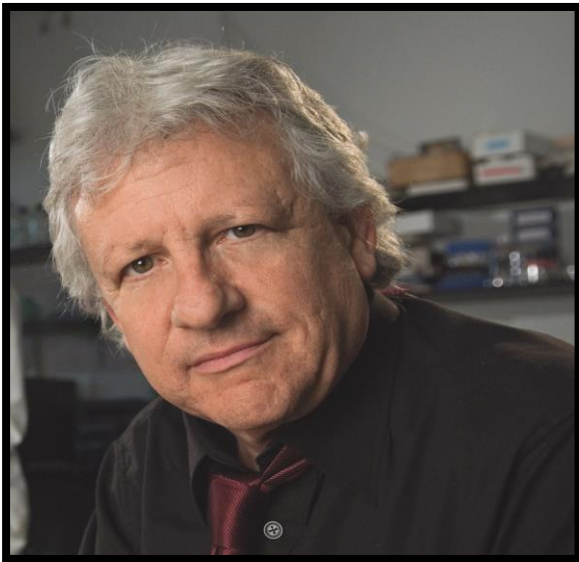
Tuesday, 10/31/2017, 12:30pm, Billings Building – Rosedale Conference Room

“Right Under Your Nose: How Ignorance and Failure Make Science So Successful”

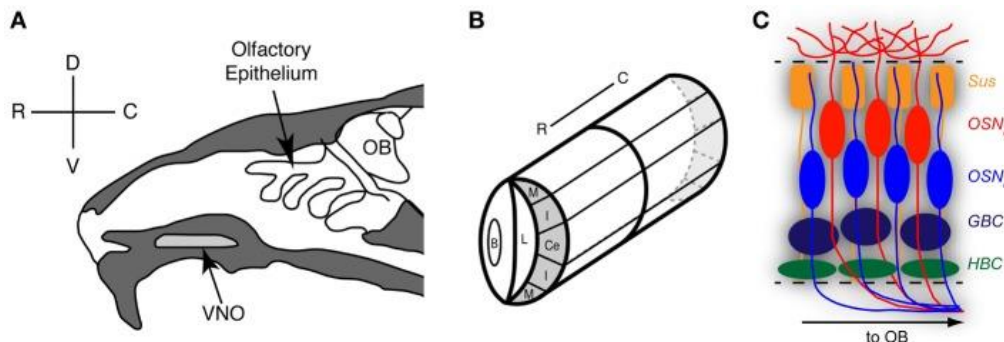
(With a case history from recent work in olfaction)

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Neurogenesis continues well beyond embryonic and early postnatal ages in three areas of the nervous system. The subgranular zone supplies new neurons to the dentate gyrus of the hippocampus. The subventricular zone supplies new interneurons to the olfactory bulb, and the olfactory neuroepithelia generate new excitatory sensory neurons that send their axons to the olfactory bulb. The latter two areas are of particular interest as they contribute new neurons to both ends of a first-level circuit governing olfactory perception. The vomeronasal organ and the main olfactory epithelium comprise the primary peripheral olfactory epithelia. These anatomically distinct areas share common features, as each exhibits extensive neurogenesis well beyond the juvenile phase of development. Here we will discuss the effect of age on the structural and functional significance of neurogenesis in the vomeronasal and olfactory epithelia, from juvenile to advanced adult ages, in several common model systems. We will next discuss how age affects the regenerative capacity of these neural stem cells in response to injury. Finally, we will consider the integration of newborn neurons into an existing circuit as it is modified by the age of the animal.



Publications:

Chen CF, Zou DJ, Altomare CG, Xu L, Greer CA, **Firestein SJ**. Nonsensory target-dependent organization of piriform cortex. *Proc Natl Acad Sci U S A*. 2014 Nov 25;111(47):16931-6. doi: 10.1073/pnas.1411266111. Epub 2014 Nov 10. PMID:25385630

Brann JH, **Firestein SJ**. A lifetime of neurogenesis in the olfactory system. *Front Neurosci*. 2014 Jun 26;8:182. doi: 10.3389/fnins.2014.00182. eCollection 2014. Review. PMID:25018692

Mobley AS, Bryant AK, Richard MB, Brann JH, **Firestein SJ**, Greer CA. Age-dependent regional changes in the rostral migratory stream. *Neurobiol Aging*. 2013 Jul;34(7):1873-81. doi: 10.1016/j.neurobiolaging.2013.01.015. Epub 2013 Feb 15. PMID:23419702