



Seminar/Talk

Don't Put All Your Eggs in the Neocortex: How the small chick dorsal pallium challenges mammalian-centric views on brain cortex evolution

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Host: Lora Sweeney

The phenomenal size and cellular diversity of the human cerebral cortex is the outcome of an elaborate developmental program sculpted by evolutionary forces during millions of years. This evolution involved changes in neural progenitor cells, which compared to reptiles and birds acquired the capacity to generate larger numbers of neurons and in greater diversity. Genetic causes of increased progenitor cell proliferation during evolution have been identified, but mechanisms involved in the diversification of neural progenitor cells remain unknown. To address this question, we performed the first integrated, multi-level, comparative study of neural progenitor cells and lineages in the embryonic cortex across amniotes. The analysis was focused on four strategic species that cover the spectrum of cortical phenotypes: house snake, chick, mouse and ferret. Our results revealed an unsuspected diversity of basal progenitor cell types in chick, superior to mouse and with similarities to the more complex ferret cortex. Chick dorsal pallial progenitors included subapical and basal Radial Glia, and co-expressed Pax6 and Tbr2, similar to ferret but unlike mouse, where these are largely absent. Our findings challenge current concepts on the evolutionary trajectory of the cerebral cortex, revealing a very early diversification of cortical progenitor cell types in amniotes that predated the last common ancestor of mammals and birds.

Thursday, September 3, 2026 01:45pm - 03:00pm

Sunstone Bldg / Ground floor / Big Seminar Room B / 63 seats (I23.EG.102)



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