

Combi Seminar

Wednesday, 5.8.24 | 1:30

held remotely: <https://depts.washington.edu/gstrestrc/remote.htm>



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“The evolution of neuronal diversity”

Advances in DNA sequencing have been pivotal in illuminating the evolutionary history of genes. Recent breakthroughs in single cell profiling have motivated a related enterprise focused on the evolution of cell types, the functional units of complex tissues.

In this talk I will describe single cell analyses of cell type evolution in the retina, the thin film of neurons in the eye where vision begins. The retina is as complex as any other brain region, but its compactness and accessibility make it an ideal system to address conceptual and technical challenges associated with cell type evolution. I will discuss our recent integrative analysis of retinal atlases across 20 species, which suggest that many of the cell types and circuits thought to be unique to mammals have ancient evolutionary origins beyond the Devonian (>420 million years ago). As a specific case study, I will describe how an ancient substrate has massively expanded in the primate retina to enable vision at high spatial resolution. I will make some speculative connections between the co-evolution of the retina and the cerebral cortex, which has massively expanded in humans. Beyond furthering our basic understanding of the evolution of vision, these results have important implications for improving existing animal models for blinding diseases.

Questions? Contact Brian Giebel at bgiebel@uw.edu or visit the Combi website at <http://www.gs.washington.edu/news/combi.htm>

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