

*Invited Presentation****BIOMEDICAL ENGINEERING SEMINAR***

11:00 a.m.-12:00 noon, Friday, March 13, 2009
Mann Hall, Medical Sciences Building

Title: Transduction Mechanisms Mediating Nerve Growth Cone Guidance and the Directional Migration of Cancer Cells

**Presenter: John Henley, Ph.D.
Departments of Neurological Surgery,
Physiology and Biomedical Engineering**

Abstract: Growth cones at the tips of growing neurites control the complex connectivity of the nervous system: as a neurite extends, the growth cone detects gradients of chemotropic guidance cues to home in on synaptic targets. Our goal is to define the key polarized signals downstream of chemotropic receptor activation that control bidirectional growth cone guidance. Understanding the transduction mechanisms and discovering methods to manipulate chemotropic guidance signals is important for developing new therapies to promote neuroregeneration after degenerative disease or traumatic injury. Furthermore, we are utilizing this model system to gain spatial and temporal insights into the mechanisms controlling the invasiveness of glioblastoma multiforme (GBM), which is the most common and invasive astrocytic neoplasm. Our preliminary findings suggest that guidance cues may control malignant astrocyte migration. This is a novel approach to the study of GBM invasiveness and the research is highly translational, since understanding mechanisms that govern invasion could lead to the development of novel therapies.

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