**Novel Therapeutics for Treating Viral Diseases, Cancer and Neurological Disorders**

In his decades-long career at Emory University, Dr. Dennis Liotta has dramatically improved the longevity and quality of life of millions worldwide. His accomplishments are not limited to just one significant discovery, as he has been directly involved in the discovery and development of multiple lifesaving therapeutics. In his presentation, Dr. Liotta will overview of his group’s earlier success in the antiviral arena and transition into their recent endeavors in (1) developing novel CXCR4 antagonists as immunomodulators for treating cancer and (2) designing fast-release neurosteroid prodrugs for treating traumatic brain injury. **CXCR4 antagonists**: Pro-angiogenic and immune cells expressing chemokine receptor CXCR4 traffic along concentration gradients of its chemokine ligand CXCL12, which disseminates from stromal niches in lymph nodes, lung, liver, and bone marrow. CXCR4 antagonists have significant therapeutic potential against cancer progression. Dr. Liotta and his group has designed, synthesized, and evaluated over 350 tetrahydroisoquinoline-containing CXCR4 antagonists. Leading this pipeline is EMU-116, which exhibited enhanced pharmacokinetic properties and superior anti-tumor efficacy compared to mavorixafor, a small molecule CXCR4 antagonist studied in clinical trials. **Part II. Neurosteroid prodrugs** – Despite tremendous amount of scientific effort allocated towards the development of pharmacological interventions for reducing the impact of traumatic brain injury (TBI) on public health, none have resulted in an FDA-approved neuroprotective agent. In recent years, neurosteroids, such as progesterone, emerged as promising neuroprotective agents for treating TBI. To address this unmet need, the LRG has developed two generations of progesterone prodrugs having improved aqueous solubility and fast *in vivo* release rate. Their efficacy was demonstrated in a rat model of acute TBI.