

Project #15: **Ravi Bellamkonda** and **Hongbin Han**: *Comparison of therapeutic efficacy of neuroprotective drugs between liposomal delivery and stereotactic simple diffusion delivery (SDD) via brain extracellular space in the treatment of Alzheimer's disease*

Limited delivery of neuroprotective drugs into the central nervous system (CNS) by systemic administration has led to poor treatment efficacy. Drug delivery to the CNS is limited due to the blood brain barrier (BBB); however certain pathological states such as Alzheimer's disease have been shown to be associated with a compromised BBB. Despite this fact, drug delivery remains challenging due to the inability to restrict delivery to the diseased site. To improve the therapeutic efficacy of neuroprotective drugs, novel delivery pathways including vector-mediated delivery (using liposomes to facilitate targeted delivery) and stereotactic simple diffusion delivery via brain extracellular spaces (ECS), (which allows for direct contact between drugs and brain cells) are proposed in this program. We aim to compare the therapeutic efficacy of neuroprotective drugs delivered via these two pathways.