Cognitive dysfunction and memory loss are common symptoms of brain disorders such as Alzheimer’s disease, Parkinson’s disease and stroke (to name a few). These conditions grow in prominence with advancing age and have enormous economic and human costs. Together with traumatic brain injury, they are among the more serious and recalcitrant health problems facing society today. Dart Neuroscience strives to become the leading specialized pharmaceutical company for memory disorders by focusing on the discovery and development of innovative drugs with new mechanisms of action. Our discoveries are based on careful examination of the genes, encoded proteins, pathways and networks involved in the reorganization of synaptic connections in brain - a cellular/molecular process that underlies both implicit (motor skills) and explicit (facts and events) forms of memory. Our strategy will lead to specialized therapies for rehabilitating and enhancing brain function by combining specific training protocols with augmenting agents. My presentation will outline the upstream segment of the drug discovery pipeline at Dart: the selection and validation of memory drug targets.