

- **Abstract**

Understanding and repairing complex brain functions are some of the biggest challenges that a scientists face. Neuronal precursor transplants may help in this task. For this, it is necessary to study and characterize an appropriate stem cells source; understand the effects of their transplant on animal models of the diseases; and develop the technical conditions to facilitate the translation of the lab discoveries to the clinic. We have experience transplanting GABAergic neuronal progenitors derived from the medial ganglionic eminence (MGE), which are being applied in animal models of altered interneuron function that lead to relevant neuropathologies, such as epilepsy, infantile encephalopathies, and Alzheimer's disease. This experimental approach has helped us to better understand the role of interneurons in the generation of gamma oscillatory activity, epileptogenesis and cognitive functions under normal and pathological conditions. It also opens new therapeutic alternatives for diseases that lack of traditional pharmacological treatments, such as West or Dravet syndromes.