New gene therapy approaches for Parkinson’s disease

Jose L Lanciego
Center for Applied Medical Research, Spain

The field of Gene Therapy in the CNS has recently witnessed a number of major conceptual changes. Besides the traditional thinking that comprises the use of viral vectors for the delivery of a given therapeutic gene, a number of original approaches have been recently envisaged, focused on using vectors carrying genes to further modify brain circuits of interest. It is expected that these approaches will ultimately induce a therapeutic potential being sustained by induced changes in brain circuits. Here, we will illustrate the rationale behind several experiments that are currently under implementation in the Non-Human Primate (NHP) model of Parkinson’s Disease (PD). Among others, we will focus on the following approaches: (1) In vivo reconstruction of the nigro-striatal pathway, (2) Selective elimination of hyperactive basal ganglia circuits in dyskinetic macaques and (3) Strategies for in vivo reprogramming of striatal neurons. Besides considering the translational potential of these approaches, we hope that these experiments, complementary to each other, will allow us to generate new data supporting a better understanding of the pathophysiology of PD.

Biography

Jose L Lanciego has completed his PhD from the University of Salamanca Medical School and Postdoctoral studies from Amsterdam Vrije Universiteit. He is the Director of the Basal Ganglia Neuroanatomy Lab at the Center for Applied Medical Research (CIMA). He has published more than 80 papers in international scientific journals and he is serving as an Editorial Board Member of Brain Structure and Function as well as Associate Editor of Frontiers in Neuroanatomy. His main research interests include a number of topics dealing with the pathophysiology of Parkinson’s and Alzheimer’s diseases.

jlanciego@unav.es

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