Transgenic rat model of Alzheimer’s disease

Overview:

McGill University is seeking to outlicense non exclusively transgenic rat model of Alzheimer’s disease (AD) pathology.

The researchers have developed a new transgenic rat model (McGill-R-Thy1-APP) carrying a single transgene which displays the full AD-like-amyloid pathology, accompanied by inflammation and cognitive impairment. The Tg construct contains the cDNA coding for the human amyloid precursor protein (hAPP751), carrying both the Swedish and Indiana FAD mutations, under the control of the murine Thy1 promoter. The animals display an extended phase of intracellular Aβ accumulation and a progressive extracellular Aβ deposition in the form of amyloid plaques. Behavioral studies show that spatial cognitive impairments appear as early as by 3 months of age in Tg rats, coinciding with the pathological early AD intracellular accumulation of Aβ oligomers.

Applications:

Transgenic rat model for investigation of early and late stages of AD pathology and validation of experimental therapeutic candidates.

Advantages:

- Compared to mice, the rat exhibits a richer behavioral spectrum and the larger size facilitates the study of AD pathology.

- Experimental AD pathology manifests early and becomes progressively severe with age similar to what is manifest in AD patients.

- Transgenic rat models displaying the full spectrum of biochemical and pathological alterations seen in AD are invaluable for investigating AD pathology as and for validating efficacy of experimental therapies.
Innovator profile:

Dr. Claudio Cuello is Professor in the Departments of Pharmacology and Therapeutics, Anatomy and Cell Biology, Neurology and Neurosurgery of McGill University and holds the Charles E. Frosst Merck Chair.

MD at the University of Buenos Aires.

Dr. Cuello’s research explores degenerative and regenerative processes in the CNS with emphasis on aging and Alzheimer’s disease. His laboratory utilizes and develops transgenic animal models presenting features of the AD neuropathology. His research is of multidisciplinary ranging from molecular approaches to whole animal experimentation with focus in Alzheimer’s therapeutics.

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