Drug Discovery & Development

Rat Model of Alexander Disease

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in the first rat model of Alexander disease. The model is closer to the true disease state than any other and could become the gold standard for developing drugs against the disease.

Overview

Alexander disease (AxD) is a rare disease of the central nervous system characterized by formation of protein aggregates within astrocytes and disruption of growth or maintenance of the myelin sheath. The cause of the disease has been traced to the gene encoding glial fibrillary acidic protein (GFAP). Since the initial discovery of *GFAP* as the genetic basis for the disease, reported by the Messing laboratory in 2001, several types of AxD models have been developed, including animals. Using these models, significant progress has been made in the development of novel treatments.

Some of these therapeutics are now ready for more rigorous testing in animals – a necessary step prior to the initiation of clinical trials in human patients. However, the existing mouse models are not ideal for this testing. While they display several key features of the human disease, such as hallmark pathological protein aggregates and subtle evidence of subclinical seizures and cognitive deficits, they have no evident disruption in the myelin sheath or any problems with strength or gait.

Overall, the mouse phenotype is very mild and offers little opportunity to test the effects of rescue by experimental treatments. Better animal models are needed for drug development.

The Invention

The Messing laboratory at UW–Madison has now developed the first rat model for Alexander disease. The rat features a missense mutation in the gene encoding GFAP and exhibits much more severe symptoms than the mouse model. Advantageously, the new model also allows for easier draws of cerebral spinal fluid, required when testing new drugs.

Applications

- Animal model for therapeutic testing

Key Benefits

- Closer to the true disease state than existing mouse model
- Potential to become ‘gold standard’
- Enables easier cerebral spinal fluid draws

Tech Fields

- Drug Discovery & Development : Disease models

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854