Summary

NRG Therapeutics is developing disease-modifying small molecule therapeutics to slow or halt the progression of neurodegenerative disorders such as Parkinson's and motor neurone disease (Amyotrophic Lateral Sclerosis or ALS) by rectifying mitochondrial dysfunction.

Breakthrough science

The mitochondrial permeability transition pore (mPTP) has been identified as central to the disease pathology of neurodegenerative disorders; in Parkinson's and in ALS. Whilst the mechanism through which mPTP is involved in cell death may differ between Parkinson's and ALS, mPTP inhibition has emerged as a promising strategy for the treatment of neurodegenerative diseases. In Parkinson's and ALS, mPTP inhibition is thought to protect neurons from the pathological effects of toxic proteins (α-synuclein and TDP-43, respectively), reducing neuroinflammation and cell death, which in turn may slow disease progression.

While there are certain known molecules which inhibit mPTP opening, these cannot cross the blood-brain-barrier which limits their potential as effective drugs for neurodegenerative diseases. NRG has identified multiple series of novel, drug-like mPTP inhibitors, which are orally available and brain penetrant.

Differentiation

NRG has reported that its drug-like, brain penetrant small molecule mPTP inhibitors act through targeting of a previously unidentified component or modulator of the mPTP. NRG believes its discovery of the function of this protein will help improve understanding of how the mPTP is formed and regulated, and its role in disease pathophysiology.

⟶ Highlights

NRG is located at the Stevenage Bioscience Campus. The company has a partnership with the Michael J Fox Foundation.

⟶ Partnerships/collaborations

- Walter and Eliza Hall Institute of Medical Research

Stage:
Discovery

#NeurologicalDisorders
#Mitochondria
#DrugDiscovery