Docket #: S12-345

Therapeutics for the Treatment of Parkinson's Disease

Researchers in Dr. Bingwei Lu's lab have identified genes that could serve as therapeutic targets for the treatment of Parkinson's disease (PD). PD is a common neurodegenerative movement disorder affecting 1% of the population over the age 60. It has been linked to acquired or spontaneous mutations in mitochondrial genes or nuclear genes relevant to mitochondrial function. PD patients exhibit symptoms including resting tremor, bradykinesia, muscle rigidity and postural instability. Current treatments only alleviate the symptoms and there is no cure for PD yet. This technology provides therapeutic targets that could be used to treat PD.

Stage of Research

The inventors have identified new functions of proteins involved in mitochondrial transport and quality control. Mitochondrial quality control is critically involved in PD pathogenesis and players in this regulation provide potential therapeutic targets.

Applications

- **Development of therapeutics for:**
  - Sporadic and familial PD
  - Other mitochondrial diseases

Advantages

- **New therapeutic targets for treatment of PD**

Publications

- Liu S et al.Parkinson's Disease–Associated Kinase PINK1 Regulates Miro Protein Level and Axonal Transport of Mitochondria. PLoS Genet. 2012;8(3):e1002537. doi: 10.1371/journal.pgen.1002537. Epub 2012 Mar 1.
- S. Lee, K-S Lee, S. Huh, S. Liu, D-Y Lee, S.H. Hong, K. Yu, and B. Lu Polo Kinase Phosphorylates Miro to Control ER-Mitochondria Contact Sites and Mitochondrial Ca2+ Homeostasis in Neural Stem Cell Development *Developmental Cell* April 2016.

Patents

- Published Application: 20140256786
- Issued: 9,265,788 (USA)

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