

The use of arylcyclopropylamine inhibitors in the treatment of Parkinson's disease

Value Proposition

Treatment options for Parkinson's disease are currently quite limited, and generally involve dopamine replacement therapy with a variety of dopaminergic agents. Levodopa (L-DOPA), the immediate precursor to dopamine, is currently the gold standard for treatment of Parkinson's disease. However, L-DOPA therapy leads to undesirable side effects, with approximately 60% of patients experiencing fluctuations in motor performance, psychotic reactions, and levodopa-induced dyskinesias (uncontrolled movements) after just five years or less of treatment. Hence, there is a pressing need for improved antiparkinsonian therapeutics, especially those that could ameliorate the disruptive dyskinesia symptoms.

Technology

A facile synthetic route to substituted *trans*-2-arylpropylamines was developed to provide access to mechanism-based inhibitors of the human flavoenzyme oxidase lysine-specific histone demethylase LSD1 and related enzyme family members such as monoamine oxidases A and B. Researchers have demonstrated through testing of synthesized arylcyclopropylamine inhibitors that some of these compounds demonstrate efficacy in the DDD mouse model which strongly suggests that they will also be efficacious in Parkinson's disease. They have also shown a subset of these compounds enhance the anti-parkinson's effect of L-Dopa when given simultaneously.

Advantages

- Enhances effect of L-Dopa in combination therapy of Parkinson's disease
- Efficacy demonstrated in mouse model

Duke File (IDF)

T-003862

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Links

- [From the lab of Dr. Dewey McCafferty](#)

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Publications

- [Facile synthesis of substituted trans-2-arylcyclopropylamine inhibitors of the human histone demethylase LSD1 and monoamine oxidases A and B \(Bioorg Med Chem Lett 2009\)](#)
- [trans-2-Phenylcyclopropylamine is a mechanism-based inactivator of the histone demethylase LSD1 \(Biochemistry, 2007\)](#)

Patents

Patent Number: 9,585,850

Title: METHODS OF TREATMENT USING
ARYLCYCLOPROPYLAMINE COMPOUNDS

Country: United States of America