Use of Ophthalmic Acid for treatment of Parkinson's disease

Tech ID: 33591 / UC Case 2023-760-0

BRIEF DESCRIPTION

Researchers at UC Irvine have identified Opthalmic acid (Ophthalmate, OA) for treatment of Parkinson's disease (PD), a degenerative neurological disorder that affects 1-2% of people over the age of 60. PD is characterized by progressive motor symptoms such as tremor, rigidity, slowness of movement and difficulty with balance. There is currently no cure for Parkinson's disease, only treatments to help manage the symptoms. Pharmacological strategies for treating PD depend mainly on replacing lost dopamine due to the degeneration of dopamine neurons in the substantia nigra compacta. Six decades after its initial use, L-3, 4-dihydroxyphenylalalnine (L-DOPA), the dopamine precursor, remains the standard of care for treatment of PD motor symptoms. L-DOPA can readily cross the blood-brain barrier (BBB) and is converted to dopamine by aromatic amino acid decarboxylase (AADC). Initial treatments with L-DOPA can provide great relief from motor symptoms, but over time its therapeutic effects diminish, and dyskinesia (abnormal involuntary movements) can increase in PD patients. Ophthalmic acid acts as a novel neurotransmitter to counteract the motor symptoms in animal models of PD, with a longer duration of action. Ophthalmic acid can be used as a novel drug for treatment of PD and other neurological disorders.

SUGGESTED USES

Treatment of:

·Parkinson's Disease

·Other neurological diseases (Alzheimer's disease, Huntington's disease, Amyotrophic lateral sclerosis, Friedreich ataxia, Lewy body disease, Spinal muscular atrophy, or motor neuron disease)

FEATURES/BENEFITS

·Ophthalmic acid acts as a neurotransmitter to counteract the motor symptoms in animal models of Parkinson's disease, with a long duration of action.

·Ophthalmic acid and its precursors or modified structures can be used as novel drugs for treatment of Parkinson's disease and other neurological diseases.

TECHNOLOGY DESCRIPTION

The use of Ophthalmic acid provides a therapeutic target for more efficient and long duration of treatment of Parkinson's Disease. Animal studies have shown that central administration of OA can reverse PD symptoms for prolonged duration. Further, OA precursor 2 aminobutyrate was able to increase and prolong motor activity when administered peripherally with L-DOPA/NSD1015. OA acts through activating Calcium sensing receptors.

STATE OF DEVELOPMENT

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OTHER INFORMATION

CATEGORIZED AS

- **Medical**
  - Disease: Central Nervous System
  - Disease: Ophthalmology and Optometry
  - Therapeutics
- **Research Tools**
  - Animal Models

RELATED CASES

2023-760-0

In vitro and in vivo studies

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2025/006,992	01/02/2025	2023-760

Additional Patent Pending

RELATED MATERIALS

» Ophthalmate is a new regulator of motor functions via CaSR: Implications for movement disorders
Sammy Alhassen, Derk Hogenkamp, Hung Anh Nguyen, Saeed Al Masri, Geoffrey W Abbott, Olivier Civelli, Amal Alachkar - 03/27/2024

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