Small Molecule sEH Inhibitors to Treat Alpha-Synuclein Neurodegenerative Disorders

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ABSTRACT
Researchers at the University of California, Davis have developed small molecule inhibitors to prevent or reverse the progression of neurodegenerative diseases or symptoms.

FULL DESCRIPTION
Current diagnosis of Parkinson’s disease (PD), a chronic and progressive neurodegenerative disorder, has connections to the deposition of specific protein aggregates termed Lewy bodies. There are several PD symptoms commonly associated with these protein aggregates including palsy and dementia. Although there are multiple treatments for PD, these medications do not stop or reverse the progression of the disease.

Researchers at the University of California, Davis have developed soluble epoxide hydrolase (sEH) inhibitors for the treatment of neurodegenerative disorders. The inhibitors may block the phosphorylation of alpha-synuclein, which plays a key role in the pathogenesis of alpha-synuclein-related neurodegenerative diseases, reducing endoplasmic reticulum stress and possibly prevent the aggregation of Lewy bodies. The small molecule inhibitors are capable of preventing or reversing the progression of neurodegenerative diseases and symptoms.

APPLICATIONS
▶ Mitigating, delaying or preventing α-synuclein-related neurodegenerative disorders
 ▶ Parkinson’s disease, dementia, Alzheimer’s, ALS, palsy, traumatic brain injury and neurodegeneration

FEATURES/BENEFITS
▶ Decreases inflammation associated with the pathogenesis of PD
▶ Reduces endoplasmic reticulum stress
▶ May have a role in preventing the aggregation of Lewy bodies

RELATED MATERIALS
▶ NIEHS - Enzyme plays key role in Parkinson’s disease and inflammation - 06/01/2018
▶ Qian Ren, Min Ma, Jun Yang, Risa Nonaka, Akihiko Yamaguchi, Kei-ichi Ishikawa, Kenta Kobayashi, Shigeo Murayama, Sung Hee Hwang, Shinji Saiki, Wado Akamatsu, Nobutaka Hattori, Bruce D. Hammock, Kenji Hashimoto."Soluble epoxide hydrolase plays a key role in the pathogenesis of Parkinson’s disease." Proceedings of the National Academy of Sciences. May 2018, 201802179; DOI: 10.1073/pnas.1802179115. - 05/07/2018

PATENT STATUS
Patent Pending

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OTHER INFORMATION
KEYWORDS
small molecule, inhibitors, soluble epoxide hydrolase, sEH, alpha-synuclein, neurodegenerative disorders, parkinson's, lewy bodies, α-synuclein

CATEGORIZED AS
▶ Medical
 ▶ Disease: Central Nervous System
 ▶ New Chemical Entities, Drug Leads
 ▶ Therapeutics

RELATED CASES
2018-474-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS
▶ Improved Dioxin Detection and Measurement
▶ Recombinant Neurotoxin: A More Effective Insecticide
▶ Antibodies: Urea Herbicide Pabs
▶ Antibodies: Triazine Herbicide Pabs
▶ Antibodies: Bacillus Delta Endotoxin Pabs
▶ Antibodies: Bromacil Herbicide Pabs
▶ Novel and Specific Inhibitors of p21
▶ Beneficial Effects of Novel Inhibitors of Soluble Epoxide Hydrolase as Adjuvant Treatment for Cardiac Cell-Based Therapy
▶ Novel Neuropathy Treatment Using Soluble Epoxide Inhibitors
▶ Detection System for Small Molecules
▶ Methods and Compositions of Treating Diabetic Nephropathy and Insulin Resistance
▶ Method of Preventing Bone Loss and Periodontal Disease
▶ A New Pharmaceutical Therapy Target for Depression and Other Central Nervous System Diseases
▶ Multi-Target Inhibitors for Pain Treatment
Antibodies for Pseudomonas (P.) aeruginosa
Chemical Synthesis of Lipid Mediator 22-HDoHE and Structural Analogs
Soluble Epoxide Hydrolase-Conditioned Stem Cells for Cardiac Cell-Based Therapy
PTUPB Compound Potentiates Cisplatin-Based-First Line Therapies with No Additional Toxicity
Bioavailable Dual sEH/PDE4 Inhibitor for Inflammatory Pain