Novel Mixtures For Synergistic Activation Of M-Channels

Tech ID: 31815 / UC Case 2018-831-0

BRIEF DESCRIPTION

Epilepsy is a seizure causing neurological disorder that affects over 50 million people, and it is estimated that half are ineffectively treated with current therapeutic options. Researchers at UCI have isolated components of a plant extract used to treat epilepsy in Africa and discovered that, when combined with an existing epilepsy medication, the mixture greatly decreases epileptic episodes and significantly increases survival rates in rodent models of epilepsy.

TECHNOLOGY DESCRIPTION

Epilepsy is a neurological disorder that causes seizures and affects 50 million people worldwide; an estimated 50% are mistreated or ineffectively treated with current therapeutic options. Additionally, several prime therapeutic options have mild to severe side effects. Herbal remedies have been used to treat epilepsy, such as the extract from an African shrub called Mallotus oppositifolius. However, the compounds that make this treatment effective and the manner in which previously were elusive. Researchers at UCI have identified two components of M. oppositifolius, mallotoxin and isovaleric acid, which they discovered work synergistically to reduce duration and frequency of seizures thus elucidating the mechanisms by which this important shrub works. This effect occurs through the targeted opening of potassium channels (KCNQ channels), which releases potassium from neurons and thus decreases neuronal firing. Additionally, when combined with a current seizure medication, this treatment increases potency of the therapeutic. This not only helps with the prevention of seizures but lowers the effective dose necessary for treatment.

SUGGESTED USES

·Activation of potassium channels

·Treatment of epilepsy

·Potential treatment of pain, anxiety, and withdrawal

·Potential use in numerous diseases affected by KCNQ potassium channels including cardiac arrhythmias, diabetes, and anemia

FEATURES/BENEFITS

·Greatly reduced epileptic episodes

·Increased survival rates in animal model

·Treatment efficiency is high, so effective dose required is low

PATENT STATUS

CONTACT

Steven T. Huyn
shuyn@uci.edu
tel: 949-824-7913.

INVENTORS

» Abbott, Geoffrey W.

OTHER INFORMATION

CATEGORIZED AS

» **Medical**

» Disease: Cardiovascular and Circulatory System

» New Chemical Entities, Drug Leads

» Therapeutics

RELATED CASES

2018-831-0

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,268,683	04/08/2025	2018-831

Additional Patent Pending

STATE OF DEVELOPMENT

Drug combination has been tested in animal models of seizures

RELATED MATERIALS

» Silva, A., et. al. Deconstruction of an African folk medicine uncovers a novel molecular strategy for therapeutic potassium channel activation. Science Advances. 2018, 4, eaav0824 - 11/14/2018

» Alachkar, A., et. al. Prenatal one-carbon metabolism dysregulation programs schizophrenia-like deficits. Molecular Psychiatry. 2018, 23, 282 - 08/15/2017

» 3. Manville, R.W., et. al. SMIT1 Modifies KCNQ Channel Function and Pharmacology by Physical Interaction with the Pore. Biophys. J. 2017, 113, 613 - 08/08/2017

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5270 California Avenue / Irvine,CA
92697-7700 / Tel: 949.824.2683