A mixed Nav blocker and KCa2 activator, as a potent novel anticonvulsant

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ABSTRACT

Current treatment options for epilepsy leave up to 30% of patients with recurring seizures and drug side effects, creating an urgent need for a strong anticonvulsant. Researchers at the University of California, Davis have identified a novel compound which shows potential as a treatment method for seizures as well as pain.

FULL DESCRIPTION

Epilepsy is a complex neurological disorder, affecting well over 50 million people worldwide. Epilepsy is characterized by recurrent spontaneous seizures due to neuronal hyper-excitability and hyper-synchronous neuronal firing. Currently there are more than twenty antiepileptic drugs available on the market. Unfortunately, despite the broad variety of drugs available, about 30% of patients with epilepsy continue to experience seizures or suffer from unacceptable drug side effects such as drowsiness, behavioral changes, liver damage, and teratogenicity.

Researchers at the University of California, Davis have identified a novel potent and orally active anticonvulsant. The compound demonstrates efficacy in seizure types that are difficult to treat. The novel feature of the invention is that the compound has dual mechanisms of action: sodium channel block and SK channel (KCa2 channel) activation. As a consequence of this, this compound has a broader effect than a typical sodium channel blocker. In addition to treating seizures, this novel compound has also been shown to reduce acute pain response in the formalin pain and the sciatic ligation models.

APPLICATIONS

- Treatment for disorders characterized by neuronal hyperexcitability such as epilepsy and ataxia
- Treatment for acute and neuropathic pain

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,675,591	06/13/2017	2014-010
Patent Cooperation Treaty	Published Application	WO 2015/057884	04/23/2015	2014-010

FEATURES/BENEFITS

- Anticonvulsant with novel mechanism of action
- Potent and orally available (ED_{50} in rodents 1-5 mg/kg)
- Broad spectrum antianticonvulsant to treat organophosphate induced seizures
- Effective in pain models

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Selective KCa3.1 Channel Activators as Novel Antihypertensives

CONTACT

Raj Gururajan
rgururajan@ucdavis.edu
tel: 530-754-7637.

INVENTORS

- Coleman, Nichole T.
- Jenkins, David
- Wulff, Heike

OTHER INFORMATION

KEYWORDS

small-conductance calcium-activated potassium channel, sk, kca2, benzothiazole

CATEGORIZED AS

- **Biotechnology**
  - Proteomics
- **Medical**
  - Disease: Central Nervous System
  - Therapeutics

RELATED CASES

2014-010-0

- Selective Voltage Gated KV1.3 Potassium Channel Inhibitors
- Optimized Non-Addictive Biologics Targeting Sodium Channels Involved In Pain Signaling

University of California, Davis
Technology Transfer Office
1850 Research Park Drive, Suite 100, ,
Davis,CA 95618

Tel: 530.754.8649
techtransfer@ucdavis.edu
https://research.ucdavis.edu/technology-transfer/
Fax: 530.754.7620