

Treatment for Epilepsy and Siezures - 0976

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Technology description

Market Opportunities

Over 2.5 million individuals in the United States suffer from epilepsy. It is characterized by seizures which occur periodically and/or unpredictably. There is an expanding market of anti-epileptic medications (AEDs) and yet individuals with epilepsy, even those who are on treatment still experience periodic seizure recurrence. Currently available AEDs have poor solubility in aqueous and biological fluids and/ or are extremely hygroscopic. Additionally, available AEDs have unfavorable side-effects, neurotoxicity, drug interactions, and in about 30% of patients on AEDs are not effective in mitigating seizure occurrence. Therefore, there is a need for new AEDs with less unfavorable side effects that are able to mitigate seizures.

Technology Solution

Researchers at the University of Kentucky have discovered a previously known neuromodulator, agmatine, to possess anticonvulsant properties. Agmatine is produced in the brain which serves to modulate several physiological functions. It plays a role in cell signaling by acting on N-methyl-D-aspartate (NMDA) receptors, an excitatory neurotransmitter receptor known to be involved in epilepsy. Agmatine is also known to regulate polyamine synthesis, which can also modulate NMDA receptor activity. Because of agmatine' s role in neuromodulation, it may be an innovative potential alternative drug used to prevent seizures with low toxicity levels.

Application area

Epilepsy, CNS disorders

Advantages

Treats, prevents and may ameliorate disorders related to epilepsy, seizures, and other electroconvulsive disorders

Agmatine is endogenous to the brain

No toxic effects of agmatine were observed in testing of animal seizure models

Institution

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