CHARITÉ

UNIVERSITÄTSMEDIZIN BERLIN

Technology Offer

Adenosine A1 receptor agonist for use in treatment of status epilepticus

Ref. No.: CH784/2015

Background

Status epilepticus (SE) is the 2nd most common neurological emergency characterized by a prolonged seizure or an array of seizures without return to baseline conditions with an annual incidence of 10-41 in 100.000 world-wide**.** It is associated with a high rate of mortality/ morbidity, its length correlates with increasingly poor patient outcome. In about 1/3 of cases SE is considered refractory to 1st line treatment with common Anti-Epileptical drugs. The use of adenosine A1 receptor agonists is particularly effective in treatment of status epilepticus being refractory to treatment with known anticonvulsive drugs.

Technology

The attenuating effect of adenosine A1 receptor activation has been known for decades. A growing number of evidence supports and confirms the anticonvulsant effect mediated by the adenosine A1 receptor. Activating A1 receptors leads to lower presynaptic glutamate release and induces postsynaptic hyperpolarization via GIRK-channels found to be effective in blocking SE in *in vivo* rodent models. However, due to cardiovascular effects of adenosine itself, a systemic application of adenosine in humans did not seem feasible. The selective A1 agonist SDZ WAG 994 shows high effectivity in blocking induced epileptiform activity in more than 70% of human neocortical slices and vastly reduces severity of epileptiform activity in the remainder of slices.

Benefits

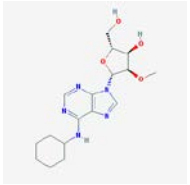
- ✓ anticonvulsant substance in patients refractory to 1st line treatment with common Anti-Epileptical drugs (=Agonisten of the GABA System)
- ✓ SDZ WAG 994 is currently the only A1 agonist tolerated by humans when given systemically.
- ✓ SDZ WAG 994 crosses the blood-brain-barrier

Application

Treatment of Status Epilepticus (SE) with and without prior epilepsigenesis

Commercial Opportunity

Searching for Cooperation; in-licensing



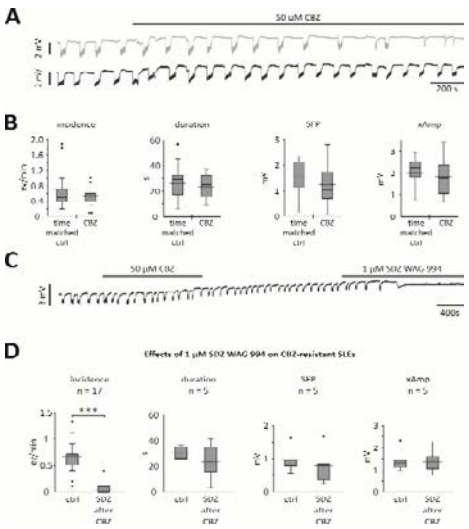


Fig 1: Seizure like event (SLE) suppression in carbamazepine (CBZ) resistant human cortical slices

A: SLE parameters +/- CBZ resistency

B: SLE parameters in time-matched control recordings +/-CBZ

C: testing CBZ response first and subsequent application of the A1 agonist to CBZ-resistant SLEs

D: A1 agonist effects in CBZ-resistant SLEs

Keywords

Status Epileplicus, Human brain slices; Pharmacoresistance; Seizure models; Temporal lobe

Developmental Status

Preclinical Research

IP Status

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Patent Owner

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