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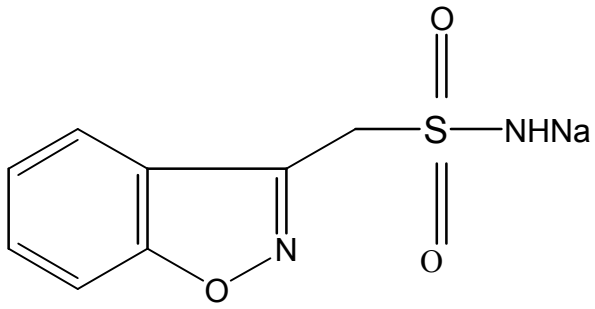
ProductInformation

Zonisamide sodium salt

Catalog Number **Z2001**
Storage at Room Temperature

CAS RN 68291-98-5
Synonyms: 1,2-Benzisoxazole-3-methanesulfonamide, sodium salt; aleviatin; exceglan; excegram; zonegram



Product Description

Molecular Formula: $C_8H_7N_2NaO_3S$
Molecular Weight: 234.21 (anhydrous)
Purity: ≥98% (HPLC)

Zonisamide (ZNS) is a novel antiepileptic drug that blocks the production of generalized tonic-clonic convulsions and complex partial seizures in man. It is also an effective anticonvulsant in many animal seizure models.

Several mechanisms of action have been suggested. Glutamate is the principal excitatory neurotransmitter in the central nervous system. Excessive release of glutamate is often associated with seizure activity. ZNS blocks both KCl-induced glutamate release and the stimulatory effects of Ca^{2+} on glutamate release.[1] ZNS has been shown to attenuate voltage-dependent T-type (inward) Ca^{2+} channel currents. It also blocks voltage-sensitive Na^+ channel currents. These effects on ion channel currents could suppress the release of excitatory neurotransmitters that underlie epileptiform bursting and the spread of seizure activity.[2-4]

γ-Aminobutyric acid (GABA) is the major inhibitory neurotransmitter in brain. Enhancing GABAergic neurotransmission blocks the production and spread of seizures in several animal models. ZNS specifically binds to the GABA-benzodiazepine receptor-ionophore complex and is an allosteric modulator of the $GABA_A$ receptor activity.[1,2]

ZNS,in the millimolar range,is an antioxidant that scavenges hydroxyl and nitric oxide radicals in a dose-dependent manner. Thus, ZNS may prevent the formation of epileptic foci by protecting neurons from free radical damage and by stabilizing neuronal membranes.[5,6]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Zonisamide is soluble in water (16 mg/ml).

Storage/Stability

Store the product at room temperature.

References

1. Okada, M., et al., Interaction between Ca^{2+}, K^+, carmazepine and zonisamide on hippocampal extracellular glutamate monitored with a microdialysis electrode. Br. J. Pharmacol., **124**, 1277-1285 (1998).
2. White, H.S., Comparative anticonvulsant and mechanistic profile of the established and newer antiepileptic drugs. Epilepsia, **40, Suppl. 5**, S2-S10 (1999).
3. Kito, M., et al., Mechanisms of T-type calcium channel blockade by zonisamide. Seizure, **5**, 115-119 (1996).
4. Jain, K.K., An assessment of zonisamide as an antiepileptic drug. Expert Opin. Pharmacother., **1**, 1245-1260 (2000).
5. Komatsu, M., et al., Zonisamide reduces the increase in 8-hydroxy-2′-deoxyguanosine levels formed during iron-induced epileptogenesis in the brains of rats. Epilepsia, **41**, 1091-1094 (2000).
6. Mori, A., et al., The anticolvunsant zonisamide scavenges free radicals. Epilepsy Res., **30,** 153-158 (1998).

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