(-)-(α)-Kainic Acid (hydrate)

Item No. 78050

CAS Registry No.: 58002-62-3
Formal Name: 2S-carboxy-4S-(1-methylethenyl)-3S-pyrrolidineacetic acid, monohydrate
MF: C_{10}H_{15}NO_{4} • H_{2}O
FW: 231.2
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years

Laboratory Procedures

(-)-(α)-Kainic acid (hydrate) is supplied as a crystalline solid. Aqueous solutions of (-)-(α)-kainic acid (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of (-)-(α)-kainic acid (hydrate) in PBS (pH 7.2) is approximately 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

(-)-(α)-Kainic acid is a cyclic analog of L-glutamate originally isolated from D. simplex that has neuroexcitatory activities. It binds to the homomeric kainate receptors GluK1, GluK2, GluK3, GluK4, and GluK5 (K_i = 75.9, 12.7, 32.8, 4.7, and 15 nM, respectively). (-)-(α)-Kainic acid (5 mM) induces calcium influx and membrane depolarization, as well as glutamate release, in rat brain synaptosomes. It induces chromatin condensation and nuclear membrane fragmentation, markers of apoptosis, in primary neonatal cerebellar granule neurons when used at a concentration of 100 µM. Intracerebroventricular administration of (-)-(α)-kainic acid induces convulsive behavior in rats (ED_{50} = 0.51 nmol/animal) and induces seizures in mice with a 50% convulsive dose (CD_{50}) value of 0.39 nmol/animal. It has been commonly used to induce seizures in rodents.

References