

**Product Name:** Kainic acid

**Catalog No.:** 0222

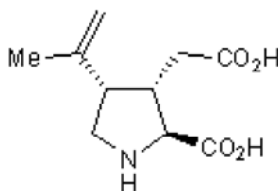
**Batch No.:** 72

CAS Number: 487-79-6

IUPAC Name: (2S,3S,4S)-Carboxy-4-(1-methylethenyl)-3-pyrrolidineacetic acid

**1. PHYSICAL AND CHEMICAL PROPERTIES**

**Batch Molecular Formula:** C<sub>10</sub>H<sub>15</sub>NO<sub>4</sub>·¼H<sub>2</sub>O  
**Batch Molecular Weight:** 217.73  
**Physical Appearance:** White solid  
**Solubility:** 1eq. NaOH to 100 mM  
 water to 25 mM with gentle warming  
**Storage:** Store at RT  
**Batch Molecular Structure:**



**2. ANALYTICAL DATA**

**TLC:** R<sub>f</sub> = 0.4 (Pyridine:Acetic acid:Water:Butanol [3:8:11:33])  
**HPLC:** Shows 98.7% purity  
**<sup>1</sup>H NMR:** Consistent with structure  
**Mass Spectrum:** Consistent with structure  
**Optical Rotation:** [α]<sub>D</sub> = -17.5 (Concentration = 1, Solvent = Water)  
**Microanalysis:**

	Carbon	Hydrogen	Nitrogen
Theoretical	55.16	7.17	6.43
Found	55.2	7.18	6.47

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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**Description:**

Kainic acid, also known as kainate, is a selective agonist of kainate ionotropic glutamate receptors ( $EC_{50} = 0.6 - 7.4 \mu M$ ) and a partial agonist at AMPA receptors ( $EC_{50} = 31 \mu M - 170 \mu M$ ). Kainic acid is used to model epilepsy *in vivo* and to study the mechanisms of neurodegeneration and neurocytosis induced by excess stimulation by kainic acid. Kainate is shown to be involved in amyloidogenic processing of amyloid precursor protein and A $\beta$  peptides in Alzheimer's disease. Related compounds include synthetic Kainic acid (Cat. No. 7065), the kainate receptor agonist Domoic acid (Cat. No. 0269) and the antagonist NBQX (... Please see product specific page on [www.tocris.com](http://www.tocris.com) for full description.

**Physical and Chemical Properties:**

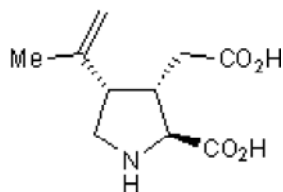
Batch Molecular Formula:  $C_{10}H_{15}NO_4 \cdot \frac{1}{4}H_2O$

Batch Molecular Weight: 217.73

Physical Appearance: White solid

**Minimum Purity:**  $\geq 98\%$

**Batch Molecular Structure:**



**References:**

**Ourdev *et al*** (2019) Kainate receptor activation enhances amyloidogenic processing of APP in astrocytes. *Mol.Neurobiol.* **56** 5095. PMID: 30484111.

**Watkins and Evans** (1981) Excitatory amino acid transmitters. *Annu.Rev.Pharmacol.Toxicol.* **21** 165. PMID: 6112965.

**Watkins** (1978) Excitatory amino acids. Kainic acid as a Tool in Neurobiology. Edited by E 37.

**Storage:** Store at RT

**Solubility & Usage Info:**

1eq. NaOH to 100 mM

water to 25 mM with gentle warming

When purchased as a 1mg unit, this product is supplied as a lyophilized solid and may be very hard to visualize. Solutions should be made by adding solvent directly to the vial. The vial should then be vortexed vigorously to ensure the product has completely dissolved.

**Stability and Solubility Advice:**

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

**SOLIDS:** Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

**SOLUTIONS:** We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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