

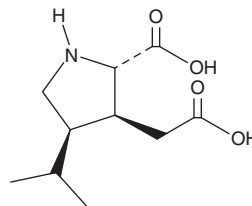
# PRODUCT INFORMATION



## Dihydrokainic Acid

Item No. 28478

**CAS Registry No.:** 52497-36-6  
**Formal Name:** (2S,3S,4R)-2-carboxy-4-(1-methylethyl)-3-pyrrolidineacetic acid  
**Synonym:** DHK  
**MF:** C<sub>10</sub>H<sub>17</sub>NO<sub>4</sub>  
**FW:** 215.2  
**Purity:** ≥95%  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Dihydrokainic acid (DHK) is supplied as a solid. A stock solution may be made by dissolving the DHK in water. We do not recommend storing the aqueous solution for more than one day.

### Description

DHK is an inhibitor of excitatory amino acid transporter 2 (EAAT2;  $K_i = 23 \mu\text{M}$  for glutamate uptake by COS cells expressing EAAT2).<sup>1</sup> It is selective for EAAT2 over EAAT1 and EAAT3 ( $K_i = >3 \text{ mM}$  for both). DHK microinfusion (5 nmol) into the rat infralimbic cortex reduces the time spent immobile in the forced swim test, indicating antidepressant-like behavior, an effect that is blocked by the AMPA receptor antagonist NBQX (Item No. 14914) and the serotonin (5-HT) receptor subtype 5-HT<sub>1A</sub> antagonist WAY-100635 (Item No. 14599).<sup>2,3</sup> It also increases glutamate and serotonin levels and the expression of c-fos in the dorsal raphe nucleus. In contrast, DHK microinjection (6.25 nmol) into the rat prefrontal cortex (PFC) increases the latency to drink sucrose in a sucrose intake test, indicating anhedonia-like behavior.<sup>4</sup> It also impairs memory acquisition, consolidation, and retrieval in mice in the novel object recognition test.<sup>5</sup>

### References

1. Arriza, J.L., Fairman, W.A., Wadiche, J.I., *et al.* Functional comparisons of three glutamate transporter subtypes cloned from human motor cortex. *J. Neurosci.* **14**(9), 5559-5569 (1994).
2. Gasull-Camós, J., Tarrés-Gatius, M., Artigas, F., *et al.* Glial GLT-1 blockade in infralimbic cortex as a new strategy to evoke rapid antidepressant-like effects in rats. *Transl. Psychiatry* **7**(2), e1038 (2017).
3. Gasull-Camós, J., Martínez-Torres, S., Tarrés-Gatius, M., *et al.* Serotonergic mechanisms involved in antidepressant-like responses evoked by GLT-1 blockade in rat infralimbic cortex. *Neuropharmacology* **139**, 41-51 (2018).
4. John, C.S., Smith, K.L., Van't Veer, A., *et al.* Blockade of astrocytic glutamate uptake in the prefrontal cortex induces anhedonia. *Neuropsychopharmacology* **37**(11), 2467-2475 (2012).
5. Tian, S.-W., Yu, X.-D., Cen, L., *et al.* Glutamate transporter GLT1 inhibitor dihydrokainic acid impairs novel object recognition memory performance in mice. *Physiol. Behav.* **199**, 28-32 (2019).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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