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- Expressversand

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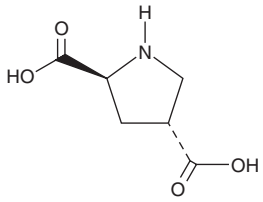
PRODUCT INFORMATION

L-*trans*-Pyrrolidine-2,4-dicarboxylic Acid

Item No. 24268

CAS Registry No.: 64769-66-0
Formal Name: 2S,4R-pyrrolidinedicarboxylic acid
Synonym: L-*trans*-2,4-PDC
MF: $C_6H_9NO_4$
FW: 159.1
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

L-*trans*-Pyrrolidine-2,4-dicarboxylic acid (L-*trans*-2,4-PDC) is supplied as a crystalline solid. Aqueous solutions of L-*trans*-2,4-PDC can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of L-*trans*-2,4-PDC in PBS, pH 7.2, is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

L-*trans*-2,4-PDC is an inhibitor of L-glutamate transport (K_i = 4.6 µM in rat brain synaptosomes).[1] It inhibits radioligand binding to NMDA receptors by 13% but has no effect on AMPA or kainate receptors when used at a concentration of 100 µM. L-*trans*-2,4-PDC is neurotoxic to astrocyte-rich and astrocyte-poor rat cortical cultures (EC_{50}s = 320 and 50 µM, respectively), an effect that can be reversed by the NMDA antagonist MK-801 (Item No. 10009019) and glutamate-pyruvate transaminase but not the non-NMDA glutamate receptor antagonist CNQX (Item No. 14618).[2] It induces efflux of the non-metabolizable glutamate analog [^{3}H]-D-aspartate in an extracellular sodium-dependent manner. *In vivo*, L-*trans*-2,4-PDC (0.05-0.2 µg/side) prevents amphetamine-induced hyperlocomotion in a dose-dependent manner in rats when injected directly into the nucleus accumbens.[3] It also increases bladder intercontraction interval (ICI) without affecting postvoid residual or basal pressure in rats.[4]

References

1. Bridges, R.J., Stanley, M.S., Anderson, M.W., *et al.* Conformationally defined neurotransmitter analogues. Selective inhibition of glutamate uptake by one pyrrolidine-2,4-dicarboxylate diastereomer. *J. Med. Chem.* **34(2)**, 717-725 (1991).
2. Blitzblau, R., Gupta, S., Djali, S., *et al.* The glutamate transport inhibitor L-*trans*-pyrrolidine-2,4-dicarboxylate indirectly evokes NMDA receptor mediated neurotoxicity in rat cortical cultures. *Eur. J. Neurosci.* **8(9)**, 1840-1852 (1996).
3. David, H.N., Thévenoux, A., and Abraini, J.H. Inhibition of the glutamate transporter by L-*trans*-PDC in the nucleus accumbens prevents the locomotor response to amphetamine. *Neuropharmacology* **41(3)**, 409-411 (2001).
4. Honda, M., Yoshimura, N., Hikita, K., *et al.* Supraspinal and spinal effects of L-*trans*-PDC, an inhibitor of glutamate transporter, on the micturition reflex in rats. *Neurolurol. Urodyn.* **32(7)**, 1026-1030 (2013).

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