

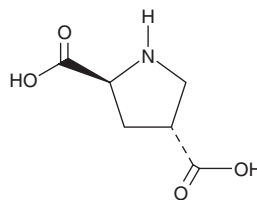
# PRODUCT INFORMATION



## 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<sub>6</sub>H<sub>9</sub>NO<sub>4</sub>  
FW: 159.1  
Purity: ≥98%  
Supplied as: A crystalline 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

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 ( $K_i = 4.6 \mu\text{M}$  in rat brain synaptosomes).<sup>1</sup> 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  $\mu\text{M}$ . L-*trans*-2,4-PDC is neurotoxic to astrocyte-rich and astrocyte-poor rat cortical cultures ( $\text{EC}_{50}\text{s} = 320$  and  $50 \mu\text{M}$ , 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).<sup>2</sup> It induces efflux of the non-metabolizable glutamate analog [<sup>3</sup>H]-D-aspartate in an extracellular sodium-dependent manner. *In vivo*, L-*trans*-2,4-PDC (0.05-0.2  $\mu\text{g}/\text{side}$ ) prevents amphetamine-induced hyperlocomotion in a dose-dependent manner in rats when injected directly into the nucleus accumbens.<sup>3</sup> It also increases bladder intercontraction interval (ICI) without affecting postvoid residual or basal pressure in rats.<sup>4</sup>

### 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. *Neurol. Urodyn.* **32**(7), 1026-1030 (2013).

#### 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.

#### WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 10/07/2022

#### CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD  
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897  
[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM  
WWW.CAYMANCHEM.COM