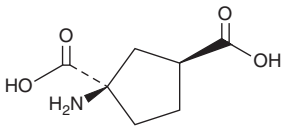
PRODUCT INFORMATION

(±)-*trans*-ACPD

Item No. 28849

CAS Registry No.:	67684-64-4
Formal Name:	(1R,3S)-1-aminocyclopentane-1,3-dicarboxylic acid
MF:	$C_7H_{11}NO_4$
FW:	173.2
Purity:	≥95%
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

(±)-*trans*-ACPD is supplied as a crystalline solid. A stock solution may be made by dissolving the (±)-*trans*-ACPD in the solvent of choice, which should be purged with an inert gas. (±)-*trans*-ACPD is soluble in organic solvents such as DMSO.

(±)-*trans*-ACPD is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

(±)-*trans*-ACPD is an agonist of metabotropic glutamate receptors (mGluRs; EC_{50}s = 15, 2, 40, 23, and 82 µM for mGluR1, -2, -3, -5, and -6, respectively, in CHO cells expressing recombinant receptors).[1] It also activates mGluR4 in baby hamster kidney cells with an EC_{50} value of approximately 800 µM. (±)-*trans*-ACPD increases cAMP accumulation in adult rat cerebral cortex slices (EC_{50} = 47.8 µM) but not in isolated rat embryonic neurons or neonatal glial cells when used at concentrations ranging from 1 to 1,000 µM.[2] (±)-*trans*-ACPD (10-1,000 µM) increases phosphoinositide hydrolysis in neonatal rat cerebral cortex and hippocampal slices. It induces clonic convulsions in neonatal rats (ED_{50} = 100 mg/kg), an effect that can be reversed by administration of the NMDA receptor antagonists LY233053 and LY274614.[3]

References

1. Kozikowski, A.P., Steensma, D., Araldi, G.L., *et al*. Synthesis and biology of the conformationally restricted ACPD analogue, 2-aminobicyclo[2.1.1]hexane-2,5-dicarboxylic acid-I, a potent mGluR agonist. *J. Med. Chem.* **41(10),** 1641-1650 (1998).
2. Pilc, A., Legutko, B., Frankiewicz, T., *et al.* Trans-(+-)-1-amino-1,3-cyclopentanedicarboxylate (trans-ACPD) stimulates cAMP accumulation in rat cerebral cortical slices but not in glial or neuronal cultures. *Neurosci. Lett*. **169(1-2),** 171-174 (1994).
3. Schoepp, D.D., Johnson, B.G., Salhoff, C.R., *et al*. In vitro and in vivo pharmacology of *trans*- and *cis*-(+-)-1-amino-1,3-cyclopentanedicarboxylic acid: Dissociation of metabotropic and ionotropic excitatory amino acid receptor effects. *J. Neurochem.* **56(5),** 1789-1796 (1991).

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