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Produktinformation

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- Diagnostik & molekulare Diagnostik
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Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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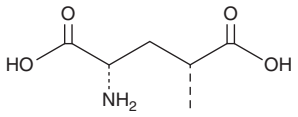
PRODUCT INFORMATION

SYM 2081

Item No. 41348

CAS Registry No.:	31137-74-3
Formal Name:	4R-methyl-L-glutamic acid
Synonyms:	L-*erythro*-γ-methyl-Glutamic Acid, L-erythro-4-methyl-Glutamic Acid (2S,4R)-4-Methylglutamic Acid
MF:	$C_6H_{11}NO_4$
FW:	161.2
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

SYM 2081 is supplied as a solid. A stock solution may be made by dissolving the SYM 2081 in the solvent of choice, which should be purged with an inert gas. SYM 2081 is slightly soluble (0.1-1 mg/ml) in acetonitrile.

SYM 2081 is slightly soluble (0.1-1 mg/ml) 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

SYM 2081 is an agonist of the kainate receptor.[1] It induces currents in *Xenopus* oocytes expressing homomeric GluK1 or GluK5 subunit-containing receptors (EC_{50}s = 0.16 and 0.23 µM, respectively). It induces desensitization in HEK293 cells expressing homomeric GluK2 subunit-containing kainate receptors when used at concentrations ranging from 0.03 to 0.3 µM.[2] SYM 2081 selectively binds to the kainate receptor (IC_{50} = ~0.035 µM) over the AMPA and NMDA receptors (IC_{50}s = >100 and 7 µM, respectively) but does bind to excitatory amino acid transporter 2 (EAAT2; K_b = 3.4 µM) and inhibits glutamate transport.[3,4] *In vivo*, SYM 2081 (10, 50, and 100 mg/kg, i.p.) reduces hind paw withdrawal frequency and increases withdrawal latency to mechanical and thermal stimuli in a rat model of hyperalgesia induced by the transient receptor potential vanilloid 1 (TRPV1) agonist capsaicin (Item Nos. 92350 | 10010743).[5]

References

1. Donevan, S.D., Beg, A., Gunther, J.M., *et al.* The methylglutamate, SYM 2081, is a potent and highly selective agonist at kainate receptors. *J. Pharmacol. Exp. Ther.* **285(2)**, 539-545 (1998).
2. Zhou, L.M., Gu, Z.Q., Costa, A.M., *et al.* (2S,4R)-4-methylglutamic acid (SYM 2081): A selective, high-affinity ligand for kainate receptors. *J. Pharmacol. Exp. Ther.* **280(1)**, 422-427 (1997).
3. Gu, Z.Q., Hesson, D.P., Pelletier, J.C., *et al.* Synthesis, resolution, and biological evaluation of the four stereoisomers of 4-methylglutamic acid: Selective probes of kainate receptors. *J. Med. Chem.* **38(14)**, 2518-2520 (1995).
4. Vandenberg, R.J., Mitrovic, A.D., Chebib, M., *et al.* Contrasting modes of action of methylglutamate derivatives on the excitatory amino acid transporters, EAAT1 and EAAT2. *Mol. Pharmacol.* **51(5)**, 809-815 (1997).
5. Turner, S.S., Hamamoto, D.T., Hodges, J.S., *et al.* SYM 2081, an agonist that desensitizes kainate receptors, attenuates capsaicin and inflammatory hyperalgesia. *Brain Res.* **973(2)**, 252-264 (2003).

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