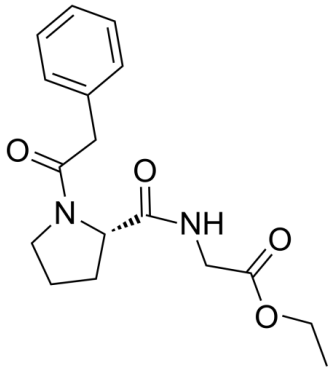
Data Sheet

Product Name:	Omberacetam
Cat. No.:	CS-1575
CAS No.:	157115-85-0
Molecular Formula:	$C_{17}H_{22}N_2O_4$
Molecular Weight:	318.37
Target:	iGluR
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling
Solubility:	DMSO : ≥ 100 mg/mL



BIOLOGICAL ACTIVITY:

Omberacetam (GVS-111) is a medication promoted and prescribed in Russia and neighbouring countries as a nootropic. ***In Vitro:*** Nooglutil exhibits pharmacologically significant competition with a selective agonist of AMPA receptors ([G-3H]Ro 48-8587) for the receptor binding sites (with IC50 = 6.4 +/- 0.2 microM), while the competition of noopept for these receptor binding sites was lower by an order of magnitude (IC50 = 80 +/- 5.6 microM) [1]. GVS-111 significantly increased neuronal survival after H(2)O(2)-treatment displaying a dose-dependent neuroprotective activity from 10 nM to 100 microM, and an IC(50) value of 1.21+/-0.07 microM. GVS-111 inhibited the accumulation of intracellular free radicals and lipid peroxidation damage in neurons treated with H(2)O(2) or FeSO(4), suggesting an antioxidant mechanism of action [2]. ***In Vivo:*** N-Phenylacetyl-L-prolylglycine ethyl ester (GVS-111) administered intravenously at a dose of 0.5 mg/kg/day, for the first time 1 h after ischaemic lesion and then for 9 post-operative days, with the last administration 15 min before testing, attenuated the deficit [3]. GVS-111 itself was not found in rat brain 1 h after 5 mg/kg i.p. administration up to limit of detection (LOD) under high performance liquid chromatography (HPLC) conditions [4]. The most pronounced antiinflammatory effect of dipeptide was observed on the model of adjuvant arthritis in rats, where the drug administered over 25 days in a daily dose of 0.5 mg/kg (i.m.) or 5 mg/kg (p.o.) significantly reduced the chronic immune inflammation (on the 12th day, by 94.0 and 74.1%, respectively) [5].

References:

[1]. Firstova Iulu, et al. Studying specific effects of nootropic drugs on glutamate receptors in the rat brain. Eksp Klin Farmakol. 2011;74(1):6-10.

[2]. Pelsman A, et al. GVS-111 prevents oxidative damage and apoptosis in normal and Down's syndrome human cortical neurons. Int J Dev Neurosci. 2003 May;21(3):117-24.

[3]. Ostrovskaya RU, et al. Memory restoring and neuroprotective effects of the proline-containing dipeptide, GVS-111, in a photochemical stroke model. Behav Pharmacol. 1999 Sep;10(5):549-53.

[4]. Gudasheva TA, et al. The major metabolite of dipeptide piracetam analogue GVS-111 in rat brain and its similarity to endogenous neuropeptide cyclo-L-prolylglycine. Eur J Drug Metab Pharmacokinet. 1997 Jul-Sep;22(3):245-52.

[5]. Kovalenko LP, et al. Anti-inflammatory properties of noopept (dipeptide nootropic agent GVS-111). Eksp Klin Farmakol. 2002 Mar-Apr;65(2):53-5.

[6]. Kovalenko LP, et al. Preclinical study of noopept toxicity. Eksp Klin Farmakol. 2002 Jan-Feb;65(1):62-4.

CAIndexNames:

Glycine, 1-(2-phenylacetyl)-L-prolyl-, ethyl ester

SMILES:

O=C(OCC)CNC([C@H]1N(C(CC2=CC=CC=C2)=O)CCC1)=O

Caution: Product has not been fully validated for medical applications. For research use only.

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