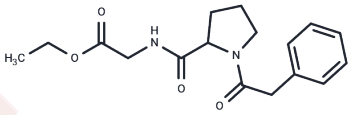
Data Sheet (Cat.No.T7108)

TargetMol

Omberacetam

Chemical Properties



CAS No. : 157115-85-0

Formula: C17H22N2O4

Molecular Weight: 318.37

Storage: Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Omberacetam (Noopept) is a synthetic dipeptide that has been shown to produce positive nootropic and cognitive effects in animal models by a mechanism similar to other related racetam compounds.
Targets(IC50)	iGluR
In vitro	The neuroprotective effect of noopept (added to the medium at 10 μM concentration, 72 hours before Aβ 25-35) was studied on Aβ 25-35-induced injury (5 μM for 24 h) in PC12 cells.?The ability of drug to protect the impairments of cell viability, calcium homeostasis, ROS level, mitochondrial function, tau phosphorylation and neurite outgrowth caused by Aβ 25-35 were evaluated.?Following the exposure of PC12 cells to Aβ 25-35 an increase of the level of ROS, intracellular calcium, and tau phosphorylation at Ser396 were observed;?these changes were accompanied by a decrease in cell viability and an increase of apoptosis.?Noopept treatment before the amyloid-beta exposure improved PC12 cells viability, reduced the number of early and late apoptotic cells, the levels of intracellular reactive oxygen species and calcium and enhanced the mitochondrial membrane potential.?In addition, pretreatment of PC12 cell with noopept significantly attenuated tau hyperphosphorylation at Ser396 and ameliorated the alterations of neurite outgrowth evoked by Aβ25-35[1].
In vivo	Noopept eliminated the manifestations of learned helplessness after long-term (21-day) treatment by increasing the percent of trained animals[2].
Cell Research	PC12 cells were cultured routinely at 37°C in DMEM medium, supplemented with 10% fetal bovine serum (FBS), 5% horse serum, 2 mM L-glutamine, 50 μg/ml gentamicin. To induce PC12 differentiation, NGF (50 ng/ml) was added to the DMEM containing 1% FBS, followed by a 5-day incubation. Differentiated PC12 (dPC12) cells were pretreated with noopept at concentration of 10 μM for 72 h, then cells were rinsed with the medium and exposed to amyloid-β-peptide (Aβ25-35;5 μM) for 24 h. Untreated cells were used as control[1].
Animal Research	Experiments were carried out on adult outbred albino male rats (n=376; 250-300 g) kept under vivarium conditions with 12-h light period with free access to water and standard food. The operant training was performed in a modified setup for active avoidance conditioning under conditions of uncertain environment.The animals were intraperitoneally injected (1 ml/kg) with noopept (0.1, 0.5, and 1.0 mg/kg) and

Animal Research	piracetam (100, 300, and 500 mg/kg; reference drug), afobazol (1, 5, and 10 mg/kg), and buspiron (0.5, 1.0, and 5.0 mg/kg; reference drug) and diazepam (0.05, 0.1, and 0.5 mg/kg; reference drug). Control rats were injected with the same volume of saline. Stability of active avoidance behavior was tested after 48 h and 7 days. The animals with learned helplessness neurosis were injected with noopept and afobazol for 21 days, after which stability of the active avoidance behavior was repeatedly tested[2].

Solubility Information

Solubility	DMSO: 100 mg/mL (314.1 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 4 mg/mL (12.56 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.141 mL	15.705 mL	31.410 mL
5 mM	0.6282 mL	3.141 mL	6.282 mL
10 mM	0.3141 mL	1.5705 mL	3.141 mL
50 mM	0.0628 mL	0.3141 mL	0.6282 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Ostrovskaya R U , Vakhitova Y V , Uliyana Sh Kuzmina…. Neuroprotective effect of novel cognitive enhancer noopept on AD-related cellular model involves the attenuation of apoptosis and tau hyperphosphorylation[J]. Journal of Biomedical Science, 2014, 21(1).

Uyanaev A A , Fisenko V P . Studies of long-term noopept and afobazol treatment in rats with learned helplessness neurosis[J]. Bulletin of Experimental Biology & Medicine, 2006, 142(2):202-204.

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