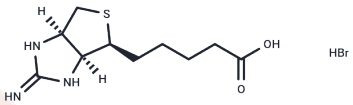
Data Sheet (Cat.No.T7206L)

TargetMol

2-Iminobiotin hydrobromide

Chemical Properties



CAS No. : 76985-52-9

Formula: C10H18BrN3O2S

Molecular Weight: 324.24

Storage: 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	2-Iminobiotin hydrobromide (Guanidinobiotin) is a cyclic guanidino analog of biotin that acts as a reversible inhibitor of inducible nitric oxide synthase (iNOS) and neuronal NOS (nNOS; Ki of 21.8 and 37.5 μM for mouse iNOS and rat nNOS, respectively).
Targets(IC50)	NOS,NO Synthase
In vitro	All cultures were subjected to 25 h of hypothermia (33.5°C), and incubated with vehicle or 2-iminobiotin (2-IB) (10, 30, 50, 100, and 300 ng/ml).?Cell morphology was evaluated by brightfield microscopy.?Cell damage was analyzed by LDH assays.?Production of reactive oxygen species (ROS) was measured using fluorometric assays.?Western blotting for PARP, Caspase-3, and the phosphorylated forms of akt and erk1/2 was conducted.?To evaluate early apoptotic events and signaling, cell protein was isolated 4 h post-hypoxia and human apoptosis proteome profiler arrays were performed.?Twenty-five hour after the hypoxic insult, clear morphological signs of cell damage were visible and significant LDH release as well as ROS production were observed even under hypothermic conditions.?Post-hypoxic application of 2-IB (10 and 30 ng/ml) reduced the hypoxia-induced LDH release but not ROS production.?Phosphorylation of erk1/2 was significantly increased after hypoxia, while phosphorylation of akt, protein expression of Caspase-3 and cleavage of PARP were only slightly increased.?Addition of 2-IB did not affect any of the investigated proteins.?Apoptosis proteome profiler arrays performed with cellular protein obtained 4 h after hypoxia revealed that post-hypoxic application of 2-IB resulted in a ≥ 25% down regulation of 10/35 apoptosis-related proteins: Bad, Bax, Bcl-2, cleaved Caspase-3, TRAILR1, TRAILR2, PON2, p21, p27, and phospho Rad17 [1].
Cell Research	In vitro hypoxia was induced for 7 h in IMR-32 cell cultures by using our recently described system with minor modifications.?Enzyme stock solutions (100x) of catalase and glucose oxidase ?were diluted in cell culture medium (DMEM/F12, 1% FCS;?final concentration: 120 and 2 U/ml respectively).?A rapid decrease of partial pressure of oxygen (pO2) to levels below 10 mmHg was achieved by adding the enzymes to glucose containing culture medium.?Also a decline in glucose (<1 g/l) and pH (<7.0) was observed, resembling the clinical characteristics of hypoxic-ischemic injury in vivo.?Hypoxic conditions were confirmed with a tissue oxygen pressure monitor .?After the hypoxic insult, cells were washed twice with PBS and cultures were placed into an incubator at 33.5°C (hypothermia) employing culture medium with (i) solvent (citrate buffer 1%) or (ii) 2-IB at 10, 30, 50, 100, and 300 ng/ml.?To determine the optimal

Cell Research	“reperfusion” time, a time-interval curve investigating cell damage (LDH release) was performed.?Analyses of LDH release, ROS generation, hydrogen peroxide release, metabolic activity, cell signaling, apoptosis-related protein expression/activity and expression analysis of 35 human apoptosis-related proteins were performed at different time points post-hypoxia[1]

Solubility Information

Solubility	DMSO: 12.5 mg/mL (38.55 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: 2 mg/mL (6.17 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	3.0841 mL	15.4207 mL	30.8414 mL
5 mM	0.6168 mL	3.0841 mL	6.1683 mL
10 mM	0.3084 mL	1.5421 mL	3.0841 mL
50 mM	0.0617 mL	0.3084 mL	0.6168 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

Zitta K , Peeters-Scholte C , Sommer L , et al. 2-Iminobiotin Superimposed on Hypothermia Protects Human Neuronal Cells from Hypoxia-Induced Cell Damage: An in Vitro Study[J]. Frontiers in Pharmacology, 2018, 8:971.
Sup S J , Green B G , Grant S K . 2-Iminobiotin Is an Inhibitor of Nitric Oxide Synthases[J]. Biochemical & Biophysical Research Communications, 1994, 204(2):0-968.