Product Data Sheet

Product Name: Vinyl-L-NIO (hydrochloride)
Cat. No.: GC12928

Chemical Properties

Cas. No.	728944-69-2		
Chemical Name	N^5-(1-imino-3-butenyl)-L-ornithine, monohydrochloride		
SMILES	C=CCC(NCCC[C@H](N)C(O)=O)=N.Cl		
Formula	$C_9H_{17}N_3O_2$ • HCl	M.Wt	235.7
Solubility	≤30mg/ml in ethanol;50mg/ml in DMSO;50mg/ml in dimethyl formamide	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Vinyl-L-NIO (hydrochloride)		

Background

IC50: 100 nM, 12 and 60 μM for nNOS, eNOS, and iNOS, respectively

Vinyl-L-NIO is a potent and selective inhibitor of nNOS.

Nitric oxide synthase (NOS) catalyzes the NADPH- and O2-dependent conversion of L-arginine to nitric oxide (NO) and citrulline. Three isoforms including the neuronal (nNOS), endothelial, and inducible have currently been identified. Since NO overproduction is able to contribute to various pathophysiological conditions, NOS inhibitors are considered as potential therapeutic agents.

In vitro: Vinyl-L-NIO was identified as a potent and selective inhibitor of nNOS. The Ki values for inhibition of nNOS, eNOS, and iNOS are 100 nM, 12 and 60 μM, respectively, as determined using initial rate measurements. Moreove, vinyl-L-NIO could irreversibly inactivate nNOS with a kinact of 0.078 min-1 and a Ki value of 90 nM in the presence of

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NADPH and O2. In additioin, it was found that vinyl-L-NIO was not able to inactivate iNOS and eNOS needed 20-fold higher concentrations of vinyl-L-NIO to achive 75% the rate of inactivation seen with nNOS [1].

In vivo: Vinyl-L-NIO was intracerebroventricularly injected at a dose of 10 microg/rat just before intraperitoneal injection of LPS. Vinyl-L-NIO injected at a selected doses had no effect on normal day-time body temperature and normal night-time. Vinyl-L-NIO at a dose of 10 microg/animal could suppress the LPS-induced fever in rats. The fever index calculated for rats pretreated with vinyl-L-NIO was reduced by 43%, compared to that calculated for water-pretreated and LPS-injected rats [2].

Clinical trial: So far, no clinical study has been conducted.

References:
[1] Babu, B. R., and Griffith, O.W. N5-(1-Imino-3-butenyl)-L-ornithine. A neuronal isoform selective mechanism-based inactivator of nitric oxide synthase. The Journal of Biological Chemisty 273, 8882-8889 (1998).
[2] Soszynski D, Chelminiak M. Intracerebroventricular injection of neuronal and inducible nitric oxide synthase inhibitors attenuates fever due to LPS in rats. J Physiol Pharmacol. 2007 Sep;58(3):551-61.

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