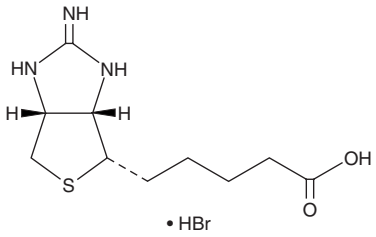
PRODUCT INFORMATION

2-Iminobiotin (hydrobromide)

Item No. 38919

CAS Registry No.:	76985-52-9
Formal Name:	[3aS-(3aα,4β,6aα)]-2-amino-3a,4,6,6a-tetrahydro-1H-thieno[3,4-d]imidazole-4-pentanoic acid, monohydrobromide
Synonym:	Guanidinobiotin
MF:	$C_{10}H_{17}N_3O_2S \bullet HBr$
FW:	324.2
Purity:	≥98%
Supplied as:	A crystalline 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

2-Iminobiotin (hydrobromide) is supplied as a crystalline solid. A stock solution may be made by dissolving the 2-iminobiotin (hydrobromide) in the solvent of choice, which should be purged with an inert gas. 2-Iminobiotin (hydrobromide) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). 2-Iminobiotin (hydrobromide) is soluble in DMSO and DMF at a concentration of approximately 25 mg/ml and is sparingly soluble in ethanol.

Description

2-Iminobiotin is a guanidine-modified derivative of the carboxylase coenzyme biotin (Item No. 22582) and an inhibitor of inducible nitric oxide synthase (iNOS) and neuronal NOS (nNOS; K_is = 21.8 and 37.5 µM for the mouse and rat enzymes, respectively).[1] It has been used to label and selectively retrieve sialoglycoproteins from erythrocyte ghosts.[2] 2-Iminobiotin (0.2 mg/kg every four hours) prevents hypoxia-ischemia-induced decreases in brain phosphocreatine and ATP levels and increases in edema in the parietal cortex and striatum, as well as reduces apoptosis in the parietal- and temporal cortex and striatum, in piglets.[3] It increases survival of, and decreases electrographic seizures in, hypoxia-ischemia-injured piglets when administered at doses of 0.2 and 1 mg/kg every four hours.[4] Lipid nanoparticles (LNPs) containing 2-iminobiotin conjugated to poly-L-lysine have been used to improve LNP tumor targeting, uptake, and retention compared with LNPs containing biotin conjugated to poly-L-lysine in rats.[5]

References

1. Sup, S.J., Green, B.G., and Grant, S.K. 2-Iminobiotin is an inhibitor of nitric oxide synthases. *Biochem. Biophys. Res. Commun.* **204(2),** (1994).
2. Orr, G.A. The use of the 2-iminobiotin-avidin interaction for the selective retrieval of labeled plasma membrane components. *J. Biol. Chem.* **256(2),** 761-766 (1981).
3. Peeters-Scholte, C., Koster, J., Veldhuis, W., *et al.* Neuroprotection by selective nitric oxide synthase inhibition at 24 hours after perinatal hypoxia-ischemia. *Stroke* **33(9),** 2304-2310 (2002).
4. Bjorkman, S.T., Ireland, Z., Fan, X., *et al.* Short-term dose-response characteristics of 2-iminobiotin immediately postinsult in the neonatal piglet after hypoxia-ischemia. *Stroke* **44(3),** 809-811 (2013).
5. Poon, Z., Chang, D., Zhao, X., *et al.* Layer-by-layer nanoparticles with a pH-sheddable layer for *in vivo* targeting of tumor hypoxia. *ACS Nano* **5(6),** 4284-4292 (2011).

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