

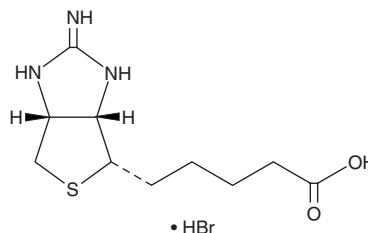
# PRODUCT INFORMATION



## 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<sub>10</sub>H<sub>17</sub>N<sub>3</sub>O<sub>2</sub>S • 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<sub>i</sub>s = 21.8 and 37.5 μM for the mouse and rat enzymes, respectively).<sup>1</sup> It has been used to label and selectively retrieve sialoglycoproteins from erythrocyte ghosts.<sup>2</sup> 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.<sup>3</sup> 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.<sup>4</sup> 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.<sup>5</sup>

### 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).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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