

Product Data Sheet

Product Name: 2-Iminobiotin

Cat. No.: GC16664

Chemical Properties

Cas. No. 13395-35-2

Chemical Name (3aR,6S,6aS)-2-amino-3a,4,6,6a-tetrahydro-1H-thieno[3,4-d]imidazole-6-pentanoic acid

SMILES [H][C@](NC1=N)(CS[C@H]2CCCCC(O)=O)[C@@]2(N1)[H]

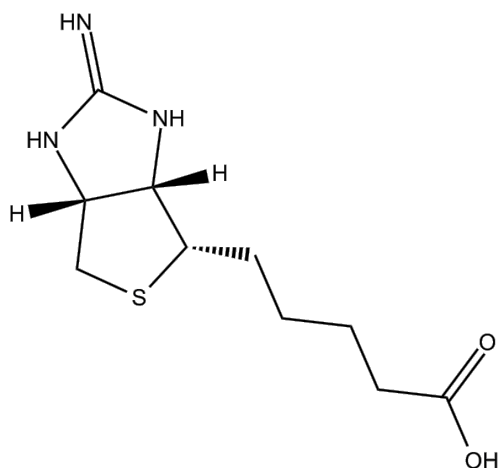
Formula $C_{10}H_{17}N_3O_2S$ M.Wt 243.3

Solubility DMSO : 12.5 mg/mL (51.37 mM; Need ultrasonic) Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C 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



Background

2-Iminobiotin is a novel, potent, selective inhibitor of neuronal and inducible nitric oxide synthase.

Nitric oxide synthases (NOS) are a family of enzymes catalyzing the five-electron oxidation of L-arginine to citrulline and nitric oxide. NO produced by NOS is an important cellular signaling molecule

Caution: Product has not been fully validated for medical applications. For research use only.

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implicated in modulating vascular tone, airway tone, insulin secretion, and peristalsis, angiogenesis and neural development [2].

In vitro: 2-Iminobiotin is a reversible inhibitor of murine iNOS and rat n-cNOS with the K_i values of 21.8 and 37.5 μM , respectively. The guanidino group of 2-iminobiotin is essential for binding. 2-iminobiotin carboxy derivatives were also inhibitors of iNOS which indicates that the free carboxyl group is not required for binding.

In vivo: A dose of 30 mg/kg per day of 2-iminobiotin after hypoxia-ischemia resulted in significant long-term neuro-protection [3]. 2-iminobiotin (2-IB) reduced hypoxia-ischemia (HI)-induced brain damage in neonatal rats. In P7 rat pups, 2-Iminobiotin treatment reduced long-term brain damage in female but not male rats [4].

References:

- [1] Sup S J, Green B G, Grant S K. 2-Iminobiotin is an inhibitor of nitric oxide synthases[J]. Biochemical and biophysical research communications, 1994, 204(2): 962-968.
- [2] Moncada S, Palmer R M L, Higgs E A. Nitric oxide: physiology, pathophysiology, and pharmacology[J]. Pharmacological reviews, 1991, 43(2): 109-142.
- [3] Tweel E R W, van Bel F, Kavelaars A, et al. Long-term neuroprotection with 2-iminobiotin, an inhibitor of neuronal and inducible nitric oxide synthase, after cerebral hypoxia-ischemia in neonatal rats[J]. Journal of Cerebral Blood Flow & Metabolism, 2005, 25(1): 67-74.
- [4] Nijboer C H A, Groenendaal F, Kavelaars A, et al. Gender-Specific Neuroprotection by 2-Iminobiotin after Hypoxia—Ischemia in the Neonatal Rat via a Nitric Oxide Independent Pathway[J]. Journal of Cerebral Blood Flow & Metabolism, 2007, 27(2): 282-292.

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