Dopamine β-hydroxylase

Dopamine beta-hydroxylase; Dopamine beta-monooxygenase; Dopamine β-monooxygenase

Dopamine β-hydroxylase (Dopamine beta-hydroxylase, Dopamine beta-monooxygenase) is an enzyme that in humans is encoded by the DBH gene. Dopamine β-monooxygenase catalyzes the chemical reaction with 3 substrates of 3,4-dihydroxyphenethylamine, ascorbate, and O₂, whereas its 3 products are noradrenaline, dehydroascorbate, and H₂O. Dopamine β-hydroxylase belongs to the family of oxidoreductases, specifically those acting on paired donors, with O₂ as oxidant and incorporation or reduction of oxygen. Dopamine β-hydroxylase participates in tyrosine metabolism. Dopamine β-hydroxylase has 3 cofactors: copper, PQQ, and Fumarate. Dopamine β-hydroxylase is in the catecholamine biosynthetic pathway. Dopamine β-hydroxylase has been shown to be associated with decision making and addictive behaviors such as alcohol and smoking, attention deficit hyperactivity disorder, and also with neurological diseases such as Schizophrenia and Alzheimer's.
## Dopamine β-hydroxylase Inhibitors

### 4-Hydroxyderricin
Cat. No.: HY-N7204

4-Hydroxyderricin, the major active ingredients of *Angelica keiskei* Koidzumi, is a potent selective MAO-B (Monoamine oxidase inhibitors) inhibitor with an IC₅₀ of 3.43 μM. 4-Hydroxyderricin also mildly inhibits DBH (dopamine β-hydroxylase) activity.

- **Purity:** >98%
- **Clinical Data:** No Development Reported
- **Size:** 1 mg, 5 mg

### Etamicastat
(BIA 5-453)
Cat. No.: HY-14838

Etamicastat (BIA 5-453) is a potent and reversible peripheral dopamine-β-hydroxylase (DBH) inhibitor.

- **Purity:** >98%
- **Clinical Data:** No Development Reported
- **Size:** 100 mg, 250 mg, 500 mg

### Nepicastat
(SYN117; RS-25560-197)
Cat. No.: HY-13289

Nepicastat (SYN117) is a selective, potent, and orally active inhibitor of dopamine-beta-hydroxylase. Nepicastat (SYN117) produces concentration-dependent inhibition of bovine (IC₅₀=8.5 nM) and human (IC₅₀=9 nM) dopamine-beta-hydroxylase.

- **Purity:** >98%
- **Clinical Data:** Phase 2
- **Size:** 1 mg, 5 mg

### Nepicastat hydrochloride
(SYN-117 hydrochloride; RS-25560-197 hydrochloride)
Cat. No.: HY-13289A

Nepicastat hydrochloride (SYN-117 hydrochloride) is a selective, potent, and orally active inhibitor of dopamine-beta-hydroxylase.

- **Purity:** 99.98%
- **Clinical Data:** Phase 2
- **Size:** 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

### Zamicastat
(BIA 5-1058)
Cat. No.: HY-106004

Zamicastat (BIA 5-1058) is a dopamine β-hydroxylase (DBH) inhibitor that could cross the blood-brain barrier (BBB) and cause central as well as peripheral effects.

- **Purity:** 99.95%
- **Clinical Data:** No Development Reported
- **Size:** 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

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