

Small Molecules

Thiamet G

Inhibits O-GlcNAcase

Catalog #100-0883

10 mg



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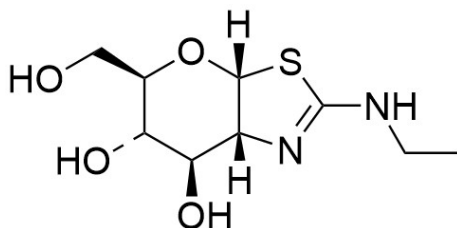
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Product Description

Thiamet G selectively inhibits O-GlcNAcase ($K_i = 21$ nM; Yuzwa et al.), an enzyme that removes O-linked β -N-acetylglucosamine (O-GlcNAc) from proteins; this inhibition of O-GlcNAcase blocks phosphorylation of the tau protein in vivo (Gong & Iqbal). Pathological hyperphosphorylation of the tau protein can aggregate and induce the formation of neurofibrillary tangles, which is a hallmark of Alzheimer's disease (Gong & Iqbal; Yuzwa et al.). Thiamet G is blood-brain barrier permeable and can be used to study the function of O-GlcNAc in the vertebrate brain (Yuzwa et al.).

Alternative Names:	Not applicable
CAS Number:	1009816-48-1
Chemical Formula:	C ₉ H ₁₆ N ₂ O ₄ S
Molecular Weight:	248.3 g/mol
Purity:	≥ 98%
Chemical Name:	2-(ethylamino)-3aR,6S,7R,7aR-tetrahydro-5R-(hydroxymethyl)-5H-pyrano[3,2-d]thiazole-6,7-diol
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	<ul style="list-style-type: none">· DMSO ≤ 40 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 4.03 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DISEASE MODELING

- Decreases phosphorylation of tau in rats (Yuzwa et al.).

References

Gong C-X & Iqbal K. (2008) Hyperphosphorylation of microtubule-associated protein tau: a promising therapeutic target for Alzheimer disease. *Curr Med Chem* 15(23): 2321–8.

Yuzwa SA et al. (2008) A potent mechanism-inspired O-GlcNAcase inhibitor that blocks phosphorylation of tau in vivo. *Nat Chem Biol* 4(8): 483–90.

Related Small Molecules

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