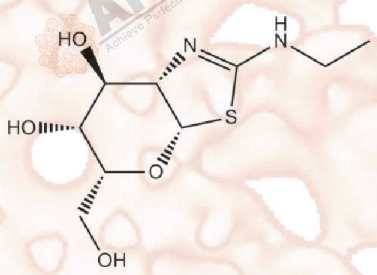
Product Data Sheet

Thiamet G



Cat. No.: B2048

CAS No.: 1009816-48-1

Formula: C9H16N2O4S

M.Wt: 248.3

Synonyms:

Target:

Pathway:

Storage: Store at -20°C

Solvent & Solubility

In Vitro

⩾100 mg/mL in H2O; ⩾12.4 mg/mL in DMSO; ⩾2.64 mg/mL in EtOH with gentle warming and ultrasonic

Preparing Stock Solutions

Mass / Solvent / Concentration	1mg	5mg	10mg
1 mM	4.0274 mL	20.1369 mL	40.2739 mL
5 mM	0.8055 mL	4.0274 mL	8.0548 mL
10 mM	0.4027 mL	2.0137 mL	4.0274 mL

Please refer to the solubility information to select the appropriate solvent.

Biological Activity

Shortsummary	O-GlcNAcase inhibitor, potent and selective
IC_{50} & Target	

In Vitro

Cell Viability Assay

Cell Line:	PC-12 cells, mesangial cells
Preparation method:	The solubility of this compound in DMSO is > 12.4 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
Reacting conditions:	1 nM to 250 mM, 24 h

	Applications:	Thiamet-G decreased phosphorylation of tau in PC-12 cells at pathologically relevant sites including Thr231 and Ser396. In PC-12 cells, treatment with thiamet-G for 24 h with concentrations ranging from 1 nM to 250 mM dose-dependently increased cellular O-GlcNAc levels. Thiamet G (12.5 nM and 25 nM) significantly enhanced p38 phosphorylation by increasing O-GlcNAcylation in mesangial cells.
In Vivo	**Animal experiment**	
	Animal models:	Male Sprague-Dawley rats, C57/bl mice
	Dosage form:	Intravenous injection, 50 mg/kg
	Applications:	In rats, thiamet G (50 mg/kg, i.v.) crossed the blood brain barrier and then resulted in increase in brain O-GlcNAc levels in a dose- and time-dependent manner, and reduction of tau phosphorylation in the CA1 region of the hippocampus. O-GlcNAc accumulation induced by thiamet G stimulated chondrogenic differentiation in C57/bl mice by increasing the gene expression of differentiation markers, as well as the activity of MMP-2 and -9.
	Other notes:	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Product Citations

1. Li T, Li X, et al. "O-GlcNAc Transferase Links Glucose Metabolism to MAVS-Mediated Antiviral Innate Immunity." Cell Host Microbe. 2018 Dec 12;24(6):791-803.e6.PMID:30543776

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References

[1]. Yuzwa S A, Macauley M S, Heinonen J E, et al. A potent mechanism-inspired O-GlcNAcase inhibitor that blocks phosphorylation of tau in vivo[J]. Nature chemical biology, 2008, 4(8): 483-490.

[2]. Goldberg H, Whiteside C, Fantus I G. O-linked β-N-acetylglucosamine supports p38 MAPK activation by high glucose in glomerular mesangial cells[J]. American Journal of Physiology-Endocrinology and Metabolism, 2011, 301(4): E713-E726.

[3].Andrés-Bergós J, Tardio L, Larranaga-Vera A, et al. The increase in O-linked N-acetylglucosamine protein modification stimulates chondrogenic differentiation both in vitro and in vivo[J]. Journal of Biological Chemistry, 2012, 287(40): 33615-33628.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage

temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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