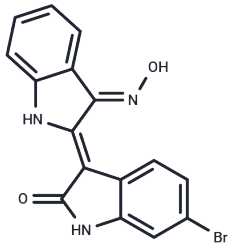
Data Sheet (Cat.No.T1917)

TargetMol

GSK 3 Inhibitor IX

Chemical Properties



CAS No. : 667463-62-9

Formula: C16H10BrN3O2

Molecular Weight: 356.17

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	GSK 3 Inhibitor IX (6-BIO) is a selective reversible, ATP-competitive inhibitor of GSK-3α/β and CDK1-cyclinB complex. It inhibits (GSK-3α/β)/CDK1/CDK5 activity with IC50 values of 5 nM/320 nM/83 nM, respectively.
Targets(IC50)	Apoptosis,CDK,GSK-3,Tyrosine Kinases
In vitro	BIO inhibits the growth of melanoma in murine xenograft models.
In vivo	BIO is a pan-JAK inhibitor targeting TYK2, JAK1, JAK2, and JAK3 with IC50 values of 0.03, 1.5, 8.0, and 0.5 μM, respectively. It also acts as a specific inhibitor of glycogen synthase kinase-3 (GSK-3), with an IC50 of 5 nM for GSK-3α/β, demonstrating over 16-fold higher selectivity than for CDK5. BIO interacts with the ATP-binding pockets of these kinases, reducing phosphorylation at GSK-3 specific sites on β-catenin in cell models and promoting the proliferation of mammalian cardiomyocytes. Moreover, BIO selectively inhibits STAT3 phosphorylation, inducing apoptosis in human melanoma cells. In human and mouse embryonic stem cells, BIO preserves the undifferentiated phenotype and maintains the expression of pluripotency-specific transcription factors Oct-3/4, Rex-1, and Nanog.
Kinase Assay	Kinase assay: Kinase activities are assayed in Buffer A or C at 30°C, at a final ATP concentration of 15 μM. Blank values are subtracted and activities calculated as pmoles of phosphate incorporated during a 10 min incubation. Controls are performed with appropriate dilutions of dimethylsulfoxide. In a few cases phosphorylation of the substrate is assessed by autoradiography after SDS-PAGE. GSK-3α/β is purified from porcine brain by affinity chromatography on immobilized axin. It is assayed, following a 1/100 dilution in 1 mg BSA/ml 10 mM DTT, with 5 μl 40 μM GS-1 peptide, a specific GSK-3 substrate, (YRRAAVPPSPSLSRHSSPHQSpEDEEE), in buffer A, in the presence of 15 μM [γ-32P] ATP (3,000 Ci/mmol; 1 mCi/ml) in a final volume of 30 μl. After 30 min incubation at 30°C, 25 μl aliquots of supernatant are spotted onto 2.5 × 3 cm pieces of Whatman P81 phosphocellulose paper, and 20 seconds later, the filters are washed five times (for at least 5 min each time) in a solution of 10 ml phosphoric acid/liter of water. The wet filters are counted in the presence of 1 ml ACS scintillation fluid.
Cell Research	COS1, Hepa (wild-type, CEM/LM AhR deficient and ELB1 ARNT deficient), or SH-SY5Y cells are grown in 6 cm culture dishes in Dulbecco's Modified Medium (DMEM) containing 10% fetal bovine serum. For treatment, IO (5 μM), BIO (5 or 10 μM), MeBIO (5 or 50 μM), LiCl

Cell Research	(20 or 40 mM), or mock solution (DMSO, 0.5% final concentration) is added to medium when cell density reaches ~70% confluence. After 12 (SH-SY5Y) or 24 hours, the cells, while still in plate, are lysed with lysis buffer (1% SDS, 1 mM sodium orthovanadate, 10 mM Tris [pH 7.4]). The lysate is passed several times through a 26 g needle, centrifuged at 10,000 × g for 5 min, and adjusted to equal protein concentration. About 8 μg of each sample is loaded for immunoblotting. Enhanced chemiluminescence is used for detection. The following primary antibodies are used: mouse anti-β-catenin CT (Upstate Biotechnolgies, Clone 7D8, recognizes total β-catenin), mouse anti-phospho-β-catenin (Upstate Biotechnologies, Clone 8E7, recognizes dephosphorylated β-catenin), mouse anti-GSK-3 β, mouse anti-GSK-3 phosphoTyr216, rabbit anti-AhR (Aryl hydrocarbon receptor), and rabbit anti-actin.(Only for Reference)

Solubility Information

Solubility	DMSO: 45 mg/mL (126.34 mM),Sonication is recommended. Ethanol: 21 mg/mL (58.96 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.8076 mL	14.0382 mL	28.0765 mL
5 mM	0.5615 mL	2.8076 mL	5.6153 mL
10 mM	0.2808 mL	1.4038 mL	2.8076 mL
50 mM	0.0562 mL	0.2808 mL	0.5615 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Meijer L, et al. Chem Biol, 2003, 10(12), 1255-1266.
Wen J, Li X, Zhao Q X, et al. Pharmacological suppression of glycogen synthase kinase-3 reactivates HIV-1 from latency via activating Wnt/β-catenin/TCF1 axis in CD4+ T cells. Emerging microbes & infections. 2022, 11(1): 391-405
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Sato N, et al. Nat Med, 2004, 10(1), 55-63.
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Liu L, et al. Cancer Res. 2011 Jun 1;71(11):3972-3279.