Product Name: GSK-3 Inhibitor IX (BIO)

Chemical Properties

Product Name: GSK-3 Inhibitor IX (BIO)
Cas No.: 667463-62-9
M.Wt.: 356.17
Formula: C16H10BrN3O2
Synonyms: GSK-3 Inhibitor IX
Chemical Name: 6-bromo-3-[3-(hydroxyamino)indol-2-ylidene]-1H-indol-2-one
Canonical SMILES: C1=CC2=C(C=C3C4=C(C=C(C=C4)Br)NC3=O)N=C2C=C1)NO
Solubility: Soluble in DMSO > 10 mM
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.
Shopping Condition: Evaluation sample solution: ship with blue ice
All other available size: ship with RT, or blue ice upon request

Biological Activity

Targets: GSK-3
Pathways: PI3K/Akt/mTOR Signaling >> GSK-3
Description:

GSK-3 inhibitor IX (BIO) is a potent, selective, cell-permeable, ATP-competitive and reversible inhibitor of GSK-3α (glycogen synthase kinase-3α) and GSK-3β (glycogen synthase kinase-3β) (IC50 = 5nM for GSK-3β). [1]

GSK3 (glycogen synthase kinase-3) is a serine/threonine protein kinase which contributes to cell survival, diabetes, insulin resistance and Alzheimer's diseases. It is contributed to β-catenin/Wnt signaling pathway.

BIO facilitated the proliferation in mammalian cardiomyocytes by increasing the proliferation
potential of cardiomyocytes. It induced S phase entry and beta-catenin activity in neonatal cardiomyocyte. [3] BIO also activated Wnt signaling and involved in maintaining pluripotency in human and mouse ESCs (embryonic stem cells). [2] In Cos-1 cells treated with 5 μm BIO for 24 hours, phosphorylation of β-catenin was inhibited on GSK-3 specific sites. In cell line deficient for AhR or ARNT, 10 μm BIO treatment for 24 hours showed its effect is through a direct and AhR-independent pathway.[1]

In vivo study showed BIO activated maternal Wnt signaling pathway in Xenopus embryos. It caused a hyper dorso-anteriorization at the expense of trunk and tail in a dose-response manner. It also activated the dorsal genes (siamois and chordin) ectopically. [1]

Reference:

Protocol

Cell experiment:

Cell lines
Cos-1 cells, SH-SY5Y cells, adult rat mammalian cardiomyocytes

Preparation method
The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37℃ for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20℃ for several months.

Reacting conditions

Applications
The selective GSK-3 inhibitor BIO inhibited β-catenin phosphorylation on GSK-3-specific sites in Cos-1 cells. Moreover, BIO dramatically decreased level of tyrosine phosphorylation of both GSK-3 isoforms [1]. BIO also increased the proliferation potential of mammalian cardiomyocytes [2].

Animal experiment [3]:

Animal models
Xenopus laevis embryos model
Dosage form: 5, 15 and 50 μM

Applications: BIO is an effective and specific inhibitor of GSK-3 activity in vivo and BIO activated the maternal Wnt signaling pathway in Xenopus laevis embryos [1].

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.

Reference:

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. Short-term 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.