

Hello Bio, Inc.  
304 Wall St., Princeton, NJ 08540 USA

T. 609-683-7500  
F. 609-228-4994

customercare-usa@hellobio.com



## DATASHEET

SB 216763

### Product overview

<b>Name</b>	SB 216763
<b>Cat No</b>	HB1272
<b>Alternative names</b>	SB-216763
<b>Biological action</b>	Inhibitor
<b>Purity</b>	>98%
<b>Description</b>	Potent, selective cell permeable GSK-3 inhibitor. Maintains mESCs and promotes retinal stem cells proliferation.

### Images



### Biological Data

#### Biological description

Potent, selective, cell permeable and ATP competitive GSK-3 inhibitor which is equally effective at GSK-3 $\alpha$  as GSK-3 $\beta$  ( $IC_{50}$  = 34 nM for GSK-3 $\alpha$ ). Displays little activity at 24 other serine/threonine and tyrosine protein kinases.

SB 216763 is active in vivo.

The compound stimulates glycogen synthesis ( $EC_{50}$  = 3.6  $\mu$ M), acts as a neuroprotectant and prevents neuronal cell death. It also shows anti-inflammatory and cardioprotective actions.

It is also widely used in stem cell research, for example:

#### Maintenance

- Maintains mESCs (mouse embryonic stem cells) in a pluripotent state in the absence of LIF when cultured with MEFs
- Restores INS-dependent differentiation of C2ind myoblasts

#### Differentiation

- Promotes the conversion of human umbilical cord mesenchymal stem cells into neural precursors
- Enhances chondrogenic differentiation of hWJ-MSCs
- Increases neurogenesis of human neural progenitor cell differentiation
- Promotes neural differentiation of CD117-positive hAFS cells towards neural progenitor cells

## Proliferation

- Promotes the proliferation of retinal stem cells

---

## Solubility & Handling

<b>Storage instructions</b>	Room temperature
<b>Solubility overview</b>	Soluble in DMSO (75mM)
<b>Handling</b>	This compound is light sensitive; we therefore recommend protecting the solid material and solutions from exposure to light.
<b>Important</b>	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

---

## Chemical Data

<b>Chemical name</b>	3-(2,4-Dichlorophenyl)-4-(1-methyl-1H-indol-3-yl)-1H-pyrrole-2,5-dione
<b>Molecular Weight</b>	371.22
<b>Molecular Formula</b>	C <sub>19</sub> H <sub>12</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>2</sub>
<b>CAS Number</b>	280744-09-4
<b>PubChem identifier</b>	176158
<b>SMILES</b>	CN1C=C(C2=CC=CC=C21)C3=C(C(=O)NC3=O)C4=C(C=C(C=C4)Cl)Cl
<b>Source</b>	Synthetic
<b>InChi</b>	InChI=1S/C19H12Cl2N2O2/c1-23-9-13(11-4-2-3-5-15(11)23)17-16(18(24)22-19(17)25)12-7-6-10(20)8-14(12)21/h2-9H,1H3,(H,22,24,25)
<b>InChiKey</b>	JCSGFHVFHSKIJH-UHFFFAOYSA-N
<b>MDL number</b>	MFCD09753369
<b>Appearance</b>	Orange solid

---

## References

### Selective small molecule inhibitors of glycogen synthase kinase-3 modulate glycogen metabolism and gene transcription.

Coghlan MP *et al* (2000) Chem Biol 7(10)

**PubMedID** [11033082](#)

### 3-(2,4-dichlorophenyl)-4-(1-methyl-1H-indol-3-yl)-1H-pyrrole-2,5-dione (SB216763), a glycogen synthase kinase-3 inhibitor, displays therapeutic properties in a mouse model of pulmonary inflammation and fibrosis.

Gurrieri C *et al* (2010) J Pharmacol Exp Ther 332(3)

**PubMedID** [19959748](#)

### Selective small-molecule inhibitors of glycogen synthase kinase-3 activity protect primary neurones from death.

Cross DA *et al* (2001) J Neurochem 77(1)

**PubMedID** [11279265](#)

### Glycogen synthase kinase 3 (GSK3) inhibitor, SB-216763, promotes pluripotency in mouse embryonic stem cells.

Kirby *et al* (2012) PLoS One 6

**PubMedID** [22745733](#)

### Stemistry: the control of stem cells in situ using chemistry.

Davies *et al* (2015) J Med Chem 58(7)

**PubMedID** [25590360](#)

### Activation of canonical Wnt pathway promotes proliferation of retinal stem cells derived from adult mouse ciliary margin.

Inoue *et al* (2006) Stem Cells 24(1)

**PubMedID** [16223856](#)

### Glycogen synthase kinase 3 (GSK3)-inhibitor SB216763 promotes the conversion of human umbilical cord mesenchymal stem cells into neural precursors in adherent culture.

Gao *et al* (2017) Hum Cell 30(1)

**PubMedID**

[27604750](#)

**INS- and wnt1 pathways cooperate to induce reserve cell activation in differentiation and myotube hypertrophy.**

Rochat et al (2004) Mol Biol Cell 15(10)

**PubMedID**

[15282335](#)

**Small molecule GSK-3 inhibitors increase neurogenesis of human neural progenitor cells.**

Lange et al (2011) Neurosci Lett. 488(1)

**PubMedID**

[21056624](#)

**Delayed cardioprotection afforded by the glycogen synthase kinase 3 inhibitor SB-216763 occurs via a KATP- and MPTP-dependent mechanism at reperfusion.**

Gross et al (2008) Am J Physiol Heart Circ Physiol 294(3)

**PubMedID**

[18223186](#)

---