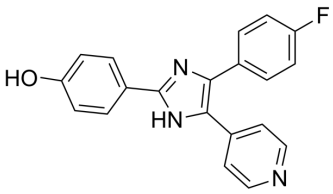
SB 202190

Cat. No.:	HY-10295
CAS No.:	152121-30-7
Molecular Formula:	$C_{20}H_{14}FN_3O$
Molecular Weight:	331.34
Target:	p38 MAPK; Autophagy; Apoptosis
Pathway:	MAPK/ERK Pathway; Autophagy; Apoptosis
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (301.80 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0180 mL	15.0902 mL	30.1805 mL
	5 mM	0.6036 mL	3.0180 mL	6.0361 mL
	10 mM	0.3018 mL	1.5090 mL	3.0180 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (6.28 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.28 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.28 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SB 202190 is a selective p38 MAP kinase inhibitor with IC_{50}s of 50 nM and 100 nM for p38α and p38β2, respectively. SB 202190 binds to the ATP pocket of the active recombinant human p38 kinase with a K_d of 38 nM. SB 202190 has anti-cancer activity and rescued memory deficits[1][2]. SB202190 induces autophagy[3].

IC_{50} & Target		
	p38α 50 nM (IC_{50})	p38β2 100 nM (IC_{50})

In Vitro	SB 202190 (0-10 μM; 0-72 hours) attenuates growth of a subgroup of CRC cell lines such as RKO, CACO2 and SW480 in a dose- and time-dependent manner[1]. ?SB 202190 strongly inhibited colony formation and anchorage-independent growth (10 μM for 7–10 days) and elevated apoptotic cell death (10 μM for 72 h) in this same subset of CRC lines (RKO, CACO2 and SW480)[2]. ?In RKO, CACO2 and SW480 cells, SB202190 (10 μM; 2 hours) abrogates phosphorylation of S6K1(T389) and S6(S235/236), but not AKT(S473), indicating that p38i selectively blocks mTORC1 signaling[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

SB 202190 (5 mg/kg; intraperitoneal injection; daily for 10-12 days) shows inhibition of tumor cell survival and tumor growth [2].

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Animal Model:	4-week-old female BALB/c nude mice (bearing SW480 and RKO xenograft tumors)[2]
Dosage:	5 mg/kg
Administration:	Intraperitoneal injection; daily for 10-12 days
Result:	Inhibition of tumor cell survival and tumor growth.

CUSTOMER VALIDATION

- Cell Res. 2020 Jul;30(7):574-589.
- Immunity. 19 October 2022.
- Mol Cancer. 2023 Jan 24;22(1):17.
- Nat Metab. 2023 Mar 6.
- Nat Protoc. 2023 Feb 15.

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REFERENCES

[1]. Davies SP, et al. Specificity and mechanism of action of some commonly used protein kinase inhibitors. Biochem J. 2000 Oct 1;351(Pt 1):95-105.

[2]. Nemoto S, et al. Induction of apoptosis by SB202190 through inhibition of p38beta mitogen-activated protein kinase. J Biol Chem. 1998 Jun 26;273(26):16415-20.

[3]. Grossi V, et al. Bay 43-9006 inhibits p38α activity in colorectal cancer cells and synergizes with the DFG-in inhibitor SB202190 to increase apoptotic response. Cancer Biol Ther. 2012 Dec;13(14):1471-81.

[4]. Yang S, et al. Protective effects of p38 MAPK inhibitor SB202190 against hippocampal apoptosis and spatial learning and memory deficits in a rat model of vascular dementia. Biomed Res Int. 2013;2013:215798.

[5]. Zhang Y, et al. PP2AC Level Determines Differential Programming of p38-TSC-mTOR Signaling and Therapeutic Response to p38-Targeted Therapy in Colorectal Cancer. EBioMedicine. 2015 Nov 19;2(12):1944-56.

Caution: Product has not been fully validated for medical applications. For research use only.

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