# SB 202190

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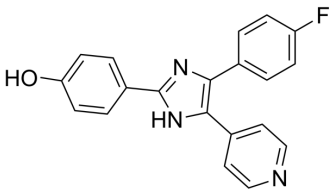
| **Cat. No.:** | HY-10295 |
| **CAS No.:** | 152121-30-7 |
| **Molecular Formula:** | $C_{20}H_{14}FN_3O$ |
| **Molecular Weight:** | 331.34 |
| **Target:** | p38 MAPK; Autophagy; Apoptosis; Organoid |
| **Pathway:** | MAPK/ERK Pathway; Autophagy; Apoptosis; Stem Cell/Wnt |
| **Storage:** | Powder -20°C 3 years<br>4°C 2 years<br>In solvent -80°C 2 years<br>-20°C 1 year |




## SOLVENT & SOLUBILITY

**In Vitro**

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

| Preparing Stock Solutions | Solvent / Mass / 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<br>50 nM ($IC_{50}$) | p38β2<br>100 nM ($IC_{50}$) |

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| **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].<br>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].<br>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].<br>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].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

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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

- Cancer Cell. 2023 Jun 12;41(6):1103-1117.e12.
- Nat Methods. 2023 Nov 2.
- Cell Res. 2020 Jul;30(7):574-589.
- Mol Cancer. 2023 Jan 24;22(1):17.
- Immunity. 19 October 2022.

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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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