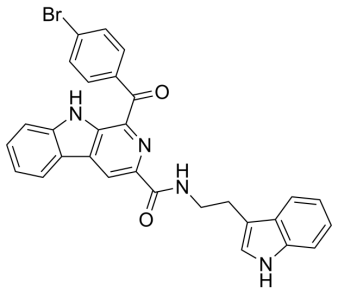
MC0704

Cat. No.:	HY-148923
Molecular Formula:	$C_{29}H_{21}BrN_4O_2$
Molecular Weight:	537.41
Target:	STAT
Pathway:	JAK/STAT Signaling; Stem Cell/Wnt
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

MC0704 is a STAT3 inhibitor with an IC_{50} value of 2.13 μM. MC0704 induces cell apoptosis and cell cycle arrest. MC0704 shows antitumor activity in mouse breast cancer models. MC0704 can be used for the research of metastatic triple-negative breast cancer (mTNBC)[1].

In Vitro

MC0704 (0-50 μM; 72 h) shows cytotoxicity to HEK-293, lung epithelial normal (MRC-5), MDA-MB 231, MDA-MB-231 paclitaxel-resistant (MDA-MB-231-PTR) and MDA-MB-231 docetaxel-resistant (MDA-MB-231-DTR) cells with IC_{50} values of 3.11, 33.25, 2.98, 3.24 and 2.87 μM, respectively[1].

MC0704 (0, 0.4, 2, 10 and 50 μM; 24 h) inhibits activity of STAT3 with an IC_{50} value of 2.13 μM[1].

MC0704 (5 μM; 24 h) suppresses the activation of STAT3[1].

MC0704 (0, 2.5, 5 and 10 μM; 36-48 h) increases the cell cycle arrest at the G2/M phase and induces apoptosis in MDA-MB-231-DTR cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay[1]

Cell Line:	HEK-293 and MRC-5 cell lines
Concentration:	0-50 μM
Incubation Time:	72 hours
Result:	Showed cytotoxicity to HEK-293 and MRC-5 cells.

Western Blot Analysis[1]

Cell Line:	MDA-MB-231 TNBC cell line
Concentration:	5 μM
Incubation Time:	24 hour
Result:	Inhibited the expression of p-STAT3.

In Vivo

MC0704 (10 mg/kg; i.p., 10 mg/kg, once daily for 12 days) inhibits cancer growth of mice with MDA-MB-231-DTR cells transplant[1].

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Animal Model:	Female BALB/c-nu mice with MDA-MB-231-DTR cells transplant[1]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection; 10 mg/kg, once daily for 12 days
Result:	Significantly inhibited tumor growth without overt toxicity, and reversed the mesenchymal marker vimentin and epithelial marker E-cadherin expression changes.

REFERENCES

[1]. Byun WS, et al. Design, Synthesis, and Biological Activity of Marinacarboline Analogues as STAT3 Pathway Inhibitors for Docetaxel-Resistant Triple-Negative Breast Cancer. J Med Chem. 2023 Feb 23;66(4):3106-3133.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA