STAT3-IN-15

Cat. No.: HY-151976

Molecular Formula: $C_{20}H_{17}F_3N_2O_3S$

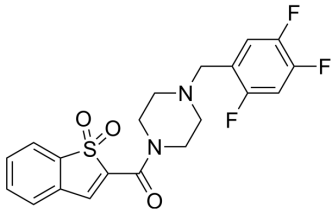
Molecular Weight: 422.42

Target: STAT

Pathway: JAK/STAT Signaling; Stem Cell/Wnt

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 (236.73 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3673 mL	11.8366 mL	23.6731 mL
	5 mM	0.4735 mL	2.3673 mL	4.7346 mL
	10 mM	0.2367 mL	1.1837 mL	2.3673 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.92 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

STAT3-IN-15 is a potent and orally active STAT3 inhibitor against idiopathic pulmonary fibrosis (IPF). STAT3-IN-15 inhibits STAT3 phosphorylation. STAT3-IN-15 also inhibits the migration and deformation of epithelial cells induced by TGF-β1 and inhibit epithelial-mesenchymal transition (EMT)[1].

IC_{50} & Target

STAT3

In Vitro

STAT3-IN-15 (compound 10k) inhibits NIH-3T3 cell proliferation with an IC_{50} of 0.47 μM[1].
STAT3-IN-15 forms hydrogen bonds with Lys591 and Ser636, occupying the pY subpocket of STAT3[1].
STAT3-IN-15 (0-100 nM, 72 h) inhibits fibroblast activation and proliferation[1].
STAT3-IN-15 (50 nM, 24 h) inhibited TGF-β1 (5 ng/mL)-induced activation of NIH-3T3 cells[1].
STAT3-IN-15 (200 nM, 24 h) blocks TGF-β1 induced EMT process in A549 cells, determined by morphological changes[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	NIH-3T3 cells
Concentration:	0, 6.25, 12.5, 25, 50, 100 nM
Incubation Time:	72 h
Result:	Inhibited NIH-3T3 cell viability dose-dependently.

Western Blot Analysis[1]

Cell Line:	NIH-3T3 cells
Concentration:	Inhibited NIH-3T3 cell viability dose-dependently.
Incubation Time:	24 h
Result:	Inhibited the expression of α-SMA and collagen I and the phosphorylation of STAT3.

In Vivo

STAT3-IN-15 (compound 10k) (30 and 60 mg/kg, intragastric administration) alleviates Bleomycin (HY-108345)-induced pulmonary fibrosis in mouse[1].

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

Animal Model:	BLM-induced pulmonary fibrosis mouse model[1]
Dosage:	30 and 60 mg/kg
Administration:	Intragastric administration
Result:	Recovered the lung structure and reduced the hydroxyproline content. Reduced the expression of the p-Stat3^{Ty705} protein in the lung tissue. Improved BLM-induced imbalance of immune microenvironment.

CUSTOMER VALIDATION

- iScience. 2023 Jul 12;26(8):107295.

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REFERENCES

[1]. Wang Y, et al. Discovery of the novel Benzo[b]thiophene 1,1-dioxide derivatives as a potent STAT3 inhibitor against idiopathic pulmonary fibrosis. Eur J Med Chem. 2022 Nov 28;246:114953.

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