SC99

Cat. No.: HY-124858

CAS No.: 882290-02-0

Molecular Formula: $C_{15}H_8Cl_2FN_3O$

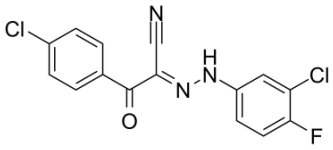
Molecular Weight: 336.15

Target: STAT; JAK; Apoptosis

Pathway: JAK/STAT Signaling; Stem Cell/Wnt; Epigenetics; 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 : 83.33 mg/mL (247.90 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9749 mL	14.8743 mL	29.7486 mL
5 mM	0.5950 mL	2.9749 mL	5.9497 mL
10 mM	0.2975 mL	1.4874 mL	2.9749 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 (6.19 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (6.19 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

SC99 is an orally active, selective STAT3 inhibitor targeting JAK2-STAT3 pathway. SC99 docks into the ATP-binding pocket of JAK2. SC99 inhibits phosphorylation of JAK2 and STAT3 with no effects on the other kinases associated with STAT3 signaling. SC99 inhibits platelet activation, aggregation and displays potent anti-myeloma, anti-thrombotic activities[1][2][3].

IC_{50} & Target		
	STAT3	JAK2

In Vitro

SC99 (10 or 30 μM; for 72 hours) induces MM cell death[1].

SC99 (10 μM; 24 hours) decreases the p-STAT3 level but has no effects on total STAT3 expression. SC99 (2.5, 5, 10, 20 μM; for 60 mins) inhibits JAK2 phosphorylation in a concentration-dependent manner but does not inhibit the phosphorylation

levels of AKT, ERK, mTOR or c-Src at a concentration up to 20 μM[1].
SC99 (1.25, 2.5, 5 μM; pre-treated for 10 min) inhibits collagen (2 μg/mL) and thrombin (0.02 U/mL) induced phosphorylation of STAT3 in a concentration-dependent manner[2].
SC99 (pre-treated for 2 hours) inhibits IL-6 (50 ng/ml; for 20 min) induced STAT3 nuclear translocation in OPM2 cells[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Apoptosis Analysis[1]

Cell Line:	Six multiple myeloma (MM) cell lines (LP1, JJN3, RPMI-8226, U266, OPM2 and OCI-MY5)
Concentration:	10 or 30 μM
Incubation Time:	For 72 hours
Result:	Induced MM cell death.

Apoptosis Analysis[1]

Cell Line:	MM cell lines[1]
Concentration:	10 μM
Incubation Time:	24 hours
Result:	Decreased the p-STAT3 level but had no effects on total STAT3 expression in all cell lines examined.

In Vivo

SC99 (30 mg/kg; orally; daily; for continuous 14 or 28 days) delays myeloma tumor growth in xenograft mice models[1].
SC99 (5, 10, 15 mM, 15 μL; ICV) produces an effective inhibitory effect on the phosphorylation of JAK2 and STAT3 in middle cerebral artery occlusion and reperfusion (MCAO/R) model (adult male SD rats; 250-300 g). SC99 ameliorates neuronal apoptosis and degeneration, neurobehavioral deficits, inflammatory response and brain edema[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nude mice with Human MM cells OPM2 or JJN3[1]
Dosage:	30 mg/kg
Administration:	Orally; daily; for continuous 14 or 28 days
Result:	Delayed myeloma tumor growth in xenograft mice models and suppressed tumor growth more than 40% in 14 days in the OPM2 model.

REFERENCES

[1]. Zubin Zhang, et al. A novel small molecule agent displays potent anti-myeloma activity by inhibiting the JAK2-STAT3 signaling pathway. Oncotarget. 2016 Feb 23;7(8):9296-308.

[2]. Zhuan Xu, et at. A novel STAT3 inhibitor negatively modulates platelet activation and aggregation. Acta Pharmacol Sin. 2017 May;38(5):651-659.

[3]. Yiping Ding, et al. Effects of SC99 on cerebral ischemia-perfusion injury in rats: Selective modulation of microglia polarization to M2 phenotype via inhibiting JAK2-STAT3 pathway. Neurosci Res. 2019 May;142:58-68.

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

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