# STAT3-IN-13

**Cat. No.:** HY-150603

**CAS No.:** 2248552-86-3

**Molecular Formula:** $C_{21}H_{20}N_6O_3S$

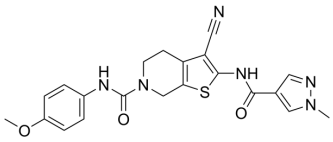
**Molecular Weight:** 436.49

**Target:** STAT; Apoptosis; Bcl-2 Family

**Pathway:** JAK/STAT Signaling; Stem Cell/Wnt; 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 : 125 mg/mL (286.38 mM; Need ultrasonic)

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 2.2910 mL | 11.4550 mL | 22.9100 mL |
| 5 mM | 0.4582 mL | 2.2910 mL | 4.5820 mL |
| 10 mM | 0.2291 mL | 1.1455 mL | 2.2910 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: 6.25 mg/mL (14.32 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 6.25 mg/mL (14.32 mM); Clear solution; Need ultrasonic

## BIOLOGICAL ACTIVITY

**Description**

STAT3-IN-13 (compound 6f) is a potent STAT3 inhibitor. STAT3-IN-13 has anti-proliferative effects and binds to the STAT3 SH2 domain with a $K_D$ of 0.46 μM. STAT3-IN-13 inhibits the phosphorylation of STAT3 Y705 and downstream target gene expression. STAT3-IN-13 induces apoptosis in vitro and suppresses the growth and metastasis of tumor in vivo. STAT3-IN-13 can be used for cancer research[1].

**In Vitro**

STAT3-IN-13 (compound 6f) (48 hours) has anti-proliferative activity with $IC_{50}$ values of 0.25, 0.11 and 0.55 μM for 143B, HOS and MG63 cells, respectively[1].

STAT3-IN-13 (compound 6f) (0.001-100 μM) binds to STAT3 and interacts with $STAT^{3586-685}$ in a concentration dependent manner with a $K_D$ of 0.96 μM[1].

STAT3-IN-13 (compound 6f) (0-1.0 μM; 24 hours; 143B and HOS cells) inhibits STAT3 Y705 phosphorylation and suppresses

STAT3 in tumor cells[1].
STAT3-IN-13 (compound 6f) (0-1.0 μM; 48 hours; 143B cells) induces apoptosis in a dose-dependent manner[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Apoptosis Analysis[1]

| | |
|---|---|
| Cell Line: | 143B cells |
| Concentration: | 0, 0.2, 0.5, and 1 μM |
| Incubation Time: | 48 hours |
| Result: | Increased the percentage of apoptosis rates of 3.4%, 8.7%, 10.7%, and 23.3% at 0, 0.2, 0.5 and 1 μM, respectively. |

Western Blot Analysis[1]

| | |
|---|---|
| Cell Line: | 143B and HOS cells |
| Concentration: | 0, 0.2, 0.5 and 1.0 μM |
| Incubation Time: | 24 hours |
| Result: | Inhibited STAT3 Y705 phosphorylation and downstream target gene expression including Bcl-2 and VEGF, retained good antitumor activities against control tumor cells without STAT3 knockdown. |

**In Vivo**

STAT3-IN-13 (compound 6f) (10-20 mg/kg; i.p.; twice daily, for 4 weeks; nude mice) blocks osteosarcoma growth and metastasis in vivo[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

| | |
|---|---|
| Animal Model: | Nude mice |
| Dosage: | 10 and 20 mg/kg |
| Administration: | Intraperitoneal injection; twice daily, for 4 weeks |
| Result: | Suppressed tumor weight at a dose of 10 mg/kg. |

## REFERENCES

[1]. Jin W, et, al. Discovery of 2-Amino-3-cyanothiophene Derivatives as Potent STAT3 Inhibitors for the Treatment of Osteosarcoma Growth and Metastasis. J Med Chem. 2022 May 12;65(9):6710-6728.



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