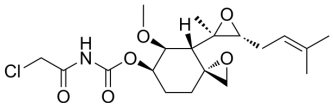
TNP-470

Cat. No.:	HY-101932
CAS No.:	129298-91-5
Molecular Formula:	$C_{19}H_{28}ClNO_6$
Molecular Weight:	401.88
Target:	Aminopeptidase
Pathway:	Metabolic Enzyme/Protease
Storage:	-20°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (248.83 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4883 mL	12.4415 mL	24.8830 mL
5 mM	0.4977 mL	2.4883 mL	4.9766 mL
10 mM	0.2488 mL	1.2442 mL	2.4883 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.22 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.22 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

TNP-470 is a methionine aminopeptidase-2 inhibitor and also an angiogenesis inhibitor.

IC_{50} & Target

methionine aminopeptidase-2[1], angiogenesis[2]

In Vitro

No significant difference of apoptotic cell numbers is observed between cells treated with TNP-470 and the controls. The IC_{50}s of TNP-470 are 16.86±0.9 μg/mL, 3.16±0.6 μg/mL and 1.78±0.8 μg/mL for KKU-M213 cells at 24, 48 and 72 h, respectively. The results show that TNP-470 significantly reduces the number of migrated cells and invaded cells as compared with the vehicle treated group. TNP-470 decreases the migrated cells of KKU-M213 to 26% and of KKU-M214 to 11% (P<0.01). Similarly, TNP-470 also significantly affects cell invasion, the number of invaded cells is reduced to 25% in KKU-M213 (P<0.01) and to 15% in KKU-M214 (P<0.01). The relative expressions of MMP2, MMP9 and c-MYC in TNP-470 treated cells are significantly suppressed compared to the vehicle treated cells[1].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	TNP-470 attenuates (P<0.05) liver lipid accumulation compared to high fat fed (HFF) mice. By day 5, TNP-470 treated mice consume significantly less grams of high fat food than vehicle treated HFF mice. By day 15 of treatment, TNP-470 mice are consuming an equivalent number of calories to that of chow fed mice, despite the provision of high fat diet. Treatment with TNP-470 increases (P<0.05) expression of adipose tissue LPL mRNA, compare to chow-fed and high-fat fed controls. TNP-470 decreases energy intake and increases energy expenditure[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	MTT assays are applied to test cell viability. In brief, 3×10^3 cells per well are seeded in a 96-well plate and incubated with various concentration of TNP-470 for 24, 48, and 72 h at 37°C, 5% CO_2. For comparison, cells cultured in the absence of TNP-470 are used as a control. After an incubation period, 10 μL MTT (0.5 mg/mL final concentration) is added to each well. After 4 h of additional incubation, 100 μL of 0.01 N HCl in isopropanol is added to dissolve the crystals. Absorption at 570 nm is determined by ELISA plate reader[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Individually housed, 4 wk old male C57BL/6 mice are used in this study. After a 1 wk acclimation period, mice are randomly allocated to receive either standard chow diet or high-fat diet for 6.5 wk. Throughout the high-fat feeding period the mice are treated with TNP-470 at a dose of 20 mg/kg body weight, injected subcutaneously every other day (TNP; n=7) or a vehicle injection of an equivalent volume (HFF controls; n=7). Vehicle injections contain 3% ethanol in phosphate-buffered saline. Chow-fed control mice (chow; n=8) are sham injected. Mice are fed ad libitum with food replaced every 2 or 3 days. Body weights are collected three times per week. After 6.5 wk of feeding, animals are fasted for 16-h and sacrificed. Final body, liver, and epididymal adipose tissue weights are measured. Liver and adipose tissue samples are frozen in liquid nitrogen and stored at -80°C for subsequent analysis[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Kidoikhammouan S, et al. TNP-470, a methionine aminopeptidase-2 inhibitor, inhibits cell proliferation, migration and invasion of human cholangiocarcinoma cells in vitro. Asian Pac J Cancer Prev. 2012;13 Suppl:155-60.

[2]. White HM, et al. The angiogenic inhibitor TNP-470 decreases caloric intake and weight gain in high-fat fed mice. Obesity (Silver Spring). 2012 Oct;20(10):2003-9.

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