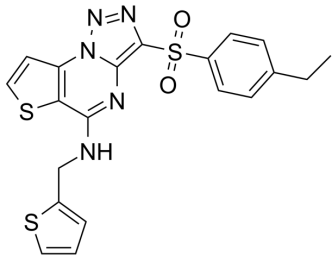
UT-B-IN-1

Cat. No.:	HY-128129
CAS No.:	892742-76-6
Molecular Formula:	$C_{20}H_{17}N_5O_2S_3$
Molecular Weight:	455.58
Target:	Urea Transporter
Pathway:	Membrane Transporter/Ion Channel
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 (219.50 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1950 mL	10.9750 mL	21.9500 mL
	5 mM	0.4390 mL	2.1950 mL	4.3900 mL
	10 mM	0.2195 mL	1.0975 mL	2.1950 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: 2.5 mg/mL (5.49 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: 2.5 mg/mL (5.49 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

UT-B-IN-1 (UTBINH-14) is a reversible, competitive and selective urea transporter-B (UT-B) inhibitor with IC_{50} values of 10 and 25 nM for human and mouse UT-B, respectively. UT-B-IN-1 shows low toxicity and high selectivity for UT-B over UT-A isoforms. UT-B-IN-1 increases urine output and reduces urine osmolality of mice. UT-B-IN-1 can be used for diuretic mechanism research[1].

IC_{50} & Target

IC50: 10 nM (human UT-B); 25 nM (mouse UT-B)[1]

In Vitro

UT-B-IN-1 (1-1000 nM) inhibits urea efflux in erythrocytes preloaded with urea with an IC_{50} value of 26.7 nM[1].
UT-B-IN-1 inhibits water transport in AQP1-null erythrocytes[1].
UT-B-IN-1 (0-10 μM;24 h) shows no cytotoxicity to MDCK cells[1].

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

Cell Cytotoxicity Assay[1]

Cell Line:	Madin-Darby canine kidney (MDCK) cell line
Concentration:	0-10 μM
Incubation Time:	24 hours
Result:	Exhibited no cytotoxic effect to MDCK cells.

In Vivo

UT-B-IN-1 (300 μg; i.p., once) increases urine output and reduces urine osmolality in mice with free access to water and food [1].

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

Animal Model:	Male mice (wild-type or UT-B knockout)[1]
Dosage:	300 μg
Administration:	Intraperitoneal injection, 300 μg, once
Result:	Reduced urine osmolality and urea concentration in wild-type mice with V2-receptor agonist dDAVP injection. Increased urine volume and reduced urine osmolality and urea concentration in mice with free access to food and water but without dDAVP.

REFERENCES

[1]. Yao C, et al. Triazolothienopyrimidine inhibitors of urea transporter UT-B reduce urine concentration. J Am Soc Nephrol. 2012 Jul;23(7):1210-20.

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