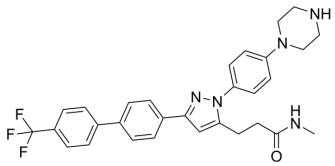
OSU-T315

Cat. No.:	HY-18676
CAS No.:	2070015-22-2
Molecular Formula:	$C_{30}H_{30}F_3N_5O$
Molecular Weight:	533.59
Target:	Integrin; Autophagy; Apoptosis
Pathway:	Cytoskeleton; Autophagy; Apoptosis
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 260 mg/mL (487.27 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.8741 mL	9.3705 mL	18.7410 mL
	5 mM	0.3748 mL	1.8741 mL	3.7482 mL
	10 mM	0.1874 mL	0.9370 mL	1.8741 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: ≥ 2.17 mg/mL (4.07 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.17 mg/mL (4.07 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

OSU-T315 (ILK-IN-1) is a small Integrin-linked kinase (ILK) inhibitor with an IC_{50} of 0.6 μM, inhibiting PI3K/AKT signaling by dephosphorylation of AKT-Ser473 and other ILK targets (GSK-3β and myosin light chain)[1]. OSU-T315 abrogates AKT activation by impeding AKT localization in lipid rafts and triggers caspase-dependent apoptosis in an ILK-independent manner[2]. OSU-T315 causes cell death through apoptosis and autophagy[1].

IC_{50} & Target

IC50: 0.6μM; Integrin-linked kinase (ILK) inhibitor[1]

In Vitro

OSU-T315 (Compound 22; 0-5 μM; 24 hours) exhibits high in vitro potency against a panel of prostate and breast cancer cell lines with a IC_{50} range of 1-2.5 μM[1].

?OSU-T315 (0-2.5 μM; 24 hours) can reduce YB-1, HER2, and EGFR expression; shows a modest suppressive effect on phosphorylated S6 levels, exhibits dose-dependent suppressive effects on the levels of phospho-ERK1/2 and phospho-p38, while that of phospho-JNK remains unaltered in PC-3 cell[1].
?OSU-T315 (0-4 μM; 24 hours) causes autophagy through ILK inhibition[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis [1]

Cell Line:	PC-3 cells; MDA-MB-231 cells
Concentration:	1 μM, 2 μM, 3 μM, 4 μM; 0.5 μM, 1 μM, 1.5 μM, 2 μM, 2.5 μM
Incubation Time:	24 hours
Result:	Exhibited a dose-dependent decreasing effect on the phosphorylation of pS6, ERKs, and p38 in PC-3 cells and MDA-MB-231 cells.

Cell Viability Assay [1]

Cell Line:	Prostate cancer cells: LNCaP, PC-3; breast cancer cells: MDA-MB-231, MDA-MB-468, SKBR3, MCF-7; PrEC and MEC cells
Concentration:	0-5 μM
Incubation Time:	24 hours
Result:	Suppressed cancer cells viability in breast and prostate cancer cells (IC (50), 1-2.5μM).

Apoptosis Analysis[1]

Cell Line:	PC-3 cells
Concentration:	1 μM, 2 μM, 3 μM, 4 μM
Incubation Time:	24 hours
Result:	Induced accumulation of LC3-II and PARP cleavage.

In Vivo

OSU-T315 (Oral gavage; 25 mg/kg, 50 mg/kg; single daily; 35 days) has a suppressive effect of on PC-3 xenograft tumor growth [1].
?No other obvious toxicity is observed in mice[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male NCr athymic nude mice with PC-3 tumor xenografts
Dosage:	25 mg/kg; 50 mg/kg
Administration:	Oral gavage; single daily; 35 days
Result:	Resulted in suppression of tumor growth relative to the vehicle control after 35 days of treatment (48% and 62% suppression for 25 and 50 mg/kg, respectively).

CUSTOMER VALIDATION

- Theranostics. 2022 Jan 1;12(3):1173-1186.

- Br J Cancer. 2020 Aug;123(4):542-555.
- PLoS Pathog. 2023 Mar 17;19(3):e1011241.
- Biochim Biophys Acta Mol Basis Dis. 2020 Mar 1;1866(3):165625.
- Colloids Surf B Biointerfaces. 27 November 2021, 112229.

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REFERENCES

[1]. Su-Lin Lee,et al Identification and Characterization of a Novel Integrin-Linked Kinase Inhibitor.J Med Chem. 2011 Sep 22; 54(18): 6364–6374

[2]. Liu TM, et al. OSU-T315: a novel targeted therapeutic that antagonizes AKT membrane localization and activation of chronic lymphocytic leukemia cells. Blood. 2015 Jan 8;125(2):284-95.

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