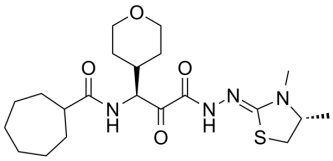
ONO-5334

Cat. No.:	HY-108044
CAS No.:	868273-90-9
Molecular Formula:	$C_{21}H_{34}N_4O_4S$
Molecular Weight:	438.58
Target:	Cathepsin; SARS-CoV
Pathway:	Metabolic Enzyme/Protease; Anti-infection
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 : 50 mg/mL (114.00 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2801 mL	11.4004 mL	22.8009 mL
	5 mM	0.4560 mL	2.2801 mL	4.5602 mL
	10 mM	0.2280 mL	1.1400 mL	2.2801 mL

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

BIOLOGICAL ACTIVITY

Description

ONO-5334 is a potent, selective and orally active cathepsin K inhibitor with K_i values of 0.10 nM, 0.049 nM and 0.85 nM for human, rabbit and rat cathepsin K, respectively. ONO 5334 is an effective antiviral compound against SAR-COV-2 virus activity with an EC_{50} value of 500 nM. ONO-5334 has the potential for the study of osteoporosis and COVID-19 disease[1].

IC_{50} & Target

cathepsin K

In Vitro

ONO-5334 has inhibitory effects on human cathepsin S, human cathepsin L, human cathepsin B, porcine calpain I and porcine calpain II with K_i values of 0.83 nM, 1.7 nM, 32 nM, 82 nM and 69 nM, respectively[1].

ONO-5334 (0.1-1 μM; 24 hours) suppresses human osteoclast-mediated bone resorption. It potently reduces osteoclast-mediated release of CTX from bone slices as a dose dependent manner[1].

ONO-5334 (0-10 μM; pre-treated for 16 h) inhibits antiviral activities in a discernable dose-dependent manner in Vero E6 cells by designed to capture multicycle replication, exhibiting an EC_{50} value of 0.5 μM[2]/

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

Cell Viability Assay[2]

Cell Line:	Vero E6 cells
Concentration:	0.001 μM, 0.003 μM, 0.1 μM, 0.3 μM, 1 μM, 2.5 μM
Incubation Time:	Pre-treated for 16 h and then cultured for 24 hours
Result:	Inhibited SARS-COV-2 virus replication in a dose-dependent manner.

In Vivo

ONO-5334 (oral administration; 0.12-15 mg/kg; single dose) can dose-dependently reduce PTHrP-induced increase in plasma calcium with significant effect (86% reduction) at 15 mg/kg. It also reduces PTHrP-induced increase in plasma CTX level in TPTX rats by 90% at 15 mg/kg[1].

ONO-5334 (oral administration; 0.3-30 mg/kg; 7 consecutive days) at 3 mg/kg or 30 mg/kg significantly decreases CTX (a bone resorption marker) concentration. On day 7, the reduction in serum CTX concentration by ONO-5334 at 3 mg/kg and 30 mg/kg was 62% and 79%, respectively[1].

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

Animal Model:	Monkey[1]
Dosage:	0.3 mg/kg; 3 mg/kg
Administration:	Oral administration; 7 consecutive days
Result:	Reduced bone resorption markers but not bone formation markers in normal monkeys.

CUSTOMER VALIDATION

- Nucleic Acids Res. 2021 Jan 8;49(D1):D1113-D1121.
- Sci Rep. 2022 Jul 16;12(1):12197.

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REFERENCES

[1]. Ochi Y, et al. Effects of ONO-5334, a novel orally-active inhibitor of cathepsin K, on bone metabolism. Bone. 2011 Dec;49(6):1351-6.

[2]. Laura Riva, et al.A Large-scale Drug Repositioning Survey for SARS-CoV-2 Antivirals. bioRxiv. 2020 Apr 17;2020.04.16.044016.

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