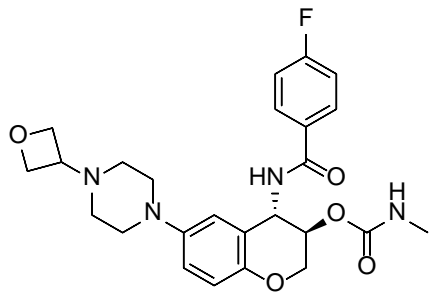# Product data sheet

MedKoo Cat#: 407215
Name: LY3000328
CAS: 1373215-15-6
Chemical Formula: $C_{25}H_{29}FN_4O_5$
Exact Mass: 484.2122
Molecular Weight: 484.5284

Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

LY3000328 is a Cathepsin S inhibitor with excellent in vitro potency and selectivity against other cysteine proteases. LY3000328 is currently in clinical trials. Cathepsin S (Cat S) plays an important role in many pathological conditions, including abdominal aortic aneurysm (AAA). Inhibition of Cat S may provide a new treatment for AAA.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	61.92
DMSO	40.0	82.55
DMSO:PBS (pH 7.2) (1:1)	0.50	1.03

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.06 mL	10.32 mL	20.64 mL
5 mM	0.41 mL	2.06 mL	4.13 mL
10 mM	0.21 mL	1.03 mL	2.06 mL
50 mM	0.04 mL	0.21 mL	0.41 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Wei L, Shao N, Peng Y, Zhou P. Inhibition of Cathepsin S Restores TGF-β-induced Epithelial-to-mesenchymal Transition and Tight Junction Turnover in Glioblastoma Cells. J Cancer. 2021 Jan 15;12(6):1592-1603. doi: 10.7150/jca.50631. PMID: 33613746; PMCID: PMC7890330.
2. Seo SU, Woo SM, Min KJ, Kwon TK. Z-FL-COCHO, a cathepsin S inhibitor, enhances oxaliplatin-induced apoptosis through upregulation of Bim expression. Biochem Biophys Res Commun. 2018 Apr 15;498(4):849-854. doi: 10.1016/j.bbrc.2018.03.068. Epub 2018 Mar 13. PMID: 29534961.

In vivo study

1. Zhao J, Yang Y, Wu Y. The Clinical Significance and Potential Role of Cathepsin S in IgA Nephropathy. Front Pediatr. 2021 Apr 12;9:631473. doi: 10.3389/fped.2021.631473. PMID: 33912521; PMCID: PMC8071879.
2. Jadhav PK, Schiffler MA, Gavardinas K, Kim EJ, Matthews DP, Staszak MA, Coffey DS, Shaw BW, Cassidy KC, Brier RA, Zhang Y, Christie RM, Matter WF, Qing K, Durbin JD, Wang Y, Deng GG. Discovery of Cathepsin S Inhibitor LY3000328 for the

Treatment of Abdominal Aortic Aneurysm. ACS Med Chem Lett. 2014 Aug 27;5(10):1138-42. doi: 10.1021/ml500283g. PMID: 25313327; PMCID: PMC4190634.

7. Bioactivity

Biological target:

LY 3000328 (Z-FL-COCHO) is a potent and selective Cathepsin S (Cat S) inhibitor with IC_{50}s of 7.7 and 1.67 nM for hCat S and mCat S.

In vitro activity

U87 and U251 human glioblastoma cell lines were applied in this study. Cell migration and invasion ability were measured by wound healing assay and transwell assay. The CTSS inhibitor-Z-FL-COCHO (ZFL), could attenuate TGF-β-induced invasive growth as proven by wound healing and transwell assays.

Reference: J Cancer. 2021 Jan 15;12(6):1592-1603. https://pubmed.ncbi.nlm.nih.gov/33613746/

In vivo activity

The in vivo efficacies of 5 (LY 3000328) and 9 were studied in a mouse model of AAA (abdominal aortic aneurysm) (Figure 2). Both compounds exhibited a dose-responsive aortic diameter reduction at 1, 3, 10, and 30 mg/kg. However, 9 had a less profound effect than did 5.

Reference: ACS Med Chem Lett. 2014 Aug 27;5(10):1138-42. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4190634/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.