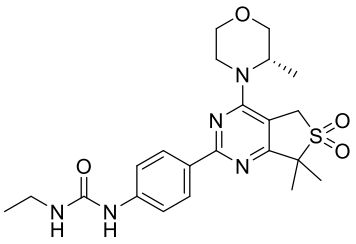
Product data sheet

MedKoo Cat#: 526686 Name: CZ415 CAS#: 1429639-50-8 Chemical Formula: $C_{22}H_{29}N_5O_4S$ Exact Mass: 459.194 Molecular Weight: 459.565	
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:

CZ415 is a potent ATP-competitive mTOR inhibitor with unprecedented selectivity over any other kinase (IC50 = 14.5 nM IC50 for pS6RP and 14.8 nM for pAKT) with very good cell permeability (Kd app = 6.9 nM). Pharmacokinetic properties of moderate clearance and good oral bioavailability showed suitability of CZ415 for progression to in vivo studies. CZ415 represents an ideal molecule for the pharmacological investigation of mTOR pathophysiological role in vivo.

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
DMSO	73.67	160.30
DMSO:PBS (pH 7.2) (1:6)	0.1	0.22
DMF	30.0	65.28
Ethanol	10.0	21.76

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.18 mL	10.88 mL	21.76 mL
5 mM	0.44 mL	2.18 mL	4.35 mL
10 mM	0.22 mL	1.09 mL	2.18 mL
50 mM	0.04 mL	0.22 mL	0.44 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. Zhang J. Targeting mTOR by CZ415 Suppresses Cell Proliferation and Promotes Apoptosis via Lipin-1 in Cervical Cancer In Vitro and In Vivo. Reprod Sci. 2021 Feb;28(2):524-531. doi: 10.1007/s43032-020-00313-4. Epub 2020 Sep 17. PMID: 32944878.
2. Li X, Li Z, Song Y, Liu W, Liu Z. The mTOR Kinase Inhibitor CZ415 Inhibits Human Papillary Thyroid Carcinoma Cell Growth. Cell Physiol Biochem. 2018;46(2):579-590. doi: 10.1159/000488625. Epub 2018 Mar 28. PMID: 29617677.

In vivo study

1. Xie J, Li Q, Ding X, Gao Y. Targeting mTOR by CZ415 Inhibits Head and Neck Squamous Cell Carcinoma Cells. Cell Physiol Biochem. 2018;46(2):676-686. doi: 10.1159/000488724. Epub 2018 Mar 29. PMID: 29621758.
2. Zhang W, Chen B, Zhang Y, Li K, Hao K, Jiang L, Wang Y, Mou X, Xu X, Wang Z. The anti-hepatocellular carcinoma cell activity by a novel mTOR kinase inhibitor CZ415. Biochem Biophys Res Commun. 2017 Jun 3;487(3):494-499. doi: 10.1016/j.bbrc.2017.03.156. Epub 2017 Mar 30. PMID: 28366631.

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7. Bioactivity

Biological target:

CZ415 is a potent and highly selective mTOR inhibitor with a pIC50 of 8.07.

In vitro activity

Results showed that CZ415 inhibited CC cell survival in a dose- and time-dependent manner, and 100 nanomolar and 48 h were the optimal conditions.

Reference: Reprod Sci. 2021 Feb;28(2):524-531. https://pubmed.ncbi.nlm.nih.gov/32944878/

In vivo activity

In vivo studies revealed that oral administration of CZ415 significantly suppressed HepG2 xenograft tumor growth in severe combined immuno-deficient (SCID) mice. Activation of mTORC1/2 was also largely inhibited in CZ415-treated HepG2 tumor tissue.

Reference: Biochem Biophys Res Commun. 2017 Jun 3;487(3):494-499. https://pubmed.ncbi.nlm.nih.gov/28366631/

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.