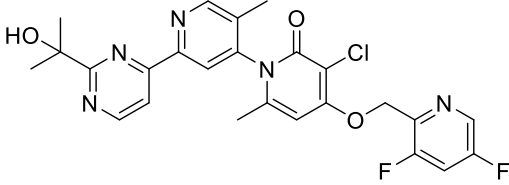


Product data sheet



MedKoo Cat#: 207172 Name: Zunsemetinib CAS: 1640282-42-3 (P atropisomer) Chemical Formula: C ₂₅ H ₂₂ ClF ₂ N ₅ O ₃ Exact Mass: 513.1379 Molecular Weight: 513.9298		
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:

Zunsemetinib, also known as ATI-450 and CDD450, is a potent MK2 inhibitor. ATI-450 binds with high affinity to the interface of the p38MAPK-MK2 complex and selectively inhibits p38MAPK-catalysed phosphorylation of MK2 which stabilises the inactive conformation of MK2, and subsequently reduces inflammatory cytokine levels. ATI-450 specifically blocks the downstream MK2-mediated inflammatory drive on the p38 pathway and may therefore avoid the tachyphylaxis associated with p38 inhibitors. Note CAS#1640282-42-3 is the active atropisomer.

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	100.0	194.58

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.95 mL	9.73 mL	19.46 mL
5 mM	0.39 mL	1.95 mL	3.89 mL
10 mM	0.19 mL	0.97 mL	1.95 mL
50 mM	0.04 mL	0.19 mL	0.39 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. Grierson PM, Dodhiawala PB, Cheng Y, Chen TH, Khawar IA, Wei Q, Zhang D, Li L, Herndon J, Monahan JB, Ruzinova MB, Lim KH. The MK2/Hsp27 axis is a major survival mechanism for pancreatic ductal adenocarcinoma under genotoxic stress. *Sci Transl Med.* 2021 Dec;13(622):eabb5445. doi: 10.1126/scitranslmed.abb5445. Epub 2021 Dec 1. PMID: 34851698; PMCID: PMC9475471.

In vivo study

1. Strasser SD, Ghazi PC, Starchenko A, Boukhali M, Edwards A, Suarez-Lopez L, Lyons J, Changelian PS, Monahan JB, Jacobsen J, Brubaker DK, Joughin BA, Yaffe MB, Haas W, Lauffenburger DA, Haigis KM. Substrate-based kinase activity inference identifies MK2 as driver of colitis. *Integr Biol (Camb).* 2019 Nov 26;11(7):301-314. doi: 10.1093/intbio/zyz025. PMID: 31617572; PMCID: PMC2208439.

2. Wang C, Hockerman S, Jacobsen EJ, Alippe Y, Selness SR, Hope HR, Hirsch JL, Mnich SJ, Saabye MJ, Hood WF, Bonar SL, Abu-Amer Y, Haimovich A, Hoffman HM, Monahan JB, Mbalaviele G. Selective inhibition of the p38α MAPK-MK2 axis inhibits inflammatory cues including inflammasome priming signals. *J Exp Med.* 2018 May 7;215(5):1315-1325. doi: 10.1084/jem.20172063. Epub 2018 Mar 16. PMID: 29549113; PMCID: PMC5940269.

Product data sheet



7. Bioactivity

Biological target:

Zunsemetinib (CDD-450) is an orally active and selective p38 α mitogen-activated protein kinase-activated protein kinase 2 (MK2) pathway inhibitor. Zunsemetinib can be used for the research of immuno-inflammatory diseases.

In vitro activity

This study found that both PF3644022 and ATI-450 robustly suppressed SN-38-induced p-Beclin1 (S90) and LC3-II (Fig. 4F). ATI-450 also suppressed SN-38-induced p-ULK1 and p-AMPK α , further supporting MK2 as an activator of protective autophagy through Beclin1 under genotoxic stress.

Reference: Sci Transl Med. 2021 Dec;13(622):eabb5445. <https://pubmed.ncbi.nlm.nih.gov/34851698/>

In vivo activity

Consistent with a resolution of inflammation, this study found that ATI450 treatment led to a significant decrease in the number of colonic T cells in animals that had inflammation (Fig. 3g). Altogether, these results demonstrate that inhibition of the MK2 pathway with ATI450 suppresses active colitis in the TCT model.

Reference: Integr Biol (Camb). 2019 Nov 26;11(7):301-314. <https://pubmed.ncbi.nlm.nih.gov/31617572/>

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.