

Product data sheet



MedKoo Cat#: 510241 Name: ML3403 CAS: 549505-65-9 Chemical Formula: C ₂₃ H ₂₁ FN ₄ S Exact Mass: 404.1471 Molecular Weight: 404.5074	
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:

ML3403 is a potent and selective p38 MAP kinase inhibitor. ML3403 has potent anti-inflammatory activity in airway smooth muscle.

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	40.45	100.0
Ethanol	20.23	50.0

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.47 mL	12.36 mL	24.72 mL
5 mM	0.49 mL	2.47 mL	4.94 mL
10 mM	0.25 mL	1.24 mL	2.47 mL
50 mM	0.05 mL	0.25 mL	0.49 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. Lü G, Li J, Zhang C, Li L, Bi X, Li C, Fan J, Lu X, Vuitton DA, Wen H, Lin R. Molecular Cloning and Characterization of a P38-Like Mitogen-Activated Protein Kinase from *Echinococcus granulosus*. *Korean J Parasitol*. 2016 Dec;54(6):759-768. doi: 10.3347/kjp.2016.54.6.759. Epub 2016 Dec 31. PMID: 28095661; PMCID: PMC5266364.

2. Munoz L, Ramsay EE, Manetsch M, Ge Q, Peifer C, Laufer S, Ammit AJ. Novel p38 MAPK inhibitor ML3403 has potent anti-inflammatory activity in airway smooth muscle. *Eur J Pharmacol*. 2010 Jun 10;635(1-3):212-8. doi: 10.1016/j.ejphar.2010.02.037. Epub 2010 Mar 9. PMID: 20226180.

In vivo study

1. Koch DA, Silva RB, de Souza AH, Leite CE, Nicoletti NF, Campos MM, Laufer S, Morrone FB. Efficacy and gastrointestinal tolerability of ML3403, a selective inhibitor of p38 MAP kinase and CBS-3595, a dual inhibitor of p38 MAP kinase and phosphodiesterase 4 in CFA-induced arthritis in rats. *Rheumatology (Oxford)*. 2014 Mar;53(3):425-32. doi: 10.1093/rheumatology/ket369. Epub 2013 Nov 15. PMID: 24241037.

2. Ishii K, Hamamoto H, Kamimura M, Nakamura Y, Noda H, Imamura K, Mita K, Sekimizu K. Insect cytokine paralytic peptide (PP) induces cellular and humoral immune responses in the silkworm *Bombyx mori*. *J Biol Chem*. 2010 Sep 10;285(37):28635-42. doi: 10.1074/jbc.M110.138446. Epub 2010 Jul 9. PMID: 20622022; PMCID: PMC2937889.

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7. Bioactivity

Biological target:

ML3403 is a potent p38 MAPK inhibitor with an IC_{50} of 0.38 μ M.

In vitro activity

To test the effects of p38 MAPK inhibitors on *E. granulosus* larvae, this study employed ML3403 and examined the phosphorylation status of Egp38. After treatment with 60 μ M ML3403 for 4 hr, the phospho-Egp38 band nearly disappeared, while the phospho-Egp38 band in the control group, with or without DMSO, was clearly present (Fig. 7B); thus, the p38 MAPK inhibitor effectively blocked Egp38 phosphorylation activity in the parasite.

Reference: Korean J Parasitol. 2016 Dec;54(6):759-768. <https://pubmed.ncbi.nlm.nih.gov/28095661/>

In vivo activity

To investigate the molecular mechanism underlying the up-regulation of host resistance induced by PP, this study performed an oligonucleotide microarray analysis on RNA of blood cells (hemocytes) and fat body tissues of silkworm larvae injected with active PP. Pretreatment of silkworm larvae with ML3403, a pharmacologic p38 MAPK inhibitor, suppressed the PP-dependent induction of cecropin A and moricin genes in the fat body.

Reference: J Biol Chem. 2010 Sep 10;285(37):28635-42. <https://pubmed.ncbi.nlm.nih.gov/20622022/>

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.