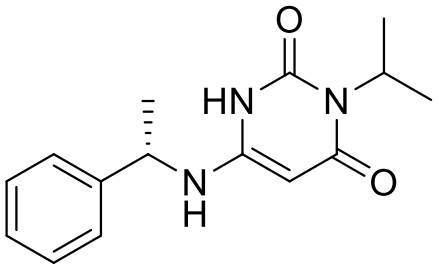
Product data sheet

MedKoo Cat#: 527002 Name: Mavacamten CAS#: 1642288-47-8 Chemical Formula: $C_{15}H_{19}N_3O_2$ Exact Mass: 273.1477 Molecular Weight: 273.336	
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:
Mavacamten, also known as SAR-439152 and MYK-461, is a myosin inhibitor potentially for the treatment of hypertrophic cardiomyopathy. SAR-439152 reduces contractility by decreasing the adenosine triphosphatase activity of the cardiac myosin heavy chain.

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	33.0	120.73
DMF:PBS (pH 7.2) (1:1)	0.5	1.83
DMSO	52.78	193.08
Ethanol	3.0	10.98

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.66 mL	18.29 mL	36.59 mL
5 mM	0.73 mL	3.66 mL	7.32 mL
10 mM	0.37 mL	1.83 mL	3.66 mL
50 mM	0.07 mL	0.37 mL	0.73 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. Sewanan LR, Shen S, Campbell SG. Mavacamten preserves length-dependent contractility and improves diastolic function in human engineered heart tissue. Am J Physiol Heart Circ Physiol. 2021 Mar 1;320(3):H1112-H1123. doi: 10.1152/ajpheart.00325.2020. Epub 2021 Jan 15. PMID: 33449850; PMCID: PMC7988756.
2. Sparrow AJ, Watkins H, Daniels MJ, Redwood C, Robinson P. Mavacamten rescues increased myofilament calcium sensitivity and dysregulation of Ca2+ flux caused by thin filament hypertrophic cardiomyopathy mutations. Am J Physiol Heart Circ Physiol. 2020 Mar 1;318(3):H715-H722. doi: 10.1152/ajpheart.00023.2020. Epub 2020 Feb 21. PMID: 32083971; PMCID: PMC7099453.

In vivo study

1. Stern JA, Markova S, Ueda Y, Kim JB, Pascoe PJ, Evanchik MJ, Green EM, Harris SP. A Small Molecule Inhibitor of Sarcomere Contractility Acutely Relieves Left Ventricular Outflow Tract Obstruction in Feline Hypertrophic Cardiomyopathy. PLoS One. 2016 Dec 14;11(12):e0168407. doi: 10.1371/journal.pone.0168407. PMID: 27973580; PMCID: PMC5156432.

2. Green EM, Wakimoto H, Anderson RL, Evanchik MJ, Gorham JM, Harrison BC, Henze M, Kawas R, Oslob JD, Rodriguez HM, Song Y, Wan W, Leinwand LA, Spudich JA, McDowell RS, Seidman JG, Seidman CE. A small-molecule inhibitor of sarcomere contractility suppresses hypertrophic cardiomyopathy in mice. Science. 2016 Feb 5;351(6273):617-21. doi: 10.1126/science.aad3456. PMID: 26912705; PMCID: PMC4784435.

7. Bioactivity

Biological target:

Mavacamten (MYK461) is an orally active modulator of cardiac myosin, with IC50s of 490, 711 nM for bovine cardiac and human cardiac, respectively.

In vitro activity

TTP (time to peak force) was not significantly affected by 0.33 μM mavacamten treatment but was reduced on average by ~20% by 0.5 μM mavacamten treatment (P = 0.0021) (Fig. 3E). RT50 was reduced on average by ~24% by 0.33 μM mavacamten treatment (P = 0.0002) and was further reduced on average by ~45% by 0.5 μM mavacamten treatment (P = 0.0003) (Fig. 3F). Overall, mavacamten decreased contractility of human engineered heart tissue in a concentration-dependent fashion primarily through decreasing inotropy and increased lusitropy.

Reference: Am J Physiol Heart Circ Physiol. 2021 Mar 1;320(3):H1112-H1123. https://pubmed.ncbi.nlm.nih.gov/33449850/

In vivo activity

Treatment of mouse cardiac myofibrils with MYK-461 reduced ATPase activity in a dose-dependent manner [median inhibitory concentration (IC50) of 0.3 μM] (Fig. 1C). Maximal doses of MYK-461 (>10 μM) reduced the maximal ATPase rate by ~90%.

Reference: Science. 2016 Feb 5;351(6273):617-21. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4784435/

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.