

Product data sheet



MedKoo Cat#: 201480 Name: HMN-176 CAS: 173529-10-7 Chemical Formula: C ₂₀ H ₁₈ N ₂ O ₄ S Exact Mass: 382.09873 Molecular Weight: 382.43		
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:

HMN-176 is an active metabolite of the synthetic antitumor compound HMN-214. HMN-176 shows potent cytotoxicity toward various human tumor cell lines, and in mitotic cells, it causes cell cycle arrest at M phase through the destruction of spindle polar bodies, followed by the induction of DNA fragmentation. However, no direct interactions of HMN-176 with tubulin are observed. Moreover, in animal models, it was observed that oral administration of the prodrug HMN-214 caused no significant nerve toxicity, a severe side effect often associated with microtubule binding agents such as Taxol and VCR.3 In Phase I clinical trials, HMN-214 has caused sensory neuropathy and ileus in some patients. However, the grade and frequency of these adverse effects were much lower than those of typical microtubule binding agents. As expected from the mechanism of action of HMN-214 (induction of G2-M arrest in dividing cells), the main adverse effect was neutropenia. (Source: CANCER RESEARCH 63, 6942Å–6947).

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	53.0	138.59

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.61 mL	13.07 mL	26.15 mL
5 mM	0.52 mL	2.61 mL	5.23 mL
10 mM	0.26 mL	1.31 mL	2.61 mL
50 mM	0.05 mL	0.26 mL	0.52 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. DiMaio MA, Mikhailov A, Rieder CL, Von Hoff DD, Palazzo RE. The small organic compound HMN-176 delays satisfaction of the spindle assembly checkpoint by inhibiting centrosome-dependent microtubule nucleation. Mol Cancer Ther. 2009 Mar;8(3):592-601. doi: 10.1158/1535-7163.MCT-08-0876. Epub 2009 Mar 3. PMID: 19258425; PMCID: PMC2717217.

In vivo study

1. DiMaio MA, Mikhailov A, Rieder CL, Von Hoff DD, Palazzo RE. The small organic compound HMN-176 delays satisfaction of the spindle assembly checkpoint by inhibiting centrosome-dependent microtubule nucleation. Mol Cancer Ther. 2009 Mar;8(3):592-601. doi: 10.1158/1535-7163.MCT-08-0876. Epub 2009 Mar 3. PMID: 19258425; PMCID: PMC2717217.

7. Bioactivity

Biological target:

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HMN-176 is a stilbene derivative which inhibits mitosis, interfering with polo-like kinase-1 (plk1), without significant effect on tubulin polymerization.

In vitro activity

As summarized in Table 1, HMN-176 greatly increased the duration of mitosis in both cell lines. This delay in satisfying the spindle assembly checkpoint (SAC) indicates HMN-176 negatively impacts some aspect of spindle MT assembly and/or behavior.

Reference: Mol Cancer Ther. 2009 Mar;8(3):592-601. <https://pubmed.ncbi.nlm.nih.gov/19258425/>

In vivo activity

However, aster formation, spindle assembly, and polar body extrusion were completely inhibited in HMN-176 treated cells. Together, these data suggest HMN-176 prevents spindle assembly and meiosis in Spisula oocytes by inhibiting centrosome-dependent MT nucleation, i.e., aster formation.

Reference: Mol Cancer Ther. 2009 Mar;8(3):592-601. <https://pubmed.ncbi.nlm.nih.gov/19258425/>

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.