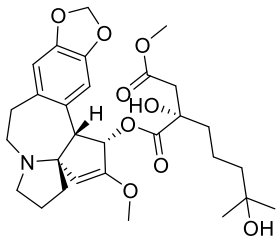
Product data sheet

MedKoo Cat#: 317994 Name: Homoharringtonine CAS#: 26833-87-4 Chemical Formula: $C_{29}H_{39}NO_9$ Exact Mass: 545.26248 Molecular Weight: 545.62	
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:

Homoharringtonine, or Omacetaxine mepesuccinate, is a pharmaceutical drug substance that is indicated for treatment of chronic myeloid leukemia (CML). It is a natural product first discovered in Cephalotaxus harringtonia, now manufactured by hemi-synthesis. It was approved by the US FDA in October 2012 for the treatment of adult patients with CML with resistance and/or intolerance to two or more tyrosine kinase inhibitors (TKIs).

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	50.0	91.62

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.83 mL	9.16 mL	18.33 mL
5 mM	0.37 mL	1.83 mL	3.67 mL
10 mM	0.18 mL	0.92 mL	1.83 mL
50 mM	0.04 mL	0.18 mL	0.37 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. Zhu M, Gong Z, Wu Q, Su Q, Yang T, Yu R, Xu R, Zhang Y. Homoharringtonine suppresses tumor proliferation and migration by regulating EphB4-mediated β-catenin loss in hepatocellular carcinoma. Cell Death Dis. 2020 Aug 14;11(8):632. doi: 10.1038/s41419-020-02902-2. PMID: 32801343; PMCID: PMC7429962.
2. Wang LB, Wang DN, Wu LG, Cao J, Tian JH, Liu R, Ma R, Yu JJ, Wang J, Huang Q, Xiong WY, Zhang X. Homoharringtonine inhibited breast cancer cells growth via miR-18a-3p/AKT/mTOR signaling pathway. Int J Biol Sci. 2021 Mar 2;17(4):995-1009. doi: 10.7150/ijbs.44907. PMID: 33867824; PMCID: PMC8040299.

In vivo study

1. Sun Y, Dai J, Jiao R, Jiang Q, Wang J. Homoharringtonine inhibits fibroblasts proliferation, extracellular matrix production and reduces surgery-induced knee arthrofibrosis via PI3K/AKT/mTOR pathway-mediated apoptosis. J Orthop Surg Res. 2021 Jan 6;16(1):9. doi: 10.1186/s13018-020-02150-2. PMID: 33407698; PMCID: PMC7789651.
2. Wang H, Wang R, Huang D, Li S, Gao B, Kang Z, Tang B, Xie J, Yan F, Liang R, Li H, Yan J. Homoharringtonine Exerts Anti-tumor Effects in Hepatocellular Carcinoma Through Activation of the Hippo Pathway. Front Pharmacol. 2021 Feb 24;12:592071. doi: 10.3389/fphar.2021.592071. PMID: 33716735; PMCID: PMC7943857.

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7. Bioactivity

Biological target:

Homoharringtonine (Omacetaxine mepesuccinate; HHT) is a cytotoxic alkaloid with antitumor properties which acts by inhibiting translation elongation.

In vitro activity

TGF-β stimulation could induce EMT and increase the migration of tumor cells. The study next investigated the effect of HHT (Homoharringtonine) on HCC (hepatocellular carcinoma) cells migration after TGF-β stimulation by transwell migration assay and wound healing assay. As shown in Fig. 4a, c, although the higher number of migration cells was observed in the TGF-β induced HepG2 cells, as compared to controls, the addition of HHT reduced the migrated cells. Importantly, concurrent treatment with HHT and NVP-BHG712 (a small molecule EphB4 kinase-specific inhibitor) had a greater restraint effect on the migration of TGF-β induced HepG2 cells. Wound healing assay showed similar results that HHT could delay the closure of wound gaps in TGF-β induced HepG2 cells, whereas the addition of EphB4 siRNA impaired such effect (Fig. 4b, d). These results indicated that TGF-β induced the migration ability in HepG2 cells, which could be abrogated by EphB4 suppression of HHT.

Reference: Cell Death Dis. 2020 Aug; 11(8): 632. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7429962/

In vivo activity

The results of collagen density in the HHT (Homoharringtonine)-treated groups coincided with hematoxylin and eosin staining. Furthermore, HPC analysis was performed to reflect the amount of collagen in intraarticular fibrosis scar tissue. As shown in Fig. Fig.2d, following treatment of HHT, the HPCs of intraarticular scar tissue were significantly decreased compared to that of the control group. The observed results indicated that HHT could inhibit fibroblast proliferation and collagen production, reducing intraarticular fibrosis after knee surgery in rabbits.

Reference: J Orthop Surg Res. 2021; 16: 9. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7789651/

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.