

Product data sheet



MedKoo Cat#: 318603 Name: Quinine (free base) CAS: 130-95-0 (free base) Chemical Formula: C ₂₀ H ₂₄ N ₂ O ₂ Exact Mass: 324.1838 Molecular Weight: 324.42	
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:

Quinine is a medication used to treat malaria and babesiosis. It is also used to treat lupus and arthritis.

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
Ethanol	1	3.08
DMSO	25	77.06
DMF	30	92.47

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.08	15.41	30.82
5 mM	0.62	3.08	6.16
10 mM	0.31	1.54	3.08
50 mM	0.06	0.31	0.62

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

- Bhatia V, Esmati L, Bhullar RP. Regulation of Ras p21 and RalA GTPases activity by quinine in mammary epithelial cells. *Mol Cell Biochem.* 2023 May 2. doi: 10.1007/s11010-023-04725-z. Epub ahead of print. PMID: 37131040.
- Gendrot M, Andreani J, Boxberger M, Jardot P, Fonta I, Le Bideau M, Dufloy I, Mosnier J, Rolland C, Bogreau H, Hutter S, La Scola B, Pradines B. Antimalarial drugs inhibit the replication of SARS-CoV-2: An in vitro evaluation. *Travel Med Infect Dis.* 2020 Sep-Oct;37:101873. doi: 10.1016/j.tmaid.2020.101873. Epub 2020 Sep 8. PMID: 32916297; PMCID: PMC7477610.

In vivo study

- Jalil ZH, Sahib HB. Antiangiogenic Activity of Quinine Alone and in Combination with vitamin C in both ex vivo and in vivo Assays. *Asian Pac J Cancer Prev.* 2022 Dec 1;23(12):4185-4192. doi: 10.31557/APJCP.2022.23.12.4185. PMID: 36580001; PMCID: PMC9971453
- Khanmohammadi A, Sadighian S, Ramazani A. Anti-plasmodial effects of quinine-loaded magnetic nanocomposite coated with heparin. *Int J Pharm.* 2022 Nov 25;628:122260. doi: 10.1016/j.ijpharm.2022.122260. Epub 2022 Oct 12. PMID: 36241033.

7. Bioactivity

Biological target:

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Quinine interferes with Plasmodium falciparum's ability to dissolve and metabolize hemoglobin. The precise mechanism of action of quinine is not fully understood. Quinine may target the malaria purine nucleoside phosphorylase enzyme.

In vitro activity

Quinine can act as an agonist to activate the family of bitter taste G protein-coupled receptor family of proteins. Using normal mammary epithelial (MCF-10A) and non-invasive mammary epithelial (MCF-7) cell lines, this study investigated the effect of quinine in regulating Ras p21 and RalA activity. Although RalGDS was detected in MCF-10A and MCF-7 cells, it did not result in RalA activation upon Ras p21 activation with quinine. This suggests that the Ras p21-RalGDS-RalA pathway is not active in the MCF-10A cells.

Reference: Mol Cell Biochem. 2023 May 2. <https://pubmed.ncbi.nlm.nih.gov/37131040/>

In vivo activity

Quinine is an anti-malarial agent belongs to the quinoline alkaloid that can inhibit angiogenesis. Vitamin C is also an important antioxidant and has been shown to reduce angiogenesis in tumor. 12 to 14 week old male albino rats were used for the study. The findings suggest that the activity of quinine with vitamin C synergism can greatly lower blood vessels growth in rat aorta rings and CAM assays. Quinine has an inhibitory effect on tumor growth and can be used alone or in combination with vitamin C.

References: Asian Pac J Cancer Prev. 2022 Dec 1;23(12):4185-4192. <https://pubmed.ncbi.nlm.nih.gov/36580001/>

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.