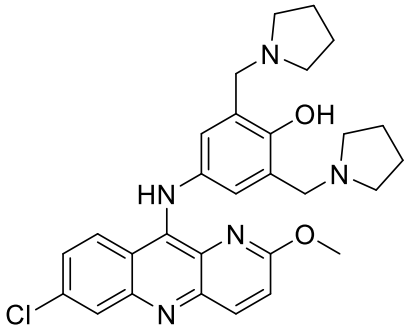
Product data sheet

MedKoo Cat#: 319915 Name: Pyronaridine CAS#: 74847-35-1 Chemical Formula: $C_{29}H_{32}ClN_5O_2$ Exact Mass: 517.2245 Molecular Weight: 518.06	
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:
Pyronaridine, also known as Malaridine, is an antimalarial drug. It was first synthesized in 1970 and has been in clinical use in China since the 1980s. Pyronaridine is a promising agent against erythrocytic stage of malaria parasites. It exhibited low toxicity and had no cross-resistance to chloroquine.

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
To be determined	To be determined	To be determined

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.93 mL	9.65 mL	19.30 mL
5 mM	0.39 mL	1.93 mL	3.86 mL
10 mM	0.19 mL	0.97 mL	1.93 mL
50 mM	0.04 mL	0.19 mL	0.39 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. Kang DW, Kim KM, Kim JH, Cho HY. Application of Minimal Physiologically-Based Pharmacokinetic Model to Simulate Lung and Trachea Exposure of Pyronaridine and Artesunate in Hamsters. Pharmaceutics. 2023 Mar 3;15(3):838. doi: 10.3390/pharmaceutics15030838. PMID: 36986698; PMCID: PMC10058671.
2. Puhl AC, Fritch EJ, Lane TR, Tse LV, Yount BL, Sacramento CQ, Fintelman-Rodrigues N, Tavella TA, Maranhão Costa FT, Weston S, Logue J, Frieman M, Premkumar L, Pearce KH, Hurst BL, Andrade CH, Levi JA, Johnson NJ, Kisthardt SC, Scholle F, Souza TML, Moorman NJ, Baric RS, Madrid PB, Ekins S. Repurposing the Ebola and Marburg Virus Inhibitors Tilorone, Quinacrine, and Pyronaridine: In Vitro Activity against SARS-CoV-2 and Potential Mechanisms. ACS Omega. 2021 Mar 10;6(11):7454-7468. doi: 10.1021/acsomega.0c05996. PMID: 33778258; PMCID: PMC7992063.

In vivo study

1. Puhl AC, Gomes GF, Damasceno S, Godoy AS, Noske GD, Nakamura AM, Gawriljuk VO, Fernandes RS, Monakhova N, Riabova O, Lane TR, Makarov V, Veras FP, Batah SS, Fabro AT, Oliva G, Cunha FQ, Alves-Filho JC, Cunha TM, Ekins S. Pyronaridine Protects against SARS-CoV-2 Infection in Mouse. ACS Infect Dis. 2022 Jun 10;8(6):1147-1160. doi: 10.1021/acsinfecdis.2c00091. Epub 2022 May 24. PMID: 35609344.

2. Lane TR, Massey C, Comer JE, Freiberg AN, Zhou H, Dyall J, Holbrook MR, Anantpadma M, Davey RA, Madrid PB, Ekins S. Pyronaridine tetraphosphate efficacy against Ebola virus infection in guinea pig. Antiviral Res. 2020 Sep;181:104863. doi: 10.1016/j.antiviral.2020.104863. Epub 2020 Jul 16. PMID: 32682926; PMCID: PMC8194506.

7. Bioactivity

Biological target:

Pyronaridine is active against P. falciparum and Echinococcus granulosus infection. At equivalent molar concentrations, both the salt and free forms of a compound exhibit comparable biological activity.

In vitro activity

This study established pyronaridine's pharmacokinetic profile and tissue distribution in the context of repurposing it for COVID-19 treatment. The researchers assessed the concentration levels of pyronaridine in various tissues, including the lung and trachea. Pyronaridine was distributed to the lung and trachea with the lung-to-blood and trachea-to-blood concentration ratios of 25.83 and 12.41 at the steady state, respectively.

Reference: Pharmaceutics. 2023 Mar 3;15(3):838. https://pubmed.ncbi.nlm.nih.gov/36986698/

In vivo activity

Pyronaridine is a potential therapeutic candidate for COVID-19. In a K18-hACE transgenic mouse model of COVID-19, pyronaridine treatment demonstrated a statistically significant reduction of viral load in the lungs of SARS-CoV-2-infected mice, reducing lung pathology, which was also associated with significant reduction in the levels of pro-inflammatory cytokines/chemokine and cell infiltration.

Reference: ACS Infect Dis. 2022 Jun 10;8(6):1147-1160. https://pubmed.ncbi.nlm.nih.gov/35609344/

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.