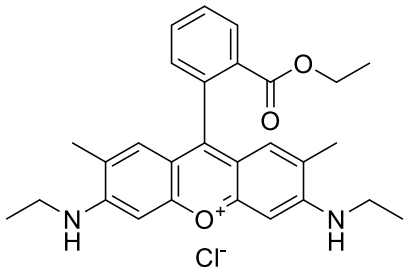
Product data sheet

MedKoo Cat#: 561580 Name: Rhodamine 6G CAS#: 989-38-8 Chemical Formula: $C_{28}H_{31}ClN_2O_3$ Molecular Weight: 479.01	
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:
Rhodamine 6G is a Rhodamine analog used in Pgp efflux assays and characterizing the kinetics of MRP1-mediated efflux. It is also utilized as a laser dye and potential mitochondrial probe.

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	25	52.19
Water	10	20.88

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.09 mL	10.44 mL	20.88 mL
5 mM	0.42 mL	2.09 mL	4.18 mL
10 mM	0.21 mL	1.04 mL	2.09 mL
50 mM	0.04 mL	0.21 mL	0.42 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. Magut PK, Das S, Fernand VE, Losso J, McDonough K, Naylor BM, Aggarwal S, Warner IM. Tunable cytotoxicity of rhodamine 6G via anion variations. J Am Chem Soc. 2013 Oct 23;135(42):15873-9. doi: 10.1021/ja407164w. Epub 2013 Oct 8. PMID: 24059469; PMCID: PMC4197813.
2. Trounce I, Wallace DC. Production of transmitochondrial mouse cell lines by cybrid rescue of rhodamine-6G pre-treated L-cells. Somat Cell Mol Genet. 1996 Jan;22(1):81-5. doi: 10.1007/BF02374379. PMID: 8643997.

In vivo study

1. Kutushov M, Gorelik O. Low concentrations of Rhodamine-6G selectively destroy tumor cells and improve survival of melanoma transplanted mice. Neoplasma. 2013;60(3):262-73. doi: 10.4149/neo_2013_035. PMID: 23373995.
2. Li C, Feng X, Yang S, Xu H, Yin X, Yu Y. Capture, Detection, and Simultaneous Identification of Rare Circulating Tumor Cells Based on a Rhodamine 6G-Loaded Metal-Organic Framework. ACS Appl Mater Interfaces. 2021 Oct 28. doi: 10.1021/acsami.1c15838. Epub ahead of print. PMID: 34709779.

7. Bioactivity
Biological target:

Rhodamine-6G is a fluorescent dye binding to mitochondria, thus reducing the intact mitochondria number and inhibiting mitochondrial metabolic activity.

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In vitro activity

Rhodamine-6G pre-treatment of LMTK cells permits the construction of transmitochondrial cybrid cell lines carrying a variety of mtDNAs, without the need for rho 0 cell lines.

Reference: Somat Cell Mol Genet. 1996 Jan;22(1):81-5. https://pubmed.ncbi.nlm.nih.gov/8643997/

In vivo activity

This study concludes that malignant, but not normal, cells are selectively destroyed by low doses of Rhodamine-6G. They suggest that selective anti-tumor properties of Rhodamine-6G are based on unique physiologic differences in energy metabolism between malignant and normal cells. It is possible that low concentrations of Rhodamine-6G might be useful for replacing, or backing up, more aggressive nonselective chemotherapeutic compounds.

Reference: Neoplasma. 2013;60(3):262-73. https://pubmed.ncbi.nlm.nih.gov/23373995/