3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

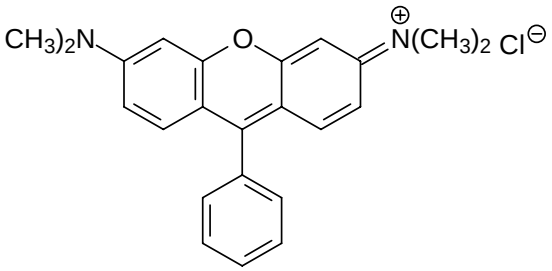
ProductInformation

Tetramethylrosamine Chloride

Product Number **T 1823**
Store at Room Temperature

CAS No. 6837-70-3
Synonym: 3,6-bis(Dimethylamino)-9-phenylxanthylium chloride;TMR

Product Description
Molecular formula: $C_{23}H_{23}N_2OCl$
Mol. wt.: 378.9



Tetramethylrosamine chloride is a fluorescent dye taken up by functioning mitochondria and is retained as long as the organelle membrane remains intact. Fluorescence emission is at 574 nm with exitation at 550 nm, although excitation at 485 nm with emission at 640 has also been used.[1,2] The fluorescence of tetramethylrosamine contrasts well with that of fluorescein (Ex. = 494 nm, Em. = 514 nm) for multicolor applications.

TMR is the oxidation product of the action of the horseradish peroxidase reaction with dihydrotetramethylrosamine.[1] It was also used to measure cellular and mitochondrial levels of reduced glutathione.[9.5] The activities of PABC11, a member of the ATP-binding cassette protein family, and P-glycoprotein-mediated exclusion in multi-drug resistant cells have been studied using TMR.[2,4]

Preparation Instructions
Prepare stock solutions in DMSO or DMF. Protect from light.

Storage/Stability
Store at room temperature. Protect from light.

References
1. Whitaker, J. E., et al., Dihydrotetramethylrosamine: a long wavelength, fluorogenic peroxidase substrate evaluated in vitro and in a model phagocyte. Biochem. Biophys. Res. Commun., **175,** 387-393 (1991).
2. McAleer, M. A., et al., pABC11 (also known as MOAT-C and MRP5), a member of the ABC family of proteins, has anion transporter activity but does not confer multidrug resistance when overexpressed in human embryonic kidney 293 cells. J. Biol. Chem. **274,** 23541-23548(1999).
3. West, J. A. A., et al., Heterogeneity of clara cell glutathione. A possible basis for differences in cellular responses to pulmonary cytotoxicants. Am. J. Respir. Cell Mol. Biol., **23,** 27-36 (2000).
4. Eytan, G. D., et al., Efficiency of P-glycoprotein-mediated exclusion of rhodamine dyes from multidrug-resistant cells is determined by their passive transmembrane movement rate. Eur. J. Biochem., **248,** 104-12, (1997).

JWM 03/03