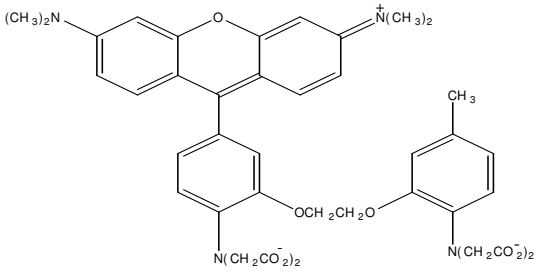
Rhod-2 (tripotassium salt)

1-[2-Amino-5-(3-dimethylamino-6-dimethylammonio-9-xanthenyl)phenoxy]-2-(2-amino-5-methylphenoxy)ethane-N,N,N',N'-tetraacetic acid; tripotassium salt

PromoKine

Instruction Manual

Catalog Number	PK-CA707-50021
Description	Rhod-2 has the longest fluorescent wavelength signal of all the calcium indicators. It has a rhodamine-like fluorophore whose excitation and emission maxima are 552 nm and 576 nm, respectively. This makes it a convenient excitation source for argon and krypton lasers. Although it was thought that the fluorescent signal of Rhod-2 only increases several times with the calcium complex, Rhod-2 increases its signal with calcium 80-100 times because of its high purity. Its signal intensity is the strongest of all the calcium probes. Rhod-2 is thus highly recommended as a probe for intracellular calcium monitoring using laser microscopes. Rhod-2 is reported to have a better loading profile at the point of localization, especially in neural slice cultures. The dissociation constant of Rhod-2 with calcium (Kd=1.0 mM) is the highest of all the fluorescent calcium probes, providing a wider range for monitoring calcium concentration. Rhod-2 is similar to Fluo-3 in that the excitation and emission spectra do not undergo a shift and the sensor is essentially nonfluorescent before Ca^{2+} binding but becomes more fluorescent with increasing Ca^{2+} concentration. The absorption and emission maxima of Rhod-2, however, are longer than those of Fluo-3. The longer absorption and emission wavelengths of Rhod-2 may make it useful for some applications where autofluorescence is a problem, or where another fluorescent dye of shorter wavelengths is used at the same time. The fluorescent enhancement for Rhod-2 from low $[Ca^{2+}]$ to high $[Ca^{2+}]$ was smaller than that for Fluo-3, and also in general Rhod-2 is somewhat less fluorescent than Fluo-3. Rhod-2 salt forms are membrane-impermeant but can be loaded into cells via microinjection or scrape loading. PromoKine offers A-23187 (PK-CA707-59001), an ionophore that is commonly used for intracellular calibration of calcium indicators. PromoKine also offers EDC (PK-CA707-59002, also known as EDAC), which can be used to fix calcium indicators in cells, if post histochemical studies are desired following physiological experiments.
Quantity	1 mg
Excitation / Emission Maxima	λex\λem (DNA) = 552/576 nm (low or high $[Ca^{2+}]$); Extinction Coefficient: 96,000 $M^{-1}cm^{-1}$ (552 nm)
Molecular Structure	
Molecular Weight / Molecular Formula	869 Da; $C_{40}H_{39}K_3N_4O_{11}$
Purity	>90% (as determined by HPLC)
Appearance / Formulation / Solubility	Orange-red solid; soluble in DMSO or water (pH >6).
Storage & Stability	Stored desiccated at 4°C upon receipt. Protect from light, especially when in solution.
Applications	Fluorescent calcium indicator; for use in intracellular calcium signaling assays
References	1) Vergara, J., et al. Biophys. J. 59, 12(1991) 2) Parker, I., et al. Science 250, 977(1990) 3) Minta, A., et al. J. Biol. Chem. 264, 8171(1989)
Caution	Potentially harmful. Avoid prolonged or repeated exposure. Avoid getting in eyes, on skin, or on clothing. Wash thoroughly after handling. If eye or skin contact occurs, wash affected areas with plenty of water for 15 minutes and seek medical advice. In case of inhaling or swallowing, move individual to fresh air and seek medical advice immediately.

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