

Fluo-3 (pentaammonium salt)

1-[2-Amino-5-(2,7-dichloro-6-hydroxy-3-oxo-9-xanthenyl)phenoxy]
-2-(2-amino-5-methylphenoxy)ethane-N,N,N',N'-tetraacetic acid, pentaammonium salt

Instruction Manual

Catalog Number	PK-CA707-50010
Description	Fluo-3 is a long wavelength calcium probe having its absorption maximum at 506 nm, thus making it excitable by the argon-ion laser. Unlike Fura-2 and Indo-1, neither the excitation nor the emission maximum of the sensor shifts significantly before and after Ca ²⁺ binding. As a result, the ratioing technique is not applicable to Fluo-3. Fluo-3 is essentially nonfluorescent without Ca ²⁺ present, but the fluorescence increases at least 40 times on Ca ²⁺ binding. Also, because Fluo-3 binds Ca ²⁺ more weakly (higher K _d ; ~450 nM) than do Fura-2 and Indo-1, it is more useful for measuring high transient Ca ²⁺ concentration during Ca ²⁺ spikes. The long wavelength of the fluorescent signal is also convenient for minimizing photodamage to sample cells. Fluo-3 is also useful for caged calcium and others that are cleaved by the photo-irradiation in the UV region. Fluo-3 Pentaammonium Salt is membrane-impermeant but can be loaded into cells via microinjection or scrape loading.
Quantity	1 mg
Excitation / Emission Maxima	$\lambda_{ex}/\lambda_{em}$ (DNA) = 506/526 nm (low or high [Ca ²⁺]) Extinction coefficient: 80,000 M ⁻¹ cm ⁻¹ (506 nm)
Molecular Structure	
Molecular Weight / Molecular Formula	854.7 Da; C ₃₆ H ₄₅ Cl ₂ N ₇ O ₁₃
Purity	>95% (as determined by TLC)
Appearance / Formulation / Solubility	Orange red solid; soluble in DMSO or water (pH>6).
Storage & Stability	Store desiccated at 4°C upon receipt. Protect from light, especially in solution.
Applications	Fluorescent calcium indicator; for use in intracellular calcium signaling assays
References	1) Zucker, R.S., et al. Cell Calcium. 13, 29(1992) 2) Merritt, J.E., et al. Biochem. J. 269, 513(1990) 3) Lattanzio, F.A., et al. Biochem. Biophys. Res. Comm. 171, 102(1990); 4) Jaffe, L. et al. Proc. Natl. Acad. Sci. USA 88, 9883(1991) 5) Minta, A., et al. J. Biol. Chem. 264, 8171(1989) 6) Kao, J.P.Y., et al. J. Biol. Chem. 264, 8179(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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