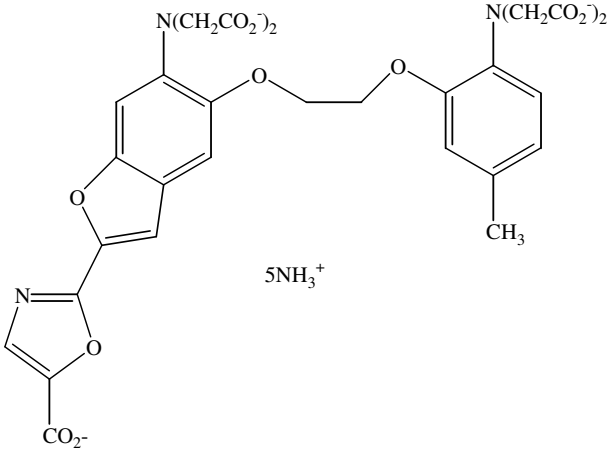


Fura-2 (pentaammonium salt)

1-[6-Amino-2-(5-carboxy-2-oxazolyl)-5-benzofuranyloxy]-2-(2'-amino-5'-methylphenoxy)-ethane-N,N,N',N'-tetraacetic acid; pentaammonium salt

Instruction Manual

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| Catalog Number | PK-CA707-50030 |
| Description | Fura-2 is a widely used UV-excitable fluorescent calcium indicator developed by professor Roger Tsien. It has been used in many cellular systems and applications particularly in microscopic imaging. Upon calcium binding, the fluorescent excitation maximum of the indicator undergoes a blue shift from 363 nm (Ca ²⁺ -free) to 335 nm (Ca ²⁺ -saturated), while the fluorescence emission maximum is relatively unchanged at 510 nm. The indicator is typically excited at 340 nm and 380 nm respectively and the ratio of the fluorescent intensities corresponding to the two excitations is used in calculating the intracellular concentrations. Measurement of calcium concentration using this ratioing method avoids interference due to uneven dye distribution and photobleaching. Fura-2 ammonium, potassium, or sodium salt is membrane-impermeant but can be loaded into cells via microinjection or scrape loading. |
| Quantity | 1 mg |
| Excitation / Emission Maxima | $\lambda_{ex}/\lambda_{em} = 363/512$ nm (no Ca ²⁺); $\lambda_{ex}/\lambda_{em} = 335/505$ nm (high Ca ²⁺); Extinction Coefficient: 27,000 M ⁻¹ cm ⁻¹ (363 nm, no Ca ²⁺); 35,000 M ⁻¹ cm ⁻¹ (high Ca ²⁺) |
| Molecular Structure |  <p>Chemical structure of Fura-2 pentaammonium salt. The structure shows a benzofuran ring system with a 5-carboxy-2-oxazolyl group at the 6-position and a 2-(2'-amino-5'-methylphenoxy)ethyl group at the 3-position. The 2'-amino group is shown as N(CH₂CO₂⁻)₂. The 5'-methyl group is shown as CH₃. The overall structure is associated with 5NH₃⁺ counterions.</p> |
| Molecular Weight / Molecular Formula | 721 Da; C ₂₉ H ₃₇ N ₈ O ₁₄ |
| Purity | >95% (as determined by HPLC) |
| Appearance / Formulation / Solubility | Light yellow solid; soluble in water or DMSO. |
| Storage & Stability | Stored at ≤4°C upon receipt. Protect from light, especially when in solution. |
| Intended Use | For in vitro research use only. Not for diagnostic or therapeutic procedures. |
| Applications | Fluorescent calcium indicator <p>The K_d for Fura-2 was reported to be 224 nM in cell-free media. However, the K_d is usually affected by a number of factors in cells including pH, proteins concentrations, ionic strength, temperature and viscosity. Thus, calibration of the K_d is necessary for accurate measurement of intracellular calcium concentrations. For details on calibration, we recommend that you consult the references listed at the end of this document (See refs 2-8). PromoKine offers A-23187 (PK-CA707-59001), an ionophore that is commonly used for intracellular calibration of calcium indicators.</p> <p>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.</p> |

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| References | <p>1) J. Biol. Chem. 260, 3440(1985) 2) Bright, G.R., et al, in Fluorescence Microscopy of Living Cells in Culture, Part B, (Methods in Cell Biology, Vol. 30), Academic Press (1989) p. 157 3) Am. J. Physiol. 261, C1107(1991) 4) Biophys. J. 54, 1089(1988) 5) Biochem. Biophys. Res. Comm. 177, 184(1991) 6) Cell Calcium 11, 85(1990) 7) Cell Calcium 12, 279(1991) 8) Neuropharmacol. 34, 1423(1995)</p> |
| Caution | <p>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.</p> |

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