

PRODUCT INFORMATION



Fura-FF AM

Item No. 20416

CAS Registry No.: 348079-12-9
Formal Name: 2-[6-[bis[2-[(acetyloxy)methoxy]-2-oxoethyl]amino]-5-[2-[6-[bis[2-[(acetyloxy)methoxy]-2-oxoethyl]amino]-2,3-difluorophenoxy]ethoxy]-2-benzofuranyl]-5-oxazolecarboxylic acid(acetyloxy)methyl ester

Synonym: Fura-FF Acetoxymethyl ester

MF: C₄₃H₄₃F₂N₃O₂₄

FW: 1,023.8

Purity: ≥90%

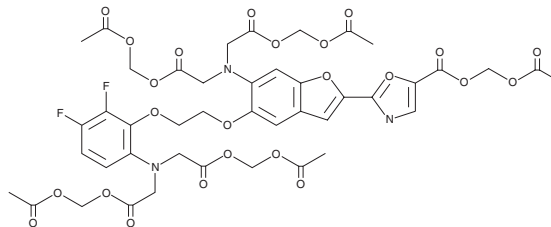
Supplied as: A solid

Storage: -20°C

Stability: ≥4 years

Special Conditions: Protect from light

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.



Laboratory Procedures

Fura-FF AM is supplied as a solid. A stock solution may be made by dissolving the fura-FF AM in the solvent of choice, which should be purged with an inert gas. Fura-FF AM is soluble in DMSO.

Description

Fura-FF AM is a cell-permeable acetoxymethyl ester of the fluorescence calcium indicator fura-FF (potassium salt) (Item No. 20415). As fura-FF AM enters cells, it is hydrolyzed by intracellular esterases to produce fura-FF. Fura-FF is a difluorinated derivative of the calcium indicator fura-2 (Item Nos. 19531 | 20414). Unlike, fura-2, fura-FF has negligible magnesium sensitivity, thus reducing interference from this cation.¹ Fura-FF also has a higher calcium dissociation constant than fura-2 ($K_d(\text{calcium}) = 6$ and $0.14 \mu\text{M}$, respectively).^{1,2} However, the spectral properties of fura-FF and fura-2 are similar with fura-FF displaying excitation/emission spectra of 365/514 nm in the absence of calcium, with a shift to 339/507 nm in the presence of a high calcium concentration.³ Low affinity calcium dyes, including fura-FF, are preferred for studying compartments with high concentrations of calcium, such as mitochondria, or in cell systems that have relatively low calcium buffering capacities, such as neuronal dendrites and spines.⁴⁻⁶

References

1. Hyrc, K.L., Bownik, J.M., and Goldberg, M.P. Ionic selectivity of low-affinity ratiometric calcium indicators: mag-Fura-2, Fura-2FF and BTC. *Cell Calcium* **27(2)**, 75-86 (2000).
2. Grynkiewicz, G., Poenie, M., and Tsien, R.Y. A new generation of Ca²⁺ indicators with greatly improved fluorescence properties. *J. Biol. Chem.* **260(6)**, 3440-3450 (1985).
3. Ruggiu, A.A., Bannwarth, M., and Johnsson, K. Fura-2FF-based calcium indicator for protein labeling. *Org. Biomol. Chem.* **8(15)**, 3398-3401 (2010).
4. Aponte, Y., Bischofberger, J., and Jonas, P. Efficient Ca²⁺ buffering in fast-spiking basket cells of rat hippocampus. *J. Physiol.* **586(8)**, 2061-2075 (2008).
5. Canepari, M., Vogt, K., and Zecevic, D., Combining voltage and calcium imaging from neuronal dendrites. *Cell. Mol. Neurobiol.* **28(8)**, 1079-1093 (2008).
6. Marcu, R., Neely, C. K., Karamanlidis, G., et al. Multi-parameter measurement of the permeability transition pore opening in isolated mouse heart mitochondria. *J. Vis. Exp.* **67**, (2012).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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