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Fluo-4 AM, green fluorescent calcium indicator

http://www.lumiprobe.com/p/fluo-4-am

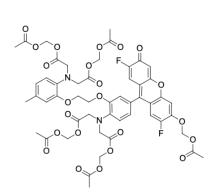
Fluo-4 AM is a cell-permeable Ca²⁺-indicator that is metabolized by intracellular esterase, leading to a bright green fluorescent signal upon Ca^{2+} -binding (excitation/emission λ at 494/506 nm). Fluo-4 AM is used for visualization and measurement of intracellular Ca2+. It is well suited for fluorometric and imaging applications such as microscopy, flow cytometry, spectrofluorometry, and fluorometric high-throughput microplate screening assays [1].

Fluo-4 AM is similar in structure and spectral properties to the widely used Ca²⁺-indicator, Fluo-3, but it has certain advantages over Fluo-3, such as brighter fluorescence emission, high rate of cell permeation, and a K_d for Ca²⁺ in buffer of 345 nM. Because of its higher fluorescence emission intensity, Fluo-4 AM can be used at lower intracellular concentrations, making its use less toxic for live cells.

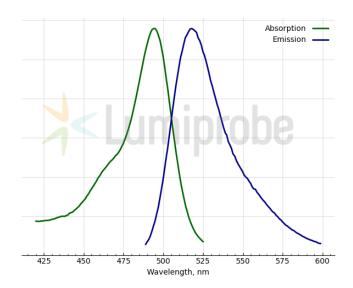
As Fluo-4 AM does not covalently bind to cellular components, it may be actively effluxed from the cell by organic anion transporters. In vivo cell imaging with Fluo-4 AM is usually performed within one or two hours after loading, but the dye can be re-loaded to cells if it is needed. Fluo-4 AM can also be fixed in situ by EDC/EDAC for downstream immunofluorescence studies.

Fluo-4 AM has low solubility in the water. It is recommended to prepare 1 mM stock solution in labeling grade DMSO prior to cell loading. Use the final concentration of 1-5 µM and incubation at 37 °C for 15-60 min as a start point of your protocol.

[1] Gee K.R. et al. Chemical and physiological characterization of fluo-4 Ca(2+)-indicator dyes. Cell Calcium. 2000. 27(2). 97-106.



Structure of Fluo-4 AM



Absorption and emission spectra of Fluo-4 AM (calcium-bound form)

General properties

Appearance: orange-red powder Molecular weight: 1096.95 CAS number: 273221-67-3 Molecular formula: $C_{51}H_{50}F_2N_2O_{23}$

 $N-\{4-\{6-\{(Acetyloxy)methoxy\}-2,7-difluoro-3-oxo-3H-xanthen-9-yl\}-2-\{2-\{12-\{bis\{2-\{(acetyloxy)methoxy\}-2-oxoethyl\}amino\}-5-methylphenoxy\}ethoxy]phenyl\}-N-\{2-\{(acetyloxy)methoxy\}-2-oxoethyl\}glycine and the properties of the prop$ IUPAC name

Solubility:

good in DMSO

Quality control: NMR ¹H and HPLC-MS (95+%)

24 months after receival at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate. Storage conditions:

This Product is offered and sold for research purposes only. It has not been tested for safety and efficacy in food, drug, medical device, cosmetic, commercial or any other use. Supply does not express Legal statement: or imply authorization to use for any other purpose, including, without limitation, in vitro diagnostic purposes, in the manufacture of food or pharmaceutical products, in medical devices or in cosmetic

Spectral properties

Excitation/absorption 494 maximum, nm Emission maximum, 518