



**SIGMA-ALDRICH**

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## Product Information

### Fluo 3-AM

Product Number **F6142**

Storage Temperature -0 °C

#### Product Description

Molecular Formula:  $C_{51}H_{50}Cl_2N_2O_{23}$

Molecular Weight: 1129.9

CAS Number: 121714-22-5

Excitation  $\lambda = 506$  nm (complexed with  $Ca^{2+}$ )

Emission  $\lambda = 526$  nm (complexed with  $Ca^{2+}$ )

This product is a cell permeable fluorescent indicator of intracellular  $Ca^{2+}$  levels. It crosses the cell membrane due to its AM ester structure. Esterases in the cell then hydrolyze the AM ester to yield Fluo-3. This compound is non-fluorescent until associated with  $Ca^{2+}$ .<sup>1</sup> The lower binding affinity of this compound allows measurement of higher peaks of  $Ca^{2+}$  transients than with Fura 2 (Product No. F 0888). It has been used to detect photochemically generated cytosolic calcium pulses.<sup>1</sup> It is often used as a fluorescent indicator for cytosolic  $Ca^{2+}$  based on rhodamine and fluorescein chromophores.<sup>2</sup> Detailed procedures for the use of this product for measuring cytosolic  $Ca^{2+}$  in platelets and neutrophils in the presence of plasma has been reported.<sup>3</sup> This product can also be used for controlled studies of mitochondrial matrix calcium levels.<sup>4</sup>

#### Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

#### Preparation Instructions

This product is soluble in DMSO (10 mg/ml).

#### Storage/Stability

It is recommended to store the product at -20 °C or colder. It tends to undergo hydrolysis, especially in aqueous solutions. Decomposition will lead to loss of the ability to load cells. A stock solution in dry DMSO should be used within a few days to avoid decomposition. When the product is dissolved in an aqueous buffer at a concentration of about 1  $\mu$ M and incubated with cells at 37 °C for approximately 30 minutes to one hour, the product should still be stable. However, in general, aqueous solutions tend to hydrolyze with time and to a greater extent with the application of heat.

#### References

1. Kao, J. P., et al., Detection of Photochemically Generated Calcium Pulses and Their Detection by Fluo-3. *J. Biol. Chem.*, **264(14)**, 8179-8184 (1989).
2. Minta, A., et al., Fluorescent Indicators for Cytosolic Calcium Based on Rhodamine and Fluorescein Chromophores. *J. Biol. Chem.*, **264(14)**, 8171-8178 (1989).
3. Merritt, J. E., et al., Use of Fluo-3 to Measure Cytosolic  $Ca^{2+}$  in Platelets and Neutrophils: Loading Cells with the Dye, Calibration of Traces, Measurements in the Presence of Plasma, and Buffering of Cytosolic  $Ca^{2+}$ . *Biochem. J.*, **269(2)**, 513-519 (1990).
4. Saavedra-Molina, A., et al., Control of Mitochondrial Matrix Calcium: Studies Using Fluo-3 as a Fluorescent Calcium Indicator. *Biochem. Biophys. Res. Commun.*, **167(1)**, 148-153 (1990).

CMH/RXR 5/06

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