Fura-2, Pentasodium Salt

Fura-2, pentasodium salt is a membrane-impermeant ratiometric calcium indicator. It can be loaded into cells via microinjection or scrape loading.

Product attributes

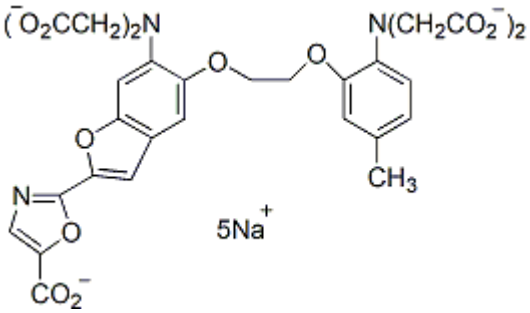
CAS number	96314-98-6
Cell permeability	Membrane impermeant
Indicator type	Ratiometric
Excitation/Emission	363/512 nm (no Ca2+); 335/505 nm (high Ca2+)

Product Description

Fura-2, pentasodium salt is a ratiometric fluorescent dye that binds to free intracellular calcium. It is membrane-impermeant and may be loaded into cells via microinjection or scrape loading.

Fura-2 fluorescence can be detected using flow cytometry, fluorescence microscopy, or certain fluoresence microplate readers. 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. A major use of Fura-2 is in drug discovery, for measuring intracellular calcium mobilization after activation of G protein-coupled receptors (GPCRs) and calcium channels.

- Light yellow solid soluble in DMSO
- Store at 4°C and protect from light, especially in solution
- K_d: 145 nM (22°C in pH 7.2 buffer)
- $\lambda_{Ex}/\lambda_{Em}$ (no Ca^{2+}) = 363/512 nm; $\lambda_{Ex}/\lambda_{Em}$ (high Ca^{2+}) = 335/505 nm
- ε (363 nm, no Ca^{2+}) = 27,000 $M^{-1}cm^{-1}$; ε (335 nm, high Ca^{2+}) = 35,000 $M^{-1}cm^{-1}$
- $C_{29}H_{22}N_3Na_5O_{14}$
- MW: 752
- [96314-98-6]



BAPTA-based ion indicators like Fura-2 have been shown to be fixable in situ by EDC/EDAC (cat# 59002) . The fixation of indicator dyes is useful for downstream immunofluorescence and IHC studies (Cell Calcium 1997, 21(3), 175).

As the indicator does not covalently bind to cellular components, it may be actively effluxed from the cell by organic anion transporters. The rate of efflux increases with temperature, and may vary between cell types, resulting in variable retention times of a few minutes to hours. Experiments using indicators in cells usually are performed within one or two hours of loading, but it may be possible to re-load cells with indicator if needed. The organic anion transporter inhibitor Probenecid (#50027) can be used to slow the rate of indicator efflux from cells.

Fura-2 Products

Product	Unit Size	Catalog Number
Fura-2, pentaammonium salt	1 mg	50030
Fura-2, pentapotassium salt	1 mg	50031
Fura-2, pentasodium salt	1 mg	50032
Fura-2, AM ester	10 x 100 ug	50033
20 x 50 ug	50033-1	
1 mg	50034	
Fura-2, AM ester, 1 mM solution	1 mL	50029

References

1. Science 248, 73 (1990), DOI: 10.1126/science.2321027
2. Methods Cell Biol, 99, 113, (2021), DOI: 10.1016/B978-0-12-374841-6.00005-0