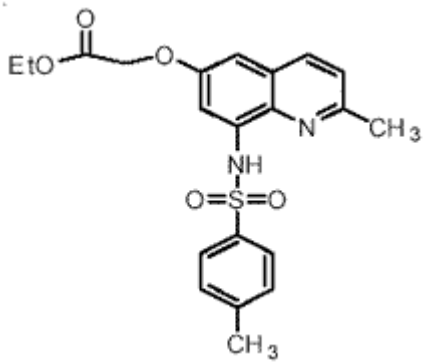
FT-T3329A

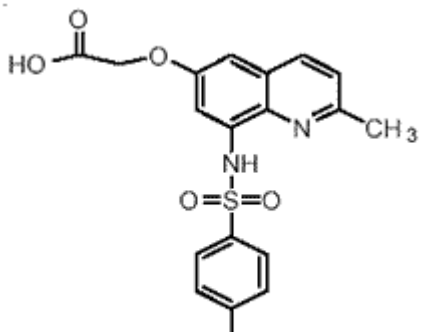
Zinquin ethyl ester

Products Description

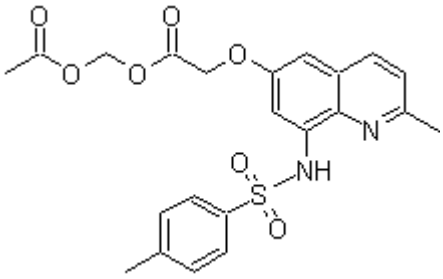
A lipophilic, zinc-sensitive, cell-permeable fluorescent probe.



Name :	**Zinquin Ethyl Ester**
Catalog Number :	FP-T3329A, 5 mg
Molecular Weight :	414.48
Solubility:	In DMSO
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ (in MeOH) = 364/485nm
	$\lambda_{exc}\backslash\lambda_{em}$ (hydrolyzed) = 368 / 490 nm
EC (M^{-1} cm^{-1}) **:**	4 400
Storage:	-20°C (M) . Protect from light and moisture



Name :	**Zinquin free acid**
Catalog Number :	FP-AM291A, 5 mg
Molecular Weight :	386.43
Solubility:	In DMSO
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ = 368 / 490 nm
Storage:	+4°C (K) . Protect from light and moisture



Name :	**Zinquin AM ester**
Catalog Number :	FP-ZE7910, 1 mg
Molecular Weight :	458.48
Solubility:	In DMSO
Absorption / Emission :	$\lambda_{exc}\backslash\lambda_{em}$ = 344 / 385 nm
Storage:	+4°C (K) . Protect from light and moisture

Introduction

Zinc detection is needed in studies like ecology, toxicology , neurology, enzyme activity, metal ion transport/ through ion channels. Fluorescent probes for Zn^{2+} simply overcomes conventional methods (like spectrometry, chromatography) in many applications, including Zn^{2+} assay in complex samples, Zn^{2+} concentration inside cells. Zn^{2+} interferes also with many other ions probes (i.e. Fluo-3 for Ca^{+}), requiring to block it (see TPEN) or making Zn^{2+} study necessary.

●Zinquin compounds

Zinquin, a derivative of quinoline, is an UV-excitable, blue fluorescent zinc indicator, analog of the widely used indicator TS-Q.

- Forms a complex with a zinc ion with two nitrogen atoms in the structure.
- Also makes fluorescent complex with cadmium ion, however, detectable amount of cadmium ions are not present in normal living cells.
- Useful to study the role of intracellular zinc ions on apoptosis

Zinquin Ethyl Ester is a membrane-permeable which is hydrolyzed into Zinquin free acid once entering cells. Similarly, **Zinquin AM ester** is retained in living cells because the AM ester (AcetylMethoxy) is cleaved by cytosolic esterase to give Zinquin that carry a negative charge, preventing its efflux across the plasma membrane.
Zinquin free acid forms both 1:1 and 2:1 zinquin-zinc (II) complexes with respective stepwise K_d of 370 ± 60 nM and 85 ±16 nM in physiological media.

●Usage

Zinquin fluorescent probes may be loaded into cells by in the culture medium containing 5-40?M Zinquin ethyl ester in PBS with calcium and magnesium (or in culture medium). Cells are normally incubated with the Zinquin ethyl ester for 15-30 minutes at 37 ºC. Exact loading concentration, time and temperature depend on the purpose of the experiment and cell type, and so will need to be optimized experimentally. Cells are washed in PBS with culture medium to remove extracellular remaining dye. Cells are observed under microscope or used for confocal microscopy, FACS or spectrofluorimetry analysis.

●Applications

Zinc is the second most abundant transition metal in the body and it is essential as catalytic, structural and regulatory ion. Zinc ions are involved in homeostasis, immune responses, oxidative stress, apoptosis and aging. Zinc has been proposed to function as a conventional neurotransmitter for the presynaptic neuron and as a transmembrane signal to traverse the postsynaptic neuron. Aberrant zinc metabolism is associated with many neurological diseases including Alzheimer's disease, Parkinson's disease and epilepsy. The most suitable technique for in vivo monitoring of zinc has been proven to be fluorescence imaging.

Directions for use

CELL CULTURE LOADING GUIDELINE – Zinquin EE

1. Prepare a Zinquin stock solution at 5mM in DMSO.
   After solubilization in DMSO (stock solution 5mM), store aliquots at -20°C protected from light. Avoid repeated freeze and thawing.
2. Dilute it to a final concentration of 5-40 µM in cell suspension, i.e. in PBS with calcium and magnesium (or in culture medium)
3. Incubate cells with the zinquin for 15-30 minutes at 37ºC.
   Buffer, exact loading concentration, time and temperature depend on the purpose of the experiment and cell type, and so will need to be optimized experimentally.
   I.e. lymphoblastoid cells can be prepared suspendedin Hanks balanced salt solution (HBSS) at 5-10 x 10^6 cells/ml.
4. Wash cells in PBS with calcium and magnesium or culture medium to remove extracellular remaining dye.
5. Observe cells under microscope or used for confocal microscopy, FACS or spectrofluorimetry analysis.

References

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Related products

- **TSQ**, Zn^{2+} indicator, FP-AM668A
- **Zinpyr**-1, FP-AY6881 and Zinpyr-4, FP-AY6891, lipophilic Zn^{2+} indicators
- **FPhen Green diacetate**, metal ions indicator (Cu^{2+}, Zn^{2+}), FP-76894A

Ordering information

Catalog size quantities and prices may be found at www.interchim.com/
Please inquire for higher quantities (availability, shipment conditions).

For any information, please ask : FluoProbes® / Interchim; Hotline : +33(0)4 70 03 73 06

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