ZnAF-2 . tetrahydrochloride

Fluorescent probe for Zn^{2+}

Non cell permeable fluorescent reagent (Ex(max): 492nm; Em(max): 514nm) for the detection of low concentration of zinc ion due to its strong affinity to zinc ion (dissociation constant: 2.7nM). The sample zinc ion can be specifically detected. Low background fluorescense supersensitizes the visualization for *in vivo* sample zinc ion. Also available as cell permeable derivative (Prod. No. ALX-620-076). ZnAF-2 conjugates TPEN (Prod. No. ALX-450-011) affinities with fluorescein and enhances the specificity for Zn^{2+}.

Zinc (Zn) is the second most abundant transition metal in the body ant 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 fluroescent imaging.

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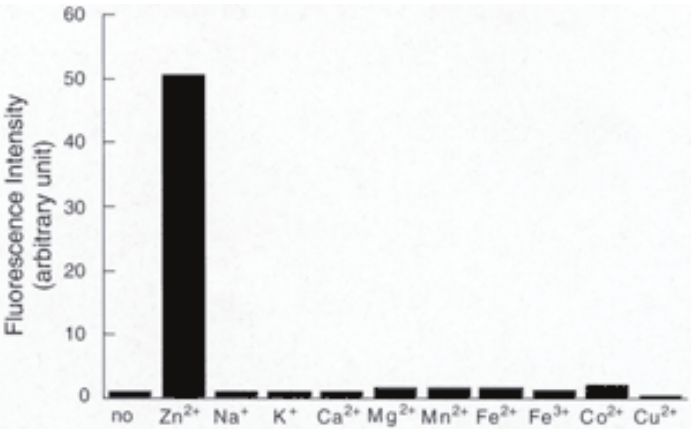


Figure 4: Changes in the fluorescence intensity of ZnAF-2 by adding each type of metal ion. 5μM of ZnAF-2 was dissolved in 100mM HEPES, pH 7.4. The fluorescence intensity when no metal ion was added was 1 (the concentration of the added metal ion was: 5μM Zn^{2+}, Mn^{2+}, Fe^{2+}, Fe^{3+}, Co^{2+} and Cu^{2+}, 5mM of Na^{+}, K^{+}, Ca^{2+} and Mg^{2+})

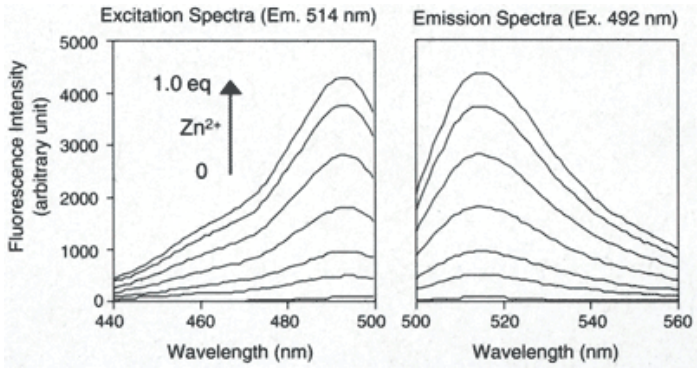


Figure 3: Excitation and fluorescence spectrum of ZnAF-2. 5μM of ZnAF-2 was dissolved in 100mM HEPES, pH 7.4. Each sample was 0, 0.5, 1, 2, 3, 4 and 5μM of zinc sulfate.

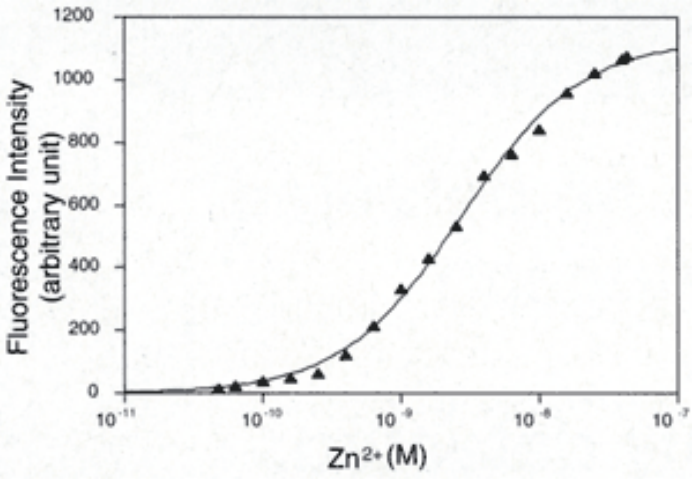


Figure 2: Changes in the fluorescence intensity of ZnAF-2 by adding Zn^{2+}. 1μm of ZNAF-2 was dissolved in 100mM HEPES, pH 7.4.

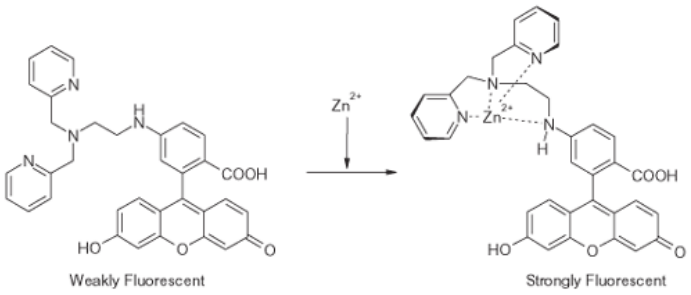
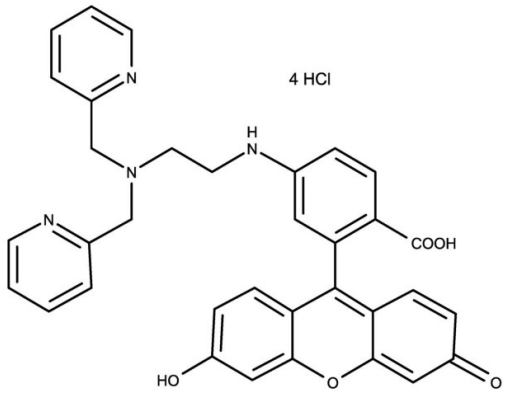


Figure 1: Reaction of ZnAF-2 with Zn^{2+}.


4 HCl
N
H
N
N
N
COOH
HO
O
O

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended. Prepare 500-5'000-fold dilution (~1-10µM) in 100mM HEPES, pH 7.4 immediately before use. Do not store diluted solutions. BSA and phenol red may affect the fluorescence and must be avoided.
Handling	After opening, prepare aliquots and store at +4°C. Protect from light. Keep under inert gas.
Long Term Storage	+4°C
Shipping	Blue Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	6-[N-[N',N'-bis(2-Pyridinylmethyl)-2-aminoethyl]amino-3′,6′-dihydroxy-spiro[isobenzofuran-1(3H),9′-[9H]xanthen]-3-one . 4 HCl
Appearance	Pale yellow liquid.
Concentration	~5mM
Formula	$C_{34}H_{28}N_4O_5$. 4HCl
Formulation	Dissolved in 0.28ml DMSO.
MW	572.6 .145.8
Purity	≥98% (HPLC)

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