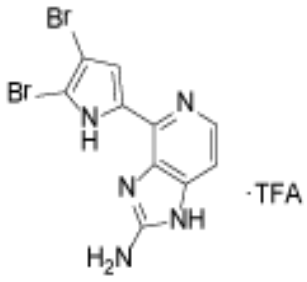
Ageladine A (synthetic) 0.2 mg

Produkt #1001; Lot 0213

CAS # 643020-13-7

[4-(4,5-Dibrom-1*H*-pyrrol-2-yl)]-1H-imidazo[4,5-*c*]pyridin-2-amin .Trifluoracetat



Membrane permeable non toxic fluorescence dye for use as intracellular pH indicator between pH 4 and pH 8. The fluorescence intensifies with lower pH. **No AM esters or esterases** are involved. Allows long term experiments even for several days. Applications: intracellular pH monitoring (also quantitative determinations), viability tests, screenings. Useful for vesicles, cells, tissues and small transparent whole animals.

The amount of 0.2 mg is sufficient for 425 ml (cell culture) or 42.5 ml (whole animals)

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Physical data

Molecular weight	471.03
Formula	$C_{12}H_8Br_2F_3N_5O_2$
Purity	> 98 % (method: ^{1}H-NMR)
Solubility	Methanol, DMSO and other polar solvents
Occurence	Brown solid
Storage and stability	Undissolved stored dry and protected from light at 4°C stable for one year; short storage and transport at ambient temperatures is possible. Stock solutions of 1-10 mM in methanol or DMSO stored at minus 80°C are stable for one year and stored at minus 20°C at least several months. Avoid repeated freeze and thawing.
Stock solution	To prepare a stock solution, fill methanol into the vial, mix gently until Ageladine A is completely dissolved. The solution should show a homogenous yellow colour. Example: 0.2 mg Ageladine dissolved in 0.425 ml methanol reveals a 1 mM stock solution. Use fresh preparation or aliquot and freeze immediately. Ageladine A is light sensitive, avoid e.g. longer exposition to direct sun light or other intensive light sources.

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Application remarks

The membrane permeability is best around neutral pH values and lowers with lower pH. Ageladine A stock solution can be diluted directly into all common buffers and cell culture media buffered at pH ≥ 7. Salt assembly and serum content show no influence. Roughly estimates for loading times: cells 10-30 min and tissue/whole animals 30-120 min. **End concentration** for cells normally 1 µM up to max. 5 µM and whole organisms normally 10 µM to max.30 µM. So, 0.2 mg are normally sufficient for 425 ml - 42.5 ml depending on application. A linear correlation to the fluorescence is between pH 4 and pH 8. After loading, Ageladine A is trapped in cells and vesicles through interactions with the inner membrane side. It is not or minimal metabolized and leakage does not occur. At low excitation intensities and exposition times long term experiments over several days are possible. Quantitative pH determinations are possible with ratiometric methods or FLIM (2,3,4)

Spektral properties

Excitation: between 325 and 415 nm; maximum at 370 nm.
Emission: from 415 to > 500 nm; maximum: 415 nm

Biol properties

Ageladine A was first isolated from marine sponges(*Agelas spec)* (1). Its function *in situ* is unknown. It shows in cell culture experiments up to 10 µM and incubation for several days no cytotoxic effects (2-5, 8) and also no detectable effects in small invertebrates up to 30 µM (2-5); Inhibitor of the matrix-metalloproteinases MMP-2 (IC_{50}: 1,7 µM) (8) und MMP-12 (IC_{50}: 3,66 µM) (1,7), possibly indirect – and some kinases (TYK2, DYRK2; Dyrk1A, YSK4 and RPS6KA1/2 in the lower µM range) (6); inhibits angiogenesis (1,7).

Selected Literature

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4. Bickmeyer, U. The alkaloid Ageladine A, originally isolated from marine sponges, used for pH sensitive imaging of transparent marine animals. Marine Drugs **2012**, 10, 223-233.
5. Obermann, D; Bickmeyer, U; Wägele , H. Incorporated nematocysts in *Aeolidiliella stephanidiae* mature by acidification shown by the pH sensitive fluorescing alkaloid Ageladine A. Toxicon **2012**, 60, 1108-1116
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7. Wang, Y and Miao,Z-H. Marine –derived angiogenesis inhibitors for cancer therapy. *Marine Drugs* **2013,** 11, 903-933
8. Ma, Y et al: Synthesis and anticancer activities of Ageladine A and structural analogs. *Bioorg Med Chem Lett*. **2010**, 20(1), 83-86

Safety instructions

Known as in vitro as Angiogenese-Inhibitor; no cytotoxic effects in cell culture experiments and no toxic effects on small invertebrates in vivo. Dangerous effects for humans are not known. Avoid contact with skin and eyes dont swallow or inhalate and handle with safety standards in research laboratories.

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