

PRODUCT INFORMATION



Thallos AM

Item No. 35755

CAS Registry No.: 1802991-71-4
Formal Name: N-[2-[(acetyloxy)methoxy]-2-oxoethyl]-N-[4-[[[3',6'-bis(acetyloxy)-3-oxospiro[isobenzofuran-1(3H),9'-[9H]xanthen]-5-yl]carbonyl]amino]-2-methoxyphenyl]-glycine, (acetyloxy)methyl ester

Synonym: Thallos Acetoxymethyl ester

MF: C₄₂H₃₆N₂O₁₇

FW: 840.7

Purity: ≥95%

Ex./Em. Max: 490/515 nm

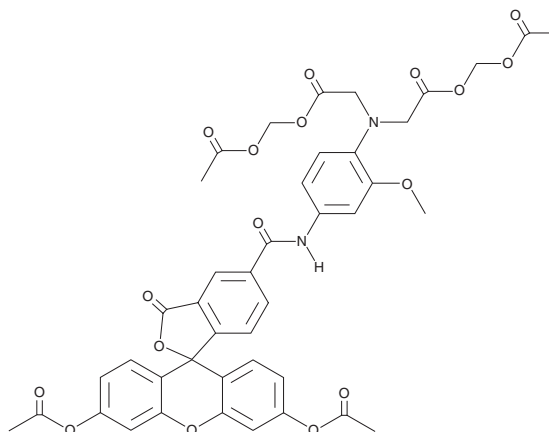
Supplied as: A solid

Storage: -20°C

Stability: ≥4 years

Special Conditions: Protect from light and moisture

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.



Description

Thallos AM is a cell-permeable fluorescent thallium indicator that has been used to measure the activity of sodium or potassium channels.^{1,2} It can also be used for transporters and G protein-coupled receptors (GPCRs). It displays excitation/emission maxima of 490/515 nm, respectively.

Assay Protocol

NOTE: Allow all reagents to warm to room temperature before proceeding

1. Add 10 ml of assay buffer to a 15 or 50 ml conical tube.

NOTE 1: HEPES-buffered Hank's balanced salt solution (HBSS), pH 7.2-7.4, is recommended, although other buffers can be used.

2. Add 100 µl of a 100X Pluronic™ F-127 solution (1-50% w/v) to the conical tube*. Pluronic™ F-127 is a biocompatible surfactant used to ensure equitable dye distribution and cellular loading.
 - a. Optional: Add 100 µl of 2 mM probenecid stock solution to the conical tube. Probenecid (Item No. 14981) is an anion transport inhibitor used to improve intracellular dye retention. Use of probenecid is recommended, but not required, for all cell types and dyes.

*Final working concentration of Pluronic™ F-127 should be between 0.01 and 0.5% w/v. User should optimize the concentration of Pluronic™ F-127 to suit experimental requirements.

NOTE 2: Probenecid is an inhibitor or agonist of multiple ion channels and may have undesirable cellular effects that could affect dye performance.

3. Vortex conical tube briefly to mix.
4. Dissolve Thallos AM in 25 µl of DMSO and vortex dye tube briefly to mix.
5. Centrifuge dye tube briefly to collect all contents at the tube bottom.
6. Add entire contents of dye tube to the conical tube containing the assay buffer solution to make the dye loading solution.
7. Vortex conical tube briefly to mix.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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NOTE 3: The dye loading solution should be used within two hours for best results.

8. Remove cell culture medium and add dye loading solution. Recommended volumes are:
 - a. 35 mm dish or 6-well plate: 1.5 ml/dish or well
 - b. 96-well plate: 100 μ l/well
 - c. 384-well plate: 20 μ l/well

NOTE 4: To prevent cell detachment or if using suspension cells, the dye loading solution can be added directly to the media-containing wells. User must double the component concentrations to achieve the same final concentration of all reagents.

9. Incubate cells with the dye loading solution at 37°C for 60 minutes.
10. Read fluorescence using a plate reader at excitation and emission wavelengths of 490 and 515 nm, respectively.

Or

Image using a fluorescence microscope with filters for GFP or fluorescein.

References

1. Du, Y., Days, E., Romaine, I., *et al.* Development and validation of a thallium flux-based functional assay for the sodium channel NaV1.7 and its utility for lead discovery and compound profiling. *ACS Chem. Neurosci.* **6**(6), 871-878 (2015).
2. Dutter, B.F., Ender, A., Sulikowski, G.A., *et al.* Rhodol-based thallium sensors for cellular imaging of potassium channel activity. *Org. Biomol. Chem.* **16**(31), 5575-5579 (2018).

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