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Product Information

7-Aminoactinomycin D

Product Number **A 9400**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{62}H_{87}N_{13}O_{16}$
Molecular Weight: 1,270
CAS Number: 7240-37-1
Synonym: 7-AAD
Fluorescent Properties

Free form:

Excitation: 503 nm (0.01 M phosphate buffer, pH 7.0 containing 0.1 mM EDTA)¹; 550 nm²
Emission: 675 nm (0.01 M phosphate buffer, pH 7.0 containing 0.1 mM EDTA)¹; 672 nm²

DNA Complex:

Excitation: 543 nm¹; 555 nm²
Emission: 655 nm¹; 665 nm²

7-AAD is used in flow cytometry analysis of viable cells. Cell surface markers were stained by FITC and phycoerythrin-conjugated antibody. After surface staining, cells were further stained with 10 µg/ml of 7-AAD in PBS on ice for 30 minutes. After washing with PBS twice, the cells were fixed in 1% paraformaldehyde supplemented with 50 µg/ml actinomycin D. Non-apoptotic cells are 7-AAD negative.³

This material like its parent molecule, Actinomycin D, is a DNA-intercalator with growth-inhibitory properties.^{4,5}

This product has been tested for its labeling properties on transformed thymocytes that are scanned by FACS. It was possible to distinguish diploid, triploid and tetraploid sub-populations and % mitosis. When tested at fixed intervals of time, it was possible to calculate generation time.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

7-AAD is soluble in chloroform (1 mg/ml) and produce a clear, dark red solution. One milligram of 7-AAD is soluble in 50 µl of absolute methanol. A further addition of 950 µl of 1x PBS with Ca^{2+} and Mg^{2+} will achieve a concentration of 1 mg/ml.⁶

Storage/Stability

A solution prepared by adding 1mg of 7-AAD to 50 µl of absolute methanol followed by a further addition of 950 µl of 1x PBS with Ca^{2+} and Mg^{2+} was stable for several months when stored tightly closed and protected from light at 4 °C.⁶

References

1. Gill, J.E., et al., 7-Aminoactinomycin D as a Cytochemical Probe. I. Spectral Properties. *J. Histochem. Cytochem.*, **23(11)**, 793-799 (1975).
2. Sengupta, S.K., et al., 7-substituted Actinomycin D analogs. *Chemical and Growth-inhibitory Studies. J. Med. Chem.*, **18(12)**, 1175-1180 (1975).
3. Su, X., et al., *J. Immunology*, **156**, 4198 (1996).
4. *Cancer Chemotherapy Reports*, **58**, 35 (1974).
5. Madhavarao, M.S., et al., N7-Substituted 7-aminoactinomycin D Analogues. *Synthesis and Biological Properties. J. Med. Chem.*, **21(9)**, 958-961 (1978).
6. <http://cyto.mednet.ucla.edu/7aad%20Staining%20of%20dead%20cells.htm>

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