**Product Description**

7-AAD (7-Aminoactinomycin D) is a fluorescent cell viability dye which is excluded from live cells with intact membranes but penetrates dead or damaged cells and binds to double-stranded DNA with high affinity by intercalating between GC base pairs. It is often used as an alternative to propidium iodide (PI; Catalog #75002) to differentiate and exclude non-viable cells in flow cytometric analyses, and can be excited using 488 nm (blue), 532 nm (green), and 561 nm (yellow-green) laser lines. Compared to PI, 7-AAD offers the advantage of having minimal overlap in its emission spectra with mostly blue and green, and many red fluorophores, including the commonly used phycoerythrin (PE) and fluorescein isothiocyanate (FITC). 7-AAD is also used in DNA fluorescence imaging applications to discriminate early and late stages of apoptosis, to study cell-mediated cytotoxicity, and for chromosome banding analysis. 7-AAD has been found to exhibit antibacterial properties and exhibits growth-inhibitory activity against certain types of leukemia and sarcoma.

**Chemical Name:** 7-aminoactinomycin D  
**Alternative Names:** 2,7-diamino-4,6-dimethyl-3-oxo-1-N,9-N-bis[7,11,14-trimethyl-2,5,9,12,15-pentaaxo-3,10-di(propan-2-yl)-8-oxa-1,4,11,14-tetrazabicyclo[14.3.0]nonadecan-6-yl]phenoxazine-1,9-dicarboxamide; 3H-Phenoxazine, actinomycin D deriv.; 7-aminoactinomycin D; 7-aminoactinomycin; Actinomycin D, 7-amino-

**CAS Number:** 7240-37-1  
**Chemical Formula:** C₆₂H₈₇N₁₃O₁₆  
**Molecular Weight:** 1270.4 g/mol  
**Excitation Wavelength:** 546 nm (DNA complex); 503 nm (free form)  
**Emission Wavelength:** 647 nm (DNA complex); 675 nm (free form)

**Properties**

Store at 2 - 8°C. Do not freeze.  
Product stable until expiry date (EXP) on label. Protect product from prolonged exposure to light.  
**Format/Formulation:** Phosphate-buffered saline, pH 7.2, containing 0.09% sodium azide

**Applications**

Verified: FC  
Reported: Chromosome banding, FA, FC, Fluorescence microscopy, ICC, IF  
Special Applications: This product has been verified for viability assessments of cells isolated with EasySep™ and RosetteSep™ kits.

Abbreviations: CellSep: Cell separation; ChIP: Chromatin immunoprecipitation; FA: Functional assay; FC: Flow cytometry; ICC: Immunocytochemistry; IF: Immunofluorescence microscopy; IHC: Immunohistochemistry; IP: Immunoprecipitation; RIA: Radioimmunoassay; WB: Western blotting
Dyes and Stains

Handling/Directions for Use
For flow cytometry, use 5 µL (0.25 µg) of 7-AAD solution per 1 x 10^6 cells in 100 µL. Incubate cells with the dye for 5 - 10 minutes in the dark, then analyze immediately. Titrate the dye for optimal performance in each application.

Data/Structure

(A) Flow cytometry analysis of human peripheral blood mononuclear cells (PBMCs) labeled with 7-AAD.
(B) Chemical structure of 7-AAD.

References

Related Products
For a complete list of related products available from STEMCELL Technologies, visit www.stemcell.com/dyesandstains or contact us at techsupport@stemcell.com.

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