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7-AAD (7-Aminoactinomycin D)

Cell viability dye (DNA-labeling dye)

Catalog #75001.1	200 Tests	5 µL/test
Catalog #75001	500 Tests	5 µL/test

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 (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 propidium iodide, 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 growth-inhibitory activity against certain types of leukemia and sarcoma.

Chemical Name:	7-amino-actinomycin 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-pentaoxo-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-Aminodactinomycin; Actinomycin D, 7-amino-
CAS Number:	7240-37-1
Chemical Formula:	$C_{62}H_{87}N_{13}O_{16}$
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)

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

Verified Applications:	FC
Reported Applications:	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; FACS: Fluorescence-activated cell sorting; FC: Flow cytometry; FCXM: Flow cytometric crossmatch assay; FISH: Fluorescence in situ hybridization; ICC: Immunocytochemistry; IF: Immunofluorescence microscopy; IHC: Immunohistochemistry; IHC-F: Immunohistochemistry (frozen-tissue); IHC-P: Immunohistochemistry (paraffin-embedded); IP: Immunoprecipitation; NMR: Nuclear magnetic resonance spectroscopy; RIA: Radioimmunoassay; WB: Western blotting

Directions for Use

For flow cytometry, use 5 µL (0.25 g) 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.

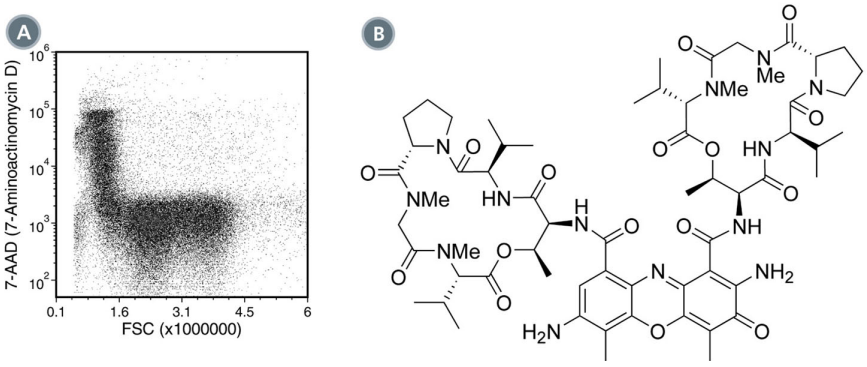

Figure 1. Example data and chemical structure for 7-AAD

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

(B) Chemical structure of 7-AAD

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