

Annexin V Reagents

Features

BD Horizon V500, V450, FITC, PE, APC, Cy5, and Cy5.5 Annexin V conjugates for monitoring apoptosis

Vital dyes and ancillary reagents for additional experimental options

BD Biosciences expanding line of Annexin V reagents provides a variety of experimental options for monitoring cellular apoptosis via flow cytometry or fluorescence microscopy. Now featuring conjugates to BD Horizon™ V450 for violet laser equipped instruments, this reagent portfolio includes purified and conjugated recombinant protein, vital dyes, and ancillary reagents that provide additional experimental options for tracking the progression of apoptosis from early to late stages.

Annexin V: An early marker of apoptosis

BD™ Annexin V conjugates to BD Horizon™ V500, V450, FITC, PE, APC, Cy™5, and Cy™5.5 can be used for the easy, flow cytometric identification of cells in the early stages of apoptosis. Apoptosis is characterized by a variety of morphological features such as loss of membrane asymmetry and attachment, condensation of the cytoplasm and nucleus, and internucleosomal cleavage of DNA. One of the earliest indications of apoptosis is the translocation of the membrane phospholipid phosphatidylserine (PS) from the inner to the outer leaflet of the plasma membrane. Once exposed to the extracellular environment, binding sites on PS become available for Annexin V, a 35–36-kDa, calcium ion-dependent, phospholipid-binding protein with a high affinity for PS. The translocation of PS precedes other apoptotic processes such as loss of plasma membrane integrity, DNA fragmentation, and chromatin condensation.

Tracking cells through apoptosis

BD Annexin V conjugates and vital dyes can be used together to monitor the progression of apoptosis from cell viability, to early-stage apoptosis, and finally to late-stage apoptosis and cell death. Because PS translocation also occurs during necrosis, Annexin V is not an absolute marker of apoptosis. Therefore, it is often used in conjunction with vital dyes such as 7-amino-actinomycin (7-AAD) or propidium iodide (PI), which bind to nucleic acids, but can only penetrate the plasma membrane when membrane integrity is breached, as occurs in the later stages of apoptosis or in necrosis.

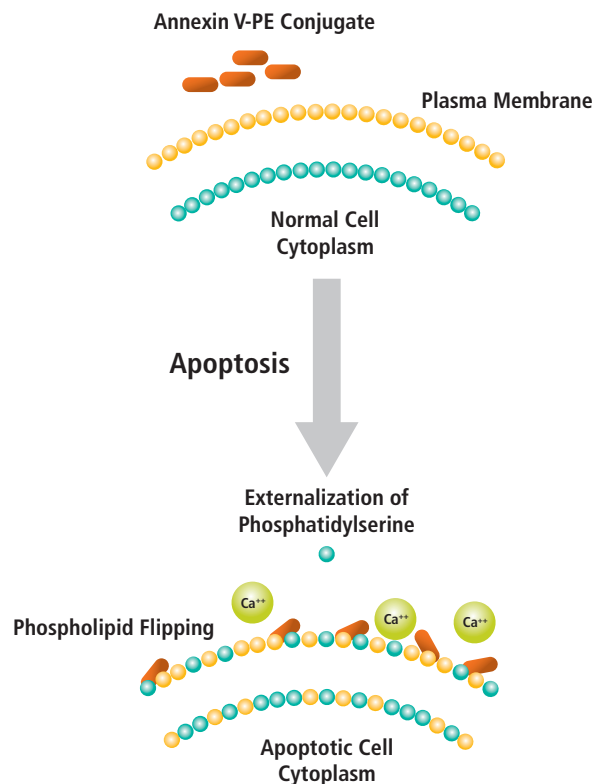


Figure 1. Schematic representation of the Annexin V assay.

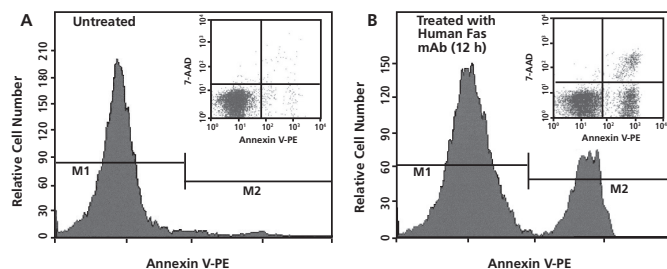


Figure 2. Annexin V-PE and 7-AAD staining of Jurkat T cells left untreated (A) or induced to undergo apoptosis (B) with anti-human Fas antibody (clone DX2, Cat. No. 555670).

Stage of Apoptosis

No Apoptosis - Cell Viability

Early Apoptosis

Late Apoptosis or Cell Death

Markers

Annexin V negative, vital dye negative; no PS translocation, plasma membrane intact.

Annexin V positive, vital dye negative; PS translocation, plasma membrane intact.

Annexin V positive, vital dye positive; PS translocation, loss of plasma membrane integrity.

Visit bdbiosciences.com for more information.



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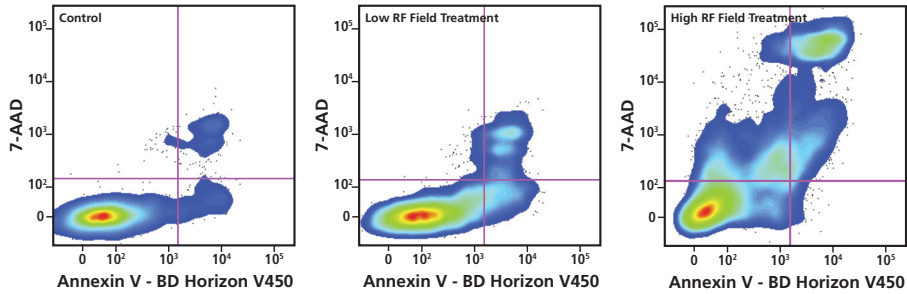


Figure 3. Radiofrequency dose-dependent apoptosis, necrosis, and cell death monitored by Annexin V-V450 in pancreatic carcinoma cell lines treated with a low dose of cetuximab targeted gold nanoparticles. As the RF field power increases, the temperature increases, and a shift from apoptosis (lower right quadrant) to frank necrosis (upper left quadrant) is seen.

Data courtesy of ES Glazer and SA Curley, MD Anderson Cancer Center

Ordering Information

Annexin V

Description	Format	Size	Apps	Cat.No.
Annexin V: FITC Apoptosis Detection Kit I	Kit	100 tests	FCM	556547
Annexin V: FITC Apoptosis Detection Kit II	Kit	100 tests	FCM	556570
Annexin V: FITC Fluorescence Microscopy Kit	Kit	25 slides	FM	550911
Annexin V: PE Apoptosis Detection Kit I	Kit	100 tests	FCM	559763
Annexin V	Purified	100 µg	Block, FCM	556416
Annexin V	APC	25 tests	FCM	561012
Annexin V	APC	100 tests	FCM	550474
Annexin V	APC	200 tests	FCM	550475
Annexin V	Biotin	100 tests	FCM	556418
Annexin V	Biotin	200 tests	FCM	556417
Annexin V	Cy5	100 tests	FCM	559933
Annexin V	Cy5	200 tests	FCM	559934
Annexin V	Cy5.5	100 tests	FCM	559935
Annexin V	FITC	25 tests	FCM	560931
Annexin V	FITC	100 tests	FCM	556420
Annexin V	FITC	200 tests	FCM	556419
Annexin V	PE	25 tests	FCM	560930
Annexin V	PE	100 tests	FCM	556422
Annexin V	PE	200 tests	FCM	556421
Annexin V	BD Horizon V450	50 tests	FCM	560506
Annexin V	BD Horizon V500	50 tests	FCM	561501

Related Products

Description	Format	Size	Apps	Cat.No.
7-AAD Staining Solution	Solution	2 mL	FCM	559925
Annexin V Binding Buffer, 10X Concentrate	Buffer	50 mL	FCM, FM	556454
Propidium Iodide Staining Solution	Solution	2 mL	FCM	556463
Streptavidin-FITC	FITC	0.5 mg	FCM	554060

Abbreviations: FCM: Flow Cytometry, FM: Fluorescence Microscopy, WB: Western Blot

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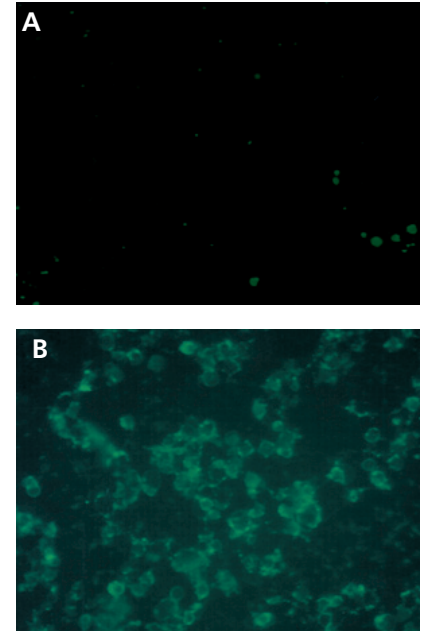


Figure 4. Annexin V-FITC labeling of PS in HeLa cells left untreated (A) or induced to undergo apoptosis with staurosporine (B).



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