

FITC Annexin V Apoptosis Detection Kit with PI

Catalog# / Size	640914 / 100 tests
Regulatory Status	RUO
Other Names	Annexin A5 Apoptosis Detection Kit
Description	BioLegend's FITC Annexin V Apoptosis Detection Kit with PI has been specifically designed for the identification of apoptotic and necrotic cells.

Annexin V (or Annexin A5) is a member of the annexin family of intracellular proteins that binds to phosphatidylserine (PS) in a calcium-dependent manner. PS is normally only found on the intracellular leaflet of the plasma membrane in healthy cells, but during early apoptosis, membrane asymmetry is lost and PS translocates to the external leaflet. Fluorochrome-labeled Annexin V can then be used to specifically target and identify apoptotic cells. Annexin V Binding Buffer is recommended for use with Annexin V staining. Annexin V binding alone cannot differentiate between apoptotic and necrotic cells. To help distinguish between the necrotic and apoptotic cells we recommend use of our Propidium Iodide Solution (PI). Early apoptotic cells will exclude PI, while late stage apoptotic cells and necrotic cells will stain positively, due to the passage of these dyes into the nucleus where they bind to DNA.

Propidium iodide is a fluorescent dye that binds to DNA. When excited by 488 nm laser light, it can be detected with in the PE/Texas Red® channel with a bandpass filter 610/10. It is commonly used in evaluation of cell viability or DNA content in cell cycle analysis by flow cytometry.

Product Details

Verified Reactivity	All mammalian species
Concentration	Lot-specific (to obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools.)
Storage & Handling	Store between 2°C and 8°C. Do not freeze. Caution: Propidium Iodide Solution is toxigenic and mutagenic; handle with care.
Application	FC - Quality tested
Recommended Usage	Staining Procedure: 1. Wash cells twice with cold BioLegend's Cell Staining Buffer, and then resuspend cells in Annexin V Binding Buffer at a concentration of $0.25\text{--}1.0 \times 10^7$ cells/mL. 2. Transfer 100 µL of cell suspension in a 5 mL test tube. 3. Add 5 µL of FITC Annexin V. 4. Add 10 µL of Propidium Iodide Solution. 5. Gently vortex the cells and incubate for 15 min at room temperature (25°C) in the dark. 6. Add 400 µL of Annexin V Binding Buffer to each tube. Analyze by flow cytometry with proper machine settings.
Application Notes	Materials Provided: 0.5 ml of FITC Annexin V 1 ml of Propidium Iodide Solution 50 ml of Annexin V Binding Buffer Materials Not Included: Cell Staining Buffer (Cat. No. 420201) For a better experience detecting apoptosis, we now recommend Apotracker™. Cell staining with Apotracker™ is Calcium independent. Thus, no special buffers are required, and the protocol can be shortened for single-step co-staining with other reagents.
Application References	1. Ranaathanan P, <i>et al.</i> 2013. <i>J AM Soc Nephrol.</i> PubMed 2. Yu J, <i>et al.</i> 2014. <i>PLoS One.</i> 9:114650. PubMed 3. Wang Y, <i>et al.</i> 2014. <i>Biochem Biophys Res Commun.</i> 456:656. PubMed
(PubMed link indicates	

BioLegend citation)

4. Jaishy B, *et al.* 2015. *J Lipid Res.* 56:546. [PubMed](#)

Product Citations

1. Balachandran C, *et al.* 2017. *Biomed Pharmacother.* 10.1016/j.biopha.2017.06.096. [PubMed](#)
2. Guo Q, *et al.* 2018. *Front Immunol.* 9:1197. [PubMed](#)
3. Yao J, *et al.* 2018. *Onco Targets Ther.* 11:3793. [PubMed](#)
4. Shao M, *et al.* 2018. *Evid Based Complement Alternat Med.* 2018:6049498. [PubMed](#)
5. Sohrabi Y, *et al.* 2019. *Front Immunol.* 9:3155. [PubMed](#)
6. Ryva B, *et al.* 2019. *Front Oncol.* 9:100. [PubMed](#)
7. Flegkas A, *et al.* 2019. *Medicines (Basel).* 6:1. [PubMed](#)
8. Virumbrales-Muñoz M, *et al.* 2019. *Sci Rep.* 9:6199. [PubMed](#)
9. Tatsuno K, *et al.* 2019. *Cell Death Dis.* 10:578. [PubMed](#)
10. Soonthornchai W, *et al.* 2019. *Asian Pac J Allergy Immunol.* N/A. [PubMed](#)
11. Ali DM, *et al.* 2019. *Cell Death Discov.* 5:128. [PubMed](#)
12. Coelho CC, *et al.* 2019. *Sci Rep.* 9:11050. [PubMed](#)
13. Korencak M, *et al.* 2019. *JCI Insight.* 4. [PubMed](#)
14. Ouyang J, *et al.* 2019. *J Surg Res.* 233:221. [PubMed](#)
15. Fei X, *et al.* 2019. *Cancer Manag Res.* 11:4781. [PubMed](#)
16. Allur Subramaniyan S, *et al.* 2018. *Cell Commun Adhes.* 24:19. [PubMed](#)
17. Li C, *et al.* 2018. *Cell Physiol Biochem.* 45:366. [PubMed](#)
18. Zheng M, *et al.* 2019. *Proc Natl Acad Sci U S A.* 116:12422. [PubMed](#)
19. Cho S, *et al.* 2019. *Transl Oncol.* 0.820138889. [PubMed](#)
20. Xie L, *et al.* 2020. *Front Oncol.* 1.354166667. [PubMed](#)
21. Orgaz JL, *et al.* 2020. *Cancer Cell.* 37:85. [PubMed](#)
22. Wu A, *et al.* 2020. *Cell Death Dis.* 11:40. [PubMed](#)
23. Markowicz-Piasecka M, *et al.* 2020. *Apoptosis.* 25:426. [PubMed](#)
24. Neumann CKA, *et al.* 2020. *Mol Metab.* 34:136. [PubMed](#)
25. Wang X, *et al.* 2020. *Onco Targets Ther.* 13:1691. [PubMed](#)
26. Lin B, *et al.* 2020. *Mol Med Rep.* 21:2171. [PubMed](#)
27. Lyu X, *et al.* 2019. *Oncol Rep.* 41:3137. [PubMed](#)
28. Li MM, *et al.* 2018. *Int J Infect Dis.* 70:72. [PubMed](#)
29. Son Y, *et al.* 2020. *Mol Metab.* 39:101005. [PubMed](#)
30. Shin JJ, *et al.* 2020. *Cell Rep.* 32:108093. [PubMed](#)
31. Wang N, *et al.* 2020. *Front Immunol.* 1.765972222. [PubMed](#)
32. Wang W, *et al.* 2020. *Cancer Cell Int.* 1.06875. [PubMed](#)
33. Xiao Y, *et al.* 2020. *Nucleic Acids Res.* 48:11113. [PubMed](#)
34. Yu J, *et al.* 2014. *PLoS One.* 9:114650. [PubMed](#)
35. Wang Y, *et al.* 2014. *Biochem Biophys Res Commun.* 456:656. [PubMed](#)
36. Jaishy B, *et al.* 2015. *J Lipid Res.* 56:546. [PubMed](#)
37. Yuan L, *et al.* 2015. *Endocr Relat Cancer.* 22: 577 - 591. [PubMed](#)
38. Blue E, *et al.* 2015. *Diabetes.* 64: 2664 - 2675. [PubMed](#)
39. Liu J, *et al.* 2015. *Biochem Biophys Res Commun.* 463: Pages 262-267. [PubMed](#)
40. Levy G, *et al.* 2015. *PLoS One.* 10: 0136070. [PubMed](#)
41. Belo H, *et al.* 2015. *PLoS One.* 10: e0139740. [PubMed](#)
42. Ma H, *et al.* 2015. *Sci Rep.* 5: 15121. [PubMed](#)
43. Weiss R, *et al.* 2015. *Innate Immunity.* 21: 813 - 826. [PubMed](#)
44. Kan L, *et al.* 2015. *PLoS One.* 10: 0144513. [PubMed](#)
45. Kongkavitoon P, *et al.* 2016. *PLoS One.* 11: 0146696. [PubMed](#)
46. Chang T, *et al.* 2016. *Sci Rep.* 6:23403. [PubMed](#)
47. Sareddy G, *et al.* 2016. *Sci Rep.* 6: 24185. [PubMed](#)
48. Cao W, *et al.* 2016. *Nat Commun.* 7:11687. [PubMed](#)
49. Saboor-Maleki S, *et al.* 2016. *Technol Cancer Res Treat.* 10.1177/1533034616650119. [PubMed](#)
50. Mahmoud A, *et al.* 2016. *Int J Toxicol.* 35: 429 - 437. [PubMed](#)
51. Ho J, *et al.* 2016. *PLoS Biol.* 14:e2000117. [PubMed](#)
52. Coden ME, *et al.* 2020. *J Immunol.* 204:438. [PubMed](#)
53. Finetti F, *et al.* 2020. *Cell Death Differ.* 27:310. [PubMed](#)
54. Liu R, *et al.* 2021. *Oncol Lett.* 21:06. [PubMed](#)
55. Choromanska A, *et al.* 2020. *Biomed Rep.* 13:32. [PubMed](#)
56. Chou ST, *et al.* 2020. *Chin Med.* 0.678472222. [PubMed](#)
57. Choromanska A, *et al.* 2020. *Pharmaceutics.* 12:00. [PubMed](#)

Antigen Details

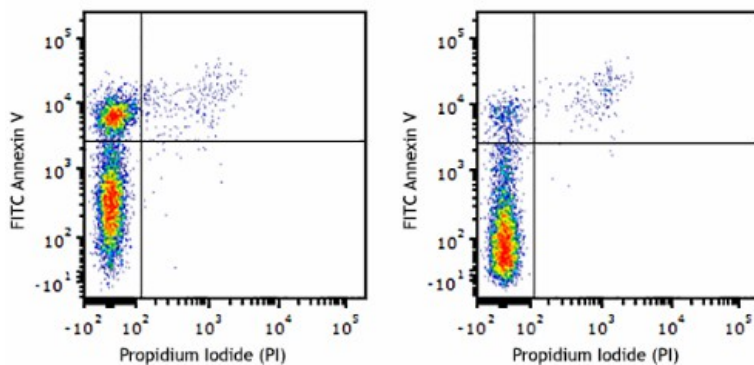
Biology Area

Apoptosis/Tumor Suppressors/Cell Death, Cell Biology, Neuroscience

Gene ID

[308](#)

Product Data



Human T leukemia cell line Jurkat, treated (left) or non-treated (right) with BioLegend's anti-human CD95 (EOS9.1) mAb (Cat. No. 305704) for 4 hours at 37°C, then stained with Annexin V- FITC for 15 minutes at 37°C in Annexin V Binding buffer. Propidium iodide (PI) (cat. 421301 at 0.03 µg/Test) was added 5 minutes prior to running tubes.

For research use only. Not for diagnostic use. Not for resale. BioLegend will not be held responsible for patent infringement or other violations that may occur with the use of our products.

*These products may be covered by one or more Limited Use Label Licenses (see the BioLegend Catalog or our website, www.biolegend.com/ordering#license). BioLegend products may not be transferred to third parties, resold, modified for resale, or used to manufacture commercial products, reverse engineer functionally similar materials, or to provide a service to third parties without written approval of BioLegend. By use of these products you accept the terms and conditions of all applicable Limited Use Label Licenses. Unless otherwise indicated, these products are for research use only and are not intended for human or animal diagnostic, therapeutic or commercial use.

8999 BioLegend Way, San Diego, CA 92121 www.biolegend.com
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587