# **Annexin V-FITC Early Apoptosis Detection Kit**

1 Kit (100 assays)



**Orders** 877-616-CELL (2355)

orders@cellsignal.com

**Support** 877-678-TECH (8324)

info@cellsignal.com

Web www.cellsignal.com

rev. 02/11/16

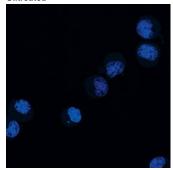
# For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity
Annexin V-FITC Conjugate	4894	100 μΙ
10X Annexin V Binding Buffer	11732	2 x 1.5 ml
Propidium Iodide (PI) Solution	11733	1 x 1.3 ml

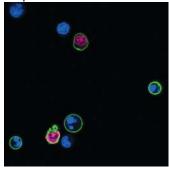
Description: The Annexin V-FITC Early Apoptosis Detection Kit enables researchers to identify early apoptotic cells within a cell population. Annexin V-FITC conjugated protein binds to cell surfaces expressing phosphatidylserine, an early apotosis marker. Cells stained with propidium iodide (PI), a non-cell-permeable DNA dye, indicate necrotic cells. Cells stained with both PI and annexin V-FITC demonstrate later stage apoptosis and early necrosis. This kit provides enough reagent to perform 100 assays, based on a 250 µl assay volume.

**Background:** Annexin V belongs to the annexin family of proteins consisting of over 160 members. All annexin family members share the same charactersistic of Ca<sup>2+</sup>-dependent binding to negatively charged phospholipid surfaces (1). During early apoptosis, phosphatidylserine (PS) is translocated from the cytosolic side of the plasma membrane to the cellular surface. This translocation exposes PS to the extracellular environment with the plasma membrane left intact (2). Annexin V protein demonstrates high affinity, specificity, and sensitivity for PS and can be used as a marker of early apoptosis. In order to rule out "leaky" necrotic cells, annexin V must be used in tandem with reagents that determine the integrity of the cell membrane, such as propidium iodide (2).

# Untreated



Camptothecin-treated



## Entrez Gene ID # 308 **UniProt ID** # P08758

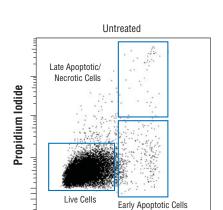
Storage: The components within the Annexin V-FITC Early Apoptosis Staining Kit are stable for 1 year at 4°C. Protect from light.

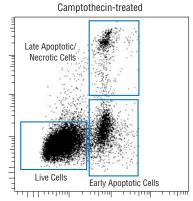
### **Directions for Use:**

- 1. Dilute the 10X Annexin V Binding Buffer with dH<sub>2</sub>O to 1X and keep on ice.
- 2. Collect cells of interest by centrifugation. Wash cells with ice-cold culture medium or PBS.
- 3. Resuspend cells at 105 to 106 cells/ml with 1X Annexin V Binding Buffer. Aliquot 96 µl cell suspension in an
- **4.** Add 1 μl Annexin V-FITC Conjugate and 12.5 μl Propidium Iodide (PI) Solution to each 96 µl cell suspension. Allow cells to incubate 10 min on ice in the
- **5.** Dilute the cell suspension to a final volume of 250 µl/ assay with ice-cold, 1X Annexin V Binding Buffer. Analyze immediately.

## **Background References:**

- (1) Boersma, H.H. et al. (2005) J Nucl Med 46, 2035-50.
- (2) Vermes, I. et al. (1995) J Immunol Methods 184, 39-51.
- Confocal immunofluorescent analysis of live Jurkat cells, untreated (upper) or camptothecin-treated (lower), using Annexin V-FITC Conjugate (green). Red = Propidium Iodide (fluorescent DNA dye). Blue pseudocolor = DRAQ5® #4084 (fluorescent DNA dye).
- ◆ Flow cytometric analysis of Jurkat cells untreated (left) or treated with camptothecin (10uM, 4 hr; right) using Annexin V-FITC Early Apoptosis Detection Kit.





**Annexin V-FITC** 

DRAQ5® is a registered trademark of Biostatus Limited.

The Annexin V-FITC conjugate is a product manufactured for Cell Signaling Technology by TAU Technologies BV.

Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster

W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation

Mk—monkev Mi—mink C—chicken

IF—Immunofluorescence **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine

**F**—Flow cytometry **E-P**—ELISA-Peptide

Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse

AII-all species expected

Species enclosed in parentheses are predicted to react based on 100% homology.

Revision Date 2012-09-21

## 1. PRODUCT AND COMPANY IDENTIFICATION

Annexin-V FITC Early Apoptosis Detection Kit

Product Number Identified Uses

6592
For Research Use Only (RUO). Not intended for use in humans or animals.

Not intended for therapeutic or diagnostic procedures

Cell Signaling Technology, Inc. 3 Trask Lane Danvers, MA 01923 USA 1-978-867-2300 Emergency Tel# 1-978-578-6737

### HAZARDS IDENTIFICATION

### **Emergency Overview**

OSHA Hazards No known OSHA hazards.

### GHS Classification

Not a dangerous substance according to GHS.

Physical State Kit box contains vials of liquids

### Potential Health Effects

Eyes May cause eye irritation. May be harmful if contact with eyes.

Skin May be harmful if absorbed through skin.

Inhalation May be harmful if inhaled.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Hazardous Ingredients

Ingredients are not considered hazardous according to OSHA. GHS criteria

	Kit Component Name	CAS No.	EC No.
SKU			
4894S	Annexin-V FITC Conjugate	Not available	Not available
11732S	10X Annexin V Binding Buffer	Not available	Not available
11733S	Propidium Iodide (PI) 20X	Not available	Not available

### 4. FIRST AID MEASURES

Rinse immediately with plenty of water. Get medical attention

Cell Signaling Technology, Inc



Material Safety Data Sheet (MSDS)

Revision Date 2012-09-2

Wear suitable protective clothing, protective shoes or boots Hand protection: Compatible chemical resistant gloves

# 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

small vials of liquids and solids no data available no data available pH 7.4 – 7.5 Physical State Appearance Odor Water Solubility no data available Melting point/freezing point no data available Boiling point no data available Evaporation rate no data available Flammability no data available no data available no data available

Flash point Autoignition temperature no data available Flammability limits in air no data available Explosive properties no data available no data available composition temperature no data available

# 10. STABILITY AND REACTIVITY

Stability Stable under normal conditions

Conditions/Materials to avoid No data available Hazardous decomposition products No data available

# 11. TOXICOLOGICAL INFORMATION

To the best of our knowledge, the chemical, physical and toxicological properties have not been fully investigated.

# Potential Health Effects

May be harmful if contact with eyes. May cause eye irritation May be harmful if absorbed through skin. May be harmful if inhaled.

May be harmful if swallowed Ingestion

Chronic Effects
Carcinogenic effects Carcinogenic effe Mutagenic effects No known significant effects or critical hazards No known significant effects or critical hazards. Teratogenic effects Reproductive toxicity

Sensitization



Material Safety Data Sheet (MSDS)

Revision Date 2012-09-21

Rinse immediately with soap and plenty of water. Get medical attention. Move to fresh air. Get medical attention. Call Poison Control Center immediately. Never give anything by mouth to an unconscious person. Rinse mouth with water. Get medical attention.

Skin Contact Inhalation

Ingestion

Notes to physician Treat symptomatically

### 5. FIRE FIGHTING MEASURES

Not Flammable. Use dry chemical No data available Suitable Extinguishing Media Special exposure hazards

Special protection for fire fighters Wear appropriate self-contained breathing apparatus and protective unit

Other information No data available

### 6. ACCIDENTAL RELEASE MEASURES

Do not touch or walk though spilled material. Wear personal protective

equipment Do not let product enter drains. **Environmental precautions** 

Soak up with absorbent material. Keep in suitable closed containers for Clean up methods

Other information See sections 12 and 13 for additional information

### 7. HANDLING AND STORAGE

Avoid contact with eyes and skin. Ensure adequate ventilation. Keep container tightly closed in a cool dry location. No data available Safe handling advice Storage condition

Incompatibilities Specific end uses No data available

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Exposure Controls**Apply technical measures to comply with the occupational exposure limits

### **Engineering Controls**

Emergency eyewash and safety shower. Mechanical exhaust required.

### Hygiene Measures

Do not eat, drink or smoke when handling product. Wash hands thoroughly after handling product. Wash contaminated clothing before reuse.

### Personal Protective Equipment

Respiratory Protection: In case of insufficient ventilation wear suitable respiratory equipment.

Eve Protection: Safety glasses with side shields

Cell Signaling Technology, Inc



### Material Safety Data Sheet (MSDS)

Revision Date 2012-09-2

2

# 12. ECOLOGICAL INFORMATION

The environmental impact of this product has not been fully investigated

Persistence and degradability Data not available Bioaccumulation Data not available Mobility Data not available

# 13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with all applicable environmental laws and regulations.

# 14 TRANSPORT INFORMATION

IATA Not regulated as dangerous goods DOT Not regulated as dangerous goods MEX Not regulated as dangerous goods

# 15. REGULATORY INFORMATION

### **OSHA Hazards** No known OSHA hazards

## GHS Classification

Not a dangerous substance according to GHS.

# U.S. Federal Regulations

# **SARA 302**

No chemicals in this material are subject to reporting requirements established by SARA Title III, Section 302

# SARA 311/312

# **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals that exceed the reporting levels of the Act and Title 40 of the Code of Federa Regulations, Part 372.

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

# Material Safety Data Sheet (MSDS) SDS#:6592 Revision Date 2012-09-21

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any substances regulated as hazardous air pollutants (HAPs) under Section 112 of the Clean Air Act Amendments of 1990.

U.S. State Regulations
Massachusetts Right-to-Know Components:
New Jersey Right-to-Know Components:
Pennsylvania Right-to-Know Components:

California Proposition 65
This product does not contain chemicals known to the State of California to cause birth defects or other reproductive harm.

# WHMIS Hazard Class Not controlled.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

# 16. OTHER INFORMATION

Revision date Revision Note 2012-09-21
\*\*\*Indicates updated section

Disclaimer

The information provided on this material safety data sheet is to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Material Safety Data Sheet

Cell Signaling Technology, Inc