Annexin V-CF Blue PI Apoptosis Staining / Detection Kit
ab214485

Overview

<table>
<thead>
<tr>
<th>Product name</th>
<th>Annexin V-CF Blue PI Apoptosis Staining / Detection Kit</th>
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<tbody>
<tr>
<td>Detection method</td>
<td>Fluorescent</td>
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<tr>
<td>Sample type</td>
<td>Adherent cells, Suspension cells</td>
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<tr>
<td>Assay type</td>
<td>Cell-based (quantitative)</td>
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<tr>
<td>Species reactivity</td>
<td>Reacts with: Mammals, Other species</td>
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<tr>
<td>Product overview</td>
<td>Annexin V-CF Blue PI Apoptosis Staining / Detection Kit (ab214485) contains Annexin V labeled with CF Blue, which allows the identification and quantitation of apoptotic cells on a single-cell basis by flow cytometry. Simultaneous staining of cells with Annexin V – CF Blue (blue fluorescence) and the non-vital dye propidium iodide (PI) (orange fluorescence) allows the discrimination of intact cells (Annexin V-CF Blue negative, PI Staining Solution negative), early apoptotic (Annexin V-CF Blue positive, PI Staining Solution negative) and late apoptotic or necrotic cells (Annexin V-CF Blue positive, PI Staining Solution positive). CF-Blue can be used as direct replacement for Pacific Blue™ or similar blue dyes.</td>
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Notes

Apoptosis is a regulated process of cell death that occurs during embryonic development as well as maintenance of tissue homeostasis. Inappropriately regulated apoptosis is implicated in different disease states, such as neurodegeneration disease and cancer. The apoptosis program is characterized by morphologic features, including loss of plasma membrane asymmetry and attachment, condensation of the cytoplasm and nucleus, and compaction and fragmentation of the nuclear chromatin. Exposure of phosphatidylserine (PS) on the external surface of the cell membrane has been reported to occur in the early phases of apoptotic cell death, during which the cell membrane remains intact. In leukocyte apoptosis, PS on the outer surface of the cell marks the cell for recognition and phagocytosis by macrophages. The human vascular anticoagulant, annexin V, is a 35-36 kDa Ca²⁺ dependent phospholipid binding protein that has a high affinity for PS, and shows minimal binding to phosphatidylcholine and sphingomyelin. Changes in PS asymmetry, which can be analyzed by measuring annexin V binding to the cell membrane, are generally observed before morphological changes associated with apoptosis occurred and before membrane integrity is lost.

Platform

Flow cytometer

Properties
Storage instructions
Store at +4°C. Please refer to protocols.

<table>
<thead>
<tr>
<th>Components</th>
<th>Quantity</th>
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<tbody>
<tr>
<td>Annexin V-CF Blue Conjugate (PBS, pH 7.2)</td>
<td>1 x 500µl</td>
</tr>
<tr>
<td>Propidium Iodide Staining Solution (in PBS, pH 7.4)</td>
<td>1 x 500µl</td>
</tr>
<tr>
<td>10X Binding Buffer Concentrate</td>
<td>1 x 50ml</td>
</tr>
</tbody>
</table>

Function
This protein is an anticoagulant protein that acts as an indirect inhibitor of the thromboplastin-specific complex, which is involved in the blood coagulation cascade.

Involvement in disease
Pregnancy loss, recurrent, 3

Sequence similarities
Belongs to the annexin family.
Contains 4 annexin repeats.

Domain
The [IL]-x-C-x-x-[DE] motif is a proposed target motif for cysteine S-nitrosylation mediated by the iNOS-S100A8/A9 transnitrosylase complex.
A pair of annexin repeats may form one binding site for calcium and phospholipid.

Post-translational modifications
S-nitrosylation is induced by interferon-gamma and oxidatively-modified low-density lipoprotein (LDL(ox)) possibly implicating the iNOS-S100A8/9 transnitrosylase complex.

Images
Untreated Jurakt cells were stained with Annexin V-CF Blue PI Apoptosis Detection Kit (ab214485), following assay protocol.

Annexin V-CF Blue PI Apoptosis Detection Kit
Jurakt cells treated with 6 μM camptothecin for four hours were stained with Annexin V-CF Blue PI Apoptosis Detection Kit (ab214485), following assay protocol. Gating showing the different populations of live, dead and apoptotic cells are shown in the figure.

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