ab65311

Cytochrome c Releasing Apoptosis Assay Kit

Instructions for Use

For the rapid, sensitive and accurate detection of Cytochrome c translocation from Mitochondria into Cytosol during Apoptosis in cells and tissues

This product is for research use only and is not intended for diagnostic use.

PLEASE NOTE: With the acquisition of BioVision by Abcam, we have made some changes to component names and packaging to better align with our global standards as we work towards environmental-friendly and efficient growth. You are receiving the same high-quality products as always, with no changes to specifications or protocols.

Version 8a, Last updated 14 March 2024

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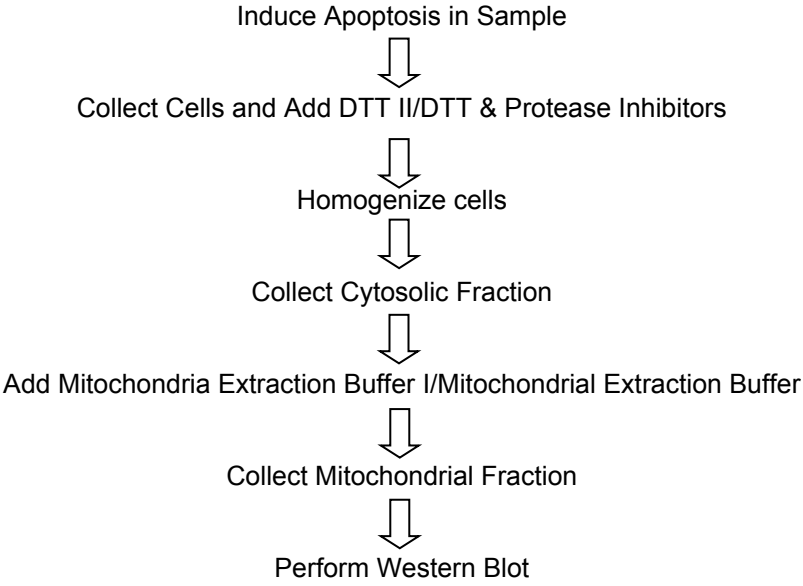
1. Overview

Cytochrome c plays an important role in apoptosis. The protein is located in the space between the inner and outer mitochondrial membranes. An apoptotic stimulus triggers the release of cytochrome c from the mitochondria into cytosol where it binds to Apaf-1. The cytochrome c/Apaf-1 complex activates caspase-9, which then activates caspase-3 and other downstream caspases.

Abcam's Cytochrome c Releasing Apoptosis Assay Kit provides an effective means for detecting cytochrome c translocation from mitochondria into cytosol during apoptosis. The kit provides unique formulations of reagents to isolate a highly enriched mitochondria fraction from cytosol. The procedure is so simple and easy to perform; no ultracentrifugation is required and no toxic chemicals are involved. Cytochrome c releasing from mitochondria into cytosol is then determined by Western blotting using the cytochrome c antibody provided in the kit.

2. Protocol Summary



3. Components and Storage

A. Kit Components

Item	Quantity
Mitochondria Extraction Buffer I/Mitochondria Extraction Buffer	10 mL
5X Cytosol Extraction Buffer I/5X Cytosol Extraction Buffer	20 mL
DTT II/DTT (1 M)	100 µL
Protease Inhibitor Cocktail I/500X Protease Inhibitor Cocktail (Lyophilized)	1 vial
Anti-Mouse Cyt C Antibody/Anti-Cytochrome c Mouse mAb	100 µL

* Store kit at -20°C.

- Be sure to keep all buffers on ice at all times during the experiment.
- Read the entire protocol before beginning the procedure.
- After opening the kit, store buffers at +4°C. Store the Anti-Mouse Cyt C Antibody/antibody, Protease Inhibitor Cocktail I/Protease Inhibitor Cocktail, and DTT II/DTT at -20°C.

Protease Inhibitor Cocktail I/PROTEASE INHIBITOR COCKTAIL: Add 250 µL DMSO before use.

Mitochondria Extraction Buffer I/MITOCHONDRIA EXTRACTION BUFFER MIX: Before use, prepare just enough Mitochondria Extraction Buffer I/Mitochondria Extraction Buffer Mix for your experiment: Add 2 µL Protease Inhibitor Cocktail I/Protease Inhibitor cocktail and 1 µL DTT II/DTT to 1 mL of Mitochondria Extraction Buffer I/Mitochondria Extraction Buffer.

Cytosol Extraction Buffer I/CYTOSOL EXTRACTION BUFFER MIX: Dilute the 5X Cytosol Extraction Buffer I/5X Cytosol Extraction Buffer to 1X buffer with ddH_2O. Before use, prepare just enough Cytosol Extraction Buffer I/Cytosol Extraction Buffer Mix for your experiment: Add 2 µL Protease Inhibitor Cocktail I/Protease Inhibitor cocktail and 1 µL DTT II/DTT to 1 mL of 1X Cytosol Extraction Buffer I/Cytosol Extraction Buffer.

B. Additional Materials Required

- Microcentrifuge
- Pipettes and pipette tips

- Dounce tissue grinder
- Orbital shaker

4. Assay Protocol

1. Induce apoptosis in cells by desired method. Concurrently incubate a control culture *without* induction.

2. Collect cells (5 x 10^7) by centrifugation at 600 x g for 5 minutes at 4°C.

3. Wash cells with 10 mL of ice-cold PBS. Centrifuge at 600 x g for 5 minutes at 4°C. Remove supernatant.

4. a) Cells: Re-suspend cells with 1ml of 1X Cytosol Extraction Buffer I/Cytosol Extraction Buffer Mix containing DTT II/DTT and Protease Inhibitor Cocktail I/Protease Inhibitors. Incubate on ice for 10 minutes.

b) Frozen tissue may be suitable (although not tested) but would recommend fresh. If you must use frozen: washing the tissue with ice cold PBS and then resuspend each 10 mg of tissue in 1ml of Cytosol Extraction Buffer I/cytosol extraction buffer.

5. Homogenize cells in an ice-cold Dounce tissue grinder. Perform the task with the grinder on ice. We recommend 30-50 passes with the grinder; however, efficient homogenization may depend on the cell type.

Notes:

a) To check the efficiency of homogenization, pipette 2-3 µL of the homogenized suspension onto a coverslip and observe

under a microscope. A shiny ring around the nuclei indicates that cells are still intact. If 70-80% of the nuclei do not have the shiny ring, proceed to step 7. Otherwise, perform 10-20 additional passes using the Dounce tissue grinder.

b) Excessive homogenization should also be avoided, as it can cause damage to the mitochondrial membrane which triggers release of mitochondrial components.

6. Transfer homogenate to a 1.5 mL microcentrifuge tube, and centrifuge at 700 x g for 10 minutes at 4°C.

7. Collect supernatant into a fresh 1.5 mL tube, and centrifuge at 10,000 x g for 30 minutes at 4°C. Collect supernatant as Cytosolic Fraction.

8. Re-suspend the pellet in 100 µL Mitochondria Extraction Buffer I/Mitochondrial Extraction Buffer Mix containing DTT II/DTT and Protease Inhibitor Cocktail I/protease inhibitors (as prepared in section A), vortex for 10 seconds and save as Mitochondrial Fraction.

9. Load 10 µg each of the cytosolic and mitochondrial fractions isolated from un-induced and induced cells on a 12% SDS-PAGE. Then proceed with standard Western blot procedure and probe with Anti-Mouse Cyt C Antibody/cytochrome c antibody (1:200 dilution is recommended).

Note:

The Anti-Mouse Cyt C Antibody/anti-Cytochrome c antibody is a mouse monoclonal antibody that reacts with denatured human, mouse, and rat cytochrome c.

For further technical questions please do not hesitate to contact us by email (technical@abcam.com) or phone (select "*contact us*" on www.abcam.com for the phone number for your region).

Technical Support

For all technical or commercial enquiries please go to:
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