Caspase-Family Colorimetric Assay (TBS2050; 9 x 25Assay; Store at -20°C)

DESCRIPTION

Apoptosis plays a fundamental role in many normal biological processes as well as in several disease states. Apoptosis can be induced by various stimuli that all produce the same end result: systematic and orderly cell death.

Caspases cleave a variety of cellular substrates after aspartic acid residues—a characteristic that is central to their role in mammalian apoptosis. Caspases are synthesized in the cytosol of mammalian cells as inactive zymogens, which become active through intracellular caspase cascades.

The Tribioscience Caspase-Family Colorimetric Assay Kits provides a simple and convenient means for assaying the activity of caspases family members (caspase-1, 2, 3, 4, 5, 6, 8, 9 and 10). The assay is based on spectrophotometric detection of the chromophore *p*-nitroaniline (*p*NA) after cleavage from the labeled substrate. The *p*NA light emission can be quantified using a spectrophotometer or a microtiter plate reader at 400- or 405-nm. Comparison of the absorbance of *p*NA from an apoptotic sample with an uninduced control allows determination of the fold increase in caspase-family member activity.

Kit Components and Storage for 100 Assays

Name	25 Assays	Storage
Caspase-1 Substrate	30 µL	-20°C
Caspase-2 Substrate	30 µL	-20°C
Caspase-3 Substrate	30 µL	-20°C
Caspase-4 Substrate	30 µL	-20°C
Caspase-5 Substrate	30 µL	-20°C
Caspase-6 Substrate	30 µL	-20°C
Caspase-8 Substrate	30 µL	-20°C
Caspase-9 Substrate	30 µL	-20°C
Caspase-10 Substrate	30 µL	-20°C
Cell Lysis Buffer	50 mL	-20°C
Assay Buffer	25 mL	-20°C
DTT (1M)	1.8 mL	-20°C
Shelf Life: 1year.		

APPLICATIONS

- Apoptosis
- Drug screening
- Growth factors
- Cytotoxicity

ASSAY PROTOCOL

1. Treatment cells by desired method include without induction control. We recommend performing another two control reactions: (1) apoptosis inducer positive control; (2) caspase inhibitor treated induced cells control.
2. Count cells and pellet 2-5x10^6 cells in 1.5 mL tubes.
3. Resuspend cells in 50 µL of chilled Cell Lysis Buffer and incubate cells on ice for 10 minutes.
4. Centrifuge for 1 min (10,000 x g).
5. Transfer supernatant (cytosolic extract) to a fresh tube and put on ice for immediate assay or aliquot and store at –80°C for future use.
6. Measure protein concentration (Protein assay kit, TBS2005).
7. At 96 wells flat clear plate, add 50-300 µg sample protein into 50 µL Cell Lysis Buffer for each assay.
8. Prepare enough working reagent by adding 50 µL Assay buffer, 5 µL DTT, 1 µL substrate for each Assay.
9. Transfer 50µL working reagent into sample wells.
10. Seal plate with plate sealer. Incubate at 37°C for 1-2hr, protect from light.
11. Read plate at 405nm in a plate reader, or spectrophotometer using a 100-µl micro quartz cuvette.
12. Fold-increase in Caspase activity can be determined by comparing these results with the level of uninduced control.

Note: background reading from cell lysates and buffers should be subtracted from the readings of both induced and the uninduced samples before calculating fold increase in caspase activity.

RELATED PRODUCTS

Resazurin Cell Viability (TBS2001)
LDH Cytotoxicity Assay (TBS2002)
MTT Cell Viability Assay (TBS 2003)
MTS Cell Viability Assay (TBS2004)
Catalase Assay (TBS2006)
ATP Colorimetric/ Fluorometric Assay (TBS 2010)
ADP Colorimetric/Fluorometric Assay (TBS2020)
XTT Cell Viability Assay (TBS2021)
CCK-8 (TBS2022)
Caspase-1 Colorimetric Assay (TBS2040)
Caspase-3 Colorimetric Assay (TBS2030)
BrdU Cell Proliferation Colorimetric Assay (TBS2086)
Cytochrome c Reductase Activity Assay (TBS2116)
AOPI Viability Assay for Flow Cytometry (TBS2069)

For research use only.

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