

Smac (h2): 293T Lysate: sc-170421

BACKGROUND

The activation of caspases is a key regulatory step in apoptosis. Once cytochrome c is released from the mitochondria into the cytosol, it binds Apaf-1 to form an oligomeric cytochrome c/Apaf-1 complex, which induces caspase activation. Inhibitors of Apoptosis Proteins (IAPs), are a family of proteins that regulate the cytochrome c/Apaf-1 caspase activating pathway. Like cytochrome c, Smac (for second mitochondria-derived activator of caspase, also designated DIABLO in mouse for direct IAP binding protein with low PI) promotes caspase activation in the cytochrome c/Apaf-1/caspase-9 pathway by binding IAPs and preventing them from inhibiting caspases. In healthy cells, Smac is a mitochondrial protein, but when cells undergo apoptosis, Smac is released into the cytosol.

REFERENCES

1. Zou, H., et al. 1997. Apaf-1, a human protein homologous to *C. elegans* CED-4, participates in cytochrome c-dependent activation of caspase-3. *Cell* 90: 405-413.
2. Deveraux, Q.L., et al. 1998. IAPs block apoptosis events induced by caspase-8 and cytochrome c by direct inhibition of distinct caspases. *EMBO J.* 17: 2215-2223.
3. Thornberry, N.A. and Lazebnik, Y. 1998. Caspase: enemies within. *Science* 281: 1312-1316.
4. Du, C.H., et al. 2000. Smac, a mitochondrial protein that promotes cytochrome c-dependent caspase activation by eliminating IAP inhibition. *Cell* 102: 33-42.
5. Verhagen, A.M., et al. 2000. Identification of DIABLO, a mammalian protein that promotes apoptosis by binding to and antagonizing IAP proteins. *Cell* 102: 43-53.
6. Jia, L., et al. 2003. Role of Smac in human leukaemic cell apoptosis and proliferation. *Oncogene* 22: 1589-1599.
7. Uren, R.T., et al. 2004. Mitochondrial release of pro-apoptotic proteins: electrostatic interactions can hold cytochrome c but not Smac/DIABLO to mitochondrial membranes. *J. Biol. Chem.* 280: 2266-2274.
8. Chulu, J.L., et al. 2007. Apoptosis induction by avian reovirus through p53 and mitochondria-mediated pathway. *Biochem. Biophys. Res. Commun.* 356: 529-535.
9. Voortman, J., et al. 2007. Bortezomib, but not cisplatin, induces mitochondria-dependent apoptosis accompanied by up-regulation of noxa in the non-small cell lung cancer cell line NCI-H460. *Mol. Cancer Ther.* 6: 1046-1053.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: DIABLO (human) mapping to 12q24.31.

PRODUCT

Smac (h2): 293T Lysate represents a lysate of human Smac transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Smac (h2): 293T Lysate is suitable as a Western Blotting positive control for human reactive Smac antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

RESEARCH USE

For research use only, not for use in diagnostic procedures.