**Jurkat Apoptosis Cell Extracts (etoposide)**

**Description:** Total cell lysates from Jurkat cells (a human lymphoma cell line) were untreated or treated with 25 μM etoposide for 5 hours to activate apoptotic cascades and induce proteolytic cleavage of various apoptosis-related proteins including caspases, IAP and PARP. This lysate pair is produced as a molecular weight control for western blotting of various apoptosis-related proteins. Boil lysates for 2 minutes in the original tube, then load 10-15 μl per mini-gel lane.

**Background:** Apoptosis is a regulated physiological process leading to cell death. Caspases, a family of cysteine acid proteases, are central regulators of apoptosis. Initiator caspases (including 8, 9, 10 and 12) are closely coupled to proapoptotic signals. Once activated, these caspases cleave and activate downstream effector caspases (including 3, 6 and 7), which in turn cleave cytoskeletal and nuclear proteins like PARP, α-fodrin, DFF and lamin A, and induce apoptosis. Cytochrome c released from mitochondria is coupled to the activation of caspase-9, a key initiator caspase (1). Proapoptotic stimuli include the FasL, TNF-α, DNA damage and ER stress. Fas and TNFR activate caspases 8 and 10 (2), DNA damage leads to the activation of caspase-9 and ER stress leads to the calcium-mediated activation of caspase-12 (3). The inhibitor of apoptosis protein (IAP) family includes XIAP and survivin and functions by binding and inhibiting several caspases (4,5). Smac/Diablo, a mitochondrial protein, is released into the cytosol upon mitochondrial stress and competes with caspases for binding of IAPs. The interaction of Smac/Diablo with IAPs relieves the inhibitory effects of the IAPs on caspases (6).

**Background References:**

**Storage:** Supplied in SDS Sample Buffer: 62.5 mM Tris-HCl (pH 6.8 at 25°C), 2% w/v SDS, 10% glycerol, 50 mM DTT, 0.01% w/v bromophenol blue or phenol red. Store at –20°C, or at –80°C for long-term storage.

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.