Revision 1

Store at -20C

#12742

Procaspase Antibody Sampler Kit

1 Kit (7 x 20 microliters)

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
Caspase-3 (D3R6Y) Rabbit mAb	14220	20 µl	35, 19, 17 kDa	Rabbit IgG
Caspase-6 Antibody	9762	20 µl	15, 35 kDa	Rabbit
Caspase-7 (D2Q3L) Rabbit mAb	12827	20 µl	20, 35 kDa	Rabbit IgG
Caspase-8 (1C12) Mouse mAb	9746	20 µl	18, 43, 57 kDa	Mouse IgG1
Caspase-9 (C9) Mouse mAb	9508	20 µl	47/37/35 (H). 49/39/37 (M). 51/40/38 (R). kDa	Mouse IgG1
Lamin A/C (4C11) Mouse mAb	4777	20 µl	74 (Lamin A), 63 (Lamin C) kDa	Mouse IgG2a
PARP Antibody	9542	20 µl	89, 116 kDa	Rabbit
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat
Anti-mouse IgG, HRP-linked Antibody	7076	100 µl		Horse

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Procaspase Antibody Sampler Kit provides an economical means to evaluate the abundance and activation of caspases. The kit contains enough primary antibody to perform at least two western blots per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

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 2, 8, 9, 10 and 12) are closely coupled to proapoptotic signals, which include the FasL, TNF-α, and DNA damage. 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 (1,2).

Caspase-8 (FLICE, Mch5, MACH) and Caspase-9 (ICE-LAP6, Mch6) are initiator caspases. CD95 receptor (Fas/APO-1) and tumor necrosis factor receptor 1 (TNFR1) activate caspase-8, leading to the release of the caspase-8 active fragments, p18 and p10 (3-6). Cytochrome c released from the mitochondria associates with procaspase-9 (47 kDa)/Apaf 1. Apaf-1 mediated activation of caspase-9 involves intrinsic proteolytic processing resulting in cleavage at Asp315 and producing a p35 subunit. Another cleavage occurs at Asp330 producing a p37 subunit that can serve to amplify the apoptotic response (7-11).

Caspase-3 (CPP-32, Apoptain, Yama, SCA-1), Caspase-6 (Mch2), and Caspase-7 (CMH-1, Mch3, ICE-LAP3) are effector caspases (12-16). Activation of caspase-3 requires proteolytic processing of its inactive zymogen/proform into activated p17 and p12 subunits (17). Procaspase-7 is activated through proteolytic processing by upstream caspases at Asp23, Asp198, and Asp206 to produce the mature subunits (14,16). Procaspase-6 is cleaved by caspase-3 at Asp23, Asp179 and Asp193 to form active large (p18) and small (p11) subunits (7).

PARP, a 116 kDa nuclear poly (ADP-ribose) polymerase, appears to be involved in DNA repair in response to environmental stress (18). This protein can be cleaved by many ICE-like caspases *in vitro* (2,19) and is one of the main cleavage targets of caspase-3 *in vivo* (17,20). In human PARP, the cleavage occurs between Asp214 and Gly215, which separates the PARP amino-terminal DNA binding domain (24 kDa) from the carboxy-terminal catalytic domain (89 kDa) (17,19). PARP helps cells to maintain their viability; cleavage of PARP facilitates cellular disassembly and serves as a marker of cells undergoing apoptosis (21).

Lamins are nuclear membrane structural components that are important in maintaining normal cell functions such as cell cycle control, DNA replication, and chromatin organization (22-24). Lamin A/C is cleaved by caspase-6 and serves as a marker for caspase-6 activation. During apoptosis, lamin A/C is specifically cleaved into large (41-50 kDa) and small (28 kDa) fragments (24,25). The cleavage of lamins results in nuclear disregulation and cell death (26,27).

Background References

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