



Qty: 100 µg/200 µL  
Mouse anti-Caspase 3  
Catalog No. 437800

## Mouse anti- Caspase 3

### FORM

This affinity-purified mouse monoclonal antibody is supplied as a 200 µL aliquot at a concentration of 0.5 mg/mL in PBS, pH 7.4, containing 0.1% sodium azide. This antibody is highly purified from mouse ascites by protein A chromatography.

Clone: 74T2      Isotype: IgG1

### IMMUNOGEN

Recombinant protein derived from the N-terminus of human Caspase 3 protein (accession # P42574, NP\_116786), which is identical to chimpanzee and 97% similar to Rhesus monkey, 90% similar to horse, 89% similar to rat and 87% similar to mouse.

### SPECIFICITY

This antibody is specific for human caspase 3 (CASP-3, Apopain, Cysteine protease CPP32, Yama protein, CPP-32, SREBP cleavage activity1, SCA-1) protein. On Western blots of human Jurkat cell lysates, it identifies the target band (endogenous levels of full length caspase 3) at ~32 kDa.

### REACTIVITY

Reactivity has been confirmed with human Jurkat cell lysates using Western blotting. The reactivity has also been confirmed with human Jurkat cells using immunoprecipitation and with HeLa cells using immunofluorescence. Based on amino acid sequence homology, reactivity with chimpanzee, Rhesus monkey, horse, rat and mouse, is also expected.

Sample	Western Blotting	Immunofluorescence	Immunoprecipitation
Human	+++	+++	+++
Chimpanzee	ND	ND	ND
Monkey (Rhesus)	ND	ND	ND
Horse	ND	ND	ND
Rat	ND	ND	ND
Mouse	ND	ND	ND

(Excellent +++, Good ++, Poor +, No reactivity 0, Not applicable N/A, Not determined ND)

### USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

**Western Blotting:** 2 µg/mL  
**Immunofluorescence:** 2 µg/mL  
**Immunoprecipitation:** 5 µg/IP reaction

(cont')

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**STORAGE**

Store at 2-8°C for up to one month. Store at -20°C for long-term storage. Avoid repeated freezing and thawing.

**BACKGROUND**

Mammalian cells have evolved elaborate mechanisms of programmed cell death (apoptosis), which is characterized by the activation of caspases and consequent widespread biochemical and morphological perturbations resulting in cell death.<sup>1</sup> Among the critical cysteine protease family members, caspase 3 plays an essential role in the cleavage of diverse cellular proteins.<sup>2</sup> Caspase 3 exists in the cell as an inactive 30 kDa proenzyme, consisting of an NH<sub>2</sub>-terminal prodomain, a large subunit, and a small subunit. Upon activation by upstream stimuli and during apoptosis, the precursor molecule is cleaved into active 17 and 12 kDa subunits by upstream proteases such as caspase 6 (Mch2), caspase 8 (FLICE) and Ganyzyme B. The downstream substrates of caspase 3 include poly-ADP ribose polymerase (PARP), sterol regulatory element binding proteins (SREBPs), nuclear lamins and others. The overexpression of caspase 3 can result in apoptosis. Likewise, the inhibition of caspase 3 or other caspases can prevent cells from entering the apoptotic pathway.<sup>3</sup>

Caspase 3 is highly expressed in lung, spleen, heart, liver and kidney and in cells of the immune system. Caspase 3 is moderately expressed in brain and skeletal tissue. Studies have demonstrated that combining a tumor specific antibody with the proapoptotic activity of the caspase 3 will have a potent and selective antitumor activity which can be used either as cell based therapy or as DNA vaccine.<sup>4</sup> In brain caspase 3 is the predominant caspase involved in the cleavage of beta-amyloid (Abeta) precursor protein, which is associated with neuronal death in the Alzheimer disease.<sup>5</sup>

**REFERENCES**

1. Hengartner MO *Cell* 104 (3):325-8, 2001.
2. Jin CY et al. *Biol Pharm Bull* 30 (8):1432-7, 2007.
3. Thornberry NA et al. *Science* 281 (5381):1312-6, 1998.
4. Jia Lt. et al. *Cancer Res* 63 (12):3257-62, 2003.
5. Vassar R *Neuron* 54 (5):671-3, 2007.

**RELATED PRODUCTS**

<b>Product</b>	<b>Conjugate</b>	<b>Cat. No.</b>
Protein A	Sepharose 4B	10-1041
rec-Protein G	Sepharose 4B	10-1241
ZyMAX™ Goat anti-rabbit IgG	Unconjugated	81-6100
ZyMAX™ Goat anti-mouse IgG	Unconjugated	81-6500

Secondary antibody conjugates.

<b>Conjugate</b>	<b>Goat anti-rabbit IgG (H+L)</b>	<b>Goat anti-mouse IgG (H+L)</b>	<b>Ex/Em*</b>	<b>Fluorescence similar to--</b>
Alexa Fluor® 488	A11008	A11001	495/519	FITC
Alexa Fluor® 555	A21428	A21422	555/565	Cy3
Alexa Fluor® 594	A11012	A11005	590/617	Texas Red
Alexa Fluor® 647	A21244	A21235	650/668	Cy5
HRP	81-6120	81-6520	NA**	NA
AP	81-6122	81-6522	NA	NA
Biotin	B2770	B2763	NA	NA

\*Excitation/emission (nm); \*\*Not applicable

For additional secondary antibody conjugates, visit [www.invitrogen.com/antibodies](http://www.invitrogen.com/antibodies)

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