

# Product Information

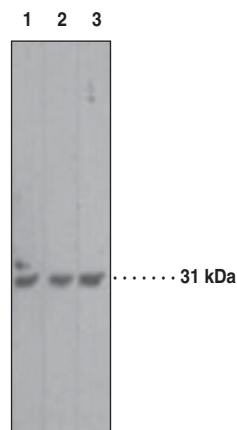


## Caspase-3 Monoclonal Antibody (Clone 31A1067)

Item No. 13909

- Contents:** This vial contains 100 µg of protein G-purified IgG in 200 µl PBS containing 0.05% BSA and 0.05% sodium azide.
- Synonyms:** Apopain, CPP32, ICE3, Yama
- Antigen:** Recombinant full-length human caspase-3
- Host:** Mouse, clone 31A1067
- Isotype:** IgG<sub>1K</sub>
- Cross Reactivity:** (+) Human, mouse, and rat caspase-3
- Storage:** ≤6 months at 4°C; ≥6 months at -20°C
- Applications:** Western blot (WB), immunohistochemistry frozen and paraffin-embedded sections); the recommended starting concentration for WB is 2-5 µg/ml. The antibody detects both pro-caspase-3 (~32 kDa) and the large subunit of the active/cleaved form (~14-21 kDa) of caspase-3. The large subunit of the cleaved form may appear as one or two or even as a stack of bands depending on the presence or absence of the caspase-3 pro-domain.

Caspases are a family of cysteine proteases that are key mediators of programmed cell death or apoptosis.<sup>1</sup> The precursor form of all caspases is composed of a prodomain and large and small catalytic subunits. The active forms of caspases are generated by several stimuli including ligand-receptor interactions, growth factor deprivation, and inhibitors of cellular functions. All known caspases require cleavage adjacent to aspartates to liberate one large and one small subunit, which associate into a tetramer to form the active enzyme. The gene for caspase-3 also known as Yama, CPP32, and apopain codes for a 32 kDa protein.<sup>2-4</sup> Caspase-3 cleaves the death substrate poly(ADP-ribose) polymerase (PARP) to a specific 85 kDa form observed during apoptosis and is inhibitable by the CrmA protein. Other caspase-3 substrates include DNA-PK, actin, GAS2, and pro-caspase-6.<sup>5</sup> Caspase-3 is activated by cleavage events at Asp<sup>28</sup>/Ser<sup>29</sup> (between N-terminal pro-domain) and Asp<sup>175</sup>/Ser<sup>176</sup> (between large and small subunits) to generate a large subunit of 17 kDa and a small subunit of 12 kDa.<sup>3</sup>



Lane 1: Human heart lysate  
Lane 2: Murine heart lysate  
Lane 3: Rat heart lysate

### References

1. Cohen, G.M. Caspases: The executioners of apoptosis. *Biochem. J.* **326**, 1-16 (1997).
2. Fernandes-Alnemri, T., Litwack, G., and Alnemri, E.S. CPP32, a novel human apoptotic protein with homology to *Caenorhabditis elegans* cell death protein Ced-3 and mammalian interleukin-1 $\beta$ -converting enzyme. *J. Biol. Chem.* **269**, 30761-30764 (1994).
3. Tewari, M., Quan, L.T., O'Rourke, K., et al. Yama/ CPP32 $\beta$ , a mammalian homolog of CED-3, is a CrmA-inhibitable protease that cleaves the death substrate poly(ADP-ribose) polymerase. *Cell* **81**, 801-809 (1995).
4. Shi, L., Chen, G., Macdonald, G., et al. Activation of an interleukin 1 converting enzyme-dependent apoptosis pathway by granzyme B. *Proc. Natl. Acad. Sci. USA* **93**, 11002-11007 (1996).
5. Villa, P., Kaufman, S.H., and Earnshaw, W.C. Caspases and caspase inhibitors. *Trends Biochem. Sci.* **22**, 388-393 (1997).

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**Mailing address**  
1180 E. Ellsworth Road  
Ann Arbor, MI  
48108 USA

**Phone**  
(800) 364-9897  
(734) 971-3335

**Fax**  
(734) 971-3640

**E-Mail**  
custserv@caymanchem.com

**Web**  
[www.caymanchem.com](http://www.caymanchem.com)

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