

Product Information

Anti-Caspase 3, Active

produced in rabbit, IgG fraction of antiserum

Product Number **C8487**

Product Description

Anti-Caspase 3, Active, is produced in rabbit using as immunogen a synthetic peptide corresponding to the cleavage site of human caspase 3, (conjugated to KLH). This sequence is identical in many species including mouse, rat, dog, pig, and bovine caspase 3. Whole antiserum is purified to provide an IgG fraction of antiserum. The resulting IgG fraction is further purified by absorption on the caspase 3 peptide (human) corresponding to the uncleaved caspase 3 site sequence.

Anti-Caspase 3, Active may be detected by immunoblotting (17 kDa) and indirect immunofluorescence. Staining of active caspase 3 in immunofluorescence is specifically inhibited with the caspase 3 immunizing peptide.

Species reactivity: human, mouse, rat, dog, pig, and bovine.

Apoptosis or programmed cell death (PCD), is a crucial process in development, normal cellular differentiation, and tissue homeostasis in all multicellular organisms.¹ Apoptosis can be triggered by a variety of cellular "death" stimuli including tumor necrosis factor (TNF), Fas ligand (FasL), and granzyme B. Among the many known effectors and regulators of apoptosis, the ICE-related caspases play a crucial role in almost every cell type.^{1,2} At least 13 different caspases have been identified, which can be grouped in three different subfamilies based on their substrate specificities.

Caspase 3 (also termed CPP32, Yama, apopain) is one of the key effectors of apoptosis, reactive downstream of caspase 9 in the apoptotic pathway.^{3,4} Caspase 3 is a cytosolic protein found in cells as an inactive 32 kDa proenzyme. It is activated by proteolytic cleavage into the 17-19 kDa (p17, p18) and 12 kDa (p12) active subunits only when cells undergo apoptosis.^{4,5} Many key proteins are cleaved by caspase 3 during apoptosis, including poly (ADP-ribose) polymerase (PARP), sterol-regulatory element-binding proteins (SREBPs), DNA-dependent protein kinase (DNA-PK), α -fodrin, gelsolin, PKC δ , and DFF45/ICAD.^{2,6-8}

In some neurodegenerative diseases, such as Huntington disease (HD) and Alzheimer's disease (AD), specific neuronal caspase substrates have been identified. In Huntington disease (HD), caspase 3 specifically cleaves the HD gene product, Huntingtin.⁹ High levels of caspase 3 are found in lymphocytes, suggesting that caspase 3 is an important mediator of apoptosis in the immune system.³ Deletion of *CASP-3* gene in mice causes premature lethality and profoundly affects brain development resulting in a variety of hyperplasias and disorganized cell deployment,¹⁰ indicating that caspase 3 plays a critical role during morphogenetic cell death in the mammalian brain.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at -20°C . For continuous use, the product may be stored at $2-8^{\circ}\text{C}$ for up to one month. For prolonged storage, freeze in working aliquots at -20°C . Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a minimum working antibody dilution of 1:500 is recommended using human recombinant caspase 3, active, Product Number C1224.

Indirect immunofluorescence: a minimum working antibody dilution of 1:1,000 is recommended using human epitheloid carcinoma HeLa cell line, treated with staurosporine.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

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VS, MG, KAA, PHC, MAM 03/19-1