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Product Information

Monoclonal Anti-Caspase 11 antibody produced in rat
clone 17D9, purified from hybridoma cell culture

Product Number **C1354**

Product Description

Monoclonal Anti-Caspase 11 (rat IgG2a isotype) is derived from the 17D9 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from rat immunized with a recombinant p30 subunit of mouse caspase 11.[1,2] The antibody is purified from culture supernatant of hybridoma cells, grown in a bioreactor.

Monoclonal Anti-Caspase 11 reacts specifically with mouse caspase 11.[1,2] The antibody may be used in various immunochemical techniques including immunoblotting (doublet at ~35 kDa and ~43 kDa, and the p10 and p30 fragments), immunohistochemistry (frozen sections) and immunoprecipitation.[1,2]

Apoptosis, an evolutionary conserved form of cell suicide, requires specialized machinery. The central component of this machinery is a proteolytic system involving a family of proteases called caspases. These enzymes participate in a cascade that is triggered in response to proapoptotic signals and culminates in cleavage of a set of proteins, resulting in disassembly of the cell.

Caspases (Cysteine-requiring Aspartate protease) are a family of proteases that share similarities in amino acid sequences, structure, and substrate specificity.[3] Caspases can be grouped into three subfamilies based on their amino acid sequence homology. The caspase 1 (ICE-type caspases) subfamily contains caspases 1, 4, 5, 11, and 13. This subfamily along with caspase 12, has a role in inflammation as well as in apoptosis; these proteases may also be indirectly involved in apoptosis as activators of other caspases (upstream activity). Caspase-8 and –10 are involved in death receptor mediated apoptosis. The caspase 2 subfamily contains caspases 2 and 9, while the caspase 3 subfamily contains caspases 3, 6 and 7, and are effectors of apoptosis (downstream activity).Caspases are normally present in the cell as inactive procaspases. The proenzymes (30-50 kDa) contain three domains: an N-terminal prodomain, a large subunit (17-22 kDa), and a small subunit (10-12 kDa).

Proteolytic cleavage at Asp residues removes the regulatory N-terminal prodomain and cleaves the proenzyme into the large and small subunits. The subunits self-associate into heterodimers that in turn form the active caspase as a tetramer consisting of two large and two small subunits. The active caspases continue the cascade by autocleaving, cleaving other procaspases, or cleaving other key proteins such as (but not limited to) poly(ADP-ribose) polymerase (PARP), DNA-dependent protein kinase (DNA-PK), lamins, nuclear mitotic apparatus protein (NuMA), and sterol regulatory element binding proteins (SREBPs). Caspase 11 (also known as Ich-3) gene encodes two protein products of 38 and 43 kDa that belong to the Ced3/ICE family of cystein proteases. Caspase 11 is an “upstream” caspase with a long prodomain. It undergoes a cleavage upon activation, leading to p20 and p10 subunits. Mouse caspase 11 has 46 % identity with murine caspase 1, 45 % identity with human caspase 1, 60 % and 54 % identities with human ICElike proteases caspase 4 and caspase 5, respectively.[1] It shares 26 % to 32 % of sequence identity with *C. elegans* Ced-3, human caspase 2, and caspase 3. Overexpression of caspase 11 in cultured cells induces apoptosis, which can be inhibited by CrmA and Bcl-2. Expression of caspase 11 is not detectable in most tissues of healthy mice and is dramatically elevated *in vivo* after stimulation of LPS.[1,2] Monoclonal antibodies reacting specifically with caspase 11 are useful tool for the study of the protease network, involved in development and regulation, governing the life and death of cells and tissues.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1 % bovine serum albumin and 15 mM sodium azide as a preservative.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is 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
For extended storage, freeze at −20 ^{0}C in working aliquots. 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 dilution samples should be discarded if not used within 12 hours.

Product Profile
Immunoblotting: a working concentration of 5-10 μg/mL is recommended using mouse EL4 cell extracts.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Wang, S., et al., *J. Biol. Chem*., **271**, 20580-20587 (1996).
2. Wang, S., et al., *Cell*, **92**, 501-509 (1998).
3. Thornberry, N.A., and Lazebnik, Y., *Science*, **281**, 1312-1316 (1998).

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