Saint Louis, Missouri 63103 USA
Telephone (800) 325-5832 (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Monoclonal Anti-Caspase 12
Clone 14F7
Purified Rat Immunoglobulin

Product Number **C 7611**

Product Description

Monoclonal Anti-Caspase 12 (rat IgG2a isotype) is derived from the 14F7 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from CD rats immunized with a recombinant mouse caspase 12 (residues 95-318).[1] The antibody is purified from culture supernatant of hybridoma cells, grown in a bioreactor.

Monoclonal Anti-Caspase 12 recognizes the rat and mouse[1] caspase 12 molecule. The antibody may be used in immunoblotting (approx. 50 kDa, recognizes full length and possibly the truncated p20) [1,2] and immunocytochemistry (4% paraformaldehyde-fixed, paraffin-embedded).[1]

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 (**C**ysteine-requiring **Asp**artate prote**ase**) are a family of proteases that share similarities in amino acid sequences, structure, and substrate specificity.[3-6] Caspases are normally present in the cell as inactive procaspases. The proenzyme (30-60 kDa) contains three domains: the NH_2-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.

Caspases can be grouped into three subfamilies based on their amino acid sequence homology. Caspase 12 belongs to the caspase 1 (ICE-type caspases) subfamily, which also contains caspases 1, 4, 5, 11, and 13. This subfamily has a role in inflammation as well as in apoptosis, possibly as activators of other caspases (upstream activity). Overexpression of caspase 12 induces apoptosis, which is inhibited by the pancaspase inhibitor z-VAD-FMK. Caspase 12 is ubiquitously expressed in mouse tissues, at high levels in muscle, liver and kidney and at moderate levels in brain, where it is present in cortical neurons, Purkinje cells, brainstem neurons, and olfactory neurons.[1] Mice deficient in Caspase 12, have demonstrated its involvement in endoplasmic reticulum (ER) stress-induced apoptosis. Monoclonal antibodies reacting specifically with caspase 12 are a useful tool for the study of the protease network involved in development and in regulation of life and death of cells and tissues.

Reagent

Monoclonal Anti-Caspase 12 is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 2 mg/ml.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also 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

A minimum working concentration of 1-2 µg/ml is determined by immunoblotting using a whole cell extract of rat kidney cells NRK cells.

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

References

1. Nakagawa, T., et al., Nature, **403,** 98-103 (2000).
2. Nakagawa, T., et al., J. Cell Biol., **150,** 887-894 (2000).
3. Thromberry, N.A., and Lazebnik, Y., Science, **281,** 1312-1316 (1998).
4. Cohen, G.M., Biochem. J., **326,** 1-16 (1997).
5. Cryns, V., and Yuan, J., Genes Develop., **12,** 1551-1570 (1998).
6. Kidd, V.J., Annu. Rev. Physiol., **60,** 533-573 (1998).

KAA/LPG 03/05