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Product Information

MONOCLONAL ANTI-*m*-CALPAIN (DOMAIN III/IV) CLONE 107-82

Mouse Ascites Fluid
Product Number **C-268**

Product Description

Monoclonal Anti-*m*-Calpain (Domain III/IV) mouse IgG1 is produced by immunizing mice with purified *m*-calpain from bovine skeletal muscle as the immunogen.

This antibody reacts with the 80 kDa subunit of *m*-calpain from several mammalian sources: by immunoblotting detects *m*-calpain from human platelets and erythrocytes, bovine platelets, heart and skeletal muscle and in rat myoblasts, kidney, liver and spleen. Immunofluorescence staining of *m*-calpain in pig LLC-PK1 cells results in diffuse cytoplasmic staining. Has not been shown to be effective in immunoprecipitation experiments. Does not cross-react with μ -calpain, *n*-calpain, calmodulin (Cat. No. C-228) or calpastatin. Epitope mapping studies indicate the epitope is between amino acids 502-699 (domain III/IV) of human *m*-calpain.

The calpain (Ca^{2+} -dependent proteinase or Ca^{2+} -activated neutral protease) system consists of two ubiquitous forms of calpain (*m*-calpain and μ -calpain), a tissue specific calpain (*n*-calpain), and a calpain inhibitory protein (calpastatin). The calpain system has been detected in every vertebrate tissue examined, and has been suggested to play a regulatory role in cellular protein metabolism. This regulatory role may have important implications in platelet aggregation and pathologies associated with altered Ca^{2+} homeostasis and protein metabolism such as ischemic cell injury and degenerative diseases. Inhibitors of calpain have been shown to block dexamethasone- and low-level irradiation-induced apoptosis in thymocytes suggesting that calpain has a regulatory or mechanistic role in apoptotic cell death.

m- and μ -calpains are heterodimers consisting of 28 kDa and 80 kDa subunits. The 28 kDa subunit is identical in the two isoforms, but the 80 kDa subunits differ with ~50% sequence similarity. 28 kDa/80 kDa complexes are thought to be inactive proenzymes which, upon binding of Ca^{2+} , undergo conformational changes that promotes cleavage of the 28 kDa subunit and results in enzyme activation.

Reagents

Monoclonal Anti-*m*-Calpain (Domain III/IV) is supplied as mouse ascites diluted with phosphate buffered saline (PBS) and contains 0.05% sodium azide as a preservative.

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 hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. 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

Recommended starting titer for Monoclonal Anti-*m*-Calpain (Domain III/IV) is 1:500 for immunoblotting and 1:50 for immunohistochemistry. However, optimal working concentration should be determined by serial dilutions.

References

1. Persson, H. et al. "Immunohistochemical localization of calpains and calpastatin in the rabbit eye." *Brain Res.* **611**, 272-278 (1993).
2. Nakamura, M. et al. "Specific increase in calcium-activated neutral protease with low calcium sensitivity (m-calpain) in proerythroblastic K562 cell line cells induced to differentiation by phorbol 12-myristate 13-acetate." *Exp. Cell Res.* **200**, 513-522 (1992).
3. Lane, R.D. et al. "A comparison of the intracellular distribution of μ -calpain, m-calpain, and calpastatin in proliferating human A431 cells." *Exp. Cell Res.* **203**, 5-16 (1992).

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