

## Product Information

### MONOCLONAL ANTI-m-CALPAIN (DOMAIN III), CLONE 9A4H8D3

Mouse Ascites Fluid

Product Number **C-266**

#### Product Description

Monoclonal Anti- $\mu$ -Calpain (Domain III) (mouse IgG1) is produced by immunizing mice with purified  $\mu$ -calpain from bovine skeletal muscle as the immunogen.

This antibody reacts with the 80 kDa subunit of  $\mu$ -calpain from several mammalian sources. By immunoblotting, it detects  $\mu$ -calpain from human platelets and erythrocytes, bovine platelets, heart and skeletal muscle and in rat myoblasts, kidney, liver and spleen. Immunofluorescence staining of  $\mu$ -calpain in pig LLC-PK1 cells results in diffuse cytoplasmic staining. The antibody has not been shown to be effective in immunoprecipitation experiments. It does not cross-react with m-calpain, n-calpain, calmodulin, or calpastatin. Epitope mapping studies indicate the epitope is between amino acids 465-620 (domain III) of human  $\mu$ -calpain.

The calpain ( $\text{Ca}^{2+}$ -dependent proteinase or  $\text{Ca}^{2+}$ -activated neutral protease) system consists of two ubiquitous forms of calpain (m-calpain and  $\mu$ -calpain), tissue specific calpain (n-calpain), and 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  $\text{Ca}^{2+}$  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  $\mu$ -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 approximately 50% sequence similarity. The 28 kDa/80 kDa complexes are thought to be inactive proenzymes which, upon binding of  $\text{Ca}^{2+}$ , undergo conformational changes that promotes cleavage of the 28 kDa subunit and results in enzyme activation.

#### Reagents

Monoclonal Anti- $\mu$ -Calpain (Domain III) is supplied as mouse ascites diluted with phosphate buffered saline (PBS) and contains 0.05% sodium azide.

#### 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 dilution samples should be discarded if not used within 12 hours.

#### Product Profile

Recommended working titer is 1:2,000 for immunoblotting and 1:100 for immunohistochemistry. Note: In order to obtain best results in different techniques and preparations, we recommend determining optimal working concentration by titration test.

## References

1. Neumar, R.W., et al., "Brain  $\mu$ -calpain autolysis during global cerebral ischemia." J. Neurochem., **66**, 421-424 (1996).
2. Ravid, A., et al., "1,25-Dihydroxyvitamin D3 increases the cellular content of the calcium-activated neutral protease  $\mu$ -calpain in renal cell carcinoma." Endocrinology, **135**, 2822-2825 (1994).
3. Glaser, T., et al., "Calpain ( $\text{Ca}^{2+}$ -dependent thiol protease) in erythrocytes of young and old individuals." Proc. Natl. Acad. Sci. USA, **91**, 7879-7883 (1994).
4. Lane, R.D., et al., "A comparison of the intracellular distribution of  $\mu$ -calpain, m-calpain, and calpastatin in proliferating human A431 cells." Exp. Cell Res., **203**, 5-16 (1992).

Kaa 01/02

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.