

Product Information

Monoclonal Anti- μ -Calpain, Large Subunit antibody produced in mouse

clone 15C10, purified immunoglobulin

Catalog Number **C0355**

Product Description

Monoclonal Anti- μ -Calpain, Large Subunit (mouse IgG1 isotype) is produced by immunizing mice with purified calpain from human placenta.

Monoclonal Anti- μ -Calpain, Large Subunit recognizes the 80 kDa subunit of μ -calpain by various immunochemical techniques including immunoblotting, immunoprecipitation, and ELISA. The antibody recognizes both the native and denatured protein. It reacts with human, bovine, rat, and mouse calpains.

Calpains are calcium-activated, non-lysosomal thiol-proteases that cleave cytoskeletal and submembranous proteins. The calpain (calcium-dependent proteinases or calcium 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 plays a regulatory role in cellular protein metabolism.¹ This regulatory role may have important implications in platelet aggregation and pathologies associated with altered calcium 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.

Both m-calpain (calpain II) and μ -calpain (calpain I) are heterodimers consisting of 30 kDa and 80 kDa subunits. The 30 kDa subunit is identical in both isoforms, but the larger catalytic subunits (80 kDa) are different and exhibit distinct calcium requirements. m-Calpain requires millimolar (mM) levels of calcium while μ -calpain is active at micromolar (μ M) concentrations of calcium. 30 kDa/80 kDa complexes are thought to be inactive proenzymes, which, upon binding to calcium, undergo conformational changes that promote cleavage of the 30 kDa subunit and result in enzyme activation.

Calpains are present in all mammalian tissues and are involved in a variety of processes including cytoskeletal reorganization, muscle protein degradation,¹ cell proliferation,^{2,3} differentiation,^{4,5,6} and vesicle secretion.

Reagent

Monoclonal Anti- μ -Calpain, Large Subunit is supplied as antiserum in phosphate buffered saline, $\leq 0.1\%$ sodium azide, and 50% glycerol.

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 the product at $-20\text{ }^{\circ}\text{C}$. Do not store in a frost-free freezer. 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 0.5–1.0 $\mu\text{g/ml}$ antibody is recommended. A band of $\sim 80\text{ kDa}$ is detected as well as two smaller proteins, presumed to be autolysis products.

ELISA: a working concentration of 0.5–1.0 $\mu\text{g/ml}$ antibody is recommended.

Immunoprecipitation: a working concentration of 1–2 $\mu\text{g/ml}$ antibody is recommended.

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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4. Balcerzak, D. et al., An antisense oligodeoxyribonucleotide to m-calpain mRNA inhibits myoblast fusion. *J. Cell Sci.*, **108**, 2077-2082 (1995).
5. Murray, S.S. et al., The calpain-calpastatin system and cellular proliferation and differentiation in rodent osteoblastic cells. *Exp. Cell Res.*, **233**, 297-309 (1997).
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