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# ProductInformation

**Monoclonal Anti-μ-Calpain (Calpain I, subunit p80)**
**Clone 15C10**
produced in mouse, purified immunoglobulin

Catalog Number **C5736**

## Product Description

Balb/c mice were immunized with calpain purified from human placenta. Splenocytes from mice giving a strong anti-calpain response were fused and the resulting hybridomas were tested and selected on the basis of solid-phase assays and Western blotting. The antibody (isotype IgG1) has been purified by protein A chromatography

Monoclonal Anti-μ-Calpain (Calpain I, subunit p80), Clone 15C10, specifically recognizes the p80kDa subunit of μ-calpain. Species reactivity includes human, mouse, rat, and bovine. The antibody can be used in various immunochemical techniques including immunoblotting, immunoprecipitation, and ELISA. By immunoblotting, the antibody reacts with a band at 80 kDa, as well as two smaller proteins that are presumed to be degradation products.

Calpains are calcium-activated, non-lysosomal cysteine proteases that cleave cytoskeletal and submembranous proteins. The calpains have papain-like activity, thus the -pain nomenclature. The calpain (calcium-dependent proteinase 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.

The calpain family members are heterodimers and consist of a common small subunit (regulatory) and a large variable subunit (catalytic). Domains in the large subunit include the amino-terminal domain-I, the proteinase domain-II, domain-III, and EF-hand ($Ca^{2+}$-binding) domain-IV.[1] μ-Calpain is an intracellular, calcium-dependent cysteine protease. It has a micromolar calcium sensitivity (thus the μ) as compared to the millimolar calcium sensitivity of m-calpain. Both μ-calpain and m-calpain are ubiquitously expressed and are countered by the endogenous calpain inhibitor, calpastatin. μ-Calpains consist of a latent large subunit (80 kDa). Also, recognized are two smaller proteins that are presumed to be degradation products.

Most cell types produce μ-calpain. 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,[4-6] and vesicular secretion.

## Reagent

Supplied as a solution in 20 mM sodium phosphate, 150 mM sodium chloride, 50% glycerol, pH 7.5, and 3 mM sodium azide.

## Storage/Stability

Store unopened vial at –20 °C. Diluted antibody may be stored at 2-8 °C for up to 1 month. For extended storage, the solution may be aliquotted (not less than 10 μL per vial) and stored at –20 °C. Do not store in a frost-free freezer.

## Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

**Product Profile**

Immunoblotting: a minimum working dilution of 1:1,000 is recommended. The antibody works on denaturing immunoblots of lysates prepared from NIH3T3 (mouse fibroblasts), PC12 (rat pheochromocytoma), MDBK (bovine kidney), and human fibroblast cells lines at dilutions up to 1:2,000 when used in combination with chemiluminescence procedures.

Immunoprecipitation: a working volume of 2-5 µL/test is recommended under native and denaturing conditions.

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

**References**


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