

Product Information

ANTI-ACTIN (20-33) IgG FRACTION OF ANTISERUM

Developed in Rabbit

Product Number **A 5060**

Product Description

Anti-Actin is developed in rabbits using a synthetic actin N-terminal peptide: Gly-Phe-Ala-Gly-Asp-Asp-Ala-Pro-Arg-Ala-Val-Phe-Pro-Ser-Lys attached to a multiple antigen peptide (MAP) backbone as immunogen. The peptide corresponds to amino acid residues 20-33 of actin with N-terminally added lysine.

Anti-Actin recognizes an epitope located on the N-terminal region of actin. This epitope is conserved in all actin isoforms. The antibody specifically labels actin in a wide variety of tissues and species, using immunoblotting (band at 42 kDa). It specifically stains typical stress fibers in cultured cells using indirect immunofluorescent staining and immunohistochemistry. The epitope recognized by the antibody is resistant to formalin-fixation and paraffin-embedding. Methacarn or Bouin's solutions may also be used as fixatives.

The two major cytoskeletal proteins implicated in cell motility are actin and myosin. Actin and myosin are constituents of many cell types and are involved in a myriad of cellular processes including locomotion, secretion, cytoplasmic streaming, phagocytosis, and cytokinesis. Although actin is one of the most conserved eukaryotic proteins, it is expressed in mammals and birds as at least six isoforms characterized by electrophoresis and amino acid sequence analysis.¹⁻³ Four of them represent the differentiation markers of muscle tissues and two are found practically in all cells. There are three α -actins (α -skeletal, α -cardiac, and α -smooth muscle), one β -actin (β -nonmuscle) and two γ -actins (γ -smooth muscle and γ -nonmuscle). Actin isoforms show >90% overall sequence homology, but only 50-60% homology in their 18 NH₂-terminal residues.⁴ The NH₂-terminal domain of actin appears to be a major antigenic region of the molecule.⁵ The immunizing peptide is derived from an N-terminal conserved region that contains residues involved in interaction with myosin and gelsolin and possibly in Mg²⁺ binding. The antibody shows a broad reactivity among actin isoforms and across a range of organisms.

Anti-Actin may be used for the localization of actin using various immunochemical assays such as immunoblotting, dot blot and immunohistochemistry. It can be used as a probe for the N- terminal region of a variety of actins and their cleavage products.

Reagents

The product is provided as an IgG fraction in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Due to the sodium azide content a material safety 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 a maximum of 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.

Product Profile

A minimum working dilution of 1:250 is determined by immunoblotting using rat brain or chicken muscle extracts.

A minimum working dilution of 1:200 is determined by indirect immunofluorescent staining of cultured human fibroblasts.

In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

References

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3. Drew, J. S., et al., *Am. J. Physiol.*, **260**, C1332 (1991).
4. Lessard, J.L., *Cell Motil. Cytoskeleton*, **10**, 349 (1988).
5. Roustan, C., et al., *Biochem. J.*, **233**, 193 (1986).

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