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ProductInformation

MONOCLONAL ANTI-MOESIN
CLONE 38/87
Purified Mouse Immunoglobulin

Product Number **M 7060**

Product Description

Monoclonal Anti-Moesin (mouse IgG1 isotype) is derived from the 38/87 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from a BALB/c mouse immunized with purified bovine uterine moesin.[1,2] The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti-Moesin recognizes the 78 kDa moesin and 80 kDa radixin molecules. It does not react with talin or ezrin.[2] The antibody may be used for ELISA,[1] immunoblotting (a closely spaced doublet of 78/80 kDa)[1-7] immunoprecipitation,[1-3] immunohistochemistry[2] (reported for frozen sections[2] and for formalin-fixed paraffin-embedded sections following boiling in 0.01M citrate buffer pH 6), immunocytochemistry[2,8-10] (3.7% paraformaldehyde, 0.1% Triton X-100),[2,9,10] flow cytometry (3-3.7% paraformaldehyde, 0.1-0.25% Triton X-100)[1,3,6,10] and electron microscopy.[3] The intensity of the fainter doublet's upper band seen in immunoblotting varies depending on the tissue.[4,6] The antibody has been used to inhibit both the binding of proteoheparan sulfate to smooth muscle cells,[1] and the infectivity of measles virus.[3,9] Reactivity has been reported with human,[1-10] bovine,[1,4,7] porcine,[7] rat and mouse[6] moesin.

The plasma membrane of cells consists of a lipid bilayer with integral membrane proteins stabilized by regulated linkages to the cortical actin cytoskeleton. The regulation is necessary for cells to change shape or migrate. The ERM (ezrin-radixin-moesin) proteins, members of the talin-protein 4.1- merlin/schwannomin superfamily, are general cross-linkers between the plasma membrane and actin filaments.[4,11] They provide such links through their N-terminal halves that associate with integral membrane proteins either directly or indirectly through adapter molecules, and through their C-terminal halves that associate with F-actin.

ERM proteins are involved not only in cytoskeletal organization but also in signal transduction[11] and apoptosis.[12] Because their expression is regulated in a tissue-specific manner, each ERM protein has been proposed to have unique functions. On the other hand, experiments at the cellular level and *in vitro* have suggested their functional redundancy. ERM proteins are highly homologous, both in amino acids sequence and in functional activity. Furthermore, there is a striking sequence similarity of the ERM proteins and the neurofibromatosis type 2 tumor suppressor (also called merlin or schwannomin).[11] There is approximately 80% homology between moesin, ezrin and radixin.[4,11] These proteins are involved in a variety of cellular functions, such as cell adhesion, migration, and the organization of cell surface structures. However, moesin (in contrast to radixin and ezrin) is strongly expressed in endothelium of vessels, in T and B lymphocytes, in basal layers of squamous epithelium and glandular ducts, and in cells of carcinoma and mesothelioma.[2] Moesin is expressed in variable amounts in cells of different phenotypes such as macrophages, lymphocytes, fibroblastic, endothelial, epithelial, and neuronal cell lines. It is overexpressed in some estrogen receptor (ER)-negative cell lines but absent from ER-positive ones, suggesting that it may play a role in the invasiveness and pattern of metastasis characteristic of ER-negative breast cancers. The differential cellular expression of moesin is involved in cells morphology and specialized functions, and its pronounced occurrence on microspikes of growing cells supports the idea that moesin is a protein involved in plasma membrane-cytoskeleton interactions in specialized tissues.[2] Indeed, a function for moesin in diverse cell types related to the dynamic restructuring of domains of the plasma membrane and underlying membrane skeleton is suggested by the fact that it is not randomly distributed throughout the cortical cytoskeleton. Rather, it is concentrated in specialized microdomains and localized in the intracellular core of microextensions known as filopodia, microvilli, microspikes, and retraction fibers. The subcellular

distribution closely follows the dynamic changes in cell shape that take place when cells attach, spread, and move spontaneously or in response to extracellular signals. A direct interaction of moesin with the membrane cofactor protein CD46 to form the receptor complex for measles virus has also been reported.[3,6]

Moesin contains multiple conserved domains that are putative phosphorylation sites.[5] C-terminal phosphorylation of moesin by PKCθ simultaneously unmasks both the F-actin and EBP50 (a 50 kDa ERM binding phosphoprotein) binding sites, and correlates with increased association of moesin with the cortical actin cytoskeleton. The calculated molecular weight of moesin is 67.8 kDa but it has an apparent size of approximately 78 kDa, probably due to a charged α-helical region within the molecule. Monoclonal antibody reacting specifically with moesin is a useful tool for the study of the roles of moesin and its interaction with other cellular components.

Reagent
Monoclonal Anti-Moesin is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: Approx. 2 mg/ml.

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 °C to 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
A working concentration of 0.5 µg/ml to 1 µg/ml is determined by immunoblotting using a whole extract of cultured human acute T cell leukemia Jurkat cells.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

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