Product No. E-0143
Lot 034H4836

Monoclonal Anti-Human Episialin (EMA)
Mouse Ascites Fluid
Clone GP1.4

Monoclonal Anti-Human Episialin (EMA) (mouse IgG1 isotype) is derived from the GP1.4 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Human milk fat globule membranes were used as the immunogen.[1] The isotype is determined using Sigma ImmunoType™ Kit (Sigma Stock No. ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma Stock No. ISO-2). The product is provided as ascites fluid with 0.1% sodium azide (see MSDS)* as a preservative.

Specificity

Monoclonal Anti-Human Episialin reacts with the repetitive protein epitope on the episialin long extracellular domain; that epitope is relatively insensitive to glycosylation. On immunoblot, the antibody stains 2 bands in the range of 265-400 kD. The product recognizes highly glycosylated episialin in tumors of epithelial cell origin and large cell anaplastic lymphoma. It may be used for immunohistochemical staining of frozen tissue sections and formalin-fixed, paraffin-embedded or methacarn-fixed tissue sections. Enzymatic pretreatment of formalin-fixed, paraffin-embedded sections may enhance staining intensity. The antibody may be used for the immunoprecipitation of episialin.

Working Dilution

A working dilution of 1:200 was determined by indirect immunoperoxidase labeling of formalin-fixed, paraffin-embedded sections of human breast carcinoma.

In order to obtain best results it is recommended that each individual user determine their optimum working dilution by titration assay.

Description

Episialin is a transmembrane, high molecular weight, mucin-like glycoprotein (apparent M.W. of 265-400 kD) containing a large number of carbohydrate side chains that are predominantly attached to the molecule by *O*-glycosidic linkage.[1] It is known as epithelial membrane antigen (EMA), MUC1, polymorphic epithelial mucin (PEM) and by a variety of other names. The episialin molecule is transmembranous with a relatively large extracellular domain and a cytoplasmic domain of 69 amino acids. The extracellular domain consists mainly of a region of nearly identical repeats of 20 amino acids, the number of which can vary between about 30 and 90 as a result of genetic polymorphism. The episialin molecule is synthesized as one large precursor containing only N-linked glycans, and is immediately proteolytically cleaved, while still in the endoplasmic reticulum.[2,3] As a result, the molecular mass of the first detectable precursor is reduced by 20 kD. Thereafter, a large number of *O*-linked sugars are added to the molecule and the M.W. increases. During the last step of the processing, the M.W. is slightly altered by the addition of sialic acid. It is generally recognized that mucins in mucus act as lubricants and cell-protective agents. Cell-membrane-associated, mucin-like molecules, such as episialin could have a protective function against toxic substances. Data on the effect of episialin on the adhesion properties of cultured cells suggests that episialin expressed at high levels on cells may have a major function in reducing the aggregation capacity of these cells, thus influencing the adherence to various extracellular matrix components by masking adhesion molecules.[4] Immunohistochemical studies reveal that episialin is mainly present at the apical surface of glandular epithelial cells, at the luminal surface of the proximal endothelial cells of the post-capillary venules in the lymph nodes, and at the luminal surface of certain cell types lining other body cavities, such as mesothelium.[1,5] Episialin is present in various types of carcinomas and some malignancies. It has been reported that there is a greater than tenfold increase in expression of episialin in certain carcinomas, such as breast carcinomas, relative to adjacent normal epithelial tissue.[6]

Uses

Monoclonal Anti-Human Episialin (EMA) may be used for the localization of episialin using various immunochemical assays such as immunoblotting, immunohistochemistry and immunoprecipitation.

Storage

For continuous use, store at 0-5°C. For extended storage, the solution may be frozen 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.

*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.

References

1. Hilkens, J., et al., Trends Biochem. Sci., **17**, 359 (1992).
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5. Zotter, S., et al., Cancer Rev., **11/12**, 55 (1988).
6. Zaretsky, J., et al., FEBS Lett., **265**, 46 (1990).