Product Information

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Monoclonal Anti-Episialin (EMA)
Clone GP1.4
produced in mouse, ascites fluid

Catalog Number **E0143**

Product Description

Monoclonal Anti-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 by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-Episialin reacts with the repetitive protein epitope on the episialin long extracellular domain; that epitope is relatively insensitive to glycosylation. On an immunoblot, the antibody stains 2 bands in the range of 265-400 kDa. 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.

Episialin is a transmembrane, high molecular weight, mucin-like glycoprotein (apparent molecular weight of 265-400 kDa) containing a large number of carbohydrate side chains that are predominantly attached to the molecule by *O*-glycosidic linkages.[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 kDa. Thereafter, a large number of *O*-linked sugars are added to the molecule and the molecular weight increases. During the last step of the processing, the molecular weight 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]

Reagent

Supplied as ascites fluid with 0.1% sodium azide.

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.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing, or storage in “frost-free” freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use.

Product Profile

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

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

References

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3. Ligtenberg, M., et al., J. Biol. Chem., **267**, 6171 (1992).
4. Ligtenberg, M., et al., Cancer Res., **52**, 2318 (1992).
5. Zotter, S., et al., Cancer Rev., **11/12**, 55 (1988).
6. Zaretsky, J., et al., FEBS Lett., **265**, 46 (1990).

EK,KAA,DXP,PHC 10/07-1