3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone (800) 325-5832 (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

MONOCLONAL ANTI-HUMAN FIBRONECTIN
CLONE IST-4
Mouse Ascites Fluid

Product Number **F0916**

Product Description

Monoclonal Anti-Human Fibronectin (mouse IgG1 isotype) is derived from the IST-4 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from immunized BALB/c mice. Purified human plasma fibronectin was used as the immunogen.[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-Human Fibronectin (clone IST-4) recognizes an epitope located within the 5th type III repeat of human plasma fibronectin.[1,3-5] This epitope is common to all fibronectin forms.[4,6] The antibody localizes plasma and cellular fibronectin both in its native and denatured-reduced forms (240 kDa) applying immunoblotting, RIA, ELISA, immunocytochemistry and immunohistochemistry. It may be used for the specific labeling of fibronectin in cultured cells and in frozen tissue sections. Staining of formalin-fixed, paraffin-embedded sections may require prolonged proteolytic unmasking (e.g., by pepsin but not by trypsin). The product reacts with human fibronectin. No reactivity is observed with other species including goat, bovine, dog, rabbit, mouse and chicken.

Fibronectin (FN)[9-11] is an extracellular matrix protein composed of two nearly-identical, disulfide-bound polypeptides with typical molecular weights of 220-280 kDa. Cellular fibronectin is structurally and antigenically similar to cold insoluble globulin from plasma and antibodies to either form usually cross-react. Careful analysis of the FN molecule indicates that it contains several functionally and structurally distinct domains that may bind to cell surfaces and to a variety of molecules such as collagen, heparin, gelatin, fibrin and DNA. Human fibronectin is composed of at least five distinct domains which are referred to as Hep-1/Fib-1, Gel, Cell, Hep-2 and Fib-2, depending on their affinity for heparin (Hep), gelatin (Gel), the cell surface (Cell) or fibrin (Fib). These domains are aligned from the amino to the carboxyl terminus in the above order and can be separated from each other by mild proteolytic digestion.[5]

Because of their multiple interactions, FNs play an important role in diverse biological phenomena, including cell adhesion, cell migration, hemostasis and thrombosis, wound healing and the ability to induce a more normal phenotype in transformed cells. Upon malignant transformation, many cells lose most of their surface-bound FN. Immunohistochemical studies show the presence of cellular fibronectin in sections of human malignant tumors, indicating that at least part of the fibronectin in such tumors is not derived from the plasma but is produced locally.[4,5,12] Monoclonal antibodies reacting specifically with FN may be used to localize FN in human cell cultures, in tissue sections and in plasma, by immunoblotting and immunohistochemical techniques. Also, they may be used for immunoaffinity purification and immunoprecipitation of cellular fibronectin. These antibodies may be used to specifically modulate the functional activity of FN.

Reagents

The product is provided as ascites fluid with 15mM 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 hazardous and safe handling practices.

Storage/Stability

Store at 2-8 °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.

Product Profile
A minimum working dilution of 1:100 was determined by indirect immunofluorescent labeling of cultured human fibroblasts.

each user determine the optimal working dilution for individual applications by titration assay.

References

1. Sekiguchi, K., et al., Biochem. Biophys. Res. Commun., **116**, 534 (1983).
2. Zardi L., et al., Int. J. Cancer, **25**, 325 (1980).
3. Zardi, L., et al., EMBO J., **6**, 2337 (1987).
4. Carnemolla, B., et al., J. Cell Biol., **108**, 1139 (1989).
5. Zardi, L., Eur. J. Biochem., **146**, 571 (1985).
6. Borsi, L., et al., J. Cell Biol., **104**, 595 (1987).
7. Sekiguchi, K., et al., J. Biol. Chem., **260**, 5105 (1985).
8. Carnemolla, B., et al., In: Prot. Biol. Fluids, H. Peeters (ed.), Pergamon Press, Oxford, **30**, 409 (1982).
9. Mosher, D. F., Prog. Hemost. Thromb., **5**, 111 (1980).
10. Yamada, K. M., Annu. Rev. Biochem., **52**, 761 (1983).
11. Hynes, R., Annu. Rev. Cell Biol., **1**, 67 (1985).
12. Castellani, P., et al., J. Cell Biol., **103**, 1671 (1986).

JWM/DAA 3/2003