MONOCLONAL ANTI-HUMAN IgA1
CLONE A1-18
Mouse Ascites Fluid

Product No. I7262

Product Description
Monoclonal Anti-Human IgA1 (mouse IgG1 isotype) is derived from the hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. Human IgA1 myeloma protein was used as the immunogen. 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).

Monoclonal Anti-Human IgA1 is specific for human IgA1 derived from serum, secretory fluids or of myeloma origin, as determined by an ELISA. The antibody is specific for the IgA1 subclass in its native form when coated directly on plates or nitrocellulose membranes or when captured by other IgA specific antibodies.

Monoclonal Anti-Human IgA1 also reacts with IgA1 that has been reduced and SDS-denatured. It detects human IgA1 in epithelia and plasma cells of formalin-fixed, paraffin-embedded human tonsil or appendix. It does not cross react with the free secretory piece, human IgG, IgM, IgD or IgE.

Immunoglobulin A (IgA) is the second most abundant of the five immunoglobulin classes in normal adult human serum, accounting for approximately 20% the immunoglobulin population. It consists of two α-heavy chains and two light chains. Although IgA has been shown to have the usual antibody properties it is probably more important in secretions (saliva, colostrum, lacrimal fluid, nasal, bronchial and intestinal secretions) where it acts to create an immune barrier against various microorganisms at exposed mucous surfaces. IgA in serum and exocrine fluids is divided into two subclasses, IgA1 and IgA2 based upon differences in primary structure, carbohydrate composition and other antigenic properties. There is over 90% sequence homology between the constant domains of IgA1 and IgA2 heavy chains. A major structural difference exists in the hinge region. IgA1 molecules have an extended hinge region relative to IgA2 in which an octapeptide sequence is duplicated and α-glycosidically linked galactosamine is present. Genetic polymorphism of human IgA is restricted to the IgA2 subclass of which two antithetical allotypes A2m (1) and A2m (2) are known. The major immunoglobulin of human exocrine fluids is dimeric IgA coupled covalently to an epithelial glycoprotein called the secretory component. The secretory component acts as an epithelial receptor mediating the external transport of J-chain containing dimeric IgA, in addition to stabilizing secretory IgA. Both monomeric and dimeric forms of either IgA subclass can occur in serum or secretory fluids. The distribution ratio of IgA1/IgA2 producing plasma cells varies considerably in different organs, thus the contents of IgA1 and IgA2 in different body fluids and organs shows significant differences. Serum IgA consists of more than 90% IgA1, while external secretions are approximately 50% IgA1. IgA levels as well as the proportional part of its subclasses are significantly changed in various disorders, which indicate that determination of these levels may provide a differential diagnostic tool. For instance, certain systemic diseases related to abnormalities originating in the secretory system such as chronic liver diseases, coeliac disease, and Chron’s disease are presumably characterized by an increased proportion of IgA2. In patients with multiple myeloma, a single IgA subclass or allotype is synthesized in very large amounts with greatly decreased proportional amounts of the other subclasses of the immunoglobulin. In addition, one of the most common forms of immune abnormality is an isolated deficiency in IgA, which is reported to occur in approximately one in every 500-700 persons. Although in some individuals this deficiency is apparently non-pathological, it may involve a higher incidence of recurrent infections, autoimmune diseases and cancers.

Quantitation of IgA subclass levels depends on the availability of high titer reproducible antisera. The high degree of structural homology has made the production of such reagents difficult. Conventional polyclonal antisera have generally proven to be unreliable for adequate discrimination between the subclasses.

Monoclonal Anti-Human IgA1 may be used for the determination of human IgA1 in human body fluids and
tissues by ELISA, dot blot or immunocytochemical techniques.

Reagents
The product is provided as ascites fluid with 0.1% sodium azide (see MSDS)* as a preservative.

*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.

Product Profile
A minimum working dilution of 1:2,000 was determined by an ELISA, using human IgA1 myeloma proteins at 10 µg/ml or myeloma serum diluted 1:1000, as the coating solution on microtiter plates.

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

Storage
For continuous use, store at 2-8°C for up to one month. For extended storage, 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 by centrifugation before use.

Pcs5/00