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## Product Information

### Monoclonal Anti-Human IgA ( $\alpha$ -Chain Specific)

#### Clone GA-112

Mouse Ascites Fluid

Product Number **I 0636**

#### Product Description

Monoclonal anti-Human IgA (mouse IgG1 isotype) is derived from the hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse (developed by Drs. G. A. Molinaro and W. C. Eby of Loma Linda University). Human IgA myeloma protein was used as the immunogen. The isotype is determined by a double diffusion assay using immunoglobulin and subclass specific antisera.

Mouse Monoclonal anti-Human IgA is specific for the heavy chains of human IgA (IgA1 and IgA2) as determined by an ELISA. The antibody reacts with serum, myeloma and secretory IgA. It does not cross react with the free secretory piece, human IgG, IgM, IgD, or IgE. Monoclonal anti-Human IgA does cross react with horse and pig IgA but not sheep, goat, or bovine IgA.

Monoclonal anti-human IgA is a homogenous population of antibody molecules which may be used for the determination of human IgA in human body fluids and tissues by ELISA, dot blot, or immunocytochemical techniques.

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  $\alpha$ -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 and o-glycosidically linked

galactosamine is present. Genetic polymorphism of human IgA is restricted to the IgA2 subclass of which two antithetical allotypes  $A_2m$  (1) and  $A_2m$  (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 poly-clonal antisera have generally proven to be unreliable for adequate discrimination between the subclasses.

#### **Reagents**

The product is provided as ascites fluid with 0.1% sodium azide as a preservative.

#### **Precautions and Disclaimer**

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.

#### **Storage/Stability**

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.

#### **Product Profile**

A minimum working dilution of 1:1,000 was determined by an ELISA, using human IgA 5 µg/ml 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.

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