

## Product Information

### MONOCLONAL ANTI-HUMAN IgG4

#### Biotin Conjugate

#### Clone HP-6025

Immunoglobulin Fraction of Mouse Ascites  
Fluid

Product No. **B 3648**

#### Product Description

Monoclonal Anti-Human IgG4 (mouse IgG1 isotype) is derived from the HP-6025 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse.<sup>1</sup> Purified myeloma human IgG4 was used as the immunogen. 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). The immunoglobulin fraction of the ascites fluid is conjugated to epsilon amino caproyl biotin. This covalent coupling of biotin to the immunoglobulin allows for the binding of Avidin, ExtrAvidin® or Streptavidin bearing a variety of different labels.

Biotin Monoclonal Anti-Human IgG4 reacts specifically with human IgG4 in an ELISA. The product does not react with human IgG subclasses 1, 2, and 3. This clone has been evaluated for specificity using a wide range of immunological techniques in the IUIS/WHO collaborative study and has been identified as one of the most applicable IgG4 specific monoclonal antibodies available.<sup>2</sup>

Human IgG consists of four subclasses (1-4) that can be recognized by antigen differences in their heavy chains. They constitute approximately 65, 30, 5, and 4% of the total IgG respectively. Each subclass has different biological and physicochemical properties. The IgG subclass may be preferentially produced in response to different antigens. For instance, anti-polysaccharide responses are mainly of the IgG2 subclass while protein antigens give rise to IgG1 and IgG3 antibodies. Lipopolysaccharides stimulate an IgG2 response in PBL's and an IgG1 response in the spleen. Human IgG1 is the predominant subclass of *in vivo* and *in vitro* produced anti-tetanus toxoid antibodies.<sup>3</sup> Only IgG1 and IgG3 are capable of adherence to mononuclear phagocytes while IgG2 and IgG4 autoantibodies are not associated with disorders such as hemolytic anemia.<sup>4</sup>

Serum IgG subclass deficiencies have been recorded for different patient groups. For example, IgG2, and IgG4 deficiency is associated with IgA deficiency as found in ataxia telangiectasia patients. Low IgG2 levels were found in patients with SLE and juvenile diabetes melitus.<sup>5</sup>

A disproportionate elevation of IgG1 has also been found in the cerebral spinal fluid of patients with multiple sclerosis.<sup>6</sup> Examination of the distribution pattern of IgG subclasses in different types of diseases may provide insight into the immunological processes involved and may assist in the diagnosis of various disorders.

#### Reagents

The conjugate is provided as a liquid in 0.01 M phosphate buffered saline, pH 7.4, with 1% BSA and 15 mM sodium azide as a preservative.

#### Precautions

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

The working dilution was determined to be at least 1:15,000-1:20,000 by an indirect ELISA using human IgG4 at 1 µg/ml as coat, ExtrAvidin®-Peroxidase, and o-phenylenediamine dihydrochloride as substrate.

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

#### Storage

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

## References

1. Reimer, C., et al., Hybridoma, **3**, 263 (1984).
2. Jefferies, R., et al., Immunol. Lett., **10**, 223 (1985).
3. Stevens, R., et al., J. Clin. Immunol., **3**, 65 (1986).
4. Van der Meulen, F., et al., Brit. J. Haematol., **46**, 47 (1980).
5. Oxelius, V., Amer. J. Med., **30/3**, 7 (1984).
6. Kaschka, W., et al., Infect. Immuno., **26**, 933 (1979).

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