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ProductInformation

Protein A
from *Staphylococcus aureus*

Product Number **P 3963**
Storage Temperature 2-8 °C

Product Description

pI: 5.1[1,2]

Protein A is a highly stable cell surface receptor produced by several strains of *Staphylococcus aureus*. It consists of a single polypeptide chain with a molecular weight of 42 kDa, containing four repetitive domains rich in aspartic and glutamic acids, but devoid of cysteine. It contains little or no carbohydrate.[1,3] However, Protein A runs anomalously on SDS-PAGE analysis with an observed molecular weight of 55-56 kDa.[1]

Protein A is capable of binding to the Fc portion of immunoglobulins, especially IgG, from a large number of species.[3] One Protein A molecule has been shown to bind at least 2 molecules of IgG simultaneously.[4] The IgG binding domain of Protein A consists of three anti-parallel α-helicies, the third of which is disrupted when the protein is complexed with the Fc region of the immunoglobulins. Protein A will bind the Fc portion of human IgG subclasses, IgM, IgA, and IgE; and mouse IgG1 (weakly), IgG2a, and IgG2b. Protein A also binds IgG from other species, including monkey, rabbit, pig, guinea pig, dog, and cat.[5]

Protein A may be conjugated with various reporter molecules, including fluorescent dyes (FITC), enzyme markers (peroxidase, β-galactosidase, alkaline phosphatase), biotin, and colloidal gold without affecting the antibody binding site on the molecule. These conjugates are used to detect immunoglobulins in various immunochemical assays including Western blotting, immunohistochemistry, and ELISA applications. In addition, Protein A may be immobilized on a solid support such as agarose or acrylic beads for the purification of either polyclonal or monoclonal immunoglobulins.[6] It is also routinely used for immunoprecipitation assays.[7,8]

Protein A also participates in a number of different protective biological functions including anti-tumor, toxic, and carcinogenic activities. In addition to acting as an immunomodulator, it also has antifungal and antiparasitic properties.

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml). A pH greater than 8 will denature the Protein A, and the solution stability will be poor. Good solution stability is seen at neutral pH when stored frozen in working aliquots.

Storage/Stability

Protein A is very stable to heat and denaturing agents, and binds to IgG even after treatment with 4 M urea, 4 M thiocyanate, acid (pH 2.5), and 6 M guanidine hydrochloride. The presence of low concentrations of non-ionic detergents does not affect the binding to IgG.[3]

References

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CMH 5/03