

Product Information

Protein A from *Staphylococcus aureus*, Cowan Strain, insoluble

Catalog Number **P7155**

Storage Temperature 2–8 °C

Product Description

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 mass of 42 kDa, containing four repetitive domains rich in aspartic and glutamic acids, but devoid of cysteine. It contains little or no carbohydrate.^{1,2}

Protein A is capable of binding to the Fc portion of immunoglobulins, especially IgGs, from a large number of species.² One protein A molecule has been shown to bind at least 2 molecules of IgG simultaneously.³ The IgG binding domain of Protein A consists of three anti-parallel α -helices, the third of which is disrupted when the protein is complexed with the Fc region of the immunoglobulin. 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 IgGs from other species, including monkey, rabbit, pig, guinea pig, dog, and cat.⁴

Protein A may be conjugated with various reporter molecules, including fluorescent dyes (FITC), enzyme markers (peroxidase, β -galactosidase, and 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.⁵ For this product, immobilization is not necessary since the insoluble cell suspension precipitates on its own. This product is routinely used for immunoprecipitation assays.⁶⁻⁸

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

pI:^{1,9} 5.1

This product is prepared by bacterial fermentation. It is harvested by centrifugation, washed, and fixed with formaldehyde, followed by washing and resuspension into a buffer containing sodium azide. It is supplied as a suspension in 40 mM potassium phosphate, pH 7.2, 150 mM sodium chloride, and 0.2% sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

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), or 6 M guanidine hydrochloride. The presence of low concentrations of non-ionic detergents does not affect the binding to IgG.² A pH >8 will denature the Protein A and the suspension stability will be poor. If suspensions are frozen, cell lysis or aggregation can occur. This may affect usage in certain applications. However, the Protein A binding capacity will not be affected by freezing.

References

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