BOSTER
antibody and ELISA experts

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5 nm Colloidal Gold Conjugated Protein A

Catalog No. GA1053

Size 1 mL

Form Concentrated, Liquid

Concentration 100μg/mL

Product Description

Protein A is a 42 kDa surface protein originally found in the cell wall of the bacteria Staphylococcus aureus. It is encoded by the spa gene and its regulation is controlled by DNA topology, cellular osmolarity, and a two-component system called ArlS-ArlR. It has found use in biochemical research because of its ability to bind immunoglobulins. It is composed of five homologous Ig-binding domains that fold into a three-helix bundle. Each domain is able to bind proteins from many mammalian species, most notably IgGs (Table 1). It binds the heavy chain within the Fc region of most immunoglobulins and also within the Fab region in the case of the human VH3 family. Through these interactions in serum, where IgG molecules are bound in the wrong orientation (in relation to normal antibody function), the bacteria disrupts opsonization and phagocytosis. Recombinant Protein A is produced in E.coli and essentially functions the same as native Protein A.

Protein A may be conjugated with various reporter molecules, including fluorescent dyes (FITC), enzyme markers (peroxidase, b-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.

Protein A is conjugated to 5 nm colloidal gold. This gold conjugated protein A generates electron dense particles that are visible using electron microscopy.

Contents

0.1 mg of colloidal gold conjugated protein A, 0.01M PBS, 0.01% Thimerosal, 50% glycerol.

Storage & Expiration

Upon receipt store 5 nm Colloidal Gold Conjugated Protein A at 4°C. 5 nm Colloidal Gold Conjugated Protein A is stable for one year. Product is shipped on ice.

Preparation of Diluent Buffer

The conjugate should be diluted for most applications, using 0.01M PBS or TBS, containing 1% BSA.

- Preparation of 0.01M TBS: Add 1.2g Tris, 8.5g NaCl, 450μl of purified acetic acid or 700μl of concentrated hydrochloric acid into 1000ml distilled water and adjust pH to 7.2-7.6. Finally, adjust the total volume to 1L.
- Preparation of 0.01M PBS: Add 8.5g sodium chloride, 1.4g Na2HPO4 and 0.2g NaH2PO4 into 1000ml distilled

water and adjust pH to 7.2-7.6. Finally, adjust the total volume to 1L.

Application

	Recommended Dilutions
Electron Microscopy	1:20-50
Immunohistochemistry(Paraffin-embedded Section)	1:50-100
Immunohistochemistry(Frozen Section)	1:50-100
Immunocytochemistry	1:50-100

Optimal working dilutions must be determined by end users.

Table 1

Binding capabilities for immunoglobulin proteins and protein A, G and A/G

Species	Antibody Class	Protein A	Protein G	Protein A/G
Human	Total IgG	S	S	S
	IgG1	S	S	S
	IgG2	S	S	S
	IgG3	W	S	S
	IgG4	S	S	S
	IgM	W	NB	W
	IgA	W	NB	W
	IgD	NB	NB	NB
	Fab	W	W	W
Mouse	Total IgG	S	S	S
	IgG1	W	M	M
	IgG2a	S	S	S
	IgG2b	S	S	S
	IgG3	S	S	S
	IgM	NB	NB	NB
Rat	Total IgG	W	M	M
	IgG1	W	M	M
	IgG2a	NB	S	S
	IgG2b	NB	W	W
	IgG2c	S	S	S
Cow	Total IgG	W	S	S
	IgG1	W	S	S
	IgG2	S	S	S
Goat	Total IgG	W	S	S
	IgG1	W	S	S
	IgG2	S	S	S
Sheep	Total IgG	W	S	S
	IgG1	W	S	S

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	IgG2	S	S	S
Horse	Total IgG	W	S	S
Rabbit	Total IgG	S	S	S
Guinea Pig	Total IgG	S	W	S
Pig	Total IgG	S	W	S
Dog	Total IgG	S	W	S
Cat	Total IgG	S	W	S
Chicken	Total IgY	NB	NB	NB

Binding will only occur if the appropriate kappa light chains are present. The binding affinity only refers to species and subtypes with the correct kappa light chains. Lambda light chains and some kappa light chains will not bind.

Notes: W= weak binding M=medium binding S=strong binding NB=no binding

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