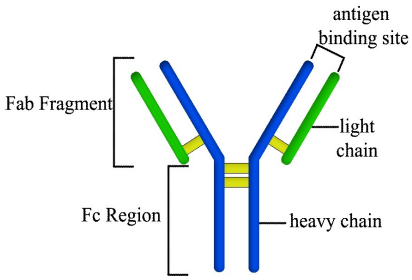
ALPHA DIAGNOSTIC INTERNATIONAL

Product Data Sheet

Cat# CG-PRTA40 Protein A colloidal gold conjugated (40 nm, OD10) **Size**: 0.5 mL



Colloidal gold are electron dense non-fading markers that can be used as probes in electron microscopy, light microscopy, and immunoassays. Colloidal gold requires no additional processing for detection although silver enhancement can be done which increases the signal 10-fold. Biomolecules are complexed with colloidal gold through ionic interactions and the positive charge of proteins or antibodies with the negative charge of the surface of the gold colloid. Generally, particles less than 15 nm are used in transmission electron microscopy due to better penetration allowed by smaller probes. Particles greater than 15 nm are more suitable for scanning electron microscopy, light microscopy, and immunoassays.

The common bacterial pathogen, Staphylococcus aureus, produces a 42-kDa factor, protein A (SpA). The biological role of protein A is not understood fully, although it is secreted by nearly all clinical isolates of S. aureus and is thought to enhance pathogenicity. Protein A interacts with antibodies through two distinct binding events: the "classical" binding site on the Fc portion of human IgG1, IgG2, and IgG4, and the "alternate" binding site found on the Fab portion of human IgG, IgM, IgA, and IgE that contain heavy chains of the VH3 subfamily. Protein A has long been studied for its properties as a valuable immunological tool and more recently for its ability to act as a B cell superantigen by cross-linking IgM molecules through VH3-mediated binding. Protein A contains five homologous;58 residue immunoglobulin (Ig)-binding domains followed by a C-terminal region necessary for cell wall attachment. The Ig binding domains are designated E, D, A, B, and C ~in order from the N-terminus and share 65–90% amino acid sequence identity. The domains were named based on the order in which they were discovered: A-, B-, and C-domains were initially identified a proteolytically stable modules, D-domain was identified using modified digestion conditions, and finally E-domain was recognized as an additional homologous Ig-binding domain. Individual domains are composed of three-helix bundle structures. Residues from the first two helices are important for Fc binding. The Fc binding site has been localized to the elbow region at the CH2 and CH3 interface of most IgG subclasses, and this binding property has been extensively used for the labeling and purification of antibodies.

Form and Storage

Gold nanoparticle core size: 40 nm

Optical density: 10

Wavelength (nm): 521-526 (lot specific, see vial)

Blocking Agent: BSA Casein PEG-20k

Stabilizers: Trehalose and Sucrose

Buffer: Phosphate buffer pH 7.4, 1% BSA

Preservative: 0.1% Sodium Azide

Storage: Store at 4ºC

Stability: Stable for 6 months in liquid if stored at 4ºC. *Particles may settle on the bottom of the vial, mix with a pipette before use.

Suggested Uses: This preparation is ready to use for Lateral Flow Immunoassays. Apply 4-6 ul per 0.4 cm strip. For other applications dilutions may range from A520=1.0-0.05 (1:10-1:200 dilution). Incubation times generally range from 0.5-12 hours.

Binding affinity of Protein A and G to various species Ig

+++: strong binding, ++: medium binding, +: weak binding, -: no binding.

Species	Ig Subclass	Protein A	Protein G
Human	IgG1, IgG2, IgG4	+++	+++
	IgG3	+	+++
	IgD	-	-
	IgD	+	-
	Fab	+	+
	ScF_v	+	-
Mouse	IgG1	+	++
	IgG2a, IgG2b, IgG3	+++	+++
	IgM	-	-
Rat	IgG1	+	++
	IgG2a	-	+++
	IgG2b	-	+
	IgG2c	+++	+++
Goat	IgG1	+	+++
	IgG2	+++	+++
Sheep	IgG1	+	+++
	IgG2	+++	+++
Cow / Bovine	IgG1	+	+++
	IgG2	+++	+++
Horse	IgG(ab)	+	-
	IgG(c)	+	-
	IgG(T)	-	+++
Rabbit	Total Ig	+++	+++
Dog	Total Ig	+++	+
Cat	Total Ig	+++	+
Pig	Total Ig	+++	+
Guinea pig	Total Ig	+++	+
Chicken	Total Ig	-	-

Related Material available for ADI

Catalog# Description

Recombinant Protein A, Protein G, Protein A/G coated plates, Protein A & G Sepharose beads for IP, Protein A&G Affinity columns, conjugates (Biotin, AP, FITC, HRP, Alexaflour), and antibodies also available at www.4adi.com

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