CCN Bio
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rProtein A/G Magnetic Beads

1. Product Description

Magnetic Beads have superparamagnetism and rapid magnetic responsiveness. Peptides, proteins, antibodies, oligomeric nucleotide biological ligands can be coupled to the surface of microspheres. **Magnetic Beads** is an important carrier of the medical and molecular biology research tools.The particle size of **Magnetic Beads** is about 30 to 100 μm and it is more suitable for biological examination and purification experiment.

rProtein A/G Magnetic Beads is an affinity chromatography Magnetic beads designed for easy, one-step binding of classes, subclasses and fragments of immunoglobulins from biological fluids and from cell culture media. The recombinant protein A/G ligand is coupled to Magnetic beads.

Table 1. Characteristics of **rProtein A/G Magnetic Beads**

Item	Description
Matrix spherical	Magnetic agarose
Ligand	Recombinant protein A/G
Binding capacity	10 mg Rabbit IgG/ml beads
Particle size (μm)	30-100
Beads concentration	20%(V/V) slurry
Storage solution	1X PBS containing 20% ethanol
Storage	2℃-8℃

Table 2. Relative binding strengths of antibodies from various species to protein A, protein G and protein A/G as measured in a competitive ELISA test.

Species	Subclass	Protein A	Protein G	Protein A/G
Human	IgA	variable	—	++
	IgD	—	—	—
	IgE	—	—	—
	IgG1	++++	++++	++++
	IgG2	++++	++++	++++
	IgG3	—	++++	++++
	IgG4	++++	++++	++++
	IgM	variable	—	++
Avian egg yolk	IgY	—	—	—
Cow		++	++++	++++
Dog		++++	++	++++
Goat		—	++++	++++
Guinea pig	IgG1	++++	++	++++
	IgG2	++++	++	++++
Hamster		+	++	
Horse	Total IgG	++	++++	++++
Koala		—	+	
Llama		—	+	
Monkey(rhesus)		++++	++++	++++
Mouse	IgG1	+	++++	++
	IgG2a	++++	++++	++++
	IgG2b	+++	+++	+++
	IgG3	++	+++	+++

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	IgM	variable	—	—
Pig		+++	+++	++++
Rabbit	Total IgG	++++	+++	++++
Rat	IgG1	—	+	++
	IgG2a	—	++++	++++
	IgG2b	—	++	++
	IgG3	+	++	++
Sheep	Total IgG	+/-	++	++

++++ : strong binding; ++ : medium binding; - : weak binding or no binding

2. Purification Procedure

This protocol offers a general guideline for immunoprecipitation. Optimization may be required for each antibody and target antigen. The protocol uses 100 µl of **rProtein A/G Magnetic Beads**, but this may be scaled up or down as required.

2.1 Buffers Preparation

Water and chemicals used for buffer preparation should be of high purity. It is recommended to filter the buffers by passing them through a 0.22 or 0.45 µm filter before use.

Binding/Wash Buffer: PBS, pH 7.4 (140 mM NaCl, 2.7 mM KCl, 10 mM Na_2HPO_4, 1.8 mM KH_2PO_4, pH 7.4)

Elution Buffer: 0.1 M glycine, pH 2-3

Neutralization Buffer: 1 M Tris, pH 8.5

2.2 Preparation of the Magnetic Beads

1) Completely resuspend the beads by shaking or vertexing the vial.
2) Transfer 500 µl **rProtein A/G Magnetic Beads** (20% v/v) into a clean tube.
3) Place the tube on a magnetic separation rack to collect the beads. Remove and discard the supernatant.
4) Add 1 ml Binding/Wash Buffer to the tube and invert the tube several times to mix. Use the magnetic separation rack to collect the beads and discard the supernatant. Repeat this step twice.

2.3 Protein Purification

1) Resuspend the beads in 100 µl Binding/Wash Buffer.
2) Add the sample to the tube and gently invert the tube to mix.
3) Incubate the tube at room temperature with mixing (on a shaker or rotator) for 30 minutes. It also can be done at 4℃ overnight.
4) Use the magnetic separation rack to collect the beads and discard the supernatant. If necessary, keep the supernatant for analysis.
5) Add 1ml Binding/Wash Buffer to the tube and mix well, use the magnetic separation rack to collect the beads and discard the supernatant. Repeat the wash step three more times.

2.4 Elution of Target Protein

Add 300-500µl Elution Buffer, mix well and incubation for 5-10min (on a shaker or rotator). Use the magnetic separation rack to collect the beads and transfer the supernatant into a new tube. Repeat this step one more time. Add 50 µl Neutralization Buffer to each 500 µl of eluate to neutralize the pH.

3. Related Products

Product Name	Cat. No.	Size (bead volume)
rProtein A/G Magnetic Beads	CCNPAGM001	1 ml
	CCNPAGM002	2 ml
	CCNPAGM005	5 ml
	CCNPAGM010	10 mL