

IgG Purification Kit (Protein L Based, Spin Column)

MBPP004SP-5NO

MBPP004SP-25NO

Introduction

Protein L is an immunoglobulin-binding protein that was originally isolated from the bacteria *Peptostreptococcus magnus* and provides a convenient way to separate immunoglobulins from a variety of sources. It is 36 kDa in size and can be produced recombinantly in *E. coli*. The recombinant Protein L, rProtein L, contains four immunoglobulin binding domains of the native protein and can be used for the purification of IgG, IgM, IgA and IgD containing kappa light chains from various species without interfering with the antigen binding site. Apart from antibodies Protein L is also suitable for binding of a wide range of antibody fragments such as Fabs, single-chain variable fragments (scFv), and domain antibodies (Dabs). Protein L is immobilized by means of covalent binding that avoids protein loss and allows for column re-use.

The IgG Purification Kit (Protein L Based, Spin Column) is based on the affinity of IgG to Protein L where rProtein L is immobilized to cross linked 4% beaded agarose resin matrix. The agarose beads can be regenerated and reused multiple times when stored properly.

The kit contains pre-packed ready-to-use columns of 0.2 ml Protein L agarose resin bed in 20% ethanol.

Binding capacity: ~ 10 mg human IgG/ml resin

Ligand density: ~ 3.5 mg rProtein L/ml resin

Note: The binding capacity of Protein L Agarose Column depends upon the source of immunoglobulin. There might be deviations in binding capacities for different immunoglobulins derived from the same species

Binding of immunoglobulins to Protein L

<u>Species/Subclass</u>	<u>Protein L</u>	<u>Species/Subclass</u>	<u>Protein L</u>
Human		Rat	
IgG ₁	++++	IgG ₁	++++
IgG ₂	++++	IgG _{2a}	++++
IgG ₃	++++	IgG _{2b}	++++
IgG ₄	++++	IgG _{2c}	++++
IgM	++++	<u>Bovine IgG</u>	-
IgA	++++	<u>Cat IgG</u>	NA
IgE	++++	<u>Chicken IgG</u>	++++
IgD	++++	<u>Dog IgG</u>	NA
Fab	++++	<u>Goat IgG</u>	-
Kappa	++++	<u>Horse IgG</u>	+/-
Lambda	-	<u>Pig IgG</u>	++++
<u>ScFv</u>	<u>++++</u>	<u>Rabbit IgG</u>	<u>+</u>
Mouse		<u>Sheep IgG</u>	
IgG ₁	++++		
IgG _{2a}	++++		
IgG _{2b}	++++		
<u>IgG₃</u>	<u>++++</u>		

Kit Contents

Product Code	Reagents	Quantity		Storage
		5 NO	25 NO	
DBCA13	Protein L Agarose Spin Column	5 Nos	25 Nos	2 - 8°C
DS0095	10X Binding Buffer	20 ml	100 ml	2 - 8°C
DS0096	Elution Buffer	10 ml	50 ml	2 - 8°C
DS0097	Neutralizing Buffer	1 ml	5 ml	2 - 8°C

Materials needed but not provided

- Molecular Biology Grade Water (Product Code: ML064)
- Collection tubes (2.0 ml)
- Tabletop Microcentrifuge (with rotor for 2.0 ml tubes)
- 1X PBS (Product code: ML116)

General Preparation Instructions

Dilute the 10X Binding Buffer to 1X using Molecular Biology Grade water before use.

Procedure for purification of IgG

- 1. Elimination of the Preservative:** Equilibrate column and buffers to room temperature. Remove the lower cap of the column and place it in the 2 ml collection tube. Centrifuge at 500 X g for 1 minute to allow elimination of the preservative.
- 2. Equilibration of the spin column:** Equilibrate the spin column with 0.4 ml of Binding Buffer and mix manually. Centrifuge at 500 X g for 1 minute and discard the flow through. Repeat this step once. Do not let the resin bed dry.
- 3. Application of the Sample:** Close spin column outlet with cap. Add up to 0.5 ml of the sample (containing the immunoglobulin to be purified) through the top of the spin column. Close the lid and keep sample and resin in contact for at least 30 minutes before removing the bottom cap. Mix manually inverting the spin column. Centrifuge at 500 X g for 1 minute and collect the flow through.
- 4. Washing:** Transfer the spin column to a new collection tube. Add 0.4 ml of Binding Buffer through the top to eliminate all the proteins that have not been retained in the column. Mix manually inverting the spin column. Centrifuge at 500 X g for 1 minute and discard the flow through. Repeat the washing step twice for a total of three washes.
Note: Wash the spin column with Binding Buffer until the OD 280 nm of the washes reach the baseline level.
Optional: Keep all the washes if required.
- 5. Elution of pure immunoglobulin:** Transfer the spin column to a new collection tube and close the column outlet with cap. Add 0.4 ml of Elution Buffer and close the lid. Mix thoroughly for 10 minutes before removing the bottom cap. Centrifuge at 500 X g

for 1 minute, collect the eluate and label it. Repeat the elution step twice for a total of three individual eluates.

6. **Neutralization of eluents:** Each 0.4 ml of eluted fraction can be neutralized by the addition of 40 µl of Neutralization Buffer. Assay protein concentration by measuring the absorbance at 280 nm and combine the fractions with highest absorbance.
7. **Regeneration and Storage of Column:** Regenerate the immobilized Protein L column by washing at least 3 times with 0.4 ml of Elution Buffer. Columns can be generated for at least 5 times without significant loss in binding capacity. For storage wash the column with 5 ml of distilled water and store it upright in 0.4 ml of 20% Ethanol at 2 - 8°C.

Troubleshooting Guide

Sr. No.	Problem	Cause	Solution
1.	Target protein is not bound to the column	Conditions in binding or elution are not the optimum ones.	Optimize pH, flow, temperature and salt concentration.
		Channels have formed in column bed so loaded sample runs through column without interacting with Protein L.	Re-pack column.
		Column has not been stored in recommended conditions alter previous usage.	Always follow the recommended instructions.
		The antibody to be purified has low affinity with Protein L.	Look for bibliography on the subject and, if that observation is true, try an alternative way of purification.
		Presence of proteases.	Add protease inhibitors to sample loading/wash buffer. Work at lower temperatures (such as 4°C) to minimize degradation.

2.	The antibody is degraded.	Antibody can be unstable in elution conditions.	Follow usage instructions neutralizing the fractions of the eluted antibody.
3.	Antibody is not detected in the elution process.	The IgG subclass doesn't bind to the resin.	Use another affinity column to purify the antibody.
4.	Column flows very slowly.	There are air bubbles in sample or buffers that are blocking flow through pores.	De-gas sample and buffers used.

Safety Information

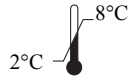
The IgG Purification Kit (Protein L Based, Spin Column) is for laboratory use only, not for drug, household or other uses. Please refer the Material Safety Data Sheet (MSDS) for information regarding hazards and safe handling practices.

Product Use Limitation & Warranty

HiMedia guarantees the performance of product in the manner described in the product literature. IgG Purification Kit (Protein L Based, Spin Column) is designed and sold for research and in vitro purposes only. The product is not to be used for human diagnostic or drug purposes or to be administered to humans unless expressed clearly for that purpose by the Food and Drug Administration or the appropriate regulatory authorities in the country of use. All due care and attention should be exercised in the handling of many of the materials described in the text.

Technical Assistance

At HiMedia, we pride ourselves on the quality and availability of our technical support. For any kind of technical assistance, mail at mb@himedialabs.com.



Storage temperature



Do not use if package is damaged



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