Antibody Purification Resin (GP-ProA)

Product Manual

1. Product Introduction

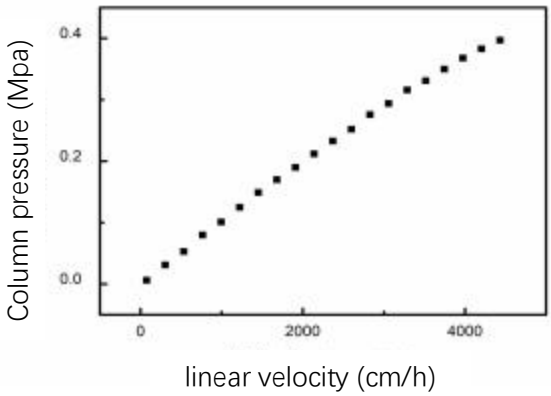
The antibody purification resin (GP-Pro A) specifically binds to the Fc region of the antibody through the conjugated Protein A ligand. After one-step affinity chromatography, antibody with high purity can be obtained from ascites, serum, culture media and other samples. Antibody purification resin (GP-Pro A) uses super macro-porous polymethacrylate microspheres as the matrix and recombinant Protein A as the ligand. It has high physical and chemical stability. The ligand is not easy to leach, and the resin has a long life and is easy to use, which make it suitable for a wide range of applications.

2. Product Properties

2.1 Product Specification

Parameter	Technical Parameters
Matrix beads	Polymethacrylate
Ligand	r-Protein A
Average particle size	70 μm ± 20 μm
Dynamic binding capacity	30-40 mg IgG/ml wet gel
Pressure upper limit	1 MPa
pH stability	3-12 (long-term); 2-13 (short-term)
Storage	2 - 10 ℃ (20% ethanol)

2.2 Pressure - flow curve

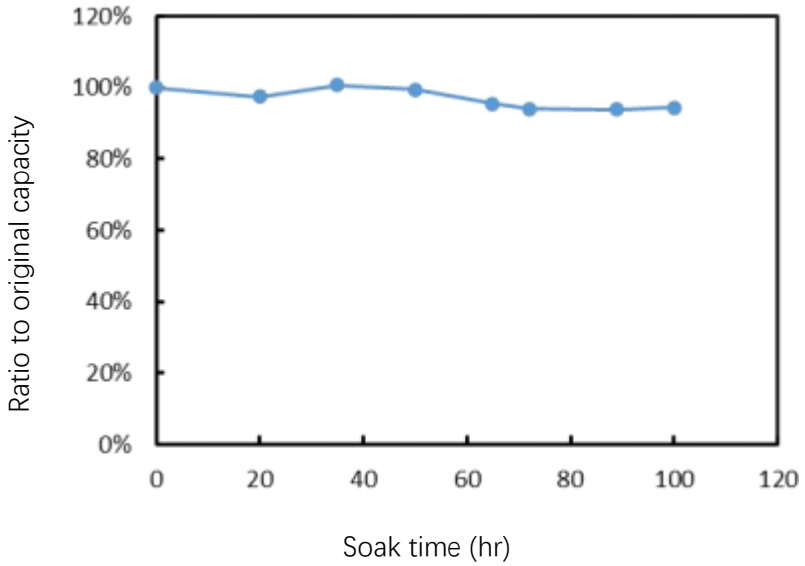


Column：Φ0.78×10cm

2.3 Relationship between loading and retention time

Retention time (min)	Loading capacity (mg/ml)
2	40.50
6	43.85

2.4 NaOH stability（0.1M NaOH）

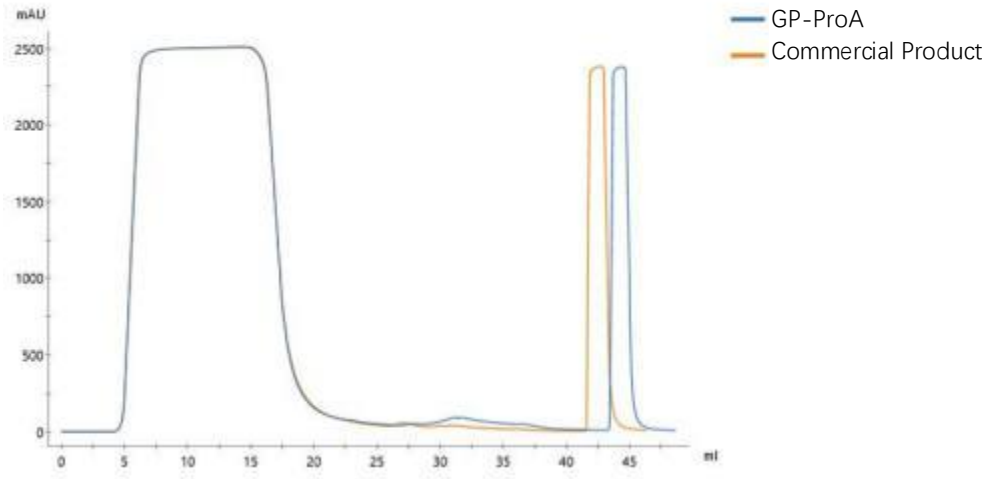


After being soaked in 0.1 M NaOH for 100 hours, the capacity of GP-ProA resin was 94% of the original capacity, with a small decrease. In actual use, the CIP cleaning time of each cycle is generally ≤0.5 h, and 100 hours of soaking time is equivalent to 200 CIP cycles.

3. Applications

3.1 Case Studies

EQ	20mM PB, 150mM NaCl,pH 7.4
Wash 1	20mM PB, 150mM NaCl,pH 7.4
Wash 2	50mM HAC-NaAC, 1M NaCl, pH 5.5
Wash 3	50mM HAC-NaAC, pH 5.5
Elute	50mM HAC-NaAC, pH 3.6



Item	Other Commercial Product	GPProA -60
IVIG capacity RT:2min	32.5 mg/ml	38.0 mg/ml
Capacity @ 10% breakthrough (mAb) : RT:5min	41.2 mg/ml	41.3 mg
Yield (%)	92.85	92.51
Purity (%)	96.54	96.65

3.2 Operation Steps

Antibody purification resin (GP-Pro A) is widely used for the separation and purification of various antibodies. Chromatography steps usually include Column packing, equilibration, sample loading, washing, elution, regeneration, etc.

Equilibration: Equilibrate the chromatography column with 5 - 10 CV of equilibration buffer (20 mM PB+0.15 M NaCl, pH 7.0, add an appropriate concentration of NaCl to inhibit non-specific adsorption) until the conductivity and pH of the effluent remain stable (consistent with equilibration buffer).

Loading: The buffer of the sample should be as consistent as possible with the equilibration solution. Solid samples can be prepared by dissolving them in an equilibration solution; low-concentration sample solutions can be dialyzed with equilibration solution or adding salt with required amount; high-concentration sample solutions can be diluted with equilibration solution. To avoid clogging the column, samples should be centrifuged or micro filtrated (0.45 μm). The loading amount is calculated based on the dynamic binding capacity of the resin and content of protein of interest in the feed.

Washing: After loading the sample, continue to wash to the baseline with equilibration buffer.

Elution: Elute with elution buffer (20 mM sodium acetate, pH 3.0-4.0 or 0. 1M glycine, pH 3.0) and collect the effluent. After elution, the collected antibody solution should be neutralized to neutrality immediately with basic buffer (such as 1M Tris/HCl, pH 9.0) to maintain the biological activity of the antibody and avoid antibody inactivation.

Regeneration and cleaning in place: After the resin is used for several times (5-10 times, the actual number of uses depends on the type and source of feed materials and the process requirements), the resin needs to be regenerated and cleaned in place.

(1) Wash the column with 0.1M acetic acid or 0.1M acetic acid or 20% ethanol for 3-5 CV, and then wash with buffer until neutral and can be reused;
(2) You can also use 0.05 M NaOH + 1 M NaCl or 6 M guanidine hydrochloride to wash the column for 3-5 CV, and wash with 3-10 CV pure water, afterward, wash with buffer until neutral and then reuse.

Other precautions: During packing, operating and storing the column, avoid the column from drying out and air bubbles from entering.

Duoning Biotechnology Group

marketing@duoningbio.com

www.duoningbio.com/en

6/F manulife place 348kwun tong road kl, HongKong, PRC.

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