LT BIOTECH UAB
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PlasmidCap Persefose HP

1. Basic product information

PlasmidCap Persefose HP is a thiophilic affinity resin made by fixing sulfur-containing compound 2-mercapyridine on high resolution crosslinked agarose. Its optimised ligand density has appropriate affinity with superhelix DNA, and fine particle microspheres can improve the load of superhelix DNA with larger molecular weight. The principle of thiophilic affinity is to use the interaction between electron donor and electron acceptor to separate and purify biomolecules. This force is strengthened in a high salt environment and weakened in a low salt environment.

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2. Chromatography resin parameters

Resin type	DNA affinity chromatography
Matrix	High degree cross-linking agarose
Functional group	2-mercaptopyridine
Median particle size	34
Ligand density	~3.5 mg/ml
Dynamic binding capacity	>2.0 mg plasmid/ml
Recommended flow rate	50~120 cm/h
Maximum working pressure	3 bar
Working temperature	15–30°C

3. Chemical resistance

pH stability*	3–11 (working), 2–13 (CIP)
Chemical stability	All commonly used aqueous buffers, 1M Acetic acid, 30% isopropanol**, 70% ethanol**, 0.1M NaOH

** The physical and chemical properties and functions of the chromatographic resin have no obvious changes after being placed in an environment of 40°C and pH 3–11 for 7 days.*
*** v/v, volume ratio*

4. Method of use

4.1 Chromatographic conditions

(1) Buffer selection:
Equilibration/binding/washing buffer: 2.0M $(NH_4)_2SO_4$, 10 mM EDTA, 0.1M Tris, pH 7.5.
Elution buffer: 1.7M $(NH_4)_2SO_4$, 10 mM EDTA, 0.3M NaCl, 10 mM EDTA, 0.1M Tris, pH 7.5.
(2) Flow rate: generally, choose a linear flow rate of 50–120 cm/h according to the bed height of the column.
(3) Sample pretreatment: to prevent the sample from clogging the column, the sample needs to be filtered with a 0.45 μm microporous membrane before loading. It is recommended that the pH and conductivity of the sample is adjusted to be consistent with the equilibration buffer (dilution, ultrafiltration can be used and desalting to adjust the pH and conductivity of the sample).

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4.2 Chromatography steps

(1) Equilibration: use equilibration buffer to fully equilibrate the chromatography column until the pH and conductivity are stable and basically consistent with the equilibration buffer. This step usually requires 3–5 column bed volumes (CV).
(2) Sample loading: according to the binding capacity measured in the small test, determine the sample loading volume and loading amount of the sample on PlasmidCap Persefose HP.
(3) Washing: use equilibration buffer or other suitable buffer to wash the chromatography column until the UV stabilises and returns to the baseline.
(4) Elution: use elution buffer.
(5) Regeneration: wash with 3 CV ultra pure or pure water and then clean with 3 CV 0.5M NaOH and 3CV of ultra pure or pure water.
(6) Re-equilibration: re-equilibrate the column with equilibration buffer.

5. Cleaning and regeneration

Contaminants (such as lipids, endotoxins and proteins) accumulate on the column as the number of uses of the chromatography resin increases. Regular cleaning-in-place (CIP) is essential to keep the column in a stable working condition. Determine the frequency of CIP according to the degree of contamination of the chromatography resin (if the contamination is considerable, CIP is recommended after each use to ensure repeatability of results and to prolong the working life of the chromatography resin).

For different types of impurities and contaminants, the recommended cleaning conditions are as follows:
• Removal of denatured or precipitated proteins: first wash with 5 CV of 0.5M NaOH solution, and then use 5–10 CV of balance buffer.
• Removal of lipoproteins and lipids: first wash with 2~4CV 20 mM PB+30% isopropanol, pH 7.5, then rinse with 5–10 CV of ultra pure or pure water.
Note: 30% isopropanol should be degassed before use; the flow rate should be 30–60 cm/h during CIP; reverse cleaning should be used when the clogging is severe.

To reduce the microbial load, it is recommended that resin is treated with 70% ethanol for more than 12 hours.

6. Storage

Keep the unopened chromatography resin in the original container and store at 4~30°C in a well-ventilated, dry and clean place. Do not freeze. Wash the used column with 2–3 CV of 20% ethanol solution and store at 2~8°C.

7. Destruction and recycling

Since chromatography resin is difficult to degrade in nature, it is recommended that the waste chromatography resin is incinerated to protect the environment. For chromatography resin that has been in contact with biologically active samples such as viruses and blood, follow the local biosafety requirements before destroying or disposing of it.

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8. Packing method

Detailed information on resin packaging is available on request. Please contact your local distributor.

9. Ordering information

Product name: PlasmidCap Persefose HP

Product Cat. No	Package
181-00025	25 ml
181-00100	100 ml
181-00500	500 ml
181-01000	1 L
181-05000	5 L
181-10000	10 L
181-20000	20 L