LT BIOTECH UAB
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Lepta 700

1. Basic product information

Lepta 700 is a multimodal chromatography resin. Different from traditional chromatographic media, it consists of two different structures: the outer shell is a porous passivation layer, which ensures that macromolecules above 700 kDa will not enter the pores and flow directly through the outer layer; the core is coupled and has hydrophobic adsorption. The spherical core of the positively charged adsorption group can bind host proteins, nucleic acids and other impurities to the greatest possible extent. This chromatographic medium can be used effectively for the separation and purification of various macromolecular organisms, such as viruses and virus-like particles. Compared with traditional single mode chromatography media, Lepta 700 shows better performance:
(1) The unique double-layer structure design can process macromolecules above 700 kDa in flow-through mode, making process optimisation easier and more convenient for linear amplification.
(2) The improved Lepta base frame has stronger rigidity, so it can achieve higher process flow rate and improve process efficiency under lower back pressure.
(2) Compared with traditional gel filtration chromatography, it has a larger loading volume and reduces costs.

2. Chromatography resin parameters

Resin type	Multimodal
Functional group	Groups with both hydrophobic and positive charge adsorption
Matrix	Highly cross-linked agarose
Mean particle size	90 μm
Exclusion limit	700 kDa
Total ion capacity	0.04–0.08 mmol Cl^-/ml
Dynamic binding capacity	> 10 mg BSA/ml *
Recommended flow rate	90–400 cm/h
Maximum flow rate	500 cm/h
Maximum working pressure	5 bar
Working temperature	4–30°C

**Measurement conditions of the dynamic binding capacity: packing height: 10 cm; test flow rate 200 cm/h; test buffer, 0.02M Tris-HCl solution, 0.15M NaCl, pH 7.5; test sample, 2 mg/ml BSA sample, when BSA breakthrough reaches 10% of starting concentration.*

3. Chemical resistance

pH stability*	3–14
Chemical stability	Common aqueous solution, 30% isopropanol**, 75% ethanol**, 1M NaOH, 6M guanidine hydrochloride, 8M urea
Avoid	Oxidising agents, anionic detergents

** The physical and chemical properties and functions of the chromatographic resin have no obvious change after being placed in an environment of 40°C and pH 3–14 for 7 days.*
*** v/v, volume ratio*

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4. Method of use

4.1 Chromatographic conditions

(1) Buffer selection: the stability of the sample in the buffer should be considered; to avoid possible non-specific adsorption, it is advisable to use a salt-containing buffer instead of ultra pure or pure water.
(2) Flow rate: generally, choose a linear flow rate of 90~400 cm/h according to the height of the column bed.
(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.

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 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 Lepta 700.
(3) Wash: use equilibration buffer or another suitable buffer to wash the chromatography column until the UV is stable and returns to the baseline.
(4) Regeneration: rinse the column with a high-salt buffer (such as 2M NaCl), or 1M NaOH, 30% isopropanol solution.
(5) Re-equilibration: re-equilibrate the column with the equilibration buffer.

5. Cleaning and regeneration

Contaminants (e.g. lipids, endotoxins and proteins) accumulate on the column as the number of uses of the chromatography resin increases. 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 strongly binding proteins: wash with 5 CV of 2M NaCl solution, or use a high salt buffer not lower than pH 3, such as 1M NaAc solution.
• Removal of strongly hydrophobic proteins and precipitated proteins: first wash with 5 CV of 1M NaOH solution, then wash the lye with 5–10 CV of ultra pure or pure water.
• Removal of lipoproteins and lipids: first wash with 5 CV of 70% ethanol or 30% isopropanol, then rinse with 5–10 CV of ultra pure or pure water.
Note: 70% ethanol or 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 0.5–1M NaOH solution is used to treat the chromatography medium for 15–30 minutes.

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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.

8. Packing method

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

9. Ordering information

Product name: Lepta 700

Product Cat. No	Package
627-00025	25 ml
627-00100	100 ml
627-00500	500 ml
627-01000	1 L
627-05000	5 L
627-10000	10 L
627-20000	20 L