Column Care and Use Instructions

BioPro Ion Exchange Screening Kit

For purification method development of proteins, and nucleotides separation / For media screening

1. Introduction

Thank you for purchasing BioPro Ion Exchange Screening Kit. BioPro Ion Exchange Screening Kit is a set of media screening columns packed with BioPro Ion Exchange media for proteins and nucleotides separation. This product is ideal for purification method development and media scouting.

BioPro Ion Exchange Screening Kit is manufactured under highly controlled conditions. In order to ensure optimal performance and durability of the kit, please follow these instructions.

2. Specifications

Column specifications

Item	1 mL type	5 mL type
Column volume (mL)	1	5
Column material	Polypropylene	Polypropylene
Column size length x I.D.(mm)	26 x 7.0	26 x 15.6
Recommended flow rate (mL/min)	1	5
Maximum flow rate (mL/min)	4	20
Max. pressure (MPa)	0.3	

Media specifications

Item	Strong anion exchanger BioPro SmartSep Q	Strong cation exchanger BioPro SmartSep S
Matrix	Hydrophilic porous polymer beads	
Particle size (µm)	20, 30	20, 30
Functional group	-R-$N^+(CH_3)_3$	-R-SO_3^-
pH range	2 – 12	2 – 12
Temp. range (°C)	4 – 60	4 – 60
Shipping solvent	20% ethanol aqueous solution	

Item	Strong anion exchanger BioPro Q	Strong cation exchanger BioPro S
Matrix	Hydrophilic porous polymer beads	
Particle size (µm)	75	75
Functional group	-R-$N^+(CH_3)_3$	-R-SO_3^-
pH range	2 – 12	2 – 12
Temp. range (°C)	4 – 60	4 – 60
Shipping solvent	20% ethanol aqueous solution	

3. Consideration for column connection and system setting

- The column is to be connected using 1/16" tubing. We recommend using Handy Connector 1（Product number：XRP0203）for connecting the column.
- The correct direction of the solvent flow is indicated by an arrow on the column identification label.
- When installing the column, make sure to prevent air from entering the column.

4. Equilibration and elution

- Generally samples are adsorbed on the top of the column with 20 to 50 mM of buffer as first mobile phase, then eluted with a salt-concentration gradient method (sodium chloride concentration commonly adjusted in the range of 0 to 0.5 M) or pH gradient method. It is recommended to flush the column with buffer containing about 1 M of sodium chloride for each run in order to remove residual impurities from column with the final mobile phase.
- Water-soluble organic solvent (maximum of 30%), can be added in the mobile phase. Before adding such solvent, make sure salt in the buffer will not precipitate. Other additives such as urea (≦8 M) or guanidine hydrochloride (≦6 M) which are commonly used as protein denaturants, nonionic surfactants, cationic surfactants (limited to BioPro Q), or anionic surfactants (limited to BioPro S) can be used.
- Avoid solvents containing oxidant for mobile phase.
- Avoid anionic surfactants for BioPro Q
- Avoid cationic surfactants for BioPro S
- Take care to prevent the precipitation of salts when replacing shipping solvent with a buffer solution with high buffer/salt concentration.

5. Cleaning

- A change of retention time or peak shape and/or pressure increase may be caused by the adsorption of fat-soluble substances or precipitated impurities in sample. In such case, flush the column with 3–5 column volumes of washing solution. The column should be disconnected from detector. After cleaning, sufficiently equilibrate the column with a mobile phase. To prevent exposure of the column to excessive pressure, adjust the flow rate appropriately during column cleaning.
- For washing solution, high concentration of sodium chloride solution (For example, about 1 to 2 M concentration) is recommended in stead of flushing buffer process. If performance does not recover, firstly wash with sodium hydroxide (about 0.1 to 0.5 M), and then flush with sodium chloride (about 0.1 to 0.5 M).

6. Storage

Flush the column with water, then with 20% ethanol solution. Make sure to close the end plug tightly to avoid drying out. Store it at 4 – 35 °C.

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