Column Care and Use Instructions

YMC-BioPro Ion Exchange Screening Kit

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

1. Introduction

Thank you for purchasing YMC-BioPro Ion Exchange Screening Kit. YMC-BioPro Ion Exchange Screening Kit is a set of resin screening columns packed with YMC-BioPro Ion Exchange media for proteins and nucleotides separation. This product is ideal for purification method development and resin scouting. It consists of columns packed with strong ion exchanger (Q/S) and/or weak ion exchanger (DA/CM).

YMC-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 YMC-BioPro Q	Strong cation exchanger YMC-BioPro S	Weak anion exchanger YMC-BioPro DA	Weak cation exchanger YMC-BioPro CM
Matrix	Hydrophilic porous polymer beads			
Particle size (µm)	30 , 75	30 , 75	60	60
Functional group	$-CH_2N^+(CH_3)_3$	$-CH_2CH_2CH_2CH_2SO_3^-$	$-R-N(CH_3)_2$	-R-COOH
pH range	2 – 12	2 – 12	Regular use: 3 – 12 Short term: 1 – 13	Regular use: 3 – 12 Short term: 1 – 13
Temp. range (°C)	4 – 60	4 – 60	2 – 45	2 – 45
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 YMC-BioPro Q and YMC-BioPro DA), or anionic surfactants (limited to YMC-BioPro S and YMC-BioPro CM) can be used.
- Avoid solvents containing oxidant for mobile phase.
- Avoid anionic surfactants for YMC-BioPro Q and YMC-BioPro DA
- Avoid cationic surfactants for YMC-BioPro S and YMC-BioPro CM
- 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 concentoration) 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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