

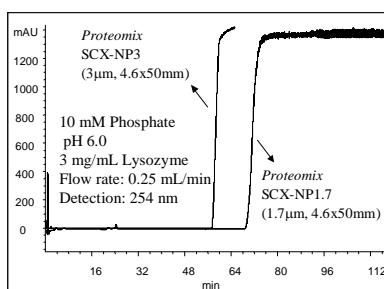


High Capacity Non-porous Proteomix Ion-Exchange Phases

Column Information

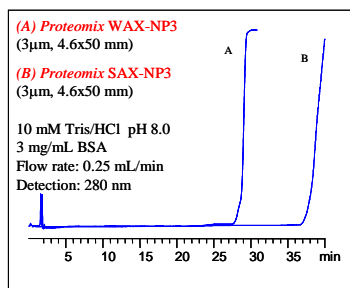
Proteomix ion-exchange columns are specially designed for high resolution, high efficiency and high recovery separations of proteins, oligonucleotides and peptides. The packing support is composed of a rigid, spherical, highly cross-linked poly(styrene divinylbenzene) (PS/DVB) non-porous bead. The non-porous resin has particle size of 1, 1.7, 3, 5 and 10 μm . The PS/DVB resin surface is grafted with a highly hydrophilic, neutral polymer thin layer with the thickness in the range of nanometer. The hydrophobic PS/DVB resin surface is totally covered by such a hydrophilic coating that eliminates non-specific bindings with biological analytes, leading to high efficiency and high recovery separations for biological molecules. On the top of the hydrophilic layer, ion-exchange functional groups are attached via a proprietary chemistry, resulting in high capacity ion-exchange layer.

Dynamic Binding Capacity



Dynamic Binding Capacity

Packings	Particle (μm)	Capacity (mg/mL)
<i>Proteomix</i>		
SCX-NP1.7	1.7	65
SCX-NP3	3	53.5
SCX-NP5	5	38
SCX-NP10	10	20
WCX-NP1.7	1.7	25
WCX-NP3	3	19
WCX-NP1.7	5	15
WCX-NP3	10	10



Dynamic Binding Capacity

Packings	Particle (μm)	Capacity (mg/mL)
<i>Proteomix</i>		
SAX-NP1.7	1.7	43
SAX-NP3	3	35
SAX-NP5	5	28
SAX-NP10	10	17.5
WAX-NP1.7	1.7	35
WAX-NP3	3	26
WAX-NP5	5	18
WAX-NP10	10	12

A high loading example was done with a non-porous SCX column (3 μm , 4.6x50mm), as shown in Fig. 3. When the injection amount of Ribonuclease A was increased from 50 μg to 5 mg, the separation resolution had negligible change and each of the impurities was well separated. Based on such as high loading capacity, the sample injection could

be increased to 638 mg if the column dimension is increased from 4.6x50 mm to 30x150 mm.

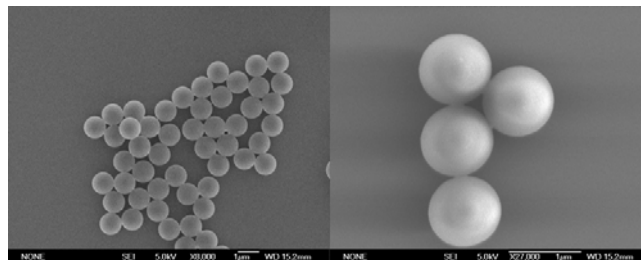


Fig. 1. SEM images of 1.0 μm Proteomix non-porous PS/DVB beads.

Loading Capacity of 1.7 μm Ion-exchange Resin

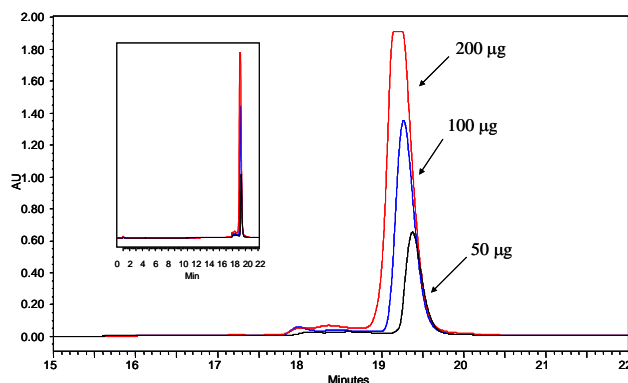


Fig. 2. Column: SCX-NP1.7 (1.7 μm , 4.6x50 mm); A: 20 mM PBS; B: A+1.0 M NaCl; 0-70%B (21 min); 0.35 mL/min, 2,800 psi; Sample: cytochrome C (20 mg/mL); UV 280 nm.

Loading of RNaseA

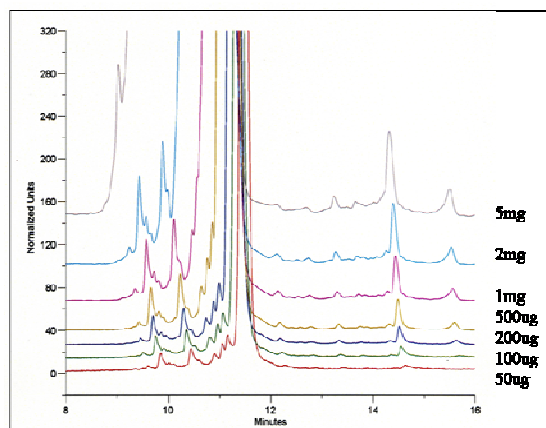


Fig. 3. Column: Proteomix SCX-NP3 (3 μm , 4.6x50 mm); Eluent: 10 mM PBS, pH 6.0; Gradient: 0-1.0 M NaCl (20 min); Flow rate: 1.0 mL/min; Detection: 280 nm; Sample volume: 100 μL .

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