



Cell Lysate Separation – High Peak Capacity and High Capacity

By 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.

Narrow-dispersed Proteomix Particles

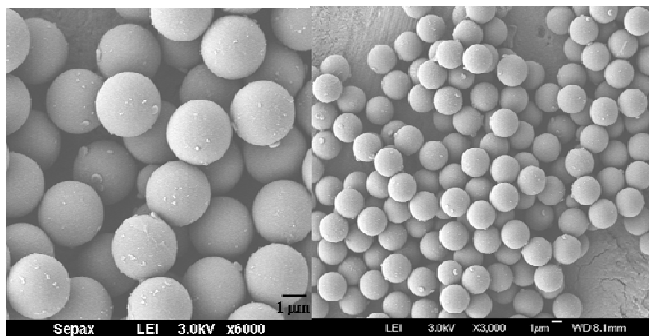


Fig. 1. SEM images of 3.0 μm non-porous Proteomix SAX beads.

Separation and Analysis of Cell Lysates

With combination of high resolution and high capacity, the non-porous Proteomix ion-exchange resins are very much suitable for separating cell lysates. Fig. 2 showed the separation profiles of *E. coli* lysate with the 3, 5, and 10 μm particle non-porous Proteomix SAX columns. The minimum separation peak capacity increased from 40 to 60 to 75 when the particle size decreased from 10 to 5 to 3 μm . Fig. 3 showed various sample loading for a 3 μm , 4.6x50 mm non-porous SAX column. When the amount of *E. coli* lysate increased from 25 μg to 50 μg to 125 μg , the separation efficiency and resolution remained consistent. Proteomix ion-exchange resins can be readily scaled up for semi-preparative and preparative separations.

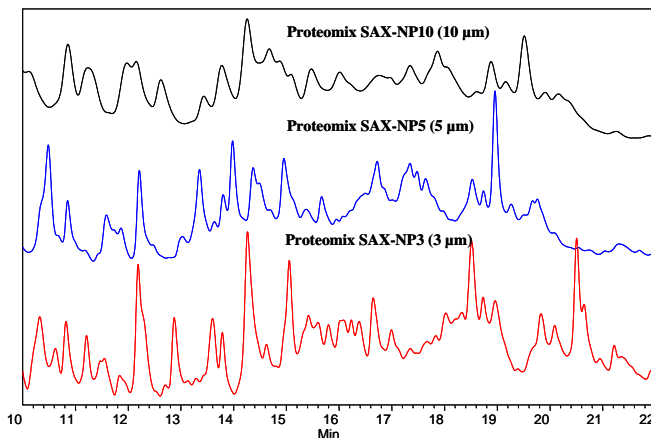
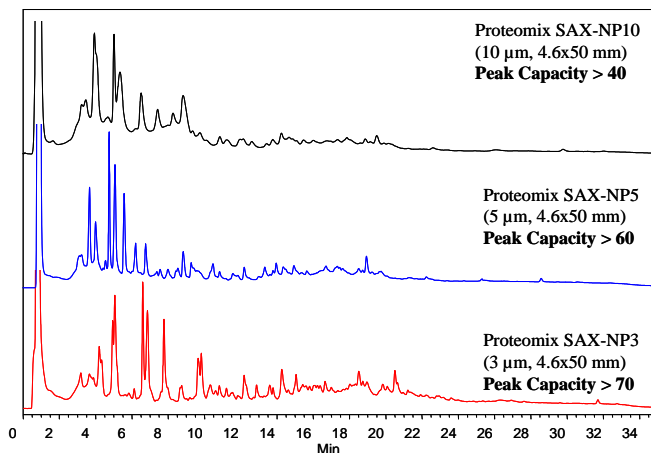


Fig. 2. Column: SAX (4.6x50 mm); A: 20 mM Tris, pH 9.0; B: A + 0.5 M NaCl; Flow rate: 0.5 mL/min, 0-100%B (30 min); Sample: *E. coli* lysate; Injection: 10 μL /min (2.5 mg/mL).

High Loading of *E. coli* Lysate

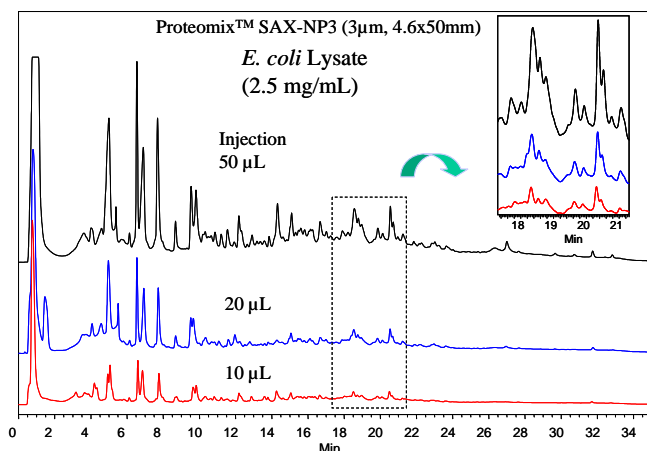


Fig. 3. Same separation conditions as those in Fig. 2.

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