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1 Chromatographic Adsorption of Serum Albumin and Antibody Proteins in
2 Cryogels with Benzyl-Quaternary Amine Ligands

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12 **Highlights**

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14 1) A new cryogel with a combination of ion-exchange and hydrophobic functions was prepared.
15 2) The cryogel was employed to isolate immunoglobulin G with a purity of 98.2% and albumin
16 with a purity of 96.8% from rabbit blood serum.
17 3) A model was developed to describe the protein adsorption and breakthrough through the cryogel.

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21 **Abstract**

22 The preparation and characterization of mixed-mode adsorbents for a typical separation purpose are
23 of great importance in bioseparation areas. In this work, we prepared a new monolithic cryogel with
24 a combination of ion-exchange and hydrophobic functions by employing benzyl-quaternary amine
25 groups. The fundamental cryogel properties, protein equilibrium adsorption isotherm and

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