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Purification of human erythropoietin by affinity chromatography using cyclic peptide ligands

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Abstract

Prior work described the identification and characterization of erythropoietin-binding cyclic peptides SLFFLH, VVFFVH, FSLLHH and FSLLSH (all of the form cyclo[(N_α-Ac)Dap(A)-X_1-X_6-AE], wherein X_1-X_6 is the listed sequences). In this work, the peptide ligands were synthesized on Toyopearl chromatographic resins and utilized for purifying recombinant human erythropoietin (rHuEPO) from complex sources. Elution buffer pH and composition were optimized to maximize the recovery of standard rHuEPO from the peptide resins. The peptide-based adsorbents were employed for separating rHuEPO from a mixture of albumin, myoglobin, and IgG to examine their selectivity. When using FSLLHH, the inclusion of low amounts of surfactants in the