ABSTRACT

AFFINITY CHROMATOGRAPHY DEVICES

The present invention is directed to affinity chromatography devices that separate a targeted protein or antibody from an aqueous mixture containing the targeted protein or antibody. The chromatography device may contain a stacked membrane assembly or a wound membrane assembly. The membrane assemblies include at least one polymer membrane that contains therein inorganic particles. The polymer membrane and/or the inorganic particles have an affinity ligand bonded thereto. The affinity ligand may be a protein, an antibody, or a polysaccharide that reversibly binds to the targeted protein or antibody. The chromatography device may be repeatedly used and may be cleaned with a caustic solution between uses. The chromatography devices may have a dynamic binding capacity (DBC) of at least 30 mg/ml (or 0.07 micromol/ml) at 10% breakthrough at a residence time of 20 seconds or less.

Fig. 4