

Purification of rabbit polyclonal immunoglobulin G using anion exchangers.

Abstract

Negative chromatography antibody purification (N-CAP) using the weak anion exchanger STREAMLINE™ DEAE to extract impurities while retaining the target antibody is proposed as an effective method for the recovery of antibody from rabbit serum. The effects of pH and initial protein concentration on the removal of albumin were investigated. The optimal pH and initial protein concentration for the efficient removal of albumin from rabbit serum were pH 8.0 and 0.5 mg/ml, respectively. Under optimal binding conditions, DEAE successfully removed more than 90% of the albumin from rabbit serum with less than 20% IgG loss. This process offered good polyclonal IgG yield of 80% with a purity of 83% and a purification factor of 5.5. The use of a strong anion exchanger like STREAMLINE™ Q XL for albumin removal was also explored. Under similar optimized conditions, albumin removal by Q XL was as high as 90%. However, IgG recovery and purity were reduced to about 70% and 62%, respectively. Thus, N-CAP using the anion exchanger DEAE removes albumin from rabbit serum and thereby offers an efficient means of purifying polyclonal antibodies.

Keyword: Polyclonal IgG; STREAMLINE™ DEAE; Rabbit serum; Albumin removal; Anion exchange adsorbents; Negative chromatography antibody purification