Octadecyl silica: A solid phase for protein purification by immunoadsorption

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Immunoaffinity chromatography involves binding of an antigen or antibody to a solid matrix, usually agarose, frequently using the cyanogen bromide method. These methods are laborious, rather expensive, and their use has been mostly restricted to immunopurifications on the microscale. We propose here the use of octadecyl silica (SiCl8) beads, a matrix for HPLC, as an alternative solid phase for protein immunopurification and immunoadsorption. Antibodies or antigens are strongly bound to SiCl8 by a simple incubation; radiolabeled antibodies can only be eluted from SiCl8 by detergent-containing solutions. After the remaining free binding sites have been saturated with bovine serum albumin, SiCl8 is incubated with the antigen- or antibody-containing crude preparations and is then poured into a minicolumn. The nonspecifically bound proteins are removed by washing; specific proteins are eluted by disruption of the antigen-antibody complexes with a low pH buffer. With this methodology, we hav