

Removal of Aggregates of Monoclonal Antibodies by Ion Exchange Chromatography

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Abstract : The primary objective of this work was to study the effect of resin chemistry, pH and molarity of binding and elution buffer on aggregate removal using Cation Exchange Chromatography and find the optimum conditions which can give efficient aggregate removal with minimum loss of yield. Four different resins were used for carrying out the experiments: Fractogel EMD SO3-(S), Fractogel EMD COO-(M), Capto SP ImpRes and S Ceramic HyperD. Runs were carried out on the AKTA Avant system. Design of Experiments (DOE) was used for analysis using the JMP software. The dependence of the yield obtained using different resins on the operating conditions was studied. Success has been achieved in obtaining yield greater than 90% using Capto SP ImpRes and Fractogel EMD COO-(M) resins. It has also been found that a change in the operating conditions generally has different effects on the yields obtained using different resins.

Keywords : aggregates, cation exchange chromatography, design of experiments, monoclonal antibodies

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