Analysis and Optimal Design of Batch and Two-Column Continuous Chromatographic Frontal Processes for Monoclonal Antibody Purification

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Abstract

Frontal chromatography has seen increased interest for protein purification, in particular as a polishing step in downstream processes for therapeutic proteins production, as for example the purification of monoclonal antibodies (mAbs) from high molecular weight impurities, e.g., aggregates, using cation exchange resins. In this work we introduce a new two-column continuous process implementing frontal chromatography. The design procedure and its performance, compared to classical batch technology, are discussed. This represents an additional option in the realisation of optimised continuous downstream processing of therapeutic proteins.

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