

Downstream Processing of Proteins

Methods and Protocols

Edited by

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In *Downstream Processing of Proteins: Methods and Protocols*, Mohamed A. Desai and a team of experienced biotechnologists review both conventional and novel isolation techniques used in industrial applications for the downstream processing of protein molecules. These techniques include primary and secondary separations during the isolation of biomolecules, as well as unique laboratory-scale research methods with a potential for scale-up. Also treated are the various variants of the downstream biological process essential for a successful product launch application, including both the validation of DSP stages and the design and validation of new processes steps during the purification process.

Downstream Processing of Proteins: Methods and Protocols provides scientists everywhere, but particularly in the biopharmaceutical and biotechnology industries, with a much-needed introduction to this critical technology. Every bioprocess scientist and engineer working to design and validate biological processes for novel proteins—and successfully apply further new product launches—will find this important book an increasingly practical resource.

Features

- Provides a basic understanding of common downstream processing techniques
- Presents protein purification from an industrial perspective
- Explains the use and validation of DSP stages in a typical biopharmaceutical process
- Addresses the most common issues of process validation in industry

Contents

Downstream Processing in the Biotechnology Industry. An Overview. Microbial Cell Disruption by High-Pressure Homogenization. Protein Concentration and Buffer Exchange Using Ultrafiltration. High-Performance Tangential Flow Filtration for Protein Separations. Large-Scale Purification of Protein Inclusion Bodies by Continuous Chromatography. Application of Density Gradients Ultracentrifugation Using Zonal Rotors in the Large-Scale Purification of Biomolecules. Application of Chromatography in the Downstream Processing of Biomolecules. Affinity-Ligand Technology. Critical Point

Separations for Downstream Processing. Immunoaffinity Adsorption in the Large-Scale Isolation of Biomolecules. Expanded Bed Adsorption in the Purification of Biomolecules. Application of HPLC in the Purification of Biomolecules. Countercurrent Chromatography of Proteins with Polymer-Phase Systems. Practical Aspects and Applications of Media-Flow Chromatography. Sterile Filtration and Virus Filtration. Design and Implementation of Viral Clearance Studies for Biopharmaceutical Products. Validation of Sterilizing Filters in the Biotechnology Industry. Index.

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