

# Cell Culture Technology for Pharmaceutical and Cellular Therapies

## Chapters

- 1. Cell Culture Technology- an Overview**  
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- 2. Recombinant DNA Technology and Cell Line Development**  
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- 3. Medium Development**  
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- 4. Cell Metabolism**  
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- 5. Protein Glycosylation**  
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- 6. Cell Culture Bioreactors**  
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- 7. Aeration, Mixing and Hydrodynamics in Bioreactors**  
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- 8. Instrumentation and Process Control**  
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- 9. Cell Culture Kinetics and Modeling**  
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- 10. Fed-Batch Cultivation Of Mammalian Cells For Production Of Recombinant  
Proteins**  
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- 11. Optimization of High Density Perfusion Bioreactors**  
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- 12. Cell Separation And Product Capture**  
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- 13. Downstream Processing**  
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- 14. Formulation, Finishing, and Packaging**  
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- 15. Validation Of Cell Culture Based Processes & Qualification Of Associated  
Equipment And Facility**  
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- 16. Facility Design**  
Kim Nelson, CRB Engineering, King of Prussia, PA 19406

**17. Transient Expression of Proteins**

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**18. Large-scale propagation of insect cells**

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**19. Advances In Adult Stem Cell Culture**

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**20. Ex Vivo Culture Of Hematopoietic And Mesenchymal Stem Cells For Tissue Engineering And Cell-Based Therapies**

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