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| Nota di contenuto       | UPSTREAM INDUSTRIAL BIOTECHNOLOGY; CONTENTS; 27 Animal Cell Culture, Effects of Osmolality and Temperature; PREFACE; CONTRIBUTORS; PART I INTRODUCTION; PART II INDUSTRIAL CELL GROWTH AND GENE EXPRESSION SYSTEMS; 1 Animal Cells, Suspension Culture; 1.1 INTRODUCTION; 1.2 TYPES USED FOR LARGE-SCALE PRODUCTION IN SUSPENSION CULTURE; 1.3 SUSPENSION CULTURE REACTORS; 1.4 OPERATING MODES FOR REACTORS; 1.5 PROCESS MONITORING AND CONTROL; 1.6 CULTURE MEDIA FOR SUSPENSION CULTURE; 1.7 CONCLUSIONS; REFERENCES; 2 Baculovirus Expression Systems; 2.1 INTRODUCTION; 2.2 BACULOVIRUS STRUCTURE AND REPLICATION<br>2.3 PRODUCTION OF RECOMBINANT BACULOVIRUSES<br>2.4 BACULOVIRUS TRANSFER VECTORS; 2.5 MODIFYING THE BACULOVIRUS GENOME TO IMPROVE PROTEIN PRODUCTION; 2.6 INSECT CELL CULTURE; 2.7 BACULOVIRUSES FOR GENE EXPRESSION IN MAMMALIAN CELLS; 2.8 CONCLUSION; REFERENCES; 3 Baculovirus Kinetics, Insect Culture; 3.1 HISTORY AND CHALLENGE; 3.2 BACULOVIRUS; 3.3 CELL YIELD CONCEPT; 3.4 KINETIC MODEL OF VIRAL INFECTION: SYNCHRONOUS INFECTION; 3.5 KINETIC MODEL OF VIRAL INFECTION: ASYNCHRONOUS INFECTION; REFERENCES; 4 Cell Culture, Aseptic Techniques; 4.1 INTRODUCTION; 4.2 ASEPTIC TECHNIQUE: GENERAL CONSIDERATIONS<br>4.3 ASEPTIC TECHNIQUE: BASIC PROCEDURES<br>4.4 HEPA FILTRATION; 4.5 |

HOODS AND CABINETS EMPLOYING HEPA FILTRATION; 4.6 WORKING WITHIN UNIDIRECTIONAL AIRFLOW CABINETS AND MICROBIOLOGICAL SAFETY CABINETS; 4.7 TESTING OF CLASS I AND CLASS II MICROBIOLOGICAL SAFETY CABINETS; 4.8 CLEANROOMS FOR CELL CULTURE USE; REFERENCES; 5 Cell Cycle in Bioprocesses; 5.1 INTRODUCTION; 5.2 THE CELL CYCLE; 5.3 METHODS FOR DESCRIBING THE CELLCYCLE; 5.4 IMPORTANCE OF THE CELL CYCLE IN PROCESS BIOTECHNOLOGY; REFERENCES; 6 Cell Growth and Protein Expression Kinetics; 6.1 INTRODUCTION; 6.2 BATCH CULTURE KINETICS 6.3 CONTINUOUS CULTURE KINETICS 6.4 FED-BATCH AND PERFUSION CULTURES; 6.5 CONCLUSIONS; NOMENCLATURE; REFERENCES; 7 Cell Viability Measurement; 7.1 INTRODUCTION; 7.2 PERMEABILITY ASSAYS; 7.3 FUNCTIONAL ASSAYS; 7.4 FLOW CYTOMETRY; 7.5 PHYSICAL METHODS; REFERENCES; 8 Contamination Detection in Animal Cell Culture; 8.1 INTRODUCTION; 8.2 HISTORICAL PERSPECTIVES; 8.3 REGULATORY ISSUES; 8.4 MANUFACTURING AND SAFETY TESTING STANDARDS; 8.5 EXAMPLES OF VIRAL CONTAMINANTS; 8.6 DETECTION OF VIRAL CONTAMINANTS IN CELL LINES; 8.7 TESTING RAW MATERIALS; 8.8 DETECTION OF MYCOPLASMAS; 8.9 BACTERIA AND FUNGI 8.10 OXYGEN UPTAKE RATE 8.11 ENDOTOXIN DETECTION; 8.12 STATISTICAL ANALYSIS; 8.13 DETECTION OF PRIONS; 8.14 SUMMARY; REFERENCES; 9 Culture Collections and Biological Resource Centers (BRCs); 9.1 INTRODUCTION; 9.2 CULTURE COLLECTION FUNDING; 9.3 OPERATION; 9.4 QUALITY MANAGEMENT; 9.5 SERVICES; 9.6 SUMMARY; REFERENCES; FURTHER READING; 10 Culture Preservation; 10.1 INTRODUCTION; 10.2 CULTURE AND PRESERVATION OF BACTERIA; 10.3 CULTURE AND PRESERVATION OF FUNGI AND YEAST; 10.4 CULTURE AND PRESERVATION OF CELL CULTURES; REFERENCES 11 Expression and Secretion of Heterologous Proteins, *Bacillus* and Other Gram-Positive Bacteria

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#### Sommario/riassunto

Biotechnology represents a major area of research focus, and many universities are developing academic programs in the field. This guide to biomanufacturing contains carefully selected articles from Wiley's Encyclopedia of Industrial Biotechnology, Bioprocess, Bioseparation, and Cell Technology as well as new articles (80 in all,) and features the same breadth and quality of coverage and clarity of presentation found in the original. For instructors, advanced students, and those involved in regulatory compliance, this two-volume desk reference offers an accessible and comprehensive reso

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