

Bioprocess Optimization and Digital Bio-manufacturing: Global Markets

Market Research Report | 2024-12-20 | 180 pages | BCC Research

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Report description:

Description

Report Scope

The report provides a comprehensive analysis of the bioprocess optimization and digital biomanufacturing market in a global context, including market forecasts and sales through the year 2029. Segmentation based on technology type includes manufacturing technologies (chromatography-based separation and purification, filtration, bioreactors, centrifugation), analytical and process control technologies (spectrophotometry, automation and industrial process control technologies, analytical chromatography, sensors and probes), and software (Industrial control and automation software, bioprocess optimization and data analytics software). Segmentation based on application includes biomanufacturing process automation and control, flexible manufacturing, bioprocess optimization and process analytics, and others. By molecule type the market is segmented into monoclonal antibodies, vaccines, therapeutic proteins and peptides, and cell and gene therapies. The regional markets covered are North America, Europe, Asia-Pacific, and the Rest of the World (RoW). For market estimates, data has been provided for 2023 as the base year, with forecasts for 2024 through 2029.

The report discusses the critical issues impacting the adoption of digital biomanufacturing in pharmaceuticals, as well as emerging trends in digital biomanufacturing technologies. It also features new developments and new product launches in the global market. The report provides comprehensive profiles of market players in the industry. The report also covers mergers and acquisitions and any other collaborations or partnerships that occurred during the evaluation period of this report and which are expected to shape the industry.

Report Includes

- 69 data tables and 61 additional tables
- Analyses of trends in the global market for bioprocess optimization and digital bio-manufacturing, with market revenue data for 2021-2023, estimates for 2024, forecasts for 2025, and projected CAGRs through 2029
- Estimates of the market size and revenue growth prospects of the global market, along with a market share analysis by technology, application, drug molecule type and region

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- Facts and figures pertaining to the market dynamics, technical advances, regulations and the impact of macroeconomic factors
- Insights derived from the Porter's Five Forces model, as well as global supply chain and PESTLE analyses
- Analysis of patents, emerging trends, and new developments
- Analysis of the industry structure, including companies' market shares, strategic alliances, M&A activity and a venture funding outlook
- Overview of sustainability trends and ESG developments, with emphasis on consumer attitudes, and ESG scores and practices of leading companies
- Profiles of the market leaders, including Agilent Technologies Inc., Thermo Fisher Scientific Inc., Danaher Corp., and Sartorius AG.

Executive Summary

Summary:

Bioprocess optimization maximizes the yield of various bioproducts such as enzymes, vaccines, antibodies, and therapeutic proteins. This is achieved by modifying multiple parameters that raise production volumes and boost profitability. Techniques include strain enhancement, process parameter optimization and medium formulation to increase productivity and yield. Process economics, equipment selection and process transfer must be carefully considered during the scaling-up of bioprocesses. Moreover, reprocessing requirements, equipment downtime and energy requirements may also be decreased with optimization measures. Thus, bioprocess optimization and scaling-up are crucial for producing pharmaceutical and biopharmaceutical products economically and efficiently.

Digital biomanufacturing is a modern method of increasing output and effectiveness. Most of the advances in digital manufacturing are also seen in digital biomanufacturing. These developments include advances in monitoring, data gathering and handling, networking, computer power, process control algorithms, and automation. Digital biomanufacturing, often called digital bioprocessing, has shown promise in enhancing the resilience of processes and the quality of therapeutic products. When combined with cutting-edge technologies such as artificial intelligence (AI), machine learning and the Internet of Things, digital bioprocessing is revolutionizing manufacturing principles in process development, operational activities, logistics, and supply chain management.

Table of Contents:

- Table of Contents
- Chapter 1 Introduction
 - Market Outlook
 - Scope of Report
 - Market Summary
- Chapter 2 Market Overview
 - Overview
 - Technology Background
 - Biologics Manufacturing Process
 - Upstream Processing
 - Cell Harvesting and Clarification
 - Downstream Processing
 - Bioprocess Optimization
 - Industry 4.0-Digital Biomanufacturing
- Chapter 3 Market Dynamics
 - Global Market Dynamics
 - Market Drivers

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Growing Aging Population
Increasing Prevalence of Chronic Diseases
Unprecedented Rise in Demand for Biopharmaceuticals
Growing Number of Product Launches
Increasing Number of Contract Manufacturing Organizations (CMOs)
Market Restraints
Lack of Skilled Labor
High Cost of Equipment
Unharmonized Smart Manufacturing Standards
Market Opportunities
Favorable Government Programs
Advances in Sensor Technology
Process Analytical Technology Initiatives
Market Challenges
Technical Issues and the Threat of Cyberattacks
Regulatory Landscape
Good Automation Manufacturing Practices (GAMP)
Instrumentation, Systems, and Automation (ISA) Society-88 and 95 Standards
Chapter 4 Emerging Technologies and Developments
Emerging Trends and Technologies
Continuous Bioprocessing
Continuous Cell Retention Technologies
Continuous Chromatography
Single-Use Technologies
Chapter 5 Market Segmentation Analysis
Key Market Trends
Segmentation Breakdown
Market Analysis by Technology
Manufacturing Technologies
Analytical and Process Control Technologies
Software
Market Analysis by Application
Biomanufacturing Process Automation and Control
Flexible Manufacturing
Bioprocess Optimization and Process Analytics
Other Applications
Market Analysis by Molecule Type
Monoclonal Antibodies (mAbs)
Therapeutic Proteins and Peptides
Vaccines
Cell and Gene Therapies
Geographic Breakdown
Market Analysis by Region
North America
Europe
Asia-Pacific
Rest of the World

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Chapter 6 Competitive Intelligence

Ranking of Leading Players

Key Strategies Adopted by Players

Collaborations and Partnerships

Expansion

Acquisitions

New Product Launches

Chapter 7 Sustainability in the Bioprocess Optimization and Digital Biomanufacturing Market: An ESG Perspective

Introduction to ESG

ESG Practices in the Industry

Environmental Performance

Social Performance

Governance Performance

Companies' ESG Risk Ratings

Concluding Remarks from BCC Research

Chapter 8 Appendix

Methodology

Information Sources

References

Abbreviations

Company Profiles

AGILENT TECHNOLOGIES INC.

AGILITECH

BIO-RAD LABORATORIES INC.

BRUKER

CLEAN BIOLOGICS

DANAHER CORP.

EMERSON ELECTRIC CO.

EPPENDORF SE

KORBER AG

MERCK KGAA

SARTORIUS AG

SHIMADZU CORP.

THERMO FISHER SCIENTIFIC INC.

UNIVERCELLS TECHNOLOGIES

WATERS CORP.

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