

Biopharmaceutical Process Analytical Technology Market Size by Technology (LC, GC, MS, qPCR, NGS, NMR, Raman, IR Spectroscopy), Product (Analyzer, Sensor, Software), Application (Vaccine, Biologics, CGT), and End User - Global Forecast to 2029

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Abstracts

The global biopharmaceutical process analytical technology market is projected to reach USD 2.6 billion by 2029 from USD 1.2 billion in 2024, at a CAGR of 16.0% during the forecast period of 2024 to 2029. The market is on an upward trajectory fueled by a rise in biopharmaceutical research and development activities, coupled with technological advancements improving process efficiency. However, obstacles such as a shortage of skilled personnel and the high costs of implementing process analytical technology (PAT) are hindering the market's growth.

“The liquid chromatography/HPLC segment to hold the largest share of the market in 2023.”

Based on the type, the global biopharmaceutical process analytical technology market has been classified into five major segments—liquid chromatography, gas chromatography, mass spectrometry, real-time PCR/QPCR, NGS, NMR spectroscopy, Raman spectroscopy, infrared spectroscopy, particle counters and imaging, differential light scattering, and other techniques. By technology, liquid chromatography/HPLC to hold major market share in 2023. The growing adoption of liquid chromatography/HPLC technologies for assessing the quality of biopharmaceutical drugs is a key driver behind the sector's rapid expansion.

“The software segment is projected to register the highest CAGR during the forecast period.”

Biopharmaceutical process analytical technology (PAT) services are provided to enhance the implementation of the Quality by Design (QbD) framework. These services encompass various software solutions, including consultation on PAT adoption, software development, regulatory compliance, and process management. The software sector is expected to witness significant growth, driven by increasing demand for services essential in creating PAT models and executing PAT strategies in biopharmaceutical manufacturing.

“In terms of application, vaccines segment held the largest share of the market in 2023.”

Based on application, the biopharmaceutical process analytical technology market is broadly segmented into vaccines, cell and gene therapy, biosimilars & biologics, hormonal therapy, and other applications. The vaccines segment commanded the largest share of the market in 2023. Strict regulations in drug development and safety are the main drivers behind the expansion of this sector, bolstering the efficiency and effectiveness of biopharmaceutical manufacturing. Furthermore, heightened efforts in biopharmaceutical research and the expansion of production to address rising medicine demands are substantial contributors to this growth.

“The market in the APAC region is expected to witness the highest growth during the forecast period.”

China, India, and Japan are the key markets in the Asia Pacific. The growth of the Asia Pacific market is being driven by strategic expansions undertaken by major market players in emerging Asian nations, the flourishing Contract Research and Manufacturing Services (CRAMs) industry in India, Korea, Singapore, and China, the substantial biopharmaceutical industry presence in Singapore, as well as the organization of conferences, exhibitions, and meetings focusing on analytical instruments.

A breakdown of the primary participants referred to for this report is provided below:

By Company Type: Tier 1 30%, Tier 2–42%, and Tier 3– 28%

By Designation: C-level–14%, D Level–10%, and Others–76%

By Region: North America–40%, Europe–30%, Asia Pacific–22%, Latin America–6%, and the Middle East & Africa–2%

The prominent players in the biopharmaceutical process analytical technology market are Thermo Fisher Scientific, Inc. (US), Danaher Corporation (US), Agilent Technologies, Inc. (US), Shimadzu Corporation (Japan), Waters Corporation (US), Bruker Corporation (US), Emerson Electric Co. (US), ABB Ltd. (Switzerland), PerkinElmer, Inc. (US), Mettler-Toledo International Inc. (US), and Carl Zeiss AG (Germany), among others.

Research Coverage

This report studies the biopharmaceutical process analytical technology market based on type, product type, mode, application, and region. It also covers the factors affecting market growth, analyzes the various opportunities and challenges in the market, and provides details of the competitive landscape for market leaders. Furthermore, the report analyzes micromarkets with respect to their individual growth trends and forecasts the revenue of the market segments with respect to five main regions (and the respective countries in these regions)

Reasons to Buy the Report

The report will enable established firms as well as entrants/smaller firms to gauge the pulse of the market, which, in turn, would help them to garner a larger market share. Firms purchasing the report could use one or a combination of the below-mentioned strategies to strengthen their market presence.

This report provides insights on the following pointers:

Market Penetration: Comprehensive information on the product portfolios offered by the top players in the biopharmaceutical process analytical technology market

Product Development/Innovation: Detailed insights on the upcoming trends, R&D activities, and product launches in the biopharmaceutical process analytical technology market

Market Development: Comprehensive information on lucrative emerging regions

Market Diversification: Exhaustive information about new products, growing

geographies, and recent developments in the biopharmaceutical process analytical technology market

Competitive Assessment: In-depth assessment of market segments, growth strategies, revenue analysis, and products of the leading market players.

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*Details on Business Overview, Products Offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

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