

Multiplex Assays Market ? Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Product (Reagents & Consumables, Accessories & Instruments, Software & Services), By Type (Nucleic Acid, Protein, Cell-based), By Technology (Flow Cytometry, Fluorescence Detection, Luminescence, Multiplex Real-Time PCR, Others), By Application (Research & Development (Drug Development, Biomarker Discovery & Validation), Clinical Diagnosis (Infectious Disease, Cancer, Cardiovascular Disease, Autoimmune Disease, Others), By End User (Pharmaceutical & Biotechnology Companies, Hospitals & Research Institutes, Others), By Region & Competition, 2021-2031F

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Abstracts

The Global Multiplex Assays Market is projected to expand significantly, growing from USD 3.21 Billion in 2025 to USD 5.54 Billion by 2031, representing a CAGR of 9.52%. Multiplex assays serve as advanced analytical tools that enhance diagnostic efficiency by enabling the simultaneous detection and quantification of multiple analytes within a single sample volume. This market growth is fundamentally underpinned by the increasing prevalence of chronic diseases and the intensified demand for high-throughput screening in drug discovery. As reported by the American Cancer Society, the United States was projected to see 2,001,140 new cancer cases in 2024, a statistic

that emphasizes the urgent necessity for robust biomarker profiling tools to manage this escalating disease burden, thereby driving the adoption of multiplexing to streamline workflows and support precision medicine initiatives.

However, market expansion faces substantial obstacles due to the high capital investment required for automated instrumentation and the technical complexity associated with assay validation. Developing these assays necessitates rigorous optimization to mitigate cross-reactivity between reagents, a process that is often both time-consuming and costly. These challenges frequently delay regulatory approval and increase operational expenses, thereby restricting the accessibility and implementation of multiplex technologies within resource-constrained laboratory settings.

Market Driver

Escalating R&D investments in drug discovery are fundamentally driving the Global Multiplex Assays Market, as pharmaceutical companies aim to improve pipeline efficiency. Multiplexing enables researchers to screen compounds against multiple targets simultaneously, which accelerates candidate validation and toxicity profiling. This commitment is evident in industry spending; according to the Merck & Co. Annual Report 2023, the company allocated \$30.5 billion to research and development in 2023, demonstrating a significant investment in therapeutic science. Such budgets support the adoption of assays that maximize data output and reduce development costs. Underscoring this market value, BioProcess International reported in 2024 that Thermo Fisher Scientific acquired Olink for approximately \$3.1 billion, strategically adding scalable protein analysis to their portfolio.

The increasing prevalence of infectious diseases further creates a critical need for diagnostic tools capable of simultaneous pathogen detection. Multiplex assays are essential for distinguishing co-occurring infections without the sample limitations inherent in singleplex methods. This urgency is highlighted by global health statistics; the World Health Organization's October 2024 'Global Tuberculosis Report 2024' noted that approximately 8.2 million people were newly diagnosed with tuberculosis in 2023, the highest figure since monitoring began. This rising burden compels laboratories to utilize high-throughput solutions for efficient sample processing, leading healthcare providers to transition toward multiplex platforms to streamline workflows and ensure timely treatment amidst growing epidemiological challenges.

Market Challenge

A primary challenge impeding the growth of the Global Multiplex Assays Market is the high capital investment required for automated instrumentation alongside the technical complexity of assay validation. These significant financial and operational barriers directly hamper market expansion by restricting the adoption of multiplexing technologies to well-funded institutions, effectively excluding resource-constrained laboratories. The rigorous optimization needed to prevent cross-reactivity and ensure assay reliability demands substantial time and budget, which increases the total cost of ownership. Consequently, many diagnostic facilities are forced to rely on traditional, lower-throughput methods, thereby stalling the widespread implementation of advanced multiplex workflows necessary for precision medicine.

The tangible impact of these resource burdens is reflected in recent industry data regarding laboratory operations. According to the Association for Diagnostics & Laboratory Medicine, in 2024, 48% of surveyed clinical laboratories indicated they would discontinue performing certain laboratory-developed tests due to the prohibitive financial and personnel resources required to meet stricter validation and regulatory compliance standards. This statistic illustrates how the convergence of high operational costs and technical validation requirements directly forces laboratories to scale back their testing capabilities, limiting the overall addressable market for multiplex assays.

Market Trends

The market is being rapidly transformed by the advancement of single-cell multiplexing platforms, which enable high-resolution mapping of cellular heterogeneity within tissue microenvironments. Unlike traditional bulk sequencing that averages data across cell populations, these spatial biology technologies allow researchers to visualize multi-omic profiles while retaining the spatial context of the sample, a capability crucial for understanding complex pathologies like cancer. This industrial pivot toward spatial analysis is validated by significant consolidation activities; for instance, Bruker Corporation announced in a May 2024 press release that it had finalized the acquisition of NanoString Technologies' assets for approximately \$392.6 million to strengthen its portfolio in spatial transcriptomics and gene expression analysis.

Simultaneously, the miniaturization of devices for point-of-care diagnostics is driving decentralized testing by integrating complex multiplex capabilities into portable, microfluidic platforms. This trend addresses the need for rapid, near-patient decision-making, shifting the diagnostic paradigm from centralized, high-volume laboratories to community-based settings. Major diagnostic leaders are actively capitalizing on this shift to expand their decentralized testing footprints. Validating this strategic direction, Roche

announced in a January 2024 press release its agreement to acquire LumiraDx's point-of-care technology platform for a purchase price of \$295 million, explicitly to integrate multiple immunoassay and clinical chemistry tests onto a single instrument for decentralized healthcare use.

Key Market Players

Thermo Fisher Scientific

Bio-Rad Laboratories

Illumina, Inc.

QIAGEN N.V.

Merck KGaA

Abcam plc

Becton, Dickinson and Company

DiaSorin S.p.A.

Seegene Inc.

Luminex Corporation

Report Scope

In this report, the Global Multiplex Assays Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Multiplex Assays Market, By Product

Reagents & Consumables

Accessories & Instruments

Software & Services

Multiplex Assays Market, By Type

Nucleic Acid

Protein

Cell-based

Multiplex Assays Market, By Technology

Flow Cytometry

Fluorescence Detection

Luminescence

Multiplex Real-Time PCR

Others

Multiplex Assays Market, By Application

Research & Development (Drug Development

Biomarker Discovery & Validation)

Clinical Diagnosis (Infectious Disease

Cancer

Cardiovascular Disease

Autoimmune Disease

Others)

Multiplex Assays Market, By End User

Pharmaceutical & Biotechnology Companies

Hospitals & Research Institutes

Others

Multiplex Assays Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Multiplex Assays Market.

Available Customizations:

Global Multiplex Assays Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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