

Blood Group Typing - A Global Market Overview

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Abstracts

Global Blood Group Typing Market Trends and Outlook

Blood group typing is a critical diagnostic process used to determine an individual's blood type by identifying specific antigens on red blood cells and corresponding antibodies in plasma. It plays a vital role in transfusion medicine, organ transplantation, prenatal care, and emergency care by ensuring compatibility between donors and recipients, thereby reducing the risk of life-threatening hemolytic reactions. While the ABO and Rh systems remain the most widely used, more complex clinical scenarios require extended antigen screening, HLA typing, and cross-matching. A wide range of products—such as serological reagents, antisera, antibody screening kits, and molecular genotyping assays—support these applications. Techniques used for blood typing span from traditional tube and gel assays to advanced molecular diagnostics like PCR, microarrays, and next-generation sequencing, especially for rare or complex antigen detection. The growing use of automation and AI in clinical laboratories and blood banks is further streamlining the process, enhancing accuracy and throughput.

The global blood group typing market is projected to grow from US\$2.4 billion in 2024 to US\$3.9 billion by 2030, registering a CAGR of 8.8% during 2024-2030. This growth is primarily driven by the rising number of surgeries, trauma cases, organ transplants, and chronic illnesses such as cancer and anemia, all of which require timely and precise blood matching. The increasing adoption of point-of-care analyzers in emergency and field settings is improving response times, while technological advancements in genotyping and laboratory automation are expanding testing capabilities. Investments in healthcare infrastructure, particularly in emerging economies, are enhancing access to diagnostics and blood banking services. Additionally, government initiatives to promote blood donation and safe transfusion practices, along with the growing importance of personalized medicine in fields like oncology and pediatrics, are reinforcing long-term market demand. Strategic expansions by diagnostic companies and transplant centers

are expected to further accelerate market growth worldwide.

Blood Group Typing Regional Market Analysis

North America leads the global blood group typing market with an estimated 40% share in 2024. This dominance is driven by advanced healthcare infrastructure, high adoption of automated and molecular typing technologies, favorable reimbursement policies, and a strong focus on transfusion safety. The region benefits from high blood donation rates, rising surgical volumes, and a growing burden of chronic diseases. The United States dominates due to robust diagnostic capabilities and continuous R&D investment. Conversely, Asia Pacific is projected to witness the fastest growth at a CAGR of 11.6% from 2024 to 2030, fueled by rising healthcare spending, expanding blood donation programs, and increasing adoption of PCR and NGS technologies. Countries like China, India, and Japan are advancing rapidly due to improved access, local manufacturing, and greater demand for accurate typing across diverse populations.

Blood Group Typing Market Analysis by Product

Consumables command the largest segment of the blood group typing market by product, accounting for 60.9% in 2024, fueled by the regular usage of reagents and kits in hospitals, blood banks, and laboratories. Their critical function in ensuring swift and precise testing in situations such as surgeries, transfusions, and trauma care makes them vital to clinical operations. Increasing blood donation rates and an emphasis on transfusion safety are driving demand further. Technological advances are enabling the development of improved reagents compatible with automated systems, enhancing efficiency. Their affordability, user-friendliness, and necessary regulatory approvals bolster their leading position in the market. On the other hand, the services segment is expected to experience the fastest growth rate, with a CAGR of 11.5% through 2030. This expansion is driven by the rising trend of outsourcing complex tests, such as NGS-based panels, by smaller facilities to specialized laboratories, alongside an increase in surgical procedures and organ transplants.

Blood Group Typing Market Analysis by Technique

The PCR-based and Microarray techniques segment holds the largest share at 42% of the global blood group typing market in 2024, driven by the rising prevalence of genetic disorders, chronic diseases, and the growing adoption of personalized medicine. These techniques offer high accuracy, faster turnaround, and lower error rates, making them critical for transfusion safety and advanced diagnostics. Innovations such as lab-on-a-

chip devices and automation are accelerating adoption, particularly in emergency and high-throughput settings. In contrast, the assay-based techniques segment is projected to grow at the fastest CAGR of over 10% from 2024 to 2030 due to their scalability, affordability, and ability to detect a broader range of antigens beyond ABO and Rh systems. Common in hospitals and blood banks, assay methods like gel column and microplate assays support rapid, standardized testing. Increasing R&D investments and rising demand for automated, high-precision diagnostics continue to expand the role of both PCR-based and assay-based techniques in modern transfusion medicine.

Blood Group Typing Market Analysis by Test Type

The ABO Blood Tests & Rh Typing segment dominates the global blood group typing market, with a 41.8% share in 2024, primarily due to its foundational importance in ensuring transfusion safety, facilitating organ transplants, and aiding prenatal diagnostics. The rise in chronic illnesses and surgical procedures has increased the demand for precise ABO testing, bolstered by AI-driven analyzers and molecular diagnostic technologies that enhance accuracy and minimize human error. Antibody screening is also a significant contributor, as it is crucial for identifying alloantibodies in patients who require regular transfusions because of cancer, autoimmune disorders, or pregnancy-related situations. The growth of prenatal testing and the rising burden of chronic diseases further reinforce the expansion of this segment. Advances in high-throughput assays and automation are improving laboratory efficiency and reducing turnaround times. Conversely, the HLA typing segment is expected to experience the fastest growth rate, with a CAGR of 10.9% from 2024 to 2030, due to its essential function in matching donors and recipients for transplants as well as its importance in addressing autoimmune diseases. The transition to sophisticated molecular platforms such as PCR and sequence-based typing is revolutionizing compatibility testing and improving outcomes in transplant medicine.

Blood Group Typing Market Analysis by End User

The hospital segment leads the blood group typing market in 2024 by end user, holding a 41.4% share, mainly due to the high number of intricate surgeries, trauma incidents, and chronic illnesses that necessitate regular transfusions. This segment is benefiting from the swift implementation of automated blood typing systems, which improve both accuracy and workflow efficiency. In contrast, blood banks represent the fastest-growing segment, anticipated to grow at a CAGR of 10.5% from 2024 to 2030. This growth is fueled by an increasing demand for transfusions and organ transplants, a rise in blood donation rates, and a greater prevalence of blood-related disorders. Extensive donation

campaigns and government-supported blood bank initiatives further support this expansion. Diagnostic laboratories also contribute to the demand by using blood typing for disease monitoring, while research institutions adopt typing technologies for antigen studies and the development of new tests.

Blood Group Typing Market Report Scope

This report on Blood Group Typing analyzes the global and regional markets based on product, technique, test type, and end user for the period 2021-2030 with forecasts from 2024 to 2030 in terms of value in US\$. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2024

Base Year: 2024

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 11+

Blood Group Typing Market by Geographic Region

North America (The United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Italy, Spain, and Rest of Europe)

Asia-Pacific (Japan, China, India, South Korea, and Rest of Asia-Pacific)

South America (Brazil, Argentina, and Rest of South America)

Rest of World

Blood Group Typing Market by Product

Consumables

Instruments

Services

Blood Group Typing Market by Technique

Assay-based Techniques

PCR-based and Microarray Techniques

Massively Parallel Sequencing Techniques

Other Techniques (Including Flow cytometry, Column agglutination, Enzyme-linked techniques, and others)

Blood Group Typing Market by Test Type

ABO Blood Tests & Rh Typing

Antibody Screening

HLA Typing

Cross-matching Tests

Antigen Typing

Blood Group Typing Market by End User

Hospitals

Diagnostic laboratories

Blood banks

Other End Users (Biopharmaceutical and Biotechnology Companies, Transplant

Centers, Research Institutions and Academic Centers, Forensic Laboratories,
and Government & Public Health Agencies)

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3. KEY MARKET PLAYERS

- AgriLife (India) Private Limited
- American Vanguard Corporation

Biomaxnaturals
BioWorks Inc.
Gujarat State Fertilizers and Chemicals Ltd
IPL Biologicals Limited
Kiwa Bio-Tech Products Group Corporation
Lallemand Inc.
Mapleton Agri Biotec Pty Ltd
National Fertilizers Limited
Novozymes A/S
Rizobacter Argentina S.A.
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