# Single-Cell Analysis Market Forecast to Reach US$14.42 Bn by 2032 – Persistence Market Research

*The global single-cell analysis market is set for strong growth, driven by precision medicine, cancer research, multi-omics, and advanced regional adoption.*

Single-Cell Analysis Market

BRENTFORD, ENGLAND, UNITED KINGDOM, September 29, 2025 /EINPresswire.com/ -- The global single-cell analysis market is positioned for rapid expansion, with its valuation projected to reach US$4.94 billion in 2025 and escalate to US$14.42 billion by 2032. This trajectory represents a compound annual growth rate (CAGR) of 16.5% during the forecast period of 2025–2032. Historically, the market expanded at a CAGR of 9.5% between 2019 and 2024, reflecting how technological innovation and clinical adoption are accelerating.

Key contributors to this growth include the rising prevalence of chronic diseases such as cancer, advancements in multi-omics technologies, and the increasing need for precision medicine solutions. The market is increasingly defined by integration of next-generation sequencing, high-throughput microfluidics, and artificial intelligence-driven bioinformatics. Together, these capabilities enable researchers to uncover cellular heterogeneity, a critical factor for drug discovery, diagnostics, and therapeutic development.

Single-cell analysis is evolving from a niche research tool into a cornerstone of personalized healthcare. By enabling researchers to study DNA, RNA, proteins, and metabolites at the level of individual cells, this technology provides insights that were impossible with bulk tissue methods. The strong adoption of spatial transcriptomics and single-cell multi-omics is particularly shaping new frontiers across oncology, immunology, neuroscience, and regenerative medicine.

Get a Sample Copy of Research Report (Use Corporate Mail id for Quick Response):
https://www.persistencemarketresearch.com/samples/33180

## Key Industry Highlights

Leading Technique: Flow cytometry is expected to dominate with around 35% of the global share in 2025 due to its rapid, high-throughput capabilities.

Top Application: Cancer research is forecast to lead applications, capturing 32.1% of market share in 2025, reflecting the critical need to decode tumor heterogeneity.

Dominant Region: North America is set to hold 45.3% of global share in 2025, supported by advanced research infrastructure and strong funding ecosystems.

Fastest Growing Region: Asia Pacific is projected to grow at a CAGR of 18.4% between 2025 and 2032, driven by expanding healthcare investments and R&D initiatives.

Notable Development: In February 2025, IDIBAPS integrated BD Rhapsody HT Single-Cell Analysis System into its Functional Genomics Platform, a move that enables high-throughput multi-omics studies on up to 800,000 cells per cartridge.

## Market Dynamics

### Driver – Rising Demand for Precision Medicine

The accelerating shift toward precision and personalized medicine is the strongest driver of market growth. With therapies increasingly tailored to patients' genetic and cellular profiles, single-cell analysis serves as an indispensable technology. It identifies rare cellular subpopulations resistant to therapies, informs the design of immunotherapies, and facilitates rare disease research. Regulatory agencies are also endorsing precision-driven therapies; the U.S. FDA approved 55 novel drugs in 2023, of which more than half were intended for rare conditions, underscoring demand for cellular-level insights.

### Restraint – High Capital Costs and Technical Complexity

Despite its promise, single-cell analysis faces barriers due to steep costs and technical demands. Instruments often exceed US$500,000, while reagents add hundreds of dollars per sample. Furthermore, the need for advanced bioinformatics expertise slows adoption, particularly in resource-limited settings. Many smaller laboratories find the costs prohibitive, and even well-funded institutions encounter bottlenecks in data interpretation, leading to extended turnaround times.

### Opportunity – AI Integration and Multi-Omics Synergy

The convergence of AI-powered bioinformatics with multi-omics platforms presents a transformative opportunity. Single-cell multi-omics—integrating genomics, transcriptomics,

proteomics, and epigenomics—provides comprehensive insights into cell behavior. Machine learning enhances analysis by processing complex datasets, identifying therapeutic targets, and predicting treatment outcomes. The introduction of spatial transcriptomics and epigenetic profiling further broadens applications beyond oncology into immunology and neuroscience, opening new revenue streams for technology providers.

Category-wise Analysis

Technique Insights

Flow cytometry remains the market leader, expected to hold 35% share in 2025. Its multiplexing capabilities and applications in immunology and oncology make it indispensable. Meanwhile, mass spectrometry is projected to be the fastest-growing technique due to its unique ability to map proteomic and metabolomic landscapes at a single-cell level, vital for biomarker discovery and translational research.

Application Insights

Cancer research will continue to dominate applications, accounting for 32.1% of revenue in 2025, as researchers focus on understanding tumor microenvironments and resistance mechanisms. Immunology is poised for the fastest growth, fueled by demand for advanced immune profiling in autoimmune disease research, infectious disease studies, and cell therapy development. The COVID-19 pandemic highlighted the importance of single-cell immunophenotyping, accelerating adoption in vaccine and therapeutic research.

Request for Customization of the Research Report:
https://www.persistencemarketresearch.com/request-customization/33180

Regional Insights

North America

With a projected 45.3% share in 2025, North America leads the market, underpinned by robust research infrastructure and significant government investments. Initiatives such as the NIH “All of Us” program highlight the region’s commitment to genomic and precision medicine research. The U.S. remains the epicenter due to its biotech hubs and adoption of next-generation sequencing technologies.

Asia Pacific

Asia Pacific is the fastest-growing region with a forecast CAGR of 18.4%. China and India are spearheading growth through healthcare infrastructure expansion, increased government funding for genomics, and rising pharmaceutical manufacturing capabilities. India, in particular,

is expected to lead in outsourcing drug discovery services, leveraging its growing biotech sector and cost advantages.

Europe

Europe continues to hold a strong market position with established biomedical research institutions in Germany, the U.K., and France. EU-funded projects such as Horizon Europe are fostering collaboration across countries. Innovative applications, such as 3D spatial transcriptomics demonstrated by researchers at the Max Delbrück Center in 2025, underscore Europe's role in advancing translational single-cell biology.

Competitive Landscape

The competitive landscape is marked by rapid innovation, strategic acquisitions, and geographic expansion. Companies are racing to integrate spatial biology, AI analytics, and multi-omics into their portfolios. Automation and high-throughput systems are also differentiating market leaders. Collaborations between academic institutions and biotech firms are driving commercialization of next-generation platforms.

Key Players

10x Genomics, Inc.
BD (Becton, Dickinson and Company)
Illumina, Inc.
Bio-Techne Corporation
Fluidigm Corporation
NanoString Technologies, Inc.
Mission Bio, Inc.
Parse Biosciences
Sphere Fluidics Ltd.
Cytek Biosciences, Inc.

Market Segmentation

By Product Type

Consumables
Instruments

By Technique

Flow Cytometry
Next-Generation Sequencing (NGS)

Polymerase Chain Reaction (PCR)
Microscopy
Mass Spectrometry
Others

By Application

Cancer Research
Immunology
Neurology
Stem Cell Research
Non-invasive Prenatal Diagnosis
In-Vitro Fertilization (IVF)
Others

By End-User

Academic & Research Laboratories
Biotechnology & Pharmaceutical Companies
Hospitals & Diagnostic Laboratories
Cell Banks & IVF Centers

By Region

North America
Europe
East Asia
South Asia & Oceania
Latin America
Middle East & Africa

Buy Now the Detailed Report: https://www.persistencemarketresearch.com/checkout/33180

Recent Developments

February 2025: IDIBAPS added BD Rhapsody HT System for large-scale single-cell multi-omics studies.

June 2025: Mission Bio launched a multimodal assay on its Tapestri™ platform, capable of profiling mutations and gene expression simultaneously across thousands of cells.

August 2025: 10x Genomics announced acquisition of Scale Biosciences, expanding scalability and affordability of its Chromium platform.

August 2025: BGI Genomics unveiled GeneLLM, an AI-powered model predicting preterm birth with 90% accuracy through cfDNA and cfRNA analysis.

Future Outlook

The future of the single-cell analysis market is anchored in the integration of AI with multi-omics, driving deeper biological insights and faster therapeutic development. Demand for single-cell technologies is expected to expand beyond oncology into broader areas such as neuroscience, infectious diseases, and regenerative medicine. Emerging economies will play a central role in shaping global adoption, particularly as cost-effective platforms and local manufacturing capabilities improve accessibility.

By 2032, single-cell analysis is likely to be entrenched as a standard tool in both academic research and clinical diagnostics. With technological convergence, regulatory support, and increasing investments, the market promises not only to advance biomedical research but also to reshape patient care through precision medicine.

Read Related Reports:

Contract Research Organization Cro Services Market: The global contract research organization (CRO) services market is projected to grow from US$91.2 Bn in 2025 to US$172.1 Bn by 2032, at a 9.5% CAGR

Therapeutic Albumin Market: The global therapeutic albumin market will grow from US$ 4.71 Bn in 2025 to US$ 6.90 Bn by 2032, driven by rising use in critical care and chronic conditions

Persistence Market Research
Persistence Market Research Pvt Ltd
+1 646-878-6329
email us here
Visit us on social media:
LinkedIn
Instagram
Facebook
YouTube
X

---

in today's world. Please see our Editorial Guidelines for more information.