

Global Single Cell Multiomics Market Size to Reach USD 22.4 Billion by 2034, Growing at 21.5% CAGR

The global single cell multiomics market size was worth around USD 3.2 billion in 2024 and is predicted to grow to around USD 22.4 billion by 2034

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EINPresswire.com/ -- According to a new market research report, the [global single cell multiomics market size](#) was valued at approximately USD 3.2 billion in 2024 and is projected to grow to

about USD 22.4 billion by 2034, registering a compound annual growth rate (CAGR) of 21.5% from 2025 to 2034. This remarkable growth is driven by rapid advances in genomics technologies, the rising focus on precision medicine, and the increasing adoption of integrated

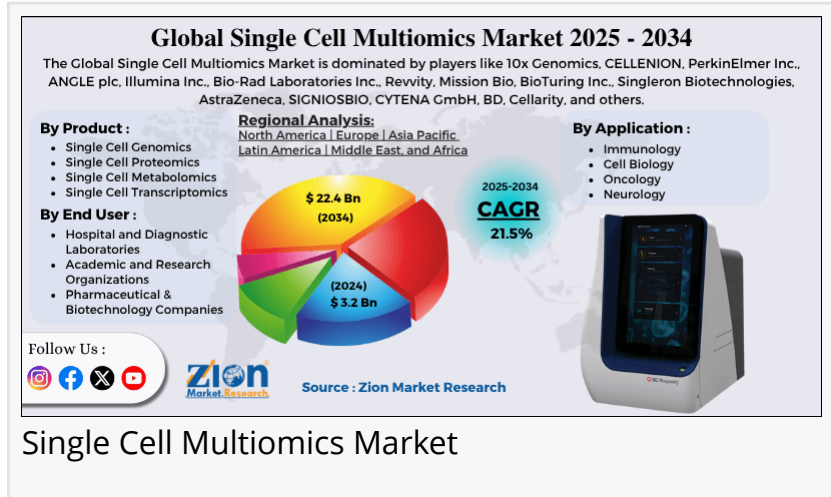
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The global single cell multiomics market size was worth around USD 3.2 billion in 2024 and is predicted to grow to around USD 22.4 billion by 2034, (CAGR) of roughly 21.5% between 2025 and 2034. ”

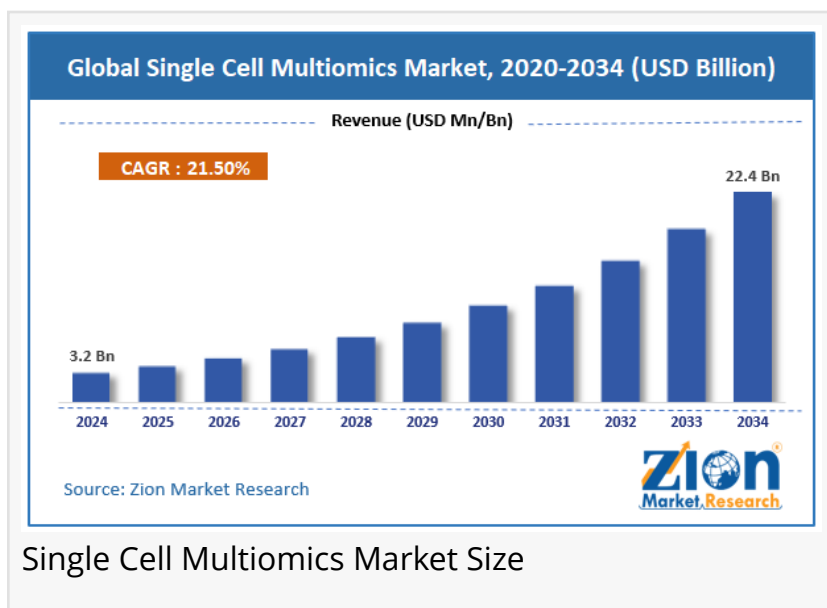
Deepak Rupnar

enabling a holistic view of cellular functions and disease mechanisms.

Market Overview



Conventional bulk-cell analysis masks cell-to-cell variability, but single cell multiomics technologies resolve these differences, enabling breakthroughs in areas such as cancer biology, immunology, neuroscience, and regenerative medicine. Integration of data from multiple omics layers at single-cell resolution helps identify rare cell populations, discover novel therapeutic targets, and improve diagnostic accuracy.



Key Insights

As per the analysis shared by our research analyst, the global single cell multiomics market is estimated to grow annually at a CAGR of around 21.5% over the forecast period (2025-2034). In terms of revenue, the global single cell multiomics market size was valued at around USD 3.2 billion in 2024 and is projected to reach USD 22.4 billion by 2034. The growing demand for precision medicine & biomedical research is expected to drive the single cell multiomics industry over the forecast period. Based on the product, the single cell genomics segment is expected to hold the largest market share over the forecast period. Based on the application, the oncology segment is expected to dominate the market over the projected period. Based on the end user, the academic and research organizations segment is expected to capture a significant revenue share during the anticipated period. Based on region, North America is expected to dominate the market during the forecast period.

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Key factors driving market growth:

- Expanding applications of precision medicine and personalized therapies.
- Declining costs of next-generation sequencing (NGS) and single cell analysis platforms.
- Rapid adoption by pharmaceutical and biotechnology companies for drug discovery and clinical trials.
- Availability of advanced bioinformatics tools and cloud-based analytics to handle high-dimensional data.
- Large-scale funding initiatives and collaborative projects between academia and industry.

Market Segmentation

The single cell multiomics market can be segmented based on type, application, end user, technology, and region.

1. By Type

Single Cell Genomics

Focuses on DNA-level analysis such as mutations, copy number variations, and chromatin accessibility at the single-cell level. Widely used in cancer genomics, immunology, and microbiome research.

Single Cell Transcriptomics

Analyzes gene expression (mRNA) profiles from individual cells to understand cell states, developmental pathways, and heterogeneity. scRNA-seq dominates this segment.

Single Cell Proteomics

Quantifies protein expression and post-translational modifications across thousands of cells. Important for identifying biomarkers and functional validation of genomic/transcriptomic findings.

Single Cell Epigenomics

Studies epigenetic modifications like DNA methylation and histone modifications to understand regulatory mechanisms in health and disease.

Integrated Multiomics Platforms

These combine two or more omics layers (e.g., transcriptomics + epigenomics, or transcriptomics + proteomics) in a single workflow to provide a more complete picture of cellular behavior. This is the fastest-growing segment due to technology advancements.

2. By Application

Oncology and Cancer Research

Single cell multiomics is revolutionizing tumor profiling, identification of drug-resistant clones, and discovery of immune-escape mechanisms. It is essential for the development of targeted cancer therapies.

Immunology and Infectious Diseases

Mapping immune cell diversity, vaccine development, and understanding host-pathogen interactions at single-cell resolution.

Neurology and Neurodegenerative Disorders

Applied in studies of Alzheimer's, Parkinson's, and other CNS disorders to uncover cell-type specific vulnerabilities and mechanisms.

Stem Cell and Regenerative Medicine

Used to characterize pluripotent stem cells, lineage differentiation, and optimize cell-based therapies.

Drug Discovery and Development

Supports pharmaceutical pipelines by identifying biomarkers, understanding drug responses at cellular level, and stratifying patient populations.

Others (including cardiovascular research, metabolic diseases, and microbiome studies).

3. By End User

Pharmaceutical and Biotechnology Companies

Largest revenue-generating segment due to high adoption of single cell multiomics for drug discovery, preclinical testing, and clinical development.

Academic and Research Institutes

Significant contributors to innovation and publication output; benefit from public grants and collaborations.

Clinical and Diagnostic Laboratories

Emerging users of single cell multiomics as it moves towards clinical diagnostics, companion diagnostics, and personalized treatment monitoring.

Contract Research Organizations (CROs)

Provide outsourced single cell multiomics services for pharma/biotech companies.

4. By Technology

Next-Generation Sequencing (NGS)-Based Technologies

Core technology for genomics and transcriptomics layers. Continuous improvements in throughput, cost, and read lengths are spurring adoption.

Mass Spectrometry and Flow Cytometry-Based Technologies

Used in single cell proteomics and metabolomics for high-resolution protein and small-molecule quantification.

Microfluidics and Droplet-Based Platforms

Enable high-throughput cell isolation and barcoding for parallel analysis of thousands of cells.

Imaging-Based Multiomics

Spatial multiomics and imaging mass cytometry provide spatial context to single cell data.

Bioinformatics and Data Integration Tools

Essential for integrating and analyzing multi-dimensional single cell data; AI/ML algorithms are emerging as powerful tools for data interpretation.

Regional Analysis

The global single cell multiomics market demonstrates strong growth potential across North America, Europe, Asia-Pacific, Latin America, and the Middle East & Africa (MEA).

1. North America

North America dominates the market due to:

Presence of leading genomics companies, sequencing providers, and bioinformatics firms.

Significant NIH and private funding for single cell research.

Early adoption by pharma and biotech companies for precision medicine.

Strong academic infrastructure and high publication output.

The U.S. accounts for the largest share, with Canada also contributing significantly due to growing biotech clusters.

2. Europe

Europe is the second-largest region with robust research networks, government grants, and world-class institutes such as EMBL, Wellcome Sanger Institute, and Max Planck Institutes. Strong focus on translational research and consortium projects such as the Human Cell Atlas. Increasing number of single cell multiomics start-ups and collaborations with pharma companies.

Key countries: Germany, UK, France, Switzerland, and the Netherlands.

3. Asia-Pacific

Asia-Pacific is projected to grow at the fastest CAGR from 2025–2034 due to:

Expanding genomics research initiatives in China, Japan, South Korea, and India.

Large patient populations and government support for precision medicine initiatives.

Establishment of new sequencing and bioinformatics companies.

China and India are rapidly investing in omics infrastructure, making APAC a crucial growth engine for the market.

4. Latin America

Latin America is gradually adopting single cell multiomics with growing academic research and partnerships with international consortia. Brazil and Mexico are the leading countries in terms of R&D investment and genomics facilities.

5. Middle East & Africa (MEA)

MEA is in early stages of adoption but shows potential due to rising healthcare investment, genomics initiatives in Gulf countries, and international collaborations focusing on regional diseases.

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The global single cell multiomics market is dominated by players like:

10x Genomics

CELLENION

PerkinElmer Inc.

ANGLE plc

Illumina Inc.

Bio-Rad Laboratories Inc.

Revvity

Mission Bio

BioTuring Inc.

Singleron Biotechnologies

AstraZeneca

SIGNIOSBIO

CYTENA GmbH

BD

Cellarity

Other notable players include Parse Biosciences, NanoString Technologies (spatial transcriptomics), BD Rhapsody, Celsee (Bio-Rad), and Dolomite Bio. Many are investing in AI-based bioinformatics, integrated spatial multiomics, and cloud-based analytics.

Key Trends and Opportunities

Spatial Multiomics: Combining single cell resolution with spatial context to better understand tissue microenvironments.

AI and Machine Learning: Advanced algorithms to integrate, analyze, and visualize complex multiomics datasets.

Clinical Translation: Development of single cell multiomics-based diagnostics, companion diagnostics, and therapeutic monitoring.

Automation and High Throughput: Innovations in microfluidics and robotics to process millions of cells efficiently.

Partnerships and Consortia: Increased collaboration between academic labs, government agencies, and industry players to accelerate technology development.

Investment in Cloud and Data Management: Ensuring secure, scalable solutions for large multiomics datasets.

Challenges in the Single Cell Multiomics Market

High Costs: Instruments, reagents, and bioinformatics pipelines remain expensive.

Data Complexity: Integration and interpretation of multi-layered omics data is challenging.

Standardization Issues: Lack of standardized protocols and benchmarking across labs.

Skilled Workforce Shortage: Need for interdisciplinary expertise in genomics, proteomics, and computational biology.

Regulatory and Ethical Considerations: Handling of sensitive patient data and compliance with global data protection laws.

Future Outlook (2025–2034)

The global single cell multiomics market is poised for explosive growth, reaching USD 22.4 billion by 2034. As costs decrease and workflows become more standardized, single cell multiomics will move from research settings to clinical diagnostics and patient care. Precision medicine initiatives, government funding, and pharmaceutical R&D will continue to be the primary growth drivers.

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