Global Single Cell Omics Market Pronounce Growth in Upcoming Years| Illumina Inc., Roche, Bio-Techne

single-cell omics market size is estimated to be valued at US$ 1.63 Bn in 2023 and is expected to reach US$ 4.62 Bn by 2030,

Global Single-cell Omics Market

BURLINGAME, CALIFORNIA , UNITED STATES, May 22, 2024 /EINPresswire.com/ -- Market Overview:

Single cell omics techniques help characterize cellular heterogeneity at single cell resolution by profiling individual cells. It has wide applications in understanding cell development and cell-to-cell variability, disease pathology, and more.

Market Dynamics:

Increasing public and private funding for single cell analysis projects is driving the growth of the global single cell omics market. Government agencies like the National Institutes of Health (NIH) are funding numerous single cell projects to facilitate drug discovery and precision medicine initiatives. Additionally, rising prevalence of chronic diseases like cancer is boosting investments in single cell omics technologies to gain deeper insights into disease development at single cell level. The ability to analyze thousands of cells individually and identify rare cell types is further augmenting the demand for single cell omics tools in biomedical research.

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List of TOP Players in Market Report are: –

 Bio-Rad Laboratories Inc.
 Agilent Technologies Inc.
 QIAGEN N.V.

 Thermo Fisher Scientific
 Illumina Inc.
 Roche
 Bio-Techne
 Pacific Biosciences

Note: Major Players are sorted in no particular order.

Market Detailed Segmentation:

By Technology: Single-cell RNA Sequencing, Single-cell DNA Sequencing, Single-cell Proteomics, Single-cell Multi-omics, Single-cell Imaging, and Others
By Product: Instruments and Consumables
By Application: Cancer research, Immunology, Neuroscience, Stem cell research, Developmental biology, and Others
By End User: Pharmaceutical & Biotechnology Company, CRO, and Others (Research Institutes, etc.)

Market Driver: Increasing Prevalence and Incidence of Cancer

The global single cell omics market is primarily driven by the increasing prevalence and incidence of cancer globally. Single cell omics technologies provide detailed biological insights and are being increasingly used in cancer research to understand cancer heterogeneity and resistance to certain drugs. According to the World Health Organization (WHO), cancer burden rose to 19.3 million new cases and 10 million cancer deaths in 2020. This growing cancer burden has raised investments in cancer research. Single cell analysis is revolutionizing the understanding of intratumoral heterogeneity and resistance mechanisms in cancer. Various studies have demonstrated the potential of single cell omics technologies in determining new cancer subtypes, treatment options, and biomarkers.

Significant technological advancements in the field of single cell analysis over the past few years have expanded the applications of single cell omis and driven their adoption. Advanced tools for single cell isolation, profiling, and analysis have enabled comprehensive characterization of complex biological systems at single cell resolution. For instance, third generation single cell sequencing platforms offer high throughput analysis, improved resolution, and capability of multi-omics analysis from a single cell. Availability of high parameter flow cytometers and mass cytometry techniques have boosted single cell analysis. Integrated microfluidic devices and microchips have increased automation and scalability of workflows. Advancements such as spatial transcriptomics have enabled mapping gene expression profiles with high resolution cellular architecture in tissue sections. Such technological innovations have increased the efficiency, throughput, and functionality of single cell analysis, driving the demand.

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Market Restrain: High Cost of Single Cell Omics Technologies

The high cost of single cell omics instruments and consumables poses a major restraint on the growth of the global single cell omics market. Establishment of a core single cell analysis facility requires significant capital investments, limiting its adoption, especially in research institutes and academic laboratories of developing countries. For instance, Chromium Genome Controller, a popular commercial instrument for single cell RNA sequencing costs around $0.35 per cell. Similarly, single cell epigenomics and proteomics tools also involve high reagent costs. Techniques such as single nucleus RNA sequencing also require specialized expertise to perform experiments. This increases the overall cost of research projects involving single cell omics. The high capital expenditure and operational costs negatively impact the large scale usage of these advanced technologies.

Market Opportunity: Expanding Applications in Drug Discovery and Development

The expanding applications of single cell omics technologies in various stages of drug discovery and development present lucrative growth opportunities. Single cell analysis facilitates in-depth understanding of disease biology and identification of drug targets. For example, single cell RNA sequencing has been used to characterize drug response at single cell level to identify resistance mechanisms. Integration of multi-omics datasets at single cell resolution aids biomarker and predictive biomarker development. Spatial profiling expands insights on tumor microenvironment. During drug development, single cell technologies aid evaluation of on-target, off-target and adverse effects. Growing R&D investments by pharmaceutical companies in precision and personalized medicine is expected to drive the adoption of single cell omics. The ability of these techniques to accelerate drug development pipelines will support market growth over the forecast period.

Market Trend: Integration of Artificial Intelligence and Machine Learning

A key trend gaining foothold in the global single cell omics market is the integration of advanced machine learning and artificial intelligence techniques. These strategies are being leveraged to analyze huge volumes of complex multi-omics datasets generated through single cell profiling experiments. For instance, machine learning algorithms aid automated cell type identification, imputation of dropout events, detection of rare cell populations, and identification of perturbed pathways from single cell RNA sequencing data. Spatial transcriptomics combined with machine learning enables discovering cell types and interaction patterns in intact tissues. These techniques help overcome challenges in analyzing high-dimensional single cell data. They improve interpretation of insights and value generation from single cell research. Integration of AI and ML is expected to revolutionize single cell data analytics and speed up the discovery of biomarkers and drug targets from single cell omics datasets.

Furthermore, the years considered for the study are as follows:

Historical data - 2016-2022
The base year for estimation - is 2022
Estimated Year - 2024
Forecast period** - 2024 to 2031

This Global Single Cell Omics Market Research/Analysis Report Contains Answers to your following Questions:

What are the current global trends in the Global Single Cell Omics market, and will the market experience an increase or decrease in demand in the upcoming years?

 What is the expected demand for various product types within the Global Single Cell Omics market, and what are the emerging Market applications and trends?

 What are the projections for the global Global Single Cell Omics Market in terms of capacity, production, production value, cost, profit, market share, supply, consumption, import, and export?

 How will strategic developments shape the Market trajectory in the medium to long term?

 What factors contribute to the final price of Global Single Cell Omics , and what are the raw materials used in its manufacturing?

 What is the market's growth potential, particularly with the increasing adoption of Global Single Cell Omics in mining?

 What is the current and 2022 value of the global market, and who are the leading companies in this market?

 What recent Market trends can be leveraged to create additional revenue streams?

 What entry strategies, economic impact mitigation measures, and marketing channels should be considered for the Global Single Cell Omics Market?

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Summarized Extracts from TOC of Market Study

Chapter 1 Global Single Cell Omics Introduction and Market Overview

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