Molecular Cytogenetics Market Size, Share, Growth, Trends, Competitive Analysis, Forecast Period 2023-2030

According to the DataM market research report, the global molecular cytogenetics market is growing at a CAGR of 9.7% over the forecast period 2023-2030

DataM Intelligence

NEW YORK, ALBANY, USA, March 15, 2023 /EINPresswire.com/ -- Market Overview:

The branch of genetics known as molecular cytogenetics uses the concepts of both molecular biology and cytogenetics to investigate the structure, organization, and function of chromosomes as well as how these factors relate to genetic illnesses. It entails the use of specific methods to examine the genetic makeup of cells, including chromosomal microarray analysis, comparative genomic hybridization (CGH), and fluorescence in situ hybridization (FISH). These methods enable the identification and mapping of certain genes and chromosomal areas, as well as the detection of chromosomal abnormalities such as rearrangements, deletions, and duplications that might result in genetic disorders. Medical genetics, cancer studies, and evolutionary biology all benefit greatly from the use of molecular cytogenetics.

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> *DataM Intelligence*

Market Size Growth Rate:

According to the DataM market research report, the global molecular cytogenetics market size is valued at USD billion in 2022, it is projected to reach USD 4.53 billion by 2030, with growth at a CAGR of 9.7% over the forecast period 2023-2030. North America is estimated to contribute 39.5% to the growth of the global market over the forecast period.

Molecular cytogenetics has made genetic disease diagnosis more accurate and effective

compared to conventional approaches. It enables the detection of chromosomal abnormalities at a higher resolution, which has improved patient care and allowed for more precise diagnosis. On the other hand, high technical skill is required for molecular cytogenetics, and data interpretation might be difficult. This can make it difficult for healthcare professionals who are unfamiliar with these methods to appropriately order and interpret them.

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Market Drivers:

Technological advances in molecular cytogenetics drive the market worldwide. The challenge for today's cytogenetic laboratories is to use more effective technologies to optimize reagent and labor costs as well as shorten assay times. To meet this requirement, Fluorescence in Situ Hybridization (FISH), a crucial molecular cytogenetic technique, is being updated by BioDot, a world leader in high-throughput ultra-low volume dispensing systems.
By targeting certain DNA sequences with fluorescent probes, FISH may identify known genetic changes using conventional laboratory techniques. FISH allows researchers to identify genetic anomalies such as deletions, duplications, and translocations. Additionally, it is capable of chromosomal "painting," which makes use of a number of fluorophores to identify chromosome rearrangements.

Market Restraints:

It is anticipated that the molecular cytogenetics industry's high cost of the molecular cytogenetics test may hamper its growth. Depending on the type and complexity of the test, the price of genetic testing can range from less than USD 100 to more than USD 2,000 per test. The price goes up if numerous tests are required to get a significant result or if several family members must be tested. The price of neonatal screening varies by state. While some governments partially subsidize the whole expense, the majority levies a fee of USD 30 to USD 150 for each infant.

Market Opportunities:

A relatively new and intriguing idea in the medical and healthcare fields is personalized medicine. Using a patient's genetic information allows doctors to customize their medical care to meet their unique needs. The need for genetic testing, such as molecular cytogenetics, to find particular genetic mutations and chromosomal abnormalities that may be important for a patient's diagnosis and therapy, is therefore on the rise. By discovering these genetic differences, medical professionals can create individualized treatment plans that are matched to the unique genetic profile of the patient, perhaps leading to better outcomes and a higher quality of life.

COVID-19 Impact Analysis:

While the COVID-19 epidemic has decimated numerous businesses, but molecular cytogenetics is positively impacted by COVID-19. Cytogenetics has noted fresh research initiatives with a focus on SARS-CoV-2 diagnosis. The cytogenetics investigation proved to be a very reliable method for the virus's tissue-specific diagnosis. It is much easier to detect viral infection when viral antigen is detected using IHC or immunofluorescence assay (IFA) techniques, and viral nucleic acids are detected using in situ hybridization (ISH) within infected but inactivated human or animal model tissues.

Recent Developments in the Industry:

1. In June 2020, Illumina announced that it will acquire the Dutch bioinformatics firm BlueBee, offering the sequencing business another internal bioinformatics platform that would be focused on downstream data analysis, management, and collaboration.

2. In March 2021, Oxford Immunotec Global PLC was acquired by PerkinElmer, Inc., a leading company dedicated to innovation for a healthier world. They acknowledge the distinct clinical and logistical advantages of the test and see a great opportunity to leverage their automation capabilities and commercial channel access to bring tuberculosis testing to more customers around the world. Oxford Immunotec's global role in fighting tuberculosis, particularly its trademark product, the T-SPOT.TB test, and the operations it has built are remarkable.

Market Segmentation:

As per the research analysis, the global molecular cytogenetics market is segmented By Product (Kits and Reagents, Instruments, Consumables, Software & Services), By Technique (Comparative Genomic Hybridization, Fluorescence in Situ Hybridization (FISH), Karyotyping, Others), By Application (Genetic Disorders, Oncology, Targeted Drug Therapy, and Others), By End User (Clinical & Research Laboratories, Academic Research Institutes, Hospitals & Pathology Laboratories, Pharmaceutical and Biotechnology Companies, Others)

1. Based on application, oncology is estimated to contribute 16.2% to the growth of the global market over the forecast period (2023-2030). In oncology, chromosomal abnormalities and genetic alterations linked to various forms of cancer are frequently found using molecular cytogenetics. Many cancers form frequently exhibit chromosomal abnormalities, which can contribute to the onset and development of cancer. Chromosome abnormalities in cancer cells can be found using molecular cytogenetic methods including comparative genomic hybridization (CGH) and fluorescence in situ hybridization (FISH).

Geographical Classification:

The global molecular cytogenetics market is segmented into major countries, including North America, Europe, South America, Asia Pacific and Middle East & Africa.

Asia-Pacific Molecular Cytogenetics Market:

The incidence of cancer is increasing rapidly in the Asia Pacific region. According to the World Health Organization, cancer is the leading cause of death in Asia, and the number of cancer cases is expected to rise in the coming years. This growing incidence of cancer is driving the demand for molecular cytogenetics testing in the region.

North America Molecular Cytogenetics Market:

In the area of molecular cytogenetics, North America is a center of invention and technological development. Leading businesses and research institutions with a significant presence in the area are always working to provide cutting-edge technology for molecular cytogenetics testing. The molecular cytogenetics market in North America is expanding as a result. In North America, where patients are looking for more focused and efficient cancer therapies, personalized medicine is becoming more and more popular.

Europe Molecular Cytogenetics Market:

The increasing cancer burden in the European region drives the market. As per the article published in the European journal of cancer in 2021, it is estimated that 1.9 million cancer-related deaths and 4 million new cases of cancer (excluding non-melanoma skin cancer). The most prevalent malignancies are prostate (580,000 cases), colorectal (520,000), lung (480,000), and breast (530,000 cases) in women (470,000). Half of all cancer cases in Europe are caused by these four diseases. Lung (380,000), colorectal (250,000), breast (140,000), and pancreatic cancers are the most frequent causes of cancer-related deaths. In the EU-27, there are an anticipated 1.4 million new cases of cancer in men and 1.2 million in women, with around 710,000 men and 560,000 women expected to die from the disease.

Competitive Analysis:

There are numerous international, regional and local suppliers in the global molecular cytogenetics industry. The competition in the local market is fierce. The vendors compete based on price, product quality, and dependability. As a result, to prosper and survive in a competitive market, suppliers must provide cost-efficient and effective products.

Major Companies:

Major key companies working towards the market's growth include Applied Spectral Imaging, Oxford Gene Technology, Bio-Rad Laboratories, Illumina, Inc., PerkinElmer, Inc., Agilent Technologies, Abbott Laboratories, Thermo Fisher Scientific, Inc., F. Hoffmann-La Roche Ltd., MetaSystems, and Quest Diagnostics Incorporated, and others.

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Additional Benefits Post Purchase:

1) Unlimited Analyst support for a period of 1 year.
2) Any query with regard to the scope offered will be addressed within 24- 48 hours.
3) An excel sheet with market numbers will be provided separately.

The Full Report has the below insights:

• The report offers a comprehensive evaluation of the market in terms of market value (US) and Y-o-Y Growth Rates (%). It does so via in-depth qualitative insights, historical data (2021-2022) and verifiable projections about market size during the forecast period (2023-2030).

• Visualize the composition of the global molecular cytogenetics market segmentation by product, technique, application, end user and region, highlighting the key commercial assets and players.
o By Product: Kits and Reagents, Instruments, Consumables, Software & Services.
o By Technique: Comparative Genomic Hybridization, Fluorescence in Situ Hybridization (FISH), Karyotyping, and Others.
o By Application: Genetic Disorders, Oncology, Targeted Drug Therapy and Others.
o By End User: Clinical & Research Laboratories, Academic Research Institutes, Hospitals & Pathology Laboratories, Pharmaceutical and Biotechnology Companies, Others.
o By Region: North America, South America, Europe, Asia Pacific, Middle East & Africa.
• Identify commercial opportunities in the global molecular cytogenetics market by analyzing trends and co-development deals.
• The report also covers data insights on various industry forces such as, porter's five forces analysis, supply chain analysis, pricing analysis, regulatory analysis.
• Excel data sheet with thousands of data points of global molecular cytogenetics market-level 4/5 segmentation.
• PDF report with the most relevant analysis cogently put together after exhaustive qualitative interviews and in-depth market study.
• Product mapping in excel for the key product of all major market players
• The report will provide access to approximately 61 market data tables, 64 figures and close to 180 pages.

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