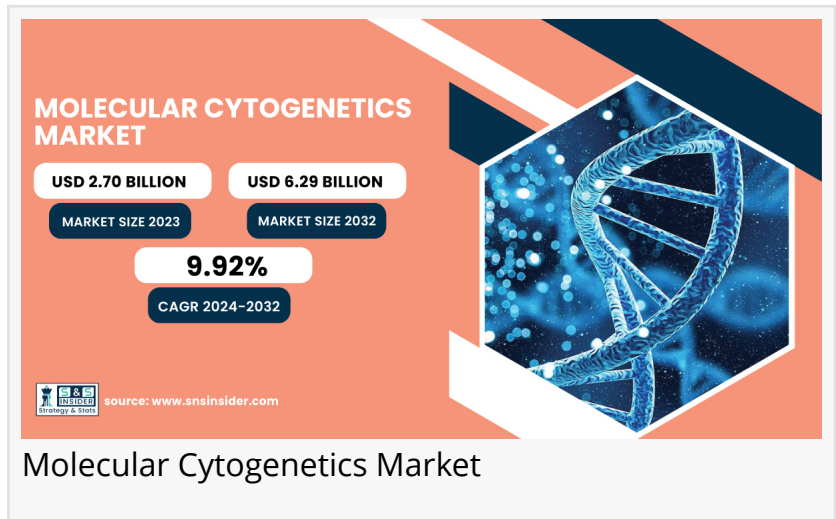


Molecular Cytogenetics Market Set to Surge to USD 6.29 Billion by 2032 | SNS Insider

Market valued at USD 2.70 Bn in 2023; projected growth at 9.92% CAGR until 2032 amid rapid innovations.

AUSTIN, TX, UNITED STATES, February 24, 2025 /EINPresswire.com/ --

According to Research by SNS Insider, The [Molecular Cytogenetics Market](#) was estimated at USD 2.70 billion in 2023 and is expected to reach USD 6.29 billion by 2032, at a CAGR of 9.92% during the forecast period of 2024-2032.



The Molecular Cytogenetics Market is growing rapidly with the progress in genetic studies, the increasing incidence of cancer, and the growing use of personalized medicine. Methods such as FISH and CGH are extensively applied for the diagnosis of genetic disorders and oncology. Moreover, government support for genomic studies and growing uses in drug discovery are fueling market growth. The need for automated cytogenetic solutions is also driving the market's fast development.

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Key Players in Molecular Cytogenetics Market

- Abbott Laboratories (Vysis FISH Probes, PathVysion HER-2 DNA Probe Kit)
- Agilent Technologies, Inc. (SureFISH Probes, CGH+SNP Microarray Kits)
- Bio-Rad Laboratories, Inc. (QX200 Droplet Digital PCR System, NGC Chromatography Systems)
- Danaher Corporation (Leica Biosystems' FISH Probes, Cytovision Cytogenetics Software)
- F. Hoffmann-La Roche Ltd. (KAPA Library Preparation Kits, NimbleGen CGX Arrays)
- Illumina, Inc. (Verifi Prenatal Test, TruSight NIPT Solution)
- PerkinElmer, Inc. (CGX Onco Arrays, Volocity 3D Image Analysis Software)
- Thermo Fisher Scientific Inc. (Oncomine Solutions, CytoScan Dx Assay)
- Oxford Gene Technology (OGT) (CytoSure Constitutional v3 Arrays, SureSeq NGS Panels)
- MetaSystems (Metafer Slide Scanning Platform, Isis FISH Imaging System)

- BioView Ltd. (Duet Image Analysis System, Allegro Plus Scanner)
- Applied Spectral Imaging (GenASIs FISH Imaging, HiBand Karyotyping System)
- Molecular Devices, LLC (ImageXpress Micro Confocal System, SpectraMax iD5 Multi-Mode Microplate Reader)
- CytoTest Inc. (CT-P53/CEP 17 FISH Probe, CT-ALK/EML4 Fusion Probe)
- Genial Genetics (Genial Helix Software, CytoSNP Array Kits)
- SciGene (Little Dipper Processor for FISH, Hybex Microsample Incubation System)
- ASD Healthcare (Cytogenetic Media, FISH Hybridization Buffer)
- Biocare Medical, LLC (IQ Kinetic Slide Stainer, FISH Retrieval Solutions)
- Genomic Vision (FiberVision Molecular Combing System, FSHD Diagnostic Assay)
- Zeiss Group (Axio Imager 2 Microscope, MetaSystems Ikaros Karyotyping Software)

Segmentation Insights

By Application, the Oncology segment dominated the Molecular Cytogenetics Market with 40.56% market share in 2023

Because of the rising global cancer burden and the vital role cytogenetic methods play in cancer diagnosis and prognosis. Molecular cytogenetics, such as comparative genomic hybridization (CGH) and fluorescence in situ hybridization (FISH), is extensively utilized to identify genetic alterations in cancers like leukemia, breast cancer, and lung cancer. The increasing use of targeted therapies and personalized medicine has further propelled cancer genomics and biomarker discovery, in turn further accelerating demand for cytogenetic analysis in oncology. Moreover, government support and research grants for cancer genomics and biomarker discovery have fueled market expansion. The high incidence of cancer cases in North America and Europe and the growing clinical uses of molecular cytogenetics have cemented oncology's dominance in this market segment.

By Technology, the Comparative Genomic Hybridization (CGH) segment dominated the market, contributing 37.51% market share in 2023

Because of its high accuracy, efficiency, and a broad range of applications in identifying chromosomal abnormalities, CGH is used widely in cancer research, prenatal diagnosis, and genetic disorder testing, which makes it a popular choice among researchers and healthcare professionals. In contrast to traditional karyotyping, CGH has greater resolution, allowing the identification of microdeletions and duplications that are not identified by conventional methods. Moreover, array-based CGH (aCGH) has become increasingly popular because it can scan whole genomes more accurately and efficiently. The need for personalized medicine and targeted therapies, along with the development of next-generation sequencing (NGS) integration, has further propelled the use of CGH, solidifying its stronghold in the field of molecular cytogenetics.

By Product, the Software & Services segment is experiencing the fastest growth in the market

with a 10.55% CAGR throughout the forecast period

As a result of the growing usage of AI-powered data analysis, cloud-based solutions, and bioinformatics tools. Since molecular cytogenetics creates large and intricate datasets, sophisticated software solutions are becoming increasingly crucial for effective image analysis, karyotyping, and FISH interpretation. Also, the trend of outsourcing the analysis of genomic data to professional service providers has further increased demand in this space. The growth of precision medicine, along with the necessity of automation in clinical and research laboratories, is prompting investment in software solutions. As AI and machine learning continue to advance, cytogenetics software is being shaped to enhance accuracy, speed, and scalability, and hence remains a key ingredient for future market growth.

By End-use, the Clinical & Research Laboratories segment dominated the molecular cytogenetics market and contributed with 34.25% market share in 2023

Because of the large number of genetic testing, cancer testing, and chromosomal disorder research activities being performed in these labs. These laboratories are vital for supporting genomic research, forming new cytogenetic methods, and confirming new diagnostic tests. The growing need for fluorescence in situ hybridization (FISH), comparative genomic hybridization (CGH), and karyotyping methods has triggered increased use of molecular cytogenetic tools within clinical environments. Moreover, research centers are receiving large amounts of funding from government programs, pharmaceutical partnerships, and precision medicine initiatives, further boosting their dominance. With increasing emphasis on early disease diagnosis, personalized therapy, and targeted therapeutics, clinical and research labs remain the chief adopters of sophisticated molecular cytogenetic technology.

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North America dominated the Molecular Cytogenetics Market with a 46.25% market share in 2023

Owing to the well-established health infrastructure, increased government funding of genomic research, and strong usage of sophisticated cytogenetic technologies in cancer and genetic disorders. The major market players like Illumina, Thermo Fisher Scientific, and Agilent Technologies operate in the region and also contribute significantly to the market growth.

Asia-Pacific is the fastest-growing region because of growing healthcare infrastructure, rising investment in genetic studies, and rising awareness of precision medicine. China, India, and Japan are experiencing a sharp rise in demand for molecular cytogenetics because of the growing incidence of cancer and enhanced access to diagnostic technology.

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