

US Fluorescence In-Situ Hybridization (FISH) Imaging Systems Market Size and Forecasts (2020 - 2030), Regional Share, Trends, and Growth Opportunity Analysis Report Coverage: By Product (Instruments, Consumables, Accessories, and Software), Application (Cancer Diagnosis, Genetic Disease Diagnosis, Infectious Disease Diagnostic, and Others), and End User (Diagnostic Laboratories, Contract Research Organizations, Pharmaceutical and Biotechnological Companies, and Others)

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Abstracts

The US fluorescence in-situ hybridization (FISH) imaging systems market is expected to reach US\$ 0.733 billion in 2030 from US\$ 0.419 billion in 2022. The market is estimated to grow with a CAGR of 7.3% from 2022 to 2030.

The key factors driving the market's growth are rising prevalence of target disorders and the increasing R&D investments in in-vitro diagnostics. However, high cost of fish imaging systems and procedures is hampering the market's growth to a certain extent.

Market Opportunities of Fluorescence In-Situ Hybridization (FISH) Imaging Systems Market

FISH imaging systems are witnessing a remarkable evolution due to the surge in technological advancements, which result in cutting-edge innovations transforming the landscape of genetic research and diagnostics. These advancements include enhanced

optics, more sensitive and versatile fluorophores, and sophisticated automation features. Modern FISH imaging systems, integrated with these upgraded features, offer greater sensitivity, improved image resolution, and faster processing times. Moreover, these technological advancements have extended the application scope of FISH imaging from cancer diagnosis to genetic predisposition testing. In July 2021, BioView and Capiro Biosciences collaborated to create a platform for collecting circulating tumor cells (CTCs) from whole blood. By integrating their technologies, these companies further worked on improving the CTC liquid biopsy downstream analysis. Similarly, in collaboration, BioView and Capiro Biosciences partnered with RUBYnanomed in December 2020 to create a unique imaging solution to accelerate the acceptance and adoption of CTC technology in clinics to enhance cancer detection. Thus, technological advancements in FISH imaging systems create significant opportunities for companies in the fluorescence in-situ hybridization (FISH) imaging systems market.

Factors Hampering Fluorescence In-Situ Hybridization (FISH) Imaging Systems Market

Computerized tomography (CT) scan, immunohistochemistry (IHC), bone scan, FISH imaging, magnetic resonance imaging (MRI), positron emission tomography (PET) scan, ultrasound, and X-ray are among the tests used to detect cancer. FISH imaging analysis is a less commonly used method in cancer detection because of its relatively higher cost than other methods. In addition to the equipment cost, the expenses associated with reagents, other consumables, and specialized personnel appointments can add to the overall cost of evaluation based on FISH imaging. For instance, the detection of ALK gene non-small cell lung cancer by IHC costs US\$ 90.07 in the US for every test, which is less than either independent or parallel testing by FISH and IHC (costing ~US\$ 441.85 in the US). Thus, the high cost of procedures and systems limits the growth of the fluorescence in situ hybridization (FISH) imaging systems market.

Fluorescence In-Situ Hybridization (FISH) Imaging Systems Market: Segmental Overview

Based on product, the fluorescence in-situ hybridization (FISH) imaging systems market is segmented into instruments, consumables, accessories, and software. The consumables segment held a larger market share in 2022 and is anticipated to register a higher CAGR. Consumables are the most promising segment of the fluorescence in-situ hybridization (FISH) imaging system market that will contribute to tremendous growth in the coming years. FISH consumables include hybridization buffers, probes, tag detection kits, signal amplification detection kits, and others. The presence of manufacturers such as Abbott, F. Abnova, and Thermo Fisher Scientific bolsters the

market for the consumables segment. Additionally, these products are frequently used in various research diagnosis processes, which is expected to propel consumption. Thus, the presence of various market players offering probes & kits and technological advancements by market players are likely to propel the market for the segment in the coming years.

Based on application, the fluorescence in-situ hybridization (FISH) imaging systems market is segmented into cancer diagnosis, genetic disease diagnosis, infectious disease diagnosis, and others. The cancer diagnosis segment held a larger market share in 2022 and is anticipated to register a higher CAGR. FISH technology has tremendously benefited cancer diagnosis. FISH imaging systems can look for gene changes and help detect anomalies. According to Cancer Research UK, FISH testing is used for the diagnosis of several cancers, including breast cancer, lymphoma, lung cancer, prostate cancer, chronic lymphocytic leukemia (CLL), acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML), chronic myeloid leukemia (CML), myeloma, Ewings sarcoma, and melanoma skin cancer.

Based on end user, the fluorescence in-situ hybridization (FISH) imaging systems market is segmented into diagnostic laboratories, contract research organization, pharmaceutical and biotechnological companies, and others. The diagnostic laboratories segment held a larger market share in 2022 and same segment is anticipated to register a higher CAGR. The diagnostic laboratories are involved in various research projects to develop several technologies and products for fluorescence in-situ hybridization (FISH) imaging processes. Unprecedented developments in research and technologies have created the potential for transformation in the healthcare and life sciences sectors. The clinical applications of fluorescence in-situ hybridization (FISH) imaging systems are vast and offer opportunities to enhance diagnosis and treatment capabilities for chronic disease. They offer huge potential in gene discovery and diagnosis of rare genetic disorders. The technologies are increasingly used to analyze rare and common genetic factors influencing the development of common diseases, such as cancer, high blood pressure, diabetes, and renal diseases.

Fluorescence In-Situ Hybridization (FISH) Imaging Systems Market: Geographical Overview

The growing demand for advanced diagnostic tools in molecular genetics and cytogenetics and the rising prevalence of genetic disorders and cancer fuel the adoption of fluorescence in-situ hybridization (FISH) imaging systems. As per data published by

the American Cancer Society in 2022, there are around 1.9 million new cancer cases diagnosed in the US and 609,360 cancer deaths. These systems offer high-resolution imaging of genetic material, enabling researchers and clinicians to detect chromosomal abnormalities and gene mutations with greater accuracy. Furthermore, the increasing focus on personalized medicine and targeted therapies has led to an upsurge in research activities involving genetic analysis, bolstering the demand for FISH imaging systems. The ability of these systems to provide detailed spatial information on gene sequences directly within cells has proven invaluable in both research and clinical applications. The popularity of technological advancements in FISH imaging systems, such as improved automation, higher throughput, and enhanced image analysis software, has also increased in recent years. As a result, laboratories and medical institutions are better equipped to handle larger volumes of samples and generate precise results efficiently. Thus, the abovementioned factors will fuel the fluorescence in-situ hybridization (FISH) imaging systems market growth in the US.

A few of the major primary and secondary sources referred to while preparing the report on the fluorescence in-situ hybridization (FISH) imaging systems market are the World Bank Data, National Health Service (NHS), FDA (Food and Drug Administration), EMA (European Medicines Agency), and WHO (World Health Organization).

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