Global Live Cell Imaging Market - Focused Insights 2025-2030

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Report description:

The global live cell imaging market is expected to grow at a CAGR of 8.79% from 2024 to 2030.

RECENT VENDORS ACTIVITIES

-In 2025, Revvity developed and launched a revolutionary Phenologic. AI Software. This software is designed to redefine cellular imaging workflows for their harmony and Signal Image Artist software.
-In 2024, Leica Microsystems revealed TauSTED Xtend, a new STED microscopy approach that can enable extended multicolor live cell imaging easily at nanoscopic resolutions.
-In 2023, Thrive Biosciences -launched a new integrated suit- CellAssist of exciting and unique capabilities that significantly advance the field of live cell imaging.
-In 2023, Bruker signed an agreement to acquire Phasefocus Holding Limited, an optical cell imaging company that has expertise in imaging and image processing algorithms. This acquisition supports Bruker in the development of a novel optical microscope for a live cell imaging portfolio.
-In 2023, Bruker acquired ACQUIFER Imaging GmbH which was a pioneer in big-data management solutions for high-content microscopy and bioimaging.
-In 2023, Axion BioSystems, a pioneer company in live cell analysis tools development announced the full integration of CytoSMART Technologies.

KEY TAKEAWAYS

-By Product: The equipment segment holds the largest market share of over 51%. The segment is growing as they are widely used in cellular biology, drug research, development biology, and stem cell research and development.
-By Technique: The fluorescence microscopy segment shows the highest growth of 9.06% as they are widely preferred and used techniques for live cell imaging due to their capabilities to mark, analyze, and imagine targeted cells.
-By Application: The cell biology segment accounts for the largest market share. Cell biology encompasses a broad range of

research areas and applications, such as apoptosis, cell cycle and division, DNA damage, in-vitro studies, and others.
-By End-User: Pharma & biotech companies dominate the global live cell imaging market share. Growing research and development and growing attention towards personalized medicines development accelerating the demand for live-cell imaging solutions by biopharma companies.
-By Geography: In 2024, North America accounted for over 35% share of the global live cell imaging market. The demand for live cell imaging in North America has experienced a steady growth rate due to the increasing research and development (R&D) in cellular biology, and rapid development in cell and gene therapies.
-Growth Factor: The global live cell imaging market is set to grow due to the growing demand for live cell imaging in drug discovery and the rising application of live cell imaging in disease diagnosis.

MARKET TRENDS & DRIVERS

Leveraging AI and Big Data with Oblique Illumination Technology

The integration of big data and Artificial Intelligence (AI) completely changed the landscape of live cell optical imaging in recent years. AI and Big Data boost efficiency and expand the scope of insights gained. On another side, oblique illumination technology optimizes contrast, making cell structure sharper and enabling precise monitoring of changes during development and disease. Oblique illumination technology supports diverse applications, expanding its use in neuroscience, organ studies and 3D tissue cultures, vascular research, and pathology. The combination of big data analytics and AI algorithms also expands the application potential of new oblique illumination technology across various life sciences and drug discovery fields. With this ongoing trend in live cell imaging, AI and big data are expected to continue contributing to considerable progress in life sciences exploration.

Recent Advances in Fluorescent Probes for Live Cell Imaging

Live cell imaging with fluorescence microscopy has witnessed significant developments. It is a powerful and recognized technology for visualizing biological events in living cell samples with special resolution and high temporal. In addition, the development of fluorescent probes that emit far-red to near-infrared (NIR) fluorescence is beneficial for in-vivo imaging due to their low autofluorescence and high tissue permeability, as well as their suitability for multicolor imaging. This development of fluorescent probes and associated benefits are expected to deliver lucrative market growth opportunities.

Growing Demand for Live Cell Imaging In Drug Discovery

Live cell imaging is significantly useful for several aspects of the drug discovery and development pipeline such as kinetic studies and compound mode of action or to analyze the motion of cellular components. Furthermore, high-content imaging (HCI) and AI widely contribute to drug discovery and development, accelerated by the recent progress in deep neural networks. These factors are accelerating the demand for live cell imaging in drug discovery. For example, Revvity developed high-content screening systems, such as Operetta CLS and Opera Phenix offer significant flexibility to run live cell assays which are highly required and used in drug discovery programs.

Rising Application of Live-Cell Imaging in Disease Diagnosis

Live cell imaging applications rapidly growing in disease diagnosis with the increasing capabilities to understand the live cellular activities that help to understand the basics of disease biology, functional consequences of genetic, pharmacological, and or therapy intervention, and results in real-time. Recently, live cell imaging has become an invaluable tool in Central Nervous System (CNS) diseases and disorders as live cell imaging offers from basic diseases biology to the functional consequences of behavioral therapy interventions, genetic, and pharmacological interventions result in real-time.

SEGMENTATION INISIGHTS

INSIGHTS BY PRODUCT TYPE

The global live cell imaging market by product type is segmented into equipment, consumables, and software. In 2024, the equipment segment dominates and holds the largest market share of over 51%. In live-cell imaging equipment includes microscopes, image-capturing devices, and cell analyzers used for live-cell imaging. Live cell imaging equipment witnessed significant developments in recent years. The development of automated live-cell imaging equipment redefines research capabilities for biopharma companies and research and academic institutes. Automated live cell imaging systems provide multi-position imaging in both fluorescence microscopy and brightfield microscopy. It schedules a time-lapse function, and moving camera, and enables consistent, easy, and reliable results. Furthermore, advancements in digital image-capturing devices eliminate the complexities of cell imaging associated with traditional microscopes. These digital imaging devices allow users to visualize, capture, and store images and create multicolor overlays. These factors accelerate the market growth.

INSIGHTS BY TECHNIQUE

The global live cell imaging market by technique is categorized into fluorescence microscopy, confocal microscopy, transmitted light microscopy, and others. Fluorescence microscopy holds the largest market share and shows prominent growth, with the fastest-growing CAGR of 9.06% during the forecast period. Fluorescence microscopy is the most widely preferred and used technique for live-cell imaging due to its capability to mark, analyze, and imagine targeted cells. The fluorescence markers used in live cell imaging offer clear imaging of targeted as well as unwanted biological material that significantly helps researchers. Clear visuals and minimizing human errors are major properties of fluorescence techniques in live cell imaging. Furthermore, fluorescence microscopy in live cell imaging is now widely used for studying dynamic processes and time-lapse imaging of live cells can offer valuable and unique insights into events that may understand or unfold over hours or days.

INSIGHTS BY APPLICATION

Based on the application, the cell biology segment accounted for the largest share of the global live cell imaging market. Using live-cell imaging, researchers covered a range of cell biology topics, including investigation of cell migration, mimicking lymphatic or blood vessels, angiogenesis, cell proliferation, inter- and intracellular signaling, and many more. Globally, thousands of cell biology academic universities, research centers, and biopharma companies are engaged in cell biology research to identify the potential of cell biology to improve human lives and fuel the demand for live-cell imaging solutions. Furthermore, the growing funding for cell biology is one of the major factors accelerating the demand for live-cell imaging solutions.

INSIGHTS BY END-USER

The global live cell imaging market by end-user is segmented into pharma & biotech companies, academic & research institutes, and others. The pharma & biotech companies segment accounts for the largest market share in 2024. Pharma & biotech companies are actively engaged in drug discovery and significant spending on R&D. Pharma & biotech companies are conducting clinical trials that generate significant data that need to be collected, segregated, and structured where live-cell imaging software widely used for live cell imaging data storage and transfer. Most targeted biopharma companies for living-cell imaging solutions are those companies that are engaged in cell therapy research and development. The market is expanding as pharmaceutical and biotech companies increase research and development efforts, conduct a growing number of clinical trials, and focus more on personalized medicine. This rising emphasis on innovation is driving the demand for live-cell imaging solutions among biopharma companies.

GEOGRAPHICAL ANALYSIS

North America dominates and holds the largest share of over 35% of the global live cell imaging market. North America is home to several small, medium, and large market players that widely promote live-cell imaging equipment, software, and consumables for clinical research and development for biopharma companies and academic & research institutes/centers. The US and Canada are two major countries that are highly engaged in cell biology and associated research, fueling the demand for live cell imaging solutions. The demand for live cell imaging in North America has experienced a steady growth rate due to the increasing research and development (R&D) in cellular biology, rapid development in cell and gene therapies, and growing applications in disease diagnosis and therapy developments.

SEGMENTATION & FORECAST

-By Product
oEquipment
oConsumables & Accessories
oSoftware
-By Technique
oFluorescence Microscopy
oConfocal Microscopy
oTransmitted Light Microscopy
oOthers
-By Application
oCell Biology
oDrug Discovery
oDevelopment Biology
oStem Cell Research
-By End-User
oPharma & Biotech Companies
oAcademic & Research Institutes
oOther
-By Geography
-North America
oUS
oCanada
-Europe
oGermany
oFrance
oUK
oItaly
oSpain
-APAC
oChina
oJapan
oIndia
oSouth Korea
oAustralia
-Latin America
oBrazil

o Mexico
o Argentina
- Middle East & Africa
o Turkey
o Saudi Arabia
o South Africa
o UAE

COMPETITIVE LANDSCAPE

The global live cell imaging market report consists of exclusive data on 37 vendors. Agilent Technologies, BD, Danaher, PerkinElmer, MerckKgaA, Thermo Fisher Scientific, and Zeiss are some of the leading companies that accounted for the highest market share in the global live-cell imaging market. These vendors offer high-class and reliable live-cell imaging equipment, consumables, and software solutions that meet customers? requirements and international regulations. Leading vendors are increasing the efficiency of their products and strengthening their market position. These companies have a strong brand image and wide geographical reach across the global market. Also, the adoption of various strategies, such as product launches, new product development with advanced technologies and tools, and acquisitions intensified the competition in the market. The adoption of such strategies by the vendors and their focus on expanding their capabilities have enabled them to gain a higher revenue share in the market.

Key Vendors

- Agilent Technologies
- BD
- Danaher
- PerkinElmer
- MerckKgaA
- Thermo Fisher Scientific
- Zeiss

Other Prominent Vendors

- Axion BioSystems
- Aligned Genetics
- Bio-Rad Laboratories
- Blue-Ray Biotech
- Bruker
- Eppendorf
- Etaluma
- Evident
- Grace Bio-Labs
- ibidi GmbH
- Intelligent Imaging Innovations
- KEYENCE CORPORATION
- NanoEntek
- Molecular Devices
- Media Cybernetics

-Nanolive SA
-Nikon
-ONI
-Oxford Instruments
-Phase Focus
-Phase Holographic Imaging PHI AB
-The Proteintech Group
-Sartorius AG
-Sony Biotechnology
-Tomocube
-Tecan Trading AG
-Revvity
-RAMONA
-Thrive Bioscience
-Takasago Electric

KEY QUESTIONS ANSWERED:

1.What is the expected growth of the global live cell imaging market?
2.What are the factors driving the global live cell imaging market growth?
3.Who are the major players in the global live cell imaging market?
4.Which type of live-cell imaging microscopy technique will dominate the global live cell imaging market growth?

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