

Live Cell Imaging - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Live Cell Imaging Market size is estimated at USD 2.25 billion in 2024, and is expected to reach USD 3.16 billion by 2029, growing at a CAGR of 7.06% during the forecast period (2024-2029).

The COVID-19 pandemic had a severe impact on the market as there were supply chain disruptions due to the lockdown. However, the increasing demand for the early diagnosis of COVID-19 infection in order to develop an effective vaccination propelled the growth of the market as it led to increasing usage of the live cell imaging process. According to a research study published in Antiviral Research Journal in November 2021, a live-cell-based test for assessing the intracellular function of the CoV2 target, the Main 3C-like protease, was created, which is important and highly conserved (Mpro) and this method provided a high-throughput COVID-19 Main Protease (Mpro) screening system. The rising application of live-cell imaging in the identification of intracellular functions in COVID-19 led to increased adoption of live cell imaging and considerably impacted the market studied during the pandemic. Therefore, the increasing usage of live cell imaging equipment for the study of the molecular biology of the COVID-19 virus is expected to drive the growth of the market over the forecast period.

The growth of the live cell imaging market is attributed to the adoption of high-content screening techniques in drug discovery, the rising prevalence of chronic disease demanding higher and quicker diagnostic facilities, and government funding for cell-based research.

Live-cell imaging is a detection mode for cell-based assays and high-content screening techniques in drug discovery that helps in the identification of multiple measures of cell physiology, whether from sub-cellular compartments, multicellular structures, or model organisms. According to a study published in Frontiers in Cell and Developmental Biology in January 2021, high-content screening has aided in the comprehension of varied downstream effects for multiple treatments on cancer cells, specifically

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organelle targets, estimating the overall cellular response efficiently for new candidate molecules, and evaluating signaling heterogeneity. The rising advantages of high-content screening in understanding cancer cell response to novel drugs are expected to drive the adoption of the devices used for live cell imaging for the development of novel cancer treatments and fuel the overall market growth.

Besides, the development of innovative products is also contributing to market growth. For instance, in June 2021, Leica Microsystems launched the Leica Nano workflow, a new live-cell correlative light, and electron microscopy (CLEM) workflow solution designed to increase experimental success rates, improve reproducibility, and simplify light and electron microscopy (EM) integration. In addition, in January 2021, Zeiss Group launched the ZEISS Visioner 1, an innovative digital microscope for live-cell imaging that facilitates all-in-one focus in real-time through its Micro-mirror Array Lens System (MALS). This initiative is aimed at simplifying the imaging process and delivering higher throughput. Therefore, these developments in the market are predicted to garner the market's growth over the forecast period.

However, factors such as the high cost of high-content screening systems and the shortage of skilled professionals may hinder the growth of the market.

Live Cell Imaging Market Trends

Standalone Systems Segment is Expected to Hold a Significant Market Share Over the Forecast Period

Standalone systems are referred to as equipment or devices that are able to function independently of other hardware and are not integrated into another device. The major factors fueling the growth of the segment are the significant use of these systems in live-cell imaging and the increasing focus on research and development (R&D) with the use of technology. For instance, as per the Journal of Cell Biology published in May 2023, StableMARK (Stable Microtubule-Associated Rigor-Kinesin), a live-cell marker to visualize stable microtubules, enabled the exploration of different microtubule subsets throughout the cell cycle to understand the contribution to cellular organization and transport. Therefore, due to the emergence of advanced and innovative standalone systems in the market, this segment is expected to grow over the forecast period.

Additionally, in February 2022, TGen and Deepcell collaborated to employ artificial intelligence-based technology to classify and isolate diseased cells. Deepcell provides AI-powered technology that transforms cell morphology into a quantitative and high throughput marker for use in research to complement existing molecular workflows as well as a novel standalone method. Such collaborations in research are anticipated to fuel the development of standalone systems for live-cell imaging, thereby contributing to market growth.

Moreover, well-established market players also offer standalone systems for live-cell imaging, thereby contributing to the growth of the segment. For instance, Becton Dickinson and Company offers BD Pathway 855 Stand-Alone System, which offers the ultimate flexibility for high-content imaging of live and fixed cells. Hence, due to the availability of innovative products in the segment, the competition is rising, and it is anticipated to drive the segment growth over the forecast period.

North America is Expected to Hold a Significant Share of the Market During the Forecast Period

North America holds a significant share of the live cell imaging market and is expected to continue its growth trend during the forecast period. The major factors attributed to the market growth in the region are the presence of a larger patient pool and an increasing geriatric population.

The increasing investment and funding available for research in live-cell imaging is the key driver in this region. In North America, the United States holds a prominent market share due to factors, such as the burden of chronic diseases, along with a growing

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number of R&D programs in the country. For instance, according to the Cancer Facts and Figures 2023 report by the American Cancer Society, an estimated 1.9 million new cancer cases are expected to be diagnosed in the United States in 2023, among which nearly 1,010,310 cases will be men and 948,000 cases will be women. The high number of people getting affected by cancer is expected to increase the demand for the diagnosis of cancer and is expected to boost the market's growth in the region.

Additionally, the presence of major market players and key strategies implemented by them, such as partnerships and collaborations also expected to contribute to the growth of the live cell imaging market in North America. For instance, in March 2022, Axion BioSystems, one of the major life sciences tools companies focused on advanced live-cell assay systems, reported the acquisition of CytoSMART Technologies, an innovator in kinetic live-cell imaging analysis. This will lead to increased adoption of cell imaging devices in the United States, thereby driving the overall market growth in the region.

Live Cell Imaging Industry Overview

The live cell imaging market is competitive with several players. The companies are implementing certain strategic initiatives, such as mergers, new product launches, acquisitions, and partnerships, that help them strengthen their market positions. Some companies currently dominating the market are Becton, Dickinson and Company, Zeiss Group, Danaher Corporation, Olympus Corporation, Live Cell Instrument, Nikon Corporation Inc., Perkin Elmer Inc., Merck KGaA, Thermo Fisher Scientific Inc., and others.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

Table of Contents:

1 INTRODUCTION

- 1.1 Study Assumptions and Market Definition
- 1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET DYNAMICS

- 4.1 Market Overview
- 4.2 Market Drivers
 - 4.2.1 Adoption of High-content Screening Techniques in Drug Discovery
 - 4.2.2 Rising Prevalence of Chronic Disease Demanding Higher and Quicker Diagnostic Facilities
 - 4.2.3 Government Funding for Cell-based Research
- 4.3 Market Restraints
 - 4.3.1 High Cost of High-content Screening Systems
 - 4.3.2 Shortage of Skilled Professionals
- 4.4 Porter's Five Forces Analysis
 - 4.4.1 Bargaining Power of Suppliers
 - 4.4.2 Bargaining Power of Buyers
 - 4.4.3 Threat of New Entrants
 - 4.4.4 Threat of Substitute Products/Services
 - 4.4.5 Intensity of Competitive Rivalry

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5 MARKET SEGMENTATION (Market Size by Value - USD million)

5.1 By Product

5.1.1 Equipment

5.1.1.1 Standalone Systems

5.1.1.2 Microscopes

5.1.1.3 Cell Analyzers

5.1.1.4 Image Capturing Devices

5.1.2 Consumables

5.1.2.1 Reagents and Kits

5.1.2.2 Other Consumables

5.1.3 Software and Services

5.2 By Application

5.2.1 Cell Biology

5.2.2 Developmental Biology

5.2.3 Stem Cell Biology

5.2.4 Drug Discovery

5.2.5 Other Applications

5.3 Geography

5.3.1 North America

5.3.1.1 United States

5.3.1.2 Canada

5.3.1.3 Mexico

5.3.2 Europe

5.3.2.1 Germany

5.3.2.2 United Kingdom

5.3.2.3 France

5.3.2.4 Italy

5.3.2.5 Spain

5.3.2.6 Rest of Europe

5.3.3 Asia-Pacific

5.3.3.1 China

5.3.3.2 Japan

5.3.3.3 India

5.3.3.4 Australia

5.3.3.5 South Korea

5.3.3.6 Rest of Asia-Pacific

5.3.4 Middle East and Africa

5.3.4.1 GCC

5.3.4.2 South Africa

5.3.4.3 Rest of Middle East and Africa

5.3.5 South America

5.3.5.1 Brazil

5.3.5.2 Argentina

5.3.5.3 Rest of South America

6 COMPETITIVE LANDSCAPE

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- 6.1 Company Profiles
 - 6.1.1 Becton, Dickinson and Company
 - 6.1.2 Zeiss Group
 - 6.1.3 Axion BioSystems, Inc
 - 6.1.4 Danaher (Leica Microsystems)
 - 6.1.5 Olympus Corporation (EVIDENT)
 - 6.1.6 LCI (Live Cell Instrument)
 - 6.1.7 Nikon Corporation Inc
 - 6.1.8 PerkinElmer Inc.
 - 6.1.9 Merck KGaA (Sigma- Aldrich Corporation)
 - 6.1.10 Thermo Fisher Scientific Inc.
 - 6.1.11 Agilent Technologies. Inc.
 - 6.1.12 Sartorius AG

7 MARKET OPPORTUNITIES AND FUTURE TRENDS

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