

Confocal Microscope - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Confocal Microscope Market size is estimated at USD 1.11 billion in 2024, and is expected to reach USD 1.31 billion by 2029, growing at a CAGR of 3.19% during the forecast period (2024-2029).

COVID-19 significantly impacted the confocal microscope market as researchers utilized confocal microscopes to identify various complications in COVID-19-infected patients. For instance, according to an article published in August 2021 in PubMed, COVID-19-infected patients witnessed corneal infiltrates as a trigger for COVID-19 due to the immune-mediated mechanism, which was identified with the help of confocal microscopes. Hence, due to this, COVID-19 had a significant impact on confocal microscopes during the pandemic. Besides, in the post-pandemic situation, the market is expected to witness stable growth due to the increased ophthalmic problems acquired by post-COVID-19 patients and the advancements in confocal microscopes.

Factors such as an increase in demand for confocal microscopes in diagnosing ophthalmic conditions, increasing use of confocal microscopes in life sciences, material sciences, neurophysiology, and biology, and the rising incidence of microbial keratitis are expected to boost the demand for confocal microscopes. For instance, according to a study published in the MDPI Journal in May 2021, IVCM (in vivo confocal microscopy) is a diagnostic tool that can produce high-resolution ocular tissue images in real-time in vivo. IVCM provides rapid and non-invasive microstructural information of the ocular surface and adnexa at the cellular level, with a resolution comparable to histologic methods. Thus, confocal microscopes are extensively used in diagnosing ocular diseases, raising the demand for confocal microscopy.

Furthermore, the increase in advantages offered by confocal microscopes in the life science sector is expected to drive the market for confocal microscopes during the forecast period. For instance, according to a study published in the Biomechanics and Modelling Mechanobiology in December 2021, confocal images are found to be a significant tool for identifying the contribution of

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a variety of sub-nuclear structures and predicting global nuclear stiffness of multiple nuclei based on simple nuclear isolation protocols. The effectiveness of the confocal microscope in cell structure research in life science and biotechnology is expected to drive market growth during the forecast period.

Furthermore, the presence of key players and their strategic product launches are expected to fuel market growth during the forecast period. For instance, in November 2021, Nikon Instruments Inc. launched a series of AX R MP multiphoton confocal microscopes, which can quickly acquire high-resolution, large field-of-view images deep within living organisms. Hence, introducing such advanced confocal microscopes is expected to boost market growth during the forecast period.

Thus, with the advantages offered by confocal microscopes in various research studies and the increase in strategic activities by the key players, the market studied is anticipated witness significant growth during the forecast period. However, costs associated with the microscope and the lack of trained professionals may restrain the market studied during the forecast period.

Confocal Microscope Market Trends

Laser Scanning Microscopes are Expected to Witness Significant Growth Over the Forecast Period

In a laser scanning confocal microscope (LSCM), a laser beam is swept over the sample using scanning galvanometer mirrors. Typically, the laser is directed onto a pair of scanning mirrors, sweeping the beam in the x and y directions of a single field of view and then moving incrementally across the entire sample to produce an image of the optical section or slice. Laser scanning microscopes are used in biological research to obtain high-resolution, high-contrast images of the cell or tissue.

Factors such as an increase in the adoption of laser scanning microscopes in identifying various diseases and a rise in innovations in LSCM are expected to drive the segment's growth during the forecast period. For instance, in April 2022, researchers from the Fraunhofer Research Institute stated that they had developed a new rapid technology with which doctors can determine if a tumor is fully removed from the body during cancer surgery. This technology combines a laser scanning microscope and fluorescent tumor markers with which doctors can detect any remaining cancer cells immediately after the surgery. Thus, the advantages of laser scanning microscopes in chronic disease care are expected to drive the segment's growth over the forecast period.

Several advancements are being made in laser scanning microscopes to improve accuracy. For instance, in February 2022, scientists from Durham University's Chemistry Department developed the world's first laser scanning confocal microscope that can harness circularly polarized light (CPL) to differentiate left and right-handed molecules, also known as chiral molecules. The CPL laser scanning confocal microscope (CPL-LSCM) is one of the first of its kind that can detect and track luminescent chiral molecules in cells. It has extensive potential to be used by the imaging and biomedical research community globally.

Hence, owing to the development of innovative LSCMs and the rise in the adoption of LSCMs to create detailed 3D pictures of cell organelles, the segment is expected to witness steady growth during the forecast period.

North America is Expected to Witness Significant Growth Over the Forecast Period

The North American region is expected to witness significant growth in the confocal microscopes market, mainly due to the prevalence of ophthalmic diseases and the high investments in research and development activities in North America. There is a rising prevalence of eye diseases, such as glaucoma, cataracts, macular degeneration, and diabetic retinopathy, in North America, which is anticipated to propel the market during the forecast period. For instance, according to the April 2022 report of Statistics Canada, 86% of Canadians between the ages of 45 and 85 wore glasses or contacts, and 6% had vision impairments, indicated by binocular acuity of less than 20/40. Hence, owing to the high prevalence of ophthalmic disorders in the region, the confocal microscope market is expected to grow during the forecast period.

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Also, the increasing geriatric population in the nation, prone to ophthalmic disorders, is expected to boost the growth of the market significantly. For instance, according to a report published by the Administration for Community Living (ACL) in May 2021, the geriatric population in the United States has been increasing significantly over the years, with the number of people over the age of 65 being projected to rise to 80.8 million by 2040 and to 94.7 million by 2060. Thus, the increasing elderly population, who are prone to vision impairments, is expected to boost the growth of the market studied during the forecast period. Additionally, an increase in research studies utilizing confocal microscopy in the region is expected to fuel market growth during the forecast period. For instance, in March 2022, the Memorial Sloan Kettering Cancer Center sponsored a clinical trial to evaluate the effectiveness of radiation therapy (RT) guided by the new reflectance confocal microscopy (RCM)/optical coherence tomography (OCT) device for basal cell carcinoma (BCC).

Hence, North America is expected to witness significant market growth during the forecast period due to the increase in ophthalmic complications, the rise in the geriatric population, and the adoption of confocal microscopy in research studies.

Confocal Microscope Industry Overview

The confocal microscope market is fragmented and moderately competitive. The major players have established themselves in specific segments of the market. Furthermore, companies compete in emerging regions with global and established local players. Key strategies are adopted by players to consolidate their positions in the market. Confocal.nl, Bruker Corporation, Nikon Corporation, ZEISS Group, Leica Microsystem, and Olympus Corporation are prominent global confocal microscope market players.

Additional Benefits:

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

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