

Confocal Microscope Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The global Confocal Microscope market is estimated to be USD 1,016.13 million in 2021. It is expected to reach USD 1,244.76 million by 2027, registering a CAGR of 3.51% over the forecast period of 2022 to 2027.

COVID-19 has impacted economies and industries in several countries due to lockdowns, travel bans, and business shutdowns. The COVID-19 crisis has overburdened public health systems in many countries, highlighting the critical need for long-term health system investment. However, according to the study titled "In Vivo confocal microscopy findings after COVID-19 infection," published in Ocular Immunology and Infection in August 2021, the demand for confocal microscopes was raised in COVID-19 due to conjunctivitis caused by a COVID-19 infection, the patient developed multiple unilateral subepithelial stromal opacities. As a result, the market has mixed impacts on COVID-19 on it.

A key trend driving the market growth is increased demand for confocal microscopy in diagnosing ophthalmic conditions. The market is being boosted by the increasing use of confocal microscopes in life sciences, material sciences, neurophysiology, and biology. The rising incidence of microbial keratitis is boosting demand for confocal microscopes.

According to the study titled "Confocal Microscopy and Anterior Segment Optical Coherence Tomography Imaging of the Ocular Surface and Bleb Morphology in Medically and Surgically Treated Glaucoma Patients: A Review" 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 noninvasive microstructural information of the ocular surface and adnexa at the cellular level, with a resolution comparable to histologic methods. Thus, the confocal microscope is extensively used in diagnosing ocular diseases, raising the demand for confocal microscopy to drive market growth.

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Furthermore, in biology, life science, material science, neuroanatomy, and neurophysiology, confocal microscope adoption is increasing, which is expected to drive the market for confocal microscopes over the forecast period. As per the study titled "Modeling stem cell nucleus mechanics using confocal microscopy" published in the Biomechanics and Modelling Mechanobiology in December 2021, Confocal images are a great tool for identifying the contribution of 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 drives the market's growth.

In addition, the rising incidence of microbial keratitis is boosting the demand for confocal microscopes. According to the study titled "The epidemiology of infectious keratitis," published in The Ocular Surfaces in August 2021, fungal keratitis has over 1 million fungal infections worldwide each year, with Asia having the highest caseload. The overall annual incidence rate is 23.6 cases per 100,000 people. Thus, all factors mentioned above are anticipated to drive the market over the forecast period. However, costs associated with the microscope and the lack of trained professionals may restrain the market over the forecast period.

Confocal Microscope Market Trends

Laser Scanning Microscopes Segment is Expected to Dominate the Market Over the Forecast Period

As the name implies, 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 x and y directions of a single field of view and then moved incrementally across the entire sample to produce an image of the optical section or slice.

Major companies manufacturing Laser Scanning Microscopes include Leica microsystems, Nikon Corporation, Olympus Corporation, Carl Zeiss AG, Thorlabs, Brucker, and Asylum. Laser Scanning Microscopes are used in biological research to obtain high-resolution, high-contrast images of the cell or tissue. Olympus Corporation has successful products, i.e., laser scanning microscopes that include FV3000 and FVMPE-RS.

In April 2022, researchers from Fraunhofer Research Institute stated that they had developed a new rapid technology in which doctors can determine if the tumor is fully removed from the body or not during cancer surgery. This technology combines a laser scanning microscope and fluorescent tumor markers in which doctors can detect any remaining cancer cells immediately after the surgery. Cancer is one of the major burdens across the globe, advantages of laser scanning microscopes in this area are expected to grow for information about the successful removal of the tumor.

Several advancements are being made in the laser scanning microscope to improve the results' accuracy. For instance, Tohoku University and Osaka University researchers have developed a technique through which a rapid 3D image is taken without moving the observation plane, which is typically necessary for conventional laser-scanning microscopes. Hence, it is evident that laser scanning microscopes are commonly used. Hence, owing to the abovementioned factors, the segment is believed to witness steady growth over the forecast period.

North America is Expected to Dominate the Confocal Microscope Market Over the Forecast Period.

North America holds a major share in the confocal microscopes market and is expected to show a similar trend over the forecast period mainly due to the prevalence of ophthalmic diseases and the huge investment in the research and development activities in North America; the United States will hold the largest market in the microscopy device market in the region. There has been a rising prevalence of eye diseases, such as glaucoma, cataract, macular degeneration, and diabetic retinopathy, which is anticipated to propel the market over 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, which are indicated

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by binocular acuity of less than 20/40. Similarly, according to the June 2020 update of the Centres for Diseases Control and Prevention, in the United States, 12 million persons aged 40 and older have vision impairment, of which 1 million are blind, 3 million have it after having their vision corrected, and 8 million have it because of uncorrected refractive error. Hence, owing to the high prevalence of ophthalmic disorders in the region, the confocal microscope market is expected to grow over the forecast period.

As per the Congressional Research Service report of January 2020, the United States spent USD 580 billion on other research and development activities, of which USD 21.1 billion was spent on higher education. As a result of the key market players' increased research and development activity to bring technologically advanced products to market, demand for advanced confocal microscopes is expected to rise over the forecast period. Additionally, a few of the key market players in the country are developing novel products and technologies to compete with the existing products, while others are acquiring and partnering with other companies trending in the market. For instance, in April 2021, Nikon Corporation (Nikon) released the AX and AX R series of next-generation confocal microscopes. This new confocal series has a redesigned scan head with 8K x 8K resolution and ultra-high speed resonant scanning. Thus, all the above-mentioned factors are expected to boost the market growth in the region over the forecast period.

Confocal Microscope Market Competitor Analysis

The confocal microscope market is fragmented and moderately competitive. The major players have established themselves in specific segments of the market. Furthermore, the companies compete in emerging regions with global and established local players. However, key strategies are adopted by key 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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