

Lab-On-A-Chip and Microarrays (Biochip) Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The lab on a chip and microarrays (biochip) market is projected to register a CAGR of 13.96% during the forecast period of 2022-2027.

With the outbreak of COVID-19, the market is expected to have a net positive impact on the lab-on-a-chip and microarray market. The global pandemic increased the focus on the development of less time-consuming diagnostic kits. This has resulted in the increased use of lab-on-a-chip and microarray techniques in pharmaceutical R&D, which is likely to have a positive effect on the market.

In February 2020, a Singapore-based molecular diagnostics manufacturer, Veredus Laboratories, announced the commercial availability of its portable lab-on-chip diagnostic tool for the detection and differentiation 2019-nCoV, SARS-CoV, and MERS-CoV. This diagnostic test, called the VereCoV Detection Kit, combines both PCR and microarray technologies, giving high specificity, sensitivity, and a two-hour turnaround time for the result.

Most market players are focusing on the development of new and technologically advanced diagnostic tests. The major factors driving the overall market are the increasing demand for point-of-care testing, increasing incidences of chronic diseases, and increasing application of proteomics and genomics in cancer research.

Chronic diseases are the leading cause of death and disability across the globe. According to the World Health Organization (WHO), the prevalence of chronic disease is expected to rise by 57% by 2020, and 60% of this burden is expected to occur in emerging markets. Globally, chronic diseases (CDs) are found to be the leading causes of disability and morbidity. Since those diseases are chronic in nature, accurate and timely clinical decision-making is required. In this direction, research toward

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developing new lab-on-a-chip-based POC systems for the diagnosis of chronic diseases is also an emerging area.

Biochips are increasingly being used in the field of biomedical and biotechnological research. With the advancement of technologies, there has been a rise in the adoption of biochips in proteomics, such as microarrays. The advantages of protein biochips are the low sample consumption and their inclination toward miniaturization. These characteristics of microarrays are important for proteome-wide analysis. Proteomics is being widely adopted for biomarker and drug discoveries.

Moreover, there is a rise in the demand for personalized medicine, which is contributing to the growth of the market. Other factors, such as the increasing use of biochips in cancer treatment and diagnostics, demand for personalized medicine, and rapid technological advances in biochip technology are also driving the lab-on-a-chip and microarrays (biochip) market.

Lab-on-a-chip & Microarrays Market Trends

Lab-on-a-chip Segment Expected to Witness Growth

The lab-on-a-chip segment is expected to have positive market growth due to the increasing global population and rising technological advancements. There is also a rise in the adoption of personalized medicine and easy accessibility of lab-on-chip technology, which will boost the demand for the same across the globe.

With the increasing COVID-19 cases, there is a growing number of research studies to treat and prevent this disease. This has boosted the demand for labs-on-a-chip. For instance, researchers at the University of Alberta joined forces to develop a handheld LOC device for the rapid detection of COVID-19 antibodies. Also, a low-cost imaging platform utilizing the lab-on-a-chip technology created by the University of California by Irvine scientists may be available for rapid coronavirus diagnostic and antibody testing.

The lab-on-a-chip concept targets miniaturizing laboratory procedures to allow automation and parallelization through microfluidic chips, which are capable of handling minute sample volumes. These devices save a lot of time, and reagents, as samples, are analyzed where they are generated.

There are also various applications of LOC that are growing rapidly. Lab-on-a-chip devices equipped with electrodes for particle or cell detection, particle packing, sorting, electrophoresis, PCR, etc., are commercially available. Lab-on-a-chip devices are also excellent tools for cell research, such as cell sorting and cell growth, and fields, such as artificial disease models and toxicity studies. Some of the major applications of LOC include diagnosis of infectious disease, handheld diagnostics, and detection of analytes.

Furthermore, the market has witnessed frequent developments in lab-on-a-chip (LOC) platform-based immunoassays. Such advanced LOC platforms include microfluidic chips, paper, lateral flow, electrochemistry, and new biosensor concepts. The rapid increase in demand for point-of-care diagnosis is the most prominent driver expected to propel the segment during the forecast period.

North America Expected to Dominate the Market

The US lab-on-a-chip and microarrays (biochip) market holds a large market share in North America due to the presence of a high-quality healthcare system in the country.

With the pandemic, there is a huge need for rapid testing kits in the market for COVID-19 detection, which is expected to supplement the growth of the market in the United States.

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The field of point-of-care (POC) diagnostics also widely uses microfluidic technology for various applications, like molecular diagnostics, infectious diseases, and chronic diseases, in resource-limited settings. Therefore the latest advances in the research in microfluidics aim to produce integrated devices, which are self-contained, automated, easy to use, and rapid.

Over the last few years, the interest in high throughput screening (HTS) technologies within academic research has increased drastically in the United States. In the country, a comprehensive database of academic screening centers, hosted by the Society for Biomolecular Sciences, is available. This database not only provides HTS resources to the academic community, but also helps in the identification of both probes and leads for drug discovery. Therefore, with the rising interest in HTS, it is expected that lab-on-a-chip (LOC) technology will be widely used in the country, as LOC has applications in high throughput screening.

The aforementioned factors are expected to propel the market studied in North America.

Lab-on-a-chip & Microarrays Market Competitor Analysis

The Lab-on-a-chip and Microarrays (Biochip) market is moderately competitive, with the presence of many global players. Some of the largest market players are Abbott Laboratories, Agilent Technologies, Bio-Rad Laboratories Inc., GE Healthcare, Roche Holding AG, Fluidigm Corporation, and Thermo Fisher Scientific. In order to enhance their presence, these companies are involved in strategic collaborations, and mergers and acquisitions. The report covers the key strategic developments of these companies.

Additional Benefits:

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

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