Lab Automation In Drug Discovery Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

Lab automation in the drug discovery market is expected to register a CAGR of 5% during the forecast period. Drug discovery organizations have been investing massive amounts in R&D activities to develop new technologies that are expected to enhance their products. These companies invest in proteomics, drug testing, high-throughput screening, and combinational chemistry to develop an environment-friendly biotechnology reagent. Hence, such developments are expected to contribute to the growth of the market over the forecast period.

Key Highlights
Laboratory automation transformed drug discovery over the years, primarily through two major influential factors, such as error reduction and cost-benefit. Additionally, automation transformed the traditional drug discovery process by making it feasible to identify many targets through the biotechnology revolution and numerous combinatorial technologies, which fueled compound collection. Additionally, drug research companies require complete solutions, dedicated customer care, and realizing their value for huge investments. Furthermore, research laboratories expect maximum software flexibility, so they can configure it themselves.
Vendors in the market ecosystem focus on organic and inorganic growth strategies to stay competitive. For example, Agilent Technologies has developed Seahorse XF HS Mini Analyzer, the newest addition to the Seahorse XF platform that delivers the best in Seahorse XF data quality, workflow, and user experience.
The United States has been a pioneer in clinical research for years. This country is home to some major pharmaceutical companies, like Pfizer, Novartis, GlaxoSmithKline, J&J, and Novartis. The country also has the highest contract research organizations (CROs) concentration. Some of the major CROs in the country are Laboratory Corp. of America Holdings, IQVIA, Syneos Health, and Parexel International Corp. Owing to the presence of all the major players in the industry and stringent FDA regulations, the market is very competitive in the country. Companies in the country are increasingly adopting robotics and

automation in labs to gain an advantage over competitors.
Furthermore, the journey in drug discovery laboratories has inclined to focus on speed and accuracy. Therefore, automation of biological assays is becoming the primary factor for HTS as the labs are mainly required to screen a large number of compounds, approximately 1-3 million.
The pandemic positively impacted the need for lab automation in drug discovery laboratories. The spread of COVID-19 and SARS-COV-2 increased the pressure on drug manufacturers to develop vaccines at the earliest to combat the spread of the virus across the world. Therefore, the production contracts with major COVID vaccine players increased for players including Moderna, Johnson & Johnson, & AstraZeneca, and Catalent. Thus, driving the demand for lab automation across vaccine drug manufacturers.

Lab Automation in Drug Discovery Market Trends

Automated Liquid Handlers are Expected to Account for the Largest Market Share

Liquid handlers are usually employed in biochemical and chemical laboratories. The need for high throughput screening in the drug discovery sector is increasing and is driving the demand for liquid handlers. However, miniaturization is becoming one of the main factors in drug discovery as the lab space is one of the most accountable factors for laboratories globally.
The cost per square foot for laboratories is rising in major technology hubs. Researchers and scientists are focusing on instrumentation that takes a smaller amount of space and provides optimal performance. One such example of the miniaturized liquid handler is the flexi liquid handling platform is designed to combine with multiple systems, such as the robotic arm, stackers, and multiple systems, among others.
Therefore, such platforms are increasing cost savings as there is an increased reduction in reagent volumes used in high throughput screening. Furthermore, the availability of reagent volumes in drug discovery is limited, and the automated liquid handlers are helping end users in large-scale screening with lower volumes of reagents.
Vendors in the market have been introducing new automated liquid handlers to meet the requirements of modern laboratories established for drug discoveries. For instance, in February 2022, SPT Labtech announced the launch of their apricot DC1 platform, which serves 4-in-1 automated liquid handling specifications. The platform incorporates four separate pipetting tools in a single benchtop unit to enable dual-core pipetting technology for low-volume, high-volume, single, and multichannel pipetting used during drug discoveries.
Furthermore, apart from miniaturization, automated liquid handlers are being proven to improve lab standardization by automating sample tracking and Laboratory Information Management Systems integrations. In addition, the liquid handlers facilitate the incorporation of automated barcode scanning into every step of sample processing. Thus, it makes it easy for the users to proceed with predefined work orders and import data into their management systems without requiring manual recordings.
Moreover, the growing complexities of screening assays in drug discovery are shifting the focus of end users to incorporate speed-based performance toward system-based flexibility and data integrity. In addition, one of the significant challenges in the manual liquid handling process is the ordering and timing of reagent additions and general volumetric performance (for handling assays). Therefore, vendors in the market are designing automated liquid handlers with positive displacement dispensing technology that enables time-course reagent additions.
Furthermore, according to ClinalTrials.gov, the total number of registered clinical studies as of March 2022 is 409,300. Such increased focus on research and development is expected to drive the need for enhancing the automated liquid handlers equipment globally.

North America is Expected to Hold the Largest Market Share

North America is anticipated to register a significant share due to the United States presence, a country with significant investments in drug discovery. This country is home to some major pharmaceutical companies, like Pfizer, Novartis, GlaxoSmithKline, J&J, and Novartis.
The region also has a significant concentration of contract research organizations (CROs). Some of the major CROs in the country are Laboratory Corp. of America Holdings, IQVIA, Syneos Health, and Parexel International Corp.
Owing to all the major players in the industry and stringent FDA regulations, the market is very competitive in the country. In order to gain an advantage over competitors, companies in the country are increasingly adopting robotics and automation in labs. Some of the prominent players in the region are entering strategic partnerships, mergers, acquisitions, and strategic partnerships to boost the technology used for automation, fueling the demand for lab automation throughout the forecast period. For instance, in December 2021, Thermo Fisher Scientific completed the acquisition of clinical research services provider PPD in a deal valued at USD 17.4 billion. With the takeover, Thermo Fisher intends to provide a wide range of services across the clinical development spectrum, including scientific discovery, safety, efficacy, and healthcare outcome assessment, handling trial logistics, and the development and production of therapeutics.
The market is also witnessing growing investments in incorporating AI and machine learning technologies in drug discoveries, driving the need for lab automation in the region. For instance, Google DeepMind's AI technology developed the g DL algorithm to predict the 3D structure of proteins from primary sequences. In addition, Google also began the Innovation Lab project with Sanofi to improve drug discovery with emerging technologies.

Lab Automation in Drug Discovery Market Competitor Analysis

The market offers strong competition to the operating players, owing to the presence of some key players in the market, such as Thermo Fisher Scientific, Beckman Coulter, and Synchron Lab Automation. Their ability to innovate their offerings has allowed the players to gain a competitive advantage over their competitors. Through R&D activities, strategic partnerships, and mergers and acquisitions, these players can gain a strong foothold in the market.

February 2022 - The I.DOT HT Non-contact Dispenser and the L.DROP Liquid Handler were unveiled at SLAS 2022, according to DISPENDIX, a BICO firm. Driven by the I.DOT non-contact Dispenser's growth over the past few years, DISPENDIX made strategic R&D investments and industry partnerships to develop two innovative platforms that would work together to give scientists more comprehensive workflow solutions for genomics and drug discovery research. The I.DOT HT expands on the I.DOT's basic technology uses a 384-well source well configuration to manage chemical libraries at big pharma and more modest biotechnology firms.
March 2021 - PerkinElmer launched complete workflow solutions for detecting and screening SARS-CoV-2 RNA, including instruments, reagents, and consumables. The modular automated workstations, combined with a reliable supply of corporate consumables and reagents, can optimize the productivity of SARS-CoV-2 testing by processing up to 10,000 samples daily.

Additional Benefits:

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

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