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Japan Life Science Tools Market Assessment, By Type [Instruments, Consumables, Services], By Technology [Genomics, Proteomics, Cell Biology Technology, Lab Supplies, Others], By Product [Cell Culture Systems & 3D Cell Culture, Liquid Chromatography, Mass Spectrometry, Flow Cytometry, Cloning & Genome Engineering, Microscopy & Electron Microscopy, Next Generation Sequencing, PCR & qPCR, Nucleic Acid Preparation, Nucleic Acid Microarray, Sanger Sequencing, Transfection Device & Gene Delivery Technologies, Nuclear Magnetic Resonance, Others], By End-user [Healthcare, Government & Academic Institutions, Biopharmaceutical Company, Industrial Applications, Others], By Region, Opportunities and Forecast, FY2017-FY2031F.

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Abstracts

Japan Life Science Tools market size was valued at USD 22.45 billion in FY2023 which is expected to reach USD 35.86 billion in FY2031 with a CAGR of 6.03% for the forecast period between FY2024 and FY2031. The surge in market expansion is fueled by the growing need for diagnostic tests for infectious diseases, the escalating utilization of proteomic and genomic processes, and the increasing emphasis on individualized

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healthcare.

The increase in demand for healthcare services can be attributed to the aging population, as 28.7% of Japan's population is now over 65 years old. Additionally, the proteomic and genomic workflow segment is anticipated to experience substantial growth as these advanced technologies are being leveraged for the development of novel drugs and treatments, as well as for disease diagnosis and monitoring purposes. Another significant factor propelling the expansion of the life science tools market in Japan is the growing emphasis on personalized medicine. This emerging trend holds considerable importance and is spurring the demand for innovative tools and technologies. These tools are useful in the development of customized drugs and treatments that cater specifically to the unique requirements of each patient.

Increasing Demand of Personalized Medicine

The Japan Life Science Tool Market is witnessing a significant surge in the adoption of personalized medicine. This paradigm shift towards personalized medicine is driving transformative changes in the industry. Personalized medicine, also known as precision medicine, focuses on tailoring healthcare interventions to individual patients based on their unique genetic makeup, lifestyle, and environmental factors. The rise of personalized medicine in Japan is propelled by several factors. First, advancements in genomic sequencing technologies have made it more accessible and cost-effective to analyze an individual's genetic information. This enables healthcare providers to identify genetic variations that may impact disease susceptibility, drug response, and overall treatment outcomes. The increasing availability of data-driven approaches and artificial intelligence (AI) has paved the way for more precise diagnostics, treatment selection, and disease monitoring. AI algorithms can analyze large datasets, identify patterns, and generate insights to guide personalized treatment decisions.

On 21st March 2023, Mitsui and Nvidia announced Japan's first-ever generative AI supercomputer designed specifically for the pharmaceutical industry. Prominent pharmaceutical companies in Japan will utilize the Tokyo-1 NVIDIA DGX supercomputer to expedite the process of drug discovery. This breakthrough development holds the potential to enhance drug delivery and facilitate the advancement of personalized medicine, offering novel benefits to patients.

Technological Advancements

The market has witnessed remarkable technological advancements in recent years,

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revolutionizing the landscape of scientific research and healthcare. These advancements have played a crucial role in enhancing the accuracy, efficiency, and scope of life science tools. One notable technological advancement is the advent of high-throughput sequencing technologies, such as next-generation sequencing (NGS). NGS has enabled rapid and cost-effective sequencing of large amounts of genomic data, revolutionizing fields like genomics, transcriptomics, and personalized medicine. It has opened new possibilities for understanding genetic diseases, identifying biomarkers, and developing targeted therapies. Another significant advancement is the development of advanced imaging technologies. Techniques like super-resolution microscopy, multiphoton microscopy, and high-content imaging have enabled scientists to observe cellular processes at unprecedented resolutions. These tools have facilitated breakthroughs in areas like neuroscience, drug discovery, and cell biology, allowing researchers to gain deeper insights into complex biological systems.

For instance, QIAGEN introduced QIAstat-Dx in the Japanese market, featuring a respiratory panel designed for syndromic testing. QIAstat-Dx offers a simplified operational experience with reduced labor requirements compared to traditional individual PCR assays for each pathogen. It serves as a valuable aid to healthcare professionals in the fields of respiratory medicine, pediatrics, and emergency medicine. The system is specifically designed for laboratory use and utilizes cost-effective, single-use cartridges that contain all necessary reagents and incorporate built-in sample processing capabilities.

The PCR & qPCR Market has Experienced Substantial Growth

The PCR and qPCR have witnessed substantial growth, due to factors such as the rising prevalence of infectious diseases and advancements in healthcare infrastructure. Notably, Japan stands out among major global economies due to its significant percentage of the geriatric population. In Japan, cancer ranks as one of the leading causes of death, and the mortality rate has been increasing over the past three decades, according to the Japanese government. For instance, in 2021, Japan reported 883,395 new cancer cases, as per the World Health Organization (WHO). This has led to increased adoption of dPCR and qPCR-based assays for the detection of DNA mutations associated with various types of cancer.

In January 2021, Abbott Laboratories announced an exclusive eight-year partnership agreement with the Japanese Red Cross Society (JRC). As part of this agreement, Abbott became the sole supplier of serological instrumentation, tests, and consumables for blood and plasma screening in Japan.

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Cell Biology Technology is Witnessing Rapid Growth and Expansion

Japan has contributed to the advancement of single-cell analysis technologies, enabling researchers to study individual cells within a heterogeneous population. This includes the development of microfluidics-based devices and high-throughput single-cell RNA sequencing methods. These technologies provide valuable insights into cellular heterogeneity, cell signaling, and gene expression patterns. Japan has a long history of excellence in microscopy, and the country continues to pioneer advancements in this field. Super-resolution microscopy techniques, such as stimulated emission depletion (STED) microscopy and single-molecule localization microscopy (SMLM), have been extensively used in cell biology research in Japan. These techniques allow scientists to visualize cellular structures and processes at an unprecedented level of detail.

Japanese researchers have developed novel CRISPR-based techniques for precise genetic modifications, including base editing and epigenome editing. These advancements have opened new avenues for studying gene function and developing potential gene therapies.

Impact of COVID-19

The pandemic caused disruptions in Japan’s supply chain, including the life science tools market. Manufacturing and distribution of instruments, reagents, and other tools faced challenges due to restrictions on movement, lockdown measures, and disruptions in international trade. This led to delays in the availability of certain products and increased prices for some items. With the urgency to understand and combat the virus, many research efforts and funding were redirected towards COVID-19-related studies. While this had a positive impact in terms of understanding the virus and developing treatments and vaccines, it temporarily shifted the focus away from other areas of research in life sciences, impacting the demand for tools and technologies in those fields.

Japan invested heavily in vaccine development efforts which resulted in collaborations between academic institutions, research organizations, and pharmaceutical companies to accelerate vaccine research and development. The demand for specific tools and technologies related to vaccine development, such as viral vector systems, cell culture equipment, and analytical instruments, increased during this period.

Fujifilm and biotechnology company VLP Therapeutics Japan reached an agreement in

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October 2020 for manufacturing the Covid-19 vaccine formulation. Under this contract, Fujifilm will utilize its manufacturing facilities and lipid nanoparticle infrastructure to oversee various tasks related to VLP's Covid-19 vaccine formulations. These tasks include process development and production for clinical trials.

Key Players Landscape and Outlook

The Japan life science tools market competitive market with a mix of domestic and international players. The companies offer a wide range of instruments, equipment, and reagents for applications in areas such as genomics, proteomics, cell biology, and drug discovery. The market outlook for the Japan life science tools market is positive, driven by factors such as ongoing advancements in research and development, increasing demand for precision medicine and personalized healthcare, and the growth of regenerative medicine. The market is expected to witness further innovation and product development, with a focus on technologies that enable high-throughput analysis, automation, and integration of various omics approaches.

Merck and Synplogen , a startup that originated from Kobe University's Graduate School of Science, Technology, and Innovation, entered a memorandum of understanding (MoU) in late 2022. The purpose of this collaboration is to combine the strengths of both companies to offer efficient development, manufacturing, and testing services for viral vector gene therapies in Japan.

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