

Nucleic Acid Isolation, Quantitation, and Purification - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The Nucleic Acid Isolation, Quantitation, and Purification Market size is estimated at USD 5.11 billion in 2024, and is expected to reach USD 8.03 billion by 2029, growing at a CAGR of 9.44% during the forecast period (2024-2029).

COVID-19 significantly impacted the nucleic acid isolation, quantitation, and purification market during its initial phase owing to various factors, such as the shortage of reagents and equipment due to the surge in nucleic acid screening for COVID-19 detection. For instance, as per the article published in January 2022 in Frontiers, a total of 7,118 people received 10,377 SARS-CoV-2 nucleic acid tests in one district of Jiulongpo district of China during the pandemic. Furthermore, in October 2022 in PubMed, routine nucleic acid screening in the general population evolved into a substantial and effective prevention and control measure as a result of the increased number of asymptomatic infection cases. Numerous advanced techniques are being used in the post-pandemic setting for nucleic isolation, quantification, and separation, which is expected to increase the demand for more reagents and equipment. For instance, as per the article published in May 2022 in Springer, researchers suggested the purification of Plasmid DNA using affinity chromatography, with amino acids acting as particular ligands to rectify the challenges associated with the purification process in biopharmaceutical manufacturing. Thus, the market is anticipated to witness growth due to the rise in research activities in nucleic acid isolation, quantitation, and purification along with an increase in development in genomic research.

Factors such as an increase in demand for sequencing platforms in clinical diagnostics, a rise in genomics research, and growth in funding for research and development in molecular biology are anticipated to drive the market growth over the forecast period. For instance, in October 2022, Chennai-based start-up MagGenome introduced a new technology that makes DNA extraction easy. The procedure is simple and clear, which creates iron nanoparticles, induces them to bind to DNA, and then applies a magnetic field to extract both proteins and RNA. Furthermore, research studies focusing on nucleic acid quantitation are expected to boost

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market growth over the forecast period. For instance, as per the article published in September 2022 in the MDPI journal, accurate DNA quantification is a very important method within molecular biology and UV spectrometry and fluorometry are widely used to quantify DNA. The study demonstrated that combining a spectrophotometric and fluorometric approach is advised to provide information on a sample's purity and dsDNA content. Thus, research is likely to require more nucleic acid extraction, quantitation and isolation products, thereby driving market growth over the forecast period.

Furthermore, the technological advancements in the research associated with the isolation and purification of nucleic acid are likely to boost market growth over the forecast period. For instance, as per the article published in April 2022 in Taylor and Francis Online, the majority of commercial nucleic acid isolation kits available are silica-based. In the study, researchers focused on new methods to enhance silica-based protocols for nucleic acid purification. The study intended to highlight the current needs to be addressed by innovative purification techniques based on silica materials.

Furthermore, product launches and collaboration by the key players are anticipated to strengthen the competition in the market. For instance, in April 2022, Purigen Biosystems, Inc., a provider of next-generation technologies for extracting and purifying nucleic acids from biological samples, launched the Ionic Cells to Pure DNA Kit. The new kit was optimized to allow users of the Ionic Purification System to extract increased yields of high-quality DNA from WBCs, peripheral blood mononuclear cells (PBMCs), and cultured or sorted cells.

Hence, due to the rise in research activities, funding in the field of nucleic acid isolation, quantitation, and purification, and an increase in reagent product launches, the nucleic acid isolation, quantitation, and purification market is anticipated to witness growth over the forecast period. However, the high cost of instruments and reagents and low penetration in Emerging markets are expected to restrain the market growth over the forecast period.

Nucleic Acid Isolation & Purification Market Trends

DNA Quantitation Kits Segment is Anticipated to Witness a Growth Over the Forecast Period

The DNA quantitation kits segment is expected to witness growth in the nucleic acid isolation, quantitation, and purification market, owing to the factors such as a rise in DNA quantitation kit product launches, an increase in genomic research, and a surge in funding for research involving nucleic acid quantitation and isolations. DNA quantitation kits provide a comprehensive assessment of the quantity and quality of the isolated DNA sample. This is helpful in making the correct decisions regarding downstream processing, therefore, improving room for success with each sample. This makes DNA quantitation kits a lucrative option in forensic laboratories and labs, where high sample volume is generally low and there is minimal room for error.

Furthermore, the benefits of DNA quantitation kits include improved specificity, robust and reproducible products with a high dynamic range, low noise in the results, etc. The rise in research activities demonstrating the importance and advantages of DNA quantitation is anticipated to increase segment growth over the forecast period. For instance, as per the article published in September 2022 in ScienceDirect, the study analyzed DNA concentration measurement which resulted in the basis of markers of the Quantifiler Trio DNA Quantification Kit and Investigator Quantiplex Pro RGQ Kit. Depending on the measurement kit used, based on measuring the concentration of DNA of the short autosomal fragment, 12 out of 80 (Quantifiler Trio DNA Quantification Kit) or 11 out of 80 (Investigator Quantiplex Pro RGQ) achieved the STR amplification kit manufacturer's required amount of DNA in the reaction mixture. Hence, such studies involving DNA quantitation kits are expected to drive segment growth over the forecast period.

Moreover, research funding for the studies associated with DNA quantitation is anticipated to drive market growth over the forecast period. For instance, in November 2022, a research scholar at the University of Florida College of Medicine was awarded a USD 1.8 million grant from the National Institute of General Medical Sciences to study the repair mechanism of DNA. Additionally,

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the DNA quantitation product launches by the key players are anticipated to boost market growth over the forecast period. For instance, in July 2022, Qiagen added new biopharma products to its QIAcuity digital PCR portfolio and launched its Expert Custom Assay Design Service. Thirteen new kits and assays allow for the quantification of AAV viral titer and residual host cell DNA in cell and gene therapy. Three new QIAcuity Residual DNA Quantification Kits are available for checking the carryover of the host cell DNA.

Hence, due to the rise in product launches and increased research activities, the DNA quantitation kit segment is anticipated to witness growth in the nucleic acid isolation, quantitation, and purification market over the forecast period.

North America Anticipated to Hold a Significant Share in the Market Over the Forecast Period

North America is expected to witness growth in the nucleic acid isolation quantitation and purification market owing to the factors such as a rise in research and development in the genomic field that requires nucleic acid isolation, quantitation, and purification procedures, an increase in demand for sequencing platforms in clinical diagnostics, and growth in funding for research and development in molecular biology. For instance, in December 2022, McMaster collaborated with partners in the field of nuclear science on a range of projects, from small modular reactor research and development to improving access to medical isotopes and advancing neutron beam science in Canada.

In addition, in May 2022, QIAGEN launched its theascreen EGFR Plus RGQ PCR Kit, a new in-vitro diagnostic test for sensitive EGFR mutation analysis, detecting all currently known activating and resistance EGFR mutations. The real-time qPCR test builds on the established theascreen EGFR RGQ PCR Kit. It provides improved detection limits, quicker turnaround times, automated sample extraction options, and automated results analysis. Such developments in nucleic acid detection and purification are anticipated to drive market growth. Furthermore, in September 2021, Beckman Coulter Life Sciences launched the EMnetik System to semi-automate workflows while reducing the time required for a PCR cleanup. Built using electromagnets, EMnetik 24 and the accompanying EMnetik PCR Cleanup Kit and EMnetik Plasmid Purification Kit use magnetic bead-based technology to clean nucleic acids in a stationary device. The benchtop instrument can run 1-24 samples at a time. The streamlined cleanup process and semi-automation also helped eliminate potential errors.

Thus, due to the rise in research and development in the genomic field that requires nucleic acid isolation, quantitation, and purification procedures, along with the surge in product launches, North America is anticipated to witness a growth in the nucleic acid isolation and purification market over the forecast period.

Nucleic Acid Isolation & Purification Industry Overview

The nucleic acid isolation quantitation and purification market is consolidated in nature due to the presence of major companies operating globally as well as regionally. The competitive landscape includes an analysis of a few international and local companies with significant market shares. Major players include Bio-Rad Laboratories Inc., Thermo Fisher Scientific, Inc., Merck KGaA, F. Hoffmann-La Roche AG, and Agilent Technologies, among others.

Additional Benefits:

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

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