

## **Oligonucleotide Synthesis Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)**

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### **Report description:**

The oligonucleotide synthesis market is expected to register a CAGR of 12.3% over the forecast period.

COVID-19 has impacted the growth of the oligonucleotide synthesis market. The increased demand for COVID-19 diagnostics has, in turn, increased the global demand for oligonucleotide raw materials that form the basis of molecular diagnostic products. In a study published in PLOS One in March 2022, it was observed that the oligonucleotides successfully targetted 5'-polyUs in the coronavirus genome. Also, developing therapeutic COVID-19 medicines employing essential mutational targets, such as the 5'-polyU tract, can lessen the production and spread of new SARS-CoV-2. Such research studies have impacted the demand and adoption for oligonucleotides in drug development, affecting the market growth during a pandemic.

Moreover, various companies are investing in oligonucleotide synthesis, which is expected to increase market growth over the forecast period. For instance, in September 2021, SpeeDx invested in local oligonucleotide manufacturing to reduce supply chain risk and develop a more vital sovereign capacity for critical diagnostics. Such developments are expected to increase the adoption of oligonucleotides in drug development which is anticipated to fuel the market growth over the forecast period.

Other significant factors include the increasing government investments and R&D expenditure in pharmaceutical and biotechnology companies and the use of synthesized oligonucleotides in molecular diagnostics and clinical applications.

There are growing government initiatives for raising funds to develop various genome projects to develop advanced therapeutics to treat multiple chronic and rare diseases. This is expected to increase the demand for oligonucleotides for drug development, boosting the market growth. For instance, in September 2022, the National Institutes of Health invested more than USD 600 million to launch the next stage of its human genome project for the brain. This funding helps to devise new ways to target

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therapeutics and other molecules to specific brain cell populations.

Additionally, the rising company and government initiatives to boost the development of oligonucleotide-based drug products and the adoption of oligonucleotide technology in the pharmaceutical and biotechnology industry are also expected to increase market growth. For instance, in February 2021, CPI launched a project in the Medicines Manufacturing Innovation Centre to revolutionize the manufacture of oligonucleotides. The Medicines Manufacturing Innovation Centre launched a collaboration with AstraZeneca, Exactmer, Novartis, and UK Research and Innovation to develop a scalable, sustainable, and more cost-effective medicines manufacturing process for oligonucleotides: short strands of synthetic DNA or RNA. This development enhances the production capacity and viability of this exciting new class of medicines and is expected to increase market growth over the forecast period.

Furthermore, the increasing adoption of oligonucleotides in molecular diagnostics and clinical applications contributes to market growth. For instance, in February 2022, researchers at the University of Illinois Urbana developed a new miRNA point-of-care test for cancer detection. The test uses nanoparticles to capture tumor-specific microRNAs (miRNAs) in human serum. In January 2021, Diagenode launched a new small RNA-sequencing solution, D-Plex Small RNA DNBSEQ Kit, compatible with MGI's DNBSEQ sequencers. The kit incorporates unique D-Plex technology for library preparation enabling high performance with ultralow RNA inputs and providing diverse small RNA transcript detection.

Therefore, the studied market is expected to grow over the forecast period owing to the increasing research and development initiatives and the establishment of the facilities. However, the high treatment cost of oligonucleotides and the lack of skilled professionals and research support in undeveloped countries are expected to hinder the growth of the oligonucleotide synthesis market over the forecast period.

#### Oligonucleotide Synthesis Market Trends

##### Therapeutic Segment Expected to Register a High CAGR

The therapeutics segment is expected to witness significant growth in the oligonucleotide synthesis market over the forecast period owing to factors such as the increasing prevalence of chronic and rare diseases, along with the growing adoption of oligonucleotides in drug development and rising product launches.

Oligonucleotide therapeutics are classified as therapeutics that use antisense oligonucleotides or small interfering RNAs (siRNAs) to target RNA or protein. Oligonucleotide therapies include decoys that prevent transcription by concentrating on transcription factors, regulate the expression of complementary microRNA (miRNA) to specific mRNAs, and limit the translation of certain proteins from mRNA. For instance, as per an article published in Future Medicine in February 2022, oligonucleotide therapeutics is one of the most adaptable platforms for creating medications for rare diseases.

The growing company's focus on adopting various business strategies, such as collaborations, financing, and others, is also contributing to the market growth. For instance, in January 2022, Ceptur Therapeutics, Inc. successfully acquired USD 75 million in a Series-A financing round led by venBio Partners and Qiming Venture Partners USA to advance RNA therapeutics based on proprietary U1 adaptor technology, a bivalent oligonucleotide that engages sequence-specific mRNA and U1 small nuclear ribonuclear protein. The U1 small nuclear ribonuclear protein is a ubiquitous intracellular machine that regulates transcription and splicing. Utilizing synthetic oligonucleotides that interact with U1 snRNP offers the ability to co-opt the key transcriptome regulator to regulate mRNA in a highly targeted manner.

Furthermore, increasing product launches and approvals are expected to increase the demand for oligonucleotide drugs, propelling the market growth. For instance, in February 2021, the USFDA approved an Amondys 45 (casimersen) injection to treat

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Duchenne muscular dystrophy (DMD) in patients with a confirmed mutation of the DMD gene.

Moreover, various companies are developing oligonucleotide therapeutics, which are expected to increase their adoption in the pharmaceutical and biotechnology industry, bolstering the market growth. For instance, as per [clinicaltrials.gov](https://clinicaltrials.gov), as of July 2022, TME Therapeutics is developing STNM01, which is being evaluated in a Phase-I clinical study to treat unresectable pancreatic cancer. Also, Nitto Biopharma is developing ND-L02-s0201 under a Phase-II study and is being assessed for idiopathic pulmonary fibrosis (IPF).

Therefore, owing to the factors such as the increasing company activities in adopting various business strategies for developing oligonucleotide-based drugs and rising product launches, the studied segment is anticipated to witness growth over the forecast period.

#### North America Expected to Occupy a Significant Share in the Studied Market

North America is expected to dominate the market over the forecast period. The factors attributing to the market growth are the rising prevalence of chronic and rare diseases among the population, increasing R&D expenditure by the companies, and the presence of key market players in the region.

According to the Cancer Facts and Figures 2022, over 1.9 million new cancer cases are expected to be diagnosed in the United States in 2022. Also, as per 2022 statistics published by [Breastcancer.org](https://www.breastcancer.org), an estimated 287,850 new cases of invasive breast cancer and 51,400 new cases of non-invasive (in situ) breast cancer are expected to be diagnosed in the United States in 2022. The growing burden of cancer among the population raises the need for advanced therapeutics, boosting the demand for oligonucleotide therapeutics and propelling the market growth.

As per the 2022 statistics published by IDF, about 2.9 million people were living with diabetes in Canada in 2021. This number is projected to reach 3.2 million and 3.4 million by 2030 and 2045, respectively. Thus, the expected increase in the diabetic population in the country raises the demand for antisense oligonucleotides in developing antidiabetic agents, as they can reduce the expression of disease-causing genes at the RNA and protein levels. This is anticipated to boost the market growth over the forecast period,

The increasing development of drugs and rising regional product launches are anticipated to fuel market growth. For instance, in January 2022, the USFDA approved inclusion injection (Leqvio), an innovative small inclisiran RNA medicine, to be used with diet and statin therapy in adults with heterozygous familial hypercholesterolemia (HeFH) or clinical atherosclerotic cardiovascular disease (ASCVD) who require additional lowering of low-density lipoprotein cholesterol (LDL-C).

Furthermore, as per [clinicaltrials.gov](https://clinicaltrials.gov), as of July 2022, TME Pharma Agis is conducting a Phase II clinical study of Olaptosed Pegol (NOX-A12) combined with pembrolizumab and nanoliposomal irinotecan/5-FU/leucovorin or gemcitabine/nab-paclitaxel in microsatellite-stable metastatic pancreatic cancer patients.

Moreover, the increasing investment by the companies to boost the production of oligonucleotide drugs and facility expansion is contributing to the market growth. For instance, in March 2021, Nitto Denko Corporation revealed its plan to invest about JPY 25 billion (USD 227 million) in its United States-based subsidiary, Nitto Denko Avecia Inc., and other businesses to increase the manufacturing capacity of its therapeutic oligonucleotide business.

Therefore, owing to the factors such as the rising burden of cancer, rising product launches and approvals, growing company activities in conducting clinical trials as well, and increasing company focus on investing in oligonucleotides business are anticipated to fuel the market growth in the North America region over the forecast period.

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## Oligonucleotide Synthesis Market Competitor Analysis

The market is fragmented with the presence of a large number of players adopting various strategies, such as the acquisition of players in emerging markets, distribution partnerships, and collaboration for the development of novel technologies. The companies operating in the oligonucleotide synthesis industry are also expanding and developing their product portfolios, which helps drive the overall market and makes it fairly competitive. Some of the companies which are currently dominating the market are Agilent Technologies, Thermo Fisher Scientific, Merck KGaA, Danaher Corporation, Bio-Synthesis Inc., Eurofins Scientific, Kaneka Corporation (Eurogentec), GenScript, and LGC Limited (LGC Biosearch Technologies).

Additional Benefits:

- <ul> <li> The market estimate (ME) sheet in Excel format </li>

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