

U.S. Oligonucleotide Synthesis Market Size, Share & Trends Analysis Report By Product & Service (Oligonucleotides, Equipment/Synthesizer), By Application (PCR Primers, Sequencing), By End-use, And Segment Forecasts, 2024 - 2030

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Abstracts

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U.S. Oligonucleotide Synthesis Market Growth & Trends

The U.S. oligonucleotide synthesis market size is anticipated to reach USD 3.09 billion by 2030 and is projected to grow at a CAGR of 12.80% from 2024 to 2030, according to a new report by Grand View Research, Inc. The rising demand for molecular diagnostics, emerging novel applications, and growing demand for oligonucleotide therapeutics owing to the emerging potential for incurable indications such as cardiovascular diseases, retinal disorders, and cancer are anticipated to increase the demand for oligonucleotide synthesis over the forecast period.

The COVID-19 pandemic has had a positive impact on the U.S. oligonucleotide synthesis industry. During the pandemic, however, the demand for oligonucleotide synthesis grew as pharmaceutical companies and healthcare professionals focused on identifying more efficient usage of oligonucleotides and their application to limit the spread of COVID-19. For instance, the Innovative Genomic Institute stated in 2020 that it was developing an aerosolized, locked nucleic acid modifying antisense oligonucleotide that can be breathed or nebulized to treat COVID-19 infection. Such advances piqued the interest of healthcare providers. Hence, the pandemic has had a favorable impact on the U.S. market.

Moreover, companies have increased investments to develop oligonucleotide-based therapeutics. For instance, in October 2023, GSK plc and Arrowhead Pharmaceuticals announced a contract with Janssen Pharmaceuticals, Inc. (Janssen), a Johnson & Johnson company, to assign GSK the exclusive worldwide rights to develop and commercialize JNJ-3989. Janssen initially in-licensed JNJ-3989 (previously ARO-HBV) from Arrowhead in 2018. Similar initiatives by well-established pharmaceutical companies are anticipated to drive market growth over the forecast period.

However, oligonucleotide synthesis encounters challenges and problems in practical applications, even with high-potential applications. One of the most critical parameters to get a high yield from synthesis is monitoring its coupling efficiency. Even the slightest rate of failure in average coupling causes dramatic effects in long sequences. A minor change in average coupling failure leads to a substantial net effect. Thus, real-time monitoring of each custom synthesis becomes essential for every platform and, thereby, is anticipated to hamper the growth of the market to a certain extent.

U.S. Oligonucleotide Synthesis Market Report Highlights

Services dominated the product & service segment with the largest revenue share of 37.34% in 2023. This is attributed to the growing demand for specialized services. As the complexity of genomic research and therapeutic applications increases, researchers & companies are turning to outsourcing for the synthesis, purification, and customization of oligonucleotide sequences. On the other hand, oligonucleotide are expected to grow at the fastest rate over the forecast period.

The PCR primers held the largest market share in 2023 for the application segment. Unique PCR primer allows labs to detect tiny quantities of DNA or RNA from pathogens, assisting in the identification of infectious diseases, including viral, bacterial, and parasitic infections. On the other hand, sequencing is expected to grow at the fastest rate over the forecast period.

Based on end use, academic research institutes dominated the segment with the largest revenue share of 43.16% in 2023. This is attributed to the increasing number of clinical studies, which are being conducted in academic institutes and the growing funding for research activities. On the other hand, pharmaceutical & biotechnology companies are anticipated to grow at the fastest CAGR over the forecast period.

Contents

CHAPTER 1. METHODOLOGY AND SCOPE

- 1.1. Market Segmentation and Scope
- 1.2. Market Definitions
 - 1.2.1. Product & Service
 - 1.2.2. Application
 - 1.2.3. End-use
- 1.3. Information analysis
- 1.4. Market formulation & data visualization
- 1.5. Data validation & publishing
- 1.6. Information Procurement
 - 1.6.1. Primary Research
- 1.7. Information or Data Analysis
- 1.8. Market Formulation & Validation
- 1.9. Market Model
- 1.10. Objectives

CHAPTER 2. EXECUTIVE SUMMARY

- 2.1. Market Outlook
- 2.2. Segment Snapshot
- 2.3. Competitive Landscape Snapshot

CHAPTER 3. MARKET VARIABLES, TRENDS, & SCOPE

- 3.1. Market Lineage Outlook
 - 3.1.1. Parent Market Outlook
 - 3.1.2. Related/Ancillary Market Outlook
- 3.2. Market Dynamics
 - 3.2.1. Market Driver Analysis
 - 3.2.1.1. Strong pipeline of oligonucleotide therapeutics in clinical trials
 - 3.2.1.2. High R&D spending of pharmaceutical & biotechnology companies
 - 3.2.1.3. Technological advancements in gene editing technologies
 - 3.2.2. Market Restraint Analysis
 - 3.2.2.1. Need for advanced oligo synthesis solutions
 - 3.2.2.2. High cost associated with genomics research
- 3.3. Industry Analysis Tools

- 3.3.1. Porter's Five Forces Analysis
- 3.3.2. PESTEL Analysis
- 3.3.3. COVID-19 Impact Analysis

CHAPTER 4. U.S. OLIGONUCLEOTIDE SYNTHESIS MARKET: PRODUCT & SERVICE BUSINESS ANALYSIS

- 4.1. Segment Dashboard
- 4.2. U.S. Oligonucleotide Synthesis Market Product & Service Movement Analysis
- 4.3. U.S. Oligonucleotide Synthesis Market Size & Trend Analysis, by Product & Service, 2018 to 2030 (USD Million)
- 4.4. Oligonucleotides
 - 4.4.1. Oligonucleotides market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.1. DNA
 - 4.4.1.1.1. DNA market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.1.2. Column-based
 - 4.4.1.1.2.1. Column-based market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.1.3. Array-based
 - 4.4.1.1.3.1. Array-based market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.2. RNA
 - 4.4.1.2.1. RNA market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.2.2. By Technology
 - 4.4.1.2.2.1. Column-based
 - 4.4.1.2.2.1.1. Column-based market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.2.2.2. Array-based
 - 4.4.1.2.2.2.1. Array-based market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.2.3. By Type
 - 4.4.1.2.3.1. Short RNA Oligos (65 nt) market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.4.1.2.3.3. CRISPR (sgRNA)
 - 4.4.1.2.3.3.1. CRISPR (sgRNA) market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.5. Equipment/Synthesizer
 - 4.5.1. Equipment/synthesizer market estimates and forecast, 2018 - 2030 (USD Million)
 - 4.6. Reagents

4.6.1. Reagents market estimates and forecast, 2018 - 2030 (USD Million)

4.7. Services

4.7.1. Services market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2. DNA

4.7.2.1. DNA market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.2. Custom Oligo Synthesis Services

4.7.2.2.1. 25 nmol

4.7.2.2.1.1. 25 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.2.2. 50 nmol

4.7.2.2.2.1. 50 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.2.3. 200 nmol

4.7.2.2.3.1. 200 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.2.4. 1000 nmol

4.7.2.2.4.1. 1000 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.2.5. 10000 nmol

4.7.2.2.5.1. 10000 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.3. Modification Services

4.7.2.3.1. Modification services market estimates and forecast, 2018 - 2030 (USD Million)

4.7.2.4. Purification Services

4.7.2.4.1. Purification services market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3. RNA

4.7.3.1. RNA market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.2. Custom Oligo Synthesis Services

4.7.3.2.1. 25 nmol

4.7.3.2.1.1. 25 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.2.2. 100 nmol

4.7.3.2.2.1. 100 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.2.3. 1000 nmol

4.7.3.2.3.1. 1000 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.2.4. 10000 nmol

4.7.3.2.4.1. 10000 nmol market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.3. Modification Services

4.7.3.3.1. Modification services market estimates and forecast, 2018 - 2030 (USD Million)

4.7.3.4. Purification Services

4.7.3.4.1. Purification services market estimates and forecast, 2018 - 2030 (USD Million)

CHAPTER 5. U.S. OLIGONUCLEOTIDE SYNTHESIS MARKET: APPLICATION BUSINESS ANALYSIS

5.1. Segment Dashboard

5.2. U.S. Oligonucleotide Synthesis Market Application Movement Analysis

5.3. U.S. Oligonucleotide Synthesis Market Size & Trend Analysis, by Application, 2018 to 2030 (USD Million)

5.4. PCR Primer

5.4.1. PCR primer market estimates and forecast, 2018 - 2030 (USD Million)

5.5. PCR Assay & Panel

5.5.1. PCR assay & panel market estimates and forecast, 2018 - 2030 (USD Million)

5.6. Sequencing

5.6.1. Sequencing market estimates and forecast, 2018 - 2030 (USD Million)

5.7. DNA Microarrays

5.7.1. DNA microarrays market estimates and forecast, 2018 - 2030 (USD Million)

5.8. Fluorescence In Situ Hybridization (FISH)

5.8.1. Fluorescence in situ hybridization (FISH) market estimates and forecast, 2018 - 2030 (USD Million)

5.9. Antisense Oligonucleotides

5.9.1. Antisense oligonucleotides market estimates and forecast, 2018 - 2030 (USD Million)

5.10. Other Applications

5.10.1. Other applications market estimates and forecast, 2018 - 2030 (USD Million)

CHAPTER 6. U.S. OLIGONUCLEOTIDE SYNTHESIS MARKET: END-USE BUSINESS ANALYSIS

6.1. Segment Dashboard

6.2. U.S. Oligonucleotide Synthesis Market End-use Movement Analysis

6.3. U.S. Oligonucleotide Synthesis Market Size & Trend Analysis, by End-use, 2018 to 2030 (USD Million)

6.4. Academic Research Institutes

6.4.1. Academic research institutes market estimates and forecast, 2018 - 2030 (USD Million)

6.5. Diagnostic Laboratories

6.5.1. Diagnostic laboratories market estimates and forecast, 2018 - 2030 (USD Million)

6.6. Pharmaceutical & Biotechnology Companies

6.6.1. Pharmaceutical & biotechnology companies market estimates and forecast, 2018 - 2030 (USD Million)

CHAPTER 7. COMPETITIVE LANDSCAPE

7.1. Participant Categorization

7.2. Strategy Mapping

7.3. Company Market Position Analysis, 2023

7.4. Participant's Overview

7.4.1. Thermo Fisher Scientific, Inc.

7.4.1.1. Overview

7.4.1.2. Financial performance

7.4.1.3. Product & service benchmarking

7.4.1.4. Strategic initiatives

7.4.2. Merck KGaA

7.4.2.1. Overview

7.4.2.2. Financial performance

7.4.2.3. Product & service benchmarking

7.4.2.4. Strategic initiatives

7.4.3. Danaher Corporation

7.4.3.1. Overview

7.4.3.2. Financial performance

7.4.3.3. Product & service benchmarking

7.4.3.4. Strategic initiatives

7.4.4. Dharmacon Inc.

7.4.4.1. Overview

7.4.4.2. Financial performance

7.4.4.3. Product & service benchmarking

7.4.4.4. Strategic initiatives

7.4.5. Agilent Technologies

7.4.5.1. Overview

7.4.5.2. Financial performance

7.4.5.3. Product & service benchmarking

7.4.5.4. Strategic initiatives

7.4.6. Bio-synthesis

7.4.6.1. Overview

7.4.6.2. Financial performance

7.4.6.3. Product & service benchmarking

7.4.6.4. Strategic initiatives

7.4.7. LGC Biosearch Technologies

7.4.7.1. Overview

7.4.7.2. Financial performance

7.4.7.3. Product & service benchmarking

7.4.7.4. Strategic initiatives

7.4.8. Twist Bioscience

7.4.8.1. Overview

7.4.8.2. Financial performance

7.4.8.3. Product & service benchmarking

7.4.8.4. Strategic initiatives

7.4.9. TriLink BioTechnologies

7.4.9.1. Overview

7.4.9.2. Financial performance

7.4.9.3. Product & service benchmarking

7.4.9.4. Strategic initiatives

7.4.10. Genscript

7.4.10.1. Overview

7.4.10.2. Financial performance

7.4.10.3. Product & service benchmarking

7.4.10.4. Strategic initiatives

List Of Tables

LIST OF TABLES

Table 1 List of secondary sources

Table 2 List of abbreviations

Table 3 U.S. oligonucleotide synthesis market, by product & service, 2018 - 2030 (USD Million)

Table 4 U.S. oligonucleotide synthesis market, by application, 2018 - 2030 (USD Million)

Table 5 U.S. oligonucleotide synthesis market, by end-use, 2018 - 2030 (USD Million)

Table 6 Participant's overview

Table 7 Financial performance

Table 8 Key companies undergoing expansions

Table 9 Key companies undergoing acquisitions

Table 10 Key companies undergoing collaborations

Table 11 Key companies launching new products/services

Table 12 Key companies undertaking other strategies

List Of Figures

LIST OF FIGURES

- Fig. 1 U.S. oligonucleotide synthesis market segmentation
- Fig. 2 Market research process
- Fig. 3 Data triangulation techniques
- Fig. 4 Primary research pattern
- Fig. 5 Market research approaches
- Fig. 6 Value-chain-based sizing & forecasting
- Fig. 7 QFD modeling for market share assessment
- Fig. 8 Market formulation & validation
- Fig. 9 Market outlook
- Fig. 10 Segment snapshot
- Fig. 11 Competitive landscape snapshot
- Fig. 12 Parent market outlook
- Fig. 13 U.S. oligonucleotide synthesis market driver analysis
- Fig. 14 U.S. oligonucleotide synthesis market restraint analysis
- Fig. 15 U.S. oligonucleotide synthesis market: Porter's analysis
- Fig. 16 U.S. oligonucleotide synthesis market: Product & service outlook key takeaways
- Fig. 17 U.S. oligonucleotide synthesis market: Product & service movement analysis
- Fig. 18 Oligonucleotides market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 19 DNA market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 20 Column-based market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 21 Array-based market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 22 RNA market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 23 Column-based market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 24 Array-based market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 25 Short RNA oligos (65 nt) market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 27 CRISPR (sgRNA) market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 28 Equipment/synthesizer market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 29 Reagents market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 30 Services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 31 DNA market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 32 Custom oligo synthesis services market estimates and forecast, 2018 - 2030 (USD Million)

- Fig. 33 25 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 34 50 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 35 200 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 36 1000 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 37 10000 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 38 Modification services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 39 Purification services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 40 RNA market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 41 Custom oligo synthesis services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 42 25 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 43 100 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 44 1000 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 45 10000 nmol market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 46 Modification services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 47 Purification services market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 48 U.S. oligonucleotide synthesis market: Application movement analysis
- Fig. 49 U.S. oligonucleotide synthesis market: Application outlook and key takeaways
- Fig. 50 PCR primers market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 51 PCR assays & panels market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 52 Sequencing market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 53 DNA microarrays market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 54 Fluorescence in situ hybridization (FISH) market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 55 Antisense oligonucleotides market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 56 Other applications market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 57 U.S. oligonucleotide synthesis market End-use outlook key takeaways
- Fig. 58 U.S. oligonucleotide synthesis market: End-use movement analysis
- Fig. 59 Academic research institutes market estimates and forecast, 2018 - 2030 (USD Million))
- Fig. 60 Diagnostic laboratories market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 61 Pharmaceutical & biotechnology companies market estimates and forecast, 2018 - 2030 (USD Million)
- Fig. 62 Key company categorization
- Fig. 63 Company market positioning
- Fig. 64 Market participant categorization
- Fig. 65 Strategy framework

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