

Antisense & RNAi Therapeutics - A Global Market Overview

Market Report | 2024-09-27 | 253 pages | Industry Experts

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Report description:

Antisense & RNAi Therapeutics Market Trends and Outlook

Antisense and RNA interference (RNAi) therapeutics are novel approaches to inhibit gene expression to treat diseases. Antisense therapy utilizes synthetic nucleic acids called antisense oligonucleotides (ASOs) that bind to specific messenger RNA (mRNA) sequences, effectively silencing disease-associated genes. RNAi employs double-stranded RNA (dsRNA) to produce small interfering RNA (siRNA) and microRNA (miRNA) that degrade target mRNAs, thereby preventing protein production. Both approaches are under development for conditions such as cancer, neurodegenerative disorders, cardiometabolic disorders, and ocular diseases. While they offer precise gene suppression crucial for treating chronic and rare diseases, challenges remain in delivering ASOs to specific tissues. Advances in nucleic acid technologies continue to broaden their therapeutic applications in oncology, genetic disorders, and infectious diseases.

The global market for Antisense & RNAi Therapeutics is estimated at US\$5.4 billion in 2024 and is anticipated to post a CAGR of 17.8% during the 2024-2030 analysis period and stand at a projected US\$14.4 billion by 2030.

The Antisense & RNAi therapeutics market growth is primarily driven by advancements in drug delivery technologies, like lipid nanoparticles and conjugate systems, which improve the stability and cellular uptake of RNA-based drugs. Additionally, the increasing occurrence of chronic and genetic diseases, along with the ability of these therapies to target disease-specific genes, has spurred the demand. The market is expanding further due to the increased focus on research and development in rare diseases like Amyloid Transthyretin (ATTR) amyloidosis and Spinal Muscular Atrophy (SMA). This leads to the potential for orphan drug designations and associated incentives.

Antisense & RNAi Therapeutics Regional Market Analysis

North America dominates the global Antisense & RNAi therapeutics market, with an estimated 52.6% of the market share in 2024. This dominance is driven by robust pharmaceutical and biotechnology sectors, significant investments in research and development, and the presence of major pharmaceutical companies and research institutions that enhance access to advanced treatments, supported by a robust healthcare infrastructure promoting early rare disease screening. In contrast, the Asia Pacific region is projected to register the fastest CAGR of 18.9% during the forecast period from 2024 to 2030, fueled by emerging markets such as China and India. These countries are enhancing generic drug manufacturing and promoting local biotech innovation, leading to more affordable therapies, and attracting substantial investments from global pharmaceutical firms.

Antisense & RNAi Therapeutics Market Analysis by Technology

The Antisense RNA segment is the largest market, with an estimated share of 64.1% in 2024, driven by its application in

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cardiovascular, respiratory, neurodegenerative, and genetic disorders. Its precision in regulating gene and protein expression enhances therapies and spurs ongoing research. Successful clinical trials and FDA approvals validate antisense therapies' efficacy, attracting investment and increasing demand due to the rising prevalence of these disorders. Meanwhile, the RNA Interference (RNAi) technology segment is anticipated to record the fastest CAGR of 19% during the analysis period 2024-2030, with applications in targeting cancer-related genes and treating bacterial, viral, and parasitic diseases, reflecting the technology's versatility and potential to address unmet medical needs.

Antisense & RNAi Therapeutics Market Analysis by Route of Administration

The intrathecal injections segment leads the market in 2024 with a share of 36.9%, as this method allows for effective pain management and spasticity reduction with smaller doses directly delivered to the cerebrospinal fluid. Despite being invasive, intrathecal drug delivery has a low complication rate and is widely used for chemotherapy and infection treatment post-neurosurgery. In contrast, the subcutaneous injection segment is projected to record the fastest CAGR of 19.3% from 2024 to 2030, offering a convenient and low-risk alternative to intravenous administration. This method provides flexibility in injection sites and employs smaller needles, potentially reducing patient discomfort and promoting segment growth.

Antisense & RNAi Therapeutics Market Analysis by Application

The neurodegenerative disorders segment dominates the market with an estimated share of 27.1% in 2024, primarily affecting the elderly and prompting significant biomedical research for therapeutic development. The increasing number of RNA-based techniques enhances the ability to target various disease-associated genes, making it a key focus for industry players. Conversely, the genetic disorders segment is projected to grow at the fastest CAGR of 19.3% during the forecast period 2024-2030, driven by innovations in RNA vaccines and gene therapy. The application of novel RNA editing methods in gene therapy shows promise for effectively treating genetic disorders.

Antisense & RNAi Therapeutics Market Report Scope

This global report on Antisense & RNAi Therapeutics analyzes the market based on technology, route of administration and applications. In addition to providing profiles of major companies operating in this space, the latest corporate and industrial developments have been covered to offer a clear panorama of how and where the market is progressing.

Key Metrics

Historical Period: 2021-2023

Base Year: 2023

Forecast Period: 2024-2030

Units: Value market in US\$

Companies Mentioned: 10+

Antisense & RNAi Therapeutics Market by Geographic Region

- North America (The United States, Canada, and Mexico)
- Europe (Germany, France, United Kingdom, Italy, Spain, and Rest of Europe)
- Asia-Pacific (Japan, China, India, South Korea, and Rest of Asia-Pacific)
- South America (Brazil, Argentina, and Rest of South America)
- Rest of World

Antisense & RNAi Therapeutics Market by Technology

- Antisense RNA
- RNA Interference

Antisense & RNAi Therapeutics Market by Route of Administration

- Intrathecal
- Intravenous
- Subcutaneous
- Others (Including Topical, Pulmonary, Transdermal, Oral, and Ophthalmic Administration)

Antisense & RNAi Therapeutics Market by Application

- Neurodegenerative Disorders
- Oncology

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- Cardiometabolic & Renal Disorders
- Genetic Disorders
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- Respiratory Disorders
- Other Applications (Including Ocular, Muscle, Skin, Autoimmune, Hematological Disorders, and Others)

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