

mRNA Platform Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Indication (Autoimmune Diseases, Cancer, Infectious Diseases, Rare Diseases, Respiratory Diseases), By Usability (Prophylactic Vaccines, Therapeutic Drugs, Therapeutic Vaccines), By mRNA Type (Nucleoside-Modified mRNA, Self-Amplifying mRNA, Unmodified mRNA), By End User (Hospitals & Clinics, Pharmaceutical Companies, Research Organization), By Region & Competition, 2020-2030F

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Abstracts

Market Overview

The Global mRNA Platform Market was valued at USD 7.30 billion in 2024 and is projected to grow at a CAGR of 3.56% through 2030. The mRNA (messenger RNA) platform is an advanced biotechnological innovation that enables synthetic RNA molecules to deliver genetic instructions to cells, prompting the production of specific proteins. This approach has demonstrated significant success in vaccine development and is expanding into treatments for a range of diseases. Notably, in September 2023, BioNTech SE partnered with CEPI to accelerate the development of an mRNA-based Mpox vaccine, underscoring the platform's importance in preparing for emerging infectious threats. By mimicking the natural role of RNA in the body, synthetic mRNA sequences are engineered to prompt immune responses or support therapeutic protein production. These technologies are increasingly adopted due to their adaptability, speed of development, and effectiveness, particularly in public

health emergencies and personalized medicine applications.

Key Market Drivers

Technological Advancements

Advances in lipid nanoparticle (LNP) delivery systems have enhanced the stability and cellular uptake of mRNA molecules, improving their efficacy. These innovations were instrumental in the success of COVID-19 mRNA vaccines. Modified mRNA sequences are now more stable and less immunogenic, extending vaccine shelf life and easing distribution. For example, Sanofi launched a new mRNA research facility at Griffith University in November 2023 to accelerate drug development. Techniques like codon optimization are being refined to maximize protein expression, while synthetic biology tools such as CRISPR-Cas9 allow precise mRNA sequence design for targeted therapies. The development of cost-efficient and scalable manufacturing has also improved the availability of mRNA products during global health crises. Furthermore, enhancements in cold chain logistics and stability at varied temperature ranges reduce dependency on ultra-cold storage. The integration of next-generation sequencing supports precise and rapid design of mRNA-based treatments, enabling therapeutic applications across a broad range of indications.

Key Market Challenges

Vaccine Hesitancy and Misinformation

A critical challenge facing the Global mRNA Platform Market is vaccine hesitancy, fueled by misinformation. Despite scientific validation, concerns around safety, efficacy, and long-term impacts have hindered vaccine uptake. Social media platforms are often sources of misinformation, influencing public perception and eroding confidence in mRNA-based vaccines. This hesitancy can reduce immunization rates, hampering efforts to achieve herd immunity and prolonging outbreaks of preventable diseases. Public mistrust also complicates health campaigns during emergencies, such as pandemics, and may extend skepticism to other public health measures. Low vaccine coverage due to hesitancy not only affects individual health outcomes but also increases pressure on healthcare systems and obstructs disease control efforts at a population level.

Key Market Trends

Increase in the Number of Virtual Trials

The rise of virtual trials is reshaping drug development strategies, including those related to mRNA therapies. Virtual trials use digital platforms for remote data collection, reducing dependence on physical sites and expanding access to more diverse participant populations. CROs and pharmaceutical companies are increasingly adopting technologies such as telemedicine, wearable sensors, and mobile health apps to monitor patient outcomes in real-time. This approach enhances patient engagement, accelerates trial timelines, and reduces operational costs. The decentralized model is proving particularly effective for vaccines and therapies that require global outreach, supporting rapid data acquisition and streamlined regulatory submissions.

Key Market Players

AstraZeneca PLC

Asuragen, Inc.

Catalent Pharma Solutions

Arcturus Therapeutics, Inc.

BioNTech AG

CRISPR Therapeutics Inc.

AKESOn, Inc.

baseclick GmbH

Accent Therapeutics Inc.

Accanis Biotech F&E GmbH & Co. KG

Report Scope:

In this report, the Global mRNA Platform Market has been segmented into the

mRNA Platform Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Indication...

following categories, in addition to the industry trends which have also been detailed below:

mRNA Platform Market, By Indication:

Autoimmune Diseases

Cancer

Personalized Treatment

Single Cancer Focused

Infectious Diseases

Rare Diseases

Respiratory Diseases

mRNA Platform Market, By Usability:

Prophylactic Vaccines

Therapeutic Drugs

Therapeutic Vaccines

mRNA Platform Market, By mRNA Type:

Nucleoside-Modified mRNA

Self-Amplifying mRNA

Unmodified mRNA

mRNA Platform Market, By End-User:

Hospitals & Clinics

Pharmaceutical Companies

Research Organization

mRNA Platform Market, By Region:

North America

United States

Canada

Mexico

Asia-Pacific

China

India

South Korea

Australia

Japan

Europe

Germany

France

United Kingdom

Spain

Italy

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global mRNA Platform Market.

Available Customizations:

Global mRNA Platform Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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