

## **Synthetic Biology - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029**

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### **Report description:**

The Synthetic Biology Market size is estimated at USD 79.39 billion in 2024, and is expected to reach USD 145.49 billion by 2029, growing at a CAGR of 12.88% during the forecast period (2024-2029).

During the COVID-19 pandemic, the synthetic biology market had a slight decline in growth initially, due to decreasing production, followed by lockdown and lack of labor situation. However, the market eventually experienced a recovery in the growth owing to the rise in the demand for innovation and development of vaccines, therapeutics, and diagnostics for the management of COVID-19. The research related to the COVID vaccine and drugs development, bolstered the research activities in the synthetic biology. As per a data published by the World Economic Forum in September 2021, the advancements in the synthetic biology have a vast potential to manage the pandemic for the development of mRNA vaccine against virus. Due to the wide application of synthetic biology in the vaccine and drug development against COVID-19, the studied market is expected to grow during the pandemic. Although, in the post-pandemic, the decrease in the numbers of COVID-19 patients, and the resumption of the research and treatment of non-COVID diseases, the focus of the medical and research bodies, and private players have been slightly shifted from COVID-19 to other medical areas as it was in pre-pandemic. Thus, the COVID-19 outbreak had an impact on the market's growth in its preliminary phase. Moreover, the market is expected to grow further at a stable pace with the increasing demand for synthetic biology for the drug development for various medical areas.

Further, the market is expected to grow further with the increasing support from the government and private institutions, increasing R&D investments in drug discovery, and the development and declining cost of DNA sequencing and synthesizing. The growing involvement of government bodies, research institutes, and large organizations in synthetic biology research activities are likely to support the market in the next few years. Governments of various nations have been providing research support for synthetic biology because of its extensive applications. For instance, in September 2022, the Government of New South Wales

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announced to invest over USD 6 million into a new synthetic biology and biomanufacturing development program which would improve the access to the manufacturing and production facilities and equipment across the State of Wales, Australia. There have been many research studies and projects running in various countries concerning synthetic biology that has tried to tap multiple complexities in the genomes of organisms, which has helped create more effective and efficient therapies to treat them. For instance, in April 2021, a Synthetic Biology (SynBio) Coalition was launched to support the American synthetic biology domain and investment in the same area. US federal government would work in collaboration with the SynBio Coalition for the development and advanced biomanufacturing industry in the United States. Synthetic biology technologies and products are also finding significant usage in various application areas. Since the organisms engineered with synthetic biology techniques are relatively reasonable, owing to their use in various industrial applications, which also translates into a reduction in the cost of research, the demand for these techniques is growing worldwide.

Therefore, owing to the aforementioned factors the studied market is anticipated to witness growth over the analysis period. However, biosafety and bio-security, ethical issues, and reimbursement cuts causing pricing pressure, are likely to impede market growth.

## Synthetic Biology Market Trends

### The Healthcare Segment is Expected to Witness Significant Growth Over the Forecast Period

The rapid development of synthetic biology has driven the healthcare industry to consider the varied therapeutic approaches by using live bacteria, artificial cells, and engineered phages. For instance, it has enabled life technologies to design and manufacture antigens and variants with rapid results, high expression, and capacity. Synthetic biology has several applications starting from drug and vaccine development, applications manufacturing, and diagnostic tests. For instance, a study published in the Journal BMJ in March 2023, stated that the United States invested over USD 31.9 billion, for the development, production, and purchasing of the mRNA covid-19 vaccines, including the significant investments through March 2022. Further, in August 2021, the Government of Canada signed a memorandum of understanding with Moderna to construct a state-of-the-art facility for mRNA vaccine production, in Canada.

Various initiatives taken by governments and other organizations are expected to influence the market studied in this segment positively. For instance, in June 2021, eureKARE a next generation biotechnology and synthetic biology company, launched its first synthetic biology studio located in Belgium. The studio would expand the synthetic biology offerings and research in biomedical and other thematic applications in various European innovation hotspots. In January 2021, AbSci, a synthetic biology company focused on the drug discovery and biomanufacturing of next generation biotherapeutics, acquired Denovium Inc., an artificial intelligence deep learning company. The acquisition would further strengthen the synthetic biology solution of AbSci the cutting-edge deep learning AI of Denovium Inc., to create in silico predictive protein drug design and cell line development. Also, the significant healthcare expenditure in the developed and developing nations are also

Therefore, the healthcare segment is expected to witness significant growth over the forecast period due to the abovementioned factors, including the active research and developments in synthetic biology for healthcare areas.

### North America is Expected to Witness Significant Growth Over the Forecast Period

North America is estimated to witness significant growth in the synthetic biology market due to the increasing demand for bio-based products, increased investments in synthetic biology companies, and rising R&D funding for synthetic biology. The United States contributes majorly to the research being done in the fields of drug discovery, genomics, and proteomics structure prediction, and soon in the region, thereby boosting the growth of the synthetic biology market. Various universities and research institutes received funding from governmental organizations, like the National Institute of Health (NIH), and private organizations,

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like Gates and Melinda Foundation, for developing various bioinformatics, DNA sequencing and biological components, and integrated systems devices, which can be widely used for various healthcare and other applications. In October 2022, Government of Canada invests over USD 4.13 million (CAD 5.6 million) 2022 to support the early-stage genomics companies bring new products to market. This would boost genetic engineering or synthetic biology involving the molecular biosciences with computing, automation artificial intelligence (AI), and miniaturization.. In September 2022, the United States Department of Energy (DOE) today invested USD 178 million for bioenergy research to advance sustainable technology breakthroughs which would focus to improve food and agricultural production, public health, address climate change, and create more resilient supply chains. This investment would support cutting-edge biotechnology R&D of bioenergy crops, industrial microorganisms, and microbiomes. Alternative clean energy sources like bioenergy are playing a key role in reaching President Biden's goal of a net-zero carbon economy by 2050. Furthermore, increasing government and private institutions' support and R&D investments in drug discovery and development are also major growth factors expected to drive the market during the forecast period.

Therefore, owing to the aforesaid factors the growth of the studied market is anticipated in the North America Region.

## Synthetic Biology Industry Overview

The synthetic biology market is moderately consolidated in nature due to the presence of a few companies operating globally as well as regionally. The competitive landscape includes an analysis of some international as well as local companies that hold market shares and are well known, including Genscript, Thermo Fisher Scientific Inc., Amyris Inc., Danaher Corporation (Integrated DNA Technologies Inc.), and Illumina, Inc. Precigen Inc. (Intrexon Corporation), New England Biolabs Inc., Novozymes AS, Koninklijke DSM NV, and Viridos, Inc. (Synthetic Genomics Inc.), among others.

### Additional Benefits:

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

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