

## **Synthetic Biology - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)**

Market Report | 2025-06-01 | 117 pages | Mordor Intelligence

### **AVAILABLE LICENSES:**

- Single User License \$4750.00
- Team License (1-7 Users) \$5250.00
- Site License \$6500.00
- Corporate License \$8750.00

### **Report description:**

Synthetic Biology Market Analysis

The synthetic biology market size reached USD 19.75 billion in 2025 and is projected to climb to USD 47.88 billion by 2030, advancing at a 19.37% CAGR. Recent gains reflect the transition from proof-of-concept bioengineering to large-scale biomanufacturing. Converging advances in artificial-intelligence-guided protein design, decreasing gene-synthesis costs, and steady government funding have shortened innovation cycles and lowered entry barriers. Corporate net-zero commitments create durable demand for bio-based alternatives to petrochemicals, while breakthroughs in genome editing and automated biofoundries extend addressable applications in healthcare, food, and specialty materials. At the same time, dual-use regulations and talent shortages temper the growth trajectory, placing a premium on regulatory navigation and workforce development across the synthetic biology market.

Global Synthetic Biology Market Trends and Insights

Government & VC Funding Surge

Large-scale public programs are deepening the capital pool that supports biomanufacturing build-outs. The United States enacted a USD 15 billion National Biotechnology Initiative Act to meet 30% of domestic chemical demand through bio-based production by 2040. China committed USD 4.17 billion in 2024 for biomanufacturing infrastructure, signaling technology sovereignty priorities. Horizon Europe's SYNBE project nurtures start-ups across 25 nations, while venture funding has remained above pre-pandemic

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

levels according to SynBioBeta. This confluence of public and private capital shortens the "valley of death" from lab bench to pilot plant, accelerating time-to-market across the synthetic biology market.

### Falling Cost Curve for Gene Synthesis

Enzymatic DNA synthesis now delivers multi-kilobase constructs in days instead of weeks. Ansa Biotechnologies' platform synthesizes sequences exceeding 1,000 bp today and targets 10,000 bp capability by 2025. Evonetix's semiconductor-based chips fabricate gene-length fragments 10 times faster than traditional phosphoramidite chemistry. Benchtop synthesizers from Kilobaser and Telesis Bio further democratize access for smaller labs. These innovations cut iteration costs for metabolic-engineering and protein-optimization projects, reinforcing demand across the synthetic biology market.

### Dual-Use Bio-Threat Regulation Drag

Compliance burdens grow as policymakers tighten genetic-material screening. SecureDNA screens every order over 30 bp against pathogen databases while preserving customer confidentiality, adding cost and processing time. China's biosafety framework imposes strict oversight of engineered microbes yet aims to support innovation. Europe postponed its Biotech Act until Q3 2026, prolonging uncertainty. Frontiers research warns that AI-enabled bio-automation may outpace legislative cycles, requiring new governance models. Smaller firms in the synthetic biology market often lack the regulatory-affairs bandwidth to navigate these regimes, slowing product launches.

Other drivers and restraints analyzed in the detailed report include:

AI-Driven Protein Design Adoption / Breakthroughs in Gene-Editing Platforms Expanding Addressable Applications / Corporate Net-Zero Mandates Driving Demand for Bio-Based Chemicals, Fuels, and Materials / Talent Bottleneck in Bio-Informatics Engineers /

For complete list of drivers and restraints, kindly check the Table Of Contents.

### Segment Analysis

Core Products accounted for 48.34% of 2024 revenue as DNA/RNA synthesizers and gene-editing kits formed the indispensable infrastructure of laboratory workflows. Evonetix's chip-based synthesizer exemplifies hardware innovation, cutting synthesis times by a factor of 10 and anchoring recurring consumables demand. The synthetic biology market size for Core Products is expected to grow steadily, supported by continuous upgrades to accuracy and throughput.

Enabling Products-encompassing oligonucleotides, cloning vectors, and cell-free systems-are forecast to grow at a 20.20% CAGR through 2030, the fastest among product classes. Twist Bioscience's participation in AI safety consortia underscores the strategic importance of secure DNA sourcing. The first synthetic yeast genome and programmable cell-free protein factories reflect rising complexity needs, which magnify consumables volume across the synthetic biology market.

Genome Engineering held 33.86% of synthetic biology market share in 2024, buoyed by widespread CRISPR-Cas9 adoption and emergent alternatives like TIGR. Commercialization milestones such as CASGEVY validate therapeutic revenue pools. Regulatory precedents are encouraging industrial and agricultural genome-editing initiatives, reinforcing leadership of this technology segment.

Bioinformatics & CAD Tools will expand at a 19.83% CAGR, transforming empirical tinkering into algorithmically guided engineering. Researchers describes CodonTransformer's multi-species optimization framework that shortens path-to-hit timelines.

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: [support@scotts-international.com](mailto:support@scotts-international.com)

[www.scotts-international.com](http://www.scotts-international.com)

As AI models scale, subscription software revenues are set to rise faster than reagent sales, reshaping the synthetic biology market size distribution among value-chain players.

The Global Synthetic Biology Market Report is Segmented by Product (Core Products, Enabling Products, and Enabled Products), Application (Healthcare, Chemicals (Including Biofuels), Food and Agriculture, and Other Applications (Biosecurity, Energy, and Environment)), and Geography (North America, Europe, Asia-Pacific, Middle East and Africa, and South America).

### Geography Analysis

North America held 43.57% revenue share in 2024. The USD 15 billion federal biomanufacturing commitment anchors capacity build-outs, while venture capital and established R&D clusters sustain start-up formation. Ginkgo Bioworks' platform partnerships and Thermo Fisher Scientific's USD 40-50 billion M&A war chest illustrate consolidation and scale advantages. Nevertheless, U.S. firms face talent bottlenecks in bio-informatics and the compliance load of overlapping federal and state rules, factors that could modulate synthetic biology market growth in the region.

Asia-Pacific is the fastest-expanding region at 22.14% CAGR. China has overtaken Europe in high-impact biotech papers and patents, supported by USD 4.17 billion in 2024 investments and further allocations slated for 2025. Shanghai's biotech hub leverages co-located manufacturing infrastructure and subsidy programs to accelerate commercialization. Price-competitive production capabilities position the region as a leading export platform, reinforcing its influence on the global synthetic biology market.

Europe combines robust sustainability policy with fragmented regulatory execution. The Circular Bio-Based Europe initiative directs USD 2.2 billion toward 15 biorefineries employing 165,000 workers. Horizon Europe's SYNBE2 extends entrepreneur support to 25 nations. Delays in the EU Biotech Act, however, prolong uncertainty and may slow project financing. Companies like Insempra have raised USD 20 million to scale bio-based ingredients for cosmetics even amid cautious capital markets. Despite hurdles, Europe's circular-economy ethos secures long-term relevance within the synthetic biology market.

### List of Companies Covered in this Report:

Thermo Fisher Scientific / Danaher (IDT & Cytiva) / Illumina / Genscript / Twist Bioscience / Amyris / Ginkgo Bioworks / Precigen / Novozymes / DSM-Firmenich / Zymogen / Synthetic Genomics (Viridos) / New England Biolabs / Inscripta / Benchling / Oxford Nanopore / Evonetix / Prokarium / Arzeda / Deep Genomics /

### Additional Benefits:

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

### Table of Contents:

- 1 Introduction
  - 1.1 Study Assumptions & Market Definition
  - 1.2 Scope of the Study
- 2 Research Methodology
- 3 Executive Summary

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

## 4 Market Landscape

### 4.1 Market Overview

### 4.2 Market Drivers

#### 4.2.1 Government & VC funding surge

#### 4.2.2 Falling cost curve for gene synthesis

#### 4.2.3 AI-driven protein design adoption

#### 4.2.4 Strategic moves by agriculture and food majors to secure engineered proteins and next-gen crops for supply-chain resilience

#### 4.2.5 Breakthroughs in gene-editing platforms expanding addressable applications

#### 4.2.6 Corporate net-zero mandates driving demand for bio-based chemicals, fuels, and materials

### 4.3 Market Restraints

#### 4.3.1 Dual-use bio-threat regulation drag

#### 4.3.2 Talent bottleneck in bio-informatics engineers

#### 4.3.3 Limited DNA data-storage standards

#### 4.3.4 Societal and ethical concerns over GMO adoption,

### 4.4 Value / Supply-Chain Analysis

### 4.5 Regulatory Landscape

### 4.6 Technological Outlook

### 4.7 Porter's Five Forces Analysis

#### 4.7.1 Threat of New Entrants

#### 4.7.2 Bargaining Power of Buyers

#### 4.7.3 Bargaining Power of Suppliers

#### 4.7.4 Threat of Substitutes

#### 4.7.5 Competitive Rivalry

## 5 Market Size & Growth Forecasts (Value / USD)

### 5.1 By Product

#### 5.1.1 Core Products

##### 5.1.1.1 DNA/RNA Synthesizers

##### 5.1.1.2 Gene Editing Kits & Enzymes

#### 5.1.2 Enabling Products

##### 5.1.2.1 Oligonucleotides

##### 5.1.2.2 Cloning Vectors

#### 5.1.3 Enabled Products

##### 5.1.3.1 Cell-Free Systems

##### 5.1.3.2 Engineered Micro-organisms

### 5.2 By Technology

#### 5.2.1 Genome Engineering

#### 5.2.2 DNA/RNA Synthesis

#### 5.2.3 Bioinformatics & CAD Tools

#### 5.2.4 Bioprocessing & Automation

### 5.3 By Application

#### 5.3.1 Healthcare

##### 5.3.1.1 Drug Discovery

##### 5.3.1.2 Gene & Cell Therapy

#### 5.3.2 Chemicals & Biofuels

##### 5.3.2.1 Specialty Chemicals

##### 5.3.2.2 Advanced Biofuels

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 5.3.3 Food & Agriculture
  - 5.3.3.1 Alternative Proteins
  - 5.3.3.2 Crop Trait Engineering
- 5.3.4 Other (Bio-security, Environment, Data Storage)

#### 5.4 By End-User

- 5.4.1 Industrial Biotech Companies
- 5.4.2 Pharma & Biopharma
- 5.4.3 Academic & Research Institutes
- 5.4.4 Defense & Government Labs

#### 5.5 By Geography

##### 5.5.1 North America

- 5.5.1.1 United States
- 5.5.1.2 Canada
- 5.5.1.3 Mexico

##### 5.5.2 Europe

- 5.5.2.1 Germany
- 5.5.2.2 United Kingdom
- 5.5.2.3 France
- 5.5.2.4 Italy
- 5.5.2.5 Spain

##### 5.5.2.6 Rest of Europe

##### 5.5.3 Asia-Pacific

- 5.5.3.1 China
- 5.5.3.2 Japan
- 5.5.3.3 India

##### 5.5.3.4 South Korea

##### 5.5.3.5 Australia

##### 5.5.3.6 Rest of Asia-Pacific

##### 5.5.4 Middle East

##### 5.5.4.1 GCC

##### 5.5.4.2 South Africa

##### 5.5.4.3 Rest of Middle East

##### 5.5.5 South America

##### 5.5.5.1 Brazil

##### 5.5.5.2 Argentina

##### 5.5.5.3 Rest of South America

#### 6 Competitive Landscape

##### 6.1 Market Concentration

##### 6.2 Market Share Analysis

6.3 Company Profiles (includes Global level Overview, Market level overview, Core Segments, Financials, Strategic Information, Market Rank/Share, Products & Services, Recent Developments)

##### 6.3.1 Thermo Fisher Scientific

##### 6.3.2 Danaher (IDT & Cytiva)

##### 6.3.3 Illumina

##### 6.3.4 GenScript

##### 6.3.5 Twist Bioscience

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

- 6.3.6 Amyris
- 6.3.7 Gingko Bioworks
- 6.3.8 Precigen
- 6.3.9 Novozymes
- 6.3.10 DSM-Firmenich
- 6.3.11 Zymergen
- 6.3.12 Synthetic Genomics (Viridos)
- 6.3.13 New England Biolabs
- 6.3.14 Inscripta
- 6.3.15 Benchling
- 6.3.16 Oxford Nanopore
- 6.3.17 Evonetix
- 6.3.18 Prokarium
- 6.3.19 Arzeda
- 6.3.20 Deep Genomics

## 7 Market Opportunities & Future Outlook

### 7.1 White-space & Unmet-Need Assessment

**Synthetic Biology - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)**

Market Report | 2025-06-01 | 117 pages | Mordor Intelligence

To place an Order with Scotts International:

- Print this form
- Complete the relevant blank fields and sign
- Send as a scanned email to support@scotts-international.com

**ORDER FORM:**

Select license	License	Price
	Single User License	\$4750.00
	Team License (1-7 Users)	\$5250.00
	Site License	\$6500.00
	Corporate License	\$8750.00
		VAT
		Total

\*Please circle the relevant license option. For any questions please contact support@scotts-international.com or 0048 603 394 346.

\*\* VAT will be added at 23% for Polish based companies, individuals and EU based companies who are unable to provide a valid EU Vat Numbers.

Email*	<input type="text"/>	Phone*	<input type="text"/>
First Name*	<input type="text"/>	Last Name*	<input type="text"/>
Job title*	<input type="text"/>		
Company Name*	<input type="text"/>	EU Vat / Tax ID / NIP number*	<input type="text"/>
Address*	<input type="text"/>	City*	<input type="text"/>
Zip Code*	<input type="text"/>	Country*	<input type="text"/>
		Date	<input type="text" value="2026-03-04"/>
		Signature	

**Scotts International. EU Vat number: PL 6772247784**

tel. 0048 603 394 346 e-mail: support@scotts-international.com

www.scotts-international.com

