

2024 Protein Synthesis Research Review

Market Research Report | 2025-03-21 | 209 pages | BCC Research

AVAILABLE LICENSES:

- Single User License \$4650.00
- 2-5 Users License \$5580.00
- Site License \$6696.00
- Enterprise License \$8035.00

Report description:

Description

Research Review Scope

Protein synthesis is vital for all living organisms, enabling cells to produce the proteins they need to survive and function. It is a basic biological process that builds proteins in cells, which is essential for every cellular function. The key components of protein synthesis are Deoxyribonucleic acid (DNA), Ribonucleic acid (RNA), ribosomes, and amino acids.

The growing demand for protein therapeutics due to the increase in the prevalence of chronic diseases is a major factor driving this market. Advances in cell-free systems and improved expression vectors, which enhance efficiency and productivity, also help to boost the protein synthesis market. The developments towards cell-free systems, high-throughput technologies, and a focus on personalized medicine also act as key factors for the growth of the protein synthesis market. The high production costs and complex techniques affect the growth of the market.

The market includes major players such as Amgen Inc., Pfizer Inc., Genentech, USA Inc., and Eli Lilly, which mainly focus on protein therapeutics. The companies focusing on protein synthesis research and development include GenScript ProBio, Aldevron, Creative Biogene, and Tierra Biosciences Inc.

Research Reviews from BCC Research provide market professionals with concise market coverage within a specific research category. This 2024 Research Review of protein-synthesis provides a sampling of the type of quantitative market information, analysis, and guidance that BCC Research has been developing since its inception in 1971 to help its customers make informed business decisions. This Research Review includes highlights and excerpts from the following reports published by BCC Research in 2024:

- BIO007N Commercial Amino Acids.
- BIO254A Global Recombinant Proteins Market.
- BIO220B Oligonucleotides: Global Markets.
- BIO253A PEGylated Proteins Market.
- BIO252A Peptide Synthesis: Global Markets.

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

After you survey the excerpts in this Research Review, we encourage you to follow up on these topics by checking out the full market research reports associated with each topic. BCC Research looks forward to serving your market intelligence needs in the future.

Executive Summary

Summary:

- The global market for commercial amino acids is expected to grow from \$31.8 billion in 2024 to \$42.8 billion by 2029, at a compound annual growth rate (CAGR) of 6.1% from 2024 through 2029.
- The global market for recombinant proteins is expected to grow from \$141.8 billion in 2024 to \$203.6 billion by 2029, at a CAGR of 7.5% from 2024 through 2029.
- The global market for PEGylated proteins is expected to grow from \$10.2 billion in 2023 to \$15.9 billion by 2028, at a CAGR of 9.4% from 2023 through 2028.

Protein synthesis is vital for all living organisms, enabling cells to produce the proteins they need to survive and function. It is a basic biological process that builds proteins in cells, which is essential for every cellular function. The key components of protein synthesis are Deoxyribonucleic acid (DNA), Ribonucleic acid (RNA), ribosomes, and amino acids.

The growing demand for protein therapeutics due to the increase in the prevalence of chronic diseases is a major factor driving this market. Advances in cell-free systems and improved expression vectors, which enhance efficiency and productivity, also help to boost the protein synthesis market. The developments towards cell-free systems, high-throughput technologies, and a focus on personalized medicine also act as key factors for the growth of the protein synthesis market. The high production costs and complex techniques affect the growth of the market.

The market includes major players such as Amgen Inc., Pfizer Inc., Genentech, USA Inc., and Eli Lilly, which mainly focus on protein therapeutics. The companies focusing on protein synthesis research and development include GenScript ProBio, Aldevron, Creative Biogene, and Tierra Biosciences Inc.

Table of Contents:

Table of Contents
Chapter 1 Foreword
Research Review Scope
Chapter 2 Commercial Amino Acids (BIO007N)
Market Outlook
Scope of Report
Market Summary
Market Overview
Commercial Interests
Chemical Structure
Market Dynamics
Market Drivers
Market Restraints
Market Challenges
Market Opportunity
Regulatory Structure
Global Regulatory Framework

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Regulatory Requirements for Different Applications
Quality Control and Manufacturing Standards
Emerging Technologies and Developments
Metabolic Engineering and Synthetic Biology
High-throughput Screening and Fermentation Optimization
Continuous-Flow Biocatalysis
Advanced Chromatography Techniques
Hydroxy Amino Acids
Green Chemistry and Sustainable Production
Key Market Trends
Commercial Amino Acids: Global Markets
Commercial Amino Acids Market, by Product Type
Methionine
Lysine
Threonine
Tryptophan
Phenylalanine
Glutamic Acid
Cysteine
Aspartic Acid
Glycine
Alanine
Arginine
Proline
Leucine
Valine
Tyrosine
Other Amino Acids
Commercial Amino Acids Market, by Application
Animal Feed Applications
Food Flavoring Applications
Specialty Uses Applications
Commercial Amino Acids Market, by Region
North America
Europe
Asia-Pacific
LATAM
Rest of the World
Sustainability in Commercial Amino Acids: An ESG Perspective
Introduction to ESG
Sustainability in the Commercial Amino Acids Market
Understanding the ESG Data
Chapter 3 Global Recombinant Proteins Market (BIO254A)
Market Outlook
Scope of Report
Market Summary
Market Overview

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Types of Expression Host Systems
Mechanism of Action of Recombinant Proteins
Common Steps Involved in Recombinant Protein Production
Market Dynamics of Recombinant Proteins
Drivers
Restrains
Opportunities
Emerging Technologies and Developments in Recombinant Proteins
Protein-Engineering Advances
CRISPR Genome Editing
Cell-Free Protein Synthesis
Global Market for Recombinant Proteins, by Product Type
Hormones
Cytokines
Enzymes
Antibodies
Antigens
Others
Global Market for Recombinant Proteins, by Host Cell Type
Bacterial Host Cells
Yeast and Fungi Cells
Mammalian Cells
Insect Cells
Other Cells
Global Market for Recombinant Proteins, by Application
Therapeutics and Vaccines
Biomedical Research
Diagnostics
Global Market for Recombinant Proteins, by Region
North America
Europe
Asia-Pacific
Rest of the World
Sustainability in the Recombinant Proteins Market
Understanding the ESG Data
ESG Performance Analysis
Concluding Remarks
Chapter 4 Oligonucleotides: Global Markets (BIO220B)
Market Outlook
Scope of Report
Market Insights
Market Overview
History of Oligonucleotide Synthesis
Types of Oligonucleotides
Alternative Forms of Oligonucleotide Synthesis
Versatile Functions of Synthetic Oligonucleotides
Regulatory Paths for Oligotherapeutics

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Animal Models and Studies
Role of Regulatory Authorities
Global Market Dynamics for Oligonucleotides
Market Drivers
Market Restraints
Opportunities in the Market
Emerging Applications in Various Fields
Emerging Technologies and Developments in Oligonucleotides
DNA Synthesizers
Emerging Technologies
Global Market for Oligonucleotide Synthesis, by Product Type
Oligonucleotide Drugs
Equipment and Reagents
Synthesized Oligos
Services
Global Market for Oligonucleotide Synthesis, by Application
Research
Diagnostics and Therapeutics
Global Market for Oligonucleotide Synthesis, by Region
North America
Europe
Asia-Pacific
Rest of the World
ESG Developments in the Oligonucleotide Market
Introduction to ESG
Assessing the Sustainability of the Oligonucleotide Manufacturing Process
ESG Performance in Market
Concluding Remarks
Chapter 5 PEGylated Proteins Market (BIO253A)
Market Outlook
Scope of Report
Market Summary
Market Overview
Advantages of Protein PEGylation
Limitations of PEGylated Therapeutics
Market Dynamics for the PEGylated Proteins
Market Drivers
Market Restraints
Market Opportunities
Emerging Technologies and Developments
Non-Covalent PEGylation
PEGylation of Nanoparticles
Antibody-Drug Conjugates (ADCs)
Global PEGylated Proteins Market, by Protein Type
Granulocyte-Colony Stimulating Factors (G-CSF)
PEGylated Monoclonal Antibodies
PEGylated Interferons

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

PEGylated Recombinant Factors
Other Protein Types
Global PEGylated Proteins Market, by PEGylation Type
Linear PEGylated Proteins
Branched PEGylated Proteins
Global PEGylated Proteins Market, by PEGylation Application
Autoimmune Diseases
Hematology
Cancer
Other Applications
Global PEGylated Proteins Market, by Region
North America
Europe
Asia-Pacific
Rest of the World
Sustainability in PEGylated Proteins Market: ESG Perspective
Introduction to ESG
Sustainability in the PEGylated Proteins Industry
Understanding the ESG Data
ESG Performance Analysis
Concluding Remarks
Chapter 6 Peptide Synthesis: Global Markets (BIO252A)
Market Outlook
Scope of Report
Market Summary
Peptide Therapeutics Market Overview
Importance of Peptides
Peptide Synthesis
Trends in Peptide Therapeutics
Market Dynamics
Market Drivers
Market Restraint
Market Opportunities
Emerging Technologies for Peptide Synthesis and Therapeutics Manufacturing
Advances in SPPS in Aqueous Media
Chemical Synthesis
Peptide Drug Delivery
Examples of New Developments, by Company
Market Analysis, by Segment
Global Market for Peptide Synthesis, by Peptide Type
Synthetic Peptides
Antimicrobial Peptides
Hormonal Peptides
Bioactive Peptides
Collagen Peptides
Other Products
Global Market for Peptide Synthesis, by Application

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

Peptide Therapeutics
Cosmetics
Nutraceuticals
Other Applications
Global Market for Peptide Synthesis, by Synthesis Type
Solid-phase
Solution-phase
Hybrid-phase
Global Market for Peptide Synthesis, by Region
North America
Europe
Asia-Pacific
Rest of the World
Sustainability in the Peptide Synthesis Industry: ESG Perspective
Importance of ESG among Peptide Therapeutics Manufacturers
ESG Practices of Peptide Therapeutics Manufacturers
BCC Research Viewpoint
Chapter 7 Appendix
Research Methodology
Analyst's Credentials

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com

2024 Protein Synthesis Research Review

Market Research Report | 2025-03-21 | 209 pages | BCC Research

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	\$4650.00
	2-5 Users License	\$5580.00
	Site License	\$6696.00
	Enterprise License	\$8035.00
		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="2026-03-02"/>
		Signature	

Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com



Scotts International. EU Vat number: PL 6772247784

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

www.scotts-international.com