

Senolytics And Anti-Aging Pharmaceuticals Market Size, Share & Trends Analysis Report By Product (Anti-Aging Pharmaceuticals), By Distribution Channel, By Application (Clinical Use / Off-label Therapeutics), By Region, And Segment Forecasts, 2025 - 2030

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Abstracts

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Senolytics And Anti-Aging Pharmaceuticals Market Growth & Trends

The global senolytics and anti-aging pharmaceuticals market size is anticipated to reach USD 6.39 billion by 2030 and is anticipated to expand at a CAGR of 7.59% during the forecast period, according to a new report by Grand View Research, Inc.

Key drivers include increasing aging population and life expectancy, rising prevalence of non-communicable diseases such as Alzheimer's, Parkinson's, cancer, diabetes and osteoporosis seen in geriatric population. Growing awareness of anti-aging drugs and rising adoption of these senolytic pharmaceuticals boosts the services market growth. The market is further supported by strong research and development investments. Numerous pharmaceutical companies and academic institutions are investing in the development of senolytic therapies, advancing clinical trials, and expanding knowledge of how to effectively target senescent cells. The market pipeline remains robust, with active research in gene therapies, stem cell therapeutics, and immunomodulators.

In February 2025, FOXO4-DRI Peptide a novel target for targeting senescence cells

was found innovated. This synthetic peptide disrupts the interaction between FOXO4 and p53 proteins, leading to apoptosis of senescent cells. Studies in animal models have demonstrated its potential to alleviate age-related conditions such as renal failure and frailty. In vitro and in vivo studies were conducted for this novel target. These findings suggest that FOXO4-DRI holds therapeutic potential for targeting senescent cells and mitigating age-related pathologies.

In addition, another novel senescent cell targeting molecules were developed in February 2025 known as Proteolysis-targeting chimeras (PROTACs). These are bifunctional molecules that induce the degradation of specific proteins by recruiting them to E3 ligases, leading to ubiquitination and subsequent proteasomal degradation. In the context of cellular senescence, certain PROTACs have been developed to selectively eliminate senescent cells through mechanisms such as BCL-xL/BCL-2 degradation and BRD4 degradation. These highlight the therapeutic potential of PROTACs in selectively targeting and eliminating senescent cells, offering a promising strategy for treating age-related diseases and improving healthspan.

Furthermore, a thorough research on extracellular vesicles (EVs) and miRNA-Based Senolytics technology is ongoing for bringing drugs to clinical trials. EVs can modulate gene expression to reduce senescence markers. These vesicles have demonstrated potential in reducing senescent cell burden and improving health outcomes in preclinical models. Advances are ongoing for innovations in targeting these miRNAs.

As part of technological advancements, artificial intelligence (AI) is revolutionizing the identification of novel anti-aging compounds. Two AI-driven approaches are being developed that includes Deep neural network screening and enhanced drug development efficiencies.

These strategic initiatives underscore the growing emphasis on Senolytics and anti-aging pharmaceuticals innovation, market expansion, and regulatory advancements aimed at improving patient outcomes worldwide.

Senolytics And Anti-Aging Pharmaceuticals Market Report Highlights

Based on product type, the Anti-aging Pharmaceuticals segment dominated the market in 2024, accounting for 62.95% of the total revenue. This strong performance is attributed

their broad therapeutic applications and well-established presence in preventive and longevity-focused healthcare. These pharmaceuticals—including antioxidants, hormone regulators, and metabolic modulators—are widely used to delay aging, manage chronic diseases, and improve quality of life among a growing, health-conscious elderly population. The Senolytic Agents segment, particularly combinations such as Dasatinib + Quercetin, is expected to gain traction due to increasing demand in oncology, immunology, and osteoporosis.

Based on application, the Clinical Use / Off-label Therapeutics segment led the market with the largest revenue share in 2024, accounting for 59.24% of the total market. This leadership is driven by the growing clinical repurposing of drugs such as Metformin, Rapamycin, and NAD+ boosters to target age-related diseases and extend healthspan. As more healthcare providers adopt these therapies based on emerging scientific evidence, their role in managing chronic conditions in older adults continues to expand. However, the Consumer Wellness / Longevity Use segment is expected to grow at the fastest rate over the forecast period, supported by increasing consumer interest in proactive health and longevity solutions.

Based on distribution channel, the Prescription-Based segment emerged as the dominant channel in 2024, accounting for the largest share of total revenue. This reflects the growing clinical use of drugs such as Metformin and Rapamycin for aging-related conditions, backed by robust regulatory frameworks and physician trust. With continued clinical validation and integration into standard care protocols, prescription-based therapies are expected

remain central to the anti-aging pharmaceuticals market. Other segments include Over-the-Counter (OTC)/Supplements and Clinical Trials/Compassionate Use, which also contribute to the expanding reach of anti-aging therapeutics.

Key players operating in the Senolytics and Anti-aging Pharmaceuticals market include Novartis AG, Roche Holding AG, Merck & Co., Inc., Pfizer Inc., Sanofi S.A., AstraZeneca plc, Johnson & Johnson, Abbott Laboratories, Sun Pharmaceutical Industries Ltd., Senolytic Therapeutics Inc., and AgeX Therapeutics. These companies are actively investing in R&D, driving innovation, and leading advancements in clinical trials to address the complex health challenges of an aging global population.

Contents

CHAPTER 1. METHODOLOGY AND SCOPE

- 1.1. Market Segmentation & Scope
- 1.2. Segment Definitions
 - 1.2.1. Product
 - 1.2.2. Distribution Channel
 - 1.2.3. Application
 - 1.2.4. Regional scope
 - 1.2.5. Estimates and forecasts timeline
- 1.3. Research Methodology
- 1.4. Information Procurement
 - 1.4.1. Purchased database
 - 1.4.2. GVR's internal database
 - 1.4.3. Secondary sources
 - 1.4.4. Primary research
 - 1.4.5. Details of primary research
 - 1.4.5.1. Data for primary interviews in North America
 - 1.4.5.2. Data for primary interviews in Europe
 - 1.4.5.3. Data for primary interviews in Asia Pacific
 - 1.4.5.4. Data for primary interviews in Latin America
 - 1.4.5.5. Data for Primary interviews in MEA
- 1.5. Information or Data Analysis
 - 1.5.1. Data analysis models
- 1.6. Market Formulation & Validation
- 1.7. Model Details
 - 1.7.1. Commodity flow analysis (Model 1)
 - 1.7.2. Approach 1: Commodity flow approach
 - 1.7.3. Volume price analysis (Model 2)
 - 1.7.4. Approach 2: Volume price analysis
- 1.8. List of Secondary Sources
- 1.9. List of Primary Sources
- 1.10. Objectives

CHAPTER 2. EXECUTIVE SUMMARY

- 2.1. Market Outlook
- 2.2. Segment Outlook

- 2.2.1. Product and Distribution Channel outlook
- 2.2.2. Application outlook
- 2.2.3. Regional outlook
- 2.3. Competitive Insights

CHAPTER 3. SENOLYTICS & ANTI-AGING PHARMACEUTICALS MARKET VARIABLES, TRENDS & SCOPE

- 3.1. Market Lineage Outlook
 - 3.1.1. Parent market outlook
 - 3.1.2. Related/ancillary market outlook
- 3.2. Market Dynamics
 - 3.2.1. Market driver analysis
 - 3.2.1.1. Rising anti-aging burden
 - 3.2.1.2. Advancements in drug development
 - 3.2.1.3. Growing awareness about anti-aging treatment
 - 3.2.2. Market restraint analysis
 - 3.2.2.1. High cost of development
 - 3.2.2.2. Regulatory challenges for new drug approvals
- 3.3. Senolytics & Anti-Aging Pharmaceuticals Market Analysis Tools
 - 3.3.1. Industry Analysis - Porter's
 - 3.3.1.1. Supplier power
 - 3.3.1.2. Buyer power
 - 3.3.1.3. Substitution threat
 - 3.3.1.4. Threat of new entrant
 - 3.3.1.5. Competitive rivalry
 - 3.3.2. PESTEL Analysis
 - 3.3.2.1. Political landscape
 - 3.3.2.2. Technological landscape
 - 3.3.2.3. Economic landscape
 - 3.3.3. Pricing Analysis
 - 3.3.4. Pipeline Analysis
 - 3.3.4.1. Phase
 - 3.3.4.2. Phase
 - 3.3.4.3. Phase

CHAPTER 4. SENOLYTICS & ANTI-AGING PHARMACEUTICALS MARKET: PRODUCT ESTIMATES & TREND ANALYSIS

- 4.1. Global Senolytics & Anti-Aging Pharmaceuticals Market: Product Dashboard
- 4.2. Global Senolytics & Anti-Aging Pharmaceuticals Market: Product Movement Analysis
- 4.3. Global Senolytics & Anti-Aging Pharmaceuticals Market by Product, Revenue
- 4.4. Anti-Aging Pharmaceuticals
 - 4.4.1. Anti-Aging Pharmaceuticals market estimates and forecasts 2018 to 2030 (USD Million)
- 4.5. Senolytic Agents
 - 4.5.1. Senolytic Agents market estimates and forecasts 2018 to 2030 (USD Million)

CHAPTER 5. SENOLYTICS & ANTI-AGING PHARMACEUTICALS MARKET: DISTRIBUTION CHANNEL ESTIMATES & TREND ANALYSIS

- 5.1. Global Senolytics & Anti-Aging Pharmaceuticals Market: Distribution Channel Dashboard
- 5.2. Global Senolytics & Anti-Aging Pharmaceuticals Market: Distribution Channel Movement Analysis
- 5.3. Global Senolytics & Anti-Aging Pharmaceuticals Market by Distribution Channel, Revenue
- 5.4. Prescription-Based
 - 5.4.1. Prescription-Based monoclonal antibodies market estimates and forecasts 2018 to 2030 (USD Million)
- 5.5. Over-the-Counter (OTC) / Supplements
 - 5.5.1. Over-the-Counter (OTC) / Supplements market estimates and forecasts 2018 to 2030 (USD Million)
- 5.6. Clinical Trials / Compassionate Use
 - 5.6.1. Clinical Trials / Compassionate Use market estimates and forecasts 2018 to 2030 (USD Million)

CHAPTER 6. SENOLYTICS & ANTI-AGING PHARMACEUTICALS MARKET: APPLICATION ESTIMATES & TREND ANALYSIS

- 6.1. Global Senolytics & Anti-Aging Pharmaceuticals Market: Application Dashboard
- 6.2. Global Senolytics & Anti-Aging Pharmaceuticals Market: Application Movement Analysis
- 6.3. Global Senolytics & Anti-Aging Pharmaceuticals Market by Application, Revenue
- 6.4. Consumer Wellness / Longevity Use
 - 6.4.1. Consumer Wellness / Longevity Use market estimates and forecasts 2018 to 2030 (USD Million)

6.5. Clinical Use / Off-label Therapeutics

6.5.1. Clinical Use / Off-label Therapeutics market estimates and forecasts 2018 to 2030 (USD Million)

CHAPTER 7. SENOLYTICS & ANTI-AGING PHARMACEUTICALS MARKET: REGIONAL ESTIMATES & TREND ANALYSIS BY PRODUCT, APPLICATION, AND DISTRIBUTION CHANNEL

7.1. Regional Dashboard

7.2. Market Size, & Forecasts Trend Analysis, 2018 to 2030:

7.3. North America

7.3.1. U.S.

7.3.1.1. Key country dynamics

7.3.1.2. Regulatory framework/ reimbursement structure

7.3.1.3. Competitive scenario

7.3.1.4. U.S. market estimates and forecasts 2018 to 2030 (USD Million)

7.3.2. Canada

7.3.2.1. Key country dynamics

7.3.2.2. Regulatory framework/ reimbursement structure

7.3.2.3. Competitive scenario

7.3.2.4. Canada market estimates and forecasts 2018 to 2030 (USD Million)

7.3.3. Mexico

7.3.3.1. Key country dynamics

7.3.3.2. Regulatory framework/ reimbursement structure

7.3.3.3. Competitive scenario

7.3.3.4. Canada market estimates and forecasts 2018 to 2030 (USD Million)

7.4. Europe

7.4.1. UK

7.4.1.1. Key country dynamics

7.4.1.2. Regulatory framework/ reimbursement structure

7.4.1.3. Competitive scenario

7.4.1.4. UK market estimates and forecasts 2018 to 2030 (USD Million)

7.4.2. Germany

7.4.2.1. Key country dynamics

7.4.2.2. Regulatory framework/ reimbursement structure

7.4.2.3. Competitive scenario

7.4.2.4. Germany market estimates and forecasts 2018 to 2030 (USD Million)

7.4.3. France

7.4.3.1. Key country dynamics

- 7.4.3.2. Regulatory framework/ reimbursement structure
- 7.4.3.3. Competitive scenario
- 7.4.3.4. France market estimates and forecasts 2018 to 2030 (USD Million)
- 7.4.4. Italy
 - 7.4.4.1. Key country dynamics
 - 7.4.4.2. Regulatory framework/ reimbursement structure
 - 7.4.4.3. Competitive scenario
 - 7.4.4.4. Italy market estimates and forecasts 2018 to 2030 (USD Million)
- 7.4.5. Spain
 - 7.4.5.1. Key country dynamics
 - 7.4.5.2. Regulatory framework/ reimbursement structure
 - 7.4.5.3. Competitive scenario
 - 7.4.5.4. Spain market estimates and forecasts 2018 to 2030 (USD Million)
- 7.4.6. Norway
 - 7.4.6.1. Key country dynamics
 - 7.4.6.2. Regulatory framework/ reimbursement structure
 - 7.4.6.3. Competitive scenario
 - 7.4.6.4. Norway market estimates and forecasts 2018 to 2030 (USD Million)
- 7.4.7. Sweden
 - 7.4.7.1. Key country dynamics
 - 7.4.7.2. Regulatory framework/ reimbursement structure
 - 7.4.7.3. Competitive scenario
 - 7.4.7.4. Sweden market estimates and forecasts 2018 to 2030 (USD Million)
- 7.4.8. Denmark
 - 7.4.8.1. Key country dynamics
 - 7.4.8.2. Regulatory framework/ reimbursement structure
 - 7.4.8.3. Competitive scenario
 - 7.4.8.4. Denmark market estimates and forecasts 2018 to 2030 (USD Million)
- 7.5. Asia Pacific
 - 7.5.1. Japan
 - 7.5.1.1. Key country dynamics
 - 7.5.1.2. Regulatory framework/ reimbursement structure
 - 7.5.1.3. Competitive scenario
 - 7.5.1.4. Japan market estimates and forecasts 2018 to 2030 (USD Million)
 - 7.5.2. China
 - 7.5.2.1. Key country dynamics
 - 7.5.2.2. Regulatory framework/ reimbursement structure
 - 7.5.2.3. Competitive scenario
 - 7.5.2.4. China market estimates and forecasts 2018 to 2030 (USD Million)

7.5.3. India

7.5.3.1. Key country dynamics

7.5.3.2. Regulatory framework/ reimbursement structure

7.5.3.3. Competitive scenario

7.5.3.4. India market estimates and forecasts 2018 to 2030 (USD Million)

7.5.4. Australia

7.5.4.1. Key country dynamics

7.5.4.2. Regulatory framework/ reimbursement structure

7.5.4.3. Competitive scenario

7.5.4.4. Australia market estimates and forecasts 2018 to 2030 (USD Million)

7.5.5. South Korea

7.5.5.1. Key country dynamics

7.5.5.2. Regulatory framework/ reimbursement structure

7.5.5.3. Competitive scenario

7.5.5.4. South Korea market estimates and forecasts 2018 to 2030 (USD Million)

7.5.6. Thailand

7.5.6.1. Key country dynamics

7.5.6.2. Regulatory framework/ reimbursement structure

7.5.6.3. Competitive scenario

7.5.6.4. Thailand market estimates and forecasts 2018 to 2030 (USD Million)

7.6. Latin America

7.6.1. Brazil

7.6.1.1. Key country dynamics

7.6.1.2. Regulatory framework/ reimbursement structure

7.6.1.3. Competitive scenario

7.6.1.4. Brazil market estimates and forecasts 2018 to 2030 (USD Million)

7.6.2. Argentina

7.6.2.1. Key country dynamics

7.6.2.2. Regulatory framework/ reimbursement structure

7.6.2.3. Competitive scenario

7.6.2.4. Argentina market estimates and forecasts 2018 to 2030 (USD Million)

7.7. MEA

7.7.1. South Africa

7.7.1.1. Key country dynamics

7.7.1.2. Regulatory framework/ reimbursement structure

7.7.1.3. Competitive scenario

7.7.1.4. South Africa market estimates and forecasts 2018 to 2030 (USD Million)

7.7.2. Saudi Arabia

7.7.2.1. Key country dynamics

- 7.7.2.2. Regulatory framework/ reimbursement structure
- 7.7.2.3. Competitive scenario
- 7.7.2.4. Saudi Arabia market estimates and forecasts 2018 to 2030 (USD Million)
- 7.7.3. UAE
 - 7.7.3.1. Key country dynamics
 - 7.7.3.2. Regulatory framework/ reimbursement structure
 - 7.7.3.3. Competitive scenario
 - 7.7.3.4. UAE market estimates and forecasts 2018 to 2030 (USD Million)
- 7.7.4. Kuwait
 - 7.7.4.1. Key country dynamics
 - 7.7.4.2. Regulatory framework/ reimbursement structure
 - 7.7.4.3. Competitive scenario
 - 7.7.4.4. Kuwait market estimates and forecasts 2018 to 2030 (USD Million)

CHAPTER 8. COMPETITIVE LANDSCAPE

- 8.1. Recent Developments & Impact Analysis, By Key Market Participants
- 8.2. Company/Competition Categorization
- 8.3. Vendor Landscape
 - 8.3.1. List of key distributors and channel partners
 - 8.3.2. Key customers
 - 8.3.3. Key company market share analysis, 2024
 - 8.3.4. Unity Biotechnology.
 - 8.3.4.1. Company overview
 - 8.3.4.2. Financial performance
 - 8.3.4.3. Product benchmarking
 - 8.3.4.4. Strategic initiatives
 - 8.3.5. Novartis AG.
 - 8.3.5.1. Company overview
 - 8.3.5.2. Financial performance
 - 8.3.5.3. Product benchmarking
 - 8.3.5.4. Strategic initiatives
 - 8.3.6. F. Hoffmann-La Roche AG.
 - 8.3.6.1. Company overview
 - 8.3.6.2. Financial performance
 - 8.3.6.3. Product benchmarking
 - 8.3.6.4. Strategic initiatives
 - 8.3.7. Merck & Co., Inc.
 - 8.3.7.1. Company overview

- 8.3.7.2. Financial performance
- 8.3.7.3. Product benchmarking
- 8.3.7.4. Strategic initiatives
- 8.3.8. Pfizer Inc.
 - 8.3.8.1. Company overview
 - 8.3.8.2. Financial performance
 - 8.3.8.3. Product benchmarking
 - 8.3.8.4. Strategic initiatives
- 8.3.9. Sanofi
 - 8.3.9.1. Company overview
 - 8.3.9.2. Financial performance
 - 8.3.9.3. Product benchmarking
 - 8.3.9.4. Strategic initiatives
- 8.3.10. AstraZeneca
 - 8.3.10.1. Company overview
 - 8.3.10.2. Financial performance
 - 8.3.10.3. Product benchmarking
 - 8.3.10.4. Strategic initiatives
- 8.3.11. Johnson & Johnson Services Inc.
 - 8.3.11.1. Company overview
 - 8.3.11.2. Financial performance
 - 8.3.11.3. Product benchmarking
 - 8.3.11.4. Strategic initiatives
- 8.3.12. Abbott
 - 8.3.12.1. Company overview
 - 8.3.12.2. Financial performance
 - 8.3.12.3. Product benchmarking
 - 8.3.12.4. Strategic initiatives
- 8.3.13. Sun Pharmaceutical Industries Ltd
 - 8.3.13.1. Company overview
 - 8.3.13.2. Financial performance
 - 8.3.13.3. Product benchmarking
 - 8.3.13.4. Strategic initiatives
- 8.3.14. Senolytic Therapeutics Inc.
 - 8.3.14.1. Company overview
 - 8.3.14.2. Financial performance
 - 8.3.14.3. Product benchmarking
 - 8.3.14.4. Strategic initiatives
- 8.3.15. AgeX Therapeutics

- 8.3.15.1. Company overview
- 8.3.15.2. Financial performance
- 8.3.15.3. Product benchmarking
- 8.3.15.4. Strategic initiatives

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