

South & Central America In-Vitro Lung Model Market Size and Forecast (2021 - 2031)

<https://marketpublishers.com/r/SEA1133704A5EN.html>

Date: April 2026

Pages: 153

Price: US\$ 3,450.00 (Single User License)

ID: SEA1133704A5EN

Abstracts

The South & Central America In-Vitro Lung Model Market is projected to grow significantly, reaching an estimated US\$ 45.7 million by 2031, up from US\$ 14.0 million in 2024. This growth represents a compound annual growth rate (CAGR) of 18.5% from 2025 to 2031, driven by several key factors.

Executive Summary and Market Analysis

The in vitro lung model market in South & Central America is primarily segmented into Brazil, Argentina, and the Rest of South & Central America. A major driver of this market is the rising incidence of respiratory diseases, including chronic obstructive pulmonary disease (COPD), asthma, and lung cancer. The increasing prevalence of these conditions is leading to heightened research efforts aimed at developing effective treatments, which in turn is boosting the demand for reliable preclinical models.

Pharmaceutical and biotechnology companies are increasingly investing in lung disease research due to the substantial economic burden associated with respiratory illnesses. This trend is further enhancing the need for accurate preclinical models, thereby fostering market growth. The combination of rising respiratory disease prevalence, technological advancements, and increased pulmonary research positions the region for continued expansion in the in vitro lung model market.

Strategic Insights

Market Segmentation Analysis

The South & Central America In-Vitro Lung Model Market can be segmented by type,

application, and end user:

By Type: The market is divided into 3D Models and 2D Models, with 3D Models holding the largest market share in 2024.

By Application: The applications include Drug Discovery and Toxicology Studies, Physiological Research, Regenerative Medicine, and Others, with Drug Discovery and Toxicology Studies leading the market share in 2024.

By End User: The end users are categorized into Pharmaceutical and Biotechnology Companies, Academic and Research Institutes, and Others, with Pharmaceutical and Biotechnology Companies dominating the market in 2024.

Market Outlook

According to the Global Initiative on Chronic Obstructive Lung Disease, approximately 65 million people globally suffer from COPD, with nearly 3 million deaths attributed to the disease each year, making it the fourth leading cause of mortality worldwide. The World Health Organization (WHO) reports that around 334 million people are affected by asthma. Furthermore, COPD was responsible for 3.5 million deaths in 2021, and studies such as the EPOC.AR study in Argentina highlight a significant underdiagnosis of COPD, with about 77.4% of cases remaining undetected. The prevalence of smoking in developing countries and an aging population in high-income countries are expected to contribute to a rise in COPD cases over the next four decades. The WHO predicts that by 2030, COPD will be one of the leading causes of death globally, with over 5.4 million deaths annually by 2060.

Lung cancer remains the most commonly diagnosed cancer and the leading cause of cancer-related deaths worldwide. In 2022, approximately 2.5 million new lung cancer cases were reported, resulting in over 1.8 million deaths. The WHO also noted that from the onset of COVID-19 in late 2019 to April 2023, there were around 762 million reported cases and 6.81 million associated deaths.

The increasing incidence of respiratory diseases is driving the demand for advanced research models that can elucidate disease mechanisms and facilitate the development of effective treatments. In vitro lung models serve as valuable platforms for studying these mechanisms and testing potential therapies. Innovations such as lung organoids and bioengineered organs-on-chips, both examples of three-dimensional (3D) cell

culture models, are particularly useful in respiratory disease research. These models have been effectively utilized to investigate lung responses to infections, including those caused by influenza A and coronaviruses.

In vitro lung models, such as precision-cut lung slices (PCLS), enable researchers to study airway constriction and inflammation, which is crucial for evaluating new therapeutic targets for asthma and other respiratory conditions. Devices like the lung-on-a-chip, developed by the University of Michigan, replicate the physiological conditions of the human lung, providing insights into various diseases. The growing demand for effective treatments and research models is thus propelling the growth of the in vitro lung model market.

Country Insights

The market is further segmented by country, with Brazil, Argentina, and the Rest of South & Central America. Brazil is expected to hold the largest market share in 2024. According to GLOBOCAN 2022, Brazil reported approximately 13,016 new lung cancer cases, accounting for 9.8% of all new cancer cases, with 10,673 deaths attributed to the disease. These statistics highlight the urgent need for innovative research and therapeutic strategies. In vitro lung models, which simulate human lung tissue in laboratory settings, are essential for studying disease mechanisms, testing drug efficacy, and developing personalized treatments. The increasing prevalence of lung diseases in Argentina is likely to drive further investment and development in this field, favoring market growth.

Company Profiles

Key players in the South & Central America In-Vitro Lung Model Market include Charles River Laboratories International Inc, Lonza Group AG, Merck KGaA, American Type Culture Collection (ATCC), Draper, Inc., PromoCell GmbH, Emulate, Inc., MIMETAS BV, Organovo Holdings Inc, MatTek Corp, CN Bio Innovations Ltd, InSphero AG, Epithelix, AlveoliX AG, and TissUse GmbH. These companies are employing various strategies, including expansion, product innovation, and mergers and acquisitions, to enhance their market presence and offer innovative products to consumers.

Contents

1. INTRODUCTION

- 1.1 Report Guidance
- 1.2 Market Segmentation

2. EXECUTIVE SUMMARY

- 2.1 Key Insights
- 2.2 Market Attractiveness

3. RESEARCH METHODOLOGY

- 3.1 Secondary Research
- 3.2 Primary Research
 - 3.2.1 Hypothesis formulation:
 - 3.2.2 Macroeconomic factor analysis:
 - 3.2.3 Developing base number:
 - 3.2.4 Data Triangulation:
 - 3.2.5 Country-level data:

4. IN-VITRO LUNG MODEL MARKET LANDSCAPE

- 4.1 PEST Analysis
- 4.3 Regulatory Scenario

5. SOUTH & CENTRAL AMERICA IN-VITRO LUNG MODEL MARKET - KEY MARKET DYNAMICS

- 5.1 Market Drivers
- 5.2 Market Restraints
- 5.3 Market Opportunities
- 5.4 Future Trends
- 5.5 Impact of Drivers and Restraints:

6. IN-VITRO LUNG MODEL MARKET - SOUTH & CENTRAL AMERICA MARKET ANALYSIS

6.1 South & Central America In-Vitro Lung Model Market Revenue (US\$ Million), 2024 - 2031

6.2 South & Central America In-Vitro Lung Model Market Forecast and Analysis

7. SOUTH & CENTRAL AMERICA IN-VITRO LUNG MODEL MARKET REVENUE ANALYSIS - BY TYPE

7.1 3D Model

7.1.1 Overview

7.1.2 3D Model: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

7.2 2D Model

7.2.1 Overview

7.2.2 2D Model: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

8. SOUTH & CENTRAL AMERICA IN-VITRO LUNG MODEL MARKET REVENUE ANALYSIS - BY APPLICATION

8.1 Drug Discovery and Toxicology Studies

8.1.1 Overview

8.1.2 Drug Discovery and Toxicology Studies: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

8.2 Physiological Research

8.2.1 Overview

8.2.2 Physiological Research: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

8.3 Regenerative Medicine

8.3.1 Overview

8.3.2 Regenerative Medicine: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

8.4 Others

8.4.1 Overview

8.4.2 Others: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

9. SOUTH & CENTRAL AMERICA IN-VITRO LUNG MODEL MARKET REVENUE ANALYSIS - BY END USER

9.1 Pharmaceutical and Biotechnology Companies

9.1.1 Overview

9.1.2 Pharmaceutical and Biotechnology Companies: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

9.2 Academic and Research Institutes

9.2.1 Overview

9.2.2 Academic and Research Institutes: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

9.3 Others

9.3.1 Overview

9.3.2 Others: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

10. SOUTH & CENTRAL AMERICA IN-VITRO LUNG MODEL MARKET - COUNTRY ANALYSIS

10.1 South & Central America

10.1.1 South & Central America In-Vitro Lung Model Market Revenue and Forecast and Analysis - by Country

10.1.1.1 South & Central America In-Vitro Lung Model Market Revenue and Forecast and Analysis - by Country

10.1.2.2 Brazil: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

10.1.2.2.1 Brazil: South & Central America In-Vitro Lung Model Market Share - by Type

10.1.2.2.2 Brazil: South & Central America In-Vitro Lung Model Market Share - by Application

10.1.2.2.3 Brazil: South & Central America In-Vitro Lung Model Market Share - by End User

10.2.3.3 Argentina: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

10.2.3.3.1 Argentina: South & Central America In-Vitro Lung Model Market Share - by Type

10.2.3.3.2 Argentina: South & Central America In-Vitro Lung Model Market Share - by Application

10.2.3.3.3 Argentina: South & Central America In-Vitro Lung Model Market Share - by End User

10.3.4.4 Rest of South & Central America: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

10.3.4.4.1 Rest of South & Central America: South & Central America In-Vitro Lung Model Market Share - by Type

10.3.4.4.2 Rest of South & Central America: South & Central America In-Vitro Lung Model Market Share - by Application

10.3.4.4.3 Rest of South & Central America: South & Central America In-Vitro Lung Model Market Share - by End User

11 COMPETITIVE LANDSCAPE

11.1 Global Company Market Share, 2024

12 INDUSTRY LANDSCAPE

12.1 Overview

12.2 New Product Development

12.3 Merger and Acquisition

12.4 Other Strategic Developments

13 COMPANY PROFILES

13.1 Charles River Laboratories International Inc

13.1.1 Key Facts

13.1.2 Business Description

13.1.3 Products and Services

13.1.4 Financial Overview

13.1.5 SWOT Analysis

13.1.6 Key Developments

13.2 Lonza Group AG

13.2.1 Key Facts

13.2.2 Business Description

13.2.3 Products and Services

13.2.4 Financial Overview

13.2.5 SWOT Analysis

13.2.6 Key Developments

13.3 Merck KGaA

13.3.1 Key Facts

13.3.2 Business Description

13.3.3 Products and Services

13.3.4 Financial Overview

- 13.3.5 SWOT Analysis
- 13.3.6 Key Developments
- 13.4 American Type Culture Collection (ATCC)
 - 13.4.1 Key Facts
 - 13.4.2 Business Description
 - 13.4.3 Products and Services
 - 13.4.4 Financial Overview
 - 13.4.5 SWOT Analysis
 - 13.4.6 Key Developments
- 13.5 Draper, Inc.
 - 13.5.1 Key Facts
 - 13.5.2 Business Description
 - 13.5.3 Products and Services
 - 13.5.4 Financial Overview
 - 13.5.5 SWOT Analysis
 - 13.5.6 Key Developments
- 13.6 PromoCell GmbH
 - 13.6.1 Key Facts
 - 13.6.2 Business Description
 - 13.6.3 Products and Services
 - 13.6.4 Financial Overview
 - 13.6.5 SWOT Analysis
 - 13.6.6 Key Developments
- 13.7 Emulate, Inc.
 - 13.7.1 Key Facts
 - 13.7.2 Business Description
 - 13.7.3 Products and Services
 - 13.7.4 Financial Overview
 - 13.7.5 SWOT Analysis
 - 13.7.6 Key Developments
- 13.8 MIMETAS BV
 - 13.8.1 Key Facts
 - 13.8.2 Business Description
 - 13.8.3 Products and Services
 - 13.8.4 Financial Overview
 - 13.8.5 SWOT Analysis
 - 13.8.6 Key Developments
- 13.9 Organovo Holdings Inc
 - 13.9.1 Key Facts

- 13.9.2 Business Description
- 13.9.3 Products and Services
- 13.9.4 Financial Overview
- 13.9.5 SWOT Analysis
- 13.9.6 Key Developments
- 13.10 MatTek Corp
 - 13.10.1 Key Facts
 - 13.10.2 Business Description
 - 13.10.3 Products and Services
 - 13.10.4 Financial Overview
 - 13.10.5 SWOT Analysis
 - 13.10.6 Key Developments
- 13.11 CN Bio Innovations Ltd
 - 13.11.1 Key Facts
 - 13.11.2 Business Description
 - 13.11.3 Products and Services
 - 13.11.4 Financial Overview
 - 13.11.5 SWOT Analysis
 - 13.11.6 Key Developments
- 13.12 InSphero AG
 - 13.12.1 Key Facts
 - 13.12.2 Business Description
 - 13.12.3 Products and Services
 - 13.12.4 Financial Overview
 - 13.12.5 SWOT Analysis
 - 13.12.6 Key Developments
- 13.13 Epithelix
 - 13.13.1 Key Facts
 - 13.13.2 Business Description
 - 13.13.3 Products and Services
 - 13.13.4 Financial Overview
 - 13.13.5 SWOT Analysis
 - 13.13.6 Key Developments
- 13.14 AlveoliX AG
 - 13.14.1 Key Facts
 - 13.14.2 Business Description
 - 13.14.3 Products and Services
 - 13.14.4 Financial Overview
 - 13.14.5 SWOT Analysis

13.14.6 Key Developments

13.15 TissUse GmbH

13.15.1 Key Facts

13.15.2 Business Description

13.15.3 Products and Services

13.15.4 Financial Overview

13.15.5 SWOT Analysis

13.15.6 Key Developments

14. APPENDIX

14.1 About The Insight Partners

List Of Tables

LIST OF TABLES

Table 1. South & Central America In-Vitro Lung Model Market Segmentation
Table 3. South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
Table 4. South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Type
Table 5. South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Application
Table 6. South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by End User
Table 7. South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Country
Table 8. Brazil: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Type
Table 9. Brazil: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Application
Table 10. Brazil: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by End User
Table 11. Argentina: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Type
Table 12. Argentina: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Application
Table 13. Argentina: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by End User
Table 14. Rest of South & Central America: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Type
Table 15. Rest of South & Central America: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by Application
Table 16. Rest of South & Central America: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million) - by End User

List Of Figures

LIST OF FIGURES

- Figure 1. South & Central America In-Vitro Lung Model Market Segmentation - Country
- Figure 2. PEST Analysis
- Figure 4. South & Central America In-Vitro Lung Model Market - Key Market Dynamics
- Figure 5. Impact Analysis of Drivers and Restraints
- Figure 6. South & Central America In-Vitro Lung Model Market Revenue (US\$ Million), 2024 - 2031
- Figure 7. South & Central America In-Vitro Lung Model Market Share (%) - by Type, 2024 and 2031
- Figure 8. 3D Model: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 9. 2D Model: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 10. South & Central America In-Vitro Lung Model Market Share (%) - by Application, 2024 and 2031
- Figure 11. Drug Discovery and Toxicology Studies: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 12. Physiological Research: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 13. Regenerative Medicine: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 14. Others: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 15. South & Central America In-Vitro Lung Model Market Share (%) - by End User, 2024 and 2031
- Figure 16. Pharmaceutical and Biotechnology Companies: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 17. Academic and Research Institutes: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 18. Others: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)
- Figure 19. South & Central America In-Vitro Lung Model Market Breakdown by Key Countries, 2024 and 2031 (%)
- Figure 20. Brazil: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

Figure 21. Argentina: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

Figure 22. Rest of South & Central America: South & Central America In-Vitro Lung Model Market - Revenue and Forecast, 2021 - 2031 (US\$ Million)

Figure 23. Global Company Market Share, 2024

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