

Exosomes Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The exosomes market is expected to grow at a registered CAGR of 27.89% during the forecast period.

During the COVID-19 pandemic, there was a rising demand for exosomes. Exosomes are 30-120 nm extracellular vesicles that participate in several pathological conditions. Virus-infected cells release exosomes that are implicated in infection by transferring viral components such as viral-derived miRNAs and proteins. Exosomes also contain receptors for viruses that make recipient cells susceptible to virus entry. The spike protein cleavage by transmembrane protease serine 2 (TMPRSS2) is needed for COVID-19 virus entry and infection via interaction with the angiotensin-converting enzyme 2 (ACE2) receptor. There is evidence that exosomes transfer ACE2 to recipient cells, suggesting a supportive function for COVID-19 virus internalization and infection. A study published by the National Institute of Health in January 2022 suggests that the COVID-19 infection has a direct connection with exosomes in terms of the emergence of the virus inside the body and its spread. Additionally, it is observed that circulating exosomes carrying lung-associated self-antigens, viral antigens, and the 20S proteasome are more prevalent in individuals with coronavirus infection. Hence, with the above-mentioned factors, it is noticeable that the COVID-19 pandemic had a significant impact on the exosome market. However, post-pandemic, exosome study and research have evolved with their widening applications.

Certain factors that are driving market growth include the increasing prevalence of cancer, technological advancements in exosome isolation and analytical procedures, and increasing advanced applications of exosomes. The growing prevalence of cancer patients directly impacts the increased demand for exosomes. According to the GLOBOCAN 2020 report, 19.29 million people are living with cancer, and this number is expected to rise over the next two decades across the globe. With the rising number of cancer cases, it is believed that the application of exosomes in coping with cancer would be high, which is expected to contribute to the market growth.

Exosomes extracted from cow's milk are used to deliver therapeutic molecules against lung and breast cancer. Exosomes derived from specific sites of the body are promising candidates for anti-cancer vaccines due to their enhanced passive targeting and their

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small size, indigenous nature, and ability to cross biological barriers. Thus, the increase in the number of cancer cases in hospitals directly increases the demand for exosomes in diagnosis as well as therapeutics.

However, many technical difficulties need to be addressed to successfully implement exosomes in various applications. This is one of the primary hindrances to the growth of the exosome market. Some of the major difficulties include optimization of purification, increasing the homogeneity of exosomes, and efficient transfection strategies. This is further accompanied by a lack of technical information (like the type of rotor, diameter, volume, and viscosity of the sample), which restricts the maximum utilization of exosomes.

The cumbersome nature of the methods for isolation and purification and the inability to distinguish between different cancer stages with an incomplete understanding of the immune system may limit the exosome market. Moreover, other factors limiting the growth of this market are the stringent regulatory requirements for the approval and commercialization of exosome products.

Exosomes Market Trends

The Therapeutic Application Segment is Expected to Hold the Largest Market Share in the Exosomes Market

Exosomes have the potential to be used as a therapeutic platform for a variety of diseases, including COVID-19. Exosomes have clinical applications as cell-free alternatives for treating various diseases and tissue regeneration by delivering therapeutic cargo components while avoiding immune rejection and cellular toxicity. In addition, stem cell-derived exosomes are advantageous in harnessing the anti-inflammatory and regenerative abilities of parent cells; thus, exosomal treatment can be engineered for respiratory viral diseases, including SARS-CoV-2.

Exosomes have promising potential to be a vehicle for drug delivery as they have natural material transportation properties, the capability to support intrinsic long-term circulation, and high biocompatibility, which are the most suitable factors for the delivery of a variety of proteins, chemicals, and nucleic acids. According to a few research studies, exosomes have generated positive results as mediators of intercellular communication, potentially delivering functional proteins, mRNA transcripts, and miRNAs to cells throughout the body. Exosomes, derived from some types of cells (such as dendritic and mesenchymal stem cells), have potential therapeutic properties and are biocompatible and efficient agents against various disorders, such as organ injury and various disorders including heart, kidney, liver, and lung illnesses.

Although there has been rapid progress in the research of exosome applications, there are many challenges in the development of exosome-based therapeutics, particularly in the production of exosome formulations due to their low productivity and heterogeneity. Moreover, there are a few barriers in the storage, optimization, and isolation methods of exosome formulations.

North America Dominates the Market and is Expected to do the Same in the Forecast Period

During the COVID-19 pandemic, the United States was the most affected country in the world. As exosomes and extracellular vesicles are considered potential mediators of infection, reinfection, and reactivation, the growing number of studies concerning exosomes is positively impacting market growth in North America.

The North American region holds one of the largest shares in the exosome market, owing to better healthcare infrastructure, effective government policies, a huge base of multinational companies, and high awareness among people about diagnostics and healthcare. Many government-funded research studies have been conducted regarding the role of drugs using exosomes in several kinds of cancer, such as melanoma, breast cancer, lung cancer, and pancreatic cancer, among others. Companies like Merck and Exosome Diagnostic have sponsored and collaborated with several universities, such as Yale University and Michigan State University, to conduct clinical trials in the United States. Furthermore, these ventures are very well supported by

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government funding. The studies were mostly conducted for neoplasms.

New technologies coming into the exosome market are fueling market growth. For instance, according to the Lab on Chip Journal publication of July 2022, the United States is experiencing wide adoption of emerging micro-nanotechnologies for extracellular vesicles in immuno-oncology ranging from target-specific isolations to immunomodulation. With the adoption of new technologies, the market studied is expected to witness strong growth in the coming years.

Exosomes Market Competitor Analysis

The exosome market is highly competitive and consists of a number of major players. Companies like Danaher (Beckman Coulter Inc.), Diagenode Inc., Fujifilm Holdings Corporation, Hitachi Chemical Diagnostics Inc., Lonza, MBL International, Miltenyi Biotec, Novus Biologicals, Qiagen, and Thermo Fisher Scientific Inc., among others, hold a substantial market share in the exosomes market.

Additional Benefits:

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

Table of Contents:

1 INTRODUCTION

1.1 Study Assumptions and Market Definition

1.2 Scope of the Study

2 RESEARCH METHODOLOGY

3 EXECUTIVE SUMMARY

4 MARKET DYNAMICS

4.1 Market Overview

4.2 Market Drivers

4.2.1 Increasing Prevalence of Cancer

4.2.2 Technological Advancements in Exosome Isolation and Analytical Procedures

4.2.3 Increasing Advanced Applications of Exosomes

4.3 Market Restraints

4.3.1 Stringent Regulatory Requirements for Approval and Commercialization of Exosome Products

4.3.2 Technical Difficulties with the Implementation and Usage of Exosomes

4.4 Porter's Five Forces Analysis

4.4.1 Threat of New Entrants

4.4.2 Bargaining Power of Buyers/Consumers

4.4.3 Bargaining Power of Suppliers

4.4.4 Threat of Substitute Products

4.4.5 Intensity of Competitive Rivalry

5 MARKET SEGMENTATION (Market Size by Value - USD million)

5.1 By Product

5.1.1 Kits and Reagents

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- 5.1.2 Instruments
- 5.1.3 Other Products
- 5.2 By Application
 - 5.2.1 Diagnostics
 - 5.2.2 Therapeutics
- 5.3 Geography
 - 5.3.1 North America
 - 5.3.1.1 United States
 - 5.3.1.2 Canada
 - 5.3.1.3 Mexico
 - 5.3.2 Europe
 - 5.3.2.1 Germany
 - 5.3.2.2 United Kingdom
 - 5.3.2.3 France
 - 5.3.2.4 Italy
 - 5.3.2.5 Spain
 - 5.3.2.6 Rest of Europe
 - 5.3.3 Asia-Pacific
 - 5.3.3.1 China
 - 5.3.3.2 Japan
 - 5.3.3.3 India
 - 5.3.3.4 Australia
 - 5.3.3.5 South Korea
 - 5.3.3.6 Rest of Asia-Pacific
 - 5.3.4 Middle East
 - 5.3.4.1 GCC
 - 5.3.4.2 South Africa
 - 5.3.4.3 Rest of Middle East
 - 5.3.5 South America
 - 5.3.5.1 Brazil
 - 5.3.5.2 Argentina
 - 5.3.5.3 Rest of South America

6 COMPETITIVE LANDSCAPE

- 6.1 Company Profiles
 - 6.1.1 Danaher Corporation (Beckman Coulter Inc.)
 - 6.1.2 Hologic Inc.
 - 6.1.3 Fujifilm Holdings Corporation
 - 6.1.4 Lonza Group Ltd
 - 6.1.5 JSR Corporation (MBL International)
 - 6.1.6 Miltenyi Biotec
 - 6.1.7 Bio-Techne (Novus Biologicals)
 - 6.1.8 Qiagen
 - 6.1.9 Thermo Fisher Scientific Inc.
 - 6.1.10 Illumina Inc.
 - 6.1.11 Takara Bio Inc.
 - 6.1.12 Malvern Instruments Ltd

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6.1.13 Abcam PLC

6.1.14 Evox Therapeutics

6.1.15 Capricor Therapeutics Inc.

7 MARKET OPPORTUNITIES AND FUTURE TRENDS

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