

Live Cell Encapsulation Market - Global Industry Size, Share, Trends, Competition, Opportunity, and Forecast, 2018-2028 Segmented By Polymer Type (Alginate, Chitosan, Cellulose Sulphate and Others), By Application (Drug Delivery, Regenerative Medicine, Cell Transplantation and Probiotics), By Technique (Simple Dripping, Electrostatic Dripping and Coaxial Airflow), By Region

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Abstracts

Live Cell Encapsulation Market is expected to grow with an impressive CAGR in the forecast period of 2024-2028. This can be attributed to factors such as growing research & development in improving the effectiveness of cell encapsulation technologies, along with the rise in governmental and private investments supporting live cell encapsulated product development.

Live cell encapsulation is a bioengineering technology that includes encasing living cells with a material or coating. A distinct variety of materials are used for encapsulation, such as liposomes, hydrogels, and microcapsules.

Moreover, live-cell encapsulation is found to have significant importance in cell therapies as it allows a controlled release of bioactive material or cells and thereby is anticipated to bolster the market growth with the rise in cell therapies across the globe.

Increase in Cell Therapies

The live cell encapsulation delivers the medicinal cell component or bioactive materials

in a controlled manner and thus is efficient to be used in cell therapies as they include the delivery of therapeutics directly in the targeted location in the body. Additionally, they do not create any response by the body's immune system and thus aren't attacked or eliminated by the immune system. The encapsulated cells, in some cases, carry out specific functions, such as activating cancer drugs. For instance, in 2021, a company called Nuvilex performed a research study in which the live cells were encapsulated within beads to treat pancreatic cancer. It was observed the cells converted the inactive cancer drug ifosfamide into its cancer-killing form, and this specific property ensures the delivery of the chemotherapeutic drug directly to the tumor and thereby is found to have potential usage in the future.

Rising Prevalence of Chronic Diseases

Chronic diseases such as cancer, diabetes, etc., are rising across the globe and are a major health concern worldwide. According to the report by the International Diabetes Foundation, in 2021, around 537 million adults were affected by diabetes, and it is expected to increase to 643 million by 2030, and by 2045, it will reach 783 million. The introduction and increased awareness about the applications of live cell encapsulation in the treatment of chronic diseases such as type 1 diabetes, cancer, and autoimmune diseases are expected to boost the market. For instance, the live cell encapsulation technology is used for delivering insulin-producing cells to the patient suffering from type 1 diabetes and dopamine delivering in the case of Parkinson's disease. Thus, the growing number of chronic diseases is creating a huge demand for companies to include and enhance live cell encapsulation and thereby is expected to bolster the market growth in the forecast period.

Growing Research & Development to Improve Product Efficacy

The growing expansion of biotechnology with increasing research & development and rising company investments in live cell encapsulation technologies is leading to improvement in the development and clinical efficacy of live cell encapsulation. The growing investment and increased mutual associations to enhance the live cell encapsulation technological application and production by the key market players are further contributing to the growth of the global live cell encapsulation market. For instance, In November 2022, a leading supplier of biocompatible materials- BIO INX, collaborated with Nanoscribe- a microfabrication technology leader and introduced HYDROBIO INX N400- that enables cell encapsulation in high resolution, i.e., 3D printing and is especially designed for 3D microfabrication. Additionally, in July 2021, a clinical biotechnology company -PharmaCyte Biotech, developed targeted treatments

for cancer and diabetes using the live-cell encapsulation technique and commenced the first phase of a two-phase pig study used for investigating live-cell encapsulation technology for diabetes treatment. Thus, growing research is providing opportunities for companies to enhance the live cell encapsulation technique.

Market Segmentation

Global Live Cell Encapsulation Market is segmented based on polymer type, application, technique, region, and competitive landscape. Based on polymer type, the market is segmented into alginate, chitosan, cellulose sulfate, and others. Based on application, the market is segmented into drug delivery, regenerative medicine, cell transplantation, and probiotics. Based on technique, the market is segmented into simple dripping, electrostatic dripping, and coaxial airflow. Based on the region, the market is further segmented into North America, Europe, Asia-Pacific, South America, and MEA.

Market Players

AUSTRIANOVA, Merck KGaA, Sphere Fluidics Ltd., ViaCyte, Inc., Blacktrace Holdings Ltd. (Dolomite Microfluidics), BIO INX, Living Cell Technologies Ltd., Sigilon Therapeutics, Inc., Isogen, Diatranz Otsuka Ltd. are some of the major players operating in the Global Live Cell Encapsulation Market.

Report Scope:

In this report, Global Live Cell Encapsulation Market has been segmented into the following categories, in addition to the industry trends, which have also been detailed below:

Live Cell Encapsulation Market, By Polymer Type:

Alginate

Chitosan

Cellulose Sulfate

Others

Live Cell Encapsulation Market, By Application:

Drug Delivery

Regenerative Medicine

Cell Transplantation

Probiotics

Live Cell Encapsulation Market, By Technique:

Simple Dripping

Electrostatic Dripping

Coaxial Airflow

Live Cell Encapsulation Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

Asia-Pacific

China

Japan

India

South Korea

Australia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

South America

Brazil

Argentina

Colombia

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Live Cell Encapsulation Market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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