

Global Cryo Electron Microscopy Market was Worth US\$ 1.3 Bn in 2022; as per Absolute Markets Insights

Global Cryo Electron Microscopy Market is Growing at an Estimated CAGR of 11.8% from 2023- 2031

HOUSTON, TEXAS, UNITED STATES, July 12, 2023 /EINPresswire.com/ -- Global Cryo Electron Microscopy Market Introduction

Cryo electron microscopy (cryoEM) is a structural biology technique used to determine the three-dimensional (3D) structures of biomacromolecules. After years of development, cryoEM has achieved significant advances, resulting in a structural biology revolution. In

recent years, the continuous development of cryogenics and quick freezing technology has resulted in the emergence of cryoelectron microscopy (cryoEM), or the microtechnology of seeing materials at low temperatures using a transmission electron microscope. Cryo-EM has revolutionized structural biology by enabling the study of complex molecular structures that were previously challenging to determine using traditional techniques such as X-ray crystallography or nuclear magnetic resonance (NMR) spectroscopy. It has contributed to significant advancements in understanding of biological processes and has the potential to facilitate drug discovery and development by providing insights into the molecular mechanisms of diseases.

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Global Cryo Electron Microscopy Market Applications

Cryo-EM has improved the understanding of cancer and cancer therapy. Scientists have used cryo-EM in surprising ways in recent years to discover new cancer pathways, gain atomic-level descriptions of critical cancer proteins, and give a framework for improved medicinal treatments. Researchers are using cryo-EM to freeze biomolecules in their original conformations and see



protein interactions. It is also being used by scientists to record many phases of biological processes rather than simply the pre-reaction and end states. According to the The American Cancer Society there were about 20,050 new cases of acute myeloid leukemia (AML) in the United States in 2022. Various research organizations along with healthcare institutions are adopting cryogenic electron microscopy as a viable structural tool for molecular therapeutics development against such human diseases.

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Cryo-EM was also utilised to discover structural changes in coronavirus disease 2019 (COVID-19) variations in order to better understand the virus's evolution, which boosted their infectivity. The alterations in the spike protein structure of beta and alpha variants were detected using high-resolution cryo-EM. The structure of the SARS-CoV-2 spike protein along with its cellular receptor during infection was identified by cryo-EM researchers. Cryo-EM has been a common and successful tool for biological research in recent years, allowing researchers to investigate the structure of physiologically relevant molecules such as proteins and viruses at near-atomic resolution in order to better comprehend 3D structure and activity. These findings will help to promote and speed the development of COVID-19 vaccines and therapies.

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Furthermore, cryo-EM was used for the first time to determine the complicated activities of cellular processes. Cryo-EM was utilised by researchers, who published their findings in the journal Cell Discovery, to closely examine the ATP13A2 protein found in brain cells. When a protein loses functioning due to a genetic mutation, it causes neurodegenerative disorders such as Parkinson's disease. During the imaging, the samples were frozen at temperatures ranging from -238° F to -460° F. Thus, due to a wide range of applications across various areas, cryo-EM is gaining huge popularity and rise in demand for advanced research, which will support the growth global cryo electron microscopy market.

Asia Pacific region is anticipated to be the fastest growing in the cryo electron microscopy market during the forecast period. Many countries in Asia, such as China, Japan, South Korea, and Singapore, have significantly increased their investments in scientific research and infrastructure. This has facilitated the establishment of state-of-the-art cryo-EM facilities and the acquisition of advanced cryo-EM equipment. Collaborative initiatives and networks within the scientific community have played a crucial role in promoting cryo-EM in Asia. Institutions and researchers in Asia have formed partnerships with leading international cryo-EM centers and have benefited from knowledge transfer, training programs, and collaborative research projects. Thermo Fisher Scientific company provided a cryo-transmission electron microscope in 2022 to the Centre for Cellular and Molecular Biology in Hyderabad, with an aim to help scientists speed up possible treatments, medication discoveries, and diagnostic studies. This new facility will be available to scientists at CCMB, other CSIR laboratories, and researchers from other institutes, universities,

pharmaceutical and biotech firms throughout India. Similarly, in 2021, cryo-electron microscopy suite was the first of its kind in Western Australia, and it was financed by the Federal Government's National Collaborative Research Infrastructure Strategy as well as by the State Government's Department of Jobs, Tourism, Science, and Innovation. Surface imaging and element analysis of frozen materials are now possible with the new cryo-scanning electron microscope (CryoSEM). It will help to fund important WA research projects in agribusiness, biotechnology, and innovative materials. Thus with such initiatives Asia Pacific region will upsurge in the cryo electron microscopy market.

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Global Cryo Electron Microscopy Market Key Competitors

- o Creative Biostructure
- o Gandeeva Therapeutics.
- o Gatan, Inc.
- o JEOL USA, Inc.
- o Leica Microsystems
- o Structura Biotechnology Inc.
- o Thermo Fisher Scientific Inc.
- o Other Market Participants

Global Cryo Electron Microscopy Market

By Offerings

- o Instruments
- o Software
- o Services

By Techniques

- o Single particle analysis
- o Cryo-electron tomography (cryo-ET)
- o Micro electron diffraction (MicroED)

By Voltage

- o 100 kV
- o 120 kV
- o 200 Kv
- o 300 kV

By Application

- o Structural Biology Research
- o Drug Discovery
- o Infectious Disease Research
- o Neurodegenerative Disease Research
- o Others

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By Region

- o North America (U.S., Canada, Mexico, Rest of North America)
- o Europe (France, The UK, Spain, Germany, Italy, Nordic Countries (Denmark, Finland, Iceland, Sweden, Norway), Benelux Union (Belgium, The Netherlands, Luxembourg), Rest of Europe)
- o Asia Pacific (China, Japan, India, New Zealand, Australia, South Korea, Southeast Asia (Indonesia, Thailand, Malaysia, Singapore, Rest of Southeast Asia), Rest of Asia Pacific)
- o Middle East & Africa (Saudi Arabia, UAE, Egypt, Kuwait, South Africa, Rest of Middle East & Africa)
- o Latin America (Brazil, Argentina, Rest of Latin America)

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