

AI in Pathology Market by Neural Network (GAN, CNN, RNN), Function (Diagnostic, Image Analysis, CDSS, Data Management, Analytics), Use Case (Drug Discovery, Clinical workflow), End User (Hospital, Labs, Pharma/Biotech), & Region - Global Forecast to 2029

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Report description:

The global AI in Pathology market is expected to reach USD 169.8 million by 2029 from USD 82.8 million in 2024 at a high CAGR of 15.4% during the forecast period. AI in pathology refers to the healthcare industry's sector which comprises of development, deployment, and utilization of Artificial Intelligence (AI) designed for pathology applications specifically. Clinical data, genomic information, and disease progression can be analysed by using these AI models. These AI models assist in personalized treatment planning, identifying high-risk patients, and optimizing healthcare resource allocation. The AI helps and assists pathologists in extracting relevant information and analyzing images with the use of advanced AI algorithms, computer vision, and machine learning.

"The drug discovery segment accounted for the largest share in 2023, by use case."

In 2023, the drug discovery segment held the largest share of the AI in pathology market. The major factor behind this is the high demand for efficient and cost-effective drugs, as AI in pathology helps in accelerating the drug discovery process by automating the data analytics and identifying potential drug faster. In addition, the advancements in high throughput screenings imaging technologies and utilization of AI in toxicology testing for illicit drugs also act as a driving force for this market. Furthermore, the reduced time and costs play a very vital role as traditional methods are very time consuming and expensive as well, the introduction of AI in pathology helps in streamlining the process by enabling faster insights and decision making. Which in turn makes the process more efficient and cost effective, these all factors combined act as a catalyst for the growth of this market.

"Pharmaceutical and biopharmaceutical companies is the fastest growing end-user segment in the AI in pathology market."

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The pharmaceutical and biopharmaceutical companies segment is projected to witness the highest growth rate during the forecast period. The growing collaboration between pharmaceutical companies and AI providers fuels rapid adoption of AI, also the companies are heavily investing in AI tools to stay competitive in drug development and innovation. As AI helps in fast tracking and streamlining the processes for drug discovery by analysing large datasets, identifying patterns in tissue samples, and predicting treatment responses, which reduces the time consumption and makes it cost effective, leading to faster innovations. The biopharmaceutical companies rely on AI-based digital pathology for majorly development of individualized medicine, as AI powered pathology aids the development of personalised medicine by providing detailed insights into individual portfolio.

"North America accounted for the largest share in 2023, in AI in pathology market."

In 2023, the North American region held the largest market share in the AI in pathology market due to several factors. The first and foremost being the high adoption of AI technology and strong investment in research and development driving the market growth. For instance, companies like Koninklijke Philips N.V. in 2023, invested nearly USD 895 million in R&D for diagnosis and treatment. On the other hand, the advanced healthcare infrastructure plays a very vital role in this market as there's a need of high tech machinery such as advanced microscopes and scanners. Moreover, the large patient pool and data availability contributes in creating a large database, which can be further used to train the AI for greater accuracy and efficiency. This increasing focus on technology, patient safety, and quality improvement, combined with technological advancements in medical devices, continues to drive the adoption of AI in pathology market in North America.

The break-down of primary participants is as mentioned below:

- By Company Type - Tier 1: 55%, Tier 2: 25%, and Tier 3: 20%
- By Designation - C-level: 50%, Director-level: 30%, and Others: 20%
- By Region - North America: 40%, Europe: 35%, Asia Pacific: 20%, RoW: 5%

Key Players in the AI in pathology Market

The key players functioning in the AI in pathology market include Koninklijke Philips N.V. (Netherlands), F. Hoffmann-La Roche Ltd (Switzerland), Hologic, Inc. (US), Akoya Biosciences, Inc. (US), Aiforia Technologies Plc (Finland), Indica Labs Inc. (US), OptraScan (US), Ibex Medical Analytics Ltd. (Israel), Mindpeak GmbH (Germany), Tribun Health (France), Techcyte, Inc. (US), Deep Bio Inc. (Korea), Lumea Inc. (US), Visiopharm (Denmark), aetherAI (Taiwan), Aiosyn (Netherlands), Paige AI, Inc. (US), Proscia Inc. (US), PathAI, Inc. (US), Tempus Labs, Inc. (US), Konfoong Biotech International Co., Ltd. (China), DoMore Diagnostics AS (Norway), Verily Life Sciences, LLC (US), deepPath (US), and 4D Path Inc (US).

Research Coverage:

The report analyses the AI in pathology market. It aims to estimate the market size and future growth potential of various market segments based on by offerings, neural networks, use-case, end-user, by functions and region. The report also provides a competitive analysis of the key players in this market, along with their company profiles, product offerings, recent developments, and key market strategies.

Reasons to Buy the Report

This report will enrich established firms and new entrants/smaller firms to gauge the market's pulse, which, in turn, would help them garner a greater share of the market. Firms purchasing the report could use one or a combination of the below-mentioned strategies to strengthen their positions in the market.

This report provides insights on:

- Analysis of key drivers (Rising strategic collaborations among market players, integration of AI in multiplex imaging, Rising cases of misdiagnoses, AI-augmented telepathology broadening access to specialized pathology services, and technological advancements in deep learning), restraints (High cost of digital pathology systems, the scarcity of AI expertise and unclear regulatory guidelines for medical software, and lack of interoperability with legacy systems), opportunities (Growing demand for personalized medicine, integration of multi-omics data, and predictive analytics for disease Progression) challenges (Lack of sufficient data to train AI algorithms, data privacy, and ethical concerns, interpretability of AI models) influencing the growth of the AI in pathology market.
- Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the AI in pathology market.

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- ☐Market Development: Comprehensive information on the lucrative emerging markets, offering, neural networks, functions, use-case, end-user, and region.
- ☐Market Diversification: Exhaustive information about the product portfolios, growing geographies, recent developments, and investments in the AI in pathology market.
- ☐Competitive Assessment: In-depth assessment of market shares, growth strategies, product offerings, and capabilities of the leading players in the AI in pathology market like Koninklijke Philips N.V. (Netherlands), F. Hoffmann-La Roche Ltd (Switzerland), Hologic, Inc. (US).

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