

# Photoacoustic Tomography Market Size, Share & Trends Analysis Report By Type (Photoacoustic Microscopy, Intravascular Photoacoustic Tomography), By Application (Functional Brain Imaging), By End Use, By Region, And Segment Forecasts, 2025 - 2030

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## Abstracts

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### Photoacoustic Tomography Market Trends

The global photoacoustic tomography market size was estimated at USD 74.7 million in 2024 and is expected to expand at a CAGR of 19.71% from 2025 to 2030. Major factors driving the growth of the photoacoustic tomography (PAT) industry include increasing demand for non-invasive, high-resolution imaging techniques, advancements in laser and ultrasound technology, rising prevalence of chronic diseases, and the integration of AI for improved diagnostics. Additionally, the development of affordable, portable PAT devices and ongoing research in molecular imaging are expanding its use in clinical and pre-clinical applications, boosting market growth.

The photoacoustic tomography (PAT) industry is expected to grow at a significant rate primarily owing to its efficiency to provide high-resolution, non-invasive imaging, making it highly effective for early disease detection and functional tissue characterization. This capability is particularly valuable in diagnosing and monitoring chronic diseases such as cancer, cardiovascular disorders, and neurological conditions, where early intervention can significantly improve patient outcomes.

The increasing prevalence of these chronic diseases has driven demand for advanced imaging techniques that offer deeper tissue penetration, real-time visualization, and high-contrast imaging without the need for harmful ionizing radiation. PAT's ability

Combining optical and ultrasound imaging allows for precise visualization of blood vessels, oxygenation levels, and metabolic activity, which is crucial for detecting tumors, assessing brain function, and monitoring cardiovascular health.

Furthermore, rapid advancements in laser and ultrasound technology have improved the accuracy, speed, and efficiency of PAT systems, making them more reliable and accessible for clinical and research applications. The integration of artificial intelligence (AI) and machine learning in PAT is further enhancing image processing, automating data interpretation, and improving diagnostic accuracy, thus driving its adoption in hospitals, research institutions, and diagnostic laboratories.

#### Global Photoacoustic Tomography (PAT) Market Report Segmentation

This report forecasts revenue growth at global, regional, and country levels and provides an analysis of the latest industry trends in each of the sub-segments from 2018 to 2030. For this study, Grand View Research has segmented the global photoacoustic tomography (PAT) market report on the basis of type, application, end use, and region:

#### Type Outlook (Revenue, USD Million, 2018 - 2030)

Photoacoustic Microscopy

Intravascular Photoacoustic Tomography

Others

#### Application Outlook (Revenue, USD Million, 2018 - 2030)

Functional Brain Imaging

Tumor Angiogenesis

Blood Oxygenation Mapping

Skin Melanoma Detection

Other Applications

#### End Use Outlook (Revenue, USD Million, 2018 - 2030)

Hospitals

Diagnostic Imaging Centers

Academic & Research Institutes

Other End User

Regional Outlook (Revenue, USD Million, 2018 - 2030)

North America

U.S.

Canada

Mexico

Europe

UK

Germany

France

Italy

Spain

Denmark

Sweden

Norway

Asia Pacific

Japan

China

India

Australia

Thailand

South Korea

Latin America

Brazil

Argentina

Middle East & Africa

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Kuwait

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