

**Japan Near-Infrared Imaging Market Assessment, By Product [Devices, Reagents], By Application [Preclinical Imaging, Cardiovascular Surgeries, Gastrointestinal Surgeries, Cancer Surgeries, Plastic/Reconstructive Surgeries, Others], By End-user [Hospitals and Clinics, Pharmaceutical and Biotechnology Companies, Research Laboratories], By Region, Opportunities and Forecast, FY2018-FY2032F**

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**Report description:**

Japan near-infrared imaging (NIR) market is projected to witness a CAGR of 5.64% during the forecast period FY2025-FY2032, growing from USD 116.09 million in FY2024 to USD 180.06 million in FY2032. The near-infrared imaging market in Japan is expected to grow robustly during the forecast period owing to the rising prevalence of chronic diseases, such as cancer, cardiovascular conditions, and neurological disorders, and increased demand for advanced imaging technologies.

Near-infrared imaging is an invisible imaging technique that uses near-infrared light to view the structural function and activity inside the tissue or objects. Moreover, advanced imaging solutions can improve diagnostic and treatment outcomes. With technological developments such as artificial intelligence and the addition of advanced fluorescent agents, the performance of the visualization system is almost improved in infrared form, and implementation in various healthcare applications is supplied. Additionally, the increased utilization of NIR imaging in minimally invasive and image-guided surgeries, especially in oncology and reconstructive procedures, is driving market growth. For instance, in March 2024, Artience Co., Ltd. announced the Sciforium FI Series, advanced near-infrared fluorescence probes, for high-sensitivity imaging of cells and exosomes. These probes offer fast, vivid staining, high fluorescence intensity, and superior photostability.

**Rising Demand for Non-Invasive Diagnostics for Chronic and Age-Related Diseases**

The growing demand for non-invasive diagnostic solutions for treating chronic and age-related diseases is a key driver for the growth of the near-infrared imaging market in Japan. Japan's aging population leads to an increase in the prevalence of diseases such as cancer, cardiovascular diseases, and neurological disorders, thereby increasing the need for advanced imaging

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technologies that provide accurate real-time information without the risks associated with invasive procedures. NIR imaging's ability to visualize biological tissues safely, painlessly, and in detail makes it an attractive option for early diagnosis and monitoring, facilitating easy implementation in clinical and research settings. This trend is expected to continue to drive market expansion as healthcare providers favor patient-centric, minimally invasive diagnostic approaches. For instance, a study published in the *Anticancer Research Journal* evaluated the feasibility of combining near-infrared photoimmunotherapy with immune checkpoint inhibitor therapy for unresectable recurrent head and neck cancer. Conducted at Ryukyu University Hospital, the study included five patients, four of whom received NIR-PIT combined with pembrolizumab. A 100% best-observed response rate was achieved among seven treated lesions, with three complete and four partial responses.

#### Advancements in Imaging Technologies Drive Market Growth

Advances in imaging technologies are major growth drivers for the Japan near-infrared imaging market. Incorporating cutting-edge innovations such as artificial intelligence, improved fluorescence agents, and high-resolution sensors greatly enhanced NIR imaging systems' accuracy, sensitivity, and real-time capabilities. Technological advances allow for more accurate diagnostics, especially in complex medical applications such as oncology, neurology, and cardiovascular imaging. Portable and low-cost solutions for NIR imaging are bringing the market within the reach of different settings, including hospitals and point-of-care facilities. Therefore, the prospects of this technology further improve the demands for NIR imaging as the advancement in imaging technology progresses. For instance, in October 2024, e-con Systems Inc. launched the See3CAM\_CU83, a 4K RGB-IR superspeed USB camera featuring onsemi's AR0830 sensor. This innovative camera captures both RGB and infrared images simultaneously, making it suitable for various applications such as biometric access control, in-cabin monitoring, crop health monitoring, image-guided surgeries, and smart patient monitoring.

#### Near-Infrared Devices Segment to Dominate the Near-Infrared Imaging Market

The near-infrared devices segment is expected to capture the maximum market share in the near-infrared imaging market, led by extensive use across sectors such as health care, manufacturing, and agriculture, which can make this possible. It is encompassed by cameras, sensors, and even systems with high-quality capabilities in real-time analysis, non-invasive diagnostics, and material inspection. Its applications in health care are highly in demand nowadays as a better diagnostic tool for chronic diseases and surgical guidance. Meanwhile, industries use NIR devices for quality control and defect control. Ongoing technological advancements in this segment, including improved sensitivity and portability, are expected to maintain market leadership and will continue contributing to market growth. For instance, in August 2024, Shimadzu Corporation launched the LuminousQuester NI, a near-infrared imaging system designed to enhance drug discovery research. This system features a camera that simultaneously captures near-infrared and visible light and dedicated software for nonclinical applications.

#### Preclinical Imaging Segment to Dominate the Near-Infrared Imaging Market

The preclinical imaging segment is expected to dominate the Japan near-infrared imaging market, with rising demand for advanced imaging solutions primarily in drug discovery, disease modeling, and preclinical research expected to drive market growth. Near-infrared imaging is a high-resolution, non-invasive, real-time technique for visualizing biological processes. As such, they play an important role in early-stage research for evaluating treatment efficacy and monitoring disease progression. Their high sensitivity and specificity in tracking molecular and cellular activity enhance their utility in preclinical research, especially in the areas of oncology, neurology, and cardiovascular research. The demand for efficient and accurate preclinical imaging technologies, especially with pharmaceutical and biotechnology companies continuing to focus on developing novel therapeutics, will propel significant growth in this segment. For instance, in October 2021, MILabs B.V. introduced its 7 Series Integrated Line of products, enhancing user experience by improving the performance of individual imaging modalities and their integration. The new system reveals molecular images previously obscured by noise, enabling advanced applications such as SPECT to PET translation, fluorescence and bioluminescence tomography, and targeted radiotherapy with high-energy tracers.

#### Future Market Scenario (FY2025-FY2032F)

-□Continuous innovations in miniaturized, high-resolution NIR imaging systems will push the adoption of these applications into medical, industrial, and scientific use.

-□Growing usage in healthcare, food inspection, environmental monitoring, and semiconductor testing is going to open up wider markets.

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- The demand for NIR imaging in medical applications like tissue imaging and surgical guidance is increasing due to the increased needs of healthcare, which are driven by the aging population and by a focus on precision diagnostics.
- Strong governmental support and investments in research and development are fostering innovation and market growth.
- The market is going to be more competitive in nature, where the focus will be on product differentiation, customization, and localized solutions to meet industry-specific demands.

#### Key Players Landscape and Outlook

Japan near-infrared imaging market is shaped by strategic initiatives such as mergers, acquisitions, and collaborations among key players, driving innovation and growth. Regulatory approvals for new products further enhance market expansion, positioning NIR imaging for continued development and increased adoption across various sectors.

For instance, in February 2024, Hamamatsu Photonics K.K. introduced the C16741-40U, a high-performance InGaAs camera with sensitivity from 400 nm to 1700 nm, spanning visible to SWIR regions. Due to minimized readout noise, it delivers high-resolution imaging with an exceptional signal-to-noise ratio. Integrated Peltier cooling ensures sensor stability, while the USB 3.1 Gen 1 interface supports 12-bit imaging and adjustable exposure times. Designed for food sorting, plastic recycling, silicon wafer inspection, laser alignment, and solar cell evaluation.

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