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Olympus Announces First Results of Its AI-Based Pathology Diagnostic Tool for Gastric Cancer**The AI achieved 100% sensitivity and 50% or more specificity**

The results of Olympus' ongoing joint research program¹ to create an AI-based pathology diagnostic tool with the potential to streamline pathologists' workloads were announced at the Japan Society of Digital Pathology Study annual meeting. The diagnostic tool achieved 100% sensitivity² and 50% or more specificity³ for all gastric biopsy pathology specimens analyzed.

Demand for Diagnostic Tools

The ongoing shortage of pathologists has led to a demand for AI-based pathology diagnostic tools. Olympus, through its Office of Innovation*, began a collaboration with the Kure Medical Center and Chugoku Cancer Center in Japan in 2017 to develop an AI-based pathology diagnostic tool. In the initial testing phase⁴, the AI was trained using 368 gastric biopsy pathology slide images.

The second phase of research⁵ began in November 2020, where the diagnostic tool was expanded to six hospitals in Japan, with the aim of verifying the versatility and improving the accuracy of the AI tool. Specifically, it was important to test whether the tool works correctly on pathology slides that vary in thickness and color.

The goal of this program is to deliver AI pathology diagnosis software that can assist pathologists by 2023.

Preliminary Results

The AI-based pathology tool uses a convolutional neural network⁶ (CNN) optimized to analyze pathology images. This technology enables the tool to identify adenocarcinoma⁷ versus non-adenocarcinoma tissue in an image. Once the AI was trained, it was tested using 1200 pathology whole slide images from the six institutions participating in the study. The AI classified each image as either adenocarcinoma or non-adenocarcinoma. The AI tool was able to achieve 100% sensitivity and 50% or higher specificity for slides from all six facilities. The robustness of the results will enable Olympus to pursue commercialization of the AI tool in the future.

For more information about Olympus life science products, please visit [Olympus-LifeScience.com](https://www.olympus-lifescience.com).

About Olympus

Olympus is passionate about the solutions it creates for the medical, life sciences, and industrial equipment industries, as well as cameras and audio products. For more than 100 years, Olympus has focused on making people's lives healthier, safer and more fulfilling by helping detect, prevent, and treat disease, furthering scientific research, ensuring public safety, and capturing images of the world.

Olympus has manufactured microscopes since the company's founding in 1919. Today, our Life Sciences business is dedicated to meeting and exceeding the evolving needs and expectations of life science professionals through a comprehensive range of clinical research, educational, and high-end research microscopes and microscope systems. For more information, visit www.Olympus-LifeScience.com.

About the National Hospital Organization Kure Medical Center and Chugoku Cancer Center

The Kure Medical Center and Chugoku Cancer Center is one of the core hospitals in western Japan. The pathology department performs a large number of pathological diagnoses on a daily basis, and also conducts pathological diagnosis of community medicine in cooperation with Hiroshima University and the Kure Medical Association Hospital. In addition, as a tumor pathology laboratory, they are conducting cutting-edge academic research, including the field of digital pathology. And as a member of the National Hospital Organization Pathology Council, they are also actively conducting clinical pathology research.

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¹National Hospital Organization Kure Medical Center and Chugoku Cancer Center, National Hospital Organization Osaka National Hospital, National Hospital Organization Shikoku Cancer Center, National Hospital Organization Nagasaki Medical Center, Hiroshima Memorial Hospital, and Kure Medical Association Hospital.

²Percentage of positive samples diagnosed as positive.

³Percentage of negative samples diagnosed as negative.

⁴Learn more about the first phase <https://www.olympus-global.com/news/2018/nr00869.html>

⁵Learn more about the second phase <https://www.olympus-global.com/news/2020/nr01948.html>

⁶A method widely used as a deep-learning technology for image analysis. The features to be analyzed can be learned efficiently.

⁷One of the cancers. Most cancers in gastric biopsy are said to be adenocarcinoma.
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*Collaboration with companies and academic organizations with advanced technologies under our X (cross) INNOVATION program.