Press Release

Micron, Inc.
Molecular Imaging CRO Network

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The Development of AI Analysis Software for Coronary Artery Imaging in Ischemic Heart Disease

- AI-Based Image Assessment Assists Therapeutic Strategy Determination and Disease Mechanism Analysis -

Micron, Inc. (Head office: Chuo-ku, Tokyo, President: Michita Sato) is the only company in Japan that can provide comprehensive support for the clinical development of medical products and devices using imaging technologies. With the expansion of AI technology in recent years, the development of diagnostic support software using AI has been actively promoted. In the clinical development of this software, we provide one-stop services ranging from consultation, trial planning and operation, and support for PMDA approval utilizing our vast experiences.

We have joined forces with Professor Toshiro Shinke (Division of Cardiology, Department of Medicine at Showa University School of Medicine) and Focus Systems Corporation (Head office: Shinagawa-ku, Tokyo, President: Keiichi Mori) to develop an AI software that analyzes images of coronary arteries in patients with ischemic heart disease with the goal of commercializing the software in clinical settings by the end of fiscal 2021. AI assessment for imaging of coronary arteries predicts the onset of myocardial infarction possible and may lead to innovations in treatment.

■ The Current Status of Ischemic Cardiac Disorder

The number of deaths from cardiac disorder (excluding hypertension) in Japan has reached 200,000 per year, which is the second leading cause of death following malignant neoplasms (cancer). In particular, the annual number of deaths from ischemic heart disease, in which the lumen of the coronary artery surrounding the heart is narrowed due to arteriosclerosis or blood clots which prevent blood from reaching the heart muscle, accounts for about half of all cardiac disorder deaths.

■ AI-Based Coronary Artery Imaging

Intravascular ultrasound (IVUS) and optical coherence tomography (OCT) are typical tests to observe the lumen area of the coronary artery, which sends blood to the heart in ischemic heart diseases such as angina pectoris and myocardial infarction.

Typical Intravascular Imaging Examples

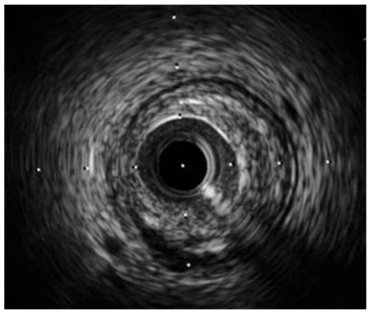

Figure 1 Intracoronary Imaging by IVUS

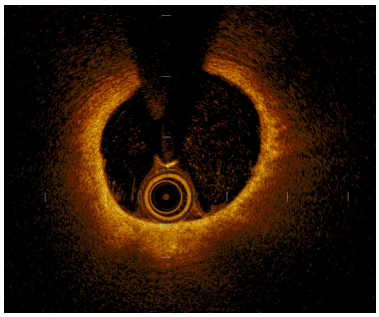

Figure 2 Intracoronary Imaging by OCT

Prediction of myocardial infarction onset could be available using AI to analyze the state of blood vessels on the images obtained by each modality and may lead to innovation in treatment methods.

These two imaging systems, which can clearly delineate the state of arteriosclerosis and angiogenesis, have been widely used not only for ischemic heart disease but also for various kinds of research in recent years. In the future, AI imaging is expected to be applied extensively to ischemic heart disease and other diseases.

We, together with Focus Systems Corporation, which has a wealth of expertise in system development, will utilize the extensive database of coronary artery disease images and the clinical data database which proves the relationship between these data and the occurrence of myocardial infarction that has been accumulated by the Department of Cardiology at the Showa University School of Medicine to develop AI for coronary image assessment and its clinical application. We have been working on the development of AI image diagnostic software with Focus System Corporation since the announcement of our business collaboration on July 17 2019. In this time of AI development, we aim for more accurate analysis.

Division of Cardiology, Department of Medicine at Showa University School of Medicine

Division of Cardiology, Department of Medicine at Showa University School of Medicine led by Professor Toshiro Shinke, accepts a large number of severe cardiovascular emergency diseases from local communities and works with local medical institutions to have a chronic treatment continuously. As a state-of-the-art medical treatment, they perform percutaneous coronary intervention (PCI), which is a challenging method for acute myocardial infarction and complicated coronary artery disease. In order to improve long-term treatment results, they use IVUS and OCT to accurately and objectively observe disease state of coronary arteries. Images of IVUS and OCT, as well as the long-term prognosis data after PCI, have been stored in a vast database. A significant number of clinical studies are undergoing.

Focus Systems Corporation

Established in 1977, Focus Systems Corporation is engaged not only in the development and operation of systems in high sociality area such as public service, telecommunications, and information security, but also in the development of businesses that anticipate the trends, such as IoT, VR, and AI. They were listed in the first section of the Tokyo Stock Exchange in 2016. Still, they have been growing steadily along with their social reputation.

https://www.focus-s.com/

Micron, Inc.

We, Micron, Inc., believe that our mission is to contribute to the improvement of human health and medical care by improving medical imaging technologies. We have established a system to provide high value-added services by combining various technologies and accumulated experience with networks outside our company, with experts in monitoring, image analysis, IT, and regulation working together. Through these efforts, we have developed our business as a pioneer in a new business style within the

CRO industry.
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