

## Press Release



# Rigaku to Lead Development of New Soft X-ray Phase-Based Microscope for Biomedical Applications

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*Funds granted by the National Institute of Biomedical Imaging and Bioengineering (NIBIB) have been awarded for the development an intensity-modulated phase-based soft X-ray microscope.*

**October 6, 2020 – The Woodlands, Texas.** [Rigaku Corporation](#), a global leader in X-ray analytical instrumentation, will lead a consortium of scientific and academic research institutions in the development a new soft X-ray phase-based microscope for biomedical applications. Rigaku, University College London, Creatv MicroTech, Argonne National Laboratory and Sloan Kettering Institute for Cancer Research have been granted funds by the National Institute of Biomedical Imaging and Bioengineering ([NIBIB](#)) to develop an intensity-modulated phase-based soft X-ray microscope.

Microscopy is a cornerstone of both biomedical research and clinical practice. There are, however, imaging needs that are not satisfied by light, electron or X-ray methods. While optical light is satisfactory for thin tissue slices, it is not suitable for obtaining quality 3D images of thick tissue. X-rays can penetrate thick tissue, but X-ray microscope imaging systems that are available commercially are not optimal for soft tissue imaging. Additionally, the resolution of current micro-computed tomography ([CT](#)) machines is insufficient for cancer grading and scoring.

The goal of the new project is to deliver an intensity-modulated phase-based soft X-ray microscopy system for non-destructive synchrotron-quality imaging of biological samples. The system will provide 3D, quantitative and multimodal images with shorter acquisition times than from currently available systems, and resolution comparable to that of visible light microscopes, rendering high-contrast images of cell composition. In the last year of the project, the microscope will be installed at Memorial Sloan Kettering Cancer Center and tested on a range of relevant samples in order to evaluate its potential both as a clinical and as a research tool.

### About Rigaku

Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,400 people in the manufacturing and support of its analytical equipment, which is used in more than 90 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.

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