



Molecular Imaging Center, The University of Southern California

The Molecular Imaging Center (MIC) at The University of Southern California (USC) is one of the most important research facilities to provide a variety of imaging capabilities. Molecular imaging—that is, non-invasive visualization of the molecular processes of life in organisms of all levels of complexity—appears destined to become the primary mechanism by which new discoveries in molecular-based medicine are translated into clinical use and optimized for individual use.

The MIC is located at the Health Science Campus/Keck Medicine Center near downtown Los Angeles. The Center was created to support the translational needs of investigators by providing the ability to characterize and quantify biological processes in living subjects at the cellular and subcellular level. Their capabilities include PET, Ultrasound/Photoacoustic, Optical Imaging, MRI, Cyclotron/Radiochemistry and CT.

These techniques are used mostly in preclinical and basic medical research, with the goal of translating developments in cellular and molecular biology into improvements in research and patient care. Since the MIC has wide capabilities, they provide services not only in life sciences but also in materials sciences, such as chemistry, physics, computer and engineering. Samples come from a wide range of research projects, including those from other USC campuses and academia, as well as collaborators from non-profit organizations and industry. Their partnerships have been important in developing innovative research projects in gerontology, dentistry, drug development, oncology, paleontology and many other disciplines.

Early this year, Dr. Grant Dagliyan, Associate Director, and Dr. Bino Varghese at MCI renovated their facility, including the acquisition of some new instruments. They decided to purchase computed tomography (CT) systems from Rigaku to enhance their instrumental lineup from both a resolution and an energy standpoint. For large samples, they will use the CT Lab GX90, and for small samples with submicron level resolution they acquired a nano3DX. With this purchase, MCI becomes Rigaku's first customer for industrial CT equipment in the USA, a business Rigaku only entered in this territory late last year.

Drs. Dagliyan and Varghese told us that currently they are mainly using the CT Lab GX90 for the observation of small animals. The nano3dx will be used to measure embryos, organs in medical research and soft materials like carbon fiber, ceramics for their collaborators. They also suggested several improvements to our software that will be useful for all our users. Therefore, the Rigaku team is working on these enhancements and will update the software soon.



Dr. Grant Dagliyan



Dr. Bino Varghese



With CT Lab GX90



With nano3DX