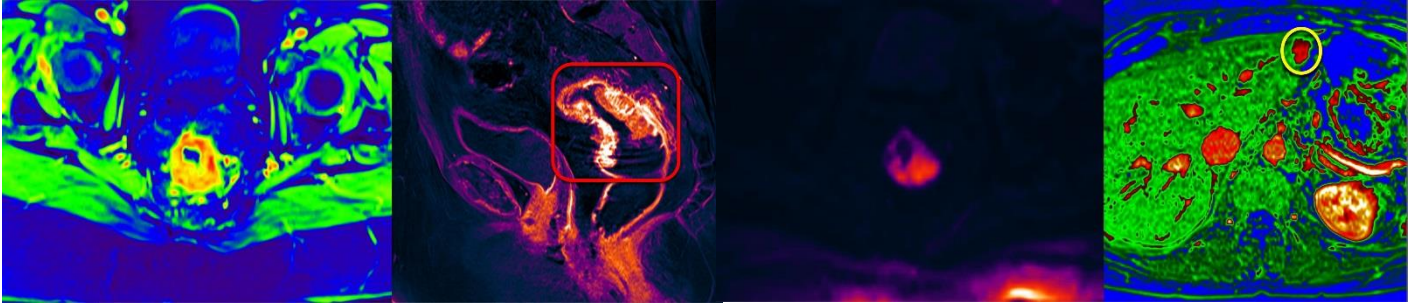


## UCI's Clinical Trials Imaging Core Lab Incorporates Advanced Image Analysis Software to Support Cancer Research Trials



Clinical Trials Imaging Core Lab (CTi Core Lab) was established as a research service unit within the Department of Radiological Sciences at the University of California, Irvine, with the mission of providing advanced image analysis for oncologic clinical trials at the Chao Family Comprehensive Cancer Center. Subspecialty-trained board-certified radiology faculty and other medical imaging professionals provide a unique set of knowledge and skills that are not available in many cancer centers. CTi Core Lab staff include physicians and scientists who have undergone systematic training and evaluation in clinical research and standards in assessment of imaging response in oncology. CTi Core Lab's goal is to provide solutions and expert imaging for clinical research trials through consistent, standardized, and high-quality medical image analysis.

The CTi Core Lab is grateful for the generosity of Roslyn Snow and Helen McClure supporting this work in memory of Valeska Marie Wolf. With the support of these generous donors, installation of the new state-of-the-art Mint lesion software and computer servers is currently underway and will significantly improve data consistency and reproducibility for oncology patients on clinical trials. This will be achieved through image analytics platform that is specific to oncology and not currently available in many cancer centers. The quality assurance process will include image quality evaluation, protocol adherence testing, and time-point verification.

A major advantage of having CTi Core Lab on the campus of UCI Medical Center is direct access of oncologists to expert radiologists and "live" assessment of imaging for oncologic clinical trials. "Having access to radiologists for immediate consultation allows oncologists to receive immediate feedback on their patients' response based on the criteria specific to clinical trial protocols and to consider alternative treatment options, if needed", according to Dr. Roozbeh Houshyar, Vice Chair of Informatics in the Department of Radiology at UCI, "which makes the trial patient-centric".

CTi Core Lab is also an incubator where clinicians and translational scientists come together to tackle the challenges in oncologic imaging and image-guided therapies. CTi Core Lab's research arm focuses on the development, testing and evaluation of new imaging biomarkers in cancer using advanced imaging techniques, automated imaging solutions to obtain functional and structural characteristics of tumors and applications of artificial intelligence for the detection and staging of cancers. At the CTi Core Lab, Translational imaging scientists collaborate with clinical faculty from radiology, surgery and oncology to research and develop the best methods for image guided therapies and response assessment in oncologic imaging.

The pre-clinical research team of the CTi Core Lab is focused on the challenges of interventional oncology and drug delivery systems in cancer patients. NIH funded investigators use in-vivo models to test image-guided therapies such as irreversible electroporation and radiofrequency ablation in combination with systemic therapies. MRI and PET are used to track immune response following interventional methods that can improve the host's immune response to cancer.

It is well known that anatomic imaging with CT and MRI may not provide all the information that is needed to assess response to therapy in oncology. To overcome this challenge, research scientists affiliated with UCI's CTi Core Lab utilize tumor texture analysis and artificial intelligence to extract information from images and correlate that with histopathologic information to improve on the current imaging biomarkers in cancer. Installation of the new advanced imaging software will be a crucial step in supporting this work. CTi Core Lab's collaborative team approach to oncologic imaging and image-guided therapies has enabled creation of team science with the primary goal of defeating cancer.