

Application for QIBA Project Funding

Title of Proposal: A PET-Metabolic Tumor Volume-Digital Reference Object (PET-MTV-DRO)		
(NOTE: this is a companion project to "Biologic and reader repeatability of FDG volumetric parameters (ACRIN 6678 & MERCK)" by Rathan Subramaniam)		
QIBA Committee/Subgroup: Nuclear Medicine		
NIBIB Task Number(s) which this project addresses: 2.3.3 (Objective 3: procedures and processes)		
PI (Project Coordinator or Lead Investigator Information)		
Last Name: Kinahan	First Name: Paul	Degree(s): PhD
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Institution/Company: University of Washington		
Total Amount Requested:		

Project Description

This project is a companion project to "Biologic and reader repeatability of FDG volumetric parameters (ACRIN 6678 & MERCK)" by Dr. Rathan Subramaniam, which is briefly summarized here as the metabolic tumor volume (MTV) repeatability study: The MTV-repeatability will use prospective NSCLC PET (stages III-IV) multi-center test-retest images from the ACRIN 6678 and Merck MK-0646-008 trials (74 patients total) to evaluate the reader repeatability of FDG PET tumor volumetric parameters, for which there is no multicenter data on repeatability. Three readers (inter-reader assessment) will perform segmentations and each reader will repeat the segmentations (intra-reader assessment), with at least a 90 day interval, in a random order, using threshold and gradient segmentations on clinical software.

Our study, the PET-MTV Digital Reference Object (DRO) study, will provide necessary extensions (i.e. features and procedures) to the FDG-PET/CT DRO to expand the testing capabilities in order to provide ground-truth testing of image analysis packages that measure metabolic tumor volumes (MTVs) in PET. This project can support other QIBA projects evaluating FDG-PET MTV as a biomarker, such as test-retest or the construction of a Profile for FDG-PET MTV as a quantitative imaging biomarker.