Application for QIBA Project Funding

Title of Proposal: Digital Reference Object for DCE-MRI analysis software verification		
QIBA Committee/Subgroup: MRI/DCE-MRI		
NIBIB Task Number(s) which this project addresses: Task 3		
Project Coordinator or Lead Investigator Information:		
Last Name: Barboriak	First Name: Daniel	Degree(s): M.D.
Institution/Company: Duke University Medical Center		

Project Description

One barrier to implementation of dynamic contrast-enhanced (DCE) MRI in multi-center clinical trials is that available software packages used to analyze the images may differ in their approach and implementation, causing variability in the extracted quantitative parameters. Because no standardized image analysis method is available, results obtained using DCE-MRI in different laboratories are difficult to compare, and the rational choice of one software implementation over any other for use in a multi-center trial is exceedingly challenging. As a first step in providing a standardized analysis process, it is necessary to ensure that software implementations are extracting parameters accurately. In this project, we propose to create digital reference objects (DROs) using synthetic data in order to help verify software packages for use in DCE-MRI analysis, and to initiate the development of verification protocols as a method to qualify software packages for use in clinical trials of DCE-MRI.