



Application for QIBA Project Funding

Title of Proposal: Software Development for Analysis of QIBA DCE-MRI Phantom Data		
QIBA Committee/Subgroup: DCE-MRI		
NIBIB Task Number(s) which this project addresses:		
Project Coordinator or Lead Investigator Information:		
Last Name: Ashton	First Name: Edward	Degree(s): PhD
Institution/Company: VirtualScopics, Inc.		

Please check the primary category for this proposal from among the following:

- 1. Identification of Technical Characteristics and Standards
 - a. Creation and refinement of protocols for image acquisition, analysis, quality control, etc., for specific clinical utility
 - b. Phantom development and testing
 - c. Identification and assessment of intra-reader bias (1) and variance across scanners and centers
 - d. Identification and assessment of inter-reader bias and variance across scanners and centers
 - e. Other
- 2. Clinical Performance Groundwork
 - a. Assessment of intra-reader sensitivity and specificity
 - b. Assessment of inter-reader sensitivity and specificity
 - c. Other
- 3. Clinical Efficacy Groundwork
 - a. Assessment of correlation between new biomarker and 'accepted-as-standard' method
 - b. Characterization of value in clinical trials
 - c. Characterization of value in clinical practice
 - d. Development/merger of databases from trials in support of qualification
 - e. Other
- 4. Resources (money and/or people) committed from other sources.

Work will be completed jointly by the PI and the VirtualScopics software development group.

Please provide a one-page summary that includes the following information:

Project Description

This project will address the development of a distributable software package to allow the analysis of QIBA DCE-MRI phantom data.

Primary goals and objectives

Requirements for this package are as follows:

Inputs: a) multi-flip angle fast gradient echo T1 mapping data, b) multi-TR T1 mapping data, c) multi-TI T1 mapping data, d) source fast gradient echo phased array and body coil images to be used for phased array intensity correction calculations, and e) DCE-MRI fast gradient echo data.

Outputs: a) T1, R1, and M0 measures for each ROI from both the raw and signal intensity corrected data, b) DCE-MRI signal-to-noise ratio (SNR) measures and DCE-MRI signal intensity data for all ROIs, and c) summary statistics for all relevant measures.

User interaction will be limited to selecting input and output directories.

Deliverables

Primary deliverable will be a freely distributable executable file with instructions for installation and use. Please note that this proposal does **not** cover either ongoing user support (help desk) functions or future modifications or updates to the resulting software package. Any such support or modification will need to be addressed in a future agreement. Deliverables will also include documentation of all algorithms/processes used in this software package at a level of detail sufficient to permit those algorithms/processes to be reproduced independently.

Timeline [must include intermediate measureable milestones.]

Delivery of the finished software package will be COB Friday, February 18th or 8 weeks from final award of funding, whichever is later.