Center for Biomedical Imaging

Fiscal Year 2013 Annual Report

The Center for Biomedical Imaging provides the resources to enable basic and clinical scientists to collaborate to discover new insights into normal and disease processes and to apply this knowledge to clinically relevant research.

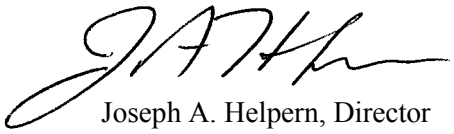
MUSC
MEDICAL UNIVERSITY of SOUTH CAROLINA

Contents

Executive Summary

This is the first Annual Report of the Center for Biomedical Imaging (CBI). In fiscal year 2013 the CBI provided imaging support and resources for 55 research groups with 74 unique research projects funded by an estimated total of 69 federal and foundation grants[1]. These grants represented approximately $11.5M in funding to MUSC with approximately $2.8M in indirect costs. The CBI also supports MUSC faculty by providing development time to be used for collaborations and the collection of pilot data. In fiscal year 2013, the CBI underwrote approximately $359K of this development time for MUSC researchers. One highlight of fiscal year 2013 was the initiation of a Ph.D. program in Biomedical Imaging, under the direction of Dr. Truman Brown. Overall, the CBI is healthy with all systems functional and usage increasing over FY2012.

Respectfully Submitted



Joseph A. Helpern, Director

[1] Defined as grants billed for equipment usage during FY2013.

Introduction & Background

Biomedical imaging is a frontier science that has great potential to positively impact virtually every aspect of health care. Over the past three decades, the clinical and research applications of biomedical imaging have seen unprecedented growth, and there continues to be high demand for academic institutions to train and mentor young investigators in the field. Responding to this growth and demand, and in order to help integrate the diverse imaging initiatives that exist at MUSC, the Board of Trustees in 2010 established the University Designated Center for Biomedical Imaging (CBI) with the intent to advance imaging research here at MUSC. This decision will enable MUSC to remain competitive with other academic institutions and to establish the infrastructure and environment to reach the next level in this crucial research area.

The CBI is a resource for basic and clinical scientists collaborating to discover new information about normal and disease processes and how to apply this knowledge to clinically relevant research. Central to the mission objectives of the Center for Biomedical Imaging are 1) service to the MUSC imaging research community, 2) training and mentorship of graduate students and future leaders in biomedical imaging, 3) recruitment of outstanding senior and young investigators, 4) discovery of new clinical applications of imaging and their practice in the clinical arena and 5) promotion of basic research in medical imaging and related fields.

The central offices of the CBI are located on the second floor of the Bioengineering Building at 68 President Street, Charleston, SC. The CBI manages six research dedicated advanced imaging devices including a 3 Tesla human MRI system, a 7 Tesla animal MRI system, an animal PET/CT imaging system, a bioluminescence & fluorescence imaging system and a small animal *in vivo* fluorescence imaging system. CBI research space is divided into two locations: human imaging located at 30 Bee Street and small animal imaging located on the second floor of the Bioengineering Building. The CBI is open to all investigators in South Carolina, and hence provides a foundation for development of numerous applications that will benefit from the use of biomedical imaging.

Mission Statement

The mission of the CBI is to provide the leadership and infrastructure in the imaging sciences necessary for basic and clinical scientists to collaborate, discover new ways to study normal and disease processes, develop and apply this knowledge to clinically relevant research, and to translate these advances to the patient community while providing a quality graduate education environment.

Vision Statement

The vision of the CBI is to be recognized as an integrated and multidisciplinary center for biomedical imaging research with mutually supportive and valued interactions among basic science and clinical departments, to recruit outstanding faculty and educate the future leaders of the field.

Administration

General

The leadership of the CBI includes: Dr. Joseph A. Helpern, Director, Dr. Truman R. Brown, Scientific Director, Dr. Ann-Marie Broome, Director of Molecular Imaging and Dr. U. Joseph Schoepf, Director of Cardiovascular Imaging. Ms. Kristen Sykes serves as the Administrative Coordinator and Mrs. Sandy Bird serves as the Administrative Assistant.

CBI Internal Advisory Committee

The CBI's Internal Advisory Committee (IAC) comprises the CBI Directors as well as both early stage and senior researchers from across the University. Many of these individuals are experienced in participating in large research programs as well as in the management of shared facilities. The IAC advises the Director on the administrative operation of the CBI, coordinates resources, and ensures that the research conducted within the CBI is appropriately prioritized to reflect the overall goals of MUSC.

Members of the FY2013 Advisory Committee were:

Dr. Joseph Helpern (Chair)	Dr. Truman Brown	Dr. Ann-Marie Broome
Dr. Mark Eckert	Dr. Joseph Schoepf	Dr. Jane Joseph
Dr. Amanda LaRue	Dr. Colleen Hanlon	

In FY2014, the Advisory Committee was reformulated to include representatives from all Colleges:

Dr. Joseph Helpern (Chair)	College of Medicine
Dr. Truman Brown	College of Medicine
Dr. Ann-Marie Broome	College of Medicine
Dr. Joseph Schoepf	College of Medicine
Dr. Chris Gregory	College of Health Professions
Dr. Zhi Zhong	College of Pharmacy
Dr. Tom Naselaris	College of Graduate Studies
Dr. Berry Anderson	College of Nursing
Dr. Richard Duncan	College of Dental Medicine
Dr. Amanda LaRue	Hollings Cancer Center

Scheduling

Scheduling of CBI resources is performed through Calpendo (https://musc.calpendo.com/), a web-based system that allows researchers with approved IRB or IACUC protocols to examine and schedule CBI equipment and facilities.

Operations

Staff & Post Docs

Jeannette Albertson, BSTR R MR (1.00FTE), Program Manager - MRI Technologist
Jayce Doose, M. Eng. (1.00FTE), Biomedical Engineer
Mark Van Horn, Ph.D. (1.00FTE), Research Assistant Professor
Alfred Moore, M.S. (1.00FTE), Research Specialist
Xingju Nie, Ph.D. (1.00FTE), Research Associate
Kristen Sykes (0.80 FTE), Admin. Coordinator
Sandy Bird (0.75FTE), Admin. Assistant
Brianna Jones (0.55 FTE), Admin. Specialist
Lei Jiang, Ph.D. (0.50FTE), Post Doc

Preclinical (Small Animal) Imaging:

Maestro 2 *In Vivo* Imaging: The Maestro 2 *in vivo* imaging system (Caliper Life Sciences) provides state-of-the-art fluorescence imaging of small animals, including the capability to generate anatomic organ maps and to anatomically target co-localization using DyCE, a Caliper-developed all-optical imaging platform.

Xenogen IVIS 200 Bioluminescence Preclinical Imaging System: The IVIS 200 can image up to 5 animals at a time and can provide limited 3D depth information.

Siemens Micro-CT/PET: The Siemens Micro-CT/PET is a dual-modality system to acquire both micro-CT and micro-PET images. Image data can be co-registered so that PET image data can be anatomically localized with the micro-CT imaging data.

Bruker 7T MRI: The BioSpec 70/30 MRI scanner is a multipurpose system for high-resolution MR spectroscopy and imaging operating at 7 Tesla. The 7T MRI is ideal for 2D and/or 3D high-resolution anatomical imaging as well as diffusion and diffusion tensor, flow, cardiac, dynamic contrast, functional MRI and chemical shift imaging.

Surgery Room: The Surgery Room is booked concurrently with the 7T MRI and is available for pre-imaging preparation.

Human imaging Resources

Siemens 3T TIM Trio MRI Scanner: The Siemens 3T MRI is equipped with integrated fMRI paradigm presentation equipment and offers visual, auditory and olfactory stimulus delivery with tactile and verbal feedback. The scanner and fMRI set-up have been designed to integrate seamlessly with other research MR scanners in South Carolina to allow for multi-center studies. The scanner operates with a 100% mandate for research use and is covered by a master research agreement with Siemens Medical.

Mock Scanner: The Mock Scanner is a full-size replica of the 3T MRI made from plywood and other building materials to look and sound like the real MRI. The Mock Scanner is available to be used for 'trial runs' with patients who are wary of undergoing the full scanning procedure and can be also booked for use as a training or demonstration tool.

Equipment Usage

Overall, the total usage of the CBI resources increased for FY2013 compared to FY2012 (Figure A). As in FY2012, the 3T MRI remains the most highly used resource, followed by the 7T MRI and other preclinical imaging equipment.

CBI Faculty are currently provided two hours of development time per week to be used for the collection of pilot data and for collaboration with other researchers. It is expected that CBI users will use their development time to generate pilot data to apply for funding.

The CBI also assists Junior Faculty[3] members across all Colleges at MUSC in developing imaging methodology in their research. To help defray the costs of scanning, the CBI offers matching development time to Junior Faculty members.

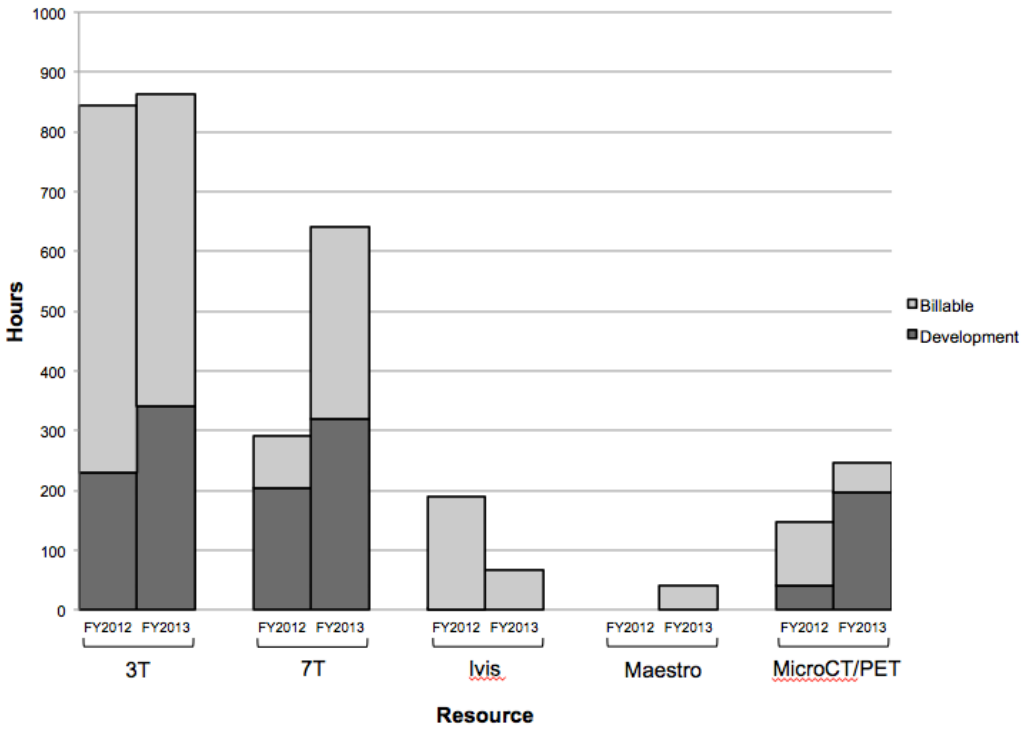


Figure A: CBI Resource Usage FY2012 vs. FY2013. Total hours of use for the CBI human (3T MRI) and small animal (7T MRI, IVIS, MicroPET/CT and Maestro) are compared for FY2012 and FY2013. For each resource, hours of development time are shown in dark grey, and hours of billable time are shown in light grey. Overall, CBI usage increased in FY2013, with the greatest change for the 7T MRI. While usage of the IVIS bioluminescence machine decreased, this usage was compensated for by the increase in usage of the MicroCT/PET and the introduction of Maestro.

[3] Junior Faculty are faculty at the Assistant Professor rank who are not currently, and have never been, the Principle Investigator (PI) of an NIH R01, R21, Program Project or Center (P41) grant proposal.

Faculty

The CBI Faculty is comprised of faculty (Assistant Professor or higher) from all Colleges at MUSC who are using and developing imaging in their research. Collaboration among faculty in the development of new and cross-disciplinary methodologies is strongly encouraged, and faculty members are expected to take part in Study Group meetings, contribute to teaching CBI courses and generally support the overall well-being of the CBI. Each faculty member must give a lecture to the CBI every other year on their research. Appointments are contingent upon review after three-year tenure. There are currently 24 faculty members at the CBI from various Departments including Radiology and Radiological Sciences, Neurosciences, Otolaryngology, Psychiatry and Behavioral Sciences, Pathology and Laboratory Medicine, Cardiology and Microbiology and Immunology.

Andreana Benitez, Ph.D.	Assistant Professor	Radiology
Leonardo Bonilha, M.D., Ph.D.	Assistant Professor	Neurosciences
Ann-Marie Broome, Ph.D.	Associate Professor	Radiology
Truman R. Brown, Ph.D.	Professor	Radiology
Dean Connor, Jr., Ph.D.	Assistant Professor	Radiology
Mark Eckert, Ph.D.	Associate Professor	Otolaryngology
Maria de Fatima Falangola, M.D., Ph.D.	Assistant Professor	Radiology
Mark George, M.D.	Distinguished University Professor	Psychiatry
Colleen Hanlon, Ph.D.	Assistant Professor	Psychiatry
Joseph A. Helpern, Ph.D.	Professor	Radiology
Jens Jensen, Ph.D.	Professor	Radiology
Jane Joseph, Ph.D.	Professor	Neurosciences
Amanda LaRue, Ph.D.	Associate Professor	Pathology
Thomas Naselaris, Ph.D.	Professor	Neurosciences
Etta Pisano, M.D.	Professor	Radiology
James Prisciandaro, Ph.D.	Assistant Professor	Psychiatry
Donna Roberts, M.D.	Assistant Professor	Radiology
U. Joseph Schoepf, M.D.	Professor	Radiology
Vittoria Spampinato, M.D.	Associate Professor	Radiology
Ali Tabesh, Ph.D.	Assistant Professor	Radiology
Saeid Taheri, Ph.D.	Assistant Professor	Neurosciences
Sameer Tipnis, Ph.D.	Assistant Professor	Radiology
Mark Van Horn, Ph.D.	Assistant Professor	Radiology
W. Benjamin Wince, M.D.	Assistant Professor	Cardiology
Xue-Zhong Yu, M.D., M.S.	Professor	Microbiology

Education

Study Groups

The CBI has organized five monthly study groups led by MUSC faculty covering in depth discussions of ongoing research, analysis and current issues in the field of imaging. These study groups have led to collaborations between MUSC faculty resulting in several successful grant applications (in parenthesis). The current study groups are:

Study Group	Leader	Grants
Cancer	***Pierre Giglio, M.D.***	Imaging Biomarkers of Tissue Microstructure and Vasculature as Predictors of Glioblastoma Response to Treatment with Beacizumab for Progressive Disease (Hollings Cancer Center)
		The Correlation between the Genetic & Neuroimaging Signatures in Newly Diagnosed Glioblastoma (The Donaldson Foundation)
Addiction	***Joseph Schacht, Ph.D.***	Neural Connectivity and the Transition to Alcohol Dependence (NIH – NIAAA)
Brain	***Anya Benitez, Ph.D.***	*In vivo* MR Imaging and Histological Markers of Stroke and Recovery (SCTR)
		Treatment Response and Microstructure in Partial Epilepsy (SCTR)
Brain Connectivity	***Jane E. Joseph, Ph.D.***	Exploring Brain Connectivity at Fine Spatial Scales (SCTR)
Cardiovascular	***U. Joseph Schoepf, M.D.***	

User Group Meeting (Nuts & Bolts)

The CBI Nuts and Bolts User Group meets twice a month and provides a forum for in depth discussions by researchers about imaging, statistical methods, data analysis techniques and administrative issues. The first portion of the meeting is dedicated to discussion of CBI equipment and administrative issues, and the remainder of the meeting typically consists of a presentation of a discussion topic chosen by the group. Typical discussion topics include details of image formation, multiple compartment connections, functional versus effective connectivity, arterial spin labeling, appropriateness of model fitting, distribution of functional imaging residuals and resting state network analysis.

Visiting Lectures

The CBI regularly hosts lectures given by both visiting speakers and CBI faculty. Lectures held in FY2013 included the following:

Denise Benoit, Ph.D. (Rice University):	Engineering nanoparticle-protein associations for protein crystal nucleation and nanoparticle arrangement
***Michael Schultz, Ph.D. (University of Iowa*)**:	Radiochemistry and Applications for PET Radionuclide Ga-68–An increasing Role for Molecular Imaging
Vitria Adisetiyo, Ph.D. (New York University):	Quantitative Characterization of Brain Microstructure and Iron Homeostasis in Attention-Deficit/Hyperactivity Disorder from Childhood through Adolescence
***Yun Zhu, Ph.D. (Georgia State)*:**	Dual Inhibition of src and MAPK Potentially Sensitize Chemoresistant Ovarian Cancer Cells
***Mark George, M.D. (MUSC)*:**	The Exciting History of Brain Imaging Research MUSC: The Risque Untold Story
***Maurice Weaver (Siemens)*:**	Applications of micro PET/CT Imaging in Medical Research
***Vivek Shinde Patil, Ph.D.* (*Perkin Elmer*):**	*In vivo* Imaging of Disease and Therapy
***Dominique Duncan, Ph.D.* (*Yale University*):**	Network Analysis of Intracranial EEG
***Ziying Yin, Ph.D.* (*University of Illinois*):**	MR Imaging and Elastography: Applications to Cartilage Tissue Engineering and Regeneration

Biomedical Imaging Ph.D. graduate program

The CBI has developed a graduate curriculum to offer a Ph.D. in Biomedical Imaging. The curriculum consists of two years of didactic work followed by an oral and written qualifier examination and subsequently a dissertation. The didactic courses will cover basic biochemistry and physiology, the physical basis for different imaging technologies, the necessary mathematical background for image analysis and a variety of more specialized topics. We expect the typical student will need five years to complete the program. The program has been approved by the Board of Trustees and is now waiting formal approval from the South Carolina Committee on Higher Education. We expect to start to offer the admission to the program in the Fall of 2015.

Grant-Related Activity

The PI, the PI's department, grant title and agency for grants that funded CBI users for their use of center resources (69)[4], grants that were submitted and are pending (34) or were submitted but not funded (29) during FY2013 (i.e. between July 1, 2012 and June 30, 2013) are listed below. While comprehensive, these lists are not complete, and it is possible that a number of grants are not included.

Funded Grants (FY2013)

PI	PI Dept	Title	Agency
Ablonczy, Zsolt	Ophthalmology	The Regulation of Retinal Pigment Epithelium Permeability	NIH- NEI
Adkins, DeAnna	Neurosciences	Cortical Stimulation to Enhance Motor Recovery Following Traumatic Brain Injury	NIH - NINDS
Adkins, DeAnna	Neurosciences	In Vivo MR Imaging and Histological Markers of Stroke and Recovery	Other - SCTR
Anton, Raymond	Psychiatry	Genetic and Brain Mechanisms of Naltrexone's Treatment Efficacy for Alcoholism	NIH - NIAAA
Anton, Raymond	Psychiatry	RC4 Impulsivity and Drinking/Craving: Effect of a Dopamine Stabilizer Medication	NIH - NIAAA
Anton, Raymond	Psychiatry	Career Development and Training in Clinical/Translational Alcohol Research	NIH - NIAAA
Aston Jones, Gary	Neurosciences	Effects of Locus Coeruleus Activation: Selective Optogenetic Stimulation and fMRI	NIH - NIMH
Banik, Narendra L.	Neurology	Hormonal Intervention Protects Axon-Myelin to Promote Functional Recovery in SCI	VAMC
Banik, Narendra L.	Neurology	Inflammation and Degeneration of Optic Nerve in EAE	NIH - NINDS
Bonilha, Leonardo	Neurosciences	Treatment Response and Microstructure in Partial Epilepsy	Other - SCTR
Borckardt, Jeffrey	Psychiatry	Transcranial Direct Current Stimulation in the Management of Post-Operative Pain	NIH -NIAMS
Brady, Kathleen	Psychiatry	The Impact of Real-Time fMRI Feedback on Response to Nicotine Cues	NIH - NIDA
Brady, Kathleen	Psychiatry	Clinical Scientists Training Program in Addictions at MUSC	NIH - NIDA
Brady, Kathleen	Psychiatry	Gender, Sex Hormones and Stress-Related Smoking	NIH - NIDA
Brady, Kathleen	Psychiatry	Sex Differences in Orexin and Oxytocin Mediation of Cocaine-Seeking	NIH - NIDA
Brady, Kathleen	Psychiatry	Oxytocin and Cocaine Dependence	NIH - NIDA
Broome, Ann-Marie	Radiology	Sensitizer Delivery for Focused Hyperthermia Cancer Treatment	Case Western Reserve Univ.
Broome, Ann-Marie	Radiology	Dual-receptor Targeted Nanoparticles for Photodynamic Therapy of Brain Cancer	NIH - NIBIB
Broome, Ann-Marie	Radiology	Targeting Cancer Protein Profiles with Split-Enzyme Reporter Fragments to Achieve Chemical Resolution for Molecular Imaging	DOD
Broome, Ann-Marie	Radiology	Liposomal Therapy for Diffuse Infiltrative Pontine Gliomas (DIPG)	Other-SCTR
Brown, Truman R.	Radiology	Pseudo Random Amplitude Modulation of Arterial Spin Labeling	NIH - NIBIB
Cortese, Bernadette	Psychiatry	Trauma-Related Olfactory Cues in Postraumatic Stress Disorder	NIH - NIMH
Eckert, Mark	Otolaryngology	Neuroimaging of Age-Related Changes in Speech Recognition	NIH - NIDCD
Feng, Wuwei	Neurosciences	Modulating the Brain with Bihemispheric Direct Current Stimulation and Constraint-Induced Movement Therapy to Enhance Post-Stroke Motor Recovery in Subacute Phase	MUSC Start-up
Froeliger, Brett E	Neurosciences	Neuroimaging of Nicotine Dependence, Depression and Emotion Regulation	NIH - NIDA
George, Mark	Psychiatry	A Prospective, Multi-Center, Double-Blind, Randomized, Controlled Trial to Explore the Tolerability, Safety and Efficacy of the H-Coil Deep Transcranial Magnetic Stimulation	Brainsway

[4] Defined as grants billed for equipment usage during FY2013.

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George, Mark	Psychiatry	(INTRuST) Consortium Neuroimaging Acquisition and Archival	DOD
George, Mark	Psychiatry	Focal Electrically-Administered Seizure Therapy (FEAST)	Mecta
George, Mark	Psychiatry	Realtime fMRI Feedback to Decrease Craving during a Smoking Quitting Attempt	NIH
Granholm-Bentley, Ann-Charlotte	Neurosciences	High-Fat Diets and Memory Loss with Aging	NIH - NIA
Granholm-Bentley, Ann-Charlotte	Neurosciences	Mechanisms for High-fat Induced Memory Loss	NIH - NIA
Granholm-Bentley, Ann-Charlotte	Neurosciences	Memory and ProBDNF Processing in the Aged Mouse Hippocampus	Utah State University
Granholm-Bentley, Ann-Charlotte	Neurosciences	Brain-Derived Neurotropic Factor and Executive Dysfunction in Down Syndrome	Alzheimer's Assoc.
Gregory, Christopher	Health Sciences	Skeletal Muscle Plasticity As An Indicator of Functional Performance Post-Stroke	VA RR&D
Gregory, Christopher	Health Sciences	Lower Extremity Power and Locomotor Function After Stroke	American Heart Assoc.
Hanlon, Colleen	Psychiatry	Cortical Inhibition and Corpus Callosum Integrity in Cocaine Users	NIH - NIDA
Helpern, Joseph	Radiology	Imaging Biomarkers in AD	Litwin Foundation
Howe, Philip	Biochem Mol Biol	TGF-B Signaling Pathways	NIH - NCI
Howe, Philip	Biochem Mol Biol	TGF-Beta Induced Apoptosis in B-Lymphocytes	NIH - NCI
Howe, Philip	Biochem Mol Biol	TGF-Regulated EMT	NIH - NCI
Isaacs, Jennifer S.	Cell Mol Pharm	Hsp90 Regulates EphA2 Signaling and Cell Migration in Glioblastoma	NIH - NCI
Joseph, Jane	Neurosciences	Anatomical brain connectivity in Autism Spectrum Disorder	Other - SCTR
Joseph, Jane	Neurosciences	Exploring Brain Connectivity at Fine Spatial Scales	Other - SCTR
Joseph, Jane	Neurosciences	Functional Neuroanatomy of Developmental Changes in Face Processing	NIH - NICHD
Joseph, Jane	Neurosciences	Neurobehavioral indices of alcohol abuse vulnerability	ARC
Kang, Yubin	Hematology/Oncology	Plerixafor for Allogeneic Hematopoietic Stem Cell Transplantation	NIH - NHLBI
Krupenko, Sergey	Biochem Mol Biol	Mechanism of Action of a Major Folate Enzyme	NIH - NIDDK
LaRue, Amanda	Pathology Lab Med	Enhancement of Fracture Repair by Hematopoietic Stem Cells	VA
LaRue, Amanda	Pathology Lab Med	Targeting HSC-Derived Circulating Fibroblast Precursors in Pulmonary Fibrosis	VA
LaRue, Amanda	Pathology Lab Med	Hematopoietic Stem Cell-Derived Carcinoma Associated Fibroblasts in Tumor	NIH - NCI
Mintzer, Jacobo	Neurosciences	Citalopram Treatment for Agitation in Alzheimer Dementia	Johns Hopkins University
Moran-Santa Maria, Margaret M.	Psychiatry	Exploring Sex Differences in the Neural Correlates of PTSD: Impact of Oxytocin	NIH - NIMH
Ogretmen, Besim	Biochem Mol Biol	Regulation of Telomerase by Sphingolipid Signaling in Lung Cancer	NIH - NCI
Patrick, Kennerly	Pharmacy	Methylphenidate-Ethanol Interactions in ADHD and Co-Abuse	NIH - NIAAA
Pisano, Etta	Radiology	Validation of Imaging Premarket Evaluation and Regulation (VIPER) based on Retrospective Data Analysis of DMIST Data	FDA - CDRH
Prisciandaro, James J	Psychiatry	Neuroimaging Mechanisms of Overlap between Alcoholism and Bipolar Disorder	NIH - NIAAA
Reichel, Carmela	Neurosciences	Measuring In Vivo Meth-Induced Neurovascular Changes Using Quantitative MRI	NIH - NIDA
Rosenberger, Dorothea	Anesth &Periop. Med	High Fat Diet in Aged Rodents and Exposure to Anesthetic Drugs	Other - Intramural
See, Ronald E	Neurosciences	Corticostriatal Neuroplasticity and Cognition in Methamphetamine Addiction	NIH/NIDA
Smith, Charles	Drug Disc Biomed	Charles and Carol Cooper SmartState Endowed Chair in Cancer Drug Discovery	MUSC Fdn.
Tabesh, Ali	Radiology	Diffusional Kurtosis MRI Evaluation of Medial Temporal Lobe Epilepsy	ASNR
Tabesh, Ali	Radiology	Treatment Response and Microstructure in Partial Epilepsy	Other - SCTR
Tomlinson, Stephen	Micro and Immun	Dual Role of Complement in Post-Ischemic Inflammation and Recovery	NIH - NIAID
Tomlinson, Stephen	Micro and Immun	Complement, Anti-Tumor Immunity and Apoptosis-Based Therapy	NIH - NCI
Tomlinson, Stephen	Micro and Immun	Role of Complement in Inflammatory Bowel Disease	Crohns Colitis Fnd.
Tomlinson, Stephen	Micro and Immun	Inhibition of the Alternate Complement Pathway to Treat Spinal Cord Injury	Spinal Cord Research Fdn.
Turan, Tanya	Radiology	Characterization of Intracranial Atherosclerotic Stenosis Using HR MRI	NIH - NINDS
Wince, William Benjamin	Cardiology	Int. Study of Comparative Health Effectiveness with Med. & Invasive Approaches	New York University
Wu, Jennifer	Micro and Immun	Targeting MIC Shedding to Revive Host NKG2K-Mediated Immune Response in Prostate Cancer	NIH - NCI

Pending Grants (FY2013)

PI	PI Dept	Title	Agency
Ablonczy, Zsolt	Ophthalmology	The Composition of Human Lipofuscin	NIH -NEI
Benitez, Andreana	Radiology	White matter tract integrity in MCI due to Alzheimer's and Parkinson's diseases	NIH - NINDS
Bonilha, Leonardo	Neurosciences	Surgical Outcome and Microstructural Networks in MTLE	Epilepsy Fdn.
Borckardt, Jeffrey	Psychiatry	Modulating Effects of tDCS on Cognitive Pain Inhibition	NIH
Broome, Ann-Marie (PI: Patrick, Kennerly)	Radiology/Drug Discovery	Methylphenidate-Ethanol Stimulant Potentiation: Mechanisms by PET Imaging	NIH-NIDA
Brown, Truman R.	Radiology	Real Time Motion correction tracking coils for MRI	NIH - NIBIB
Brown, Truman R.	Radiology	Automatic shimming adjustment for MRS	NIH - NIBIB
Connor, Dean M.	Radiology	Development and Validation of a Multiple-Beam Array Diffraction Enhanced Imaging System	NIH - NIBIB
Connor, Dean M.	Radiology	Development of a novel technique for the in vivo measurement of the number density of osteocyte lacunae in bone	DOD
Falangola, Maria de Fatima	Radiology	DKI Patterns of Cognitive Intervention in Patients at Risk of Alzheimer's Disease	NIH
Falangola, Maria de Fatima	Radiology	Neuroimaging Markers of Brain Plasticity in Older Adults at Risk for AD	Alzheimers Assoc.
Falangola, Maria de Fatima	Radiology	Assessment of Brain Plasticity in a Mouse Model of Down Syndrome	NIH
Falangola, Maria de Fatima	Radiology	Diffusion Kurtosis Imaging of a Mouse Model of Down Syndrome	other
Froeliger, Brett E	Neurosciences	Phase IIb, Randomized, Double Blind, Placebo Controlled, 3-Site Outpatient Clinical Trial of a Combination of an Immediate-Release Methylphenidate Formulation (MPh-IR) and a Novel Ondansetron Formulation (Ond-PR2)	NIH
George, Mark S/Hartwell, Karen	Psychiatry	Realtime fMRI Feedback to Decrease Craving during a Smoking Quit Attempt	NIH
Helpern, Joseph	Radiology	Novel MRI Biomarkers for the Early Detection of Alzheimer’s Disease	NIH
Joseph, Jane	Neurosciences	Neurobiological indices of impulsivity and drinking behavior	NIH
Joseph, Jane	Neurosciences	Development of functional brain networks for face processing	NSF
LaRue, Amanda	Pathology	Disaccharide cryopreservation strategies for hematopoietic stem cells	VA
Li, Xingbao	Psychiatry	Developing rTMS as a Potential Treatment for Nicotine Addiction	NIH - NIDA
Naselaris, Thomas	Neurosciences	Representation of visual features in mental images of complex scenes	NIH - NEI
Pisano, Etta	Radiology	Diffusion Weighted Breast MR Imaging – Screening Women with Dense Breasts	SBIR
Pisano, Etta	Radiology	Koning Breast CT-Based Computer Aided Detection	SBIR
Pisano, Etta	Radiology	Breast Tomosynthesis Randomized Imaging Pilot Study (TRIPS)	Canadian Breast Cancer Fnd.
Tabesh, Ali/Bonilha, Leonardo	Radiology	Diffusion MRI Markers of Treatment Response in Medial Temporal Lobe Epilepsy	NIH - NINDS
Tabesh, Ali/Bonilha, Leonardo	Radiology	Surgical Outcome and Microstructural Networks in MTLE	Epilepsy Fdn.
Taheri, Saeid	Neurosciences	Post Conditioning with Volatile Anesthetic Isoflurane During Ischemia	NIH
Taheri, Saeid	Neurosciences	Post-Conditioning with isoflurane reduces hemorrhagic complications of rtPA intervention	Amer. Heart Assoc.
Taheri, Saeid	Neurosciences	Predicting Tissue Fate and Response to rtPA after Ischemic Stroke	NIH
Taheri, Saeid	Neurosciences	Spatio-Temporal Analysis of Interactions between Inflammation and Interruptions of Tight Junctions in EAE Model of MS	DOD
Taheri, Saeid	Neurosciences	Pathophysiology of dynamics of brain fluids	NIH
Taheri, Saeid	Neurosciences	Quantification of Changes in Transfer Rates of Brain Barriers in Multiple Sclerosis	National MS Society
Taheri, Saeid	Neurosciences	Monitoring effect of hypertension on the BBB in APP mice model of AD	Alzheimers Assoc.

Unfunded Grants (FY2013)

PI	PI Dept	Title	Agency
Benitez, Andreana	Radiology	Microstructural brain changes following weight loss in obese older women	Intramural
Benitez, Andreana	Radiology	Microstructural brain changes following weight loss in obese older women	SCTR
Bonilha, Leonardo/Tabesh, Ali	Neurosciences	Diffusion MR Imaging Evaluation of Medial Temporal Lobe Epilepsy	NIH - NINDS
Bonilha, Leonardo	Neurosciences	Limbic circuit abnormalities revealed by novel diffusion MRI techniques as predictors of treatment response in Epilepsy	Doris Duke Foundation
Bonilha, Leonardo/Tabesh, Ali	Neurosciences	Diffusion kurtosis markers of pharmacological outcome in medial temporal lobe epilepsy	Harrington Discovery Fnd
Bonilha, Leonardo/Tabesh, Ali	Neurosciences	Diffusion MRI Markers of Treatment Response in Medial Temporal Lobe Epilepsy	NIH – NINDS
Borckardt, Jeffrey	Psychiatry	tDCS in the Management of Abdominal Surgery Pain	NIH
Borckardt, Jeffrey	Psychiatry	Modulating Effects of tDCS on Cognitive Pain Inhibition	NIH
Brown, Truman R.	Radiology	Automatic shimming adjustments for MRS	NIH - NIBIB
Brown, Truman R.	Radiology	Water line shape in brain tissue	NIH - NIBIB
Brown, Truman R.	Radiology	Real time Motion Tracking Coils for MRI	NIH - NIBIB
Connor, Dean M.	Radiology	Development and Validation of a Multiple-Beam Array Diffraction Enhanced Imaging	NIH - NIBIB
Falangola, Maria de Fatima	Radiology	Imaging Biomarkers of Early Morphological Changes in the Ts65Dn Mice Brain	NIH - NIBIB
Falangola, Maria de Fatima	Radiology	Imaging Biomarker of Early Neurodegeneration in the Ts65Dn Mouse Model	Alzheimers Assoc.
Froeliger, Brett E	Neurosciences	Neuropharmacology of emotion and cognition in comorbid PTSD-nicotine dependence	NIH - NIDA
Granholm-Bentley, Ann-Charlotte	Neurosciences	Anti-Inflammatory Mechanisms of Blueberry -Resubmission	NIH - NCCAM
Granholm-Bentley, Ann-Charlotte	Neurosciences	Mechanisms for high-fat diet-induced memory loss	NIH - NIEHS
Hanlon, Colleen	Psychiatry	Multimodal investigation of limbic and executive circuit integrity in treatment-seeking cocaine users	NIH - NIMH
Harris, Kelly C.	Otolaryngology	Neurobiology of Speech Understanding in the Aging Ear and Brain	NIH-NIDCD
Helpern, Joseph	Radiology	Novel MRI Biomarkers for the Early Detection of Alzheimer's Disease	NIH - NIA
Hui, Ed	Radiology	Prediction of Motor Outcome after Acute Stroke Using Diffusional Kurtosis Imaging	AHA
Jensen, Jens	Radiology	Non-Gaussian Diffusion Magnetic Resonance Imaging	NIH - NINDS
Joseph, Jane	Neurosciences	A comparative developmental connectivity study of face processing	NIH - NIMH
Naselaris, Thomas	Neurosciences	Identifying biomarkers of autism in visual cortex	Other - SCTR
Naselaris, Thomas	Neurosciences	Atypical visual processing in autism	Autism Research Program Pilot
Naselaris, Thomas	Neurosciences	Assessing imaginal ability in individuals with PTSD	Interprof. Collaboration Grant Opportunity Pilot Project Program
Naselaris, Thomas	Neurosciences	Neural basis of visual processing in autism	Simons Foundation (SFARI)*
Naselaris, Thomas	Neurosciences	Knowledge Representation in Neural Systems	IARPA BAA
Tabesh, Ali	Radiology	Diffusion MR Imaging Evaluation of Medial Temporal Lobe Epilepsy	NIH - NINDS

Center for Biomedical Imaging
Medical University of South Carolina
68 President Street
Charleston, South Carolina 29425
Tel: (843) 876-2460
Fax: (843) 876-2469
www.musc.edu/cbi