

Center for Biomedical Imaging

Annual Report FY2026

(issued August 2026)

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



Introduction & Background

The Center for Biomedical Imaging (CBI) was established by the Board of Trustees in 2010 as a *University Designated Center* under the direction of the Vice President for Research. This initiative has enabled MUSC to be competitive with other leading academic institutions by developing and maintaining the infrastructure and collaborative environment needed to support advanced biomedical imaging research.

The CBI facilities are located in the 30 Bee Street Building and on the second floor of the Bioengineering Building at 68 President Street. It is managed through the Department of Neuroscience, with administrative offices located on the fourth floor of the Basic Science Building. The CBI is a resource for basic and clinical scientists to discover new information about normal and disease processes and apply this knowledge to clinically relevant research. Central to the mission objectives of the CBI are: 1) service to the MUSC imaging research community, 2) training and mentorship of graduate students and postdocs to help develop future leaders in biomedical imaging, 3) recruitment of outstanding biomedical investigators, 4) discovery of new clinical applications of imaging and their practice in the clinical arena, and 5) promotion of basic research in biomedical imaging and related fields. The CBI's website can be found [here](#).

In fiscal year 2026, the CBI provided imaging support and resources for a total of 46 grants, 27 of which were NIH grants to MUSC (Appendix III). The CBI also supports MUSC faculty by allowing development time to qualified investigators for collaborations and the collection of pilot data. In fiscal year 2026, the CBI underwrote approximately \$106,000 of this development time for MUSC researchers.

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, to discover new ways to study normal and disease processes, to develop and apply this knowledge to clinically relevant research, and to translate these advances to the patient community while fostering a quality education and training environment.

Vision Statement:

The vision of the CBI is to serve the MUSC community as an integrated and multidisciplinary center for biomedical imaging research with mutually supportive and valued interactions among basic science and clinical departments.

Administration

Leadership:

In FY26, the leadership of the CBI consisted of:

Dr. Jens H. Jensen, Director
Dr. Maria Fatima Falangola, Associate Director of Preclinical MRI

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 goals of the CBI reflect the overall priorities of MUSC.

Members of the IAC in FY26 were:

Dr. Stephanie Aghamoosa	Dr. Lisa McTeague
Dr. Christopher Cowan (Chair)	Dr. Anand Mehta
Dr. Maria Fatima Falangola	Dr. M. Vittoria Spampinato
Dr. Kevin Gray	Dr. Timothy Stemmler
Dr. Jens Jensen	Ms. Mary Catherine Williams
Dr. Steven Kautz	

CBI leadership holds regular "Advisory Committee Meetings", as well as "Town Hall Meetings" in which all users are able to express their views and opinions. These meetings were held on:

Advisory Committee

October 14, 2025
February 10, 2026
June 9, 2026

Town Hall

September 16, 2025
January 20, 2026
May 19, 2026

Business Management:

In FY26, business operations for the CBI were managed by Emily Clark and Jonathan "JD" Thompson under the supervision of Mary Catherine Williams, who served as the administrative manager for the Department of Neuroscience.

Operations

Faculty & Staff:

The following faculty & staff were fully or partially supported by the CBI in FY26:

Brown, Josh	Administrative Assistant
Clark, Emily	Grants Administrator
Coatsworth, James	3T MRI Program Manager
Doose, Jayce	Biomedical Engineer
Falangola, Fatima	Assistant Professor, Associate Director of Preclinical MRI
Fleury, Tom	Facilities/Information Manager
Henderson, Scott	3T MRI Program Manager
Hopkins, Sarah	Administrative Coordinator
Jensen, Jens	Professor, Director
Latham, Kelly	Administrative Assistant
Oliver, Holly	3T MRI Technician
Spampinato, Vittoria	Professor, Radiologist
Thompson, Jonathon "JD"	Fiscal Analyst
Voltin, Josh	7T MRI Research Specialist
Williams, Mary Catherine	Administrative Manager

Human imaging Resources:

Human MRI studies take place in the CBI's 30 Bee St. facility, which houses a 3 Tesla (T) Prisma^{fit} MRI system, four interview rooms, two changing rooms, office space, an electronics lab, and a waiting area for subjects. In FY17, the CBI upgraded the Siemens MAGNETOM Trio 3T MRI system to a Siemens MAGNETOM Prisma^{fit} 3T MRI system. This upgrade has significantly benefited a multitude of National Institutes of Health (NIH) funded researchers, as well as researchers funded from other sources, in the fields of substance abuse, addiction, aging, Alzheimer's disease, Parkinson's disease, attention-deficit hyperactivity disorder, stroke, and basic neuroscience. The scanner operates with a 100% mandate for research and is covered by a Master Research Agreement with Siemens. It is the only research-dedicated human MRI scanner at MUSC.

The CBI also supports a mock scanner located at 135 Cannon St. This is a full-size replica of the 3T MRI made from plywood and other building materials designed to look and sound like a real system. It is available 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.

Preclinical (Small Animal) Imaging Resources:

The CBI operates and maintains a Bruker BioSpec 70/30 MRI scanner for high-resolution imaging and MR spectroscopy of small animals. This magnet has a field level of 7T and is located on the second floor of the Bioengineering Building. The 7T MRI is ideal for 2D and/or 3D high-resolution anatomical imaging as well as diffusion, flow, cardiac, dynamic contrast, functional, and chemical shift imaging. Adjacent to the scanner is a surgery room that is available to support imaging studies.

The 7T system is 19 years old and no longer fully supported by the manufacturer. The cold head was upgraded in FY20, but the electronics are now past end-of-life and difficult to repair. During FY26, a major electrical component did fail resulting in the suspension of scanner operations for nearly 3 months. Eventually, a replacement part was obtained allowing scanning to resume. The current system may be need to be retired within a few years since replacement parts for this model are no longer manufactured, and the availability of refurbished parts is extremely limited. During the past year, three funded studies utilized this resource, two of which are supported by NIH grants.

MRI Safety Training:

The CBI staff conducts regular safety training classes for researchers who use CBI resources. Completion of this course is required of all personnel before they are allowed to work in the scanning areas. In FY26, these were held on 7/14/25, 8/11/25, 9/8/25, 10/8/25, 11/11/25, 12/10/25, 1/16/26, 2/11/26, 3/10/26, 4/7/26, 5/13/26, and 6/17/26.

MRI Safety Committee:

The CBI has established an MRI Safety Committee for approving and overseeing safety procedures for both scanners. In particular, ancillary equipment must be evaluated by this committee prior to being used within the scanner suites. The committee members are Jayce Doose (Chair), James Coatsworth, Scott Henderson, and Tom Fleury.

Scheduling:

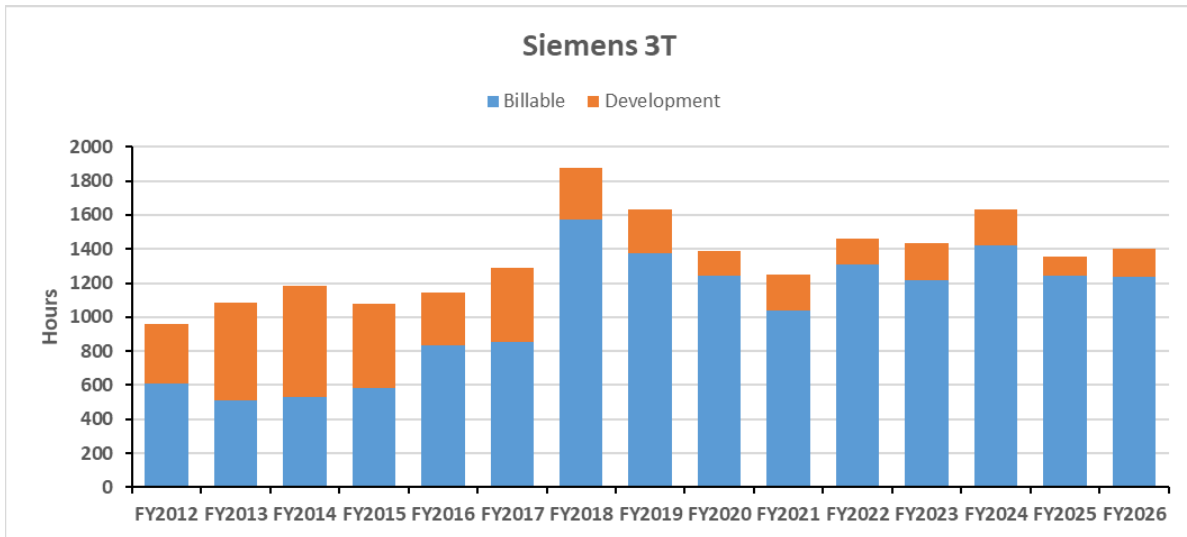
Scheduling of time on imaging systems is performed through a web-based system called Calpendo (<https://musc.calpendo.com/>) that allows researchers with approved protocols to reserve time for using CBI resources including scanners and interview rooms. Our standard operating hours for the 3T scanners are shown in Appendix II. The 7T animal system is available during normal business hours by appointment.

Cancellation Reduction Incentive Scheduling Program:

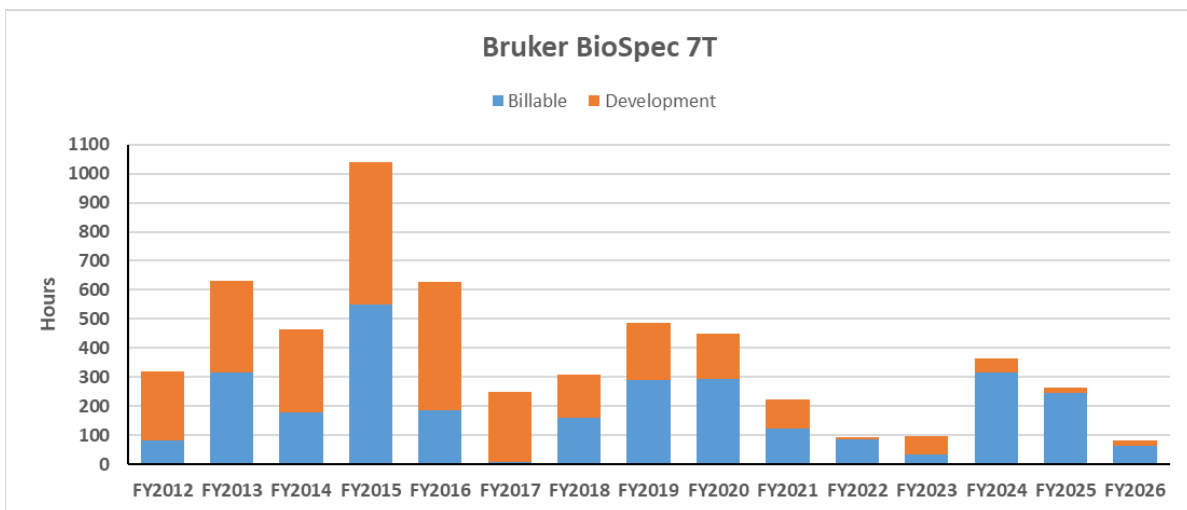
In order to encourage responsible scheduling practices for scans on the 3T MRI system, a Cancellation Reduction Incentive Scheduling Program (CRISP) was introduced in January of 2020 and updated in January of 2024 to transition from a credit system to a voucher system in which PIs

with low cancellation rates are awarded scheduling vouchers for extra slots during Prime Time hours (See Appendix II). In FY26, 36 scheduling vouchers were awarded.

Equipment Usage:

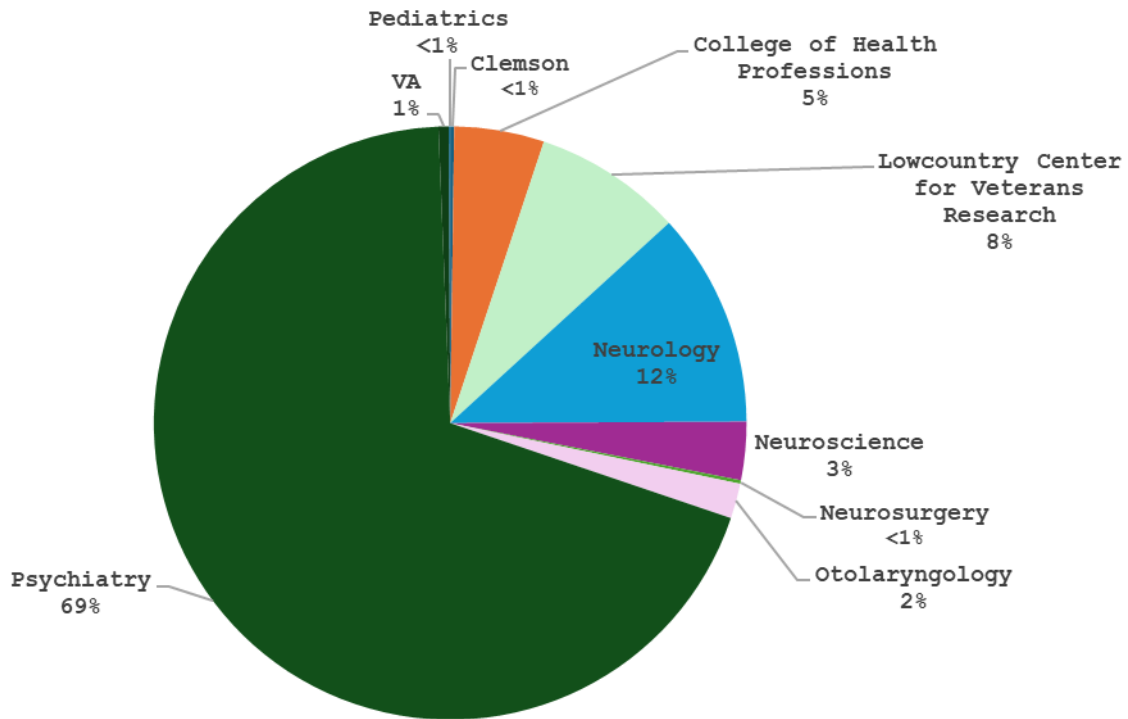


Annual scanner hours used by researchers from FY12 through FY26 on the Siemens 3T MRI system. Development time is free of charge but only for restricted purposes.



Annual scanner hours used by researchers from FY12 through FY26 on the Bruker 7T MRI system.

Revenue by Department - FY26



Breakdown of scanner usage (combined 3T and 7T) by MUSC College of Medicine department or other affiliation. In FY26, the largest user of CBI resources was the Department of Psychiatry and Behavioral Sciences.

Early Stage Investigator Program:

MUSC researchers who qualify as early stage investigators (ESI), according to criteria established by the NIH, are eligible to receive subsidies that partially defray the cost of MRI scans for certain types of small grants. In FY26, the CBI provided a total of \$42,771 in ESI subsidies to MUSC faculty and postdocs. This program allows young imaging scientists with limited financial resources to pursue studies that would otherwise be cost prohibitive.

Help Requests:

To support the CBI user community, a web-based ticket system is used to manage help requests. In FY26, the CBI staff successfully responded to 150 individual tickets.

CBI Faculty

The CBI is supported by 6 primary staff and a multidisciplinary group of 21 faculty members representing various clinical and basic science departments at MUSC. Collaboration among faculty in the development of new and cross-disciplinary methodologies is strongly encouraged.

Faculty members contribute imaging-related seminar lectures, provide advice to the CBI leadership, and generally promote the overall well-being of the CBI. They are expected to take part in regularly scheduled CBI seminars, which provide a forum for researchers to have in-depth technical discussions. Faculty members are expected to give lectures on their research to the CBI community every few years if requested. The CBI faculty for FY26 are listed below:

Aghamoosa, Stephanie, PhD	Assistant Professor	Health Sci. & Research
Benitez, Andreana, PhD	Associate Professor	Neurology
Borckardt, Jeffrey, PhD	Professor	Psychiatry
Caulfield, Kevin, PhD	Assistant Professor	Psychiatry
Chen, Andrew, PhD	Assistant Professor	Public Health Sciences
Dias, James, PhD	Assistant Professor	Otolaryngology
Falangola, Maria, MD/PhD	Assistant Professor, Assoc. Dir.	Neuroscience
George, Mark, MD	Distinguished University Prof.	Psychiatry
Harris, Kelly, PhD	Professor	Otolaryngology
Heise, Kirstin-Friederike, PhD	Assistant Professor	Health Sci. & Research
Jenkins, Dorothea, MD	Professor	Pediatrics
Jensen, Jens, PhD	Professor, Director	Neuroscience
Joseph, Jane, PhD	Professor	Neuroscience
Li, Xingbao, MD	Associate Professor	Psychiatry
McTeague, Lisa, PhD	Associate Professor	Psychiatry
Prisciandaro, James, PhD	Professor	Psychiatry
Revuelta, Gonzalo, DO	Professor	Neurology
Roberts, Donna, MD	Professor	Radiology
Rowland, Nathan, MD/PhD	Associate Professor	Neurosurgery
Spampinato, Vittoria, MD	Professor	Radiology
Squeglia, Lindsay, PhD	Professor	Psychiatry

Education

CBI Seminars:

The CBI regularly hosts lectures given by both visiting speakers and MUSC investigators. For the past year, these were organized by Drs. Kelly Harris and Lisa McTeague. CBI seminars for FY26 are listed below:

Date	Presenter	Title	Institution
10/22/25	Dr. Noam Schneck	Neural Decoding in Clinical Science	Columbia University
11/12/25	Dr. Ashley Parr	Leveraging Multimodal Neuroimaging to Characterize Mesocorticolimbic Plasticity Shaping Adolescent Behavioral Trajectories	University of Pittsburgh
12/10/25	Dr. Gavin Bidelman	Decoding EEG to Trace the Emergence of Categorical Speech Representations in the Human Brain	Indiana University
2/11/26	Dr. Theodore Satterthwaite	Accelerating Translational Neuroscience with Reproducible Brain Charts	University of Pennsylvania
3/11/26	Dr. Mitchell Sommers	What Can Santa Clause and the Tooth Fairy Tell us About Aging and Audiovisual Speech Perception	Washington University
4/8/26	Dr. Richard Davidson	Well-being is a Skill: Perspectives from Contemplative Neuroscience	University of Wisconsin–Madison
5/20/26	Dr. Lisa McTeague	Personalizing and Hybridizing Accelerated rTMS and CBT: Impacts on Depression, Suicide Risk, and Beyond	MUSC

Appendix I: End-of-Year Budget FY26

Updated BTA with Adjustments FY26 EOY					
Budget Category	FY26 Budget	3T	7T	Blank PG/1742	YTD TOTAL
Revenue					
Operating Revenue	958,076	819,420	7,325		826,745
<i>42010:Sales and Services</i>		819,420	7,325		
Non-Operating Revenue		0	0		0
<i>45090:Internal Transfers</i>					
Other Revenue		0	0		0
Accounts Receivable		26,639	9,135		35,774
Total Revenue	958,076	846,059	16,460		862,519
Expenses					
Salaries and Fringe Benefits	714,827	599,589	63,636		663,226
<i>Payroll Earnings</i>		430,302	45,623		475,925
<i>Fringe Benefits</i>		169,287	18,014		187,301
Materials, Supplies and Services	217,800	216,754	52,232		268,986
<i>Services</i>		193,486	0		
<i>Supplies</i>		23,267	52,232		
Facility Related Expenses		1,295	0		1,295
Meals & Travel		109	0		109
Depreciation		0	0	1,662	1,662
Other Expenses		7,772	0	380.87	8,153
Bad Dept		0	0	1,551	1,551
Total Expenses	\$932,627	825,519	115,869	3,593	944,982
Net Income	\$25,449	\$20,539	-\$99,408	-\$3,593	-\$82,463

Appendix II: Operating Hours for Prisma 3T

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00						
8:30						
9:00		Off Peak Time				
9:30						
10:00						
10:30						
11:00						
11:30						
12:00						
12:30						
1:00		Prime Time				
1:30						
2:00						
2:30						
3:00						
3:30		JIT		JIT	JIT	
4:00						
4:30						
5:00						
5:30						
6:00		Off Peak Time				
6:30						
7:00						
7:30						
8:00						
8:30						

PRIME TIME	JUST-IN-TIME (JIT)	OFF-PEAK TIME
Mon & Wed, 10:00am - 5:00pm; Tue, Thur & Fri, 10:00am - 3:30pm	Tue, Thur, & Fri, 3:30 – 5:00pm	Mon - Fri, 8:30 - 10:00 am Mon - Fri, 5:00 - 8:00 pm Sat, 9:00 am – 6:00 pm
Maximum of two bookings per week per study. ¹	Maximum of two (Prime Time + Just-In-Time) bookings per week per approved study. ¹	No limits on scheduling billable scans.
Can only be used for billable scans. ¹	Can only be used for billable scans. ²	Max of 2 hours of Dev Time per week per PI. ^{4,5}
	Requires preapproval to utilize. ³	

- 1) Any scan that begins or ends during Prime Time and JIT hours will count toward the two bookings/week limit. If not booked within one week of table time, Prime Time slots will be made available to any study. If JIT slots are not booked within 72 hours of table time, these will be made available to any billable study. The use of scan time under these conditions will not count toward weekly booking limits for billable studies.
- 2) Just-In-Time may also be used for Development Time, but only if scheduled on the same day as the scan.
- 3) Approval may be requested by emailing cbi@muscc.edu. Your request must explain why your protocol needs Just-In-Time scheduling based upon the specific requirements of your protocol and not just a desire to use this mechanism for the sake of convenience.
- 4) PI must be approved by CBI. More information may be obtained by emailing cbi@muscc.edu.
- 5) Two-hour weekly limit on Development Time also includes time scheduled under notes 1) and 2) above.

Appendix III: Grants Supported by CBI for FY26

†7T study

PI	Funding Source	Grant Title
Stephanie Aghamoosa	NIA	Combining Brain Stimulation with Computerized Cognitive Training for MCI
Stephanie Aghamoosa	NICHD	Center for Advancing Precision Neural Circuit-Based Rehabilitation (Neuro-PRECISE) Project 3
Andreana Benitez	NIA	Transcranial Magnetic Stimulation for MCI: A Phase II Dose-Response Study
Andreana Benitez	NIA	Quantitative Neuroimaging Assessment of White Matter Integrity in the Context of Aging and AD
Jeffrey Borckardt	MUSC Blue Sky Award	Ehlers-Danlos Syndrome - tAN
Jeffrey Borckardt	NINDS	Determining the independent and synergistic effects of transcutaneous auricular neurostimulation (tAN) on direct brain activation in healthy individuals
Jeffrey Borckardt	NINDS	Evaluating the specific role of endogenous opioids as the mechanism underlying tAN-based analgesia in healthy individuals
Olga Brawman-Mintzer	VA	Alzheimer's Disease Neuroimaging Initiative 4
Christine Cooper	Neuron 23	A Phase 2, Randomized, Double-Blind, Placebo-Controlled Study to Evaluate the Safety and Efficacy of NEU-411 in Companion Diagnostic-Positive Participants with Early Parkinson's Disease (NEULARK)
Jens Jensen/Fatima Falangola	NIA	†Diffusion and Functional MRI Monitoring of Therapy Response in AD Mouse Model
Mark George	Abbott	Treatment Resistant Depression Subcallosal Cingulate Network DBS
Chris Gregory	VA	Enhancing Mobility and Psychosocial function in Obese Veterans via Weight loss and Exercise (EMPOWER)
Chris Gregory	NICHD	Combining rTMS & aerobic exercise to treat depression and improve post-stroke walking
Parneet Grewal	College of Medicine MUSC	Accelerated rTMS vs. sham for stroke apathy

Kelly Harris	NIDCD	Neural Determinants of Sound Encoding in the Aging Ear and Brain
Kelly Harris	MUSC Translational Team Science	Neural Determinants of cochlear implant success
Kirstin Heise	NICDH and NCMRR	Closed-loop rTMS-EEG during visuomotor integration.
Kirstin Heise	SCTR	Spatiotemporal Neural Signatures of Bimanual Coordination Post-Stroke
Dorothea Jenkins	SCTR	Integrating corticospinal tract assessment via sTMS and taVNS-augmented CIMT in infants with hemiplegia
John Kindred	VA	Neuromodulation for Rehabilitation of Post-stroke Fatigue: An rTMS Pilot Study
Anna Kirkland	NIAAA	The effects of adolescent alcohol use on oral microbiota and the brain
Daniel Lench	NINDS	A Neural Basis for Cognitive Decline Following Deep Brain Stimulation
Daniel Lench	NINDS	A Neural Basis for Cognitive Decline Following Deep Brain Stimulation: A DBS-fMRI Study
Allison Lewis	NICHD	Operant conditioning of the wrist extensor motor evoked potential to target corticospinal plasticity and upper limb motor recovery after cervical spinal cord injury
Xingbao Li	NIDA	RTMS targets to neural circuitry for smoking cessation
Erin Martin	NIDA	Sex differences in neurobehavioral response to acute THC in adults with cannabis use disorder
Carolyn McClaskey	Hearing Health Foundation	Age and Hearing-Loss Effects on Subcortical Envelope Encoding
Lisa McTeague	NIAA	MPFC Theta Burst Stimulation as a Treatment Tool for Alcohol Use Disorder: Effects on Drinking and Incentive Salience
Lisa McTeague	DOD	RECOVERS – Realigning Emotion and Cognition Via precision Regulation networks

William Mellick	NIAAA	Effects of a Novel mGluR5 Negative Allosteric Modulator on Alcohol Drinking, Neurochemistry, and Brain Reactivity to Alcohol Cues in Alcohol Use Disorder
William Mellick	NIAAA	An Investigation of Reward Brain Circuitry Structure and Function in Individuals with Co-Occurring Alcohol Use Disorder and Bipolar Disorder and Their Unaffected Offspring
Brandon Miller	NICHD	†IGF-1 and Innate Immunity in Neonatal Brain Injury
Jacobo Mintzer	Eisai Inc.	A Placebo-Controlled, Double-Blind, Parallel-Treatment Arm, 216 Week Study to Evaluate Efficacy and Safety of Treatment with BAN2401 in Subjects with Preclinical Alzheimer's Disease and Elevated Amyloid (A45 Trial) and in Subjects with Early Preclinical Alzheimer's Disease and Intermediate Amyloid (A3 Trial)
Xiaolong Peng	Bob Sammons Clinical TMS Grant	Tracking Brain Imaging Changes in Depression over Clinical Accelerated TMS Therapy at the Individual Level
Xiaolong Peng	COBRE CNDD Pilot	Developing Brain Imaging Biomarkers to Quantify the Effects of At-home taVNS Treatment in ASD
Xiaolong Peng	College of Medicine MUSC	Investigating the Feasibility, Efficacy, and Renormalization of Pain-Regulation Brain Circuits Underlying At-Home Transcutaneous Auricular Neuromodulation (tAN) for Managing Chronic Post-Stroke Pain
Rachel Penrod-Martin	OVPR MUSC	† MRI scans of adult male mice with a history of gestational THC exposure
James Prisciandaro	NIDA	Gabapentin for Restoring GABA/Glutamate Homeostasis in Co-occurring Bipolar and Cannabis Use Disorders: A Randomized, Double-blind, Placebo-controlled, Parallel-Group, Clinical MRI Study
Gonzalo Revuelta	NINDS	Imaging Biomarkers of Freezing of Gait Response to Deep Brain Stimulation
Gonzalo Revuelta	Murray Center for Research on Parkinson's Disease	Accelerated TMS for FOG
Chris Sege	NIMH	Modeling and Modulating Mechanisms of Escape, Avoidance, and Approach in the Anxiety Disorder Spectrum

Chris Sege	Brain & Behavior Research Foundation	Modulating Escape in the Anxiety Disorder Spectrum: Targeting the Direct Neural Mediator Using Transcranial Focused Ultrasound
Lindsay Squeglia	NIAA	Mentoring Clinical Investigators in Patient-Oriented Adolescent Alcohol Research
Lindsay Squeglia	NIDA	The Adolescent Brain Cognitive Development (ABCD) Study
Kenneth Vaden	NIDCD	Aging Neural Systems and Communication Difficulties
Janina Wilmskoetter	NIDCD	To Assess Comparable Efficacy of Aphasia Therapy Administered via Telerehab (Aphasia Remote Therapy; Art) to Aphasia Therapy Administered in Clinic (In-Clinic Therapy; I-CT).



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