

3T MR Research Program

Center for MR Research

University of Illinois at Chicago

TECH 2000 3T MRI RESEARCH FACILITY

WINTER 2024 ISSUE

3T MRI Facility Updates

By Mike Flannery.

MRI Safety Reminders

In this edition of the 3T CMRR newsletter, we would like to send a friendly reminder that all new staff, RAs, etc. joining your lab who will be conducting research at the Harrison MR facility will be required to schedule an MR safety training session with Mike Flannery (mpflanne@uic.edu).

Safety awareness within an MR environment is an essential component during each visit and we would like to inform everyone of a few important MR safety reminders:

1. Subjects that require a repeat scan or those that have multiple follow up visits scheduled after their initial baseline exam must be rescreened each time prior to their next scheduled MR scan. We must always remain diligent to alert the technologists of any new medical procedures that a subject may have had since their last scan.

For example, we recently had a case where a subject underwent a cardiac pacemaker placement surgery during the time between their baseline and 12-month follow-up scan. Thankfully, the pacemaker implant procedure was disclosed prior to their scheduled scan, and this clearly stresses the importance of ensuring that each subject be rescreened prior to each new scan.

2. We ask that the subject and RAs make every effort to disclose all pertinent medical and implant information by documenting all details under the "Expanded Medical History" section of the MR safety screening form. Remember, we will require the Make / Model of any implant and date of the surgical procedure.
3. Please have your subjects remove all jewelry regardless of the composition of the material. Many of the coils are close to the subject and these items could easily get

pinched, pulled, etc. resulting in injury to your subject.

4. During the cold weather months, necklaces, bracelets, watches, etc. can often be overlooked as these items are easily hidden underneath long-sleeved shirts, sweaters, hoodies, etc. Please continue to make sure that all these items are removed prior to entering the MR control room (Zone III).
5. Make every effort to not bring paperclips, staples, etc. into the MR control room (Zone III) area. These items are easily dropped on the floor and can make their way into the MR scanner suite (Zone IV) area resulting in injury due to the Projectile / Missile effect and can cause white pixel noise / image degradation until found and removed from the scanner bore.

Research Reminders

Subject Consent: The 3T CMRR does not require research groups to submit a physical copy of each subject's consent form prior to being scanned. We do

however ask that you indicate and acknowledge that consent was obtained on the MR screening form by having either the Research Assistant or subject initial where indicated. As a reminder, all subjects must be consented prior to being scanned. It is not acceptable to consent subjects after the scan has already taken place.

MRI Facility Updates

As of January 8th, 2024, UI Health has reinstated the masking policy. Masks will be REQUIRED for all employees, subjects, and visitors. We please ask that all visiting researchers and their subjects maintain compliance with the clinical service masking guidance while visiting the MR Research facility at Harrison. As a reminder, please provide your subjects with a mask with all metal clips, wires, etc. removed and ensure fabric masks do not contain any metal fibers. Please continue to submit the COVID-19 screening forms.

The key to the research Prep Room remains to be located. We have made arrangements to leave the Prep Room door unlocked to minimize any disruption in training your subjects. Please do not leave or store any valuables in the Prep Room. As a reminder, the front desk staff leave for the day typically around 3PM. If you have a research study scheduled after 3PM, please call the 3T scanner at 312-413-1309 if the front entrance to the Harrison facility is locked.

Research at UIC



Dr. Cemal Yazici, MD

Dr. Yazici is the Assistant Professor of Medicine in the Division of Gastroenterology and Hepatology here

at UI Health. Dr. Yazici specializes in pancreaticobiliary diseases with a specific focus on acute and chronic pancreatitis, pancreatic cysts, and pancreatic cancer. Health disparities are in the center of Dr. Yazici's clinical and translational research. Dr. Yazici previously investigated contribution of diet and gut microbiome to increased colorectal cancer burden in African Americans in Chicagoland area. Dr. Yazici's current research focuses on understanding how diet and gut microbiome modifies acute pancreatitis risk and severity in the context of health-care disparities. Dr. Yazici earned his medical degree from Trakya University School of Medicine in Edirne, Turkey.

Design and Rationale for the Use of Magnetic Resonance Imaging Biomarkers to Predict Diabetes Following Acute Pancreatitis in the Diabetes Related to Acute Pancreatitis and Its Mechanisms (DREAM) Study: From the Type 1 Diabetes in Acute Pancreatitis Consortium (T1DAPC)

This core component of the Diabetes Related to Acute pancreatitis and its Mechanisms (DREAM) study will examine the hypothesis that advanced magnetic resonance imaging (MRI) techniques can reflect underlying pathophysiologic changes and provide imaging biomarkers that predict diabetes mellitus (DM) after acute pancreatitis (AP). A subset of participants in the DREAM study will enroll and undergo serial MRI examinations using a specific research protocol. The aim of the study is to differentiate at-risk individuals from those who remain euglycemic by identifying parenchymal features after AP. Performing longitudinal MRI will enable us to observe and understand the natural history of post-AP DM. We will compare MRI parameters obtained by interrogating tissue properties in euglycemic, prediabetic, and incident

diabetes subjects and correlate them with metabolic, genetic, and immunological phenotypes. Differentiating imaging parameters will be combined to develop a quantitative composite risk score. This composite risk score will potentially have the ability to monitor the risk of DM in clinical practice or trials. We will use artificial intelligence, specifically deep learning, algorithms to optimize the predictive ability of MRI. In addition to the research MRI, the DREAM study will also correlate clinical computed tomography and MRI scans with DM development.

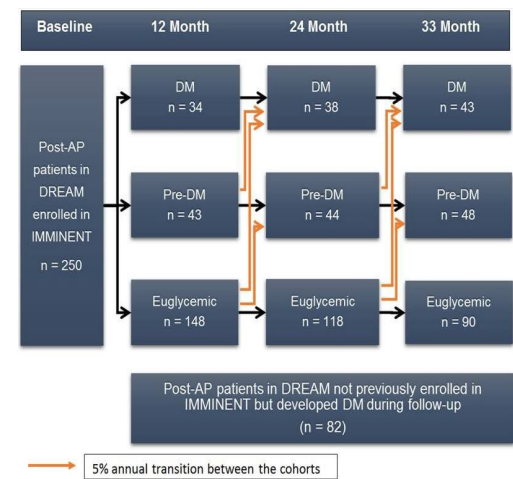


Figure 1: Expected evolution of diabetes status in participants undergoing longitudinal research MRIs in the DREAM study.

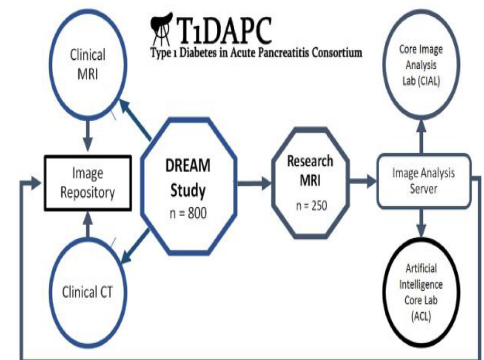


Figure 2: The flow diagram shows research and clinical MRIs and CTs in the DREAM study.

The full manuscript can be found at the following: PMID: 36206463 or PMCID: PMC9756870.