Interested in starting an MRI study?

In our last newsletter we discussed the available services at the BRIC which include 3 Tesla head-only and 3 Tesla full body scanning. The following information is required to initiate a study:

- Name of Study
- Name of PI in charge of study
- Account information for billing scanner time (should include: department/address where bills should be sent; name and phone/email address for business office contact person)
- Any and all relevant information regarding your study's particular scanning needs and requirements; any special needs of the subject population
- Copy of your IRB/IACUC approval memo and copies of the approved IRB application and consent form(s)

We would love to answer any questions you may have about starting a study at the BRIC! To start a new study, please call Amber Abernethy at (919) 843-6194 or email amber_abernethy@med.unc.edu.

Safety First!

Annual MRI safety training is required for all faculty, staff and students who will work around and inside the MRI magnet rooms or will need access to the area. Our goal is to maintain a safe environment for researchers, staff and subjects. Safety training can be completed on the Environmental Health and Safety website at http://ehs.unc.edu/training/self_study/mri/. The MRI safety video located in the training is a great resource for non-MRI personnel. It explains the importance of proper safety training through demonstrations of the potential dangers of a very large and powerful magnet. Please note that if you have completed MRI safety training in the past, the training has recently been updated to a more user-friendly format.

Anyone interested in additional safety training or an orientation on the BRIC imaging center please contact Emilie Kearns at emilie_kearns@med.unc.edu or Radiology, CB # 7515, (919) 843-8719.
New equipment

Invivo monitor

We recently purchased a new MRI-safe/compatible Invivo monitoring system. This second systems allows us to have monitoring capability for both the Allegra and Trio scanners at the same time. Both of the Invivo systems are able to monitor adults, infants, and animal subjects. The systems can record blood pressure, pulse oximetry, heart rate, low flow end-tidal CO₂, and cardiac and peripheral gating. To learn more about the new Invivo monitor, visit the following website: http://www.invivocorp.com/monitors/monitorinfo.php?id=1

New signs

The BRIC now has two signs! We hope the signs will make it much easier for our subjects to find us. Hopefully, they will also attract potential new users. There is a large sign on Mason Farm Road which reads “Medical Research Building D” and a smaller sign placed in the window by the front door which reads “Biomedical Research Imaging Center”. Please use these new signs to help guide your subjects to the BRIC for their imaging study.
Adapting for Studies

Here at the BRIC, we are able to easily adapt to meet the various needs of your study. For example, for infant/toddler sleep studies we have black-out curtains, a crib, heating pad, changing pad, and rocking chairs. As another example, we also have a set of MRI safe glasses, so that subjects who generally require the aid of glasses may still participate in fMRI studies. Please contact us at 919-843-6194 for any questions you may have regarding equipment or special requirements that your study may have.

FBIRN Agar Phantom

Another recent purchase is the FBIRN agar phantom. This phantom can be scanned for quality assurance purposes, and is especially useful for fmi sequences. For more information about the phantom: https://xwiki.nbirn.org:8443/bin/export/Function-BIRN/What+is+the+agar+phantom+for+and+what+do+I+do+with+it/?format=pdf
Siemens MAGNETOM Trio: A Tim System

In December 2009, the BRIC human imaging center unveiled its latest addition in MRI scanning capability. With the addition of the Trio, the center gained the ability to offer studies in areas other than neurology. The facility now has the capability to complete cardiac, abdomen, spine, soft tissue, muscle, joint and other orthopedic studies. The Trio system runs Syngo software, similar to the Allegra. However, the Trio offers an upgraded version of the Syngo software, B17. Our Trio system, includes the following coils: 12-channel head, 32-channel head, 32 channel body (16 anterior, 16 posterior), spine matrix, and neck matrix. We have already begun utilizing the 32 channel body coil for scanning cardiac and abdominal subjects as well as the lower legs on several human subjects. We also use the 32 channel body coil to scan joints and lower limbs of canine subjects. What is amazing about the 32 channel body coil is that we are able to use a very small Field of View (FOV) and a small slice thickness while maintaining adequate signal (see canine images for examples). At the same time, we’re able to use the 32 channel body coil to adequately cover up to 50cm without distortion as seen in the lower limb images below. We are also currently part of a study that allows us to use the neck matrix coil to look at the lymph nodes and soft tissue of the neck.

*Some images and MAGNETOM Trio reference information, courtesy of Siemens Medical at http://www.medical.siemens.com/*.
Some advantages to using the Tim Trio system include:

- **TIM = Total Imaging Matrix** is a technology that allows for much faster scanning without reducing image quality.
- A 200mT/m/msec slew rate for faster scan times and high image resolution
- Improves workflow by eliminating the need for patient repositioning and manual coil changes
- 32-channel 3T system for accelerations up to PAT 16 for much quicker imaging
- Coverage up to 50 cm FOV

Advanced imaging sequences, available on the Tim Trio system include:

- **BLADE**—a motion correction application which is ideal for uncooperative patients and pediatric patients
- **SPACE**—improved 3D imaging that is quicker and has higher contrasts
- **PACE**—used in abdominal and cardiac imaging to detect and minimize motion
- **VIBE**—allows for dynamic imaging with high resolution

*Some images and MAGNETOM Trio reference information, courtesy of Siemens Medical at http://www.medical.siemens.com/.*
Abdominal Imaging examples with 32 channel body coil

Cardiac Imaging examples with 32 channel body coil