

## Research Associate Brain and Metabolism Imaging in Chronic Disease

### Major Responsibilities

- Implement and validate MRS techniques to measure metabolite concentrations in human research participants, with a focus on obesity, diabetes, aging, and cancer research applications.
- Design and execute human research MRS experiments, calibrate and validate MRS equipment, and develop protocols for data acquisition, processing, and analysis.
- Submission to IRB for MRS studies, collaborating with other sites in multi-site MRS studies, tracking MRS data submissions and data quality, issuing reports for the studies, and managing the day-to-day operations of the MRI scanner.
- Contribute to publications, presentations, and grant proposals related to new methodological advances and insights into disease processes.

### Required Qualifications

- Master's degree in biomedical engineering, physics, or related field.
- Training in magnetic resonance spectroscopy.
- Five (5) or more years of experience in collecting and post-processing human MRS data using MATLAB, jMRUI or related software.
- Five (5) or more years of experience in managing the day-to-day operations of research studies and MRI equipment.
- Proven track record of contributing to publications in major conferences or journals.

### Preferred Qualifications

- PhD in biomedical engineering, physics, or related field.
- Knowledge of current biomedical research areas utilizing MRS, such as obesity, diabetes, and aging.
- Two (2) years of experience in statistical analysis with R, SAS, or similar software.

### Pennington Biomedical Research Center

At the forefront of medical discovery as it relates to understanding the causes of obesity, diabetes, cardiovascular disease, cancer and dementia, Pennington Biomedical Research Center is a campus of Louisiana State University and conducts basic, clinical and population research. The Center includes Basic Science, Clinical Research, and Population and Public Health, enabling both focused research and translational science. Research at Pennington Biomedical is supported broadly by multiple NIH Research Centers and includes approximately 65 faculty and 20 postdoctoral fellows who comprise a network of 44 laboratories and 13 highly specialized core service facilities. Pennington Biomedical is located within state-of-the-art research facilities on a 222-acre campus in Baton Rouge, Louisiana.

The Biomedical Imaging Center at Pennington Biomedical is experiencing significant growth, driven by substantial institutional investment. The center aims to enhance its support for cutting-edge research in diabetes, obesity, aging, cancer, and related conditions. Key techniques of interest include lipid species measurement from 1H spectra, skeletal muscle metabolite measurement (such as phosphocreatine) from 31P spectra, and the use of 13C-labeled compounds for dynamic measurement of TCA cycle metabolites.

The Biomedical Imaging Center currently houses two 3T GE MRI machines: a wide-bore Discovery 750w and a Signa Excite HDxT, with plans to install a new 3T scanner featuring advanced capabilities in the coming years. These systems are equipped with a comprehensive set of state-of-the-art sequences, acquisition coils (including 1H, 31P, and dual-tuned 1H/13C coils), and a proton decoupler. The research scientist will have access to this equipment, as well as a large-scale, extensible cluster computing machine and desktop computing equipment. Additionally, the research associate will have access to NMR spectrometers located on the nearby LSU main campus as needed.

Beyond MRI, the Biomedical Imaging Center also includes two DXA scanners, ultrasound equipment, a BODPOD, and an x-ray machine, facilitating multi-modality studies.

### How to Apply

[Apply Here](#)

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