A postdoctoral position in biomedical magnetic resonance is available within the Magnetic Resonance Imaging and Spectroscopy Section at the National Institute on Aging (NIA) of the National Institutes of Health, located in Baltimore, Maryland.

The overall research program in the group encompasses spectroscopic and imaging studies of brain, cartilage, and muscle in human subjects, as well as preclinical studies of animal models of disease and ex vivo studies of cartilage biophysics.

Our research on human subjects involves investigation of diffusion, including anomalous diffusion, in the assessment of muscle quality and age-related muscle loss (sarcopenia). Additional studies center on brain myelin studies using novel Bayesian reconstruction algorithms and filtering methodologies. A recent initiative is the development of in vivo one- and two-dimensional relaxometry studies of muscle and brain. Muscle bioenergetic studies using the $^{31}$P nucleus are also of central importance, and make use of the extensive database of the Baltimore Longitudinal Study on Aging. Results are correlated with a wide range of biological and functional outcomes to explore the effects of biochemical and structural tissue changes that occur with age and age-associated disease. All human subjects work is performed using our research-dedicated 3T whole-body 32-channel Philips Achieva MRI system, capable of both proton and heteronuclear spectroscopy.

Preclinical work centers on imaging and relaxometry studies of cartilage, including development and application of approaches from the areas of inverse problems and compressed sensing. Our research currently emphasizes multiexponential and multidimensional relaxometry, and other advanced signal acquisition and processing techniques. A recent initiative involves model selection in signal analysis for tissue characterization. For preclinical work, MRI instrumentation consists of a vertical wide-bore 9.4T Bruker Avance III system with microimaging and solids capability and a Bruker 7T/30 cm Biospec Avance system.

Specific research activities within the above areas will depend upon the interests and background of the successful candidate.

Applicants must have Ph.D.-level training and experience in magnetic resonance. A background in MR imaging or spectroscopy of brain, muscle or connective tissue is preferred, although applications are also invited from individuals with experience in other areas of biological magnetic resonance. Strong physics, mathematics, and computer skills are an asset. The appointment will be as an IRTA Postdoctoral Fellow for US citizens or as a Visiting Fellow for non-citizens. Accordingly, applicants must have fewer than five years of postdoctoral experience. These positions are guaranteed for two years with the possibility of annual renewal up to a maximum of five years, and include family health insurance coverage. This support is not dependent on grant funding.

Applicants should e-mail their CV and contact information for at least three references to: Dr. Richard Spencer, Chief, Magnetic Resonance Imaging and Spectroscopy Section, NIH/NIA, BRC Room 04B116, 251 Bayview Boulevard, Baltimore, MD 21224; Tel. 410-558-8226; e-mail: spencer@helix.nih.gov


*The NIH is dedicated to building a diverse community in its training and employment programs*