Post-Doctoral Associate in Brain Tumor Imaging at Yale

Position. An NIH-funded post-doctoral associate (PDA) position in molecular imaging of cancer is available with D. S. Fahmeed Hyder at the Magnetic Resonance Research Center (MRRC) of Yale University. The Hyder laboratory uses a wide range of neuroimaging (e.g., fMRI, ASL, CEST, DTI, MRS, BIRDS) and neurophysiological (e.g., electrical, optical) techniques to explore metabolic markers of neurodegenerative and neuropsychiatric disorders. Metabolism is central to neuroimaging because it can reveal pathways by which neuronal and glial cells use nutrients to fuel their growth and function. Metabolism is needed for interpreting functional imaging because normal brain function requires high-energy yielded from glucose oxidation, but metabolism is also relevant to molecular imaging of disease, e.g., in cancer elevated aerobic glycolysis shunts fuel to support enhanced cell growth and proliferation. Although this position will focus on preclinical studies, the Hyder laboratory also pursues a range of clinical studies, creating an exceptional opportunity for translational research, from mice to human.

Qualifications. We are accepting applications from talented PDAs with training in MR physics with experience in cancer imaging applications. The ideal candidate should have an advanced degree in physics, engineering, chemistry, biomedical engineering, and/or related cancer imaging fields. For example, a project goal is to develop and validate a high-resolution extracellular pH mapping method called BIRDS to obtain readout of chemotherapy drug treatment into human brain tumor models. In another project we are testing the hypothesis that ability to differentiate metabolic and morphologic responses between initial drug response, emergence of drug resistance, and response to alternative therapies in state of drug resistance can offer novel insights into molecular and cellular mechanisms underlying individualized variations to different therapies. The candidate should have a strong MRI/MRS physics background. Experience with Matlab programming and/or laboratory skills, while not required, would be considered a major strength. Experience with paramagnetic MRI contrast agents and/or superparamagnetic nanoparticles is also considered a plus.

Facilities. The Hyder laboratory is within the facilities of Yale MRRC. The Yale MRRC is a state-of-the-art 33,000 square foot research facility in The Anlyan Center, that houses all computing, office, and laboratory spaces, as well as 5 human magnets (wide-bore 1.5T Siemens Sonata, wide-bore 3.0T Siemens TIM Trio, wide-bore Siemens 3.0T Prisma Fit scanner, wide-bore 4.0T Bruker, head-only 7.0T Siemens), 3 horizontal small-bore Bruker magnets (4.0T, 9.4T, 11.75T), and 2 vertical-bore Bruker spectrometers (500 MHz). The MRRC includes computing resources for all data analysis and backup, several chemistry labs, an electronics shop and a machine shop, surgical suites, behavioral testing rooms, mock scanner, an EEG room, a subject preparation and recovery room, an exercise physiology space, and several rigs for neurophysiological studies in electrical and optical imaging. Details of specific resources can be found at medicine.yale.edu/mrrc/resources. The Core Center for Quantitative Neuroscience with Magnetic Resonance (QNMR) located within the MRRC (qnmr.yale.edu), which is directed by Dr. Hyder, brings in numerous collaborations. Thus the new PDA will join other associate research scientists, PDAs, graduate and undergraduate students working at MRRC to potentially collaborate on additional projects.

Contact. Interested applicants should upload a statement of research experience and interests, a biosketch with detailed publication list, and 3 recommendation letters to apply.interfolio.com/41481