

Seeking qualified applicants for a Postdoctoral Researcher in Developing High-throughput Metabolomics Methods for Populations-based Phenotyping

Research: What is health? Despite our best efforts, biomedical science has failed to provide a concrete definition. It is clear that health is more than simply “free from disease”. However, traditional biomedicine focuses on identifying pathways and mechanisms associated with disease symptoms, not on understanding the processes that keep us healthy. It is not possible to understand deviations from health, whether disease-, environment-, or therapeutic-induced, without first establishing a definition of health. This project will develop and employ large-scale metabolomics-based molecular phenotyping at the population level to profile health. The successful applicant will be part of a team applying high-resolution mass spectrometry (HRMS)-based metabolomics to perform deep molecular phenotyping. The acquired phenotype profiles will be integrated with patient meta-data to identify relationships between metabolic trajectories and health, with a focus on respiratory disease. These efforts will require significant experience in mass spectrometry as well as sample preparation. Project tasks include the development of high-throughput methods for rapid molecular phenotyping. The project involves working with collaborators in the National Institute for Environmental Studies who are conducting the Japan Environment and Children’s Study (JECS). This longitudinal birth-cohort study includes 100,000 mother-child pairs and extensive environmental monitoring data. The access to large well characterized cohorts, an extended timeframe of financing, and cutting-edge equipment available represent an unprecedented opportunity to explore the nature of health as well as investigate the relationship between environmental exposure and disease. Our vision is to provide a quantitative definition of health and the associated deviations due to disease or environmental stress.

Environment: The Karolinska Institute (KI) has recently launched a new Molecular Phenotyping group at Gunma University (GU). The current post-doctoral position is being recruited to work in this new facility under the supervision of Associate Prof. Craig Wheelock from KI and Prof. Takashi Izumi from GU. For the purposes of this project, the laboratory has purchased an Agilent RapidFire system. The successful candidate will have access to dedicated state-of-the art instrumentation including 3 QToF, 1 triple quadrupole, and 1 GC-MS, as well extensive newly renovated laboratory facilities. The official language of the lab is English, and all affiliated researchers and administrative support staff speak English. Additional information on the group is available at: <http://www.metabolomics.se/>.

Qualifications: We are looking for highly motivated candidates with a Ph.D. in mass spectrometry or bioanalytical chemistry and experience in small molecule mass spectrometry as well as biological sample preparation techniques. Candidates should have demonstrated experience in LC-MS based metabolomics. We are especially interested in candidates with prior experience working with method development and sample preparation. It is expected that a significant portion of time will be spent on developing novel sample preparation procedures for high-throughput metabolomics. Excellent communication skills and an ability to interact with other staff in the lab and with collaborators in various networks are essential.

Application: The position is available immediately and the application deadline is August 31, 2017. A complete application consisting of CV, publication record, and at least 2 references should be sent via e-mail to Craig Wheelock (craig.wheelock@metabolomics.se).