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Doctoral (PhD) student position in asthma research: functional metabolomics of lipid mediators in chronic respiratory disease

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Karolinska Institutet, Department of Medical Biochemistry and Biophysics, Chemistry II

Karolinska Institute in collaboration with the National University of Singapore invites applications for a PhD student position in the functional metabolomics of lipid mediators in chronic respiratory disease.

Area of responsibilities/description of the work

We have an opening for an individual wishing to join a multidisciplinary and translational project aimed to understand mechanisms in obstructive lung disease. Chronic lung disease is one of the largest noncommunicable diseases globally, with 4 million deaths in 2012 alone. Omega 3 fatty acids are found naturally in fish oil and are commonly thought to possess anti-inflammatory properties, with protective effects in inflammatory diseases including asthma. The mechanisms of these effects remain mostly unknown, but are of great interest for their potential therapeutic applications. Specialized pro-resolving mediators (SPMs: protectins, resolvins, and maresins) are generated from omega 3 fatty acids via multiple enzymatic reactions. Several reports have indicated that SPM biosynthesis is impaired in severe asthma, suggesting that chronic inflammation in the lung might result from a resolution defect.

This project will use mass spectrometry-based methods to quantify the lipid mediator profile in human lung to determine its ability to synthesize these pro-resolving mediators. Functional studies will be performed on ex vivo lung tissue to evaluate the ability of the omega 3-derived lipid mediators to reduce bronchoconstriction. These studies will be performed in combination with common allergens and bronchoprovocations. Investigations will also be performed in multiple cell types to generate a metabolic profile of both pro-inflammatory and pro-resolving lipid mediators in the human lung. This work will be combined with lipidomics-based profiling to create a lipid map of the human lung. The identified lipid mediator profiles will be used to guide systems medicine-based studies to stratify patients in order to understand the mechanisms driving this heterogeneous disease, with the aim of identifying sub-phenotypes to inform patient diagnosis and treatment strategies.

This doctoral position is within the collaborative agreement between the Karolinska Institute (KI) and the National University of Singapore (NUS), and the student will accordingly be admitted to both Universities (<http://ki.se/en/collaboration/ki-and-national-university-of-singapore>). Students will be jointly taught, supervised, assessed, and will be awarded a PhD degree from both NUS and KI, issued separately. The successful applicant will belong to the Integrative Molecular Phenotyping laboratory led by Dr. Craig Wheelock in the Department of Medical Biochemistry and Biophysics at KI (<http://metabolomics.se>) and the SLING lipidomics group led by Dr. Markus Wenk at NUS (<http://www.lipidprofiles.com>). This joint position requires that the student spend at least 12 months over the four year PhD period in residence at NUS.

Requirements for entry to doctoral education at KI

A doctoral position is an available doctoral education project to which a PhD student is to be recruited. After the selection process the process for admission to doctoral education commences. An admission decision will not be taken until an individual study plan has been approved by the departmental admission board at both Universities, usually within the six months of the project. For more information regarding doctoral (PhD) education in general, please go to <http://www.ki.se/doctoral>, and for general and specific entry requirements <http://ki.se/en/education/entry-requirements-eligibility-for-doctoral-education>

To be eligible for doctoral education, and thus to be able to apply for the current position, the following requirements have to be met:

General entry requirements

A person meets the general entry requirements for doctoral/third-cycle/PhD education (according to Higher Education Ordinance Chapt 7, section 39) if he/she:

1. has been awarded advanced/second-cycle/master qualification (i.e. master degree) or
2. has satisfied the requirements for courses comprising at least 240 credits of which at least 60 credits were awarded in the second-cycle/master level, or
3. has acquired substantially equivalent knowledge in some other way in Sweden or abroad.

Specific entry requirements Proficiency in English equivalent to the course English B/English 6 at Swedish upper secondary school: Proficiency in the English language can be documented by an internationally recognized test such as TOEFL or IELTS, see web-link below for more information. Applicants who meet the general entry requirements (1 or 2 above) from a university in one of the Nordic countries fulfill the requirements in English. *For this particular position, fluency in spoken and written English is a prerequisite as the environment is international (see below).*

Required skills and personal qualities

Broad biomedical undergraduate training is desired. Practical experience of laboratory work, and in particular experience in analytical chemistry is a useful merit, but there are no determined exclusion criteria. We welcome all applicants that want to have fun and work in a stimulating co-operative international environment to address a new challenge in cutting edge respiratory research. You should like team-work and international contacts, yet be prepared to assume responsibility to deliver on your own parts in the project and fulfill the requirements of the doctoral training programme. The daily working environment will include cell and tissue culture-based *in vivo* and *in vitro* methods for evaluating airway response as well as instrumental work for lipid quantification.

Research environment

Karolinska Institute is one of the world's leading medical universities. Its mission is to contribute to the improvement of human health through research and education. Karolinska Institute accounts for over 40 per cent of the medical academic research conducted in Sweden, and offers the country's broadest range of education in medicine and health science. Since 1901, the Nobel Assembly at Karolinska Institute has selected the Nobel laureates in Physiology or Medicine. The Department of Medical Biochemistry and Biophysics (M) is known for ground-breaking research and responsibility for extensive biomedical education programmes at the under- and postgraduate level. The Nobel Prize in Physiology or Medicine was awarded in 1982 to the former head of the Division of Physiological Chemistry 2 at MBB for key discoveries in eicosanoid research closely related to the current position. The National University of Singapore is consistently ranked as Asia's top university, with a major focus on the biomedical and life sciences.

Application process

An application must contain the following documents in English:

1. A personal letter (no longer than 2 A4 pages, font size 11 or larger), explaining why the applicant wants to do a doctoral education, with specification of previous experiences that may contribute to the development of the proposed project, and declaration of how soon you can start.
2. A curriculum vitae focusing on experiences of relevance to this position
3. A copy of degree certificates and associated certificates
4. A copy of degree projects and any previous publications

The application is to be submitted through the MyNetwork recruitment system.

Last application date: 2017-04-30.

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Pursuant to the regulations of the Swedish National Archives, applications are kept on file for two years after the appointment has gained legal force. The regulations do not apply to attachments that have been printed or otherwise published.

Karolinska Institutet strives to provide a workplace that has approximately the same number of women and men, is free of discrimination and offers equal opportunity to everyone.

For temp agencies and recruiters, and to salespersons: We politely, yet firmly, decline direct contact with temp agencies and recruiters, as well as those selling additional job announcements.

Type of employment	PhD placement
Contract type	Full time
Reference number	2-361/2017
Contact	Craig Wheelock, +46 (0)8-524 800 00
Union representative	Anne Edgren, OFR/S, P, O, +46 (0)8-616 16 29 Biborka Bereczky Veress, SACO, +46 (0)70-173 85 75 Henry Wölling, SEKO, +46 (0)8-524 840 80
Published	10.Feb.2017
Last application date	30.Apr.2017 11:59 PM CET

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