Doctoral (PhD) student position in Immunology and Gene Therapy

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Karolinska Institutet, the Department of Medicine, Huddinge

Do you want to contribute to top quality medical research?

To be a doctoral student means to devote oneself to a research project under supervision of experienced researchers and following an individual study plan. For a doctoral degree, the equivalent of four years of full-time doctoral education is required.

Division
The Cell and Gene Therapy Group at the Department of Medicine Center for Hematology and Regenerative Medicine is announcing a doctoral student position at Karolinska Institutet within the research fields of Hematology, Cancer Immunotherapy and Gene Therapy.

Research group
The Cell and Gene Therapy Group has a particular interest in exploring natural killer (NK) cells in patients with hematological cancers. NK cells are a vital part of the innate immune system, capable of tumor cell killing. These cells are long-lived and provide a superior capacity to proliferate and to perform antibody-dependent cellular cytotoxicity (ADCC). The group has internationally recognized leadership in clinical-grade, current good manufacturing practice (cGMP)-compatible manufacturing of cell and gene therapy applications. Furthermore, we have been involved in a large number of clinical trials, including the first Swedish clinical trials assessing the safety of both patient and donor-derived ex vivo expanded NK cells in patients with various malignancies.

The Cell and Gene Therapy Group is a multidisciplinary research group with 18 members, including 3 PhD students. The primary project supervisors will be Evren Alici, Björn Önfelt, and Hans-Gustaf Ljunggren. The PhD student will belong to the Center for Hematology and Regenerative Medicine (HERM), a translational research center encompassing research groups involved in hematology, hematopoiesis, immunology, and cell therapy. The student will also work very closely with Björn Önfelt’s group, situated at the Science for Life Laboratory.

Research environment
The student will work in part at HERM with labs and platforms situated at both NEO and ANA Futura. HERM is a dynamic research center focused on hematology and cancer immunology. The primary labs, located at ANA Futura, provide a variety of resources and equipment needed for executing state-of-the-art research, including access to a flow cytometry facility, molecular biology resources, and equipment, culture systems for a variety of cell lines and primary healthy
donor and patient material. The student will also work at Science for Life Laboratory, where there are resources for state-of-the-art fluorescence imaging. Both research groups have weekly progress meetings where students provide updates on their progress and receive feedback from the team.

In addition, the group is a part of a VINNOVA funded competence center, which is a program focused on next-generation NK cell therapies. The prospective student will be working in the multidisciplinary, translational environment that the competence center creates.

**The doctoral student project and the duties of the doctoral student**

We are recruiting a student for doctoral education. A doctoral education consists of supervised research, combined with courses and other educational activities. An individual study plan is established for each doctoral student. For a doctoral degree, the equivalent of four years of full-time doctoral education is required. For more information regarding PhD education at Karolinska Institutet, see [http://www.ki.se/doctoral](http://www.ki.se/doctoral).

The central premise of the project is to evaluate the functional responses of genetically modified NK cells with the overall goal to identify efficient and persistent NK cell products for adoptive immunotherapy. The project consists of four independent yet interconnected aims, which involve a mix of lower to higher risk-taking. In these aims, NK cells will be genetically engineered with various combinations of receptors to evaluate their contribution to cytotoxic effector functions and influence on synapse formation.

The project will include immunology, molecular, cancer and cell biology, several *in vitro* methods, and potentially *in vivo* experiments in mice. We are planning to perform genome-wide analyses such as single-cell RNA sequencing and CRISPR screens for the identification of relevant genes.

The successful applicant will acquire basic, as well as specialized knowledge and understanding of immunology and tumor biology and how to address research questions within these topics. The PhD student will learn to apply, master, and develop research methodologies in immunology, tumor biology, and biophysics. Examples of skills that will be explored include advanced flow cytometry and imaging techniques, retro/lentiviral work, state-of-the-art molecular biology experimentation, and work with human cells and animal models for tumor immunology.

**Skills and personal qualities**

We are seeking a highly motivated and enthusiastic candidate to work on projects focused on NK cells and cancer research. You should be collaborative, scientifically adventurous, curiosity-driven, and like team-work in an international environment. Furthermore, you should be prepared to assume responsibility to accomplish your goals in the project(s) and fulfill the requirements of the doctoral training program.

The PhD student is expected to take a strong lead in project management, data generation, as well as analyses and interpretation. The duties also include working in a team and to adhere to high scientific standards and responsibilities.

The applicants are expected to be talented and enthusiastic researchers with a robust research drive. Prior experience within cell culture, molecular biology, flow cytometry, and fluorescence imaging is mandatory. Previous experience with functional assays of immune cells is meriting. To be able to elaborate on scientific hypotheses, experimental design, experimentation, and presentation/publication of results is expected. Established research article authorship is highly meriting, as is previous training in research laboratories. Candidates must be able to work within a heterogeneous and multicultural team environment but maintain independence to explore their hypotheses and results and drive their projects. Personal suitability will be a selection criterion.

**Eligibility requirements for doctoral education**

In order to participate in the selection for a doctoral position, you must meet the following general (A) and specific (B) eligibility requirements at latest by the application deadline.
It is your responsibility to certify eligibility by following the instructions on the web page Entry requirements (eligibility) for doctoral education.

A) General eligibility requirement
You meet the general eligibility requirement for doctoral/third-cycle/PhD education if you:

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

Follow the instructions on the web page Entry requirements (eligibility) for doctoral education.

*If you claim equivalent knowledge, follow the instructions on the web page Assessing equivalent knowledge for general eligibility for doctoral education.

B) Specific eligibility requirement
You meet the specific eligibility requirement for doctoral/third-cycle/PhD education if you:

- Show proficiency in English equivalent to the course English B/English 6 at Swedish upper secondary school.

Follow the instructions on the web page English language requirements for doctoral education.

Verification of your documents
Karolinska Institutet checks the authenticity of your documents. Karolinska Institutet reserves the right to revoke admission if supporting documents are discovered to be fraudulent. Submission of false documents is a violation of Swedish law and is considered grounds for legal action.

Terms and conditions
The doctoral student will be employed on a doctoral studentship maximum 4 years full-time.

Application process
Submit your application and supporting documents through the Varbi recruitment system. Use the button in the top right corner and follow the instructions.

Your application should contain the following documents:

- A personal letter and a curriculum vitae (Swedish or English)
- Degree projects and previous publications, if any (Swedish or English)
- Any other documentation showing the desirable skills and personal qualities described above (Swedish or English)
- Documents certifying your general eligibility (see A above)
- Documents certifying your specific eligibility (see B above)

For more information regarding doctoral (PhD) education, see: http://www.ki.se/doctoral.

Selection
A selection will be made among eligible applicants on the basis of the ability to benefit from doctoral education. The qualifications of the applicants will be evaluated on an overall basis.

Karolinska Institutet uses the following bases of assessment:

- Documented subject knowledge of relevance to the area of research
- Analytical skill
- Other documented knowledge or experience that may be relevant to doctoral studies in the subject.
All applicants will be informed when the recruitment is completed.

Want to make a difference? Join us and contribute to better health for all

**Type of employment**  
PhD placement

**Contract type**  
Full time

**First day of employment**  
According to agreement

**Number of positions**  
1

**Working hours**  
100%

**City**  
Huddinge/ Solna

**County**  
Stockholms län

**Country**  
Sweden

**Reference number**  
2-2050/2020

**Contact**  
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**Published**  
06. May. 2020

**Last application date**  
26. May. 2020 11:59 PM CET

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