



Doctoral Industrial School on Human Skin models for Staphylococcal infections

Call for 4 Early Stage Researcher Fellowships in “Doctoral Industrial School on Human Skin models for Staphylococcal infections”

INTRODUCTION

DISSection (Doctoral Industrial School on Human Skin models for Staphylococcal infections) aims at delivering industry-oriented PhD training in the area of Infection and Immunity. The four selected Early-Stage Researchers (ESRs) will experience an intersectoral training programme encompassing a 18 months of internship in Glaxo Smith Kline Vaccines (GSKVACSRL), based in Siena, Italy, and 18 months internship at Department of “Universitair Medisch Centrum Utrecht” (UMCU), NL. A period of secondment is planned for ESR3 and ESR4. The Program is integrated with complementary courses on dermatology, human skin infections, hydrogel scaffolds, mass spectrometry, and induced pluripotent stem cells technology, that will be held by associate partners.

The students will be enrolled in the PhD school Program at Universitair Medisch Centrum Utrecht for a period of 4 years and will receive a PhD degree in the area of Infection and Immunity.

The ESRs will have the chance to learn front-edge technologies and will deal with very important and diverse scientific aspects of Microbiology, Immunology, Biochemistry, Dermatology and Vaccinology. All students will engage in training-by-research, and will participate in a series of scientific, technical and complementary skills training events.

RESEARCH PROJECTS

DISSection (Doctoral Industrial School on Human Skin models for Staphylococcal infections) is a European Industrial Doctorate (EID) funded by the Marie Skłodowska-Curie Actions of Horizon 2020, with the aim of training four young scientists in the area of Infection and Immunity. The scope of the Project is to develop a human skin models. The model will be used and optimized to the following main objectives: better understanding of human-specific pathogenesis of *S. aureus* as well as protective mechanisms against the pathogen; development of the first immune-competent human skin models for vaccine research; provide alternative methods to animal models.

This represents a good opportunity for students that are willing to grow both in basic science as well as in innovative and applicative experimental research.

Specifically, students will be involved in one of two work packages aimed at:

- Exploit skin equivalent models as well as human skin explants to achieve the following major objectives:
 - 1) determine the role of toxins and virulence factors in invasive processes of the skin;
 - 2) study the role of immune evasion factors in bypassing responses of immune-competent skin equivalents;
 - 3) characterize *S. aureus* infection in human skin;
 - 4) study the role of neutrophils and macrophages as well as their cooperation against *S. aureus*.



Doctoral Industrial School on Human Skin models for Staphylococcal infections

- Exploit skin equivalent models to achieve the following major objectives:
 - 1) establish the first human skin equivalent for vaccine research;
 - 2) measure expression of virulence factors and vaccine antigens in bacteria interacting with skin cells;
 - 3) assess the response of skin cells to infection in terms of cytokine expression;
 - 4) dissect protective mechanisms associated with antibodies, complement factors and professional phagocytes against *S. aureus* skin pathogenesis;
 - 5) improve *S. aureus* vaccine targets by structural modelling;
 - 6) broaden application of the skin model for characterizing skin delivery systems.

The four projects have been defined in:

ESR1: Project: Human-specific *S. aureus* pathogenic and immune evasion mechanisms

ESR2: Project: Characterization of the role of different professional phagocytes and their cooperation against *S. aureus*

ESR3: Project: Human skin model for vaccine research

ESR4: Project: Structural modelling of *S. aureus* vaccine targets

STUDENTS SUPERVISION

All the fellows will be supervised by four senior scientists who will form the so-called Thesis Committees (TC).

The TC for the 4 positions are:

TC ESR1: Andrea Manetti, F. Bagnoli (GSKVACSRL); Nina van Sorge, J. van Strijp (UMCU) and L. Grimaldi (UoSM)

TC ESR2: Elisabetta Soldaini, F. Bagnoli (GSKVACSRL), Suzan Rooijackers and K. van Kessel (UMCU)

TC ESR3: E. Soldaini and Fabio Bagnoli (GSKVACSRL), K. van Kessel and Nina van Sorge (UMCU), M. Amieva (SUMC) and L. Grimaldi (UoSM)

TC ESR4: Andrea Manetti, M. Scarselli and F. Bagnoli (GSKVACSRL), S. Rooijackers and J. van Strijp (UMCU) and A. Magnani (UoS)

TRAINING PROGRAMME

The training programme comprises:

- 1) Research training activities, performed locally, leading to award of the PhD title.
- 2) Scientific/technical training courses and activities performed locally and at the project level to train the ESRs in scientific topics, advanced technology and methodologies necessary for the project implementation.
- 3) Transferable skills training to prepare the ESRs for an academic or industrial career will be provided through local and joint training courses.
- 4) Scientific events, such as 3 annual project meetings



Doctoral Industrial School on Human Skin models for Staphylococcal infections

IMPLEMENTATION

ESR1 and ESR2 will be employed by UMCU for the first 18 months of their fellowship, and by GSK for the second period of the fellowship (months 19-36).

ESR3 and ESR4 will be employed by GSK for the first 18 months of their fellowship, and by UMCU for the second period of the fellowship (months 19-36). A secondment period is foreseen for ESR3 (2 months at Stanford University Medical Centre) and for ESR4 (2 months at University of Siena Department Biotechnology, Chemistry and Pharmacy).

All the fellows will be enrolled in the PhD school at UMCU for a period of 4 years, at the end of which they will obtain the PhD degree in "Infection and Immunity". The students will receive the fellowship within the Marie Skłodowska-Curie Actions Program for the first 36 months. A possible 12-month extension is envisaged, pending the availability of additional funding.

The ESRs will be contractually employed according to Dutch and Italian legislation and will be covered under the social security scheme of Netherlands and Italy. They will monthly receive a Living Allowance, a Mobility Allowance and a Family Allowance (where applicable) compliant with the applicable EC Marie Skłodowska-Curie Actions - ITN general conditions

(see: http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-msca_en.pdf page 49).

APPLICATION PROCEDURE

The applicants must send the following documents to info@dissection.eu before the deadline (**February 28th, 2017**):

- 1) an updated CV;
- 2) a motivation letter describing their interest for the position;
- 3) reference letter(s) from at least one former supervisors and/or lecturers;
- 4) at least two referees names and contact details;
- 5) extended abstract of master thesis;
- 6) the scan of the Master degree which would formally entitle him/her to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher will be recruited. In case the degree has not been obtained yet, it is necessary to send a declaration of the university stating that the degree will be obtained before **April 30th, 2017**;
- 7) transcript of records (document indicating their ranking and marks within their last year at their Master Degree as well as the courses/modules they have followed);
- 8) Specification of the position they are applying to, and a preference list of the projects for which the applicant is eligible (see below).

Applications will be evaluated against the following criteria:

- CV
- Educational record;
- scientific quality;
- expected individual impact and benefit of the training to the fellow and to the project;



Doctoral Industrial School on Human Skin models for Staphylococcal infections

The candidates will be evaluated on the basis of received documents and the best 3-5 candidates for each position will be invited for a skype interview that will take place in the period between **March 15th** and **March 31st**.

For each position a shortlist will be prepared and notified to the applicants. The first candidate identified at this stage will be invited for two face to face interviews that will be held at GSK and UMCU. The face-to-face interviews of the 4 candidates will be completed by **April 30th**.

After the notification, the selected candidates are requested to prepare and submit their application for the PhD school at UMCU.

The recruitment date is set on **June 1st 2017**.

DISSection supports equal opportunity and encourages female researchers to apply for positions.

ELIGIBILITY RULES

At the time of recruitment, i.e., **June 1st 2017** applicants must fulfil the following rules:

Experience:

- 1) applicants must be in possession of the degree (usually the Master Degree) which would formally entitle them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher will be recruited.
- 2) applicants must be ESRs, i.e. must be in the first four years (full-time equivalent research experience) of their research careers and have not yet been awarded a doctoral degree.

Mobility:

ESR1 and ESR2: applicants can be of any nationality but, at the time of recruitment, may not have resided or carried out their main activity in Netherlands for more than 12 months in the 3 years immediately prior to the enrolment. Short stays such as holidays are not taken into account.

ESR3 and ESR4: applicants can be of any nationality but, at the time of selection, may not have resided or carried out their main activity in Italy for more than 12 months in the 3 years immediately prior to the enrolment. Short stays such as holidays are not taken into account.

Other requirements:

- 1) ESR1: Basic knowledge: Microbiology, Immunology
ESR2: Basic knowledge: Cell Biology, Immunology
ESR3: Basic knowledge: Microbiology, Cell Biology
ESR4: Basic knowledge: Biochemistry
- 2) The CV must be without gaps, in order to easily check the mobility and experience rules. CVs that either do not clearly show the applicant's past experience, or have unexplained gaps, will be considered ineligible.