



## Call for 4 Early Stage Researcher Fellowships in “Novel preventive strategies against *E.coli* infections”

### Introduction

DISCO (a multidisciplinary Doctoral Industrial School on novel preventive strategies against *E. coli* infections) aims at delivering industry-oriented PhD training in the vaccinology field. The four selected Early-Stage Researchers (ESRs) will experience an intersectoral training programme encompassing a 19-month internship in Novartis Vaccines (NVD), based in Siena, Italy, and 17 months in French National Institute for Agronomical Research (INRA), based in Clermont-Ferrand, France. Secondments to the associated partners University Roma Tre (UNIROMA3, Italy) and Université d’Auvergne (UDA, France) are planned during the fellowships. Two students will be enrolled in the PhD programme of UNIROMA3 and two students will be enrolled in the PhD programme of UDA. All students will engage in training-by-research, and will participate in a series of scientific, technical and complementary skills training events.

### Research projects

DISCO (a multidisciplinary Doctoral Industrial School on novel preventive strategies against *E. coli* infections) is a European Industrial Doctorate (EID) funded by the Marie Curie Actions of the FP7, with the aim of training four young scientists in the physiology of intestinal *E. coli* pathotypes with the scope to pose the basis for a broadly protective vaccine capable to control the morbidity and mortality of *E. coli*-associated diarrheal disease. The scientific goal is to use bioinformatic and experimental approaches (including proteomic, molecular, cellular and immunological studies) to identify bacterial surface associated determinants able to induce cross-protective antibodies against different *E. coli* pathotypes, following the “Reverse Vaccinology” approach. Specifically, students will be involved in two work packages aimed at:

- studying of novel preventive strategies for emergent intestinal pathogenic *E. coli* strains
- defining the immune response to intestinal pathogenic *E. coli* antigens and the contribution of novel adjuvants to a broaden coverage

### The four projects have been defined in:

**ESR1:** Identification of cross-protective antigens to develop a vaccine against intestinal pathogenic *E. coli* strains.

**ESR2:** Identification of novel adhesins in pathogenic *E. coli* strains as a strategy for preventing intestinal colonization.

**ESR3:** *In vivo* characterization of the immune response towards pathogenic *E. coli* antigens and modulation of the intestinal microbiota.

**ESR4:** Immunological characterization of novel adjuvants for generation of vaccines against pathogenic *E. coli* strains.

### Students Supervision

All the fellows will be supervised by at least four senior scientists who will form the so-called Thesis Committees (TC). The TC for the 4 positions are:

**TC ESR1:** Roberto Rosini (Principal Supervisor, NVD); Mickaël Desvaux (Principal Supervisor/PhD Director, INRA); Alain P. Gobert (INRA); Fabio Polticelli (UNIROMA3).

**TC ESR2:** Mickaël Desvaux (Principal Supervisor / PhD Director, INRA); Marco Soriani (Principal Supervisor, NVD); Valérie Livrelli (UDA); Paolo Visca (PhD Director, UNIROMA3)

**TC ESR3:** Cecilia Buonsanti (Principal Supervisor, NVD); Alain P. Gobert (Principal Supervisor/PhD Director, INRA); Elisabetta Affabris (UNIROMA3); Valérie Livrelli (UDA).

**TC ESR4:** Alain P. Gobert (Principal Supervisor/PhD Director, INRA); Cecilia Buonsanti (Principal Supervisor, NVD); Elisabetta Affabris (PhD Director, UNIROMA3).

### Training Programme

The training programme comprises:

- 1) The implementation of individual research projects at NVD and INRA, with secondments at UNIROMA3 and UDA.
- 2) Local training sessions.
- 3) Joint courses and scientific workshops.
- 4) Short courses for transferable skills training, including a course on ethics.
- 5) Active participation in international congresses.
- 6) Annual Workshops on “Reverse Vaccinology”.



## A multidisciplinary Doctoral Industrial School on novel preventive strategies against *E. Coli* infections

### Implementation

ESR1 and ESR3 will be employed by NVD for the entire duration of the fellowship. They will start at NVD for 19 months and then be seconded at INRA for the remaining 17 months. They will be enrolled in the PhD School at UDA. ESR1 and ESR3 will be paid according to the Marie Curie rates of Italy for the entire duration of the fellowship.

ESR2 and ESR4 will be employed by INRA for the entire duration of the fellowship. They will start at INRA for 17 months and then be seconded at NVD for the remaining 19 months. They will be enrolled in the PhD School at UNIROMA3. ESR2 and ESR4 will be paid according to the Marie Curie rates of France for the entire duration of the fellowship.

### Application Procedure

The applicant must send the following documents to [info@discoproject.eu](mailto:info@discoproject.eu) before the deadline (**July 31<sup>st</sup>, 2014**):

- 1) an updated CV;
- 2) a motivation letter describing their desire for the post;
- 3) reference letter(s) from at least one former supervisors and/or lecturers;
- 4) a preference list of the projects for which the applicant is eligible (see below);
- 5) the scan of the degree (usually 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 December 31<sup>st</sup>, 2014;
- 6) a document indicating their ranking and marks within their last year at their Master Degree as well as the courses/modules they have followed.

**Applications must be in english** and will be evaluated against the following criteria:

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

Shortlisting and interviews will take place from August 2014.

Posts must commence on **January 1<sup>st</sup>, 2015**. DISCO supports equal opportunity and encourages female researchers to apply for positions.

### Eligibility Rules

**At the time of recruitment, i.e. January 1<sup>st</sup>, 2015**, applicants must fulfill 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 ESR3: 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 appointment. Short stays such as holidays are not taken into account.

ESR2 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 France for more than 12 months in the 3 years immediately prior to the appointment. Short stays such as holidays are not taken into account.

#### Other requirements:

- 1) ESR1: Basic knowledge: Microbiology; Specific skills: Microbiology, Work with animals.  
ESR2: Basic knowledge: Microbiology; Specific skills: Proteomics, Cell Biology.  
ESR3: Basic knowledge: Intestinal Microbiota; Specific skills: Microbiology, Work with animals.  
ESR4: Basic knowledge: Cell Biology, Immunology; Specific skills: Cell biology, Molecular biology, Flow cytometry.
- 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.