



UNIVERSITÀ
DEGLI STUDI
FIRENZE



COLLABORATIVE DOCTORAL PARTNERSHIP (CDP)

CALL OF INTEREST IN ONE Ph.D POSITION

Topic:

**“Application of Artificial Intelligence to study the interaction
between microbiota and environmental and host factors
underlying human diseases”**

Application deadline:

6th December 2021 at 12:00 noon (Italian Time)*

ACADEMIC YEAR 2021/2022

*** The registration procedure will be automatically interrupted at 12 pm sharp,
it is necessary to begin the trials in advance to conclude it by the deadline**



The University of Florence - Department Department of Experimental and Clinical Medicine and the Joint Research Centre of the European Commission (JRC) are inviting applications in the field of “Health Promotion and Prevention of Non-communicable Diseases (NCDs)” for [one PhD position through the Collaborative Doctoral Partnerships \(CDP\) scheme](#) – Topic: **“Application of Artificial Intelligence to study the interaction between microbiota and environmental and host factors underlying human diseases”** (GA n. 36142).

Art. 1 - PhD PROGRAMME

The candidate will be enrolled in the XXXVII cycle of the Doctoral Programme in **“Clinical Sciences”**. The University of Florence will award a Ph.D Degree at the end of the three-years Programme after successfully completing the whole PhD requirements, including the successful defense of the Thesis as provided by the [University Regulations on PhD Programmes](#).

Art. 2 - PhD RESEARCH TOPIC - PROJECT OBJECTIVES AND DESCRIPTION

The PhD research activities will focus on : **“Application of Artificial Intelligence to study the interaction between microbiota and environmental and host factors underlying human diseases”**. The topic is coherent with the research lines included in the Doctoral Programme in Clinical Sciences and with the JRC mission.

Currently the benefits of actions are focused on patients suffering from chronic inflammatory-associated diseases, but finally the obtained data, especially the development of innovative AI models to analyze the microbiota, will have an impact on other human diseases correlated with the microbiota dysbiosis. In fact, recently the integration of Artificial Intelligence (AI) methods and approaches with novel biotechnologies and with bioinformatics analysis of metagenomics data is starting to shed light to the microbiota factors underlying human diseases, but only a few pioneering research works have studied how AI methods can be applied and developed to analyse the interaction between microbial genomics and environmental and host factors underlying common human diseases, as neurodegenerative and infectious disorders (e.g Covid and Long-Covid), immunity dysregulations, and finally cancer. So, it is needed to study and develop AI and in particular Machine Learning (ML) methods for Genomic Medicine, e.g. computational methods for the analysis of the microbial composition and functionality that are associated with human diseases. The main project objective is to establish a general framework of existing Artificial Intelligence-based methods for the analysis of microbiota associated with inflammatory associated diseases, including infectious diseases (e.g. Covid-19 and especially Long-Covid), neurodegenerative, autoimmune and cancer diseases.

Art. 3 - JOB LOCATIONS

University of Florence
Department of Experimental and Clinical Medicine
Largo Brambilla, 3 – 50134 Florence - Italy

European Commission – Joint Research Centre
Via Enrico Fermi, 2749 - 21027 Ispra (VA) – Italy



Art. 4 - PROFILE OF THE PHD CANDIDATE

- Master degree (MSc) or equivalent within a relevant scientific area of the Doctoral Programme in “Clinical Sciences” (e.g. Immunology, Microbiology, Bioinformatics);
- Knowledge/experience in Microbiota characterization, Immune response and bioinformatic analysis
- Languages: excellent working knowledge (written and oral) of English. Knowledge of Italian language is preferential.

Art. 5 - DURATION OF THE DOCTORAL PROGRAMME, RESEARCH CONTRACT AND SALARY

The PhD candidate will spend the first year at the Department Department of Experimental and Clinical Medicine of the University of Florence and the next two years at the Joint Research Centre - Directorate F - Health, Consumers and Reference Materials in Unit F1 Health in Society in Ispra, Italy.

The starting date of the Doctoral Programme will be January, 1st 2022, the Programme will end on December, 31st 2024; the defence of the thesis will be held within December 31st 2025.

During the first year the PhD candidate will sign a research contract according to the University of Florence regulations, while at the Joint Research Centre in Ispra the candidate will sign a contract as a Grant Holder 20 within the framework of the research programmes managed by the JRC ([GH Rules](#)).

Art. 6 - WHO CAN APPLY

- Italian and foreign citizens holder of *laurea Specialistica/Magistrale, laurea Vecchio Ordinamento* conferred by an Italian University by the 31st of October, 2021 may apply.
- Italian and foreign citizens holder of *Master Degree* conferred by a foreign University by the 31st of October, 2021 may apply for the selection, enclosing the official transcripts of the academic degree, accompanied by an Italian or English translation, also made by the applicant’s and under their own responsibility.

Applicants holder of Degrees conferred by a foreign University are conditionally admitted to the selection and will be excluded from it, if the academic title does not comply with the requirements for access to the Ph.D. level, as stated in this announcement. The foreign degree must be equivalent in length, level and subject to the required Italian title. The documentation relating to the foreign degree duly translated and legalized and with a declaration of value, issued by the competent Italian Consulate/Embassy in the Country where the qualification was obtained must be submitted to the appropriate offices, on or before the enrolment deadline. Alternatively, the candidate can submit the [Statement of Comparability of the foreign title](#) issued by ENIC_NARIC in Italy (CIMEA). The statement must contain all the necessary information to allow a proper evaluation of the title. If the foreign title was obtained in an EU country the *Diploma Supplement* will suffice.

Candidates should, prior to the start of the employment contract with the JRC:

- have the nationality of a Member State of the EU or a country associated to the Research Framework Programmes or being resident in a EU Member State since at least five years.
- be enrolled in a PhD programme with the HEI.



Candidates who are already enrolled in the doctoral study program with the HEI for fewer than 12 months can also be considered eligible.

The selected candidate will have not more than 6 months from the request for confirmation of interest in the position, to produce proof of enrolment in the doctoral study program.

For candidates with third-countries nationality (i.e. who are not from Member States of the EU nor from countries associated with the Research Framework Programs - Horizon 2020), the recruitment is subject to a security clearance and to the issuance of a residence and work permit in Italy for the period of the stay at JRC.

Art. 7 - HOW TO APPLY

For the application, candidates must use exclusively the online procedure at the website <https://sol.unifi.it/domdottjrc/login.jsp>. The window to submit the application is **from 22nd November 2021 until 6th December 2021 at 12 noon** (Italian Time).

Applicants need to:

- connect to <https://sol.unifi.it/domdottjrc/login.jsp>;
- register and log in following the instructions provided;
- fill in the application carefully following the instructions in the various screens;
- upload all the documents required for the selection, under penalty of exclusion;
- pay the application fee of € 30. Payment is due, under penalty of exclusion, within the deadline of the call, following the PagoPa procedure as shown on page <https://www.unifi.it/pagopa>

Documents required for the selection:

- copy of an ID;
- CV, publications, other qualifications
- For candidates with degrees awarded in Italy: self-certification stating that the applicant holds the university degree required for admission, including list of all exams taken and grade, title of the thesis and final grade, using the dedicated form downloadable [here](#)
- For candidates with degrees awarded abroad: copy of the degree required for admission, **official transcript** of academic records including title of the thesis and final grade.

Please note that the payment of the application fee is compulsory and failure to make payment will result in the exclusion from the selection. The application fee is not refundable under any circumstances.

After the closure of the online application, changes or uploading of other documents are not allowed, except for any documentation required afterwards by the Administration.

It is in the interest of the candidates to make sure to complete and “close” the application well ahead of the deadline of 6th December 2021, at 12 pm noon (Italian Time). Please note that the payment will be accepted until 11:59 pm (Italian Time) of the same day. No extension of the above deadline will be granted.

Art. 8 - SELECTION PROCEDURE

Candidates will be selected on the basis of their qualifications, CV, as well by the means of an interview (in English language) for the assessment of their aptitude to carry out a research as well as the



assessment of the knowledge of the specific field of the research project to which the CDP position is referred, according to the following procedure:

- pre-selection by University of Florence;
- final selection by JRC in agreement with the University of Florence Admission Board.

The pre-selection is carried out by a specialized Admission Board appointed by University of Florence chosen among professors and researchers with experience on the topics subject of the Call, guaranteeing an adequate gender representation.

At the end of the pre-selection process, the resulting ranking list consisting of a maximum of 5 candidates, will be sent to the JRC specialized Commission (together with the candidate's application), for the final selection; the JRC Commission might contact pre-selected candidates for a further interview.

At the end of the selection procedure, the JRC will contact each pre-selected candidate to inform about the outcome of their application, the successful candidate will then be contacted by the University of Florence for the enrolment procedure.

All relevant information and name of successful candidate will be published on the University of Florence website <https://www.unifi.it/p12115.html>

Art. 9 - INTERVIEW

The interview will be held in English Language remotely by Videocall **on 10th December, 2021 at 2:00 pm** (Italian Time). The Board will send the link to participate in the interview to the email address indicated in the application.

The Interview is aimed at evaluating the candidate's scientific background, knowledge and skills in relation to the research topic of the CDP Call.

Candidates must ensure to have a webcam at their disposal in order to allow the Admission Board to identify and have full view of the candidate during the interview.

The candidates are required to identify themselves before the interview begins by presenting a valid identification document.

Failure to show up, failure to connect, unavailability of the candidate on the day or time set, or failure to provide a valid identification document, are grounds for exclusion from the selection procedure.

Where technical problems of connection arise during the videoconference interview, if the problem concerns one or more Board members, the interview shall be postponed by default to another date, if the problem concerns the candidate, the Board may, on grounds of good reason, postpone to another date, respecting the principles of non-discrimination and equal treatment between candidates.

Art. 10 - ENROLMENT

The successful candidate will be contacted by the PhD Office of the University of Florence for the enrolment procedure.

Pursuant to art. 1, paragraphs 252 and 262 of law n. 232/2016, PhD students, in addition to the stamp duty of € 16,00 (required for the enrolment application), doctoral students are required to pay the regional tax for the right to university education (pursuant to art. 18, paragraph 8, of Legislative Decree no. 68/2012) the amount of which, for the academic year 2021/2022, is set at € 140.00.



Art. 11 - INTELLECTUAL PROPERTY ON RESEARCH RESULTS AND PUBLICATIONS

The intellectual and industrial property rights on the results obtained by the PhD student are regulated in accordance with the current law (Copyright Law - D.lgs. 633/1941 - and Industrial Property Code - D.lgs. 30/2005), and the [Regulation for the management of industrial and intellectual property rights with reference to research activities carried out by university staff](#) and, where appropriate, according to the individual agreements with universities, enterprises or entities involved.

PhD students are required to enter into a special confidentiality commitment in relation to information, data and documents of a confidential nature which that were brought to their knowledge whilst carrying out their activity at and/or on behalf of the University.

PhD students are in any case guaranteed the possibility to carry out the publishing activities provided for in their academic path, which must be programmed in a manner compatible with the protection of possible results.

Art. 12 - PROCESSING OF PERSONAL DATA

The personal data in possession of the University of Florence, provided by the applicants together with the application form, will be treated in accordance with the General Data Protection Regulation (GDPR) – EU Regulation 2016/679.

The candidates, as data subjects, may exercise their rights anytime according to the GDPR. For more details see <https://www.unifi.it/cmpro-v-p-11360.html>

Art. 13 - PUBLICITY

The Call is published - in its entirety, on the Official Register of the University of Florence and on the website <https://www.unifi.it/p12115.html>, It is also advertised on the Ministry of Education's website and on the European website Euraxess.

Art. 14 - UNIT IN CHARGE OF THE SELECTION PROCEDURES

For all purposes pertaining to this call for admissions, the unit in charge is the "Area Servizi alla Didattica" Ph.D. Office, Piazza San Marco 4, 50121 Florence.

Any queries can be addressed to: dottorato@unifi.it or by calling: +39 055 2757 668 – 309.

The officer responsible for the procedure is Chiara Cianferoni.

The President
Alessandra Petrucci