



Immerge

Storming
Immune
Monogenic
Conditions
through
Multiomic and
Gene Editing
Approaches



Funded by
the European Union

One full-time Doctoral Candidate position

HOST INSTITUTION:

- **European Molecular Biology Laboratory Heidelberg (EMBL). Germany > Heidelberg**

OPEN CALL: July 29th, 2024

APPLICATION DEADLINE: August 18th, 2024, 12.00 PM (CET)

EU RESEARCH FRAMEWORK PROGRAMME: HORIZON EUROPE

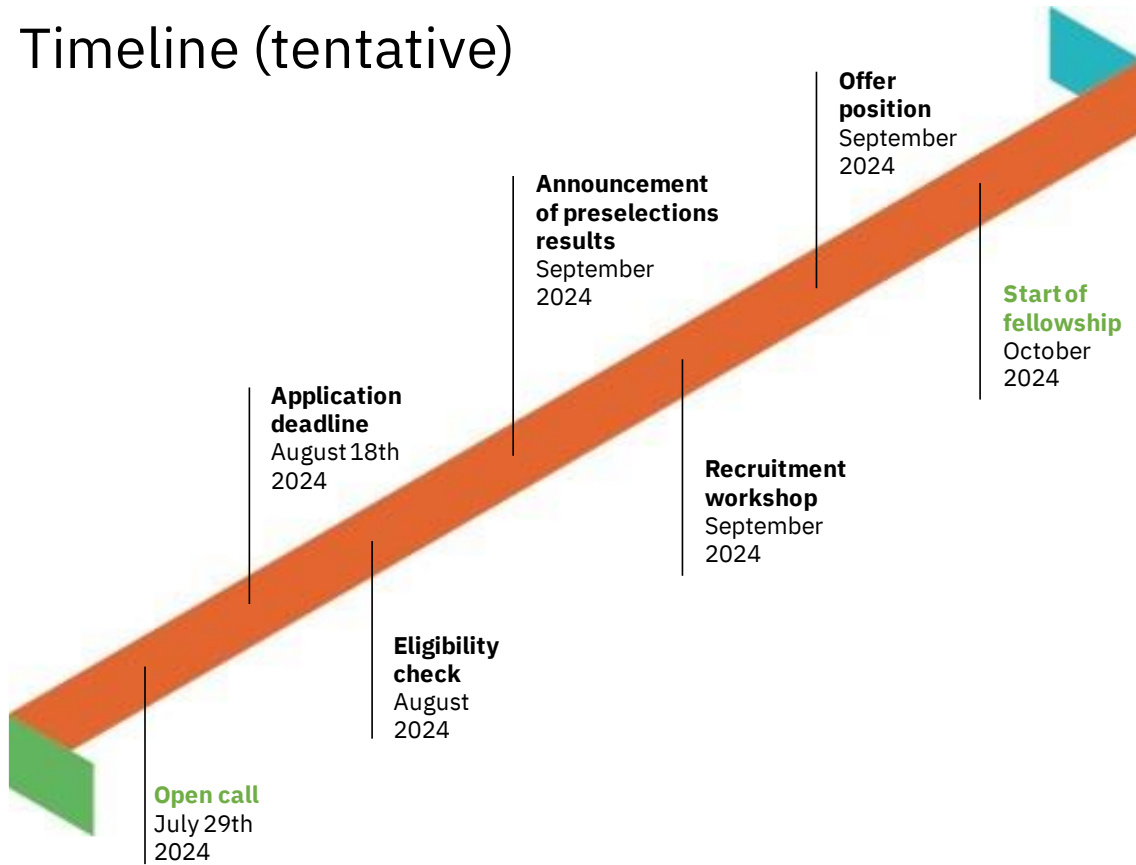
MARIE SKOŁODOWSKA CURIE ACTIONS DOCTORAL NETWORKS

GRANT AGREEMENT NUMBER: 101119927



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Timeline (tentative)



About IMMERGE

In the realm of cutting-edge research and academic excellence, the **IMMERGE MSCA Doctoral Network (DN)** stands as an extraordinary training initiative, embracing a multidisciplinary perspective that spans various domains of knowledge. The program is dedicated to recruit 12 remarkable Doctoral Candidates (DCs) within the field of Immunology, Epigenetics, Omics and Gene Editing Technologies and Bioinformatics. The objective of the program is to answer several essential questions regarding the Inborn Errors of Immunity (IEI), such what is the relationship between genetic mutations and the wide clinical phenotypic expressivity and drug response in different individuals? How are the specific effects of these mutations modulated by the genetic background and/or environmental factors? What is the interplay between these mutations and a wealth of cell signalling pathways and transcriptional factors? Can we correct them? Inborn Errors of Immunity (IEI) represent a paradigm for (i) exploring the communication between genetics, epigenetic and environmental determinants and (ii) testing the potential of gene editing methods. The DCs will be enrolled in top-notch academic and non-academic partners working with experts in immunology, genetics, epigenetics, proteomics, single cell omics, bioinformatics, and gene correction. Participating institutions represent 7 different countries, with 8 members in academia and 2 non-academic, from the biotech sector. In addition, the overall programme has designed a tailored training programme in which 16 Associated Partners bring additional expertise to the MSCA DN.

Individual research project

Doctoral Candidate 13: Understanding the impact of IEI on RNA processing and lifecycle with new methods.

Rationale and Objectives: For IEIs that do not impede transcription, it is unclear of the produced RNA suffers from aberrations throughout its lifecycle such as mislocalization, delayed splicing, translation, or lowered lifetime. DC13 will study how IEIs affect the downstream processing and lifecycle of mutant RNAs by comparatively studying the impact on the RNA lifecycle dynamics of mutant versus wildtype RNAs. Specific aims for **DC13's** project are: **(1)** To develop a highly sensitive in situ proximity detection method that will allow annotating RNAs based on their functional state and hence study their lifecycle stage at single molecule resolution in multiplexed fashion, under conditions of disease and treatment. **(2)** To combine this method with in situ detection of mutations and mutation corrections in cells and tissues to resolve the impact in spatial organization, cell-cell interactions and visual phenotypes. **(3)** Apply the approaches in aims 1 and 2 together to identify the RNAs with IEI mutations at single molecule level in heterozygous samples isolated from patients and see how the RNA processing and utilization is affected. The exact target transcripts will be defined based on early transcriptomics results from the IMMERGE

Network. The in situ mutation detection capabilities that DC13 will develop will further enable evaluation of the gene editing approaches by detection of gene corrections within the context of the spatial organization at the cell and tissue level.

Expected Results: (1) Generalizable methods and protocols for RNA lifecycle stage annotation. (2) Integratable approaches for in situ mutation detection. (3) Identification of the impact of the chosen IEI mutations on RNA lifecycle dynamics.

Host institution: European Molecular Biology Laboratory Heidelberg

Degree awarding institution: EMBL, Heidelberg, Germany

Supervisor: Dr. Sinem Saka

Planned secondment(s): UKLFR to receive training on patient sample processing and learn about signaling pathways, m10-m12 (2 months); Alia Therapeutics to learn novel gene editing protocols, m18 (1 month); University of Basel to receive multi-omics analysis, m23-24 (2 months).

Special selection process: the candidates interested in the EMBL International PhD programme (EIPP) will have to apply through the online IMMERGE website, and through the [EIPP webpage](#) as well, in order to be formally admitted and allowed to enrol in the EIPP. Applicants are required to submit contact details of minimum 2 referees. The [2025 Winter Recruitment](#) is open until the 14th of October 2024 and will be available during the specific period in which the call is open. The selected candidate will have to undergo an additional row of interviews by the EMBL selection committee. Further information about the selection process will be provided to the selected candidates.

EMBL is an 'International European Research Organisations' (IERO), 'international organisations', or entities created under Union law, thus the researchers must not have spent more than 12 months in the 36 months immediately before their recruitment in the same appointing organisation.

REQUIREMENTS:

Eligibility criteria

We welcome applications from Doctoral Candidates (DCs) from any country and nationality, fulfilling the following criteria:

- Eligible candidates must not have a doctoral degree at the date of their recruitment.
- Eligible candidates must not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting organisation for more than 12 months in the 36 months immediately before their recruitment date (i.e. the starting date indicated in the employment contract/equivalent direct contract).
- Eligible candidates must have a master's degree relevant to the chosen position (including biology, medicine, biochemistry, bioinformatics or a related discipline, depending on each PhD project) or its equivalent that would entitle them to a doctorate one month before the labor contract starts, or must hold an official university qualification from a country of the European Higher Education Area with a minimum of 300 ECTS of official university studies.

Successful candidates must have a high level of proficiency in written and spoken English, which will be assessed with the motivation letter and the interview, respectively.

Desired requirements:

- Hands-on experience with sequencing technologies (preferably also experienced with microscopy).
- Experienced with cell/tissue culture and fundamental cell biology assays.
- Experienced with method development (preferably both at academic and industry lab environment).
- Minimally have basic understanding of DNA nanotechnology applications.
- Minimally have basic understanding and command of bioinformatics pipelines for processing of sequencing data (preferably also experienced with processing of imaging data).
- Excellent organizational skills.
- Responsible and initiative-taking character.
- Experience in working in international settings and multicultural environments.

ADDITIONAL INFORMATION:

Application and selection process

Only the applications submitted through both the recruitment platform and a Microsoft Form will be accepted. Please, below find more information on how to access the two platforms:

- 1) an online recruitment platform, denominated Personio, to be found on the IMMERGE [website](#), clicking on 'Apply here'.

Mandatory documents to upload in the Personio Platform:

- a) **CV**.
 - b) **Motivation Letter** specific for the position of interest.
- 2) filling in the following [Microsoft Form](#) to ensure that you fulfill the MSCA DN requirements.

Applications must be in **English**.

The entire eligibility and recruitment process will be led by IMMERGE Recruitment Board (RB) and supervised by the Supervisory Board (SB). Eligible applications will be ranked based on CVs and merits by selection committees for individual DC positions, created by the supervisor, co-supervisor, and a member of IMMERGE Training Committee.

IMMERGE RB will evaluate the following criteria:

- the CV: Academic merit, experience, mobility, and publication track-record.
- Motivation letter: quality of writing, match of interest, strengths.

The 3 best candidates for each position will be invited to an online recruitment workshop in June (date to be confirmed) where the final candidates will be selected.

Applicants with a positive evaluation, but not selected, will be included on a reserve list to cover eventual future positions and might be contacted at a later stage.

Timeline (Tentative)

- Open Application: July 29th, 2024.
- Application deadline: August 18th, 2024, at 12.00 PM (CET)
- Announcement of preselection results and call for interviews: September, 2024.
- Recruitment workshop: mid September, 2024. The three top candidates per position will be invited to the online interviews. Full details regarding the interview process will be sent to invited candidates during the arrangement of interviews.
- Communication of the final results: September, 2024.
- Tentative start of the fellowship: October, 2024.

Benefits

- 3-year full-time employment contract (salary depends on the country of the recruitment considering both the local and MSCA DN regulations for DCs and their family status at the time of the recruitment, that is the starting date of the contract).
- Enrolment in a PhD programme.
- Shared research and innovative multidisciplinary and multisectoral training by experts and experienced trainers from two sectors (academia and industry) and two research environments (clinic and basic).
- A structured training programme consisting of soft skill courses, targeted workshops, retreats, social events, and networking.
- Secondments at other institutions within the IMMERGE Consortium.
- Gaining experience abroad.
- Opportunities for participation in national and international meetings.
- Enlarged professional network and improved future scientific career perspective in academia and the private sector.

For further information on the IMMERGE and the application process, please visit www.immergeproject.eu.

Contact us through email: immerge@carrerasresearch.org

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