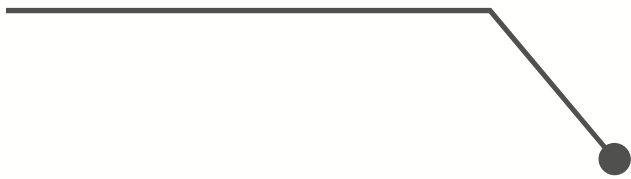# SIGNATURE

# PROJECT SIGNATURE

## APPLICANT'S GUIDE:

A guaranty for a fair and transparent recruitment process.

**& Following Human Resources Strategy for Researchers (HRS4R)**

# INTRODUCTION

## MSCA DOCTORAL NETWORKS

# MSCA DOCTORAL NETWORKS

*MSCA Doctoral Networks aim to train creative, entrepreneurial, innovative and resilient doctoral candidates, able to address current and future challenges and to turn knowledge and ideas into products and services for economic and societal benefit. MSCA Doctoral Networks will increase the attractiveness and excellence of doctoral training in Europe. They will equip researchers with the right mix of research-related and transferable skills and provide them with better career prospects in both academic and non-academic sectors through international, interdisciplinary and intersectoral mobility, combined with an innovation-oriented mindset.*

# BENEFITS MSCA:

## FOR RESEARCHERS

- NEW KNOWLEDGE AND SKILLS WITHIN AND OUTSIDE THE ACADEMIC ENVIRONMENT.

- INCREASED CAREER PROSPECTS AND EMPLOYABILITY

- INNOVATION-DRIVEN MINDSET TO TURN IDEAS INTO PRODUCTS AND SERVICES

- NETWORKING AND INCREASED VISIBILITY IN THE EUROPEAN R&I COMMUNITY

- INTERNATIONAL, INTERDISCIPLINARY AND CROSS-SECTORAL EXPOSURE AND EXPERIENCE

- ACCESS TO LEADING ORGANISATIONS AND THEIR TEAM

## FOR ORGANISATIONS

- PROVIDING HIGH QUALITY RESEARCH TRAINING AND SUPERVISION

- BUILDING STRONG RESEARCH AND INNOVATION PARTNERSHIPS

- STRENGTHENING RESEARCH CAPACITY

- IMPROVING HUMAN RESOURCES AND WORKING CONDITIONS TO ATTRACT THE BEST RESEARCHERS

- SUSTAINABLE KNOWLEDGE TRANSFER AND NEW INTERNATIONAL AND CROSS-SECTORAL COLLABORATIONS

- INCREASED GLOBAL VISIBILITY AND ATTRACTIVENESS

## FOR EUROPEAN RESEARCH AND INNOVATION

- FOSTERING SCIENTIFIC EXCELLENCE IN ALL COUNTRIES

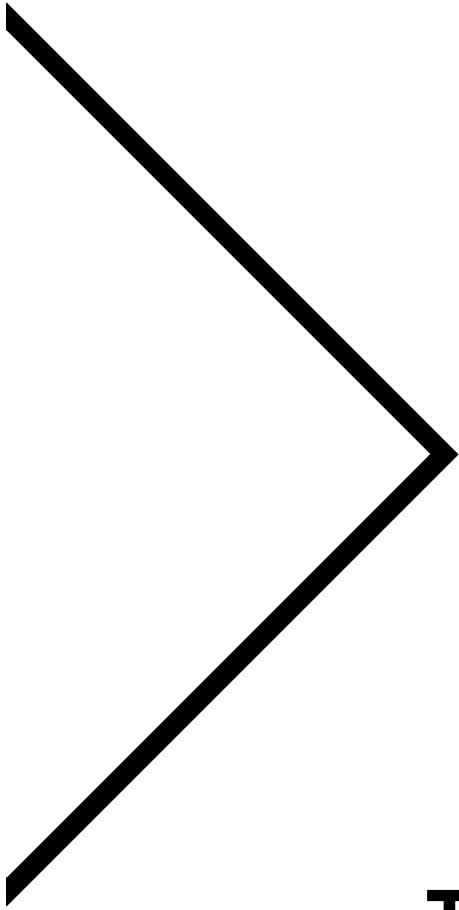- ATTRACTING AND RETAINING TALENT IN EUROPE

- HIGH-QUALITY R&D FOR EUROPE'S SUSTAINABLE GROWTH.

- INCREASED STRATEGIC COOPERATION AND BRAIN CIRCULATION BETWEEN COUNTRIES, DISCIPLINES AND SECTORS.

- NEW LINKS BETWEEN RESEARCH, INDUSTRY AND SOCIETY

- STRENGTHENING THE EUROPEAN RESEARCH AREA (ERA)

# THE
# PROJECT

**PROJECT N° 101072891**
*- SInGle cells iN*
*AuToimmUne*
*inflammatoRy disEases*
**«SIGNATURE»**

# THE PROJECT

- *Project number:* **101072891**
- *Project name:* **Single cell in inflammatory auToimmune diseases.**
- *Project acronym: SIGNATURE*
- *Call: HORIZON-MSCA-2021-DN-01*
- *Topic: HORIZON-MSCA-2021-DN-01-01*
- *Type of Action: HORIZON TMA MSCA Doctoral Networks*
- *service: European Research Executive Agency (REA/A/01)*
- *Grant managed through EU Funding and Tendering Portal: Yes (eGrants)*
- *Project start date: fixed date: 1 January 2023*
- *Project end date: 31 December 2026*
- *Project duration: 48 months*
- *Consortium agreement: Yes*

**Funded by the European Union**

# SIGNATURE

Autoimmune diseases are immune-mediated disorders, highly heterogeneous entities for which the mechanisms of disease progression and therapeutic responses are only recently beginning to be understood. The patterns of transcriptome are the reflection of distinct cell types that are involved in the development of the disease process. Our plan is to approach the diseases beginning from a global view that allows us to then come down to the most relevant cell types in tissues and blood. In addition, by understanding disease heterogeneity and diseases similarities, we can also identify the best pathways to be targeted with specific biological treatments. The diseases involved are systemic lupus erythematosus, rheumatoid arthritis and multiple sclerosis.

We will create a unique platform of translational groups across Europe and specialists in cell and molecular profiling, imaging analyses, single cell sequencing and analysis. The objetive will be the identification of the molecular basis of each of the diseases heterogeneity, the mechanisms of treatment non responsiveness, and the development of a specialized training program, where students will be able to visualize the overall work from design to analysis of the data and become engaged in the unique multi-disciplinarity of this platform.

The platform will exploit already available existing clinical studies and clinical trials, but will be also producing new data from prospective multicentric studies.

The engaged students will be permeated by the latest advances in not one, but several new approaches and systems biology modelling, and develop out-of-the-box concepts. In our approach the diseases can be viewed not as separate clinical entities but as novel groups of shared molecular and cellular patterns that impinge on specific tissues by specialized cell types.
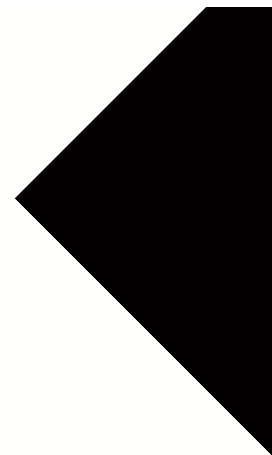
SIGNATURE
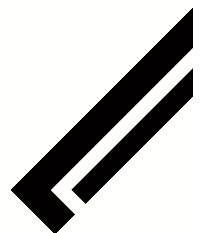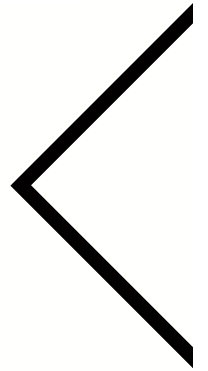
| | | | |
|---|---|---|---|
| 1 | FUNDACIÓN PÚBLICA ANDALUZA PROGRESO Y SALUD | FPS | SPAIN |
| 2 | UNIVERSITÉ DE BRETAGNE OCCIDENTALE | UBO | FRANCE |
| 3 | VIB VZW | VIB | BELGIUM |
| 4 | UNIVERSITA DEGLI STUDI DI CATANIA | UNICT | ITALY |
| 5 | DEUTSCHES RHEUMA-FORSCHUNGSZENTRUM BERLIN | DRFZ | GERMANY |
| 6 | ATRYS HEALTH, SA | ATRYS | SPAIN |
| 7 | FUNDACIO CENTRE DE REGULACIO GENOMICA | CRG-CERCA | SPAIN |
| 8 | ACADEMISCH ZIEKENHUIS LEIDEN | LUMC | NETHERLANDS |
| 9 | ALTRABIO | ALTRABIO | FRANCE |

UNIVERSIDAD DE GRANADA - SPAIN

UNIVERSITEIT GENT - BELGIUM
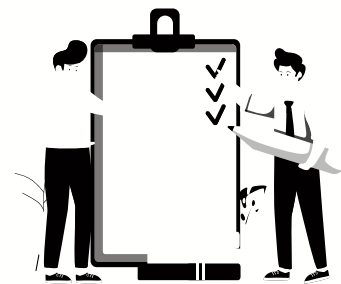
UNIVERSIDAD POMPEU FABRA - SPAIN

TECHNISCHE UNIVERSITAT BERLIN - GERMANY

STANDARD BIOTOOLS INC.- FRANCE

OMNISCOPE LIMITED - MALTA

# WORKING
# PACKAGES

SIGNATURE

# LIST OF APPLICANTS BY WORK PACKAGES

| Work Package | Candidates to be recruited by each WP |
|---|---|
| WP1 Single cell molecular characterization or autoimmune disease tissues | Candidates DC1, DC2 & DC3 |
| WP2 Identification of minimally-invasive biomarkers of tissue damage using body fluids | Candidates DC2, DC4 & DC5 |
| WP3 System analysis and data modelling | Candidates DC6, DC7, DC8, DC9 & DC10 |
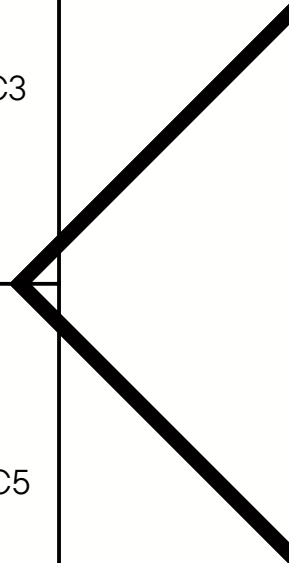
# RESEARCH
# OBJETIVES

DCs participating in SIGNATURE will
undertake novel research to reach the
different research objectives

**Research Objetive 1:**

Comprehensive and single cell molecular characterization of affected tissues (WP1) using tissue biopsies of patients recruited of systemic lupus erythematosus and rheumatoid artritis obtained by the clinical groups working in European project 3TR, and single cell and imaging technologies. A suite of state-of-the-art single cell technologies will be applied providing data of increasing resolution.

**Research Objetive 2:**

Identification of minimally-invasive biomarkers of tissue damage using body fluids (WP2). In order to establish biomarkers with minimal invasiveness and maximal clinical utility for the prediction of the response to therapy, flares and relapses, we will use biological fluids to perform single cell analysis, following a liquid biopsy strategy.

**Research Objetive 3:**

Integrated analysis of the data using advanced bioinformatics/statistical pipelines and modelling methods (WP3) to identify trajectories, clusters, commonalities, and clinically relevant biomarkers and drug targets. We will develop inclusive models and algorithms for the integration of tissue, clinical and -omic data to be used as variables in the identification of classifiers and predictors of disease trajectories. The overall modelling of the immune system of every individual analyzed will complement the data.

The driving concept of this network is the identification of
the mechanisms of response and non-response to
therapy in autoimmune diseases
using single-cell technologies and
advanced bioinformatics.

# JOB VACANCY 1
# DOCTORAL CANDIDATE 1



**Reference:** DC1

**Recruiting Institution:** Fundación Pública Andaluza Progreso y Salud (GENyO, Granada -Spain)

**Expected Start Date:** summer 2023

**PhD Programme:** Biomedicine

**PhD Awarding University:** Universidad de Granada

**Principal Investigator:** Marta E. Alarcón-Riquelme (Orcid: 0000-0002-7632-4154)

## Individual Project:

**Keywords:** systemic lupus erythematosus, lupus nephritis, autoimmunity.

**Project Title:** Determining the Molecular Patterns of Blood and Tissues in SLE.

**Project Description:** We will obtain data from the 3TR project, where tissues will be obtained from tissue biopsies of systemic lupus erythematosus patients from whom blood will be sampled in parallel, to identify molecular types of tissue damage occurring in systemic lupus erythematosus. The objectives are: 1) define the molecular patterns of tissue pathology in relation with treatment response/non-response; 2) define molecular patterns in tissue in relation to molecular patterns in blood; and 3) define molecular patterns across diseases comprising 3TR.
The candidate will be involved in scRNASeq and bulk RNASeq from tissues and PBMCs of Systemic lupus erythematosus patients, histology and tissue spatial transcriptomics. Will be involved in analyses of responses to treatment, preparation of results, seminars and meetings.

**Graphical Abstract:**
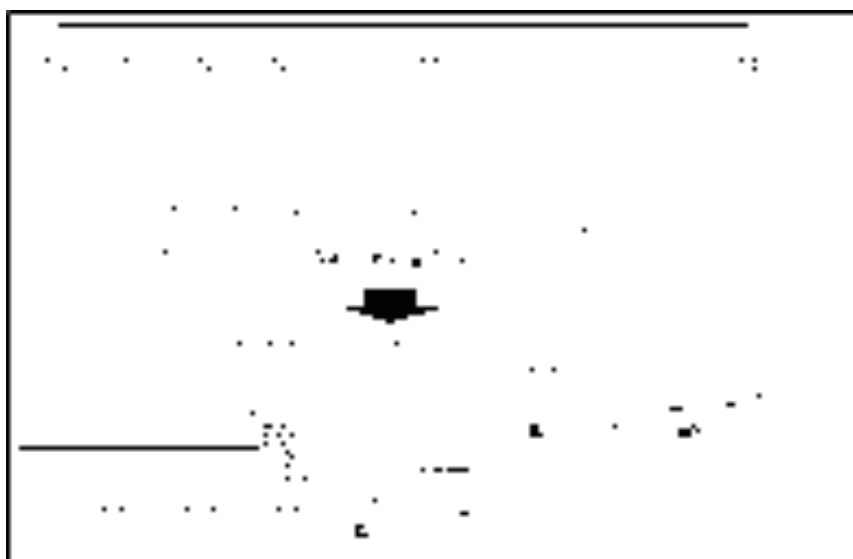
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| LUMC | 4 months | month 25 | In depth analysis of tissue-derived data |
| ALTRABIO | 3 months | month 32 | Single cell data integration |

**Vacancy Requirements**

**Qualifications:** Degree in biology, biochemistry, biotechnology, chemistry, pharmacology. MSc in molecular biology, genetics.

**Requirements:** Responsible, knowledge in informatics/bioinformatics or informatics languages (Python, other).

**Languages:** English - Full competency – tested during the interview.

**Desired Experience:** Laboratory stays.

Link to UGR Doctoral Programme Biomedicine

**Job Details - Country of Reference: Spain**

**Salary:** Gross Salary approx. 29000€ per year - EU Marie Curie PhD salary scale.

**Other Benefits:** the student will also receive a mobility allowance of 600€ per month (net salary), and a family allowance (depending on family situation) of up to 495€ per month (net salary).

In kind advantages associated with the doctoral program of University of Granada.

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** The Pfizer - University of Granada - Junta de Andalucía Centre for Genomics and Oncology Research (GENYO) has been conceived as a space for research of excellence on the genetic basis of diseases, including cancer, as well as on the influence of genetic inheritance on the body's response to certain drugs. Avenida de la Ilustración 114, Granada, Andalucia - Spain

Junta de Andalucía | Consejería de Salud y Consumo | Fundación Progreso y Salud

# JOB VACANCY 2
# DOCTORAL CANDIDATE 2

**Reference:** DC2

**Recruiting Institution:** ATRYS Health
(Madrid -Spain)

**Expected Start Date:** Summer 2023

**PhD Programme:** Biomedicine

**PhD Awarding University:** Universidad de Granada

**Principal Investigator:** Nadina Erill (Orcid: https://orcid.org/0000-0003-3530-2669)

**Individual Project:**

**Keywords:** Autoimmunity; microanatomy of tissue immunopathology; extracellular vesicles.

**Project Title:** Spatial imaging histology/pathology and liquid biopsy.

**Project Description:** The candidate will participate in the qualitative, quantitative, functional and spatial characterization the affected tissues of patient of systemic autoimmune diseases, mainly kidney biopsies of lupus nephritis patients. In particular he/she will explore in detail the local immune cell subsets and their relationships. This task represents an essential step to map and deconvolute tissue transcriptomic data, while providing an unprecedented landscape of the detailed composition and spatial organization relevant immune cells in the affected tissues in relation to the tissue-specialized cells. The spatial data will be obtained using multiplexed histology techniques, and the markers will be chosen based in spatial transcriptomics and image mass cytometry experiments of 3TR consortium. This analysis will allow the correlation with morphological features, combining advantages of morphology, spatial resolution, linearity and high capacity multiplexing. Secondly, the candidate will carry out the characterization of extracellular vesicles from the urine of systemic lupus erythematosus patients. The profile of urine extracellular vesicles will be compared with that of kidney biopsies of paired patients when available, in order to identify renal damage-related surrogate urinary biomarkers following a liquid biopsy strategy.

**Graphical Abstract:**
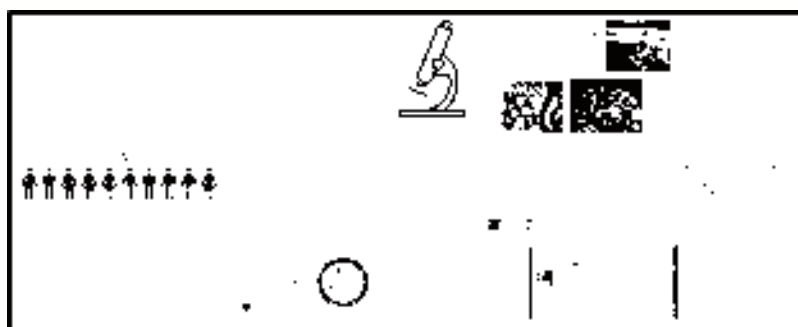
**Provisional Tentative for Secondments**

| | | | |
|------|---------|----------|---------------------------------------------------|
| FPS | 4 month | month 18 | Analysis of RNAseq data on extracellular vesicles |

**Vacancy Requirements**

**Qualifications:** Degree/master in Life Sciences.

**Requirements:** Responsible, organized, team worker. Willing to combine bioinformatics with wet lab in a translational environment.

**Languages:** English - Full competency – tested during the interview.

**Desired Experience:** Familiar with tissue analysis and immunology/autoimmunity.

Link to UGR Doctoral Programme Biomedicine.

**Job Details – Country of Reference: Spain**

**Salary:** Gross Salary approx. 29000€ per year - EU Marie Curie PhD salary scale.

**Other Benefits:** the student will also receive a mobility allowance of 600 € per month (net salary), and a family allowance (depending on family situation) of up to 495 € per month (net salary).

In kind advantages associated with the doctoral program of University of Granada.

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** Atrys Health laboratories in Granada, Avda de la Ilustración 114, Granada, Spain.

◇atrys

# JOB VACANCY 3
# DOCTORAL CANDIDATE 3

**Reference:** DC3

**Recruiting Institution:** CRG-CERCA - Barcelona

**Expected Start Date:** Summer 2023

**PhD Programme:** CRG

**PhD Awarding University:** Universitat Pompeu Fabra (UPF)

**Principal Investigator:** Holger Heyn (Orcid: 0000-0002-3276-1889)

**Individual Project:**

**Keywords:** Single-cell genomics, spatial sequencing, T cell receptor, immune repertoire, computational biology.

**Project Title:** Delineating cellular interaction networks in autoimmune diseases at single-cell resolution.

**Project Description:** Combining single-cell gene expression, immune cell repertoire and spatial transcriptome information of autoimmune affected cells and tissues will enable a data-driven characterization of disease biology in situ. Resulting systems biology insights and cellular interaction maps will improve our understanding of disease-specific immune alterations and pinpoint actionable vulnerabilities. DC3 will integrate single-cell gene expression, immune repertoire and spatial transcriptomics information to infer cellular interaction networks in autoimmune diseases. In particular, the DC3 will make use of complementary data types derived from single-cell RNA-seq and TCR/BCR-seq, spatial transcriptomics and in situ sequencing techniques generated in our group. Following the charting of cell types, states and clonality, their respective profiles are mapped into the spatial tissue contexts to determine cell-to-cell interactions between immune cells and the host tissues. Disease-specific interaction hubs will be characterized for their cellular and molecular make-ups to pinpoint relevant cell phenotypes and targetable crosstalk. A special focus will be on (immune) receptor-ligand interactions to guide the inference of disease-driven networks and prediction of actionable molecules and pathways.

**Graphical Abstract:**
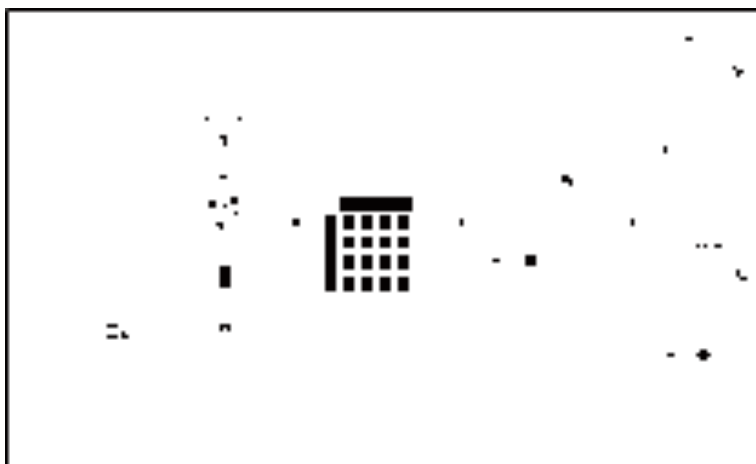
## Provisional Tentative for Secondments

| | | | |
|---|---|---|---|
| VIB | 3 months | month 18 | Cell state dynamics and trajectory inference |
| FPS | 6 months | month 25 | Patient sampling and disease model protocols |
| UBO | 3 months | month 32 | Multimodal data integration |

## Vacancy Requirements

**Qualifications:** Degree in Bioinformatics, Biotechnology, Data Science or similar.

**Requirements:** Experienced in NGS data analysis.

**Languages:** English - Full competency – tested during the interview.

**Desired Experience:** Experienced in single-cell/spatial data analysis.

## Job Details - Country of Reference: Spain

**Salary:** Gross Salary approx. 29000€ per year - EU Marie Curie PhD salary scale.

**Other Benefits:** the student will also receive a mobility allowance of 600 € per month (net salary), and a family allowance (depending on family situation) of up to 495 € per month (net salary).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** Centro Nacional de Análisis Genómico, Carrer de Baldiri Reixac, 4, torre i, 08028 Barcelona (Spain).

CRG
Centre
for Genome
Regulation

# JOB VACANCY 4
# DOCTORAL CANDIDATE 4

**DRFZ** BERLIN

Deutsches Rheuma-Forschungszentrum
Ein Institut der Leibniz-Gemeinschaft

**Reference:** DC4

**Recruiting Institution:** DRFZ – Berlin

**Expected Start Date:** Summer 2023

**PhD Programme:** Doctoral Programme in LeGCI Leibniz Graduate School on Chronic Inflammation.

**PhD Awarding University:** Technical University Berlin.

**Principal Investigator:** Henrik Mei (Orcid: 0000-0003-0697-7755)

**Individual Project:**

**Keywords:** Immune profiling, mucosal immunology, autoimmune patient stratification, precision medicine, mass cytometry.

**Project Title:** Autoimmune patient heterogeneity defined by mucosal immune fingerprinting.

**Project Description:** We here analyse the linkage between the mucosal immune system and pro-vs anti-inflammatory immune regulation in autoimmune patients. Emerging from previous findings of substantial contributions of mucosal plasmablasts to peripheral plasmablasts in clinically active rheumatoid arthritis and systemic lupus erythematosus, including autoreactive IgA+ cells in some patients, we here will systemically assess the abundance and activation characteristics of mucosa targeted blood immune cells and soluble factors in the context of microbiota composition and clinical data in different chronic inflammatory/autoimmune diseases such as rheumatoid arthritis and systemic lupus erythematosus. This project will define a cellular and/or molecular signature capable of identifying patients that could benefit from treatment modalities targeting the mucosal immune system or microbiota, i.e. to determine its utility for precision medicine.

**Graphical Abstract:**
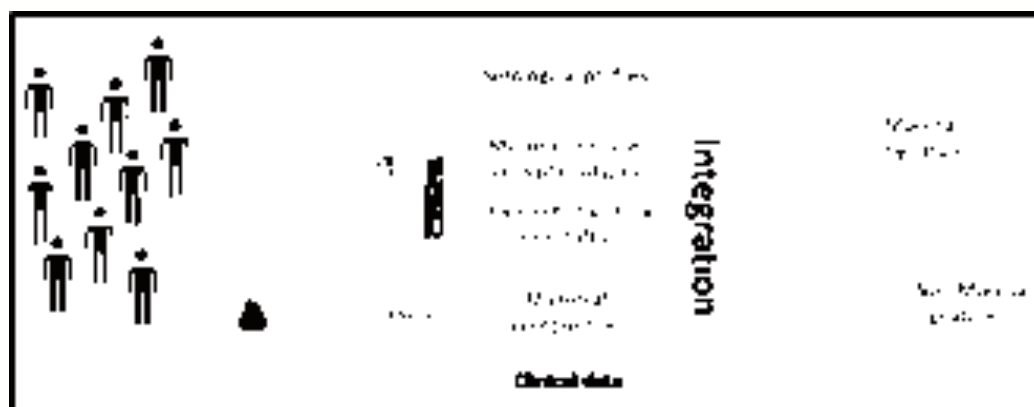
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| VIB | 3 months | month 36 | Computational CyTOF data analysis and multi-OMICS integration |
| ATRYS | 3 months | month 42 | Data integration, defintion of cross-plattform signatures |

**Vacancy Requirements**

**Qualifications:** University Master degree in Biology, Biotechnology, Life sciences or similar in accordance with the Guidelines and regulations for doctoral candidates of the Technische Universität Berlin. Faculty III,

*https://www.tuberlin.de/fak_3/menue/forschung/promotionhabilitation/parameter/en/*

**Requirements:** Responsibility, accuracy, creativity, team player skills, ability and willingness to dive into computational data analysis and to dig deep into new knowledge domains.

**Languages:** English - Full competency – tested during the interview.

**Desired Experience:** lab experience, immunology including flow or mass cytometry, advanced programming in R and Python.

**Job Details – Country of Reference: Germany**

**Salary:** Gross salary approx. EUR 3.000 per month, - EU Marie Curie PhD salary scale.

**Other Benefits:** a family allowance (depending on family situation) of up to 495 € per month (net salary).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** DRFZ Berlin (Germany)

**DRFZ** BERLIN

# JOB VACANCY 5
# DOCTORAL CANDIDATE 5

**Reference:** DC5

**Recruiting Institution:** Fundación Pública Andaluza Progreso y Salud (GENyO, Granada -Spain)

**Expected Start Date:** summer 2023

**PhD Programme:** Biomedicine

**PhD Awarding University:** Universidad de Granada

**Principal Investigator:** Concepción Marañón (Orcid: https://orcid.org/0000-0002-7827-6301)

## Individual Project:

**Keywords:** Mass cytometry, immune phenotyping, high-content analysis.

**Project Title:** Functional single cell proteomics for the precision diagnosis of autoimmune diseases.

**Project Description:** The candidate will carry out experiments of functional mass cytometry on whole blood samples from patients of the different diseases under study (Systemic lupus erythematosus (SLE), rheumatoid arthritis (RA) and multiple sclerosis (MS)) and healthy controls recruited by 3TR, stimulated with different immune agonists. Stimulated cells will be used to carry out dense immunophenotyping using mass cytometry (CyTOF) by means of a panel of surface markers encompassing the whole diversity of circulating cell populations. This panel will be combined with functional markers, such as intracellular cytokine staining and activation of signalling cascades (phosphoflow). The resulting data will be analysed using semi-automated pipelines and unsupervised clustering analyses. The final profiles will be validated using techniques closer to the clinical practice, such as conventional fluorescence cytometry. The resulting data will be key to determine both the cell types responsible of the different pathogenic responses, and the specific activation profiles associated with disease severity and treatment responses.

**Graphical Abstract:**
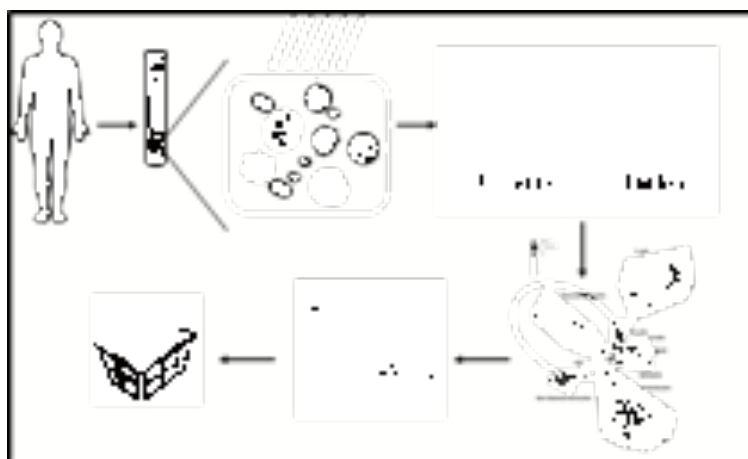
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| DRFZ | 3 months | month 25 | Analysis of funtional CYTOF data on plasmablasts |
| ATRYS | 3 months | month 35 | Translation of CYTOF-derived biomarkers into exploitable resources |

**Vacancy Requirements**

**Qualifications:** Degree/master in Life Sciences.

**Requirements:** Responsible, motivated candidate willing to integrate a young and dynamic team.

**Languages:** English - Full competency test during interview.

**Desired Experience:** Complementary training in bioinformatics, background in cytometry and/or immunology.

Link to UGR Doctoral Programme Biomedicine

**Job Details - Country of Reference: Spain**

**Salary:** Gross Salary approx. 29000€ per year - EU Marie Curie PhD salary scale.

**Other Benefits:** the student will also receive a mobility allowance of 600 € per month (net salary), and a family allowance (depending on family situation) of up to 495 € per month (net salary).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

In kind advantages associated with the doctoral program of University of Granada.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** The Pfizer - University of Granada - Junta de Andalucía Centre for Genomics and Oncology Research (GENYO) has been conceived as a space for research of excellence on the genetic basis of diseases, including cancer, as well as on the influence of genetic inheritance on the body's response to certain drugs. Avenida de la Ilustración 114, Granada, Andalucia - Spain

# JOB VACANCY 6
# DOCTORAL CANDIDATE 6

**Reference:** DC6

**Recruiting Institution:** VIB VZW, Ghent (Belgium)

**Expected Start Date:** summer 2023

**PhD Programme:** Natural sciences (Bioinformatics or Computer science)

**PhD Awarding University:** UGENT

**Principal Investigator:** Yvan Saeys (Orcid: 0000-0002-0415-1506)

**Individual Project:**

**Keywords:** Single-cell omics, trajectory modelling, machine learning.

**Project Title:** Modelling the heterogeneity of disease progression using trajectory inference.

**Project Description:** Trajectory inference methods have been recently introduced as a novel and promising class of unsupervised machine learning methods to reconstruct dynamical processes from point cloud data. These methods have been spearheaded by research in the single-cell omics field, where they have given valuable insights into cell developmental dynamics and differentiation. We hypothesize that such methods can be very interesting to study a patient's disease trajectory, as every patient observation provides a "snapshot" of the disease at a certain moment in time. We will study if trajectory inference methods may be able to generalize from these snapshots and provide a better picture of gradual disease progression and heterogeneity. ER6 will use single cell data (scRNASeq, mass cytometry) to model the heterogeneity of disease progression using trajectory inference methods. He/She will develop and apply trajectory inference to multi-omics patient data from patients suffering from various types of inflammatory diseases. Two of the following diseases will be focused on Systemic lupus erythematosus, rheumatoid arthritis, multiple sclerosis, using data generated in SIGNATURE in combination with other experimental data that will be available in the context of 3TR.

**Graphical Abstract:**
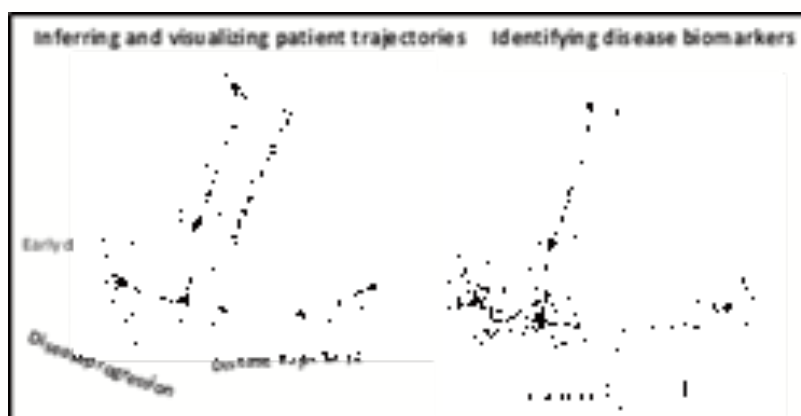
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| FPS | 3 months | month 12 | Disease mechanisms of rheumatoid arthritis and multiple sclerosis |
| UNICT | 3 months | month 18 | Mathematical models of the immune system |

**Vacancy Requirements**

**Qualifications:** Degree in bioinformatics, computer science/engineering, physics or equivalent.

**Requirements:** Programming experience.

**Languages:** English - Full competency test during interview.

**Desired Experience:** Single-cell omics, machine learning.

**Job Details - Country of Reference: Belgium**

**Salary:** Gross Salary approx. 2.200 € / month - EU Marie Curie PhD salary scale.

**Other Benefits:** a family allowance (depending on family situation) of up to 495 € per month (net salary).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** VIB is an entrepreneurial non-profit research institute, with a clear focus on groundbreaking strategic basic research in life sciences and operates in close partnership with the five universities in Flanders – Ghent University, KU Leuven, University of Antwerp, Vrije Universiteit Brussel and Hasselt University. VIB VZW, Gent (Belgium)

**VIB**

# JOB VACANCY 7
# DOCTORAL CANDIDATE 7

**Reference:** DC7

**Recruiting Institution:** LUMC, Leiden (Netherlands)

**Expected Start Date:** summer 2023

**PhD Programme:** Faculty of Medicine

**PhD Awarding University:** Leiden University

**Principal Investigator:** Jesper Kers
(Google Scholar: https://scholar.google.nl/citations?user=kBhAfNgAAAAJ&hl=nl )


**Individual Project:**

**Keywords:** Network graph, network motif, graph neural network, imaging mass cytometry, molecular imaging, computer vision, medical image analysis.

**Project Title:** Graph neural network analysis of spatial molecular data in systemic autoimmune disease.

**Project Description:** Do you want to contribute to a better understanding of immune diseases? Are you interested in creating the basis for the molecular tests of the future? Then this PhD project "Graph neural network analysis of spatial molecular data in systemic autoimmune disease" might be for you. As part of the Horizon Europe Marie Curie Doctoral Network "SIGNATURE" we are looking for an enthusiastic PhD candidate with an interest in developing computer vision tools for complex multidimensional human imaging data to better understand the pathophysiology of the autoimmune disease systemic lupus erythematosus (SLE). SLE is an autoimmune disease with high morbidity affecting multiple organs. As part of the European project 3TR (https://3tr-imi.eu/), a unique prospective cohort of human biopsies of skin, joints and kidney from patients with systemic lupus erythematosus is being collected and analysed with high-plex imaging mass cytometry providing single cell-level data of immune cell infiltrates. Within this PhD project, you will design new tools to analyse cell-cell and cell-tissue interactions with spatial graph neural networks. In particular, we aim at creating tools that can assess the presence or enrichment of graph network motifs with use of novel self-supervised learning methods with the goal to identify functional relationships between cells that can predict clinical outcome (e.g. response to treatment, organ failure) and/or identify potential cellular relationships that can be future treatment targets. The project is a multidisciplinary team work between immunopathologists, computer scientists and medical and molecular image specialist at the University of Leiden and within the greater SIGNATURE consortium. The team at the Leiden University Medical Center has vast experience in clinical immunopathology and medical computer vision with currently the largest digital kidney biopsy repository worldwide (Department of Pathology, dr. Jesper Kers) and development of molecular image analysis tools (Division of Image Processing, prof. Boudewijn Lelieveldt).

**Graphical Abstract:**
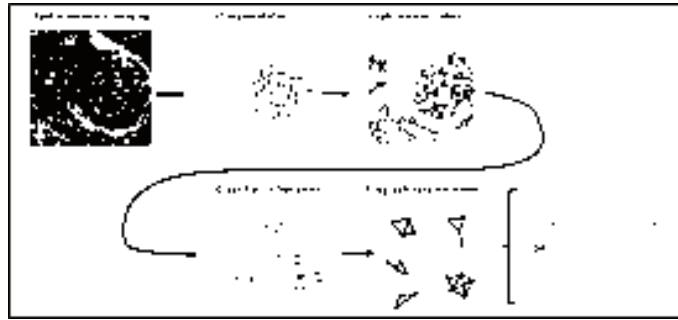


## Provisional Tentative for Secondments

| | | | |
|---|---|---|---|
| CRG-CERCA | 6 months | month 35 | Comparison of spatial interaction networks with spatial subgraph motifs |

## Vacancy Requirements

**Qualifications:** Completed MSc degree in Computer Science, Artificial Intelligence, Computer Vision or related field.

**Requirements:** Responsible, kind, respectful towards other people, open minded.

**Languages:** English. No diploma exam pre-entry needed, but IELTS band 7 or higher is expected during interview.

**Desired Experience:**
1. Programming in Python, preferably experience with PyTorch or Tensorflow, programming in C++, working with HPC clusters (Slurm).
2. (Bio)medical image analysis and computer vision.

## Job Details – Country of Reference: Netherlands

**Salary:** Depending on experience max. 3336 euro/month according to the Dutch collective work agreement "CAO-UMC" (d.d. 20-12-2022).

**Other Benefits:** -End of year bonus 8.3%
- Holiday allowance 8.0%
- Bicycle arrangement
- Budget for sports
- Pension scheme (LUMC pays 70% of the pension premium)

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with possible extension up to 48 months.

**Type of contract:** Full time

**Place of work:** Leiden University Medical Center, Leiden (Netherlands) Departments of Pathology and Division of Image Processing.

# JOB VACANCY 8
# DOCTORAL CANDIDATE 8

**Reference:** DC8

**Recruiting Institution:** UNIVERSITÉ DE BRETAGNE OCCIDENTALE, Brest (France)

**Expected Start Date:** summer 2023

**PhD Programme:** Biology and health

**PhD Awarding University:** UNIVERSITÉ DE BRETAGNE OCCIDENTALE (UBO)

**Principal Investigator:** Christophe Jamin (Orcid: 0000-0002-9494-3223)

## Individual Project:

**Keywords:** CNN, pixelation, biological markers, images, companion test.

**Project Title:** Associating deep learning with prior knowledge to predict the efficacy of targeted therapies in patients suffering autoimmune diseases.

**Project Description:** The objective of the project will be to use advanced deep learning algorithms to extract classification rules from the large amount of information generated for each patient in the 3TR project in order to identify the biological markers that can predict the efficacy of a targeted therapy (development of companion tests). The candidate will design an approach that takes advantage of complex algorithms architecture but avoids "black box" models.
Our initial hypothesis is based on the effectiveness of the methodology of linking an algorithm of transformation of data into images using prior knowledge (pixelation) with the processing of these images using convolutional networks (deep learning).
Our hypothesis, already supported by numerous conclusive preliminary tests carried out on public data (kaggle), raises several questions. What strategy should be developed for optimal pixelation of data? Can two-dimension representation be generalized? Is there an optimal generic strategy regardless of the data or do we need ad hoc strategies that are appropriate for each type of data processed? All these questions will be raised during the PhD project.
Expected Results: An innovative transformation of any patient variable data into images should facilitate the identification of determining variables through the analysis of saliceny grids for example. Identified patterns should enable the prediction of the therapeutic efficacy of a treatment and the elaboration of an associated easy-to-use companion test to help the therapeutic care.

**Graphical Abstract:**
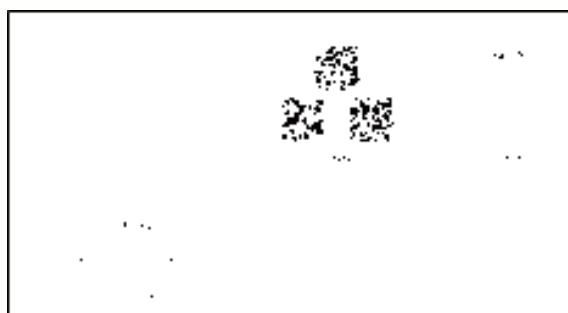
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| ALTRABIO | 3 month | month 33 | Comparison of the data with Doctoral Candidate 10 computational solution |

**Vacancy Requirements**

**Qualifications:** Degree in bioinformatics, computer science/engineering, physics or equivalent.

**Requirements:** Programming experience.

**Languages:** English - Full competency test during interview.

**Desired Experience:** Single-cell omics, machine learning.

**Job Details - Country of Reference: Belgium**

**Salary:** Brut Salary / Gross Salary approx. 37 650 € per year - EU Marie Curie PhD salary scale.

**Other Benefits:** a family allowance (depending on family situation) of up to 495 € per month (nett salary). Environment offered by the doctoral school SVS (College Doctoral Bretagne).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** UNIVERSITÉ DE BRETAGNE OCCIDENTALE, Brest (France)
3 Rue des Archives, 29238 Brest, Francia
https://www.univ-brest.fr/

ueb
UBO
université de bretagne
occidentale

# JOB VACANCY 9
# DOCTORAL CANDIDATE 9

**Reference:** DC9

**Recruiting Institution:** University of Catania, Catania (Italy)

**Expected Start Date:** summer 2023

**PhD Programme:** Computer Science

**PhD Awarding University:** UNICT

**Principal Investigator:** Francesco Pappalardo (Orcid: 0000-0003-1668-3320)

## Individual Project:

**Keywords:** In silico trials; agent-based modelling; autoimmune diseases; immune system.

**Project Title:** Agent-based modelling approaches to analyse the development of autoimmune diseases. Development of an in silico trial prediction model for clinical and molecular trajectories.

**Project Description:** The PhD candidate will explore innovative agent-based techniques to develop a modelling infrastructure able to represent and simulate the immune system dynamics along with specific interactions involved in autoimmune responses. The developed innovative in silico trials methodologies should allow accurate predictions of disease-modifying interventions, proposing personalized approaches and optimization of doses in a patient-specific fashion. The in silico lab will help the analysis and the testing of hypothetical ansatz in order to enhance the specific knowledge on autoimmune diseases. Characterization of specific autoimmune diseases like multiple sclerosis and Systemic lupus erythematosus will be taken into consideration as working models. The PhD candidate will explore appropriate methodologies and techniques to create a set of subjects-specific models with the aim to reproduce biological diversity. The library of subjects created is personalized with "vector of features" that identify a specific real patient with the final goal to obtain a library of virtual autoimmune disease patients.

**Graphical Abstract:**
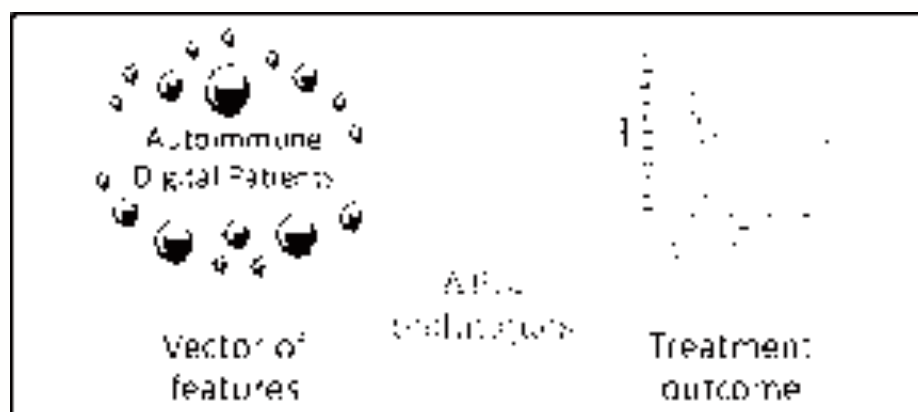
**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| UBO | 3 months | month 30 | Identification of biomarkers for disease stratification or predictors of treatment responses |
| CRG-CERCA | 3 months | month 34 | Translation of CYTOF-derived biomarkers into exploitable resources |

**Vacancy Requirements**

**Qualifications:** Degree in computer science or computer engineering or biomedical engineering or any equivalent foreign degree.

**Requirements:** Good knowledge of C and python programming languages; biological and medical data analysis techniques .

**Languages:** English - Full competency test during interview.

**Desired Experience:** Three or more years of experience in programming using C and Python languages; Good knowledge of scripting languages (bash, awk scripting); basic immunology knowledge; basic knowledge of prediction and analysis of epitopes.

**Job Details - Country of Reference: Belgium**

**Salary:** Approx. € 3 900 per month (gross) - EU Marie Curie PhD salary scale.

**Other Benefits:** Depending on the family status of the recruited researcher, the gross salary amount might be supplemented with a family allowance (€ 600 per month, gross).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** University of Catania,
Department of Drug and Health Sciences, Catania (Italy)

UNIVERSITÀ
degli STUDI
di CATANIA

# JOB VACANCY 10
# DOCTORAL CANDIDATE 10

**ALTRA Bio**

**Reference:** DC10

**Recruiting Institution:** ALTRABIO, LYON (France)

**Expected Start Date:** summer 2023

**PhD Programme:** Biology and health

**PhD Awarding University:** UBO

**Principal Investigator:** Sophie Hillion (UBO, To be confirmed)
Pierre-Emmanuel Jouve (AltraBio - Orcid: 0000-0002-3076-8841)

## Individual Project:

**Keywords:** Bioinformatics, Machine-Learning, Data Integration, Multimodal data, Patient stratification, Biomarkers discovery, Single-cells, Multidimensional data.

**Project Title:** Computational solutions for integrating different types of single cell and tissue data to stratify patients and predict treatment response in immune disorders.

**Project Description:** Advanced technologies now enable multiparametric and phenotypic analysis of cells at single-cell resolution. This allows the constitution of databases including heterogeneous, multimodal and high-dimensional data that needs to be integrated to identify biomarkers in order to stratify patients, to inform selection of the best treatment and to predict treatment efficacy for individual patients. DC10 will:
- i) develop machine-learning-based analytical pipelines adapted to the analysis and integration of the data generated by, or available to, the consortium. This includes tissue images (imaging mass cytometry), single cell studies (RNAseq, mass/flow cytometry), and clinical data reflecting patient outcomes;
- ii) implement the developed methods to analyse the data generated by the consortium to define the molecular stratification of the diseases and to identify molecular predictors of treatment response.

**Graphical Abstract:**

**Provisional Tentative for Secondments**

| | | | |
|---|---|---|---|
| UBO | 3 months | month 12 | Analysis of Hyperion imaging data |

**Vacancy Requirements**

**Qualifications:** MSc Degree (or equivalent) in Computational Sciences, Machine-Learning or Bioinformatics.

**Requirements:** AltraBio's candidate should:
- be a highly motivated computational scientist / bioinformatician (MSc level)
- have experience in statistical methods and machine learning.
- have expertise in common bioinformatics software packages, tools, and algorithms.
- have a cross-disciplinary aptitude, strong organizational and interpersonal skills, be autonomous, and have a keen interest in collaborative biomedical research.
- Skills and knowledge in next-generation sequencing data analysis, large-scale biomedical data analysis, biostatistics, pathway and network analysis are a plus.

**Languages:** English - Full competency test during interview

**Job Details - Country of Reference: Belgium**

**Salary:** Approx. brut salary / gross Salary 37 650 € per year - EU Marie Curie PhD salary scale.

**Other Benefits:** a family allowance (depending on family situation) of up to 495 € per month (net salary). Environment offered by the doctoral school SVS (College Doctoral Bretagne).

**Note on salary:** Please note that Salaries are calculated as per the funds received by the European Commission and based on each different national regulations of the beneficiaries of the SIGNATURE Project. Salaries are therefore estimations.

**Duration of the contract:** 36 months with the MSCA Funding.

**Type of contract:** Full time

**Place of work:** ALTRABIO, LYON (France)
30, rue pré-Gaudry, 69007 Lyon, France

**ALTRA Bio**

## SIGNATURE will offer

- A thorough scientific education in the frame of a doctoral training program.
- The possibility to participate in specific international courses, workshops and conferences.
- Strong involvement in a European research project with high international visibility.
- The opportunity to perform research visits to internationally renowned research labs in Europe.
- A prestigious three-year MSCA Fellowship.
- The positions receive funding for 36 months by the Marie-Sklodowska-Curie Doctoral Network within the Horizon Europe Program of the European Commission.

## PhD Employments

We are looking for 10 highly motivated doctoral candidates, starting at the earliest possible dates.

- Eligibility to enrol in a doctoral programme at the time of the recruitment.
- MSc degree in life sciences/molecular biology or engineering/computer sciences (Please check each individual project for more information).
- Supporting trans-national mobility (i.e. No residence or main activity (work, studies, etc.) in the country of the recruiting beneficiary for more than 12 months in the 36 months before their recruitment date).
- Secondments - availability to travel as per each individual project requirements.

## Application Procedure

Please complete the online form to submit your application. If you have any problem or questions about the recruitment strategy, please contact the SIGNATURE Project Manager, María Bazuelo, at mariaj.bazuelo@juntadeandalucia.es (do not send applications directly to email, applications sent directly by email will not be considered).

## Job description

You will be performing all research activities in your respective Doctoral Candidate Project. This includes literature search, preparation of methodological design, study execution, data analysis, and dissemination through publication in highly ranked journals, as well as presentations at international conferences.

You will be working closely with each other, as well as with other members of the SIGNATURE project and 3TR project. International collaboration will be facilitated through short-term research stays at SIGNATURE partner institutions.

You will actively participate in all training activities of the SIGNATURE network.

You must have good communication skills in English (oral and written), be team-oriented and willing to work in an interdisciplinary and international environment. We expect the ability to take responsibility and meet deadlines, prioritizing where necessary.

The review of applications will begin on March 2023.

Questions regarding individual projects should be directed to the Principal Investigators. Please check this information in each of the Individual Projects and in this Applicants Guide.

**Funded by
the European Union**
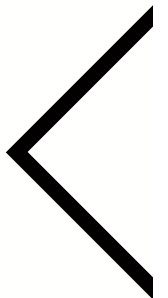
This process is in line with the Human Resources Strategy for Researchers (HRS4R) and therefore respects the principles set out in the European Charter for Researchers, the Code of Conduct for the Recruitment of Researchers and the open, transparent and merit-based recruitment policy recommended by the European Commission (OTC-M RECRUITMENT)

The selection process will be in line with the **European Charter for Researchers and the European Code of Conduct for the Recruitment of Researchers.**

**1st Step** - Eligibility criteria check

**2nd Step** - Selection of candidates for interview. Applications must be in English and will be evaluated as following:

- academic records;
- scientific quality of the candidate's CV;
- expected individual impact and benefit for the fellow and for the project;
- previous experience in the subject of the SIGNATURE research programme.

**3rd Step** - Interview (A maximum of six applicants per individual project will be interviewed).

The 6 candidates for each position will be invited for an online (or face to face) interview in the period 01-31 APRIL 2023.

Interviews will be held by the recruiting institution and led by the head researcher of the individual project.

Those chosen candidates from each Individual Project will be asked to provide a written acceptance of the studentship. If a successful candidate declines the offer, the studentship will be offered to the next ranked candidate.

The closing date for applications is **31/03/2022**.
Time 13.00 (CET)

Questions about the selection process or administrative questions about the project, please contact project manager María Bazuelo: mariaj.bazuelo@juntadeandalucia.es

Please do not send applications directly through email, each application must go through the appropriate application form, those sent by email without filling in the form will not be evaluated.

# FORMAL APPLICATION FORM
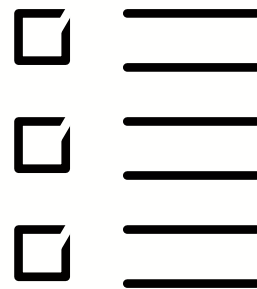
Please fill in the form and send a single pdf document by email as described.

You can find the link to the form here:
**https://forms.office.com/e/zLrycZAfxS**

**WHAT YOU NEED TO KNOW ABOUT THE FORM**

It is an easy and short form where all questions are obligatory to answer.

Applications sent by email only and without completing the form will not be valid.

Make sure you fill in the form correctly and send the email with the pdf.

Please answer the questions concisely, avoiding redundancy and repetition.

Please note that your level of English will also be assessed when filling in the form.

If you have not yet completed your studies, but will have done so by the time the contract is signed, please indicate this on the form and instead of submitting your diploma, you will need to                          diplomatically legalised (if applicable), that you are currently pursuing the necessary studies.

Regarding the documentation, when sending the email to mariaj.bazuelo@juntadeandalucia.es, please note that only one email per application with a single pdf file will be accepted.

Please send the email with the merged file from the very same email address you have provided in the form.

The limit on the number of files is 1; the single file size limit is 10MB (the server will not accept larger emails) and the allowed file type is PDF.

# WHAT YOU NEED TO KNOW ABOUT THE FORM

**Contacts of two referees.** Applicants need to provide contact details of two referees, which should not be affiliated with the institutes you apply to. The referees will receive an email to complete a specific recommendation letter form for the SIGNATURE Project. These two contacts will be used at any time during the selection process.

**CV of the candidate.** No specific CV template is provided to give the candidate flexibility on how to provide information. Please create a personalised CV tailored to the SIGNATURE programme.

**Short statement of research interests.** Please write a letter, approximately one page in length, giving a brief statement of your research interests and your motivation for being part of the SIGNATURE project.

**Signed eligibility statement and commitment.** Declaration of eligibility and commitment. During the application form, the candidate is obliged to click on the eligibility criteria. This will be legally binding and, if selected, a declaration of eligibility and commitment will have to be signed.

**You MUST submit all mandatory documents.** If you fail to submit one or more mandatory documents, your application will be automatically rejected. Please note that we will not be sending out reminders for any missing documents, once you have submitted your application.

SIGNATURE program is committed to Open, Transparent and Merit-based Recruitment (OTMR), therefore positions will be awarded to the most talented students based purely on merit and capacities.

Questions about the selection process or administrative questions about the project. Please contact project manager María Bazuelo mariaj.bazuelo@juntadeandalucia.es

# MSCA
# ELIGIBILITY

# ELIGIBILITY TO APPLY FOR THE PHD FELLOWSHIPS.

Candidates of **<u>any nationality</u>** completing the following criteria:

▶ **Academic Qualifications**: A Master's degree (or expect to have one soon) with a strong academic record in a related scientific field is required. It can also be a long degree, or an engineering degree, depending on the doctoral school. There are several routes to doctoral studies. Please indicate this in the relevant section of the application form.

▶ Researchers recruited onto a DN **must be doctoral candidates,** i.e. not already in possession of a doctoral degree at the date of the recruitment. (Researchers who have successfully defended their doctoral thesis **but who have not yet formally been awarded the doctoral degree** will not be considered eligible).

▶ **Being eligible to be enrolled in a doctoral programme** leading to the award of a degree in at least one EU Member State or Horizon Europe associated country.

▶ Not have resided or carried out their main activity (work, studies, etc.) in the country of the recruiting beneficiary for **more than 12 months in the 36 months** immediately before the recruitment date — unless as part of a compulsory national service or a procedure for obtaining refugee status under the Geneva Convention.

▶ Candidates **are required to provide documentation proving their eligibility for recruitment**, i.e. to provide supporting documentation proving your place(s) of residence or work during the previous 3 years and the academic qualifications documents.

# FREQUENTLY ASKED QUESTIONS

MSCA DOCTORAL NETWORKS
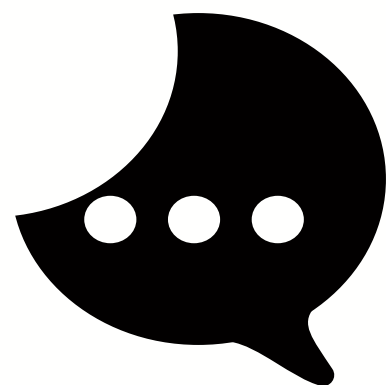
## What does the funding cover?

All areas of research may be funded and Doctoral Networks can last for up to four years. **The duration of each fellowship is 36 months**. Each beneficiary must recruit at least one doctoral candidate and can also organise secondments for them anywhere in the world.

Researchers funded by Doctoral Networks:
- must not have a doctoral degree at the date of their recruitment
- can be of any nationality
- should be enrolled in a doctoral programme during the project
- should comply with the mobility rules: in general, they 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

The EU provides support for each recruited researcher in the form of:
- a living allowance
- a mobility allowance
- if applicable, family, long-term leave and special needs allowances.

## What should I know about salaries?

Salaries are calculated depending on the researcher's country of destination. The commission provides funds from which the researcher and all expenses associated with the researcher's contract must be paid. Therefore, in each country, it will change according to the legislation in force.

For more information on this, you can visit the corresponding pages of the public finances of the destination countries in the individual projects.

## How many positions are funded by the SIGNATURE program?

The SIGNATURE Program will fund a total of 10 positions. All vacancies will follow a centralised selection process through the coordinator, advertised with ten research projects linked to different institutions. In the registration form we invite you to sort in order of the research project that suits you best or best fits your interests.
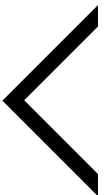
**I am at the last term of my MSc. so I do not have diploma yet until June. Is it still okay to apply for the positions?**

If you are currently enrolled in a degree (e.g. Master's) that allows you to enrol in a Ph.D program, please note that you will need to have it finished by the start of the fellowship, i.e by and no later than September 2023.

**I will finish my degree at the end of September 2023, so I will have no degree and no transcript, hence I will have a provisional transcript. Is that a problem?**

At the application stage by the call deadline please submit your provisional degree and transcripts and ensure they are official (stamped and signed by the university). It they are not in English, please also submit a translation in English. Also please submit all of your degrees and transcripts available (e.g. Bachelor's, especially if you are currently enrolled in a Master's and do not have the Master's completed).
If you are selected as the final candidate, you will be required to submit your official awarded degree and full academic transcripts. Note that your program start date may be delayed if you are unable to submit the required documents by the Admissions.

**I would like to have more information about the requirement of the diploma having to indicate that it provides access to PhD studies in the issuing country. How should this information appear in the diploma? If not in the diploma, what kind of document is expected to be presented?**

You are expected to submit your official academic transcript that allows you to pursue a PhD degree (i.e. Master's Degree or equivalent degree including a research component such as; a four-year Bachelor's Degree awarded with honours or other equivalent qualifications). Also, if your degree or transcript is not indicated in English, you are required to also submit a translation of both of them.

**Are secondments compulsory?**

Secondments are compulsory, as they are part of the training process of the researcher, and part of the knowledge exchange of the SIGNATURE network.
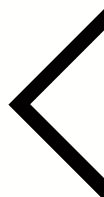
**Is travel mandatory during the contract period?**

All SIGNATURE contracted students are expected to travel and carry out their studies and research at different locations.

**Are references compulsory at the time of application or only if I am shortlisted?**

A recommendation letter is compulsory at the application stage. In addition during the online application you are requested to provide names and email addresses of two referees, who might be contacted by the project at any time.

**What language should I use and what language should my documents be in?**

All communication must be in English, in addition to the documents. Official documents that are not in English must be legalised accordingly for eligibility.

**Is there any place where I can get more information?**

You can contact either the SIGNATURE Project Manager or the Principal Investigator depending on the nature of your question. You can also contact the MSCA National contact point (NCP).

**Can I submit more than one application?**

No, each participant must register only once and must rank the ten individual projects according to their preferences.

**Am I eligible if I'm currently a student of the host academic institution?**

Yes BUT, if you have resided or carried out your main activity (work, studies, etc.) in the country of your chosen research host for more than 12 months in the three years immediately before the call deadline, then you are not eligible.

**Am I eligible if I'm already employed by the academic institution?**

If you are already permanently employed by your chosen research host, at the time of application deadline, you are not eligible for a SIGNATURE position with them.

**I am currently enrolled in a Doctoral Program, but I have not defended my PhD yet. Can I apply?,**

Yes, provided that you:
- have not been enrolled in a Doctoral Program in the country of your chosen research host for more than 12 months in the 3 years immediately before the call deadline,
- have not yet been awarded a doctoral degree
- have not defended your thesis by the closing date for applications, and

**Will all applicants have feedback on their application?**

SIGNATURE Project will inform you in due course of the progress of your application.

**My application has been rejected and I think there has been a mistake. What can I do?**

If you receive notification from the project informing that your application is not successful and you think there has been an error, you can submit a request for redress for a limited period of time (7 days after receiving the notification) by emailing the SIGNATURE Project Manager María Bazuelo mariaj.bazuelo@juntadeandalucia.es to request for the specific form to be completed and send it back at the provided date.

**How do I prove my English proficiency?**

All SIGNATURE applicants must be proficient in English, but the evidence you need to provide can vary from institution to institution, so it is best to check the Position Description for the PhD you are interested in.

**Can I get a quick check to see if I am eligible for SIGNATURE before applying?**

You should be able to assess whether you are eligible by reading the eligibility requirements and the requirements for the research host for your particular position in its Position Description. If you are still not able to assess your eligibility to the program given to special circumstances, contact the the SIGNATURE Project Manager:
mariaj.bazuelo@juntadeandalucia.es
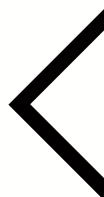
# UNIVERISITY ENTRY REQUIREMENTS

Please note that each individual project will require enrolment in a specific doctoral programme. Each individual project contains this information, programme and university. Each university has specific requirements, which must therefore be met by candidates with preference over a particular individual project.

Please make sure that by registering for our job offer, you meet the requirements for enrolment in at least the doctoral programmes that you rank as your Top 3.

You can find the information on the websites of the different universities.

- Universidad de Granada (UGR)
- Universitat Pompeu Fabra (UPF)
- Technical University Berlin (TUB)
- Universiteit Gent (UGENT)
- Leiden University (ULEIDEN)
- Université de Bretagne Occidentale (UBO)
- University of Catania (UNICT)

Regardless of this, in order to prove eligibility applicants must have their degree homologated or diploma diplomatically legalised.

### *DO I NEED TO HAVE MY UNIVERSITY DEGREE RECOGNISED TO STUDY A DOCTORAL PROGRAMME?*

It is not compulsory to have a recognised degree to access a doctoral programme. If your degree has been issued by a University of the European Higher Education Area (EHEA), **you must provide a copy of it and a personal academic certificate stating the subjects passed and your grades**. Both documents must be *legalised diplomatically or with the Apostille of the Hague*, if they have been issued in a non-EU country or a country other than Norway, Iceland, Liechtenstein or Switzerland). Finally, they must provide a certificate accrediting that the studies they have passed allow them to access official master's degree or doctorate studies in their country, as the case may be.
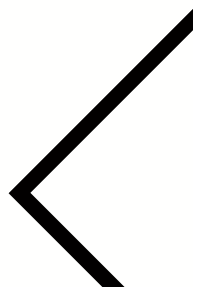
# APPOINTMENT

Successful candidates will be required to communicate their acceptance and the start date of their project within 2 weeks of receiving notification of the outcome of the selection process.

Fellows are expected to start their fellowships **by September 2023**. In exceptional cases (e.g. issues with visa), we might agree on a longer period.

Upon acceptance of the SIGNATURE fellowship, fellows will sign a Work Contract (including Annexes) and a Fellowship Agreement with the host institute, which contains the appointment conditions following the institute and the Grant Agreement 101072891 regulations, in particular:

a) Fellows will be employed for 36 months by the host institute under a work contract with full social security and a competitive salary following the MSCA's salary scales.
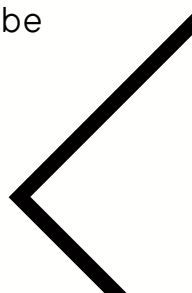
b) Fellows will work full time on the project and cannot benefit at the same time from another Marie Curie Action or fellowship. Fellows will receive an attractive salary. The differences in the amount for the allowances at the different centres are the result of the differences in national living costs and standards.

Please be aware, that the indicated numbers in each individual project are the estimated salaries. Please take into account that all of them are obliged to subtract the employer costs (social security, and additional taxes that vary in each country) and the employee taxes (which vary depending on the country, and another personal conditions) to get the net salary.

### *DO I NEED TO ENROL IN -THE- DOCTORAL PROGRAMME?*

Yes, it is mandatory and also essential to be recruited by the SIGNATURE network.

All doctoral network fellows must be doctoral candidates, i.e. they will have to be enrolled in the doctoral programme specified in each individual project (researchers who have successfully defended their doctoral thesis but have not yet been formally awarded a doctoral degree will not be considered eligible).
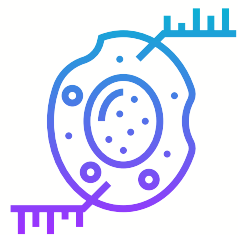
# SIGNATURE

In compliance with the provisions of the General Data Protection Regulation, on the Protection of Personal Data and guarantee of digital rights, we inform you of the following:

a) The personal data you provide us with will be used for the purpose of processing the selection processes and, where appropriate, to carry out human resources and personnel management of the people who join the the different institutions that are part of our DN Project SIGNATURE.

b) The party responsible for this processing of your personal data is the Fundación Pública Andaluza Progreso y Salud, whose address is Avd. Américo Vespucio, 15, edificio S -2. 41092 Seville together with the rest of the consortium involve in the selection process.

c) Your data will be stored for as long as the contractual relationship is maintained or for the years necessary to comply with the stipulated legal obligations. Likewise, they will not be passed on to third parties, unless provided for in a legal obligation.

d) The legal basis for this processing is based on the consent that you give us by sending the registration form and, where applicable, on your contractual relationship with the different institutions part of the consortium, without which we would not be able to fulfil the purposes described above.

e) You may contact the Data Protection Delegate at the following e-mail address dpd.csalud@juntadeandalucia.es

f) You may revoke your consent or exercise your rights of access, rectification, suppression, portability of your data, and limitation or opposition to its processing, requesting it in writing, with a copy of your ID card, to the Fundación Pública Andaluza Progreso y Salud at Avd. Salud at Avd. Américo Vespucio 15, building S -2. 41092 Seville; or by e-mail to e-mail to lopd.fps@juntadeandalucia.es

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# SIGNATURE