Call for 14 Early Stage Researcher PhD fellowships in
***"Integrating chemical and biological approaches to target NAD production and signaling in cancer* (INTEGRATA)"**

Introduction

INTEGRATA is a European Training Network (ETN) funded in the framework of H2020 Marie Skłodowska-Curie ITN programme. The INTEGRATA network aims at the education of promising young scientists who will learn the key steps of the modern discovery process of new drugs and therapeutic approaches in general (i.e. enzyme inhibition measurements, toxicities on cell cultures, preliminary pharmacological parameters, and *in vivo* proof-of-concept studies), with a main focus on NAD-producing enzymes and enzymes mediating NAD and nucleotide signaling in cancer treatment. INTEGRATA will train 14 PhD students in an overarching training programme involving training-by-research, joint courses of technical, scientific and transferrable skills, participation to public scientific events, and an intense intersectoral networking exchange plan. The INTEGRATA consortium encompasses academic institutions, research centers, and SMEs, all with proven experience in higher education and training, and state-of-the art scientific and technical expertise and infrastructures. Their expertise encompasses cancer research, medicinal chemistry, biochemistry, drug design, mAb manufacture, purification and characterization, as well as clinical haematology and oncology.

Research projects

The research activities implemented in INTEGRATA have the following objectives:

1. To develop new agents for interfering with NAD biosynthesis in cancer cells [NAMPT, NAPRT, inhibitors and Ab drug conjugates (ADCs) to target NAMPT inhibitors to multiple myeloma (MM), B-cell lymphoma and AML cells], neutralizing monoclonal antibodies (mAb) against eNAMPT and eNAPRT and NAD/nucleotide signaling inhibitors (SIRT6, NUDT5, CD73, and TRPM2 inhibitors).
2. To perform an extensive testing of the newly generated NAD biosynthesis and NAD/nucleotide-signaling inhibitors (and of inhibitors that have been recently developed by partners from the Consortium) in cultured cells and in *in vivo* cancer models, including models for assessing angiogenesis and cancer cells' metastatic spread. To conduct pre-formulation/fingerprinting, formulation and pharmacokinetics (PK) studies with the newly produced NAD biosynthesis and NAD/nucleotide-signaling inhibitors.
3. To define anticancer activity and potential toxicities of the newly generated agents, as well as of a dietary approach based on a NA-free diet w/ or w/o antibiotics (to reduce NAPRT activity) in relevant *in vivo* cancer models.

The 14 Early Stage Researchers (ESR)' projects are in the following table; **to apply to a specific project, click on the title on the web table and follow the instructions**.

TITLE OF THE PROJECT	HOST INSTITUTION	SUPERVISOR	EXPECTED START DATE
ESR1: Strategies for reducing NAPRT activity and sensitize ovarian cancer to NAMPT inhibitors	University of Genova – Department of Internal Medicine and Medical Specialities, Genova, ITALY	Prof. Alessio Nencioni	01/05/2019
ESR2: Optimization of SIRT6 inhibitors and PoC studies in a skin field cancerization model	University of Genova – Department of Experimental Medicine, Section of Biochemistry, Genova, ITALY	Prof. Santina Bruzzone	01/05/2019
ESR3: NAPRT inhibition for PDAC sensitization to NAMPT inhibitors and chemotherapeutics	University of Bonn, Centre for Integrated Oncology, Bonn, GERMANY	Prof. Georg Feldmann	01/05/2019
ESR4: Evaluation and testing of small molecule NUDT22 inhibitors for uses in cancer	University of Sheffield, Department of Oncology, Sheffield, UK	Prof. Thomas Helleday	01/05/2019
ESR5: Proof-of-concept studies of activity of new NAMPT inhibitors in haematological cancer models	Centre Hospitalier Universitaire Vaudois (CHUV), Service and central laboratory of Haematology, Lausanne, SWITZERLAND	Prof. Michel Duchosal	01/05/2019
ESR6: *In vivo* metastasis and angiogenesis imaging as a reading frame for NAMPT inhibitor activity	University of Geneva, Department of Pathology and Immunology, Geneva, SWITZERLAND	Prof. Christoph Scheiermann	01/05/2019
ESR7: Targeting the CD73-dependent nucleotide-metabolizing pathway in the tumor microenvironment	University of Torino, Department of Medical Sciences, Torino, ITALY	Prof. Silvia Deaglio	01/05/2019
ESR8: FK866 analogues as potential anti-cancer drugs	University of Sevilla, Department of Organic Chemistry, Sevilla, SPAIN	Prof. Inmaculada Robina	01/05/2019
ESR9: Annotating and overcoming resistance to NAMPT inhibitors in cancer cells	University of Trento, Centre of Integrative Biology, Trento, ITALY	Prof. Alessandro Provenzani	01/05/2019
ESR10: TRPM2 inhibition as a novel anticancer approach	University Medical Center Hamburg-Eppendorf, Department of Biochemistry and Molecular Cell Biology, Hamburg, GERMANY	Prof. Andreas Guse	01/05/2019
ESR11: Imino-C-glucosides as NAMPT inhibitor and potential anti-cancer agents	University of Montpellier, Institute of Biomolecules Max Mousseron, Montpellier, FRANCE	Prof. Alberto Marra	01/05/2019
ESR12: Development of new, potent NAPRT inhibitors by CADD	Innovamol Srls, Bologna, ITALY	Dr. Alberto Del Rio	01/05/2019

ESR13: Development and testing of anti-eNAMPT neutralizing monoclonal antibodies	NovImmune SA, Geneva, SWITZERLAND	Dr. Nicholas Fisher	01/05/2019
ESR14: Development of antibody-drug conjugates of NAMPT inhibitors for treating haematological cancers	Heidelberg Pharma GmbH, Heidelberg, GERMANY	Dr. Andreas Pahl	01/05/2019

Training Programme

All the selected students will be involved in a highly stimulating training programme, both at the local and at the network-wide level.
The training programme comprises:
1) The implementation of the individual research project at the host institution. The research project will involve collaborations with other INTEGRATA institutions, to be implemented through secondments.
2) Each researcher will be involved in local training sessions.
3) Joint scientific courses and meetings will be organised by the INTEGRATA consortium, together with short courses for transferable skills training.
4) Organisation of a final joint workshop on "Metabolic targets for cancer therapy".
5) Enrolment in PhD programmes of the following universities:

ESR	HOST INSTITUTION	UNIVERSITY RELEASING THE PhD
ESR1	University of Genova, Department of Internal Medicine and Medical Specialities, Genova, ITALY	University of Genova, Genova, ITALY
ESR2	University of Genova, Department of Experimental Medicine, Section of Biochemistry, Genova, ITALY	University of Genova, Genova, ITALY
ESR3	University of Bonn, Centre for Integrated Oncology, Bonn, GERMANY	University of Bonn, Bonn, GERMANY
ESR4	University of Sheffield, Department of Oncology, Sheffield, UK	University of Sheffield, Sheffield, UK
ESR5	Centre Hospitalier Universitaire Vaudois (CHUV), Service and central laboratory of Haematology, Lausanne, SWITZERLAND	University of Lausanne, Lausanne, SWITZERLAND
ESR6	University of Geneva, Department of Pathology and Immunology, Geneva, SWITZERLAND	University of Geneva, Geneva, SWITZERLAND
ESR7	University of Torino, Department of Medical Sciences, Torino, ITALY	University of Torino, Torino, ITALY
ESR8	University of Seville, Department of Organic Chemistry, Seville, SPAIN	University of Seville, Seville, Spain
ESR9	University of Trento, Centre of Integrative Biology, Trento, ITALY	University of Trento, Trento, ITALY
ESR10	University Medical Center Hamburg-Eppendorf, Department of Biochemistry and Molecular Cell Biology, Hamburg, GERMANY	University Medical Center Hamburg-Eppendorf, Hamburg, GERMANY
ESR11	University of Montpellier, Institute of Biomolecules Max Mousseron, Montpellier, FRANCE	University of Montpellier, Montpellier, FRANCE
ESR12	Innovamol Srls, Bologna, ITALY	University of Genova, Genova, ITALY

ESR13	NovImmune SA, Geneva, SWITZERLAND	University of Genova, Genova, ITALY
ESR14	Heidelberg Pharma GmbH, Heidelberg, GERMANY	University of Lausanne, Lausanne, SWITZERLAND

RECRUITMENT
The ESRs will be contractually employed for 36 months by the recruiting organisation and will be covered under the related national social security scheme. ESRs will receive a Monthly Living Allowance plus a Mobility Allowance and a Family Allowance (where applicable) compliant with the applicable EC Marie Skłodowska - Curie Actions – ITN.

Horizon 2020 - Work Programme 2018-2020 - 3. Marie Skłodowska-Curie actions (pge 80).

Eligibility Rules

At the time of recruitment applicants must fulfil the following rules:

Experience:

- Applicants must be in possession of the degree (usually the Master Degree) which would formally entitle them to embark on a doctorate, either in the country in which the degree was obtained or in the country in which the researcher will be recruited. In case the degree has not been obtained yet, it is necessary to send a declaration of the university stating that the degree will be obtained before the expected starting date.
- Applicants must be in the first 4 years of their research careers (full-time equivalent research experience) at the signature of the contract (measured from the time the Master's degree has been obtained).
- Eligible applicants must not hold a Doctoral degree already.

Mobility:
The applicants must not have resided in the country where the research training activities will take place for more than 12 months in the 3 years immediately prior to the recruitment date, and must not have carried out their main activity (work, studies, etc.) in that country.
Exceptions International Organisations: Eligible researchers must not have spent more than 12 months in the 3 years immediately prior to the date of selection in the same appointing international organisation.

How to apply

To apply to a specific project, click on the title on the website table, and follow the instructions.