

orpheus

ORganisation of PhD Education in Biomedicine and Health Sciences in the
EUropean System

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European Vascular Interventions and Therapeutic Innovation Network



Marie Skłodowska-Curie Actions Innovative Training
Network (ITN), doctoral programme

Marie Skłodowska-Curie Actions: Innovative Training Networks

- Joint Research Training/Doctoral Programmes
 - ETN: European Training Networks
 - EID: European Industrial Doctorates
 - EJD: European Joint Doctorates
- Horizon 2020: MSCA ITNs indicative budget for 2020 €525 m
 - Opens October for closing date in January 2020.

MSCA ITNs

- Enhance European competitiveness: recruit and retain research talent
- Empower researchers by inter-sectoral training to develop **transferable skills**‘employability’
- Exploit complementary competencies of the **partner** organisations [partners are cross-sectoral]...extend traditional academic research: to generate **creative, entrepreneurial** and **innovative** early stage researchers
- Promote Open Science, Innovation and Entrepreneurship
- Address well-identified needs
- Mobility



European Vascular Interventions and Therapeutic Innovation Network



Marie Skłodowska-Curie Actions Innovative Training Network (ITN), doctoral programme

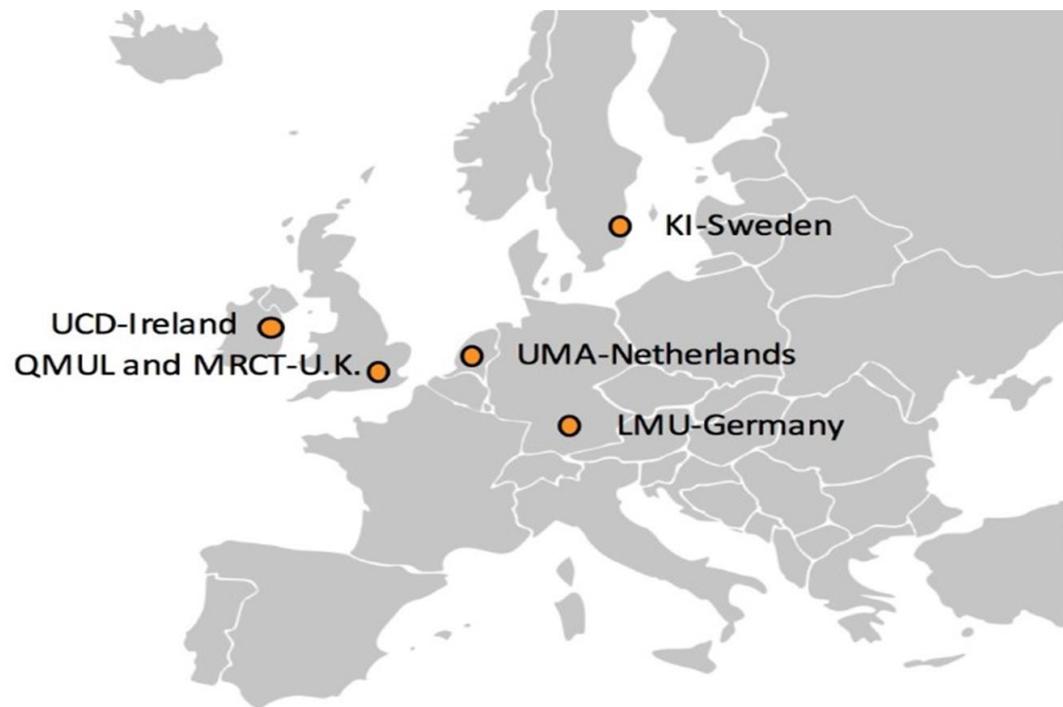
Project Coordinator: **Prof Mauro Perretti**, William Harvey Research Institute, QMUL, London

Using EVOlUTION as an example, subjective





European Vascular Interventions and Therapeutic Innovation Network



Associated Partners

Genomics England, U.K.
Kilburn and Strode, U.K.
NattoPharma, Norway
MosaMedix B. V., Netherlands
Quintiles LTD, U.K.
Royal Society of Chemistry, U.K.
UCB Pharma S.A., U.K.
William Harvey Research Ltd, U.K.



There is an acute need for new medicines for the treatment of chronic widespread high-penetrance diseases in the western world.

EVOLuTION (European Vascular Interventions and Therapeutic Innovation Network) has created a doctorate programme to deliver innovative training on preclinical and clinical science, commercial and business aspects, intellectual property and more, covering the **multiple aspects of the drug discovery and development process**. The scientific response to the unmet need is a focus on **endogenous tissue protective mediators as a new way to therapeutic innovation**

Therapeutic strategies developed on processes operative in our body to heal and repair will be innovative in their mode of action.

Scientific Themes

- Endogenous Tissue Protection: exploiting dietary approaches
- Endogenous Tissue Protection: exploiting innovative targets and mediators
- Endogenous Tissue Protection: developing innovative therapeutic approaches.

Research Objectives

- Mechanisms by which dietary approaches boost tissue protection
- Endogenous tissue protective mediators
- Pro-Resolving Receptors
- Proof-of-concept approaches for innovative therapeutic

Training for 11 ESRs in Partner Institutions: Each ESR spends a minimum of 4 months on secondment in a minimum of one partner academic and one industry partner ...cross-national and cross sectoral expertise

- Microparticles as natural nanomedicines to control vascular reactivity
- Exploration of the therapeutic potential of dietary nitrate in platelet activity: role for XOR
- Influence of dietary interventions upon platelet reactivity and lipidome
- Targeted treatment of vascular calcification
- Re-instructing the atherosclerotic plaque macrophage
- FPR2 agonists as modulators of vascular complications of diabetes
- Instructing FPR2 and GPR32 for treatment of atherosclerosis and myocardial infarction
- Role of inhaled NO for neuroinflammation after ischemic stroke
- The Nitrate-Nitrite-Nitric Oxide Pathway: Impact on Cardiovascular and Metabolic Function
- The use of chemical biology to evaluate targets associated with vascular inflammation: identification and targeted delivery of novel agents for targets
- Nutraceuticals modulating the vascular vitamin K-system

Secondments

- Access to technologies or models
- Enhance mobility
- Cross-sectoral exposure
- Develop collaborations: Joint publications, Sustainability through alternative funding sources
- Recruitment
- Opportunities for others to engage

Beyond academic:

- Secondment to commercial partners
 - CROs
 - Patent lawyers
 - Pharma
 - BioTech
- Team work
 - Governance
- Communications
 - Monthly journal clubs
 - Social media
 - Newsletters
 - Engagement with advocacy groups

Network Meetings are Critical: Scientific & Transferable skills, Cohesion

Main Training Events & Conferences	Institutions hosting the event	Location	Date
Kick-off meeting	QMUL	London, UK	5 April 2016
Scientific Workshop <i>and Transferable Skills Training</i>	UMA NattoPharma	Maastricht, Netherlands	18-20 January 2017
Annual network meeting <i>and Transferable Skills Training</i>	UCD	Dublin, Ireland	24-26 May 2017
Summer School <i>and Transferable Skills Training</i>	MRCT, QMUL, GeL	London, UK	6-8 September 2017
Annual network meeting, Scientific Workshop <i>and Transferable Skills Training</i>	UMA, LMU	Maastricht, Netherlands	30 April - 4 May 2018
Summer School <i>and Transferable Skills Training</i>	QMUL	London, UK	10-14 September 2018
Annual network meeting <i>and Transferable Skills Training</i>	KI	Coimbra, Portugal	20-21 May 2019
EVOLuTION Conference, Annual network meeting <i>and Transferable Skills Training</i>	LMU, QMUL	Munich, Germany	9-13 September 2019

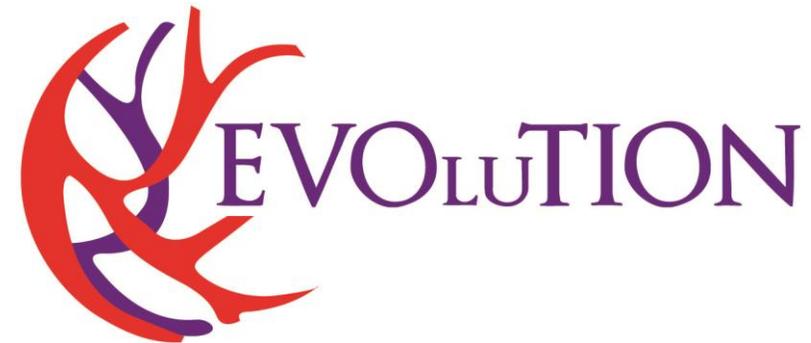
e.g. Annual Meeting May 2017

- ESRs present data and progress reports
 - PIs convene, mentored by experienced ITN PI
 - External Scientific Expertise:
 - Prof. Carel Le Roux The mechanisms of reversing the damage caused by diabetic kidney disease
 - Prof. Cormac Taylor Regulation of immunity by hypoxia
 - Dr Raony Guimaraes Genomics Medicine Ireland –Population Genomics and Big Data
 - **Transferrable Skills Training Topics***: Science Communication and Knowledge Exploitation :
 - Telling Your Research Story Elaine Quinn - Conway Institute
 - Hit-to-lead and lead optimization David Fox Vulpine Science
 - Transferable skills/employability for the pharmaceutical sector
- *Accessible to the local graduate student community

What's not to love?

• The Challenges

- 36 month funding/ESR
- The scale of funding
- Fees???
- Economies of scale
- Alignment with institutional requirements: recognition between requirements of institutions and the MSCA
- Requirement for mobility
- Careful stewardship...Project Manager is VITAL
- **A PhD is a work of original, independent scholarship**



What worked?

- Track record:
 - Collaboration: co-authored, co-funded
 - PhD supervision
 - Commercial awareness: Innovation, tech transfer

Training:

- Career development plan
- Could not be provided in a single centre
- Enhances career progression by cross sectoral exposure
- Credible research proposal:
 - Response to identified need: **Health, demographic change and well being:**
Understanding common mechanisms of disease and their relevance in co-morbidities

- Thanks to my EVOLUTION colleagues: PIs, ESRs and Administrators at UCD and QMUL

