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

Catherine Godson PhD MRIA

Diabetes Complications Research Centre, Conway Institute

& School of Medicine

University College Dublin





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



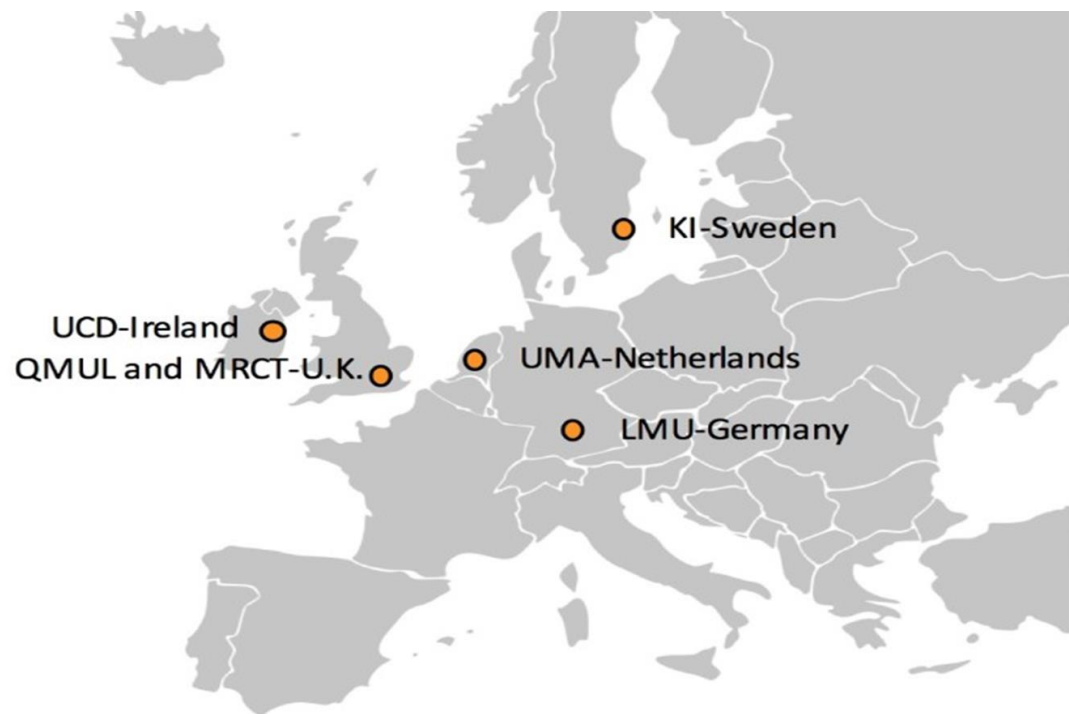
Marie Skłodowska-Curie Actions Innovative Training Network (ITN), doctoral programme
Project Coordinator: **Prof Mauro Perretti**, William Harvey Research Institute, QMUL, London

Using EVOlUTION as an example, subjective



EVOLUTION

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

