



CDT recruitment

Matt Dalby















of Glasgow Student selection

Background:

- It costs around £1.5B and 15 years to develop a drug. ullet
- High throughput technologies have increased the number of drug leads, but the success rate of ulletlaunching new drugs has remained static.
- 65% of small molecule drug projects fail. ٠
- Only 23% fail before clinical trial i.e. were cheap fails. ٠
- The rest go on to fail in clinical trials on human in phase I typically because of toxicity and in ۲ phase II and III typically because of efficacy.
- This is because pre-clinical screening relies on overly simple cell line and animal testing (non-٠ human physiology)
- There is thus UK and world industrial/clinical need to create humanised, non-animal ۲ technologies (NATs – bioengineered, cellular, scaffolds/on-chip systems) for medicines discovery, safety testing and functional validation.





Background:

- To fulfil this need there is thus requirement to train • and physical science (EPS) students with the ability to communicate with life scientists (and vice versa) in order to drive innovation and the economy.
- All lifETIME students will clearly pursue a world-leading ۲ research PhD.
- All lifeTIME students will also be emerged in cohort building ۲ and professional development with help from the industrial 3rd sectors.
- We will help train you to build a UK (and worldwide) ۲ community of talented field leaders creating the whole environment for NATs to flourish.
- Need has been demonstrated in the competition CDTs look ulletafter the 100% better.

e.g:

- Market research
- Business development manager
- Product manager
- Market consulting
- Charitable sector
- Funding sector
- Healthcare IT
- Knowledge exchange
- Regulatory consultant
- IP lawver







Background:

- To appoint the first cohort, time was very tight indeed we ۲ found out we had funding in January unofficially. This was confirmed in March and we had to get our students in place for October.
- This meant that we got our Management Committee up and ۲ running and that committee dealt with pretty much all review and selection.
- For this year, all of our committees are functional and the ۲ Interdisciplinary Skills Committee will take much more of a role in selection.



Narina Bileckaja

Organ-on-a-chip platforms for the study of Traditional Chinese Medicine **University of Glasgow Primary Supervisor**: Huabing Yin Secondary Supervisor: Mathis Riehle Stakeholder Supervisors: Wang Ping, General Manager Tianjin Modern **Innovative Traditional Chinese** Medicine Technology Co Ltd and He Huang, Tianjin University.





University of Glasgow Project selection

Form:

- The management committee devised a project proposal form. •
- The projects were reviewed by the Management Committee. ۲
- 2020 entry projects were reviewed by the Interdisciplinary Skills ulletCommittee chaired by Pola Goldberg Oppenheimer.
- The form has been modified to take on feedback from the 2019 ۲ process.



Paige Walczak

Development of a 3D model of the cortex for the investigation of neurodegenerative diseases **Aston University Primary Supervisor**: Eric Hill Secondary Supervisor: David Bassett Stakeholder Supervisor: Don Wellings, Spheritech





University of Glasgow Project selection

Form:

- Supervisors (academic and partner) including funding levels, making sure academic supervisors have equality, diversity and inclusion (EDI), unconscious bias and up-to-date supervisor training in place.
- Project project description and advert.
- Placement summary of possible academic/stakeholder. placements and how this will enhance training.
- Alignment with lifetime themes of: Cell and Tissue Engineering, • Cell Sensing and Cell Testing, Drug Discovery, Translation and Manufacturing.
- Check for EPSRC remit. •
- THE FORM REQUIRES TIME TO COMPLETE THIS IS TO DRIVE **CO-CREATION.**



Maria Laura Vieri Reprogramming of induced pluripotent stem cells to 3D model bone and cartilage formation **University of Glasgow Primary Supervisor**: Carl Goodyear Secondary Supervisor: Dave Adams Stakeholder Supervisor: Parto Toofan and Ines Silva, Reprocell





University of Glasgow Project selection

Advertising:

- Because of the speed we had to work, adverts were placed on • findaPhD.com before we had reviewed the actual projects and so placeholder projects were used and students asked to select the final projects pre-interview.
- In the meantime, we developed our website https://lifetime-• cdt.org to add more information and to ensure that we projected a vision of inclusivity and excellence.



Elaine Ma

Interrogating cancer cell dormancy for development of new therapies against metastasis

University of Glasgow

Primary Supervisor: Laura Machesky Secondary Supervisor: Manuel

Salmeron-Sanchez

Stakeholder Supervisor: Laura Goldie, BiogelX



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EPSRC-SFI Joint Centre for Doctoral Training in Engineered Tissues for Discovery, Industry and Medicine

The lifETIME (Engineered Tissues for Discovery, Industry and Medicine) CDT is a partnership between the University of Glasgow, the University of Birmingham, Aston University and CÚRAM – Science Foundation Ireland.

We will train innovation leaders in drug discovery and regenerative medicine through development of bioengineered humanised 3D models, microfluidics, diagnostics and sensing platforms.



Blog



Finding A Better Way

Our graduates will develop multidisciplinary, highvalue skills in the design, creation and application of new knowledge to accelerate therapeutic discovery. Along with our industrial, clinical and charitable partners, the lifETIME CDT will build the cohort of talent the sector needs to thrive.

PhD training in world-leading lab environments.

Engineering underpinning medicine.

Prerequisites, funding applications and the next steps.



Submission:

- All applications for the UK were submitted via the University of • Glasgow application system.
- To be eligible for a fully funded studentship candidates must be a UK citizen or an EU national who has been resident in the UK for the past three years.
- Applicants must have or expect to obtain a first degree (>2.1 or equivalent) in an appropriate discipline; physical sciences (chemistry, physics, maths), engineering, life sciences or other relevant disciplines.
- CÚRAM applications were submitted and processed via the • National University of Ireland Galway.
- CÚRAM have funding for exceptional international candidates. •





Hannah Lamont

Investigation and treatment of trabecular meshwork fibrosis using 3D glaucoma models **University of Birmingham** Primary Supervisor: Lisa J. Hill Secondary Supervisor: Liam Grover and Alicia El Haj Stakeholder Supervisor: Michael Jones and Chris Pernstich, Cell **Guidance Systems Ltd**



Review:

- Applications were filtered based on academic achievements and • funding eligibility.
- For 2019 entry, applications were reviewed by the Management Committee and selected for interview.
- For 2020 entry, applications will be sent to the Interdisciplinary Skills Group for review. The Interdisciplinary Skills Group will ensure that within all relevant process remains interdisciplinary and adheres to the EPSRC remit. Following the review of applications candidates will be invited to interview.



Lauren Hope

Using novel combination therapies to target acute myeloid leukaemia (AML) **University of Glasgow** Primary Supervisor: Mhairi Copeland Secondary Supervisor: Helen Wheadon and Catherine Berry Stakeholder Supervisor: Alpesh Patel, **ARF-UK**





of Glasgow Student selection

Interview:

- The main UK interview round took place in Glasgow and, for SFI, in Galway.
- The interview panels were multidisciplinary, comprised of male and female staff and, where possible, were staff from different partner universities.
- Each candidate gave a 10 minute interview and were asked the same questions mainly focussing on why a CDT PhD.
- Our existing PhD students ran a journal club and we collected feedback on team and leadership skills.
- We had lunch with the candidates to also chat to them informally to gauge people skills.



Lydia Styliani Marinou Advanced coatings to improve the biointegration of vascular grafts **University of Glasgow** Primary Supervisor: Manuel Salmeron-Sanchez Secondary Supervisor: Matt Dalby Stakeholder Supervisor: Robbie Brodie,

Terumo Arotic





Interview:

- For 2020 intake we have decided to interview in Glasgow and Birmingham as we felt that interviewing at one location led to a location bias.
- Cancer-related projects were very popular and this led us to • have to try and shape the CDT a little. We would welcome comments on how to avoid this.
- We managed to link studentships to a range of partners in year 1: AFRUK, BiogelX, Cell Guidance Systems, Cytochroma, DSTL, LGC, NHS, Reprocell, SBCF, Spheritech, Terumo Aortic. This is 12 of our 18 pay-in partners linked to projects in year 1; we have 67 more studentships to give.



Georgia Harris

Towards development of Eye-Safe Multiplex Resonance Raman (ESMR2) **Device for Point-of-Care Neurodiagnostics University of Birmingham Primary Supervisor**: Pola Goldberg Oppenheimer Secondary Supervisor: Jon Cooper **Stakeholder Supervisor:** Abigail Speak and Chris Howle, DSTL





Interview:

- Where we failed was to link CURAM to partners. The different funders made this tricky (different timings).
- The UK and Irish management are working how to bring the different UK and Irish systems into sync and also how to get the partners and Irish supervisors talking.
- Strongly encourage partners to chat to the Irish students and Mihai to see if there are projects they can lend help to and also help these students develop experience of talking to different sectors. It would be great if you can chat to these students here or on student day (8th June).



Meenakshi Suku

Tuning macrophage polarization to model myocardial infarction in the generation of functional cardiac organoids

CÚRAM – Trinity College Dublin Primary Supervisor: Michael Monaghan Secondary Supervisor: Manus Biggs





Students:

- We have appointed some really great students from a range of backgrounds. We still have some more work to do to attract more engineers and physical scientists.
- We have an international, multicultural cohort with strong female representation. We see no need to make any actions for EDI at this stage. Eric, who chairs the EDI committee, will watch and advise.

Cohort 2019





Eduardo Ribes Martinez

Developing a three dimensional (3D) in vitro model of adrenocortical carcinoma (ACC) to test thermal therapy applications CÚRAM – National University of Ireland Galway Primary Supervisor: Conall Dennedy Secondary Supervisor: Abhay Pandit





University Cohort activities

Cohort:

- A key difference between a PhD and a CDT is the cohort. •
- So, we started with our skills training rotation.





Eileen Reidy

Development of state-of-the-art multicellular models of the 3D colorectal tumour microenvironment CÚRAM – National University of **Ireland Galway Primary Supervisor**: Aideen Ryan Secondary Supervisor: Abhay Pandit and Joanne Edwards



Introductions Techniques and Facilities Rotation	When Week 3	Credits 10	University Birmingham	
Techniques and Facilities Rotation	Week 4	10	Galway	
Techniques and Facilities Rotation	Week 5	10	Glasgow	
Retreats (April - The Burn and September - Lake District)				
Responsible research and innovation (TERRAIN)	April	10	Glasgow	
Manufacturing Design	Sept	10	Birmingham	
Courses				
Bioinformatics	June	10	Glasgow	
Risky Business	June	2	Glasgow	
Multidisciplinary Science Training Option (10)	Semester 2	10	Home	

Mick Mclean (Atelerix) and Kate Cameron (Cytochroma) are to the Burn. Don Wellings (Spheritech) is coming to the Lake District.



Mirella Ejiugwo

Developing a soft tissue diseased model for diabetic foot ulcer using a scalable manufacturing platform.

CÚRAM – National University of Ireland Galway

Primary Supervisor: Gerard O'Connor **Secondary Supervisor**: Timothy O'Brien and Yury Rochev





Retreats (April - The Burn and September - Lake	District)		
Niche Business	April	10	Glasgow
Entrepreneur Business School	Sept	10	Birmingham
90 			
Courses			
Insights to Industry	TBC	10	Glasgow
Impact in 60 seconds	TBC	2	Birmingham



Yashna Chabria

Tumour-targeted homing of Mesenchymal Stem Cell-derived Extracellular Vesicles (MSC-EVs): Development of 3D In vitro models to elucidate mechanisms controlling migratory itinerary

CÚRAM – National University of Ireland Galway

Primary Supervisor: Roisin Dwyer **Secondary Supervisor**: Garry Duffy and Aoife Lowery





Retreats (April - The Burn and September - L Postgraduate project management PGR Leadership programme	. ake District) April Sept	10 10	Glasgow Birmingham
Courses			
Science den	TBC	2	Virtual
Student led conference	ТВС	5	Open
Other			
Placement (15)	TBC	15	Local



Megan Boseley

Scale Up and In Vitro Testing of Exosomes for Regenerative Medicine Applications Aston University Primary Supervisor: Ivan Wall Secondary Supervisor: Petra Henga Stakeholder Supervisors: Julian Braybook and Johnathan Campbell, LGC





Retreats (April - The Burn and September - La	ake District)		
Entrepreneur Business School	April	10	Glasgow
NEW - Regulatory Submission	Sept	10	Galway
Courses			
Student led public engagement	TBC	7	Local
3 Minute Thesis	ТВС	2	Virtual
Anytime			
NC3Rs summer residential	ТВС	5	Glasgow



Chara Dimitriadi Evgenidi Small Molecule Signalling in Stem Cell Differentiation University of Glasgow Primary Supervisor: David France Secondary Supervisor: Matt Dalby Stakeholder Supervisor: Kate Cameron, Cytochroma





Outputs to date:

- 13 conferences attended organ-on-chip, stem cells, microscopy, proteins, photonics, eyes, organic chemistry, commercialisation.
- 2 poster presentations.
- 4 company visits (companies have also visited students).



Simon Clark

Engineered 3D printed scaffolds to control immunological responses in bone regeneration.

University of Glasgow

Primary Supervisor: Manuel Salmeron-Sanchez

Secondary Supervisor: Matt Dalby Stakeholder Supervisor: Andy Hart, NHS and Lou McGrath, SBCF.





Thank-you:

• We need your input to make the CDT all that it can be.



Elena Mandrou Identifying gradients using FRET microscopy University of Glasgow Primary Supervisor: Robert Insall Secondary Supervisor: Laura Machesky

