



The
University
Of
Sheffield.

 Loughborough
University



UNIVERSITY OF LEEDS



The University of
Nottingham



Keele
University

THE UNIVERSITY *of* York

**LOUGHBOROUGH UNIVERSITY IN CONJUNCTION WITH KEELE UNIVERSITY,
UNIVERSITY OF LEEDS, UNIVERSITY OF NOTTINGHAM,
UNIVERSITY OF SHEFFIELD AND UNIVERSITY OF YORK**

**EPSRC LANDSCAPE FELLOW
ENGINEERING TISSUE ENGINEERING AND REGENERATIVE MEDICINE,
FIXED-TERM FOR 24 MONTHS,
(2 POSSIBLE POSITIONS AVAILABLE)**

JOB REF: REQ15126

MARCH 2015

About the Landscape Fellowship Programme

Continued improvement in the nation's health depends upon the efficient development of affordable replacement human tissue and related therapies; an acute shortage of willing organ donors and the shortcomings of conventional therapies lead to the preventable death of many patients each year. The next healthcare revolution will apply to regenerative medicines, creating biological therapies or substitutes for the replacement or restoration of tissue function lost through failure or disease. However, whilst science has revealed the potential, and early products have shown the power of such therapies, there is now a need for the long term supply of people properly trained with the necessary skills to lead the engineering and life science challenges before the predicted benefits in human healthcare can be realised. Realisation of these benefits requires a new generation of translational professional leaders immersed in both the fundamental science of these new products and the clinical, engineering and commercial realities of their creation and application.

This Landscape Fellowship programme brings together the complementary skills of vibrant research concentrations at Loughborough, Leeds, Nottingham, Sheffield, Keele and York Universities to create a competitive research environment with the breadth of capability and critical mass to develop the next generation of translational leaders in tissue engineering and regenerative medicine. This Cross-disciplinary Research Landscape award, a joint initiative between the Life Sciences Programme Doctoral Training Centres (DTCs) led by Loughborough and Leeds, identifies and nurtures future research leaders capable of delivering in academic, public sector and/or industrial settings and these Fellows will deliver a beacon of research addressing technological challenges in the translation of promising science to practical therapeutics. This includes scaling up the science to real world applications, stratifying the host environment and patient needs, addressing biological variability, improving product reliability and the development of technology demonstrators and evaluation platforms.

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For the fifth and final time we will competitively award two early career Fellowships to exceptional candidates drawn from the tissue engineering and regenerative medicine Doctoral Training Centres and their wider research communities. Through both individual personal research and negotiated directed research, their contributions to the Doctoral Training Centres and personal development, the Fellows will be developed for leadership roles in cross-disciplinary, large scale interface science.

Each Fellow will be chosen based on their ability to become leaders in the field within 10 years of appointment. Fellows will be appointed for two years and a proportion (~25%) of their work will be negotiated and have a focus guided by the strategic research themes and experimental research platforms of the two DTCs. These are described in the accompanying document. In total this programme will have developed 10 future leaders - it is a highly selective and competitive programme addressing strategic post-doctoral training and development in this emerging field.

A particular focus for the Fellows will be the development of new teaching material for the DTCs. Experience has shown that the preferred major mechanism for this is the preparation and delivery of a workshop or mini-conference on a topic of the Fellow's choice. The conference is intended to be open to all researchers, especially those in their early career, and also drawn from the DTCs. The topic chosen should be in a key area where it is necessary for the community to have a better understanding of the state of the art and the way forward.

LOUGHBOROUGH has, over the last ten years, built a world class capability in industry facing research and post graduate education in regenerative medicine. The Institution is recognised for its broad and integrative approach to translation and policy influence. Its mission is to assist the growth of medical technology SMEs and the detail of its science includes particularly the delivery of world firsts in manufacturing, automation and bio-processing applied to stem cells. A strong multidisciplinary research team with skills ranging from clinical and pharmaceutical, through biochemistry, biotechnology and tissue engineering to mechanical, chemical, biochemical and polymer engineering has been created. **Prof David Williams OBE FREng** has been 'Star Professor' in Healthcare Engineering since 2003. He is PI of the DTC in Regenerative Medicine and the EPSRC Centre for Innovative Manufacturing in Regenerative Medicine.

The Loughborough-led DTC in Regenerative Medicine

focuses research on:

- controlling differentiation environments
- designing minimally invasive scaffolds
- cell and tissue biomanufacturing

LEEDS – Prof John Fisher CBE FREng is Director of the Institute of Medical and Biological Engineering (iMBE) and the WELMEC Centre of Excellence in Medical Engineering, and leads one of the largest medical engineering research and innovation units in the world, with 200 doctoral researchers. iMBE focuses on three research areas, joint replacement, functional spinal biomechanics and tissue engineering; the wider WELMEC centre includes imaging, biosensors, dental biomaterials and minimally manipulated autologous stem cells. It is recognised as a world leader in joint replacement tribology and simulation and regenerative biological scaffolds. **Dr Joanne Tipper** is Programme Director of the DTC in Tissue Engineering and Regenerative Medicine. She has over 15 years' research experience in the

The Leeds-led DTC in Tissue Engineering and Regenerative Medicine

focuses research on:

- biological scaffolds
- synthetic scaffolds
- functional physiological bioreactors
- stem cells
- simulation and modelling

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area of joint replacement, specifically focussing on cellular responses to wear particles generated by different implant materials in the hip, knee and spine. In addition, Dr Tipper is involved in the development of whole joint simulation models with Prof Fisher and other colleagues from iMBE.

KEELE – Prof Alicia El Haj is a leading member of and former Director of the Institute of Science and Technology in Medicine (ISTM). Her research programme is focused on the challenges of controlling cell behaviour in vitro and in vivo during cell therapy with an emphasis on developing scalable and functional clinical solutions. The multidisciplinary ISTM is linked to the University Hospital of North Staffordshire and RJA Orthopaedic Hospital at Oswestry with a major focus on enabling technologies involved in cell and tissue engineering and introduction to the clinic of cell therapies for regenerative medicine.

NOTTINGHAM – Prof Kevin Shakesheff was a prime mover in the creation of the *remedi* Grand Challenge and has in recent years explored new scaffolds for tissue regeneration. Nottingham has invested more than £25 million in the Centre for Biomolecular Sciences and the interdisciplinary Wolfson funded STEM centre which physically brings together engineers, mathematicians, materials scientists, chemists, stem cell biologists and clinicians. STEM is focused on the integration of cell biology and tissue engineering with particular expertise in the use of materials and bioreactors to promote 3D assembly of stem cells.

SHEFFIELD has a long established culture of interdisciplinary research in engineering and the life sciences. The Centre for Biomaterials and Tissue Engineering promotes interactions between biomaterials, tissue engineering and biomedical engineering, as does the Kroto Interdisciplinary Research Institute (established by the University in 2005 to promote research on the interface between engineering, science and medicine). This Institute now houses some 150 research staff. **Prof Sheila MacNeil** has a 30 year academic career at the University of Sheffield in which she has been able to translate tissue engineering of skin and oral mucosa through to clinical benefit by working closely with clinical colleagues in Universities and Hospitals.

YORK's Department of Biology has had recent substantial investment in additional laboratory space and the associated Technology Facility has been equipped with >£7M of state-of-the-art technologies. The Wolfson Suite for Stem Cells and Tissue Engineering has specialised culture rooms for primary work, stem cell culture and dedicated bioreactors and incubators for tissue engineering. **Dr Paul Genever** is Head of the Biomedical Tissue Research Group which focuses on the cell and molecular biology of skeletal tissues. This includes the characterisation of signalling mechanisms in mesenchymal stem cells (MSCs) and related skeletal cell types; identifying optimal in vitro growth environments including 3D (co)cultures; identifying regulatory cues that direct differentiation; comparative analyses of different stem cell populations; and exploiting MSCs in bone tissue engineering applications in custom-built implants and osteochondral composites.

The Application Process

Potential candidates within the DTCs in their final year of study are invited to apply and submit a research proposal for consideration for the award of a Fellowship. In order to further broaden and enrich our intake, applications and proposals from current PhD students and other recently graduated PhD's within two years of graduation, who have studied elsewhere are also sought.

Applicants should submit:

- a completed Loughborough University Application Form capturing CV details
- a Research Proposal (maximum 4 pages)
- a Personal Development Plan (maximum 2 pages)
- a Letter of Support from the Institution(s) at which the applicant wishes to be based

The proposal will present the strategic need for the work, its relevance, novelty, impact, timeliness, detail of the programme of work and identify what will actually be delivered. The proposal should describe the personal translational¹ research to be carried out by the candidate and how it matches the strategic research themes and experimental research platforms of the two DTCs. Proposals that are in collaboration with industry and/or clinicians are encouraged.

Importantly, since applicants will not have established a significant research track record at this stage, they will be asked to include a detailed personal development plan.

The Fellowship can be held at any of the six partner universities but priority will be given where international/industrial collaboration or interdisciplinary work across sites is proposed exploiting distinctive experimental research platforms. A letter of support from the appropriate Institution(s) must be included with the application.

The Fellowship will also include a negotiated component, the purpose of which is to increase the translational skills of the Fellow in an area closely related to their work. This will be determined subsequent to the competition.

When preparing proposals candidates should be aware that the Fellowship has a value equivalent to £200k (80% of £250k FEC) including salary and associated costs, mentoring and supervision, equipment and consumables.

Applications will be considered and shortlisted by a group made up of representatives of each of the collaborating universities (the Executive) together with the Landscape Fellowship Board. Shortlisted candidates will then present their plans to the Board in a "Dragons den" style setting. Criteria for an award of the Fellowship will be scientific or engineering excellence and potential for candidate development, particularly in translation and large scale multidisciplinary research leadership.

¹ Translational research takes science from the bench by addressing specific technological challenges consequently enabling the delivery of healthcare and economic benefits. March 2015, 14865, (No evaluation or redeployment required).

It is important to recognise that, in addition to being judged on the excellence and relevance of their research proposal and confirmation that the proposal addresses a clear translational research challenge, candidates for the Fellowships are particularly required to show that they are multidisciplinary in experience and approach, have made demonstrable progress in their research to date, have a clear and practical plan for their personal development and are committed to translational healthcare research and its leadership.

A webinar briefing will take place on the application process (see under “Informal Enquiries” below for further information). A recording of the webinar will be available for anyone unable to participate on the day.

Development of Fellows

Progress will be monitored via six monthly written reports to the Board. Feedback on progress will be delivered with advice and steer given where appropriate.

Fellows will be mentored by an identified member of the Executive. Beginning with a tailored induction programme, planning and timing of the developmental element for each Fellow will be tailored to the individual needs of the Fellow and his/her host Institution(s), and designed to meet the timescales of his/her research projects and aspirations.

Eligibility Criteria

Applicants will be in the final stages of their PhD studies or have been awarded their PhD within the previous two years. However, selected candidates should please note that the award will not begin until the applicant’s PhD thesis has been submitted. Please note that the last possible start date for the Fellowship is 1 April 2016 and no extensions will be possible.

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EPSRC LANDSCAPE FELLOWSHIP**

JOB DESCRIPTION

Job Grade: Research Grade 6

1. Job Purpose

The focus of this appointment is translational research in the engineering of tissue engineering and regenerative medicine and personal development aimed at large scale multidisciplinary research leadership. The appointment is supported by the EPSRC Landscape Award Engineering Tissue Engineering and Regenerative Medicine E-TERM EP/I017801/1

2. Duties and Responsibilities

The post holder will be expected to deliver the research and training and engage in personal development as described in the proposal accompanying their application as reviewed, modified and monitored by the Landscape Fellowship Board and the representative of their host Institution in agreement with the Executive.

Research

- Deliver a programme of individual translational research in the engineering of tissue engineering and regenerative medicine.
- Deliver a programme of translational research aligned to the research themes and experimental platforms of the collaborating Doctoral Training Centres.
- Make presentations to industry and academia.
- Publish the outcomes of research in outlets of international standing.
- Promote the work of the EPSRC, the Landscape Award and the collaborating DTCs.

Teaching

- Development and delivery of research leadership training to the DTCs.

Other Related Activities and Functions

- Engage in personal development and training programmes that are consistent with the Landscape Fellow's proposal, the views of the Board and those of the hosting Institution.
- Undertake such other duties as may be reasonably requested and that are commensurate with the nature and grade of the post.

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- All staff have a statutory responsibility to take reasonable care of themselves, others and the environment and to prevent harm by their acts or omissions. All staff are therefore required to adhere to the University's Health, Safety and Environmental Policy & Procedures.
- All staff should hold a duty and commitment to observing the University's Equality & Diversity policy and procedures at all times. Duties must be carried out in accordance with relevant Equality & Diversity legislation and University policies/procedures.

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PERSON SPECIFICATION

Job Title: EPSRC Landscape Fellowship

Job Grade: Research, Grade 6

	Essential	Desirable
Education and Qualifications	<p>Degree in engineering, cell biology, biotechnology, bioengineering or another related subject (1)</p> <p>As a minimum, satisfactory progression through the penultimate year of PhD Studies in tissue engineering, regenerative medicine, engineering, cell biology, molecular biology, or another related subject (1,3)</p>	<p>PhD in tissue engineering, regenerative medicine, engineering, cell biology, molecular biology, or another related subject (1)</p>
Experience	<p>Relevant postgraduate research experience in an academic or industrial environment in engineering and/or the life sciences (1,3)</p>	<p>Experience in tissue engineering and regenerative medicine techniques (1,3)</p> <p>Knowledge and understanding of processes and the principles underlying these techniques (1,3)</p> <p>Experience in translational research (1,3)</p> <p>Experience of presenting work at conferences (1,3)</p>

Skills and Abilities	<p>Good laboratory and analytical skills (1,3)</p> <p>Ability to work independently and as part of a team (1,3)</p> <p>Highly self motivated (1,3)</p> <p>Ability to write high quality proposals, project reports and give presentations to large and small groups (1,3)</p> <p>Good IT skills and internet usage (1,3)</p>	<p>Demonstrated leadership skills and potential (1,3)</p> <p>Knowledge of relevant Health & Safety issues including biological safety techniques, practices and sterile procedures (1,3)</p>
Skills and Abilities (continued)	<p>Excellent interpersonal, communication and organisational skills (1,3)</p> <p>Ability to maintain confidentiality at all times (1,3)</p>	
Training	<p>Demonstrate evidence of having undertaken further training (1,3)</p>	
Other	<p>Willingness to work in a Containment Level 2 cell culture laboratory (1,3)</p> <p>Willingness to cross disciplinary boundaries (1,3)</p> <p>Willingness to travel to industrial and academic collaborators' sites within the UK (3)</p> <p>Evidence a good working knowledge of equal opportunities and understanding of diversity in the workplace (3)</p>	

Stages in Assessment: 1, Application Form, 3, Interview

Conditions of Service

As an indication, the salary for the position(s) at Loughborough University will be Research Grade 6, £31,342 to £34,233 per annum. The position(s) is fixed-term for a period of 24 months.

The appointment will be subject to the University's normal Terms and Conditions of Employment for Academic and Related staff, details of which can be found at: <http://www.lboro.ac.uk/services/hr/a-z/conditions-of-service.html>

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We have a commitment to gender equality and support the Athena SWAN charter. We encourage women to apply for this position as they are under-represented. All appointments will be made on merit.

The grade, salary and conditions of service shown apply to Loughborough University only. This will vary according to the Institution although the salary paid will be on a similar scale.

Conditions of service for other Institutions can be found at:

Keele University: <http://www.keele.ac.uk/hr/policiesandprocedures/>

University of Leeds: <http://www.leeds.ac.uk/hr/>

University of Nottingham: <http://hr.nottingham.ac.uk/>

University of Sheffield: <http://www.shef.ac.uk/hr/guidance/terms.html>

University of York: <http://www.york.ac.uk/admin/hr/resources/policy/>

Informal Enquiries

Informal enquiries are welcomed and should be directed to Professor David Williams by email at: d.j.williams@lboro.ac.uk or by telephone on: +44 (0)1509 227668.

A webinar will be held at 11:00 am on Monday 13 April 2015 to give further details of the Fellowships and to respond to questions. Please email Professor Williams to confirm you wish to participate and further details will be forwarded to you. A recording of this webinar will be available for those who are unable to participate – please email Professor Williams for details.

Contacts for the university representatives at each of the partner institutions are:

Loughborough University: Prof David Williams email d.j.williams@lboro.ac.uk
+44 (0)1509 227668

University of Leeds: Prof John Fisher email j.fisher@leeds.ac.uk
+44 (0)113 343 2128

Dr Joanne Tipper email j.l.tipper@leeds.ac.uk
+44 (0)113 343 3385

Keele University: Prof Alicia El-Haj email a.j.el.haj@keele.ac.uk
+44 (0)1782 674998

University of Nottingham: Prof Kevin Shakesheff email kevin.shakesheff@nottingham.ac.uk
+44 (0)115 951 5104

University of Sheffield: Prof Sheila MacNeil email s.macneil@sheffield.ac.uk
+44 (0)114 222 5995

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University of York:

Dr Paul Genever email paul.genever@york.ac.uk
+44 (0)1904 328649

Applications

An online Loughborough University Application should be submitted by all candidates, regardless of preferred destination and should include information that would normally be supplied in a CV. This application should be submitted along with the required research proposal (max 4 pages), personal development plan (max 2 pages) and institutional letter of support – see “The Application Process” above. Please note that the additional information will need to be attached as one document.

The closing date for receipt of applications is **Monday 1 June 2015**. Interviews will take place on **Friday 26 June 2015** at Loughborough University.