



Dr Emily Hume and Dr Monika Winter from Northumbria University are among 62 researchers from across the UK to be chosen to receive funding in recognition of their pioneering approaches to improve human health and wellbeing.

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Academy of Medical Sciences funds new research from emerging scientific leaders

Two biomedical sciences researchers from Northumbria University have been awarded grants to further their innovative work by the Academy of Medical Sciences.

The Academy's [Springboard programme](#) provides support to researchers at the start of their first independent post to help launch their research careers. Springboard awardees receive funding of up to £125,000 over two years and

gain access to the Academy's acclaimed mentoring and career development programme.

[Dr Emily Hume](#) and [Dr Monika Winter](#) are among 62 researchers from across the UK to be [chosen to receive funding](#) in recognition of their pioneering approaches to improve human health and wellbeing.

Dr Hume has been awarded £100,000 to explore how digital technologies can improve physical activity and quality of life in patients waiting for lung transplants.

With average waiting times for transplant surgery of up to 18 months, these critically ill patients often experience significant physical decline which can affect their survival chances and their post-transplant recovery.

Building on her previous work, Dr Hume will investigate whether a digital intervention incorporating wearable technology, a personalised online platform and remote support from health professionals could improve health outcomes for lung transplant candidates.

Dr Hume will work with Northumbria colleagues [Professor Ioannis Vogiatzis](#) and [Professor Stephen Clark](#), who alongside his role at the University, is a consultant cardiothoracic and transplant surgeon at the Freeman Hospital.

They will examine the feasibility of delivering this digital physical activity intervention in people on the waiting list for lung transplant. The hope is that using these new digital tools will improve an individual's physical functioning and quality of life both before and after transplant surgery, which could potentially improve transplant outcomes and reduce healthcare costs.

Dr Hume said: "I am delighted to receive the Academy's Springboard funding, which will help to develop a digital solution to support patients on the waiting list for lung transplant. By empowering them to stay active during long waiting times, this research aims to improve their quality of life, enhance post-transplant outcomes and address an important gap in transplant care.

Dr Monika Winter has been awarded £125,000 to further her research into how a healthy mitochondrial network is critical for cellular health.

Certain genetic errors in protein products that shape the mitochondria network connectivity can lead to neurodegenerative diseases, cancers and genetically-inherited mitochondrial disorders. While DNA sequencing has identified many of these errors in mitochondrial disease-causing genes, the underlying disease mechanisms remain elusive.

Dr Winter's project will focus on a group of patients carrying these 'genetic errors' who developed serious neurological problems in early childhood, where there are currently no cures available.

The team will focus on furthering our understanding of the biology of these disorders and then study them in human brain cells by creating basic 'brain microenvironments' in petri dishes. By studying dysregulated mitochondrial connectivity, the team hope to discover potential pathways that will lead to the development of new treatments.

Dr Winter will work with colleagues including Northumbria academics [Professor Simon Johnson](#) and [Dr Gerrit Hilgen](#), Professor R. Blake Hill from the University of Colorado and Professor Robert Taylor from Newcastle University.

The funding will also cover the first two years of a PhD studentship, with the third year being funded by Northumbria University.

Dr Winter said: "I am delighted to receive the Academy of Medical Sciences Springboard Award. This funding will support the development of better models to study rare mitochondrial diseases that affect the cell's energy system and can lead to serious issues like, seizures, developmental delays and muscle weakness.

"Our current knowledge of certain forms of mitochondrial disorders is limited, as most research relies on non-brain cells or animal models, that don't fully reflect what happens in the human brain. By harnessing the incredible potential of stem cells, which can transform into almost any cell type in the body, this project aims to bridge this critical gap and lay the groundwork for future scientific progress and better patient care."

The Academy's Springboard funding is supported by the UK government's Department for Science, Innovation and Technology, Wellcome and the

British Heart Foundation, who have invested more than £43 million in the next generation of research leaders since the scheme launched in 2015.

Lord Vallance, Minister of State for Science, said: Research supported by the Springboard programme can help to address some of the most pressing health challenges, like antimicrobial resistance and cancer, by giving early-career researchers across the UK the opportunity to test their ideas.

“Through this programme we are supporting the next generation of researchers to lead their own groundbreaking research so that the UK can continue to be a pioneer in medical science.”

Northumbria University is dedicated to reducing health and social inequalities, contributing to the regional and national workforce and improving social, economic and health outcomes for the most marginalised in society. Through its new [Centre for Health and Social Equity](#), known as CHASE, researchers will be delivering world-leading health and social equity research and creating innovative, evidence-based policies and data-driven solutions to bring impactful change across the region, the UK and globally.

Within CHASE Northumbria researchers are using the latest technologies across genomics, proteomics, epigenetics and metabolomics to further our understanding of disease, ageing, drug delivery, nutrition and health at an individual level.

UNIVERSITY OF THE YEAR 2022 (Times Higher Education Awards)

Northumbria is a research-intensive university that unlocks potential for all, changing lives regionally, nationally and internationally.

Two thirds of Northumbria's undergraduate students come from the North East region and go into employment in the region when they graduate, demonstrating Northumbria's significant contribution to social mobility and levelling up in the North East of England.

Find out more about us at www.northumbria.ac.uk

--- Please contact media.communications@northumbria.ac.uk with any media enquiries or interview requests ---

Contacts



Rik Kendall

Press Contact
PR and Media Manager
Business and Law / Arts, Design & Social Sciences
rik.kendall@northumbria.ac.uk
07923 382339



Andrea Slowey

Press Contact
PR and Media Manager
Engineering and Environment / Health and Life Sciences
andrea.slowey@northumbria.ac.uk
07708 509436



Rachael Barwick

Press Contact
PR and Media Manager
rachael.barwick@northumbria.ac.uk
07377422415



James Fox

Press Contact
Student Communications Manager
james2.fox@northumbria.ac.uk



Kelly Elliott

Press Contact
PR and Media Officer
kelly2.elliott@northumbria.ac.uk



Gemma Brown

Press Contact

PR and Media Officer

gemma6.brown@northumbria.ac.uk