The UCD School of Medicine and Medical Sciences (SMMS) strategy for research support is to facilitate the coming together of individual investigators to create a coherent research group with a critical mass that can be efficiently supported and which can collaborate with industry and other academic institutions. The Fibrosis group has obtained commitments from colleagues in UCD and affiliated hospitals to move this collaborative research agenda forward. The group represents a cross-section of UCD Fibrosis research interests.

The Fibrosis group includes active PIs concentrated on developing our understanding of molecular, cellular, tissue and whole organism aspects of fibrosis. Specific current research clusters exist in the areas of cancer biology, hypoxia in disease, molecular vascular biology and proteomics/bioinformatics. The vascular system including blood vessels, blood cells, coagulation pathways, bone marrow and stems cells plays a central role in the development and progression of many major diseases including atherosclerosis, stroke, inflammatory lung disease, arthritis, cancer and complications of diabetes. Our focus is to enhance our understanding of the pathophysiology fibrosis and particularly the role of vascular involvement in fibrosis in order to identify and develop novel treatments and prevention strategies.

Particular areas of strength include:
- Hypoxia responses in adaptation and disease
- Angiogenesis in inflammatory diseases
- Microvascular complications of diabetes
- Coagulation pathways in cardiovascular disease
- Pulmonary hypertension
- Biology of fibrocytes

Key Achievements in 2012:
The Fibrosis group have published over 50 peer reviewed publications, while securing Euro 7 million in funding.

Academic Lead
Prof Michael Keane
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St Vincent’s University Hospital &
UCD Conway Institute

Research Team
Prof Michael Keane
Professor of Medicine and Therapeutics

Prof Colm O’Brien
Consultant and Professor of Ophthalmology

Dr John Baugh
Lecturer in Medicine

Dr Marcus Butler
Consultant and Lecturer in Respiratory Medicine

Dr Seamus Donnelly
Consultant and Lecturer in Respiratory Medicine

Dr Suzanne Donnelly
Consultant Rheumatologist and Director of Clinical Education

Dr Margaret Hannan
Senior Clinical Lecturer

Dr Katherine Howell
Lecturer in Medicine

Prof Geraldine McCarthy
Clinical Professor

Prof Paul McLoughlin
Professor of Physiology

Dr Deborah Wallace
Postdoctoral Research Fellow

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01 885 8617 / cobrien@mater.ie
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Consultant Rheumatologist and Director of Clinical Education

Dr Suzanne Donnelly
Consultant Rheumatologist and Director of Clinical Education

Dr Margaret Hannan
Senior Clinical Lecturer

Dr Katherine Howell
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Prof Colm O’Brien
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Mater Misericordiae University Hospital
I am Professor of Ophthalmology at UCD and Consultant Ophthalmic Surgeon at the Mater Misericordiae University Hospital. I graduated from UCC in 1982 and did my clinical training at a number of centres in the UK followed by glaucoma fellowships at the New England Medical Center, Boston and Moorfields Eye Hospital, London. I was appointed Consultant Ophthalmologist at the Royal Infirmary of Edinburgh in 1992 and returned to Dublin in 1998.

My clinical and research interests are in the field of glaucoma, with a special interest in disease mechanisms underlying pseudo-exfoliation glaucoma and the molecular and signalling pathways that underlie fibrillar pathways of the optic nerve, trabecular meshwork and conjunctiva.

I also have a strong interest in Health Services Research and worked for many years as a board member at the National Council for the Blind.

I am Chairman of the Glaucoma Program Committee (AVRO), and Chairman of the Steering Committee, GATE Trial (NIHR). In addition, I am a member of the Steering Committee, DAILE Trial (NIHR). I also hold membership of the research committees of the Special Trustees of Moorfields, London and the Glaucoma Foundation, New York.

My research work epitomises Translational Medicine where original bench based observations are translated to clinical disease. In particular we define key regulatory mechanisms which drive aberrant remodelling and repair and predispose towards chronic inflammatory diseases.

We are particularly interested in:
- Development of novel anti-inflammatory small molecular weight therapies.
- Host environmental influences on the regulation of the inflammatory response.
- Genetic profiling guiding disease diagnosis, prognosis and response to therapy.
- Host/pathogen interactions which predispose towards more aggressive infection.

We utilise advanced cell and molecular biology techniques, in vitro cell and in vivo animal models to address these questions. It is our vision that our work will pave the way for specific tailored therapies which would attenuate key regulatory pathways which drive chronic inflammatory disease.

Dr John Baugh
Lecturer in Medicine
Location: UCD Conway Institute
Contact: 01 716 6759
Email: john.baugh@ucd.ie

My group is involved in several areas of translational medicine research with significant efforts to identify and commercialise novel vascular targets of heart failure and new therapies for inflammatory diseases such as diabetic heart failure and idiopathic pulmonary fibrosis. We focus on understanding the nature of chronic fibrotic disease and are investigating the roles of inflammation, epigenetic modifications, and hypoxia in aberrant wound healing and the development of tissue fibrosis.

Researchers Supported:
Dr Stephen Horgan, PhD
Dr Chris Watson, Post-doc
Dr Naushad Ghazvini, Post-Doc
Ms Rossin Niyazi, MSc
Mr Issac Tia, MSc
Ms Claire Toney, MSc

Dr Seamus Donnelly
Consultant and Lecturer in Respiratory Medicine
Location: St Vincent’s University Hospital & Conway Institute
Contact: 01 221 4930
Email: seamus.donnelly@ucd.ie

Our research work epitomises Translational Medicine where original bench based observations are translated to clinical disease. In particular we define key regulatory mechanisms which drive aberrant remodelling and repair and predispose towards chronic inflammatory diseases.

We are particularly interested in:
- Development of novel anti-inflammatory small molecular weight therapies.
- Host environmental influences on the regulation of the inflammatory response.
- Genetic profiling guiding disease diagnosis, prognosis and response to therapy.
- Host/pathogen interactions which predispose towards more aggressive infection.

We utilise advanced cell and molecular biology techniques, in vitro cell and in vivo animal models to address these questions. It is our vision that our work will pave the way for specific tailored therapies which would attenuate key regulatory pathways which drive chronic inflammatory disease.

Researchers Supported:
Dr Michelle Armstrong, Senior PostDoctoral Scientist
Dr Helen Conroy, Senior PostDoctoral Scientist
Dr Gordon Cooke, PostDoctoral Scientist
Dr Cara O’Reilly, PostDoctoral Scientist
Ms Maria Claire Kennedy, Research Assistant
Ms Mary Walters, Clinical Research Nurse
Ms Laura O’neill, PhD
Dr Paul O’Dwyer, PhD
Dr Huzefa Amdaral, MD
Ms Aisling Tyan, PhD

Dr Margaret Hannan
Senior Clinical Lecturer
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Surgical site surveillance in cardiothoracic surgery: research in progress.

Epidemiology of Infective Endocarditis: contribute to international database 2004-2012 and ongoing

Editor of Book published by Elsevier in 2011, Diagnosis and Management of Infectious Diseases in Cardiotoracic Transplantation and Mechanical Circulatory Support

Editors: Martha L. Moorey, MD, MS, FACP; Margaret M. Hannan, MD, FRERCP; Prof Shahid Husain, MD, MS, and James K. Kirklin, MD

Invited to chair the update of the 2006 International Heart Guidelines Infectious Disease Taskforce to be re-published 2014.

Invited to be a member of the IMACS (RHLT Mechanical Assist Circulatory Support Registry) committee as the ID representative.

Dr Katherine Howell
Lecturer in Medicine
Location: UCD Conway Institute
Contact: 01 716 6730
Email: katherine.howell@ucd.ie

Research is directed towards expanding our knowledge of the pathogenesis of chronic lung diseases in the setting of hypoxia, particularly the role of the pulmonary vasculature. Specifically we are interested in the potential therapeutic role of ErbB4 agonist in the treatment of emphysema and the role of Placental Growth factor in hypoxic lung disease.

Researchers Supported:
Ms Bianca Colfer, PhD
Mr Barry O’Donohoe, BSc
Mr Mark Savage, BSc

Dr Paul McLaughlin
Professor of Physiology
Location: UCD Conway Institute
Contact: 01 716 6776
Email: paul.mclaughlin@ucd.ie

Our research is focused on the understanding of key mechanisms in the development and progression of lung diseases, including chronic obstructive pulmonary disease (COPD), emphysema, cystic fibrosis, adult respiratory distress syndrome and occupational lung diseases.

These diseases all cause reduced oxygen in the lung which then activates mechanisms that are pro-inflammatory pro-thrombotic and promote maladaptive vascular remodelling. We are exploring the specific mechanisms through which hypoxia promotes these disease responses in the lung.

Researchers Supported:
Mr Simon Coyle Rowan, PhD
Dr Nileva Murphy, MD
Dr Caroline O’Connell, MD
Dr Stephen Frithkoh, PhD
Ms Aisling Cormac, PhD

Prof Geraldine McCarthy
Clinical Professor
Location: Mater Misericordiae Hospital
Contact: 01 830 1122
Email: gmccarthy@mater.ie

Invited Participant and Speaker Research Priority Workshop for Gout & Crystal Disorders, Manchester; UK, Podium presentation American College of Rheumatology Annual Scientific Meeting, Washington DC, USA; Initiation of collaboration with DCU Biomedical Diagnostics Institute project, MobiiMate (mobile-phone enabled remote chronic disease management) funded by Enterprise Ireland.
Our laboratory is interested in the role of fibrosis in glaucoma. Glaucoma affects over 60 million people worldwide however current treatments are still limited & anti-fibrotic approaches remain largely unexplored. We have an active research group within UCD and internationally we endeavour to develop anti-fibrotic therapies.

**Researchers Supported**

**Dr Sara McNally**, Post Doc  
**Ms Fiona McDonnell**, PhD  
**Dr Emily Hughes**, MD  
**Dr Elizabeth McElrea**, MD

**Grants**

**Title:** Novel Anti-Connective Tissue Growth Factor Antibody Therapy in Pseudoexfoliation Glaucoma  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-OCT-10 / 01-OCT-13  
**Funding:** €283,000

**Title:** DNA Methylation Inhibitors as a novel treatment for Cardiac and Lung fibrosis  
**Funder:** Enterprise Ireland (EI)  
**Start/End Dates:** 01-JUL-12 / 31-DEC-12  
**Funding:** €1,475,168

**Title:** Elucidating the role of placeental growth factor in mediating hypoxia-induced pulmonary angiogenesis and co-ordinated epithelial growth in the adult hypoxic lung  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-OCT-08 / 30-SEP-12  
**Funding:** €412,000

**Title:** Elucidating the potential therapeutic role of Erythropoietin in the treatment of emphysema  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-MAY-13 / 31-OCT-13  
**Funding:** €20,000

**Title:** Biomarkers of heart Failure and Cardiomyopathy  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-JUL-11 / 30-JUN-12  
**Funding:** €50,000

**Title:** The effect of platelet hyper-reactivity in active inflammatory arthritis: implications for cardiovascular risk  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-JUL-10 / 30-JUN-12  
**Funding:** €22,000

**Title:** DNA Methylation Inhibitors as a novel treatment for Cardiac and Lung fibrosis  
**Funder:** Enterprise Ireland (EI)  
**Start/End Dates:** 01-JUL-10 / 30-JUN-12  
**Funding:** €167,000

**Title:** DNA Methylation Inhibitors as a novel treatment for Cardiac and Lung fibrosis  
**Funder:** Health Research Board (HRB)  
**Start/End Dates:** 01-JUL-10 / 30-JUN-12  
**Funding:** €12,000

**Title:** The role of Serum Amyloid P-Component in the prevention and treatment of diastolic dysfunction and chronic heart failure  
**Funder:** Irish Heart Foundation  
**Start/End Dates:** 01-OCT-11 / 30-JUN-12  
**Funding:** €15,000

**Title:** The Pathophysiological basis of hypoxic pulmonary hypertension in the mouse: rho kinase dependent vasoconstrictor and structural mechanisms  
**Funder:** University College Dublin (UCD)  
**Start/End Dates:** 01-OCT-07 / 30-SEP-14  
**Funding:** €50,000


