

Autoimmune Disease & Inflammatory Conditions

DISEASE PATHOLOGY & NOVEL TARGET DISCOVERY

- Development of models of cytokine-induced BBB disruption
- Viral immunology and subversion of immune response
- Human immune modelling
- Interactions of bacteria with the immune system

Dr. Phillip Cummins
www.preventivemedicine.ie

THERAPEUTIC DEVELOPMENT

- Identification of therapeutic molecules/pathways in infection and autoimmunity
- Novel marine compounds in inflammatory disease

Dr. Patricia Johnson
Dr. Christine Loscher
www.dcu.ie/biotechnology

Cardiovascular Disease (CVD)

DISEASE PATHOLOGY & NOVEL TARGET DISCOVERY

- Integrin signalling, activation and regulation (eg. adhesion and migration)
- Cytoskeletal and and actin dynamics
- Investigation of uPAR-integrin interactions and signalling pathways in CVD and inflammation
- Epigenetic and microRNA-mediated regulation in Cardiovascular disease
- Megakaryocyte and platelet functional biology
- *In vitro* modelling of vascular smooth muscle and endothelial cells
- Animal models of Cardiovascular disease
- Bioinformatics and molecular biology of Cardiovascular disease
- Cellular signalling mechanisms in endothelial homeostasis and dysfunction
- Impact of blood flow-associated haemodynamic forces on endothelial signal transduction, gene expression and barrier regulation

Dr. Ronan Murphy
www.preventivemedicine.ie

Prof. Paul Cahill
www.dcu.ie/biotechnology

Prof. Harry Holthofer
www.dcu.ie

Dr. Phillip Cummins
www.preventivemedicine.ie

THERAPEUTIC DISCOVERY & DEVELOPMENT

- *In vitro* and *in vivo* testing of adverse effects of biologics and drugs using novel cellular and molecular biomarkers (stratification of clinical trials, personalised medicine, pharmacogenomics)
- Diagnostic development

Dr. Ronan Murphy
www4.dcu.ie/shhp

MEDICAL DEVICES DEVELOPMENT

- Stent coating
- Cardiovascular tissue engineering and design of minimally invasive intravascular devices
- *In vitro* modelling of in-stent restenosis
- Development of vascular tissue engineering platforms
- Cardiovascular biomechanics
- Numerical modelling of intravascular stents
- *In vitro* and *in vivo* testing of adverse effects of devices (microparticles as biomarkers)

Dr. Ronan Murphy
Dr. Phillip Cummins
www.preventivemedicine.ie

Dr. Garrett McGuinness
Dr. Caitriona Lally
Prof. Paul Cahill
www.medeng.dcu.ie