



# ROYAL ACADEMY OF MEDICINE IN IRELAND

Section of Biomedical Sciences Annual Meeting  
3rd February 2021  
Online Conference

Section President: Dr. Katherine Howell, UCD  
Section Secretary: Dr. Jeffrey Glennon, UCD

<b>ONLINE REGISTRATION / OPENING:</b>	<b>08.45-</b>
Register <a href="#">here</a>	
Welcome	09.00-09:05
<b>Donegan Communications: D1-D4</b>	09.05-09.50
Chair: Dr. Séan Roe, QUB. Judges: Dr. Darren Roddy, RCSI Dr. Jayne Carberry, UCD	
Break	09.50-10.00
<b>Barcroft Communications: B1-B4</b>	10.00-10.45
Chairs / judges: Prof. James Jones, UCD. Prof. John O'Connor, UCD.	
<b>Conway Review Lecture</b>	10.45-11.45
Prof. Paul McLoughlin Conway Institute, School of Medicine, University College Dublin. <i>From the Himalayas to intensive care: how does the lung cope?</i>	
Short Communications – Four parallel sessions	11.45-12.45
1) Cancer, inflammation and tissue repair (chair Dr. Stephen Thorpe) 2) General biomedical sciences (chair Dr. Stephen Lalor) 3) Neuroscience and muscle (chair Dr. Marian Tsanov) 4) Respiration and hypoxia (chair: Dr. Lili Li)	
Announcement of Medal Winners and Closure	12.45-13.00

## **Donegan Communications**

### **Targeting The Evolutionary RGD Motif In The Spike Protein Of SARS-COV-2 Serves As A Novel Treatment Option To Prevent Vascular Damage During Covid-19**

**D Nader**, GF Curley, SW Kerrigan

School of Pharmacy and Biomolecular Sciences, RCSI University of Medicine and Health Sciences, Ireland

### **The Nonspecific Prolyl Hydroxylase Inhibitor Dimethyloxaloylglycine DMOG Rescues Synaptic Transmission In An In Vitro Oxygen Glucose Deprivation Model In Rat Hippocampus**

**M Puzio**, J O'Connor

UCD School of Biomolecular and Biomedical Science, UCD Conway Institute, Belfield, Dublin, Ireland

### **Mapping Molecular Subtype Specific Alterations In Breast Cancer Brain Metastases Identifies DNA Repair Defects As A Clinically Relevant Vulnerability**

**N Cosgrove**, D Varesilija, S Keelan, SJ Furney, JM Carter, SN Hart, S Yadav, ADK Hill, S Oesterreich, AV. Lee, FJ. Couch, LS. Young

Endocrine Oncology Research Group, Department of Surgery, RCSI University of Medicine and Health Sciences, Dublin, Ireland. Genomic Oncology Research Group, Royal College of Surgeons in Ireland, Dublin, Ireland. Department of Laboratory Medicine and Pathology, Mayo Clinic, Rochester, MN. Department of Health Sciences Research, Mayo Clinic, Rochester, MN. Department of Oncology, Mayo Clinic, Rochester, MN. Surgical Research, Royal College of Surgeons in Ireland, Dublin, Ireland. WCRG, UPMC Hillman Cancer Center, Magee-Womens Research Institute, University of Pittsburgh, Pittsburgh, PA. WCRG, UPMC Hillman Cancer Center, Magee-Womens Research Institute, Institute for Precision Medicine, University of Pittsburgh, Pittsburgh, PA

### **Plasma Leptin Is Increased By Immune Activation In Rat Pups Following Neonatal Oxygen Dysregulation**

**M Casacao**, KM O'Connor, EM Dempsey, KD O'Halloran, FB McDonald

Department of Physiology / School of Medicine, College of Medicine & Health, University College Cork, Cork, Ireland

## **Barcroft Communications**

### **Development Of A Pre-Clinical Model Of Melanoma Brain Metastasis Using Mouse B16F10-Luc Melanoma Cells And The Characterisation Of Tissue-Blood Biomarkers Of Therapeutic Response And Disease Progression**

**M Ita**, Jiang Huai Wang, Chris Lim, Henry Paul Redmond

Academic Surgery, University College Cork

### **How Representative Of Skim Milk Is Infant Milk Formula An Extracellular Vesicle Separation And Characterisation Study**

**A Mukhopadhyaya**, J. Santoro, L. O'Driscoll

School of Pharmacy and Pharmaceutical Sciences and Trinity Biomedical Sciences Institute, Trinity College Dublin

## **Human Mesenchymal Stem-Stromal Cells Extracellular Vesicles As A Therapeutic Approach To Regulate Immune Response**

**D Tsiapalis**, T Tertel, A Floudas, U Fearon, V Boerger, B Giebel, L O'Driscoll

Departments of School of Pharmacy and Pharmaceutical Sciences & Trinity Biomedical Sciences Institute, Trinity College Dublin, Dublin, Ireland, Institute for Transfusion Medicine, University Hospital Essen, University of Duisburg Essen, Essen, Germany, Molecular Rheumatology, Trinity College Dublin, Ireland

## **The Utility Of Plasma Circulating Cell Free Messenger RNA As A Biomarker Of Glioma**

**M.I. Ita**, J.H. Wang, A. Toulouse, C.H. Lim, N. Fanning, M. G. J. O'Sullivan, Y. Nolan, G. F. Kaar, H.P. Redmond

Academic Surgery, University College Cork

## **Short Communications**

### **Cancer, Inflammation and Tissue Repair**

Human Vascular Endothelial Cell Derived Exosomes Contribute To The Excessive Inflammatory Response Observed In Sepsis Through A Dysregulated MicroRNA Expression Profile

G Fitzpatrick, R Watkin, C McCoy, B Kavanagh, S Kerrigan

School of Pharmacy & Biomolecular Sciences, RCSI University of Medicine & Health Sciences

Reduction Of Aggressiveness Of Triple-Negative Breast Cancer By Blocking Extracellular Vesicle Release

N Mc Namee, M Catalano, A Mukhopadhyaya, L O'Driscoll

School of Pharmacy and Pharmaceutical Sciences, Trinity St. James' Cancer Institute, Trinity Biomedical Sciences Institute, Trinity College Dublin.

Harnessing The Potential Of Plasma Activated Liquids For Biomedical Applications

E Tsoukou, P Bourke, D Boehm

Environmental Sustainability and Health Institute and School of Food Science and Environmental Health, Technological University Dublin, Dublin, Ireland

Predicting Elderly Burns One-Year Survival Rate In Ireland - The Baux-Frailty Score

JB Skeens, TC Chen, A Rahman, SM Bollard, JFC Woods, OP Shelley

Trinity College Dublin. Department of Plastic & Reconstructive Surgery, St James's Hospital

The Use Of Preclinical In Vitro Models In Cancer Research Results Of A Worldwide Survey

S Martinez-Pacheco, L O'Driscoll

School of Pharmacy and Pharmaceutical Sciences, Trinity Biomedical Sciences Institute,  
Trinity St. James's Cancer Institute, Trinity College Dublin, & TRAIN-EV Marie Sklodowska-  
Curie Action-Innovative Training Network, train-ev.eu

**Evaluating Extracellular Vesicles From Neratinib-Resistant And Neratinib-Sensitive Breast  
Cancer Cells As Potential Predictive Biomarkers**

**S Martinez-Pacheco, L O'Driscoll**

School of Pharmacy and Pharmaceutical Sciences, Trinity Biomedical Sciences Institute,  
Trinity St. James's Cancer Institute, Trinity College Dublin, & TRAIN-EV Marie Sklodowska-  
Curie Action-Innovative Training Network, train-ev.eu

**Pharmacological Inhibition Of Extracellular Vesicles In Prostate Cancer**

**M Catalano, N McNamee, A Mukhopadhy, L O'Driscoll**

School of Pharmacy and Pharmaceutical Science, Trinity Biomedical Science Institute,  
Trinity St. James's Cancer Institute

**Plasma Circulating Cell Free Messenger RNA as a Potential Biomarker of Melanoma**

**M.I. Ita, J.H. Wang, N. Fanning, G.F. Kaar, C.H. Lim, H.P. Redmond**

Academic Surgery, University College Cork

**General Biomedical Sciences**

**Efficacy Of CDSS In Improving Anti-Resorptive Bone Protective Therapy Amongst  
Orthogeriatric Inpatients - A Comparison Study**

**L Bhandary, N Aatika M Asri, A Taylor, A Muslim, P Hickey, B Lenehan, F Condon, J Ryan**  
Department of Geriatric Medicine - University Hospital Limerick, Department of Trauma  
and Orthopaedics - University Hospital Limerick

**Separating And Comparing Characteristics Of The Extracellular Vesicles From Human Milk  
And It's Best Available Commercial Alternative Infant Milk Formula**

**J Santoro, Anindya Mukhopadhy, Lorraine O'Driscoll**

School of Pharmacy and Pharmaceutical Sciences & Trinity Biomedical Sciences Institute

**Modulation Of Barrier Function In ARPE-19 Cells By Cholesterol**

**C Mc Cormack, B Brankin, S Meaney**

School of Biological and Health Sciences, College of Sciences and Health, Technological  
University Dublin and Environmental Sustainability and Health Institute, Technological  
University Dublin

**Microbiological Safety Of Filtering Facepiece Respirator Sterilisation Using Vaporized  
Hydrogen Peroxide**

**MC Rotaru, G Pozdeev, C NicGabhann, R Devlin, H McMahonn, JP Gibbons,  
R Arnett, D O'Shea, JM O'Byrne, SW Kerrigan**

Trauma and Orthopedics, NOHC, School of Pharmacy and Biomolecular Sciences,  
Psychometrics, Biochemistry, Central Decontamination Unit

**Protecting The Personal Protective Equipment - An Analysis Of The Effects Of Sterilisation  
Methods For Filtering Facepiece Masks For Re-Use**

**R Devlin**, C Nic Gabhann, M Rotaru, J Gibbons, D O'Shea, JM O'Byrne.  
Royal College of Surgeons In Ireland, National Orthopaedic Hospital Cappagh,  
Zehnacker Healthcare

**Establishment And Characterization Of A Retinal Pigment Epithelial Cell Line  
Overexpressing The Human Tight Junction Protein Claudin 1**

**C Mc Cormack**, B Brankin, S Meaney  
School of Biological and Health Sciences, College of Sciences and Health, Technological  
University Dublin and Environmental Sustainability and Health Institute, Technological  
University Dublin

**Your Sterilised Facemask - Please Wear It Again - Healthcare Workers Experience Of  
Sterilised Filtering Facepiece Respirators For Use In A Personal Protective Equipment  
Shortage - A National Roadmap For Facial PPE Sterilisation**

**C Nic Gabhann**, R Devlin, MC Rotaru, JP Gibbons, H McMahon, D O'Shea,  
Steven K, JM O'Byrne, R Arnett  
Department of orthopaedic surgery, National Orthopaedic Hospital, and the central  
decontamination unit, Zehnacker, National Orthopaedic Hospital Cappagh, and the  
department of chemistry, Royal College of Surgeons Ireland, and the School of pharmacy  
and biomolecular sciences, Royal College of Surgeons Ireland and the department of  
psychometrics, Royal College of Surgeons Ireland.

**Examination Of The Expression Of ABCA4 In Adult Zebrafish**

**Q Lu**, A Reynolds  
UCD School Of Veterinary Medicine And UCD Conway Institute

**Neuroscience and Muscle**

**The Effects Of Dimethyloxalyglycine MnTMPyP And Hypoxia On Synaptic Transmission In  
Isolated Rat Hippocampal Slices**

**N Moreton**, JJ O'Connor  
UCD School of Biomolecular and Biomedical Science UCD Conway Institute Belfield Dublin

**Characteristics And Assessment Of Potential Concussive Events In The UEFA Champions  
League**

D Sokol-Randell, MP Rotundo, C Denley, M Aranha, **A Stanton**,  
A Jilani, C Deasy, MD Cusimano

University College Cork, School of Medicine, Emergency Innovation Research Network,  
Cork University Hospital, Emergency Department, Injury Prevention Research Office,  
University of Toronto

**Characteristics And Assessment Of Potential Concussive Events In Gaelic Athletic  
Association Players**

D Sokol-Randell, **MP Rotundo**, C Denley, M Aranha, A Stanton,  
A Jilani, C Deasy, MD Cusimano

University College Cork, School of Medicine, Emergency Innovation Research Network,  
Cork University Hospital, Emergency Department, Injury Prevention Research Office,  
University of Toronto

**Characteristics And Assessment Of Potential Concussive Events In Gaelic Hurling**

D Sokol-Randell, MP Rotundo, C Denley, M Aranha, A Stanton,  
A Jilani, C Deasy, MD Cusimano

University College Cork, School of Medicine, Emergency Innovation Research Network,  
Cork University Hospital, Emergency Department, Injury Prevention Research Office,  
University of Toronto

**Morning Cortisol Hippocampal Volumes And Circuit Segments In Major Depressive  
Disorder**

**M Haines**, T. Drago, A. Nasa, E. Roman, K. Levins, J. Kelly, V. O'Keane, D. Roddy  
Trinity College Institute of Neuroscience, TCD, Royal College of Surgeons,  
St. Vincent's University Hospital

**Understanding The Contribution Of NADPH Oxidase To Diaphragm Muscle Weakness In  
Dystrophin-Deficient mdx Mice**

**AD Slyne**, SE Drummond, D Cussen, K D O'Halloran, DP Burns

Department of Physiology, School of Medicine, College of Medicine and Health, University  
College Cork, Cork, Ireland

**Pharyngeal Dilator Muscle Weakness In Pre-Symptomatic ALS Mice**

**DP Burns**, AD Slyne, KD O'Halloran

Department of Physiology, School of Medicine, College of Medicine and Health, University  
College Cork, Cork

**Kynurenic Acid Protects Against Reactive Glial-Associated Reductions In The Complexity  
Of Rat Primary Cortical Neurons**

K O'Reilly, K O'Farrell, O Midttun, **Y Rakovets**, J David-Bercholz, A Harkin.  
Trinity College Institute of Neuroscience, Trinity College Dublin

## Respiration and Hypoxia

### Investigating The Effects Of Acute High Altitude Exposure And Arterial Blood Gas Manipulation On Neurovascular Coupling In Humans

JK Leacy, DP Burns, N Jendzjowsky, C Braun, B Herrington, RJA Wilson, T Vermeulen, G Foster, A Rosenberg, G Anderson, C Rickards, EF Lucking, KD O'Halloran, TA Day  
Department of Physiology, School of Medicine, College of Medicine and Health, University College Cork, Cork, Ireland.

### Baroreflex Control Of Renal Sympathetic Nerve Activity And Kidney Function Following Exposure To Intermittent Hypoxia In Rats

S ALMarabeh, J O'Neill, J Cavers, EF Lucking, KD O'Halloran, MH Abdulla  
Department of Physiology, School of Medicine, College of Medicine & Health, University College Cork, Cork, Ireland

### In Vitro Assessment Of The Cytotoxicity Of Ctenophore Colloblast Adhesive From Pleurobrachia Pileus

GOT Mercedes, M Pickering  
University College Dublin School of Medicine and University College Dublin Centre for Biomedical Engineering

### Chronic Intermittent Hypoxia Blunts Renal Sympathetic Nerve Activation By Intrapelvic Bradykinin In Rats

S ALMarabeh, EF Lucking, KD O'Halloran, MH Abdulla  
Department of Physiology, School of Medicine, College of Medicine & Health, University College Cork, Cork, Ireland

### The Role Of NADPH Oxidase 2 In Chronic Intermittent Hypoxia-Induced Respiratory System Dysfunction In Adult Mice

SE Drummond, DP Burns, V Healy, KD O'Halloran  
Department of Physiology, UCC

### Compensation Afforded By Accessory Muscles Of Breathing Is Lost In Advanced Dystrophic Disease

KD O'Halloran, DP Burns  
Department of Physiology, UCC

### Does Wind Or Brass Musical Instrument Playing Or Intense Sport Among Male Teenagers Affect Spirometric Lung Indices Compared With Their Sedentary Counterparts An Observational Cohort Study

P Buggy, D Buggy  
University College Cork, University College Dublin

Assessment Of Respiratory EMG And Motor Unit Behaviour In The MDX Mouse Model Of  
Duchenne Muscular Dystrophy

K Murphy, D Burns, I Cahill, EF Lucking, KD O'Halloran

Department of Physiology, School of Medicine, College of Medicine and Health, University  
College Cork, Cork.