QUEEN'S UNIVERSITY BELFAST

WELLCOME-WOLFSON INSTITUTE FOR EXPERIMENTAL MEDICINE

Postdoctoral Research Symposium 2019

25th January 2019

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Symposium Timetable

08:50 – 09:00	**Registration** *Tea and coffee available*	
09:00 – 09:10	**Welcome and Introduction (**Basement Seminar Room**)** **Prof Jose Bengoechea**, Centre Director, Wellcome-Wolfson Institute for Experimental Medicine	
Session 1: Selected Oral Presentations (Basement Seminar Room) Chairs: Eimear Byrne and Karis Little		
09:10 – 09:30	Sophia Kelaini	**Enhanced Function of Induced Pluripotent Stem Cell-Derived Endothelial Cells Through ESM1 Signalling**
09:30 – 09:50	Lindsay Broadbent	**The therapeutic potential of ALX-0171, a novel anti-RSV Nanobody, in RSV-infected primary paediatric bronchial epithelium**
09:50 – 10:10	Claire Tonry	**Multiplexed Measurement of Candidate Protein Biomarkers of Cardiovascular Disease in Blood**
10:10 – 10:30	Michelle Naughton	**Investigating CCN3 in Multiple Sclerosis**
10:30 – 10:50	Eszter Emri	**Multiomics approaches to uncover the effects of changing zinc homeostasis in the eye**
10:50 – 12:00	**Poster Presentations Session 1 (**Inner Atrium**)** Odd number posters presenting (eg, 1,3,5,7 etc) *Tea & coffee available during this session*	
12:00 – 13:00	**Lunch** (Inner Atrium)	
13:00 – 14:00	**Keynote Speaker: Prof Neville Osborne**, *University of Oxford (UK) and Ophthalmological Research Foundation (Asturias, Spain)*, **"Neuroprotection in glaucoma: focus on mitochondria and light"** (Chair: María Llorián-Salvador)	
14:00 – 14:10	**Dr Alice Dubois**, Head of the Postdoctoral Development Centre, Faculty of Medicine, Health and Life Sciences **Update from Postdoctoral Development Centre**	
14:10 – 15:20	**Poster Presentations Session 2 (**Inner Atrium**)** Even number posters presenting (eg,2,4,6,8 etc) *Tea & coffee available during this session*	

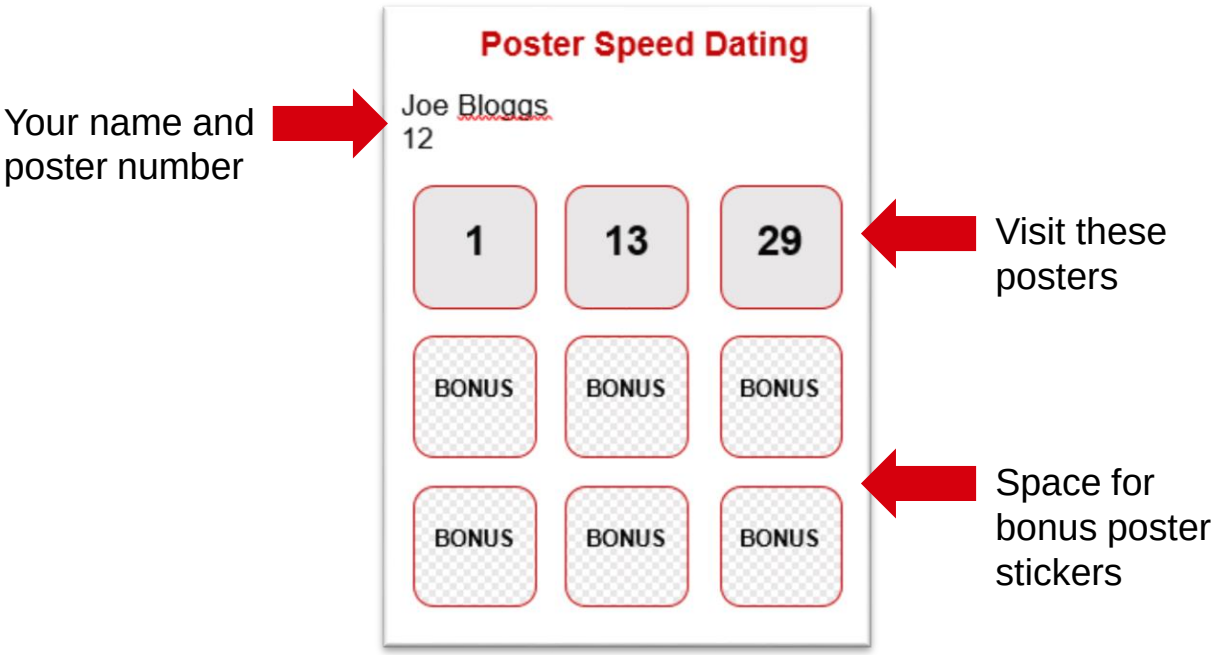
Symposium Timetable

Session 2: Selected Oral Presentations (Basement Seminar Room) Chairs: Georgiana Parau and Lydia Roets		
15:20 – 15:40	Hong Guo Parke	**Characterization of Rhinovirus-induced airway epithelial cell cytopathogenesis in severe COPD patients**
15:40 – 16:00	Guanbo Wang	**Potential glycoengineered anti-*Burkholderia* vaccines by exploiting the bacterial *O*-glycosylation machinery**
16:00 – 16:20	Kevin Edgar	**Development of adverse cardiac remodelling in experimental diabetes is regulated by endothelial Nox4 NADPH oxidase**
16:20 – 16:40	Claudia Feriotti	**The role of SARM in the control of immune response driven by *Klebsiella pneumonia* infection**
16:40 – 17:00	**Closing Remarks and Awards** **Prof Denise Fitzgerald**, Co-Chair of WWIEM Postdoctoral Career Development Committee	
17:00 – 19:00	**Pizza and Drinks Reception (Inner Atrium)**	

Symposium Information

Poster Speed Dating

All postdocs will have received a Poster Speed Dating Card. On your card are the numbers of posters we would like you to visit during the poster sessions. Odd numbered posters will be presented in Poster Session 1, during which those postdocs with even numbered posters can visit the poster numbers assigned on their Speed Dating Card. Even numbered posters will be presented in Poster Session 2, during which postdocs with odd numbered posters can visit the poster numbers assigned on their Speed Dating Card.
When you visit a poster, ask the presenting postdoc to give you a sticker for your Speed Dating Card. Bonus spaces have been left to collect stickers from any other posters you visit during the day.
Before the final Oral Presentations all cards will be collected and the postdoc with the most stickers will receive a prize!



Imaging Competition

During the Poster Sessions images will be displayed on the screens in the inner atrium. Please vote for your favourite image using one of the voting slips beside the ballot box below the display screen.

Symposium Information

Thank you

We would like to express our gratitude to the WWIEM Clerical Support Team for all their help and guidance in organising this Symposium. Thank you to the PIs, postdocs and PhD students who have volunteered their time to act as the abstract selection panel, poster judges and chairs. We would also like to thank the members of the WWIEM Postdoctoral Development Committee for their support.

Abstract Selection Panel

Dr Gunnar Schroeder, Dr Lindsay Broadbent, Dr Anna Krasnodembskaya, Dr María Llorián-Salvador, Dr José Romero and Dr Angela Hackett

Poster Judges

Session 1
Dr Yvonne Dombrowski and Dr Imre Legynel
Dr Anna Krasnodembskaya and Dr Derek Brazil

Session 2
Dr Aurelie Mousnier and Dr Guillermo Lopez Campos
Dr Ikhlas El Karim and Dr José Romero

Oral Presentation Session Chairs

Session 1
Eimear Byrne and Karis Little

Session 2
Georgiana Parau and Lydia Roets

Symposium Organising Committee

Dr María Llorián-Salvador, Dr Angela Hackett, Dr Anna Krasnodembskaya, and Dr José Romero

Keynote Speaker

Professor Neville Osborne

BSc (London University), PhD (St Andrews University), DSc (St. Andrews University) M.A (Oxford University)

Neville Osborne is Professor of Ocular Neurobiology at the Department of Ophthalmology in Oxford, UK. Presently, he is also Professor of Biosciences at the Fundación de Investigación Oftalmológica, Oviedo, Spain. He received his professional education at the Universities of London and St. Andrews and spent four years as a senior scientist at a Max Planck Institute in Germany.

Prof Osborne is a biochemical pharmacologist by training. He has supervised the research for more than 30 PhD students and published more than 350 articles in refereed journals. He was the founding and chief editor of Neurochemistry International for 21 years. He also initiated and still acts as co-chief editor of Progress in Retinal and Eye Research, now in its 25th year of existence. Prof Osborne is an editorial board member of five other journals. He was vice-president of European Vision and Eye Research (EVER) and continues to serve on the programme committee. He was vice-president of the International Society of Eye Research (ISER) and presently a council member of Asian-Pacific Academy of Ophthalmology (APAO). His honours include the following: Alcon Prize Award (1986). Merit Shield Award from the University of Venezuela (1987), Paul Kayser International Award (1990), New Orleans University, Distinguished Lecture award (1997), 2nd Jessie Mole Prize Medal (2002), Edre A.Balazs Prize (2004), Ophthalmic Research Medal (2013), Acta EVER Medal (2014).

Prof Osborne's research focuses on understanding how neurons in the retina die following defined insults and devising possible ways of preventing their death, more specifically, about targeting mitochondrial dysfunction as in aging and glaucoma.

At this year's symposium he will give a talk entitled, **"Neuroprotection in glaucoma: focus on mitochondria and light"**

Enhanced Function of Induced Pluripotent Stem Cell-Derived Endothelial Cells Through ESM1 Signaling

Vilà-González M[1] & Kelaini S[1], Magee C[1], Caines R[1], Campbell D[1], Eleftheriadou M[1], Cochrane A[1], Drehmer D[1], Tsifaki M[1], O'Neill K[1], Pedrini E[1], Yang C[1], Medina R[1], McDonald D[1], Simpson D[1], Zampetaki A[2], Zeng L[2], Grieve D[1], Lois N[1], Stitt AW[1], Margariti A[1].

1 Queen's University Belfast
2 King's College London

The mortality rate for (cardio)-vascular disease is one of the highest in the world, so a healthy functional endothelium is of outmost importance against vascular disease. In this study, human induced pluripotent stem (iPS) cells were reprogrammed from 1 ml blood of healthy donors and subsequently differentiated into endothelial cells (iPS-ECs) with typical EC characteristics. This research combined iPS cell technologies and next-generation sequencing to acquire an insight into the transcriptional regulation of iPS-ECs. We identified endothelial cell-specific molecule 1 (ESM1) as one of the highest expressed genes during EC differentiation, playing a key role in EC enrichment and function by regulating connexin 40 (CX40) and eNOS. Importantly, ESM1 enhanced the iPS-ECs potential to improve angiogenesis and neovascularisation in in vivo models of angiogenesis and hind limb ischemia. These findings demonstrated for the first time that enriched functional ECs are derived through cell reprogramming and ESM1 signaling, opening the horizon for drug screening and cell-based therapies for vascular diseases. Therefore, this study showcases a new approach for enriching and enhancing the function of induced pluripotent stem (iPS) cell-derived ECs from a very small amount of blood through ESM1 signaling, which greatly enhances their functionality and increases their therapeutic potential.

The therapeutic potential of ALX-0171, a novel anti-RSV Nanobody, in RSV-infected primary paediatric bronchial epithelium

Lindsay Broadbent[1], Lyndsey J. Ferguson[1], Andrena Miller[1], Michael D. Shields[1,2], Laurent Detalle[3], Ultan F. Power[1].

[1]Wellcome-Wolfson Institute for Experimental Medicine, Queens University Belfast, Belfast, Northern Ireland
[2]Royal Belfast Hospital for Sick Children, Belfast, Northern Ireland
[3]Ablynx nv, Belgium

RSV causes severe lower respiratory tract infections in young infants worldwide. However, there are no effective RSV-specific treatments available. Ablynx nv is developing an anti-RSV nanobody, ALX-0171, that targets the RSV F protein. We previously reported a RSV infection model in well-differentiated primary paediatric bronchial epithelial cell (WD-PBEC) cultures that replicated hallmarks of RSV infection in infants. Importantly, WD-PBECs remain intact for days post-infection (dpi), thereby facilitating use of our RSV/WD-PBEC model to study therapeutic interventions. WD-PBECs (n=3 donors) infected with RSV BT2a (MOI~0.1), or mock infected. RSV-infected cultures were treated with High (1000 nM), Mid (100 nM) or Low (10 nM) ALX-0171 or palivizumab concentrations, or buffer. Virus growth kinetics, cytopathogenesis and chemokine secretions were measured. Virus growth kinetics and efficacy of ALX-0171 was also compared for two RSV clinical isolates: BT2a and Memphis 37.

High and Mid ALX-0171 completely neutralised apically-released RSV following treatment initiation as late as 4 days post-infection (dpi). By comparison, only High dose palivizumab efficiently neutralised RSV. ALX-0171 treatment resulted in a reduction in RSV^+ ciliated cells in a dose-dependent manner. The IC_{50} for ALX-0171 at 24 hpi was 346.9 nM and 363.6 nM for BT2a and Memphis 37, respectively, while for palivizumab, IC_{50} was 1048 nM and 1090 nM for BT2a and Memphis 37, respectively.

ALX-0171 demonstrated a strong, dose-dependent, capacity to neutralise RSV released from paediatric WD-PBECs and was invariably superior to palivizumab under these experimental conditions. This study validates our RSV/WD-PBEC model for the pre-clinical evaluation of RSV antivirals.

Multiplexed Measurement of Candidate Protein Biomarkers of Cardiovascular Disease in Blood

Claire Tonry[1], Nadia Glezeva[2], Cathy Rooney[2], Belinda Hernandez[2], Brian Morrissey[2], Mark Ledwidge[2], Ken McDonald[2], Stephen R Pennington[2], John A Baugh[2], Chris. J Watson [1,2]

[1]The Wellcome Wolfson Institute for Experimental Medicine, Queen's University Belfast, 97 Lisburn Rd, Belfast
[2]School of Medicine, University College Dublin, Belfield, Dublin

Approximately one quarter of deaths in Northern Ireland are caused by Cardiovascular Disease (CVD). There is a critical unmet need for better biomarkers so that CVD can be diagnosed at an earlier stage and with greater accuracy. Mass spectrometry-based multiple reaction monitoring (MRM) allows for rapid, targeted measurement of multiple protein biomarkers. Such assays can be developed in blood samples, which is desirable for minimally-invasive, routine monitoring of cardiovascular health. Here, we have sought to design a robust MRM-based assay for the simultaneous detection and measurement of a panel of 36 proteins including 19 known and 17 novel protein biomarkers of CVD.

Assays for 26 of the 36 proteins were successfully developed using nanoflow reverse phase C18 chromatographic ChipCube based separation, coupled to a 6460 triple quadrupole mass spectrometer. For initial verification of this 26 candidate protein biomarker panel, the MRM assay was applied, in a sample blinded manner, to a cohort of 500 serum samples from patients with diastolic and systolic heart failure, as well as healthy age-matched controls.

Individually, a number of the biomarker proteins show differential expression between diastolic and systolic heart failure. Combined measurement of all biomarker proteins was found to have greater predictive capacity for heart failure than the current gold standard of B-type natriuretic peptide (BNP) alone. A statistical mode found that the biomarker panel was capable of correctly predicting heart failure in blinded patient samples (50 HF vs 50 non-HF) with 74% sensitivity and 64% specificity.

Investigating CCN3 in Multiple Sclerosis

Michelle Naughton[1], Jill Moffat[1], Kristen Hawkins[2], Nira de la Vega Gallardo[1], Andrew Young[1], John Falconer[1], Andrew Hogan[3], Paul Moynagh[1, 3], Neil Robertson[4], Bruno Gran[5], Rachel Kee[6], Stella Hughes[6], Gavin McDonnell[6], Owain Howell[2], Denise C. Fitzgerald[1]

[1]Wellcome-Wolfson Institute for Experimental Medicine, Queen's University Belfast, Belfast, Northern Ireland, UK.
[2]Institute of Life Sciences, Swansea University Medical School, Swansea, Wales, UK.
[3]Institute of Immunology, Department of Biology, National University of Ireland Maynooth, Maynooth, County Kildare, Ireland.
[4]Welsh Neuroscience Research Tissue Bank, Division of Psychological Medicine and Clinical Neurosciences, University Hospital of Wales, Cardiff, UK.
[5]Clinical Neurology, Division of Clinical Neuroscience, University of Nottingham School of Medicine, Nottingham, UK/Department of Neurology, Nottingham University Hospitals NHS Trust, Nottingham, UK
[6]Belfast Health and Social Care Trust, Belfast, Northern Ireland, UK.

Multiple sclerosis (MS) is an immune-mediated disease that attacks myelin in the central nervous system (CNS). Unfortunately, no therapies exist to promote myelin repair. We recently demonstrated the first evidence of CCN3 production by immune cells and its pro-myelinating properties. This study aims to address whether CCN3 expression is altered in MS using ELISA, western blot and immunohistochemistry.

Plasma CCN3 levels were comparable by ELISA between MS and age-and sex-matched control samples, but were significantly higher in progressive versus relapsing-remitting MS. A significant effect of treatment was observed between patients on natalizumab vs interferon-b. A positive association between BMI and CCN3 plasma levels was observed in controls as reported previously, but this effect was absent in the MS cohort. CCN3 levels in paired plasma and cerebrospinal fluid (CSF) samples were comparable between patients with MS and patients undergoing CSF shunting due to idiopathic intracranial hypertension (IIH). A correlation between plasma and CSF levels was found in MS which was absent in IIH. In addition, distinct isoforms were detected in plasma that were not observed in CSF.

To investigate its expression in MS brain tissue, CCN3 was quantified by immunohistochemistry. CCN3 was detected in neurons, astrocytes and blood vessels. Although levels of CCN3 were comparable between non-affected, demyelinated and remyelinated tissue, the profile of expression was dramatically altered in white and grey matter lesions. This investigation provides the first comprehensive profile of CCN3 expression in MS and provides rationale to determine if CCN3 contributes to the regenerative capacity of the CNS.

Mutiomics approaches to uncover the effects of changing zinc homeostasis in the eye

Eszter Emri[1], Sascha Dammeier[2], Franziska Klose[2], Lajos Csincsik[1], David Simpson[1], Jose Sousa[3], Marius Ueffing[2], Eye-Risk Consortium and Imre Lengyel[1]

1. Centre for Experimental Medicine, Queens University, Belfast, Northern Ireland, United Kingdom. 2. Institute for Ophthalmic Research, Universitaets klinikum Tuebingen, Tubingen, Germany. 3. Advanced Informatics, Faculty of Medicine, Health and Life Sciences, Queens University, Belfast, Northern Ireland, United Kingdom

Cultured retinal pigment epithelial (RPE) cells are widely used to model of age-related macular degeneration (AMD). In AMD, cellular zinc levels decline and it had been shown that zinc supplementation can attenuate the progression to late AMD. Our aim was to identify the regulatory networks affected by zinc supplementation in the RPE cells.

We cultured primary human foetal RPE cells from three individuals on transwell inserts and supplemented with medium containing 125 uM added zinc or left untreated for 4 weeks. Thereafter, apical and basal secretomes and the RPE cells were harvested for downstream analysis.

All cultures were well differentiated, identified by their extensive pigmentation, high transepithelial resistance (TER), tight junctional (ZO-1) staining and accumulation of sub-RPE deposit on electronmicroscope. When cells were treated with zinc apically or basally, a significant increase in TER values were observed in all cases ($p < 0.05$). Using computational approaches to identify regulatory networks, data were analysed. Using machine-learning algorithms, we found that zinc supplementation led to increased entropy values matching the higher phenotypic differentiation of the cells upon zinc treatment. Ingenuity pathway analysis of significant differences (Benjamini-Hochberg false discovery rate < 0.05) revealed several networks associated, including those regulated by ERK1/2 signalling.

These results indicate that long-term zinc supplementation may serve as an ex vivo model to eventually understand the beneficial effects of zinc supplementation in AMD patients.

This work was supported by COST TD 1304 ‘The Network for the Biology of Zinc’ and EYE-RISK European Union’s Horizon 2020 (Grant Agreement No 634479).

Characterization of Rhinovirus-induced airway epithelial cell cytopathogenesis in severe COPD patients

Hong Guo-Parke[1], Aurelie Mousnier[1], Derek Fairley[2], Ultan F. Power[1], Peter Coyle[2], Sinéad Weldon[1], Lee A Borthwick[3], Andrew J Fisher[3], Joe Kidney[4] and Cliff Taggart[1]

Airway Innate Immunity Group, Wellcome Wolfson Institute for Experimental Medicine, School of Medicine, Dentistry & Biomedical Sciences, Queen's University Belfast[1]; Regional Virus Laboratory, The Royal Hospitals, Belfast[2], Institute of Cellular Medicine, Newcastle University, Newcastle[3], Department of Respiratory Medicine, Mater Hospital Belfast, Northern Ireland[4].

COPD is a common chronic lung syndrome affecting 10% of the global population. Human rhinovirus (HRV) infection is a leading cause of acute exacerbations in COPD. However, the relative consequence of HRV interaction with airway epithelial cells in COPD pathogenesis remains largely unknown. To address this, we exploited the effects of HRV infection in well-differentiated primary bronchial epithelial cell cultures derived from severe COPD patients and age-matched healthy volunteers. The cultures were infected with HRV16 (MOI=1). Virus growth kinetics, tropism, cytopathology, cell sloughing, apoptosis, and cytokine/chemokine responses were studied. HRV preferentially infect apical ciliated cells and virus replication peaked between 24-36hpi and declined after 48hpi. Interestingly, COPD cultures show significantly lower virus loads from 48hpi onwards compared with healthy controls. In line with this, the latter showed less apoptotic cell sloughing at corresponding time points compared with COPD cultures. Consistent with the peak in virus titres, a significantly increased cytopathic effect, HRV16 cell surface receptor ICAM-1expression, apical cell sloughing and apoptosis was evidenced in HRV infected cultures compared with control, uninfected cultures. Meanwhile reduced transepithelial electrical resistance (TEER) values indicated that tight junction integrities were compromised in HRV-infected cultures at 24hpi. Protein arrays indicated a strikingly higher level of IL6 in the COPD group compared with healthy controls. Increased production of IL8, IP-10, GROα and GRO proteins were also observed in both groups following infection. Our data provide insights into host factors potentially associated with severe COPD pathogenesis which will be addressed at the molecular level in future studies.

Potential glycoengineered anti-*Burkholderia* vaccines by exploiting the bacterial *O*-glycosylation machinery

Guanbo Wang[1], Lena Glaser[1], Rebecca Ingram[1], Miguel Valvano[1]

[1]Welcome-Wolfson Institute for Experimental Medicine, Queen's university Belfast

Previously, we discovered a protein *O*-glycosylation (*ogc*) cluster conserved in all *Burkholderia* species, which glycosylates proteins with a trisaccharide glycan. Sera from *Burkholderia*-infected patients produce anti-glycan antibodies, suggesting that the *Burkholderia* protein glycosylation pathway can be exploited for potential vaccine development. Here, we successfully produced two prototypes of anti-*Burkholderia* vaccines: a recombinant glycoprotein-based vaccine and an *E. coli* LPS-display vaccine. To generate the former, we constructed a plasmid carrying a chimeric gene encoding three glycosylation sequons fused to the cholera toxin B subunit. The presence of the glycan was observed in recombinant proteins expressed in *B. cenocepacia* parental strain, but not in proteins expressed by the glycosyltransferase-deficient △*pglL* strain, as determined by SDS-PAGE and fluorescent lectin blots. For the development of an *E. coli* LPS-display vaccine, we constructed a plasmid expressing the *ogc* cluster, which was introduced into an *E. coli* strain unable to synthesize *O*-antigen but carrying the *O*-antigen ligase WaaL. Our results show that the LPS of this strain contained an additional moiety consistent with the *B. cenocepacia* trisaccharide glycan, as demonstrated by silver-stained LPS gels and lectin blot. This extra moiety was not detected in a △*waaL* mutant. These results suggest that the plasmid was able to provide the necessary functions for the synthesis and membrane translocation of the lipid-linked trisaccharide, which became a substrate for the WaaL ligase and incorporation into the *E. coli* LPS. Therefore, we demonstrate that the *O*-glycosylation pathway can be manipulated for the construction of potential anti-*Burkholderia* vaccines.

Development of adverse cardiac remodelling in experimental diabetes is regulated by endothelial Nox4 NADPH oxidase

Kevin S Edgar[1], Eleanor Gill[1], Ellen Patterson[1], Ciarán J. Hargey1, David J Grieve[1]

1- Centre for Experimental medicine, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast.

Background: Cardiovascular disease is a major cause of mortality particularly for diabetics who are at increased risk of developing chronic heart failure (CHF) due to impaired function and structural changes that occur due to diabetes. There is increased fibrosis, inflammation and microvascular remodelling in the diabetic heart along with hyperglycaemia induced endothelial dysfunction leading to increased oxidative stress in the coronary endothelium. We used diabetic mice with endothelial specific overexpression of NOX4 to elucidate the influence of NADPH oxidase on the development and progression of heart failure by investigating functional and structural changes associated with diabetic cardiomyopathy.
Methods: Diabetes was induced in NOX4 transgenic (Tg) mice and WT littermate controls by streptozotocin injection. After 6 months of diabetes echocardiography was performed and samples were collected for gene expression and histological analyses.
Results: NOX manipulation had no effect on blood glucose nor HbA1c in control or diabetic animals. Impaired basal diastolic function was observed in Tg control mice, however, following diabetes there was no further dysfunction as seen in WT animals. There was no evidence of systolic dysfunction in any group. CTGF and MMP2 expression were increased in Tg control animals, along with increased eNOS and CD31 expression, indicating basal remodelling in Tg animals.
Conclusion: Our data indicate that modification of endothelial NADPH oxidase expression may be protective in the development of functional abnormalities in a type 1 diabetic model. This suggests that there is potential for targeting endothelial NADPH oxidase activity as a viable therapeutic option in CHF in diabetes.

The role of SARM in the control of immune response driven by *Klebsiella pneumonia* infection

Claudia Feriotti, Jose Bengoechea

Queen's University, Centre for Experimental Medicine, Belfast

Introduction: *Klebsiella pneumonia* is a Gram-negative, capsulated bacteria, which is an important cause of community-acquired and nosocomial pneumonia. *Klebsiella* co-opts cellular functions dedicated to control immune balance to limit the activation of inflammatory responses. SARM (Sterile α-and armadillo-motif containing protein), the fifth identified member of the TIR (Toll-interleukin 1 receptor (1LR)) adaptor family, negatively regulates IRF and NF-kB activation by affecting TLR4 and TLR3 TRIF-dependent signalling. It is currently unclear the role, if any, of SARM in bacterial infections. Here, we aim to dissect the contribution of SARM in *Klebsiella* infections, and, specifically, to investigate whether *Klebsiella* may exploit SARM as part of the pathogen's portfolio immune evasion strategies.

Results: SARM contributed to *Klebsiella* anti-inflammation strategies in macrophages through by increasing AKT phosphorylation (to limit phagosome-lysosome fusion), and preventing the activation of NF-kB (to control inflammatory responses). SARM also negatively regulated type I IFN regulatory factor (IRF3) by decreasing IRF3 phosphorylation. Notably, SARM played a role as inflammasome inhibitor, as observed by increased IL-1β secretion in the supernatants of infected *sarm-/-*. SARM also inhibited ASC oligomerization in *Klebsiella*-infected macrophages as seen by the increased ASC monomers release by *sarm-/-* BMDMs. SARM was also required for pyroptosis following *Klebsiella* infection. Interestingly, *Klebsiella* induced the expression of SARM in a TLR4-TRAM-TRIF-IRF3-IFNAR dependent manner, demonstrating that *Klebsiella* exploits type I IFN to trigger SARM to control inflammasome activation, and the activation of inflammatory responses.

Conclusions: These findings have uncovered how *Klebsiella* manipulates the TLR adaptor SARM to dampen the activation of host defences.

Poster Presentations

Board	Presenting Author	Title
1	Varun Pathak	**Pentraxin 3 modulates the function of myeloid angiogenic cells**
2	Joana Sa Pessoa	***Klebsiella pneumoniae* SEFIR – a new weapon of subversion**
3	Sarah EJ. Chambers	**Vasoreparative Cell Therapies for Ischaemic Retinopathies**
4	Andrew Young	**Th1 cells Promote Oligodendrocyte Differentiation *in vitro***
5	Olivier Touzelet	**The secretome profiling of a pediatric airway epithelium infected with human respiratory syncytial virus (hRSV) identified aberrant apical/basolateral trafficking and novel immune modulating (CXCL6, CXCL16, CSF3) and antiviral (CEACAM1) proteins.**
6	Xenia Kodji	**Elucidating the roles of transient receptor potential ankyrin 1 (TRPA1) and NLRP3 inflammasome in murine models of temporomandibular joint pain and inflammation**
7	Ryan Brown	**Targeting of Cathepsin S Reduces Cystic Fibrosis-like Lung Disease**
8	Amy Dumigan	**Macrophage sabotage*: Klebsiella pneumoniae*, a master manipulator**
9	María Llorián-Salvador	**VEGF-B protects Müller cells from hypoxic- and oxidative stress-mediated damage**
10	Laura Gritti	**Inflammasome: a novel player in myelin repair**

Full abstracts will be available on WWIEM Workplace

Poster Presentations

Board	Presenting Author	Title
11	Judith Lechner	**Compound library screening to identify small molecule activators of miR-X in Endothelial Progenitor Cells**
12	Hong Guo-Parke	**Characterization of Rhinovirus-induced airway epithelial cell cytopathogenesis in severe COPD patients**
13	Peter Barabas	**Blood flow changes in experimental diabetic retinopathy**
14	Lauren Kerrigan	**Gene transcriptional profiles and epigenetic regulation in the development of human heart failure**
15	Johnatas Dutra Silva	**Functional Effects of Mitochondrial Transfer from Mesenchymal Stromal Cell Extracellular Vesicles in Acute Respiratory Distress Syndrome**
16	Elisa Peixoto	**A role for endothelial Pentraxin 3 in the pathogenesis of diabetic retinopathy**
17	Alerie Guzman de la Fuente	**Does remyelination fail due to an immune-mediated depletion of ageing Central Nervous System progenitor cells?**
18	Chunbo Yang	**QKI7 contributes to diabetic endothelial dysfunction through regulation of genes related to cell barrier, angiogenesis and inflammation**
19	Gisli Einarsson	**Baseline microbial community composition in clinically stable CF patients compared to those experiencing episodes of pulmonary exacerbation**
20	Helina Marshall	**Quenching host signalling pathways by translocation of *Klebsiella pneumoniae* type VI secretion systems proteins into the cell**

Full abstracts will be available on WWIEM Workplace

Poster Presentations

Board	Presenting Author	Title
21	Gisli Einarsson	**Comparison of microbial community composition in CF patients with and without CF related diabetes (cfrd)**
22	Angela P Hackett	**Histamine delays killing of *E.coli* and *P.aeruginosa* by human neutrophils and can be reversed by Histamine-4-Receptor antagonist UCB1344778.**
23	Rosana Penalva	**Role of regulatory T cells in remyelination following cuprizone-induced demyelination**
24	Ravi Kiran Deevi	**Elevated cardiac Leucine rich alpha-2-glycoprotein 1 (LRG1) in patients with heart failure**
25	Declan Doherty	**Mesenchymal stem cell therapy reduces inflammation and damage in a model of chronic lung disease**
26	Marie Dittmer	**Molecular signalling pathways underlying regulatory T cell (Treg)-enhanced oligodendrocyte differentiation**
27	Jasenka Guduric-Fuchs	**Characterisation of a stress-induced senescence model in Endothelial Colony Forming Cells**
28	Katherine O'Neill	**Investigation of shortened lung clearance index (LCI) in the Bronch-UK Clinimetrics study.**
29	Anna de Oliveira	**Sendai virus (SeV) as a vaccine vector for Nipah virus (NiV)**

Full abstracts will be available on WWIEM Workplace