

Fuelling the immune response II: UK Immunometabolism Meeting 2022

24 – 25 March 2022
Hilton Newcastle Gateshead, Newcastle

Tuesday 24 May

08:30 Registration and refreshments

09:05 **Opening address**
Immunometabolism Affinity Group Committee

Session 1

Chairs: Linda Sinclair, University of Dundee, UK and Jan Van den Bossche, Amsterdam University, Netherlands

09:15 **Overcoming metabolic barriers to cancer immunity**
Greg Delgoffe, University of Pittsburgh, USA (*Keynote speaker*)

10:00 **Obesity suppresses anti-tumor immunity**
Lydia Dyck, Max Delbruck Center for Molecular Medicine, Germany (*Invited speaker*)

10:30 **Dysregulated nutrient sensing during immune senescence**
Sian Henson, Queen Mary University of London, UK (*Invited speaker*)

11:00 Refreshment break and meet the exhibitors

Session 2

Chairs: Simon Arthur, University of Dundee, UK and Dr Sally Clayton, University of Birmingham, UK

11:30 **FeMACs; iron loaded macrophages in the lung and their role in chronic respiratory disease**
Suzanne Cloonan, Trinity College Dublin, Ireland (*Invited speaker*)

12:00 **Salmonella subverts T cell activation during bacterial cancer therapy by inducing metabolic paralysis**
Kendle Maslowski, University of Birmingham, UK (*Short talk - selected abstract*)

12:15 **Glutamine metabolism is required for optimal IL-17 production by $\gamma\delta$ T cells through maintenance of redox balance**
Stephen Cunningham, Trinity Biomedical Sciences Institute, Ireland (*Short talk - selected abstract*)

12:30 **Metabolic control of macrophages**
Jan Van den Bossche, Amsterdam University, Netherlands (*Invited speaker*)

13:00 Lunch, meet the exhibitors and networking

Session 3: PhD Bright Sparks session – Kindly sponsored by Miltenyi Biotec

Chairs: Cornelia Weyand, Stanford University, USA and Dr David Finlay, Trinity College Dublin, Republic of Ireland

14:00 **A unique temporal requirement for the amino acid glutamine in type 1 conventional dendritic cells**
Simon O'Shaughnessy, Trinity College Dublin, UK (*Short talk - selected abstract*)

14:15 **The influence of co-stimulatory domains on the metabolic regulation of chimeric antigen receptor(CAR) T-cell function**
Katie Flaherty, King's College London, UK (*Short talk - selected abstract*)

14:30 **TNF- α drives naïve CD4+ T cell metabolic reprogramming upon activation**
Emma Bishop, University of Birmingham, UK (*Short talk - selected abstract*)

14:45 **Cellular iron restriction impairs T-cell metabolism and epigenetic regulation**
Megan Teh, University of Oxford, UK (*Short talk - selected abstract*)

15:00 **The source of dietary fat, rather than obesity, influences anti-tumour immunity**
Hannah Prendeville, Trinity College Dublin, UK (*Short talk - selected abstract*)

15:15 **The Metabolic Basis of Postoperative T cell Immune-Suppression**
Johannes Schroth, Queen Mary University of London, UK (*Short talk - selected abstract*)

15:30 Refreshment break and meet the exhibitors

Session 4: PostDocs Bright Sparks session – Kindly sponsored by Miltenyi Biotec

Chairs: Greg Delgoffe, University of Pittsburgh, USA and Sarah Ross, Babraham Institute, UK

16:00 **Carbon source availability drives nutrient utilization in CD8+ T cells**
Irem Kaymak, University of Manchester, UK (*Short talk - selected abstract*)

16:15 **IL-17A drives weight loss and adipose tissue remodelling during chronic *Trypanosoma brucei* infection in a sex-dependent manner**
Matthew Sinton, University of Glasgow, UK (*Short talk - selected abstract*)

16:30 **Single cell analysis of SLC1A5 (ASCT2) activity into T cells using unnatural amino acids with click chemistry handles**
Linda Sinclair, University of Dundee, UK (*Short talk - selected abstract*)

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- 16:45 **The NDUFA4 family of mitochondrial proteins mediate electron transport chain remodeling during inflammation**
Sally Clayton, University of Birmingham, UK (*Short talk - selected abstract*)
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- 17:00 **A glycogen-fuelled metabolic program controls early MAIT cell effector responses**
Fearon Cassidy, Maynooth University, Ireland (*Short talk - selected abstract*)
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- 17:15 **ZFP36 and ZFP36L1 integrate transcriptome and metabolic reprogramming of activated mouse CD4+ T cells**
Louise Matheson, The Babraham Institute, UK (*Short talk - selected abstract*)
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- 17:30 **Immune Cell Metabolic Profiling – the next level with Seahorse technology**
Alex Liversage, Agilent Technologies LDA UK Limited
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- 17:45 Poster sessions with networking reception
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- 19:30 Conference dinner
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Wednesday 25 May

Session 5

Chairs: Nick Jones, Swansea University, UK and Sarah Dimeloe, University of Birmingham, UK

- 09:15 **What's in a name? – glucocorticoids, metabolism and inflammation**
Andy Clark, University of Birmingham, UK (*Invited speaker*)
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- 09:45 **The oncometabolite succinate suppresses T cell anti-tumour function via inhibition of mitochondrial glucose oxidation**
Sarah Dimeloe, University of Birmingham, UK (*Short talk - selected abstract*)
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- 10:00 **Glucagon like peptide-1 analogue therapy restores Natural Killer cell metabolism and cytokine production in people with obesity**
Conor de Barra, Maynooth University, Ireland (*Short talk - selected abstract*)
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- 10:15 **Metabolic stress induces tumour derived microRNA-21 to limit anti-tumour macrophage responses**
Sarah Case, Trinity College Dublin, Ireland (*Short talk - selected abstract*)
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- 10:30 **Immunometabolic signatures in rheumatoid arthritis**
Cornelia Weyand, Stanford University, USA (*Invited speaker*)
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- 11:00 Refreshment break and meet the exhibitors
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Session 6

Chairs: Anna Schurich, King's College London, UK and Lydia Dyck, Max Delbrück Center for Molecular Medicine, Germany

11:30 **Oxygen: integrating metabolism and gene expression to control T-cell mediated immunity**
Sarah Ross, Babraham Institute, UK (*Invited speaker*)

12:00 **Regulation of B cell metabolism downstream of the TLR-like protein CD180**
Simon Arthur, University of Dundee, UK (*Invited speaker*)

12:15 **Allergen exposure induces airway macrophage metabolic reprogramming**
Gesa Albers, Imperial College London, UK (*Short talk - selected abstract*)

12:30 **SLC7a5 amino acid transporter regulates metabolic responses in activated NK cells in vivo**
Chloe Choi, Trinity College Dublin, Ireland (*Short talk - selected abstract*)

12:45 **The NF- κ B–PKM2 axis as a driver of metabolic reprogramming and effector function of TLR stimulated B cells**
Glenn Bantug, University of Basel, Switzerland (*Invited speaker*)

13:15 Presentation of prize winners

13:30 Depart

Poster presentations

P.01 Reprogramming of bone-marrow myelopoiesis by β -glucan can rescue the immune-metabolic impairments induced by high-fat diet

Anna E Ledwith, Trinity College Dublin, Ireland

P.02 Human Mucosal Associated Invariant T cell proliferation is dependent on a MYC-SLC7A5-Glycolysis metabolic axis

Nidhi Kedia-Mehta, Maynooth University, Ireland

P.03 Regulation of Glycolysis and the Pentose Phosphate Pathway in Mtb infected macrophage by the PFK-1 complex

John P McGrath, Trinity College Dublin, Ireland

P.04 Maternal immunometabolism adaptation in monocytes underpins functional changes during pregnancy

April Rees, Swansea University, UK

P.05 Understanding dendritic cell metabolism in the influenza infected mouse lung

Kerrie Elizabeth Hargrave, University of Glasgow, UK

P.06 Increasing the anti-cancer functions of NK-92 NK cells through targeting cellular metabolism

Mona Alharbi, Trinity College Dublin, Ireland & King Saud University, Riyadh, Saudi Arabia

P.07 Mushroom digestion as a model to study gut-immune system cross-talk via Innate Immune Training

Michele O'Sullivan, Trinity College Dublin, Ireland

P.08 IL-4 Trained Macrophages Require OXPHOS to Enhance Protective Responses Against Mycobacteria

Mimmi Lundahl, Trinity College Dublin, Ireland

P.09 Hypoxia suppresses TCR signalling, activation and effector function of CD8⁺ T cells

Fulton-Ward T, University of Birmingham, UK

P.10 Repurposing canagliflozin for the treatment of T-cell mediated autoimmune disorders

Nick Jones, Swansea University, UK

P.11 Regulation of NK Cell Responses by Macrophage-Derived 25-Hydroxycholesterol

Cathal Keane, Trinity College Dublin, Ireland

P.12 Placental macrophages from pregnant women with obesity have impaired function and metabolism

Megan Chambers, Swansea University Medical School, Swansea, Wales, UK

P.13 Rescue effect of previously synergistic drug combination Metformin and Diclofenac in T-Cell acute lymphoblastic Leukaemia cell lines

Emma Stanton, Swansea University Medical School, UK

P.14 Long-chain bioactive ceramide C24 reduces Foxp3+ CD4+ Treg lymphocyte differentiation leading to inflammatory sequelae of obesity

Salih Kucuk, University of Birmingham, UK

P.15 The 'ins and outs' of biological Iron and Plasmacytoid Dendritic Cell (pDC) interferon responses

Carrie Corkish, Trinity College Dublin, Ireland

P.16 Circadian disruption alters the inflammatory response of lung fibroblasts: Implications for respiratory disease

Shannon L. Cox, Royal College of Surgeons in Ireland, Dublin, Ireland

P.17 A tale of two cytokines; circadian and metabolic responses to IL-1 β versus TNF α in chondrocytes and relevance for osteoarthritis

Lauren E. Fagan, Royal College of Surgeons in Ireland, Dublin, Ireland

P.18 Exploring immunomodulatory effects from a metabolic model associated with treatment response in people with rheumatoid arthritis

Cameron Best, University of Glasgow, UK

P.19 Molecular clock synchronization limits inflammasome activation and reduces IL-1 β release in a Bmal1-dependent manner

James R. O'Siorain, Royal College of Surgeons in Ireland, Dublin, Ireland

P.20 Recognition of a yeast beta-glucan particle by Dectin-1 triggers immunometabolic signalling required for immune training

Frederick J Sheedy, Trinity College, Dublin 2, Ireland

P.21 Exposure to glioma cells-conditioned media activates Nrf2 in mouse and human macrophages

Jialin Feng, University of Dundee, UK

P.22 RIG-I induced reactive oxygen species drive metabolic changes that modulate the antiviral immune response in human hepatocytes

Vasile Mihai Sularea, Trinity College Dublin, Ireland

P.23 Obesity limits dendritic cell production of type 1 interferon

Andrea Woodcock, Maynooth University, Kildare, Ireland

P.24 Stunted Glycolysis prevents NET formation in neonatal neutrophils

S. R. Holm, Swansea University, UK

P.25 The Role of Germinal Centre Hypoxia and Metabolic Regulation in an Active T Follicular Helper Cell Response

Jack Jones, University of Glasgow, UK

P.26 People living with T2D have a dysfunctional immunometabolic profile defined by an increased number of senescent T-cells

Conor Garrod-Ketchley, Queen Mary University of London

P.27 Targeting cholesterol metabolism as a novel immune checkpoint in viral infections and cancer

Nathalie M Schmidt, University College London, UK

P.28 Metformin restores immune and metabolic dysregulation in the inflammatory skin disease hidradenitis suppurativa

Andreea Petrasca, Trinity College Dublin, Ireland

P.29 Quantification of Germinal Centre Hypoxia Offers Insight into their Altered Immunometabolism during Disease States

Jen McCavitt, University of Glasgow, UK

P.30 The effects of AMPK modulation on neutrophil ROS and NET production in bronchiectasis

Yan Hui Giam, University of Dundee, UK

P.31 Lung stem cells upregulate lipid transport metabolism during early IAV infection

Patrick Shearer, University of Glasgow, UK

P.32 IL-4 induces changes in Cholesterol Biosynthesis in pleural and peritoneal cavity macrophages

Sheila Macharia, Lancaster University, UK

P.33 Differential exosome profiles impact on T cell metabolism following COVID-19 infection

Molly George, King's College London, UK

P.34 Inflammation induced innate antibodies recognising OxPLs may regulate macrophage metabolism within the pleural cavity

Sheila Macharia, Lancaster University, UK

P.35 The V141L variant in IFNAR1 alters the whole blood immunometabolic response to stimulation and is associated with resistance to viral infection in humans

Jamie Sugrue, Trinity College Dublin, Ireland

P.36 A Novel Method to Profile T Cell Metabolism

Jessica Walls and Natalia Romero, Agilent Technologies LDA UK Limited

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Meet the “Immunometabolism Affinity Group” Committee

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