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Director’s Update

It has been a busy few months for the Lydia Becker Institute with a lot of overlapping funding bids reaching fruition. A lot of hard work went into the Wellcome Trust four year PhD programme bid that was successful (£5.4M). We have now recruited our first cohort of 7 students that were selected from a pool of very impressive individuals. We are collating their biographies and mug shots, which we will forward to you once complete. This represents a strong collaboration between The Wellcome Trust Centre for Cell Matrix Research, MCRC and the Becker and incorporates many academic clinical colleagues. This represents a major achievement for The Becker and is evidence of our growing recognition as a centre of excellence.

We also celebrated Jo Konkel’s award of the Lister Prize with her delivery of a fantastic seminar followed by lunch at the Ivy. The Lister representatives commented on the fact that the Becker Fellows have won this for the last two years, with Matt Hepworth successful last year. They added that they are looking forward to returning next year! No pressure there for our current fellows!

It is with sadness that we learnt of the death of Professor Enzo Cerundolo, Director of the MRC Human Immunology Unit at the University of Oxford. Many of us knew and collaborated with Enzo who was a fantastic, yet humble, scientist. Our thoughts are with his colleagues and family.

Finally, in this time of Coronavirus frenzy I wish you lots of toilet rolls, plenty of pasta and good health.

Tracy Hussell.

Welcome

Welcome to Lisa O’Neill who has officially joined us as the MCCIR and Lydia Becker Institute Administrator. Lisa can (usually) be found in office 2.19 CTF, Tuesday to Friday between 10 am and 4 pm. Lisa is currently contactable via email at lisa.oneill@manchester.ac.uk

Welcome to Dr Madhvi Menon who has been awarded a Presidential Prize Fellowship and has joined us in January 2020. She will be based in the CTF building. Madhvi received her PhD in Immunology from UCL, London, investigating mechanisms of B cell dysfunction in patients with systemic lupus erythematosus, advised by Claudia Mauri. She later trained as a postdoc in the lab studying the role of gut barrier dysfunction in arthritis pathology. Following this, Madhvi trained as a postdoc with Vijay Kuchroo and Brian Hafler at Harvard Medical School and Brigham and Women’s Hospital, Boston, investigating inflammatory pathways driving age-related macular degeneration, one of the leading causes of blindness in the elderly. Her work here will focus on B cells which have been identified as key players in the pathogenesis of chronic inflammatory disorders. Despite this, very little is known about the precise mechanisms driving the development of “pathogenic” B cells that promote inflammation. Her research is aimed at understanding how hormones modulate B cell function and disease outcomes, with a focus on type-I interferon-mediated autoimmune diseases.
Bill Ford Friday (BFF) Forum

In honour of Professor Ford the Bill Ford Chair of Cellular Immunology was created at the University, which was recently held by Professor Werner Muller prior to his retirement and is currently held by Professor Richard Grencis. Bill Ford started the first immunology seminar series in Manchester, and these were held on Fridays – so it is only fitting that the new forum for scientific discussions on anything immunological is named after him – the Bill Ford Friday (BFF) forum.

Discussions have ranged from what are the next emerging fields in immunology, to BioRXive and whether data should be pre-published, to what is the current funding/recruiting model for PhD students the right models, global health opportunities in Manchester and of course COVID19. Each discussion is led by an academic in an informal and relaxed atmosphere over a cup of coffee or on the odd occasion, a beer or two.

Do come and join us at 4pm on Fridays in the atrium area of the AV Hill Building to discuss science, meet your colleagues, and spark some new collaborations. If anyone would like to start a scientific discussion/debate, get feedback on an idea, ask fellow academics what they are thinking about a particular topic please contact Fiona Foster, we still have ‘lead’ slots available!

For the foreseeable future BFF will be taking place via Zoom – if you would like to join in please contact Fiona or Lisa who can send you the meeting link.

Inflammatory Remarks Seminar

For our first British Society of Immunology (BSI) and Lydia Becker Institute of Immunology and Inflammation-sponsored Inflammatory Remarks seminar of the academic year, we welcomed Henrique Veiga-Fernandes from the Champalimaud Institute in Lisbon. Henrique is a pioneer in dissecting neuro-immune crosstalk in the gastrointestinal tract and presented an overview of his labs work over the past 5 years. In particular, he described how subsets of innate lymphoid cells (ILCs) present within the gastrointestinal tract form distinct functional units with enteric glia and neurons. Signals derived from the enteric nervous system act via their receptors on ILCs to modulate their function and induce protective effector immune responses against a wide range of intestinal infections. The work in Dr. Veiga-Fernandes lab has shed light on the complex crosstalk between the nervous system and the immune system and has the potential to open up new therapeutic avenues for a wide range of infectious and chronic inflammatory diseases.

Our next Inflammatory remarks speaker was due to be Sarah Gaffen from the University of Pittsburgh on the 9th of April, however due to the Coronavirus situation, this will need to be rescheduled.
Congratulations to Prof Lesley Rhodes who was awarded the prestigious Edna Rose Lecturer Award by the International Union of Photobiology and gave her lecture at the Congress of Photobiology in Barcelona in August 2019.

Congratulations to Dr Simon Clark who was awarded a Helmut Ecker Endowed Professorship in AMD at the Institute of Ophthalmic Research, University of Tübingen, Germany.

Congratulations to Prof Tim Illidge on receiving the Royal College of Radiologist’s Skeggs Medal.

Congratulations to Jorgen Vestbo and Judi Allen who were both recognised as ‘highly cited researchers’ in 2019 by the Web of Science.

Congratulations to Rita Domingues in the Hepworth lab who has been awarded an EMBO long-term fellowship and to Peter Cook and Douglas Dyer who were both awarded a Wellcome Trust Sir Henry Dale Fellowship.

Congratulations to Dr Tovah Shaw who won PDRA of the year at the 2019 Division of Infection, Immunity and respiratory Medicine (DIIRM) Expo in November 2019 for her determination and hard work which has led to her acquiring a highly competitive fellowship. She was one of the first PDRAs outside the Else labs to volunteer for the isle of May project and brought in valuable ideas. Tovah was awarded £500 towards a conference/research.

Congratulations also to Susanne Dechantsreiter, Ines Diaz Del Olmo, Alexandros Karampatzakis, Sarah Harbach and Lucy Buckingham who as a group of PhD students organised the Singing for Lung Health interactive event which ran for 3 days at Blue Dot this year. They received £50 vouchers at the DIIRM Expo. Congratulations also to the Grainger Kitchen Angels who won £50 vouchers and to Saba Khan on winning a Faculty Award for H&S incident management, both at the DIIRM expo.

Congratulations to Karen Garcia Rodriguez from the Bulfone Paus lab who won the 1st prize in the 2019 Venture Out competition, in the business category. The competition was run by the Masood enterprise centre at the Alliance Manchester Business School at the University and the competition was about proposing innovative ideas. Karen proposed an idea to tackle the recent increase in depression, stress and many other mental disorders amongst employees. The award ceremony was on the 3rd of December 2019.

Congratulations to Madeline Hurry who won best poster prize and Flora McClure, Sayema Khan, Liam Felton who won runners up poster prize at the SBS annual event in January 2020.

Congratulations to Dr Lizzie Mann who won best talk prize at the Fertility 2020 conference in Edinburgh 8 -11th January 2020 for her talk on Dynamic properties of endometrial macrophages regulate tissue homeostasis in the uterus.

Congratulations to our new fellows on their Inaugural Fellowship lectures. Dr Tovah Shaw (BBSRC Discovery Fellow) talked on ‘Gut macrophage heterogeneity and dietary interactions in intestinal health’ and Dr Douglas Dyer (Presidential Fellow / Wellcome Trust Sir Henry Dale Fellow) talked on ‘Extracellular matrix as a mediator of the immune system; chemokines and glycosaminoglycans collaboratively regulate leukocyte recruitment’.
Congratulations to Rossana Azzoni from the Grainger lab who was awarded a BioLegend UK Travel Award to attend a Keystone conference.

Congratulations to Karoliina Tuomela from the Davis lab who won silver at STEM for Britain! It was lots of fun and a great experience. Unfortunately a lot of MPs were slightly more concerned by other things happening in the country so couldn’t make it, so she didn’t get to meet the MP for Manchester. Karoliina is pictured on the right in the photo.

Congratulations - PhDs

Congratulations to Max Wilkinson has been awarded a PhD for a project carried out with Dr Stephen Fowler entitled “Sampling and Analytical Considerations for the Detection of Volatile Organic Compounds in Breath”. He will continue to work with Dr Fowler as a PDRA and is aiming to find volatile organic compounds that help to diagnose asthma and TB.

Congratulations to Hadeer Mattar for passing her PhD viva on the 6th of December 2019. Funded by her home government, Saudi Arabia, Hadeers thesis is entitled “The impact of baked food matrices on bio-accessibility, digestibility and allergenicity of food allergens”. She spent the three years working in Manchester at the MIB supervised by Professor Clare Mills.

Congratulations to Adefunke Ogunkanbi passed her PhD viva with an A (ii); Evaluation of Intestinal Helminth Modulation of Host Immune Responses. External examiner, Professor Maggie Harnett, University of Glasgow; Internal Professor Kathryn Else. Adefunke is going on to start a postdoc with Dr Henry McSorley, University of Dundee.

Stefano Colombo who also passed his PhD viva on “Characterising Trickle Infection and Polyparasitism of Gastrointestinal Helminths”. His external was Professor Eileen Devaney from the University of Glasgow and his internal was Professor David Thornton.

Congratulations to James O’Sullivan who was a joint PhD student with joint with Kathryn Else, Sheena Cruickshank and Phil Withers (materials science) on passing his PhD viva on investigating diseases of public health interest using X-ray micro-computed tomography.

Congratulations also to Muna Al-Hubail who also passed their PhD viva on “Probiotics as Novel Anti-infective Agents for Skin”. Muna was supervised by Sheena Cruickshank, Andrew McBain and Cath O’Neil.

Invited Seminars

In July 2019 Professor Sheena Cruickshank gave research talks about her microbiome and Biomarker work at the neonate unit in St Marys Hospital, a clinical scientist conference in Birmingham and The Bizzard Institute in London. Sheena also gave an invited seminar on her research entitled “host microbiome interaction and biomarker” at the North Western Gastroenterology conference in July in Macclesfield.

Dr Hannah Durrington gave an invited talk at Glenfield Hospital, Leicester on the ‘Circadian Biology of Asthma’.

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Dr Gloria Lopez-Castejon gave a Seminar at the Kennedy Institute of Rheumatology on the 9th of September on “How do macrophages respond to danger?”

Prof Andrew MacDonald gave a talk at the Parasitic Helminths - New Perspectives in Biology and Infection conference, 1-6 Sep, in Hydra, Greece, about environmental control of macrophage activation. He was also an invited speaker at the 33rd Annual European Macrophage and Dendritic Cell Society conference, 12-14 Sep, in Marseille, France, about dendritic cells in orchestration of Type-2 inflammation.

Prof Mark Travis and Dr Lizzie Mann both spoke at the London Immunology Group 'Barrier Immunity' meeting on 18th September. Mark spoke about ‘Regulation of barrier immunity by integrins and TGF-beta’.

Prof Mark Travis spoke at the Instituto de Medicina Molecular, Lisbon, 19th September, on 'Regulation of mucosal immunity by integrins and TGF-beta'.

Prof Andrew MacDonald was also an external examiner for the PhD defence of Matthias Vanderkerken at the VIB Centre for Inflammation Research, 16th Sep, in Ghent, Belgium.

Prof Dan Davis presented his lab’s work at the joint IIS-ISCR Special Conference - The Cutting Edge of Immunology, Cancer and Immuno-oncology Research in Tel Aviv, Israel 23rd -25th September on Using Super-Resolution Microscopy to Watch Immune Cells Kill.

Nikolaos Papadopoulos was an invited speaker at the European Research and Innovation Days in Brussels 24th -26th September, a high profile event of the European Commission, presenting the Horizon2020 project CURE, of which Manchester is a key partner.

Prof Daniel Davis and Prof Tracy Hussell both presented at the ‘from lab to clinic: generating new therapeutic targets for unmet needs’ meeting 3rd – 6th October 2019 in Oxford.

PhD student Karoliina Tuomela from the Davis Lab presented her work at The 18th Meeting of the Society for Natural Immunity (SNI) in Luxembourg.

Prof Jorgen Vestbo as the Chair of the Advocacy Council of the European Respiratory Society presented the Society’s position on vaping at our annual congress in Madrid on 30 September. It took place at a lunchtime symposium with 2500 attendees and 500 members in an overflow area and his subsequent tweet became the most commented tweet at congress with over 14,000 views.

Judi Allen presented at the EMBO Members meeting - Heidelberg, Germany 29-31 October –“ Learning from helminths: macrophages in type 2 immunity”

Sheena Cruickshank gave research talks at The Moredun Institute in Edinburgh and the UoE Centre for Inflammation Research in November.

Judi Allen presented at Princeton University, New Jersey, USA - 14th November – ‘Learning from Helminths: Macrophages, Type 2 immunity & Tissue Repair’ and Rutgers University, New Jersey, USA - 15th November – ‘Macrophage dynamics and tissue repair in helminth infection’.

Prof Tracy Hussell was invited to be part of the international Scientific Advisory board for the Vlaams Instituut voor Biotechnologie (VIB) in Ghent and Belgium on the 19th – 21st November. While there she talked about the Lydia Becker Institute and her latest research.

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@LydiaBeckerill
Adefunke Ogunkanbi from the Else lab gave an oral presentation titled: Immune-modulatory strategies by mouse-infective whipworm, Trichuris muris at the Helminth conference which took place in South Africa in December, 2019. To be able to attend this conference, they was awarded the Bill and Melinda Gates Foundation, Global Health Travel award by the Keystone symposia.

Prof Mark Travis gave a talk at CNIC in Madrid on 10th January, hosted by David Sancho, entitled 'Regulation of Barrier Immune Responses by integrins and TGF-beta'.


Prof Richard Grencis gave presentations on immunity to helminths of the recent Immuno2020 course at CERMEL (Centre de Recherches Médicale de Lambaréné) in Gabon. Immuno 2020 is part of a Wellcome Trust funded capacity building program run through The Makarere/UVRI Infection and Immunology Research training Programme in Entebbe, Uganda.

Prof Mark Travis presented at Next Gen Immunology 2020, at the Weizmann Institute of Science (2-5 Feb) - ‘Regulation of memory T cells by integrins and TGF-beta’.

Prof Andrew MacDonald was invited by the Australian and New Zealand Society for Immunology (ASI) to undertake a tour of Australia and New Zealand to talk about his work on ‘Dendritic cells and macrophages in promotion and regulation of pulmonary type 2 inflammation’. The tour included stops at: Brisbane - Queensland Institute for Medical Research (hosted by Chris Engwerda) and the Translational Research Institute (hosted by Sumaira Hasnain), Cairns - James Cook University (hosted by Alex Loukas), Melbourne - the Peter Doherty Institute (hosted by Lynette Beattie) and Monash University (hosted by Nicola Harris and Jess Borger) and Wellington - The Malaghan Institute (hosted by Franca Ronchese and Graham Le Gros).
Lister Prize Success

On the 4th of February Dr Joanne Konkel gave her Lister prize fellow 2019 lecture on ‘Tissue-specific control of immune responses in the oral mucosa’. In the audience were a number of esteemed colleagues and distinguished guests including Professor Graham Lord, Professor Elaine Bignell, Professor Tracy Hussell, Sir Alex Markham (Chair of the Governing Body Lister Institute) and Dr Sally Burtles (Lister Institute Director). The day was concluded with a celebratory lunch at the Ivy Restaurant in Manchester.

The Lister Prize is a competitive research prize aimed at giving young scientists the opportunity to develop their careers with a flexible 5 year funding award of £250K. Up to 6 awards are made each year and Manchester has had 2 consecutive years of winners, with Dr Matt Hepworth winning an award in 2018. Sir Alex Markham encouraged more applications from Manchester, as they would like to be back again in 2020 and continue to see Manchester go from strength to strength.

BSI Congress 2-5th December Liverpool U.K.

Manchester was well represented at the BSI in Liverpool this year. Matt Hepworth chaired the double mucosal immunology session, in which several Manchester speakers alongside notable speakers such as David Artis.

Posters:

Allen lab: Alistair Chenery, James Parkinson
Bignell lab: Paula Muehlschlegel
Brough Lab: Shi Yu, Victor Tapia Olivares, Tessa Swanton, Lucy Morris, Bali Lee
Couper lab: Michael Haley
Davis Lab: Susanne Dechantsreiter
Travis Lab: Sezin Gunaltay-Schenk, Abdulelah Aljuaid, Stefano Rossi and Josh Dow.
Hepworth Lab: Maddy Hurry, Suzie Hodge and Hugo Penny
Hussell Lab: Halima Ali Shuwa, Sarah Harbach, Miriam Franklin, Oliver Brand, Sylvia Lui, Christine Chew, David Morgan
Gibbs Lab: Kathryn Gray
MacDonald Lab: Rebecca Dookie, Helen Parker, Alice Costain, Amanda Ridley, Alicia Galdon, Emma Houlder
Grainger Lab: Kara Filbey, Rufus Daw, Rossana Azzoni, Ian Prise, Verena Kaestele, Ruth Stephens, Thomas Williams
Saunders lab: Lucy Buckingham
Konkel Lab: Kelly Wemyss, Siddharth Krishnan, Flora McClure
Mann Lab: Ryan James Hodgetts
Lopez-Castejon Lab: Anna Gritsenko
Bright Sparks:
Josh Casulli, Rita Domingues, Shafqat Jaigirdar and Nick Scott presented in the Bright Sparks post-doc session and Josh received second prize. Alicia Galdon presented in the Bright Sparks PhD session and won third prize!

Talks (by session):
**Monocyte and macrophage regulation of immune homoeostasis and inflammation:**
Long-range instruction of monocyte function during infection and injury - John Grainger
Investigating the metabolic profile of hyper-responsive intestinal macrophages induced by antibiotic-disruption of the gut microbiome - Nicholas Scott

**Imaging Leukocyte dynamics:**
Single-cell transcriptional regulation of macrophage activation: STAT1 / STAT6 signalling dynamics - Eirini Kalliara

**Inflammation of mucosal barriers:**
Loss of integrin αvβ8-mediated TGFβ activation by CD4+ effector memory T cells enhances immunity and pathogen clearance to pulmonary viral infection - Craig McEntee
Tissue-specific control of immune responses in the oral mucosa - Joanne Konkel
IL-17A: An important regulator of type 2 immune responses during pulmonary nematode infection - Jesuthas Ajendra

**Translational immunology – highlighting academic research in partnership with industry:**
Examining the long-range immunologic consequences of lung inflammation - John Grainger

**Inhibitory immune receptors and new immunotherapies:**
Therapeutically targeting pulmonary regulatory pathways during respiratory bacterial infections - Joshua Casulli
Manipulating inflammation to raise cancer immunogenicity - Santiago Zelenay

**New developments in neuroimmunology:**
Impact of ischemic stroke on the marginal zone like B cell population - Mehwish Younas

**Emerging functions of non-classical lymphocytes:**
Light-entrained and brain-tuned circadian circuits regulate ILC3 and gut homeostasis - Rita Domingues
CD200R1 is critical for the development of IL-17-producing γδ T cells - Shafqat Ahrar Jaigirdar
Innate lymphoid cells in the regulation of gastrointestinal health - Matthew Hepworth

**Network interactions: Bringing together immunology and neuroscience:**
Lung macrophages exhibit a specific anti-microbial immune response via a neurotrophic factor - Emma Connolly.

**Immune cell metabolic pathways as targets in disease:**
Metabolism and whipworm infection: mTOR and Slc7a5 influence resistance to the intestinal dwelling nematode - Maria Z Krauss

Leukocyte trafficking during infection, inflammation and cancer
Extracellular matrix components directly facilitate chemokine (CXCL4/PF4) mediated leukocyte recruitment, independent of chemokine receptors - Douglas Dyer

**Manchester-Weizmann Institute Symposium**
As part of the Get Connected partnership between the University and the Weizmann Institute of Science, Dr Mark Travis and Anna Fildes from Manchester and Steffen Jung from the Weizmann hosted the Manchester-Weizmann
Institute Symposium from the 26th-28th of November in Manchester. The symposium entitled New Frontiers in Cell Biology and Immunology involved a series of talks from immunology researchers at Manchester and the Weizmann which helped identify new discoveries in immunology and cell biology and how they relate to each other. There was great synergy in the work presented by all of the scientists which will hopefully lead to further collaborative research programmes.

The MCCIR was represented with talks by: Dr Mark Travis, Dr Gloria Lopez-Castejon, Dr Amy Saunders, Dr Lizzie Mann, Dr Joanne Konkel, Dr John Grainger, Prof. Andrew MacDonald, Prof Tracy Hussell, Prof Dan Davis, Dr Tara Sutherland, Dr Matt Hepworth, and Dr Peter Cook.
PhD Symposium
The Lydia Becker Institute is hosting its first PhD symposium – organised by some of very own postdocs! Please see the poster below for more details and encourage your students to take part.

Inaugural PhD Symposium
Friday 10th July, 2020
Michael Smith Building

Save the date!

Keynote talks
Flashtalks
Prizes
Food
Workshops
Posters

An excellent opportunity for all PhD students in the Lydia Becker Institute to present their work and engage in interactive workshops. All are welcome. Further details to follow.

Contact: alistair.chenery@manchester.ac.uk
Grants

Since inception PIs in the Lydia Becker Institute have been awarded over £54M

Publications

Since the institute started, 73 papers have already listed the institute as an affiliation.

Below are the papers published since our last newsletter.

July 2019


August 2019


Sep-19


Oct-19


Lopez-Castejon G. Control of the inflammasome by the ubiquitin system FEBS J. 2019 Nov 2. doi: 10.1111/febs.15118. [Epub ahead of print]

Nov-19


Dec-19


Jan-20

Feb-20


Mar 20


Pure

Pure automatically pulls through any papers to your research explorer page. However your papers will not pull through to the Lydia Becker Institute Research Explorer page unless the Institute is listed as your main affiliation. If it is not your main affiliation in Pure, you will need to manually edit the metadata for each paper and add the Lydia Becker Institute as an organisational unit. It is important to have all relevant papers pull through to the Institute research explorer so that we can generate metrics on publications for the Institute. Instructions on how to do this are below.

Affiliating your Pure records to your Institute

If you work as part of one of the University Institutes, you may wish to affiliate relevant records in Pure to that Institute. Records you could affiliate could include publications, activities or datasets for example.
By affiliating records to your Institute, you help to populate your Institute’s page on the Research Explorer portal, which gives an overview of all activities in the Institute.

The steps below illustrate how to affiliate a publication record to your Institute, but the same steps apply to any type of record in Pure.

To affiliate a record -

- Open any record in Pure you are named on to edit it.
- Where you are named on the record, click ‘edit’.
- Under the section entitled ‘Affiliation on the research output’ click the box labelled ‘Lydia Becker Institute of Immunology and Inflammation’
- Click the ‘update’ button.
- When the editor window closes, click the ‘save’ button.

If you do not see the option for your Institute please contact your Institute Manager.

Public Outreach and Patient Engagement

PPIE Opportunity

The National Aspergillosis Centre based at Wythenshawe Hospital holds monthly patient meetings and are looking for volunteers to come and talk at one of these meetings (dates available from June 2020).

The patient meetings take place on the first Friday of every month at Wythenshawe Hospital, in the North West Lung Centre.

Speakers are required to arrive for 12.30 for a 1pm start time for their talk (20 -30 min talk followed by questions). They usually have around 10 people in the room, a very well informed group who ask lots of questions. The talks are broadcast live on Facebook and they record the meeting too. They usually get a total audience of 300-500 in the 2-3 days following the meeting.

Talks can be about any topic that might be of interest to people living with chronic aspergillosis. Many of our patients have comorbidities including COPD, asthma, bronchiectasis, cystic fibrosis. The talks do not have to be specifically about aspergillosis. Topics with an immunology theme would be very welcome.

If you are interested in taking part please let Fiona know and she will co-ordinate with Helen Findon who runs these events. This is a great opportunity to get involved in some real PPIE.
Working with Public Contributors

July 2019 – Professor Sheena Cruickshank was invited to give a public lecture on her microbiome research at the Ratio event in Bulgaria. She also gave a public lecture on her research in the microbiome to the U3A. Sheena attended a parliamentary event as part of evidence week with Policy@manchester where she shared her work on allergies, asthma and air pollution in the citizen science project Britain Breathing.

Oct 2019 - Professor Sheena Cruickshank gave a talk on her public engagement work as part of the Science in Public (SiP) Meeting at MMU. She also gave public engagement training workshops as part of SiP and then at the STFC conference “Interact” held at UCLan.

Nov 2019 - Professor Sheena Cruickshank hosted a visit from Tony Lloyd MP who came to visit the lab and find out more about Britain Breathing and the research they are doing with the Manchester Urban Observatory, Manchester Environmental research Institute and the EPSRC Aerosol Science CDT.

Professor Dan Davis and Professor Sheena Cruickshank presented at ‘Nine Lessons and Carols for the Curious’ at Lowry Theatre with Robin Ince and Matthew Cobb. The event was presented by The Cosmic Shambles Network.

Research Uncovered

Kara, Flora, Ruth and Tom from the Grainger lab hosted a research station at the Research Uncovered night at the Manchester Museum on Friday 27th September. They presented activities to challenge people’s knowledge of germs and in particular, those causing lung inflammation. The lung function challenge and Playdoh modelling of germs were popular with both adults and children, and the team really enjoyed chatting with the public about their work on immunity and infection.

Rebecca Dookie from the MacDonald Lab joined the 2D Health group and the graphene CDT group to talk about graphene and its applications. In particular, they talked about its biomedical applications and how our research is looking into the use of graphene in a cancer immunotherapy. They had a T cell game in which the person had to try and throw their ‘graphene therapy’ (little fluffy balls) at the T cell and get it into the target holes.

In the Press

Prof Dan Davis, was quoted in The Times. Prof Davis commented on research from Japan which investigated why supercentenarians – people over the age of 100 – tend to have good health up until their death. It has been linked to unusually high levels of an immune cell, though Prof Davis cautions that this may be a result of, rather than a cause of, longevity. Professor Dan Davis also spoke about ‘The immune therapy revolution’ at New Scientist Live 2019.

In September 2019 there was a renewed focus on tackling inflammation in The Telegraph, chronic inflammation has been linked to obesity, depression and cancer. “Inflammation is the way your body tries to defend itself against danger” said Dan Davis, Professor of immunology at the University.
Also in September 2019 Dr Elizabeth Mann was in The Guardian, talking about how reducing stress is vital to maintain a healthy digestive system - she says "the gut is full of nerves, and during times of stress, they release neurotransmitters that can generate inflammation".

Dr Phil Crosbie was featured with his wife on the front cover of the UoM magazine (plus article) which described them as a 'power couple' tackling cancer.

In January of this year Prof Chris Griffiths was on BBC Two’s “Trust me, I’m a Doctor” on Wednesday evening [15:40]. Prof Griffiths spoke about a treatment his team has developed to help treat the causes of psoriasis, a painful skin disease caused by a faulty immune response.

Also in January 2020 Prof Daniel Davies was quoted in articles on the recent discovery at Cardiff University, that a component of our immune system could be used to fight all kinds of cancer. Prof Davies, who cautiously welcomed the discovery, was quoted in Newsweek, BBC, Telegraph and I****ing Love Science. Prof Davis also discussed a new cancer project on TV: This Morning and ITV news. This news was also featured around the world, e.g. Australia.

In February 2020 it was reported that scientists investigating age-related macular degeneration (AMD); a degenerative eye disease, have found a link to a protein factor which has significantly higher levels in AMD patients. Prof Simon Clark, who helped lead the research with colleagues from the UK and the Netherlands, said the discovery might lead to potential therapies to help treat the disease. BBC Radio 4 [07:10] continued to cover the recent discovery of a protein linked to age-related macular degeneration (AMD), one of the leading causes of blindness. Prof Paul Bishop led a team at the University, which found a build-up of protein FHR4 was a sign of AMD before symptoms appear, providing a potential therapeutic target to treat the condition.

Prof Jacky Smith was interviewed on the BBC World Service’s Health Check programme [19:30] in February 2020. Prof Smith spoke about her recent research into a treatment for chronic coughs, which affect around 10% of the population, and can last for years. Prof Smith runs a cough clinic, where a new drug was trialled which has been found to significantly improve the condition. This research was also mentioned by BBC News, the Telegraph, and the Daily Mail, as well as the University’s Newsroom.

In March 2020 Yahoo News reported that taking multiple courses of antibiotics within a short span of time may do people more harm than good, according to new research which discovered an association between the number of prescriptions for antibiotics and a higher risk of hospital admissions. "We don't know why this is, but overuse of antibiotics might kill the good bacteria in the gut and make us more susceptible to infections, for example," said Professor Tjeerd van Staa from The University of Manchester.

Also in March Prof Sheena Cruickshank, a lecturer and research in immunology at the University, was interviewed for a piece from the Guardian on ways to boost your immune system (republished via Yahoo News).
Among her recommendations were; eating high-fibre, varied diets to boost your gut microbiome; avoid over washing with strong soaps which can affect your skin bacteria; and avoid drinking heavily, which can deplete your immune system.

Coronavirus in the press
In March 2020 Dr Tom Blanchard was interviewed on BBC Radio Manchester yesterday morning [00:20]. Dr Blanchard, an expert in infectious diseases, noted that the coronavirus will likely cause a “significant outbreak”, but it is important to remember many people will not come to harm from it. Those at risk are the elderly, and those with pre-existing medical conditions. Dr Tom Blanchard, also joined BBC Radio 5 Live [starting 08:00] to answer questions from members of the public on the ongoing Covid-19 outbreak, explaining the government’s response and what measures it may take in the future.

Professor of immunology Sheena Cruikshank is quoted in an article from The Scientist Online. A small study of macaques has found they do not develop coronavirus infection after being exposed for a second time, which has led to hopes that plasma from recovered patients could be used to treat the COVID-19 disease outbreak. However, Prof Cruikshank points out that the study is too short in duration to say with certainty that the results are due to an initial antibody response to the virus, or proof of long-lasting immune memory.

Teaching in the Becker
Dr Joanne Pennock was recently awarded the Immunology Teaching Excellence Award for 2019 by the British Society for Immunology (BSI).

Dr Pennock has been teaching immunology for over ten years and has set up two postgraduate immunology programmes: the Clinical Immunology pathway for the NHS Scientist Training Programme and the Clinical Immunology MSc. Dr Pennock also conducts research into host-pathogen interactions, currently supervising three PhD students and one postdoc. Colleagues at Manchester praised Joanne for her encouragement and support when it came to teaching.

For the full announcement please see here

Upcoming events
Please note that in the current situation we are not sure if these events are going ahead or will be done remotely. Please contact Anu Suokas (anu.suokas@manchester.ac.uk) for further information.

- Cell and Gene Therapy Catapult (CGTC) event in Dalton Room, Core Technology Facility, Thursday 2nd April 2020, 9.30 – 4pm: FBMH Dean Prof Graham Lord will open this event in which the CGTC will showcase their expertise, investigators can pitch their study ideas in a safe and confidential environment, and 121 sessions can be booked with experts in CGTs. Further details to follow and the registration/121 bookings will open soon. The event is sponsored by the UoM/MRC Confidence in Concept scheme and the programme is prepared together with the CGTC, Manchester Cancer Research Centre and iMATCH. We will be contacting
you soon to offer elevator pitch talk slots and 121 sessions. The event is targeted at all UoM based/affiliated investigators working in CGT field.

- The UoM MRC funded Confidence in Concept pump-priming scheme for early translational proof-of-concept studies is forecasted to open in late March with a deadline for Expressions of Interest on 1st May 2020. Please note that we are waiting for the MRC funding decision on the scheme renewal, but this is our 7th renewal and we are hoping to receive a positive funding decision. The advertising for the forecasted call will commence this week.
- The CiC application process will include a short Target Product Profile (TPP) form and we are asking investigators to describe the end product (clinic and/or market; can be commercial or not-for-profit) and the required development pathway within and beyond a CiC funded PoC study. The 2nd April CGTC event, which is open to all investigators, will provide TPP advice. In addition, the CiC scheme will organise additional TPP workshops for CiC applicants to receive advice from experienced translational industry experts. Full details to be released later this week.

Branch News

**BARRIER IMMUNOLOGY**

The Barrier immunology was heavily involved in the MRC centre bid and is awaiting the final MRC decision.

In addition the branch is hoping to host a workshop on the 2nd of July looking at the role of the immune system at barrier sites, how this is influenced by matric and how this links to complex diseases and co-morbidities, so please look out for details.
On Behalf of Prof. Fiona Thistlethwaite and Dr. Anne Armstrong

The next Manchester Immuno-Oncology Network (MION) meeting will take place on 21st April 2020, 1-5pm, at the Core Technology Facility, University of Manchester. Registration is now open if you would like to attend.

Please register at Eventbrite to reserve your place!

Theme: Hot topics in immune-oncology

1-2pm  Networking lunch
2-2.30pm Hot topics in the clinic - TBC
2.30-3.00pm Title TBC - Prof. Judith Allen, Professor of Immunobiology
3-3.30pm Regulation of immune responses by integrins and TGF-beta - Prof. Mark Travis, Professor of Immunology
3.30-4.00pm Breakout Session: Enhancing collaboration in Manchester between Immunology Groups and Oncology Groups - Tea/Coffee/Refreshments
4-4.30pm Combining Radiotherapy with Immunotherapy - from bench to bedside and back - Dr. Eleanor Cheadle, Lead Translational Scientist/Research Fellow
4.30-5pm Flash Talks – TB

www.manchester.ac.uk/lydia-becker-institute
The cardiovascular branch in the Institute has recently undergone a name change to reflect the importance of studying multi-morbid conditions instead of diseases in isolation.

The cellular immunology will be hosting a targeted workshop with the Division of Molecular and Cellular Function, School of Biological Sciences, which will be rescheduled for after the current coronavirus shutdown.

Phil Woodman and Gloria Lopez-Castejon are organising this short workshop and the format is currently being finalised but is likely to be a series of short talks over a couple of hours, followed by a working lunch.
The idea is to find common areas on interest between the groups that can lead to collaborative work in the future explaining the cell biology processes in immune cells and the tools available to do this. Gloria said she thinks it will be very useful for everyone to see the type of research done at the Molecular and Cell Function division as they have excellent tools and approaches to study many cellular processes which are relevant in immune cells and most likely unexplored so I think there will be common areas of interest and the possibility of doing some pilot work.

Please see the next edition for a meeting report.

The new immuno-informatics branch of the Lydia Becker Institute of Immunology and Inflammation is now launched. Immuno-informatics provides the theoretical framework in which expertise in bioinformatics and systems biology, health informatics, artificial intelligence and computer vision are integrated to develop new models and insights into the impact of the immune system in health and disease.

Immuno-informatics research at Manchester builds on our strength in these areas to create the frameworks to integrate immunological data from the cell to populations.

Applied research in these areas is underpinned by expertise in statistical modelling and machine learning, with particular expertise in applications of omics data integration, biological network modelling and inference. Our current focus is on single-cell omics and systems immunology.

Our Health eResearch Centre has a world-class programme of research bringing together teams of academic researchers and software engineers to improve health outcomes.

Our imaging centre is developing computer vision and machine learning methods to interpret biological and medical imaging data.

We also have strong emphasis on training and capacity building. We created the world’s first master’s course in bioinformatics and now offer a broad portfolio of training in data science, health informatics, bioinformatics and artificial intelligence to support the development of immune-informatics across the Institute.
In this edition of the newsletter the immune tolerance branch is doing a focus piece on Dr Sebastien Viatte, a Lecturer in Genetics, Division of Musculoskeletal & Dermatological Sciences

What is the interest in your lab / research area?

During the prolific era of genome-wide association studies, we have identified a number of single nucleotide polymorphisms associated with rheumatoid arthritis susceptibility and severity. The vast majority of these genetic variants are located outside the coding regions of the genome – and no one has a clue why the carriage of these polymorphisms predisposes to disease. Since a few years, I have tried to take the next step: the functional characterization of susceptibility loci. I am trying to find out which immune cell subsets are under the control of genetic susceptibility loci and how they contribute to rheumatoid arthritis susceptibility, severity and response to treatment.

Where and with whom have you studied?

I studied medicine and biophysics/molecular biology at the University of Basle in Switzerland. I was first trained in human cellular immunology at the Basel Institute for Immunology (BII) by Antonio Lanzavecchia and Federica Sallusto at the time they defined the two subsets of T lymphocytes called central memory and effector memory T cells (if you remember when this was, it might give away my age…). Then, I was awarded a PhD fellowship from the Swiss National Science Foundation (SNSF) and I joined the group of Jean-Charles Cerottini (who discovered the principle of lymphocyte cytotoxicity in the early 70s – but don’t worry, I joined a bit later; I was actually his last PhD student!) at the Ludwig Institute for Cancer Research in Lausanne, Switzerland. My PhD project focused on the identification of new MHC class I-restricted human tumour antigens for immunotherapy. After I completed my clinical training in internal medicine (including 2 years as a registrar in rheumatology), I was awarded a fellowship in 2010 by the SNSF to spend three years at the Arthritis Research UK Centre for Genetics and Genomics at The University of Manchester where I joined the group of Anne Barton and Jane Worthington.
What first drew you to your area of research?

I think I was first fascinated by the complexity of the immune system during the lectures at University. Then, my encounter with Antonio Lanzavecchia and Federica Sallusto was truly inspirational.

What has been the biggest challenge in your career so far?

The transition from postdoc to a faculty position...

What is the best advice you have been given?

When you find something, try to kill it. If you can’t, publish it.

What do you enjoy doing outside of the laboratory?

Trying to be British (watching Downton Abbey with a Whisky).

Any tips for a successful research career?

No!

The immuno-matrix branch has been working closer with the Wellcome Centre for Cell Matrix Research and the Doctoral Academy to get ready for our first cohort of 7 students on the Wellcome Trust PhD Programme on Immuno-matrix in complex disease In September 2020.
The Life Course Immunology branch has welcomed new affiliates from the Maternal and Fetal Health unit based at MFT. The maternal and fetal health research portfolio at Saint Mary’s Hospital is extensive, including research into pregnancy problems such as pre-eclampsia, fetal growth restriction and pre-term labour.

We work in partnership with The University of Manchester with the aim of improving pregnancy outcome and maternity care. Our research uses a breadth of research methods such as clinical trials, one to one or group interviews and observational studies, which collect samples and data from pregnant women, partners and their babies.

In addition the branch has a new gene of the month and are interested in collaborating with other labs to determine its functional role. If interested please contact Peter Arkwright.

**Gene of the month**

**Gene:**  **DIAPH1** (Protein diaphanous homolog 1)

**Protein:** Composed of several regulatory domains including the GTPase-binding domain, diaphanous inhibitory domain (DID), diaphanous autoregulatory domain (DAD) and formin homology domains (FH1 and FH2).
Function:

Promotes actin microfilament and microtubule cytoskeleton assembly and the regulation of microtubule dynamics, stability and the overall cellular architecture. In this regard DIAPH1 has similarities to WASP, which causes Wiskott-Aldrich syndrome.

Upon the binding of RAGE, signal transduction has the potential to activate RHO/ROCK, RAC1/CDC42, P38/MAPK, JNK MAPK and JAK/STAT pathways influencing a diverse range of cellular properties such migration, stress responses and immune pathways.

Clinical impact: Patients with DIAPH1 gain of function variants suffer from macrothrombocytopenia and neurosensory hearing loss. Patients with DIAPH1 loss of function variants have microcephaly, blindness, recurrent early onset seizures and profound developmental delay and intellectual disability. We have recently discovered two kindreds with DIAPH1 loss of function variants who, as well as severe neurological impaired, presented with unexplained T-cell lymphopenias, reduced proliferative responses to a variety of mitogens and propensity to troublesome viral infections such as viral bronchiolitis and herpes simplex hepatitis and encephalitis.

References:


Communicated by Dr Peter Arkwright, Dr Tracy Briggs & Ebtehal Al Sheikh.
In this edition of the newsletter the neuro-immunology branch is doing a focus piece on Dr Catherine Lawrence, a Senior Lecturer in the Faculty of Biology, Medicine and Health.

**Dr Catherine Lawrence**

**What is the interest in your lab / research area?**

My research interests centre around brain diseases including stroke, Alzheimer’s disease and vascular dementia, and the role of inflammation. These brain diseases often affect the elderly and usually people who have many other conditions also known as co-morbidities (e.g. high-blood pressure, high cholesterol, diabetes, obesity, infection). We and others have shown that co-morbidities influence the development and/or severity of stroke and Alzheimer’s disease and my research group is trying to understand why this is. We are particularly interested in co-morbidities brought about by unhealthy diets such as obesity (high-fat diet) and zinc deficiency (diet low in zinc). We believe that inflammation plays a role in the detrimental effects of co-morbidity and this is a key focus of our work.

**Where and with whom have you studied?**

I did my PhD at the University of Manchester when I studied how cytokines affect neuronal injury and outcome after stroke under the supervision of Professor Dame Nancy Rothwell (then Dr). Since then I have had a slightly unorthodox trajectory to where I am now, as after my PhD I had break of over two years to gain experience in the commercial sector, but during this time I realised how much I missed academic research! I was then lucky enough to be offered post-doctoral position (again at the University of Manchester), under the supervision of Professor Simon Luckman, where I examined how the brain regulates food intake and body weight, in order to try and find treatments for obesity. After this post-doc I made a move to the Pharmaceutical Industry and worked as a Senior Research Scientist at AstraZeneca, where for 15 months I set up methods to evaluate pain in animal models of osteoarthritis. However, I always felt that my true home was in academia, so I secured a RCUK fellowship in 2005 back at Manchester, and spent...
five years establishing myself as an independent researcher. After this I was appointed as a lecturer in 2010 and senior lecturer in 2015 and, since this time (including a break for maternity leave), I have been developing my research interests described above.

What first drew you to your area of research?

During my BSc degree in Pharmacology I did a unit on Neuropharmacology, which included learning about brain disorders, and I became fascinated by this. At the end of my degree my Nan had a stroke and when I saw an advert for a PhD to study stroke I was immediately drawn to it. Working with Nancy then led my down a path of studying the role of inflammation in diseases that affect the brain. When I was offered the RCUK fellowship, after my brief stint in the Pharmaceutical Industry, I decided to combine my two areas of expertise and study how being obese impacts on stroke and to also expand into Alzheimer’s disease as it is a disease where inflammation plays a clear role and it affects many people.

What has been the biggest challenge in your career so far?

I am not sure there is ‘one big challenge’ that stands out and the challenges tend to change as you progress through your career. However, as an academic scientist you constantly have to try to balance your effort between research and delivering excellent quality teaching. Balancing those two things can be challenging. Also returning after a period of maternity leave was quite challenging as I had a lot of catching up to do!

What is the best advice you have been given?

You get advice from so many people and sometimes the advice can be conflicting – so I am not sure what the ‘best’ is but good pieces of advice include. Do not wait for things to happen - You are in control of your own destiny so go out and grab every opportunity you can. Work on important questions/problems but know when to move on. Believe in yourself and try to not compare yourself to others. Be colligate and help out, but learn that sometimes you can say no.

What do you enjoy doing outside of the laboratory?

Lots of things but will just name a few! I enjoy spending time with my husband and son and doing fun outdoor activities together (e.g. walking, bike rides) and travelling to different places/countries. I am not sure I should also admit to this with living in Manchester, but I enjoy watching football and I’ve held a season ticket for Liverpool FC for over 25 years, although I suspect that most people know that already.

Any tips for a successful research career?

Including the advice I have outline above, try to grow a thicker skin and develop resilience. Getting rejections is part of the job that unfortunately can knock you down, but you need to learn that this happens to us all and try to get back up quickly and persevere.
Biota, Bugs and the Becker

The first one-day workshop of the Pathogens, Parasites and Commensals branch entitled “Biota, Bugs and the Becker” was held on 25th November at the University of Manchester. The workshop was well attended drawing on research staff and students with an interest in the microbiota, immunology and inflammation, from right across the Faculty.

The day kicked off with the first of three keynote speakers, Lindsay Hall from the Quadram Institute in Norwich. Lindsay spoke about her multiple areas of interest in the role of the intestinal microbiota in health and disease with an emphasis on the importance of early life gut microbiota in establishing subsequent immune health, particularly the role of Bifidobacteria, including exciting clinical data indicating beneficial roles of Bifidobacteria in premature babies. Francesca Ronchi, from the University of Bern, followed with an excellent overview of interactions between the microbiota on the innate immune system, the inflammasome and the influence of the microbiota on neurological development together with her new data from behavioral studies in a germ free environment. Lunch was followed by a more clinically focused talk from Holm Uhlig from the University of Oxford who highlighted how his studies of rare forms of intestinal inflammatory disease can inform on our understanding of mechanisms operating in microbiota mediated intestinal inflammation, in particular regarding regulation of macrophage metabolism which is a rapidly developing field.

A series of rapid “flash” talks were then presented by researchers from several groups in Manchester about the ongoing work into the microbiota in Manchester, from rodent based model systems of immune mediated disease and the use of the Manchester Axenic and Gnotobiotic Facility, through to studies of skin microbiota in the ageing population. The flash speakers included Dr Oliver Brand, Dr Nick Scott, Dr Alexandra Kendall, Dr Gurdeep Singh, Dr Matt Hepworth, Dr Joanne Konkel and Stefano Columbo. The scientific sessions were finished off with an extensive
“round table” questions and answer session for the invited speakers. It was great to hear where the field is going and some “big picture” questions and answers including how the speakers maintain their own “healthy” intestinal microbiota with dietary modulation or supplements. The Director of the Becker Institute, Tracy Hussell, closed the workshop with a few concluding remarks emphasizing how critical it was to incorporate microbiota into our thinking of whatever area of immunity and inflammation we were investigating and how we were so very well placed having germ free facilities here in Manchester, alongside outstanding immunology and microbiota expertise, finishing off with a brief comedy turn! The day rounded up with drinks and canapes, where everyone agreed as to how successful and interactive the day had been. We look forward to the second workshop.

Isle Of May, Eco-Immunology Field Trip

In November 2019 Dr Kara Filbey from the Grainger lab volunteered for a week on the beautiful Isle of May in Scotland, as part of the wild immunology project, run as a collaborative effort between Manchester and Nottingham universities. Alongside regular project members Iris, Alex and Andrew, and fellow volunteer Rachael from the CTF’s Fungal Infection Group, Kara helped to study the immune responses of the wild mouse population unique to the island. It entailed very early starts, clambering around in the dark to collect traps and freezing cold conditions, but the experience was well worth the effort, and forged friendships and collaborations. At this time of year the team shared the island with hundreds of new seal pups and a team of bird researchers. An amazing and stunningly beautiful place to do immunology! Volunteering on this project is highly recommended if you can spare the time, and will give you invaluable experience in a totally new setting.
Shutdown fun

And finally a shutdown challenge for you all – an immunology themed wordsearch! For the first person to send me through photographic proof of a completed word search there is a £5 amazon voucher on offer – and it will prove that someone actually reads the newsletter.

C K X L L P S V B T K L X L U B U T K X R F A A E E Y N Q F
P D S E J I H O A C N E M L Y N C F G K L L I P M O G H L S
X G R L S Z D I H C Q E N H G P O Y N L U J O Z G R Y S V
I N T E R F E R O N C Z J I H R K Q E O V U S P Y Q E D J D
A Y X L P A N F D K G I X C R X A C N F D O I T M A L R R D
O G Q Q Z D X K N F U F X O A J S D N L Z B X I E L F H G F
M R V I F U F C X K N Y I I P M C F L E R C M H E W C B C D
A I I W D I L O T E J X V W R W G U E N R L U T C R N C N E
I N O C U L A T I O N T Z T A K Y S K J A T S P Y N H P E C
T W W B E F X P S C K Y E M P O U U D U O H A D Y L A C K
T C E L L R P W B B P Y Q C I V Q V J B T V M C A X P T Y F
J E O P U M X H W G N X T W O O T U Y O Y C F S P O V H D O
J W L R G Y F I L G A J B Z U E P E G I M M U N I T Y G C Z
K G U S I A R J F P B Y T Y T I P R L M Y I H U M O R A L
J L V E A K N N P O C A I T L A R V G X B M X L J X D D U P
O K W V U E J G C X M B A A E R T T L X E D D O B U U S X M
E N Y B U W W E I B D A B L R U E S O T P U B D X A P H S Z

ADJUVENT  ALLERGY  ANTIBODIES  ANTIGEN  AFC  APOPTOSIS
BASOPHIL  BCELL  CENTROSOME  DENDRITIC  EMZYMES  ENDOCRINE
EPIDEMIC  GRANULOCYTE  HUMORAL  HYDROPHOBIC  HYDROXYL  IMMUNITY
IMMUNOLOGY  INOCULATION  INTERFERON  ISOTOPE  LYMPHOCYTE  MACROPHAGE
MATRIX  MOLECULES  MONOCYTE  MUTAGEN  PATHOGEN  PHAGOCYTE
PLASMA  SERUM  SUBSTRATE  TCELL  VACCINE