The Academy of Medical Sciences







# 2013 Winter Science Meeting for Starter Grant Holders

Wednesday 11 December 2013
Academy of Medical Sciences, 41 Portland Place, London

"A day to step back and reflect on where I've come from and where I'm going. Perfectly timed to help me focus on priorities and challenges ahead."

# 2013 Winter Science Meeting for Starter Grant Holders

The Academy of Medical Sciences held its first Winter Science Meeting for Starter Grant Holders in December 2013. Our aim was to bring together our awardees to celebrate their scientific achievements; encourage them to network and inform them of funding opportunities. Supporting our grant holders is an important part of the Academy's work in nurturing the next generation of medical researchers and developing the Fellowship of the future.

"Love this meeting. Very friendly and approachable Fellows who shared their own career journeys with us."

## Who attended

- More than 50 Starter Grant for Clinical Lecturers Holders.
- Fellows of the Academy of Medical Sciences.
- Representatives of the scheme's funding consortium, including the Wellcome Trust, Medical Research Council, Prostate Cancer UK and Arthritis Research UK.
- Science Communicators.
- Patients from NIHR's INVOLVE.

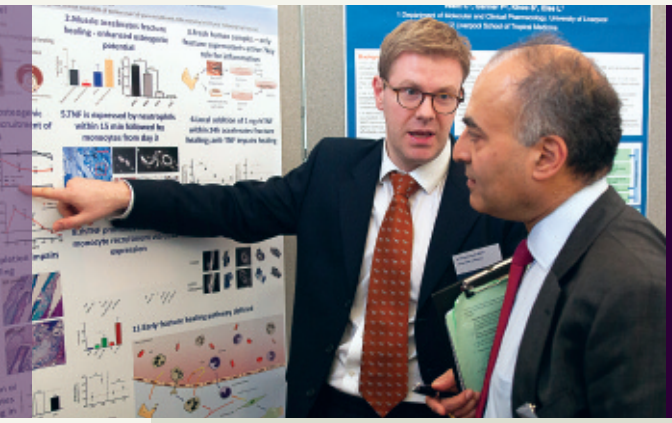
## Agenda

The morning focused on communicating research excellence. Starter Grant holders shared their work through talks and poster presentations. They were also given the opportunity to discuss their work with a non-scientific audience, including representatives from science communication organisations and patients.

The afternoon focused on the next steps of the Starter Grant holders' careers. A Panel session with Professor Marina Botto FMedSci and funding representatives provided insights into grantsmanship and funding opportunities. In addition, a structured networking session encouraged attendees to meet peers. This provided a welcome opportunity for participants to meet researchers from different disciplines who shared similar career challenges.

Finally, Professor John Iredale FMedSci, Chair of the Starter Grants panel, gave a keynote lecture sharing his career journey in academic medicine.

*A full agenda is included in Annex 1.*




For further information on how to apply for a Starter Grant for Clinical Lecturers contact **grants@acmedsci.ac.uk**

# Prizes awarded

**Oral and poster presentations prizes**
The presenters were judged on the significance and innovation of their research; the quality of their presentation; and whether the content was accessible to those attending the meeting. Judges were Academy Fellows from the Starter Grants panel and funder representatives. Winners received cash prizes of £250.

**Poster Prize: Dr James Lee, University of Cambridge**
**Oral Prize: Dr Karin Straathof, UCL Institute of Child Health, and Dr David Hunt, University of Edinburgh**

**Communications prize**
The communications prize recognised awardees who could explain the context and importance of their research to a non-scientific audience. Judges were a mix of Academy Fellows, patients from NIHR's INVOLVE and representatives from science communication organisations. The winner received a day-long communications masterclass. The Academy will support the winner over the next year to speak at public engagement events, including the Charles Darwin Award Lecture at the British Science Festival.

**Communications Prize: Dr Karin Straathof, UCL Institute of Child Health**

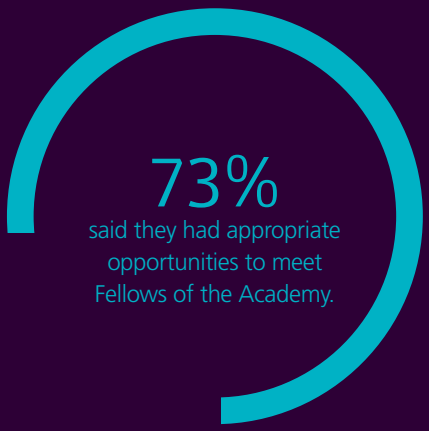
*Judges names are included in Annex 2.*

"Good to see other grant holders' research, share common issues and discuss collaborations."

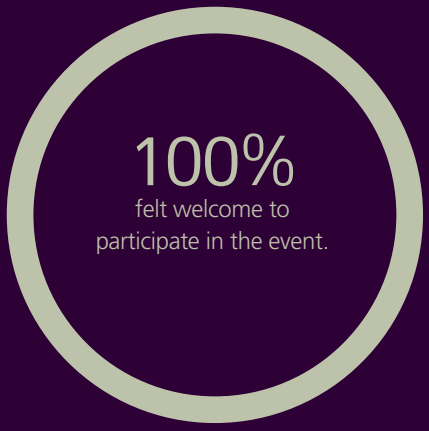
"The presentations were excellent. Learning about what other work is being performed by peers in medical science was fabulous, stimulating and educational."

"Discovering that I am not the only part-time female trainee trying to combine an academic career with small children has given me a lot of confidence. Discussing issues such as funding in this context was very helpful."

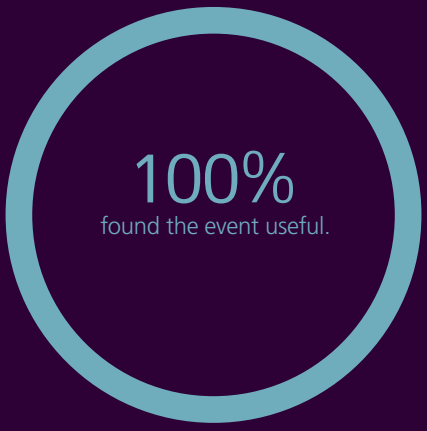
# Feedback from participants


"I enjoyed hearing about the range of funding opportunities available and thinking beyond my immediate discipline; I had the opportunity to talk informally to representatives of funding bodies."


"The best part was really trying to make an effort and learning how to convey my work to a very general medical academic audience."





"We were inspired and felt welcome at the event, and it seemed more of a celebration of research excellence than a formal conference."

# Science focus

**Over 50 awardees presented on a wide range of research topics, below are brief insights into the projects presented by the prize winners on the day.**

**Dr Karin Straathof**
**UCL Institute of Child Health**

## Targeting paediatric glioma with engineered T-cells

After leukemias, brain tumours are the most common type of cancer in children. The majority of these are gliomas, brain tumours that develop from the supporting cells of the brain known as the glial cells. Gliomas are difficult to treat and often cannot be cured despite considerable efforts to improve outcome with traditional methods of treatment including surgery, chemotherapy and radiotherapy. Therefore, a new way of treating these cancers is badly needed. Researchers have tried for decades to harness our immune system to treat cancer, which is referred to as immunotherapy. Recently it seems that we have found a very promising way to do this. T-cells are special immune cells whose function it is to recognise and destroy virally infected cells while leaving healthy cells unharmed. Modern gene-therapy technology allows us to 're-programme' T-cells so they can distinguish cancer cells from healthy cells much like virally infected cells from non-infected cells. Aim of this work is to develop this approach to treat paediatric brain tumours. We have successfully re-programmed T-cells to recognise a 'cue' on paediatric gliomas which allows these immune cells to distinguish brain tumour cells from healthy tissue and selectively destroy tumour cells. We are currently developing a mouse model to study how well these T-cells work in a living animal (i.e. how many cells to give and how often). These results will inform subsequent design of a clinical study in children with gliomas.

**Dr David Hunt**
**University of Edinburgh**

## Recombinant interferon-beta therapy and thrombotic microangiopathy

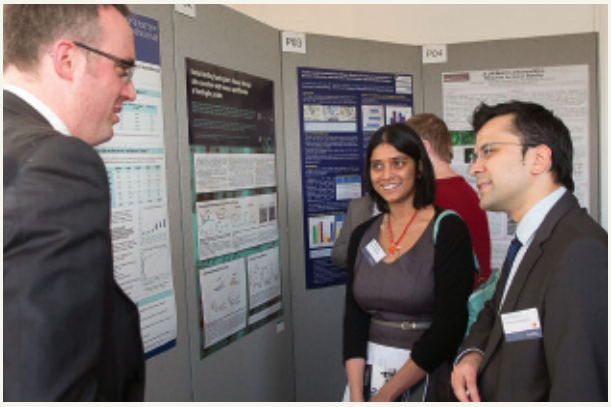
Type 1 interferon is a protein which is produced by your body as a defence against viruses and is also used as a treatment for multiple sclerosis (recombinant interferon, which means the interferon is made in a laboratory). While interferon is an important weapon against viral infection, too much interferon can sometimes be produced and this can also cause disease. We studied people who were receiving type 1 interferon injections as part of a treatment regime for multiple sclerosis. We demonstrate that a minor change in the formulation of the interferon has led to the development of a serious and preventable complication of therapy called thrombotic microangiopathy. This is a serious disease of blood vessels which can cause kidney and brain failure and can be fatal if untreated. We identify features of this complication which will allow it to be detected earlier, before serious damage is done. We have therefore demonstrated how therapy with recombinant interferoncan cause a serious and potentially fatal complication, and have identified ways to reduce risk to patients in the future. We also demonstrate that the introduction of new formulations interferon therapies need to be more closely monitored. These findings are relevant to the safety monitoring of "protein medications" which are used to treat many thousands of patients in the UK.

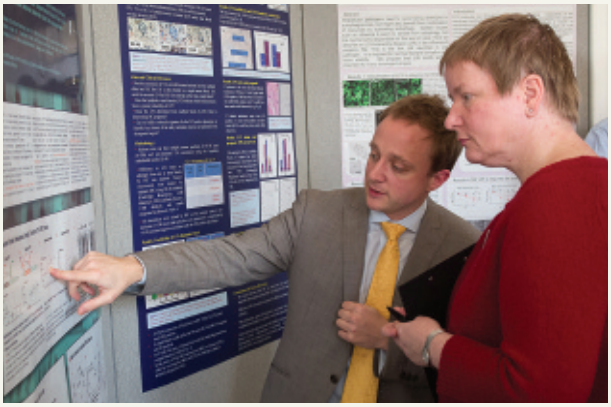
**Dr James Lee**
**University of Cambridge**

## Human SNP Links Differential Outcomes in Inflammatory and Infectious Disease to a FOXO3-Regulated Pathway

Currently, despite advances in modern medicine, we still do not know why 2 patients with the same disease can have such different experiences. If we did understand why a disease can behave aggressively in some people and not in others, we might be able to design better treatments and improve patients' lives. To investigate whether genetic differences might account for differences in disease course, we compared the genetic profiles of patients with aggressive Crohn's disease (CD, an inflammatory bowel disease) and mild CD to see if there were any differences. We found that a mutation in a gene called FOXO3 was commoner in patients with mild CD, and then showed that carriers of the mutation can activate a previously undiscovered pathway that leads to inflammation being "switched-off". This suggested that the mutation may act as a brake on the inflammation that drives CD and explain why the carriers had milder disease. We then studied other diseases to see whether the mutation might affect them as well. In rheumatoid arthritis (another inflammatory disease) we found that the mutation was similarly associated with a milder diseases course, whereas in malaria (where inflammation is good as it helps get rid of the malaria bugs) the mutation was linked to more severe disease. We have shown that genetic differences may explain some of the variability in disease course and uncovered a pathway that could be targeted to improve treatment of several different diseases.

# The day in pictures



# Annex 1: Agenda of the 2013 Winter Science Meeting

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| 9:00 | Registration and refreshments |
| 9:30 | Welcome<br>**Professor John Iredale FMedSci**, Chair Starter Grants Selection Panel |
| 9:35 | Introduction to the Academy<br>**Dr Helen Munn**, Executive Director, Academy of Medical Sciences |
| 9:45 | Session 1: Oral plenary<br>**Chaired by Professor John Iredale FMedSci**<br><br>**Dr Marko Kerac**, Clinical Lecturer in Public Health, University College London<br>How Malawian carers and health professionals perceive community-based management of malnutrition for infants aged under 6 months: formative work towards a future intervention trial.<br><br>**Dr Patrick Mallia**, Senior Clinical Lecturer in Respiratory Medicine, Imperial College London<br>Rhinovirus infection induces degradation of antimicrobial peptides and secondary bacterial infection in COPD.<br><br>**Dr Mark Glover**, MRC Clinician Scientist, Clinical Pharmacology and General Medicine, University of Nottingham<br>Detection of mutations in KLHL3 and CUL3 in families with Familial Hyperkalaemic Hypertension (FHHt or Gordon syndrome).<br><br>**Dr Karin Straathof**, Clinical Lecturer in Paediatric Oncology, University College London<br>Targeting paediatric glioma with engineered T-cells. |
| 11:05 | Refreshments |
| 11:20 | Session 2: Oral plenary<br>**Chaired by Professor Wiebke Arlt FMedSci**<br><br>**Dr Fu Siong Ng**, Clinical Lecturer in Cardiology, Imperial College London<br>Adverse remodelling of the electrophysiological response to ischaemia-reperfusion in human heart failure is associated with remodelling of metabolic gene expression.<br><br>**Dr David Hunt**, Clinical Lecturer in Neurology, University of Edinburgh<br>Recombinant interferon-beta therapy and thrombotic microangiopathy.<br><br>**Dr Melissa Gladstone**, Clinical Lecturer in Paediatrics, University of Liverpool<br>Care for children from 0-2 in rural and urban settings in Malawi: perspectives from carers and health care professionals.<br><br>**Mr Aminul Ahmed**, Clinical Lecturer in Neurosurgery, University of Southampton<br>Endogenous GFAP-Positive Neural Stem/Progenitor Cells in the Postnatal Mouse Cortex Are Activated following Traumatic Brain Injury.<br><br>**Dr James Ware**, Clinical Lecturer in Cardiology, Imperial College London<br>Paralogue Annotation: a new approach to accurately identify pathogenic genetic variants. |
| 13:00 | Lunch and poster session<br>13:15-14:00 Poster session 1 (odd numbers)<br>14:00-14:45 Poster session 2 (even numbers) |

# Annex 1: Agenda of the 2013 Winter Science Meeting

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| 15:00 | Session 3: Careers and funding in academic medicine<br>**Chaired by Professor Ros Smyth FMedSci**<br><br>• **Professor Marina Botto FMedSci, Imperial College London**<br>• **Dr Nigel Eady, Academy of Medical Sciences**<br>• **Mr James Harden, Wellcome Trust**<br>• **Dr Julia Dickinson, Medical Research Council**<br>• **Dr Matthew Hobbs, Prostate Cancer UK**<br>• **Dr Liz Waterman, Arthritis Research UK**<br><br>**Panel Q&A** |
| 15:50 | Structured networking |
| 16:40 | Refreshments |
| 17:10 | Session 4: Keynote lecture by Professor John Iredale FMedSci<br>**Chaired by Professor Marina Botto FMedSci** |
| 17:40 | Prize-giving<br>**Prizes awarded by Professor Sir John Tooke PMedSci, President, Academy of Medical Sciences**<br><br>• **Oral presentation prize (lead judge Professor Ros Smyth FMedSci)**<br>• **Poster presentation prize (lead judge Professor Wiebke Arlt FMedSci)**<br>• **Communications award (lead judge Professor Tilli Tansey FMedSci)** |
| 17:50 | Closing remarks<br>**Professor Sir John Tooke PMedSci** |
| 18:00 | Drinks reception |
| 19:00 | Close |

# Annex 2: Judges of competitions

**Oral Presentation Judges**

- Professor John Iredale FMedSci, University of Edinburgh
- Professor Marina Botto FMedSci, Imperial College London
- Professor Ros Smyth FMedSci, University College London
- Professor Wiebke Arlt FMedSci, University of Birmingham

**Poster Presentation Judges**

- Professor John Iredale FMedSci, University of Edinburgh
- Professor Marina Botto FMedSci, Imperial College London
- Professor Ros Smyth FMedSci, University College London
- Professor Wiebke Arlt FMedSci, University of Birmingham
- Dr Helen Munn, Academy of Medical Sciences
- Dr Matthew Hobbs, Prostate Cancer UK
- Dr Julia Dickinson, Medical Research UK
- Dr Kate Adcock, Wellcome Trust

**Communications Prize Judges**

- Professor Tilli Tansey FMedSci, Queen Mary University of London
- Dr Melanie Lee CBE FMedSci, Think10
- Professor Sanjeev Krishna FMedSci, St George's University of London
- Mr James Harden, Wellcome Trust
- Mrs Selina Kermode, Science Media Centre
- Patient from INVOLVE

"It is the first networking meeting I've been to that has actually been helpful and that networking has been achieved."

# Starter Grants for Clinical Lecturers

Starter Grants for Clinical Lecturers offer funding of up to £30,000 to cover the cost of research consumables. The grants allow research-active Clinical Lecturers to gather data to strengthen their bids for longer-term fellowships and funding. So far we have supported 194 Clinical Lecturers through nine rounds of funding, with grants totaling nearly £5.5 million.

We are grateful for funding for this scheme from the Wellcome Trust, the Medical Research Council, the British Heart Foundation, Arthritis Research UK, Prostate Cancer UK and the Royal College of Physicians.








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