Fellows Day Meeting Report 2016
Industry acknowledgements

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Astellas Pharma
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Lilly
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MedImmune
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Otsuka
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Introduction

Professor John Feehally, Chair of Trustees
I am delighted to present this report on Kidney Research UK’s Fellows Day 2016. The impressive range of innovative research and burgeoning talent is testament to the significant impact of the charity on UK renal research. As I mentioned in my opening address, the charity had another successful year in 2016, winning significant funding from the Garfield Weston Foundation and introducing the John Feehally–Stoneygate Research Awards. Nearly £6 million was allocated for research, with over 80 grants, directed studies and project contracts supported.

A big thank you must go to our industry supporters, who made the day possible. Funding was provided by Alexion Pharma, Astellas Pharma Ltd, Boehringer Ingelheim Ltd, Lilly, MedImmune, Otsuka Pharmaceuticals (UK) Ltd, Pharmacosmos UK, Sandoz Ltd, Sanofi Genzyme and Vifor Fresenius Medical Care Renal Pharma.

Reflections from Professor Fiona Karet, Fellows Day 2016 Chair
Kidney Research UK’s Fellows Day 2016 lived up to expectations of being one of the highlights of the year for kidney research. Extremely high quality presentations were delivered by delegates from across the renal community – clinicians, scientists, professors, students, patients and providers.

The Fellows Day meeting provides a fantastic opportunity for early career researchers to interact with those higher up the ladder and always features presentations from Intercalated Degree award holders. This year four students presented their research: Sanna Tahir and Alex Hollis addressed factors to improve transplant outcomes by delegates from across the renal community – clinicians, scientists, professors, students, patients and providers.

The Fellows Day meeting provides a fantastic opportunity for early career researchers to interact with those higher up the ladder and always features presentations from Intercalated Degree award holders. This year four students presented their research: Sanna Tahir and Alex Hollis addressed factors to improve transplant outcomes (more detail on Alex’s talk is featured on page 6), Daniyal Jafree explored renal tract abnormalities in spina bifida, and James Todd discussed the scarring process that occurs in chronic kidney disease (CKD).

Reduced kidney function is associated with a variety of health problems, such as increased risk of stroke and cardiovascular disease, anaemia and skeletal muscle wasting. The issue of muscle wasting is being explored by Dr Emma Watson, a new Post-Doctoral Fellowship holder. Emma may have come away from the Fellows Day meeting this year with a new collaborator in Dr Rosemary Iland, who offered her assistance in assessing the vitamin D status of the patients in Emma’s cohort.
The concept of patient-centred care is becoming increasingly prominent in the UK, with a continued drive to involve patients in their own healthcare and to empower them to take an active role in decision-making. Patient-centred care is a core value of Kidney Research UK, and was a common theme throughout Fellows Day 2016.

Demonstrating his belief that patient-centred care is not just a fad and is here to stay, keynote speaker Dr Marcello Tonelli is trying to improve the management of kidney disease in Canada, based on lessons learned from the UK. He spoke about his hopes of improving outcomes by shifting from the current disease-centred management of multimorbidity in CKD to focus on the objectives of patients and carers.

Closer to home, clinicians from the UK are assessing how best to involve patients in decision-making.

Dr Nicola Thomas, a past Multi-Disciplinary Fellowship holder, presented her research on how older people with advanced kidney disease experience shared decision-making. This project was co-led by a group of six patients and carers who interviewed 29 patients aged over 70 years about their dialysis decision. While most of these patients felt involved in the decision-making process, many found the information they were given to be too complex and not fully reflective of the life-changing reality of undergoing dialysis.

Patients receiving haemodialysis often report having problems with concentration and research has shown a high frequency of background cognitive impairment in those with end-stage kidney disease requiring dialysis. To investigate if the process of haemodialysis may be responsible for this ‘brain fog’, Kidney Research UK Training Fellow Dr Mark Findlay has been assessing the cognitive function of patients during and outside of dialysis. The provisional results show a transient cognitive decline during haemodialysis linked to a change in brain blood flow during dialysis, suggesting that the dialysis suite is not the place for relaying complex information or asking difficult questions.

Practising patient-centred care
P. aeruginosa dichotomy is known to exist in a number of infectious patients who respond well to antibiotics and is associated with high organization for enabling her to set up her renal funded by Kidney Research UK, Rachel credited the menstrual cycle. Women are three times more likely to get a urinary infection than men or women. To test her hypothesis that hormones make bugs bad?” perfectly hit the mark of being both meaningful to clinicians and scientists, and accessible to a lay audience. Having recently completed a Post-Diploma Fellowship funded by Kidney Research UK, Rachel credited the organization for enabling her to set up her renal research project in Rachel’s lab, so there may be some answers at Fellows Day 2017?

Treatment innovations
With kidney transplant being the gold standard for treatment of patients with kidney disease, many Fellows Day talks focused on improving transplant outcomes. IntercaleD Degree award student Alex Hollis presented his research on the metabolism of ex vivo kidneys while in hypothermic machine perfusion storage conditions. Using a technique called 2D NMR (two-dimensional nuclear magnetic resonance spectroscopy), Alex not only showed that active metabolism was occurring in storage, but also identified specific metabolites produced. Gaining a better understanding of this process will help optimize machine perfusion conditions and hopefully improve transplant success.

Alex’s talk led to an interesting exchange with keynote speaker Ms Loma Larson on the differences expected between hypothermic and normothermic perfusion conditions. During her keynote presentation, Lorna gave an update on the recently new technique of normothermic perfusion of kidneys prior to surgery.

Loma also presented results from a recently completed phase 2b trial, which indicated that the enzyme heme oxygenase-1 (HO-1) could be induced in human transplant recipients; HO-1 protects against injury to the kidney caused by ischemia and perfusion. A further study is now planned, with the aim of recruiting 600 patients to assess if HO-1 induction leads to more successful transplant outcomes.

Post-transplantation, patients need lifelong medication to stop their immune system from damaging the new kidney. Over the past few years, there is increasing evidence that antibodies are responsible for damage to transplanted kidneys. Presenters addressing this issue this year included Dr Liz Wallin and Dr Pippa Dodd, both Kidney Research UK Fellows.

Liz presented fascinating research suggesting that the choice of immunosuppressive therapy itself may influence the likelihood of developing new donor-specific antibodies in the early post-transplant period. Transplant recipients who develop new antibodies against their donor organ after surgery are less likely to have a successful long-term transplant than those who don’t. This exciting new finding is a step towards improving the current statistic that about half of kidney transplants fail within 15 years of surgery.

Glossary
Hypothermic machine perfusion
The automated delivery of fluids to the donated kidney; reducing the temperature is a way of limiting damage to the kidney.

Normothermic machine perfusion
Immediately prior to transplantation, a donor kidney is perfused with warmed, oxygenated nutrients for 60 minutes.

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Best Poster Presentation prize winner – Dr Syazrah Salam, Kidney Research UK Training Fellow
Dr Syazrah Salam presented promising data on using biomarkers as an alternative to bone biopsy in patients with CKD. Bone abnormalities are highly prevalent in patients with advanced CKD, who are at a fourfold greater risk of bone fracture than the general population.

Low bone turnover can be a cause of increased bone fragility, and identifying patients with low bone turnover is important because some fracture treatments can suppress bone turnover further. Currently, the gold standard for assessing bone turnover is bone biopsy.

To explore an alternative option for assessing bone turnover, Syazrah recruited 43 patients with CKD for her research. Syazrah praised the bravery of this cohort, on whom she carried out bone biopsies and diagnosed low bone turnover in 26% of these patients. In this group, three of six biomarkers tested performed well in predicting low bone turnover.

Furthermore, the biomarker bone alkaline phosphatase (ALP) had a high negative predictive value in this study; patients with bone ALP measurements above the threshold of 21 μg/L had a 96% chance of not having low bone turnover.

For patients, Syazrah’s research provides hope that low bone turnover could be identified without the need for invasive and painful bone biopsies.
Closing comments: **keep up the good work!**

Sandra Currie, Chief Executive, Kidney Research UK

Despite being incredibly happy in her role as Chief Executive, Sandra admitted “every day I fret a little bit in the office that we’re still saying no to some really good research”, and called for everyone involved with the charity to make as much noise as possible about kidney disease.

Doing their bit, clinicians, scientists, industry partners and patients have been donning purple and walking, running and cycling all over the country, banging the drum for Kidney Research UK.

Both Sandra and meeting chair Fiona Karet conveyed their thanks to Kidney Research UK’s industry supporters for helping to make Fellows Day 2016 such a success. By working together to continue to raise awareness of kidney disease, the renal community will help to influence policy, which will benefit science and research, and ultimately help patients.