

Second Bladder Cancer Translational Research Meeting
6th March 2020
Edgbaston Park Hotel in Birmingham

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The University of Birmingham and King's Health Partners held their second Bladder Cancer Translational Research Meeting - a fully interactive bladder cancer research meeting led by a wide international expert panel of clinicians and scientists in Birmingham. The forum has been designed to bridge the gap between basic science and clinical practice and cover the spectrum of bladder cancer research in oncology, urology, nursing, epidemiology, immuno- and molecular biology, and focusing on the progress of such research towards the clinic. The meeting was supported through educational grants from Roche, Incyte, and Novosanis.

Despite the substantial disease burden for patients and healthcare providers, bladder cancer only receives 0.6% of cancer research spending. This meeting thus provided an opportunity to enhance much-needed collaborations across the UK and internationally, promoting networking, collaboration and data-sharing between clinicians and scientists, thus allowing participants to anticipate crucial observations in clinical practice to inform research activities, and vice versa. Marrying these two diverse disciplines will enable healthcare systems to provide more efficient outcome-driven patient-centred interventions in the field of bladder cancer, and accelerate the transition of innovations from the laboratory bench to the hospital bed (or outpatients clinic). This is the essence of "translation".

We started the day with some personal reflections from Henry Scowcroft, an NCRI Consumer Forum representative, who used the story of his fiancée's death from bladder cancer to highlight the need for more translational and biological research in the field of bladder cancer.

After Henry's emotional appeal for more and better research, we were provided with a comprehensive overview of the current status of drug trials in bladder cancer by Dr Simon Crabb from the University of Southampton. His key message was that, while there are several promising developments in the pipeline, many 'new' bladder cancer therapies are recycled from other disease areas, and only yield incremental progress – a true game-changer for bladder cancer remains frustratingly out of reach.

With the increase in clinical trials, it was then very helpful to hear from Dr Steven MacLennan at the University of Aberdeen that there is a need for consistency in the definitions of outcomes used in these trials. A development of "core outcome sets" for bladder cancer is on the way and will generate homogeneity in trial outcomes over time. This will in turn lead to better ways of evaluating and summarising evidence from multiple trials of the same drug ("meta-analysis"), resulting in faster and better implementation of new findings in clinical guidelines. Steven also highlighted the lack of assessment of quality of life (QoL) in bladder cancer trials, which was further addressed by Dr Mieke Van Hemelrijck of King's College London. She is working with the European Organisation for Treatment and Research of Cancer (EORTC) QoL Group to update and validate their QoL questionnaires for bladder cancer. The EORTC is working on an item library covering various QoL issues so that clinicians and researchers in future can adapt their questionnaires based on their trial-specific bladder cancer population and treatments.

The second session of our meeting focused on novel approaches to drug discovery and delivery. We were blown away by the exciting research conducted by our (inter)national colleagues. Dr Molly Ingersoll from the Institut Pasteur in Paris is an immunologist and her

group focuses on the sex differences in responses to immunotherapy in bladder cancer (e.g. BCG) using preclinical mouse models. A lot of thought-provoking hypotheses and findings which then led us to further consider immunotherapy for bladder cancer with a presentation from Dr Mark Lynch from University College London. Mark discussed his work on urine-derived lymphocytes, which appear to allow non-invasive analysis of immune activity in bladder cancer, and closed by introducing us to the forthcoming DURANCE trial: immune checkpoint inhibitors are given to BCG-unresponsive patients with non-muscle invasive bladder cancer. We look forward to finding out the results. Apart from advances in immunotherapy, we then learned about how the gut microbiota may modulate responses to radiotherapy for bladder cancer. The team of Prof Anne Kiltie from Oxford University is investigating how *Bacteroides acidifaciens* in the gut microbiome may be associated with radiosensitisation of bladder tumours. Finally, we were completely astounded during the second session by the presentation and videos of Prof Metin Sitti, the Director of the Max Planck Institute for Intelligent Systems in Stuttgart. His team has developed tiny engineered soft-bodied (non-mechanical) milli- and micro-robots which may in the not too distant future deliver targeted drugs for bladder cancer (and other cancers). The diversity, controllability and capability of these robots was truly amazing.

The coffee and lunch breaks were lively and buzzing with ideas. During these periods delegates had the opportunity to peruse 14 high impact posters selected from some very interesting submissions from universities nationwide, such as, University of Manchester, University of Oxford, University of Newcastle, etc.

We started the afternoon with the presentations of the three best submitted abstracts. Susan Kilgas from Oxford University, Maggie Joseph from King's College London, and Simon Baker from the University of York gave excellent talks about various new ways of improving bladder cancer treatment. Susan Kilgas from Oxford University was provided with the Prize for Best Oral Presentation. Chee Kin Then from Oxford University and Nada Humayun-Zakaria from the University of Birmingham received the prizes for First and Second Best Poster Presentations, respectively. All prizes were sponsored by *Frontiers in Oncology*.

Prof Chas Bounta, the Scientific Director of the Structural Genomics Consortium at Oxford University closed the meeting outlining his disruptive and potentially game-changing approach encompassing the development of novel high-quality drug compounds and the associated reagents, that he then makes available to the academic community for further investigation across a range of diseases – from cancer to dementia. Chas made us aware of the consequences of ageing on our healthcare system and society. There is an urgent need of more novel, effective, and affordable treatments – and more quickly. This need for better affordable drugs is one that we as a team all hope to address by continuing these bladder cancer collaborations across the UK and internationally.

Building on the success of last year's conference, this year's meeting further strengthened links between a community that, while still disparate compared to that of other cancer types, is rapidly coming together. There was a tangible energy and excitement in the room, and we look forward to continuing this momentum in the run up to the 3rd Meeting, which will take place in London on 6th March 2021.

The general comments from the meeting have been very positive and encouraging. The feedback was gathered from individual feedback forms with the majority of responses for each session and the overall event rated 'excellent'. Some comments included, 'wonderfully organised' with 'very good content, highly insightful and interesting'. One attendee described the event as 'totally inspirational', leaving the team very motivated and excited about next year's meeting.