

# 11<sup>th</sup> CR@B Symposium

*a showcase of presentations and posters highlighting cancer research activities taking place on*  
**4.30pm – 8pm on Wednesday 22<sup>nd</sup> April 2015**  
**5 West 2.3, University of Bath**

## Programme

4.30pm	<b>Registration and reception</b>
5pm	<b>Opening note</b> Dr Adele Murrell, Chair, Cancer Research at Bath
5.10pm	<b>Predicting positive treatment outcomes in breast cancer: interaction between healthy lifestyles and immunity</b> Dr James Turner, Lecturer, Department for Health, University of Bath
5.35pm	<b>Intracellular library screening and helix-inducing constraints to derive peptide-based inhibitors of Activator Protein-1</b> Dr Jody Mason, Senior Lecturer, Department of Biology and Biochemistry, University of Bath
6.00pm	<b>Refreshments and informal poster session</b>
6.30pm	<b>Malignant Melanoma - from then to now</b> Dr Tania Tillett, Medical Oncologist, Royal United Hospital Bath
6.55pm	<b>Defining functions for long non-coding RNAs in melanoma growth and invasion</b> Dr Keith Vance, Lecturer, Department of Biology and Biochemistry, University of Bath
7.20pm	<b>PhD Students' Presentations</b>  <b>Donor-Acceptor Interactions Applied to Prostate Cancer Imaging and Therapy</b> Mr James Tyson, Integrated PhD Sustainable Chemical Technologies, Department of Chemistry, University of Bath  <b>Prognostication of Prostate Carcinoma: Potential New Biomarkers</b> Mr Ben Sharpe, PhD in Biology, Department of Biology and Biochemistry, University of Bath
7.40pm	<b>Seedcorn Grant announcement/Closing note</b> Dr Adele Murrell, Chair, Cancer Research at Bath
7.45pm	<b>Drinks, networking and poster session</b>

## About Cancer Research at Bath (CR@B)

Cancer Research at Bath (CR@B) is a unique network set up by the University of Bath and the Royal United Hospital (RUH) Bath. Our mission is to facilitate interaction between departments and institutes, multi disciplinary research and provide excellent opportunities for training for its members. It is also our mission to interact with fundraisers and industry, and generally raise awareness of all aspects of cancer.

Our objectives are:

To provide a forum to facilitate interaction between academics, clinicians, students and others with an interest in cancer

To promote opportunities for collaborative interdisciplinary research and training of the highest standards

To establish a platform to promote awareness of cancer research, expertise and facilities across the Bath region. Themed workshops to describe research capability, identify research problems and groups working on them.

For more information about CR@B, visit our website at: <http://www.bath.ac.uk/cancerresearch/>

## The presenters

### [Dr James Turner](#)

James joined the Department for Health as a Lecturer in 2013 and is a member of the Sport, Health and Exercise Science Research Group.

James is beginning a programme of research that examines key concepts in immunology (e.g., immune responses to viral infection, cancer and vaccination) in the context of ageing, physical activity level and body composition.

James undertook a PhD between 2007-2010 at the University of Birmingham. His thesis covered topics including exercise, oxidative stress and ageing of the immune system. James remained in Birmingham to undertake two post-doctoral research positions. During his first position between 2011-2012, James characterised immune responses to novel therapeutic targets for treating leukaemia. In his second position between 2012-2013, James conducted research towards producing a vaccine to prevent glandular fever and cancers caused by Epstein-Barr Virus.



### Research interests

- Ageing of the immune system
- Vaccination
- Exercise and cancer
- Immune responses to acute and chronic exercise
- Infection risk in athletes
- Oxidative stress and exercise
- Physical inactivity and body composition

### [Dr Jody Mason](#)

Jody's group focuses on two key disease areas;

- switching off a cancer-causing transcriptional protein (Activator Protein-1) thereby enabling a greater understanding of how this oncogenic protein functions in cancer and
- blocking aggregation of  $\beta$ -amyloid and  $\alpha$ -synuclein peptides associated with the generation of neurotoxic agents in Alzheimer's and Parkinson's diseases.

To antagonise these major players in chronic disease and ageing they employ semi-rational design using Protein-fragment Complementation Assays (PCA). In PCA key regions responsible for mediating binding between proteins are scrambled and library screening and selection is performed inside cells to remove insoluble, protease susceptible and non-specific library members. Target-specificity is aided by a Competitive And Negative Design Initiative (CANDI), while Iterations of Truncation, Randomisation and Selection (TRaSe) help to identify the smallest functional units required for effective binding. Sequences are refined using non-peptidic constraints such as sequence retro-inversion, non-natural amino acid substitution, and introduction of structure-stabilizing constraints, with the aim of generating molecules capable of modulating disease while circumventing many traditional drug development barriers.



### [Dr Tania Tillett](#)

Tania graduated from Bristol Medical School with Honours in 2003 and undertook the medical training rotation in the Severn area, which generated her interests in Oncology. Tania received Medical Oncology Training number in 2006. Whilst completing her specialist training she studied at the NCRI in London and received an MSc Oncology in 2011. After completed her training in 2013, Tania took up a Medical Oncology Consultant post at the RUH in 2014, specialising in Melanoma, Cancer of Unknown Primary and Hepatobiliary cancers. She has set up the Melanoma service at the RUH. The team now use Ipilimumab immunotherapy routinely at Bath. Currently Tania is working on expanding their immunotherapy drug portfolio.



### [Dr Keith Vance](#)

Research interests

The mammalian genome contains many thousand non-coding RNA (ncRNA) loci in addition to protein coding genes. Long ncRNAs (lncRNAs) are a class of polymerase II transcribed ncRNA molecules, greater than 200 nucleotides in length, which do not code for protein. LncRNA loci can be genomically located within exons or introns, transcribed in a sense or anti-sense orientation relative to protein coding genes, or they may be intergenic.

The function of the vast majority of these transcripts is unknown. Nuclear localised intergenic lncRNAs, however, are emerging as an important class of transcriptional and chromatin regulators with proposed roles in the control of normal cellular growth and



differentiation as well as in cancer. These transcripts were originally discovered to function in cis to regulate the expression of nearby genes on the same chromosome.

However, it is now apparent that lncRNAs can function in trans to regulate large scale gene expression programmes across multiple chromosomes and on different alleles from where they are expressed.

The focus of his research is to:

- Identify novel lncRNA transcriptional regulators of growth and differentiation from a dataset of vertebrate conserved central nervous system expressed lncRNAs.
- Characterise the role of lncRNAs in regulating melanoma growth and invasion, an extremely aggressive type of skin cancer.
- Investigate the genome-wide transcriptional regulatory functions of trans-acting lncRNAs, to determine the general principles of lncRNA genomic targeting and their mechanisms of transcriptional and chromatin regulation.

### Mr James Tyson

James Tyson is currently a 3rd year PhD student working in the department of Chemistry under the supervision of Dr Sofia Pasco. James joined the Centre for Doctoral Training in Sustainable Chemical Technologies in 2011 having obtained his Master's degree in Chemical Engineering from the University of Sheffield in 2010. His current research interests involve the use of supramolecular interactions to combine fluorescent molecules with graphene-like materials as a means of developing novel imaging agents for prostate cancer that are both diagnostic and therapeutic.



### Mr Ben Sharpe

Ben Sharpe graduated with a first class honours degree in Molecular and Cellular Biology from the University of Bath. He is now a final year PhD student in their Department of Biology and Biochemistry. His research interests focus on the nature of stem cell properties in prostate cancer cells, and how those may be related to the establishment and progression of the disease. His current project is to find new biomarkers which could be used to identify prostate cancer patients at risk of relapse.

