

## Dr Jennifer Anderton PhD, BSc

Post Doctoral Research Fellow

School of Cancer Sciences

### Contact details

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### About

Having graduated from the University of Liverpool with a degree in Genetics, Jennifer was offered a two year research associate post at the University of Oxford, following which she applied to the postgraduate training programme at the University of Newcastle.

Her PhD, which was awarded in 2006, focused on the epigenetic silencing of tumour suppressor genes in medulloblastoma. This research led to three publications.

### Qualifications

PhD in Epigenetic Gene Inactivation in Medulloblastoma, University of Birmingham, 2006

BSc (Hons) in Genetics, University of Liverpool, 1999

### Biography

Following her PhD, Jennifer applied for a LLR funded post-doctoral research post in the School of Cancer sciences, University of Birmingham. Initially, she focused on the mechanism of EBV induced polycomb mediated gene (PCG) silencing, and was able to show that this oncogenic virus induces deregulation of the histone demethylase, KDM6B, which removes the H3K27me3 mark, an essential component of PCG silencing. This research has been published in *Oncogene*.

Given that she had shown that KDM6B was likely to be involved in B cell differentiation, she went on to investigate whether modulation of this protein can explain in part the mechanism of action of differentiation therapies used to treat haematological malignancies.

Currently, she is investigating the mechanisms of action of epigenetic based therapeutic agents when used either in isolation or when combined with standard chemotherapy using a global loss-of-function screening technique.

Jennifer also supervises a CRUK Clinical Research Fellow who is exploring the effectiveness of an epigenetic modulator in the management of women with lower genital tract neoplasia, and is co-applicant on a successful grant for a Phase II clinical trial investigating the use of this agent in patients with vulva intraepithelial neoplasia.

At this stage she sees her career flowing from two streams of research; the first is concerned with acquiring a better understanding of the epigenetic reprogramming which occurs in haematological malignancies, the other on investigating the mechanism of action of epigenetic agents used in the management of these diseases.

### Teaching

Science undergraduate students: BMedSci (Year 2 and 3).

Medical undergraduate students: MBChB (Year 2 course on 'Cancer; causes to cures')

### Postgraduate supervision

Currently supervising a research technician and a clinical fellow studying for a PhD.

Supervised a visiting ERASMUS student on a 3 month project.

### Research

#### Research Grants and Awards

Co-applicant on a successful NIHR-RfPB grant for a Phase II clinical trial which will investigate the use of the green tea component (epigallocatechin-3-gallate) in patients with the Vulvar Intraepithelial Neoplasia (2013).

Co-applicant on an Innovative Biomedicine Awards scheme grant - provides consumable funding for a project to investigate the mechanism of sensitivity to drugs used in the treatment of haematological and pancreatic cancers (2012).

Co-applicant on a grant for a CRUK Clinical Fellowship. The award supports a Clinical Research Fellow evaluating epigenetic modulators as therapeutic agents for vulvar intraepithelial neoplasia (2012).

Co-applicant on an ECMC/CRUK 2 year project grant to fund a technical post to investigate epigenetic biomarkers in vulval cancer (2011).  
School of Clinical and Laboratory Sciences poster prize, Newcastle University (2004).

## Other activities

### Committees and Peer Review

Jennifer has been the school representative on the Postgraduate Training and Career Development (PTCD) committee (2009-2013).

Peer reviewed articles for Epigenomics and the Journal of Zhejiang.

### Impact activities

CRUK cancer showcase - provided a laboratory demonstration and explained to lay members of the public the rationale behind our NIHR-RfPB Phase II clinical trial for *vulvar intraepithelial neoplasia* (2013).

TK Maxx laboratory tour - explained to local fundraisers the impact of a new piece of equipment had on our work (2012).

Participated in CRUK Thinktank day - demonstrated a lab experiment to local children (2011).

Participated in LLR open day - demonstrated a laboratory technique to volunteer fundraisers (2010).

Academic Enrichment Programme – demonstrated laboratory techniques to 6<sup>th</sup> form students and supervised their experiments (2009).

## Publications

Leonard S, Wei W, Anderton J, Vockerodt M, Rowe M, Murray PG, Woodman CB. (2011). **Epigenetic and transcriptional changes which follow Epstein-Barr virus infection of germinal center B cells and their relevance to the pathogenesis of Hodgkin's lymphoma.** (<http://www.ncbi.nlm.nih.gov/pubmed/21752916>) *J Virol.* 85(18): 9568-77.

Anderton JA, Bose S, Vockerodt M, Vrzalikova K, Wei W, Kuo M, Helin K, Christensen J, Rowe M, Murray PG, Woodman CB (2011). **The H3K27me3 demethylase, KDM6B, is induced by Epstein-Barr virus and over-expressed in Hodgkin's Lymphoma.** (<http://www.ncbi.nlm.nih.gov/pubmed/21242977>) *Oncogene.* 30(17): 2037-43.

Murray PG, Fan Y, Davies G, Ying J, Geng H, Ng KM, Li H, Gao Z, Wei W, Bose S, Anderton J, Kapatai G, Reynolds G, Ito A, Marafioti T, Woodman CB, Ambinder R, Tao Q. (2010). Epigenetic silencing of a proapoptotic cell adhesion molecule, the immunoglobulin superfamily member IGSF4, by promoter CpG methylation protects Hodgkin lymphoma cells from apoptosis. *Am J Pathol.* 177(3):1480-90.

Anderton, J.A., Lindsey, J.C., Lusher, M.E., Gilbertson, R.J., Bailey, S., Ellison, D.W. and Clifford, S.C. (2008). Global analysis of the medulloblastoma epigenome identifies disease subgroup-specific inactivation of *COL1A2*. *Neuro Oncol.* 10(6):981-94.

Lindsey, J.C., Lusher, M.E., Anderton, J.A., Gilbertson, R.J., Ellison, D.W. and Clifford, S.C. (2007) Epigenetic deregulation of multiple S100 gene family members by differential hypomethylation and hypermethylation events in medulloblastoma. *British journal of cancer* 97(2): 267-274.

Lindsey, J.C., Anderton, J.A., Lusher, M.E. and Clifford, S.C. (2005). Epigenetic events in medulloblastoma development. *Neurosurgical focus* 19 (5): E10.

Lindsey, J.C., Lusher, M.E., Anderton, J.A., Bailey, B., Gilbertson, R.J., Pearson, A.D.J., Ellison, D.W. and Clifford, S.C. (2004). Identification of tumour-specific epigenetic events in medulloblastoma development by hypermethylation profiling. *Carcinogenesis* 25 (5): 661-8.

