University of Birmingham

Dr Jo Morris PhD BSc

Senior Lecturer

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About

Jo Morris is a Senior Lecturer at the School of Cancer Sciences and Breast Cancer Campaign Research Fellow.

Jo has published research papers in scientific journals as well as reviews and book chapters in the fields of breast cancer genetics, particularly about the predisposition gene BRCA1, the cellular response to DNA damage and small modifier biology of ubiquitin and SUMO. She has research grants from the Breast Cancer Campaign and Cancer Research UK.

Jo has contributed to both the local and national print media to promote an understanding of issues around cancer predisposition.

Qualifications

- PhD (1999)
- BSc (1995)

Biography

Jo Morris qualified with a BSc (Hons) in Biology from the University of York in 1995. She went on to study for a PhD in cancer biology at the Imperial Cancer Research Fund in London (now the London Laboratories of CRUK). After post doctoral research at King's College London she was awarded a Fellowship by the Breast Cancer Campaign (also undertaken at King's College London at Guy's Hospital). In 2010 Jo joined the School of Cancer Sciences at the University of Birmingham, to help establish the Birmingham Genome Stability Unit.

Her Laboratory focuses on cellular pathways associated with cancer predisposition, and their potential exploitation for treatment and diagnosis.

In 2009 Jo and her team were awarded 'Research Team of the Year' by the breast cancer research charity, Breast Cancer Campaign.

Teaching

- **BMedSci (/undergraduate/courses/med/medical-sci.aspx)**
- Translational Medicine: Interdisciplinary Biomedical Technologies MSc
- http://www.birmingham.ac.uk/postgraduate/courses/taught/med/translational-medicine.aspx

Postgraduate supervision

Jo Morris is supervising doctoral research students in the following areas:

- Ubiquitin pathways in the mammalian DNA damage response
- BRCA1 missense gene changes and the link to breast and ovarian cancer.

For any general doctoral research enquiries, please email: **dr@contacts.bham.ac.uk (mailto:dr@contacts.bham.ac.uk)** or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our Doctoral Research programme listings.

Research

SOUNDCLOUD

Research Themes

Breast Cancer Predisposition, Small modifier biology in the DNA damage response.

Research Activity

Small modifier biology and the DNA damage response

Recent work has focussed on the relevance of the small modifier proteins ubiquitin and SUMO in the DNA damage response.
The work of Jo Morris showed that SUMO isofoms are part of the DNA repair response and SUMOylation of BRCA1 acts to regulate its ability to act as a ubiquitin ligase. PIAS1 and PIA4 SUMO ligases are central to this response, and co-ordinate early arriving proteins.
She also showed that the location of the BRCA1 ubiquitin ligase activity in cells–at sites of DNA repair and the recent work of the Morris Laboratory has focused on the enzymes required to clear ubiquitin conjugates from sites of DNA damage repair.

Missense changes in BRCA1

Amino acid changes (missense) are potentially powerful tools to aid the molecular understanding of protein function. In this context Dr Morris has a particular interest in BRCA1 missense changes identified in patients' with a personal or family history of disease. In the past using protein: protein interactions of the BRCA1 N-terminus has suggested BRCA1 activity as a ligase is relevant to tumour predisposition. Now These studies are widening using the AFFECT collection of tumour samples from individuals with BRCA1 gene changes predicted to be represented at the protein level.

Other activities

- External PhD examiner in the area of DNA damage response and cancer
- Reviewer for grant funding bodies and journals.

Publications

Alexander J Garvin, Ruth M Densham, Sarah A Blair-Reid, Kenny M Pratt, Helen R Stone, Daniel Weekes, Kirsty J Lawrence and Joanna R Morris* The deSUMOylase SENP7 promotes chromatin relaxation for homologous recombination DNA repair.EMBO reports (2013), 14, - 975 - 983.

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Drost, R., P. Bouwman, S. Rottenberg, U. Boon, E. Schut, S. Klarenbeek, C. Klijn, I. van der Heijden, H. van der Gulden, E. Wientjens, M. Pieterse, A. Catteau, P. Green, E. Solomon, J. R. Morris* and J. Jonkers*, BRCA1 RING Function Is Essential for Tumor Suppression but Dispensable for Therapy Resistance. *Cancer Cell* (Dec 2011) 20(6): 797-809.

Morris, J.R. More Modifiers Move on DNA Damage, Cancer Research (2010), 15;70(10):3861-3.

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Solomon, E and Morris, J.R. (2009) Chapter 4. Recent advances in understanding the cellular functions of BRCA1. In Welcsh, P.L. (ed.), The Role of Genetics in Breast and Reproductive Cancers. New York, USA. Springer Science + Business Media and Humana Press

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