

## Dr Dean Kavanagh PhD, BMedSc

Research Fellow

Cardiovascular and Respiratory Sciences

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### About

Dr Kavanagh is a Postdoctoral Research Scientist based in the Centre for Cardiovascular Sciences in the School of Clinical and Experimental Medicine.

### Qualifications

- 2009 - PhD (Medicine), University of Birmingham
- 2005 – BMedSc (Hons) Pharmacology, University of Birmingham

### Teaching

BDS Yr 1 DRE-Digestion SGTs

MBChB Yr 1 Integrated Professional and Academic Skills

### Research

Working under the supervision of Dr Neena Kalia, Dr Kavanagh's research is focussed on Hematopoietic and (HSC) mesenchymal stem cells (MSC) can migrate to injured tissues and help in tissue repair. However, the events that govern their recruitment to injured tissue microcirculation are unclear. Therefore, our research focuses on examining the molecular adhesive events involved in HSC/MSC recruitment to different vascular beds following injury, including the liver, gut, kidney and muscle. Inflammatory and stem cell trafficking is monitored predominantly by state-of-the-art confocal based intravital microscopy which allows real-time and dynamic microcirculatory images to be captured in vivo. This technique allows numerous microcirculatory disturbances to be quantitated including the various events of the adhesion cascade (rolling/adhesion/transmigration) and also changes in vascular integrity.

### Publications

White RL, Nash G, [Kavanagh DPJ](#), Savage COS, Kalia N. Modulating the Adhesion of Haematopoietic Stem Cells with Chemokines to Enhance Their Recruitment to the Ischaemically Injured Murine Kidney. **PLoS ONE** 2013 Jun 8(6): e66489

[Kavanagh DPJ](#), Zhao Y, Yemm AI, Frampton J, Kalia N. Hematopoietic stem cells are recruited to injured murine microcirculation via distinct site-specific mechanisms. **PLoS ONE**. 2013; 8(3):e59150

[Kavanagh DPJ](#), Yemm AI, Frampton J, Kalia N. Hydrogen Peroxide significantly enhances hematopoietic stem cell recruitment to damaged gut following ischemia-reperfusion injury. **Cell Transplantation**. 2012 Aug 10. [Epub ahead of print]

Oo YH, Banz V, [Kavanagh D](#), Liaskou E, Withers DR, Humphreys E, Reynolds GM, Lee-Turner L, Kalia N, Hubscher SG, Klenerman P, Eksteen B, Adams DH. CXCR3 Dependent Recruitment and CCR6 Mediated Positioning of Th-17 Cells T in the Inflamed Liver. **Journal of Hepatology**. 2012 Nov; 57(5):1044-51

Aldridge V, Garg A, Davies N, Bartlett DC, Youster J, [Kavanagh DP](#), Kalia N, Frampton J, Lalor PF, Newsome PN. Human mesenchymal stem cells are recruited to injured liver in a  $\beta$ 1 integrin and CD44 dependent manner. **Hepatology**. 2012 Mar; 56(3):1063-73

Kavanagh DPJ and Kalia N, "Molecular adhesive mechanisms governing stem cell homing to injured tissues", In: Georgescu, A. (eds.), (2011) *Vascular Cell Biology to Cardiovascular Medicine*.

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Sadej R, Romanska H, Kavanagh DPJ, Takahashi T, Kalia N, Berditchevski F. Tetraspanin CD151 regulates TGF beta signalling: implication in tumour metastasis. **Cancer Research**. 2010 Jun; 70(14):6059-70

Kavanagh DPJ, Durant LE, Crosby HA, PF Lalor, Frampton J, Adams DH, Kalia N. Haematopoietic stem cell recruitment to injured murine liver sinusoids depends on  $\alpha$ 4 $\beta$ 1 / VCAM-1 interactions. **Gut**. 2010; 59(1):79-87

Hampson P, Kavanagh DP, Smith E, Wang K, Lord JM, Ed Rainger G. The anti-tumor agent, ingenol-3-angelate (PEP005), promotes the recruitment of cytotoxic neutrophils by activation of vascular endothelial cells in a PKC-delta dependent manner. **Cancer Immunology, Immunotherapy**. 2008; 57(8):1241-51

Challacombe JM, Suhrbier A, Parsons PG, Jones B, Hampson P, Kavanagh DP, Rainger GE, Morris M, Lord JM, Le TT, Hoang-Le D, Ogbourne SM. Neutrophils are a key component of the antitumor efficacy of topical chemotherapy with ingenol-3-angelate. *Journal of Immunology*. 2006; 177(11):8123-32

