

Dr Stuart McDonald

Barts
Cancer Institute
Queen Mary University of London



Research Interests

My main research interests include developing methods to (i) identify clonal proliferative units in normal and precancerous human epithelia, (ii) determining the mechanisms of how clones interact to form tumours and (iii) delineating the cellular origins and evolution of premalignant disease using next generation sequencing techniques.

My research group currently focuses on:

- Clonal interactions between different epithelial populations in Barrett's oesophagus, a common premalignant metaplasia and colorectal adenomas studying their role in the progression of cancer.
- The dynamics of clonal expansion in human epithelia particularly in premalignant disease and how this relates to cancer developments.
- Using next gen sequencing methods to dissect the clonal architecture of the normal and precancerous human breast.

Major Funders

- CORE
- Medical Research Council
- Breast Cancer Campaign
- Barts and the London Charity

Contact Details

Email: s.a.mcdonald@qmul.ac.uk

Dr Stuart McDonald

Barts
Cancer Institute
Queen Mary University of London



Recent Publications

- Lavery DL, Nicholson AM, Poulson R, Jeffery R, Hussain A, Gay LJ, Jankowski JA, Zeki SS, Barr H, Harrison R, Going J, Kadiramanathan S, Davis P, Underwood T, Novelli MR, Rodriguez-Justo M, Shepherd N, Jansen M, Wright NA*, **McDonald SAC***. The stem cell organisation, and the proliferative and gene expression profile of Barrett's epithelium, replicates pyloric-type gastric glands. *Gut* 2014 doi: 10.1136/gutjnl-2013-306508.
- Nicholson AM, Graham TA, Simpson A, Humphries A, Burch N, Rodriguez-Justo M, Novelli MR, Harrison R, Wright NA, **McDonald SAC*** and Jankowski JA*. Barrett's epithelium shares a common progenitor with the surrounding squamous epithelium and glands are clonal units containing multiple stem cells. *Gut* 2012 61(10):1380-9
- Gutierrez-Gonzalez L, Graham TA, Rodriguez-Justo M, Leedham SJ, Novelli M, Gay LJ, Ventayol-Garcia T, Green A, Stoker DL, Bamba S, Yamada E, Kishi Y, Jankowski JA, Wright NA and **McDonald SAC**. The clonal origins of dysplasia from metaplasia in the human stomach. *Gastroenterology* 2011 140(4):1251-1260
- Graham TA, Humphries A, Sanders T, Rodriguez-Justo M, Tadrous PJ, Nicholson AM, Novelli MR, Leedham SJ, **McDonald SAC** and Wright NA. Stem cell dynamics and epigenetic drift restrict the use of methylation patterns as markers of clonal expansion in the human colon. *Gastroenterology* 2011 140(4):1241-1250
- **McDonald SAC**, Greaves LC, Gutierrez-Gonzalez L, Lovell M, Deheragoda M, Leedham SJ, Taylor RW, Lee C-Y, Rodriguez-Justo M, Preston SL, Hunt T, Elia G, Oukrif D, Novelli M, Mitchell I, Stoker DL, Turnbull DM, Jankowski JA, and Wright NA. Mechanism of Field Cancerization in the Human Stomach: The Expansion and Spread of Mutated Gastric Stem Cells. *Gastroenterology* 2008 134:500-510.