

# Dr Gabriella Ficiz

Barts  
Cancer Institute  
Queen Mary University of London



## Research Interests

My research focuses on understanding how epigenetic mechanisms contribute to cancer initiation. Epigenetic modifications are tiny chemical attachments to DNA and proteins and these can modulate cellular functions regulating genomic stability and gene expression. Abnormal distribution of epigenetic modifications is associated with diseased states. Such changes are observed as we age and in cancer the key is to understand how they come about, how can they be prevented from occurring and whether they are reversible.

I started my research programme at Barts in September 2013 and my main research topics are:

- Understanding how aberrant DNA methylation leads to cellular transformation and tumourigenesis.
- Establishing experimental systems to reverse the cancer phenotype.
- Identifying mechanisms whereby epigenetic modifiers are directed to specific regions in DNA and chromatin.
- Investigating the role of novel epigenetic modifications (such as 5-formylcytosine) in normal development and cancer.

## Major Funders

- HEFCE Queen Mary University

## Contact Details

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## Selected Publications

- Ficz G\*, Hore TA, Santos F, Lee HJ, Dean W, Arand J, Krueger F, Oxley D, Paul YL, Walter J, Cook SJ, Andrews S, Branco MR, Reik W\* (2013) "FGF Signaling Inhibition in ESCs Drives Rapid Genome-wide Demethylation to the Epigenetic Ground State of Pluripotency" *Cell Stem Cell*. 13(3):351-9 \* corresponding authors
- Ficz G and Reik W (2013) Reprogramming by cell fusion: boosted by TETs. *Molecular Cell*. Mar 28;49(6):1017-8
- Booth MJ§, Branco MR§, Ficz G, Oxley D, Krueger F, Reik W, Balasubramanian S (2012) "Quantitative sequencing of 5-methylcytosine and 5-hydroxymethylcytosine at single nucleotide resolution in ES cells" *Science*. May 18;336(6083):934-7
- Branco MR, Ficz G, Reik W (2011) "Uncovering the role of 5-hydroxymethylcytosine in the epigenome". *Nature Reviews Genetics*. Nov 15;13(1):7-13.
- Ficz G§, Branco MR§, Seisenberger S, Santos F, Krueger F, Hore TA, Marques CJ, Andrews S & Reik W (2011) "Dynamic regulation of 5-hydroxymethylcytosine in mouse ES cells and during differentiation" *Nature*. 19;473(7347):398-402. § equal contribution



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