Charles Swanton MRCP BSc PhD Biography

Charles completed the MDPhD programme at University College London in 1999 having gained his PhD from the laboratory of Nic Jones at the Imperial Cancer Research Fund Laboratories establishing the subversion of cell cycle control by the Kaposi's Sarcoma Herpesvirus encoded K-Cyclin (Swanton et al. Nature 1997) and was awarded the national Pontecorvo Imperial Cancer Research Fund PhD thesis award (Mann et al., 1999; Swanton et al., 1999; Swanton et al., 1997).

Charles continued his interest in cell cycle disruption in cancer and its therapeutic applications (Swanton, Lancet Oncology 2004) and was made a Member of the Royal College of Physicians in 2003 and subsequently undertook his medical oncology training at the Royal Marsden Hospital. He was awarded a Cancer Research UK (CR-UK) clinician scientist fellowship in 2004 which allowed him to conduct his post-doctoral research training at the CR-UK London Research Institute with Prof Julian Downward, establishing multi-drug sensitivity mechanisms through RNA interference screening approaches, associated with paclitaxel and other common chemotherapy agents used in oncological practice (Swanton et al., 2007a; Swanton et al., 2007b). These screening datasets resulted in the observation that molecules that mediate chromosomal stability appeared to be significantly associated with those mediating taxane sensitivity and led to the first phase II clinical trial in colorectal cancer to attempt to define prospectively whether tumour chromosomal instability status alters response to a taxane-like drug.

In 2008, Charles was awarded an MRC and a CR-UK senior clinical research fellowship and appointed MRC/CR-UK Group leader of the Translational Cancer Therapeutics Laboratory at the CRUK London Research Institute and Fellow of the Society of Biologists (FSB). His laboratory focus is aimed at identifying colorectal and breast cancer cell survival regulators associated with specific patterns of genomic instability using functional genomic techniques in order to develop therapeutic approaches to delay the acquisition of multi-drug resistance (Swanton and Caldas, 2009; Swanton and Downward, 2008; Swanton et al., 2008; Swanton et al., 2006).

During this period Charles' research has begun to establish the clinical relevance of RNA interference (RNAi) approaches to the elucidation of drug sensitive patient cohorts; Tumours harbouring a Chromosomal Instability (CIN) phenotype are relatively more resistant to paclitaxel and sensitive to carboplatin in the OV01 ovarian cancer clinical trial cohort, potentially explaining the combinatorial efficacy of these two cytotoxics *in vivo* (Swanton et al., 2009). Charles has also recently confirmed the ability of RNAi screening methods to generate clinically applicable predictive biomarkers of drug response in breast cancer (Juul et al., 2010). Current translational research is developing these observations, focussed on the rapid identification of predictive biomarkers of drug response in cancer using RNAi screening approaches combined with the parallel genomics analysis of tumour tissue derived from "window of opportunity" neo-adjuvant monotherapy clinical trials.

Charles conducts his clinical research activities at the Royal Marsden Hospital having been appointed a medical oncology consultant physician in 2008. He combines his laboratory work with clinical duties by aiming to direct novel therapeutics to patients with specific cancer molecular subtypes within clinical trials in the Breast Cancer and Drug Development Units.

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