

Assessing role of SATB2 and SATB2-AS1 genes in Colorectal Cancer

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S*SATB2-AS1* is an antisense transcript to *SATB2*, the latter is described as a well categorized tumour suppressor gene in colorectal cancer (CRC). Thus, it is plausible that *SATB2-AS1* might play a role in CRC progression. This study was aimed to examine the expression levels of *SATB2-AS1* both *in vitro* and *in vivo*. mRNA expression of *SATB2* and *SATB2-AS1* was assessed in SW620 (metastatic) and SW480 (benign) CRC cell line and *in vivo* orthotopic mice models (same cell line) treated with either FOLFOX alone, combination of FOLFOX and Avastin, Avastin alone or vehicle. RNA was extracted and used for cDNA synthesis followed by gene specific expression testing using quantitative real-time PCR (qRT-PCR). Endogenous levels of both *SATB2* and *SATB2-AS1* were higher in SW480 compared to SW620 cell line. *SATB2* was elevated in SW620 combination treated samples, in SW480 FOLFOX alone treated sample and was lowered in SW480 combination treated samples in mice models relative to vehicle. Moreover, *SATB2-AS1* was up-regulated in SW620 Avastin alone treated samples and in SW480 combination treated samples in derived mouse model relative to the vehicle. We also examined the potential silencing of the SW620 genes due to DNA methylation (5'-aza-2'-deoxycytidine treatment) compared to SW480. No significant alteration was found but both genes were significantly elevated relative to vehicle. Elevated *SATB2* and *SATB2-AS1* levels suggest a plausible protective role of both genes in CRC. In addition, we demonstrate that both *SATB2* and *SATB2-AS1* appear to be co-regulated by DNA methylation. Future studies will allow us to ascertain the precise role of this anti-sense transcript in CRC..

Biography

Zi Yan Chiah is currently pursuing his third year undergraduate Medicine degree in Royal College of Surgeons in Ireland (RCSI). In summer of 2017, he was awarded funding from the RCSI Research Summer School and carried out his research on colorectal cancer supervised by Dr. Darran O'Connor and Dr. Sudipto Das.

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