P006 Altered miR-126 expression in CF versus non-CF airway epithelial cell lines

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In a number of miRNA expression profiling studies miR-126 has been shown to be highly expressed in both rat and human lung. The aim of this study was to assess the expression of miR-126 in Cystic Fibrosis (CF) and non-CF airway epithelial cell lines. Expression of miR-126 was evaluated by qPCR using TaqMan MicroRNA Assays in bronchial and tracheal epithelial CF and non-CF cell lines and a number of non-lung cell lines. Two potential targets of miR-126 - TOM1 (target of myb1 (chicken)) and TSC1 (Tuberous sclerosis 1 protein) were selected for further analysis from the miRNA target prediction databases - Targetscan and miRanda.
Results show that miR-126 expression is greater in airway epithelial cells compared to non-lung cells. miR-126 is down-regulated in CF bronchial ($p=0.034$) and tracheal cells when compared to their non-CF counterparts. There were reciprocal significant increases in the expression of TOM1 ($p=0.0021$) and TSC1 ($p=0.0256$) in CF compared to non-CF bronchial cell lines. Functional studies to establish the role of these genes in TLR4 and IL-1 signalling pathways are in progress.
Results demonstrate a decrease in miR-126 in CF cell lines and suggest that this and other miRNA may be differentially regulated in CF airway epithelial cells.