Public Abstract
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Title:CHARACTERIZATION OF ESRRB FUNCTION IN METASTATIC PROSTATE CANCER CELLS AND TRANSCRIPTIONAL REGULATION OF HEDGEHOG-SIGNALING PATHWAY TARGET GENES

Orphan nuclear receptor Estrogen Receptor Related Receptor Beta (Esrrb) is a transcription factor. Although it was also shown to be important in cancer, little is known about its function in cancer cells and cancer relevant pathways. Using advanced molecular biology, bioinformatics, as well as system biology approaches, we found Esrrb-targeted genes in metastatic prostate cancer cells and distinguish a group of target genes responsive to the Esrrb selective ligand DY131. We also found Esrrb is strong regulator of oncogenic pathways Hedgehog signaling, Akt signaling and p53 signaling. Gene set enrichment analysis shows Esrrb are related to cell proliferation, regulation of apoptosis and transcription regulation, supporting its role as a transcription factor and its known function in inhibiting prostate cancer cells proliferation. Overall, our comprehensive analysis of Esrrb target genes and functions show that Esrrb is a significant factor regulating cellular proliferation and apoptosis. Its activity in regulating Hh-signaling target gene expression and Akt inhibitory effect indicates Esrrb can potentially serve as a therapeutic target in cancer treatment.