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

Yuan Lu

Dr. Dennis Lubahn, Dissertation Supervisor

ABSTRACT

Orphan nuclear receptor Estrogen Receptor Related Receptor β (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.

We characterized a collection of Esrrb responsive genes and defined a group of genes for which DY131 serves as an agonist or antagonist through Esrrb. These results expand the understanding of the transcription regulatory function of Esrrb and provide a handful of reference markers regarding Esrrb activity.

In addition, Esrrb is shown to regulate the activity of multiple cancer-related signaling transduction pathways including Hedgehog signaling pathway, p53 signaling activity and Akt activity.

Overall, our comprehensive analysis of Esrrb-regulated gene expression and function analysis show that Esrrb can potentially serve as a therapeutic target in cancer treatment.