

Cleveland State University

EngagedScholarship@CSU

Undergraduate Research Posters 2017

Undergraduate Research Posters

2017

Expression Validation of miR-149-5p targets in prostate cancer

Grant Wethington

Cleveland State University

Savita Singh

Cleveland State University

Follow this and additional works at: https://engagedscholarship.csuohio.edu/u_poster_2017

 Part of the [Life Sciences Commons](#)

[How does access to this work benefit you? Let us know!](#)

Recommended Citation

Wethington, Grant and Singh, Savita, "Expression Validation of miR-149-5p targets in prostate cancer" (2017). *Undergraduate Research Posters 2017*. 15.

https://engagedscholarship.csuohio.edu/u_poster_2017/15

This Book is brought to you for free and open access by the Undergraduate Research Posters at EngagedScholarship@CSU. It has been accepted for inclusion in Undergraduate Research Posters 2017 by an authorized administrator of EngagedScholarship@CSU. For more information, please contact library.es@csuohio.edu.



Expression Validation of miR-149-5p target genes in prostate cancer

College of Sciences and Health Professions

Student Researchers: Grant Wethington and Savita Singh

Faculty Advisor: Girish Skukla

Abstract

Prostate cancer (PCa) is one of the leading causes of mortality in men. Current therapeutics for PCa are androgen depletion by castration or/and anti-androgen based treatments. Androgens are necessary for Androgen receptor (AR) to function as a transcription factor, AR then regulates the expression of genes which promote cancer cell proliferation. However, despite the therapeutic interventions recurred AR signaling, which is facilitated by the acquisition of mutations in AR and its amplification, cholesterol biosynthesis and alterations in the steroidogenesis continue promoting PCa carcinogenesis. Our research is focused on regulatory small RNA molecules know as microRNAs (miRNA) in PCa. Numerous miRNAs fine-tune the expression of multiple genes involved in posttranslational modification, cell proliferation, organogenesis, energy balancing and developmental regulation thus affecting cell proliferation, differentiation, and cell death. miRNA “replacement therapy” is highly promising as it can target the expression of carcinogenesis promoting AR and androgen signaling, the holy grail of PCa therapeutics. In this research project, we have tested the efficiency of miR-149-5p in controlling AR expression using a sensor luciferase reporter assay system in PCa cell culture model. We found a significant downregulation of AR reporter gene in PCa cells indicating the efficacy of miR-149-5p in controlling the growth of AR based tumors. Our result indicates miRNA mediated regulation of genes involved in PCa and therapeutic potential.