

1-2020


The Role of RASSF5 on Cell Growth and Hippo Signaling in Rhabdomyosarcoma

Megan Garver

Thomas Jefferson University, megan.garver@jefferson.edu

Lee Helman, MD

Katrina Slemmons, PhD

Follow this and additional works at: https://jdc.jefferson.edu/si_ctr_2022_phase1 Part of the [Oncology Commons](#), [Pediatrics Commons](#), and the [Translational Medical Research Commons](#)[Let us know how access to this document benefits you](#)

Recommended Citation

Garver, Megan; Helman, MD, Lee; and Slemmons, PhD, Katrina, "The Role of RASSF5 on Cell Growth and Hippo Signaling in Rhabdomyosarcoma" (2020). *Phase 1*. Paper 66.https://jdc.jefferson.edu/si_ctr_2022_phase1/66

This Article is brought to you for free and open access by the Jefferson Digital Commons. The Jefferson Digital Commons is a service of Thomas Jefferson University's [Center for Teaching and Learning \(CTL\)](#). The Commons is a showcase for Jefferson books and journals, peer-reviewed scholarly publications, unique historical collections from the University archives, and teaching tools. The Jefferson Digital Commons allows researchers and interested readers anywhere in the world to learn about and keep up to date with Jefferson scholarship. This article has been accepted for inclusion in Phase 1 by an authorized administrator of the Jefferson Digital Commons. For more information, please contact: JeffersonDigitalCommons@jefferson.edu.

The Role of RASSF5 on Cell Growth and Hippo Signaling in Rhabdomyosarcoma

Megan Garver, Dr. Lee Helman, MD* & Dr. Katrina Slemmons, PhD

Introduction: Rhabdomyosarcoma (RMS) is the most common soft tissue sarcoma of childhood. Dysregulation of the Hippo pathway, a signaling cascade that regulates many biological processes, is associated with many human cancers. The goal of my project was to delete RASSF5, a regulator of the Hippo pathway, in RMS cells utilizing CRISPR/Cas9 and then to evaluate how the absence of RASSF5 affects RMS cell growth and Hippo signaling, with and without DNMTi Tx.

Methods: A lipofectamine transfection was performed in two different RMS cell lines, Rh30 & RD, in which two different CRISPR/Cas9 vectors with RASSF5 guide RNA were introduced. Then IncuCyte growth assays, western blot and qPCR were performed

Results: The IncuCyte growth curve for one of the RASSF5 CRISPR Rh30 cell lines, Sg1, revealed a faster rate of cell growth compared to the control Rh30s. Also, when treated with SGI110 Tx, there is reduction of drug induced growth inhibition of Sg1 Rh30 cells compared to controls. When looking at the protein level, although Cas9 expression was observed, there was no baseline reduction in RASSF5.

Discussion: While some of this data suggests that we have less activation of the Hippo pathway, which would result from a reduction in RASSF5, other data implies that RASSF5 was not deleted entirely. Further research is needed to elucidate RASSF5's role in both RMS and the altered Hippo pathway in RMS.