

THE ARSENAL

Augusta University's Undergraduate Research Journal

ISSN 2380-5064 | The Arsenal is published by the Augusta University Libraries | <http://guides.augusta.edu/arsenal>

Volume 5, Issue 1 (2023)
Special Edition Issue

ROLE OF CA-19-9 AND HBA1C IN MICE WITH INDUCED PDAC

Heer Patel, Maria Sabbatini, Henry Knox, and Gabor Csanyi

Citation

Patel, H., Sabbatini, M., Knox, H., & Csanyi, G. (2023). Role of CA-19-9 and HBA1c in mice with induced PDAC. *The Arsenal: The Undergraduate Research Journal of Augusta University*, 5(1), 61. <http://doi.org/10.21633/issn.2380.5064/s.2023.05.01.61>



© Patel et al. 2023. This open access article is distributed under a Creative Commons Attribution NonCommercial-NoDeriv 2.0 Generic License (<https://creativecommons.org/licenses/by-nc-nd/2.0/>).

Role of CA-19-9 and HbA1C in Mice with Induced PDAC

Presenter(s): Heer Patel

Author(s): Heer Patel, Maria Sabbatini, Henry Knox, and Gabor Csanyi

Faculty Sponsor(s): Maria Sabbatini, PhD

Affiliation(s): Department of Biological Sciences

ABSTRACT

Pancreatic ductal adenocarcinoma (PDAC) is an aggressive epithelial tumor originating from the pancreatic acinar cells. In PDAC, reactive oxygen species (ROS) can lead to oxidative stress, along with DNA mutations. A notable source of ROS is NADPH oxidase (Nox), and its function is to transfer electrons from NADPH to oxygen, resulting in superoxide generation. We previously found that Nox1 is present in pancreatic stellate cells (PsSCs) and is involved in the formation of fibrotic tissue in chronic pancreatitis. We also found that Nox1 in PaSCs paracrinally facilitates the growth and invasion of pancreatic cancer cell lines in vitro and in vivo. The goal of this study was to determine the extent to which Nox1 participates in PDAC progression by studying and correlating anatomic-morphometric parameters with carbohydrate antigen (CA)-19-9 and hemoglobin (Hb) A1C levels because high levels of CA-19-9 in humans are correlated with a progression of PDAC and high levels of Hb A1C can be observed in patients with advanced PDAC due to a decline in the pancreatic function. We found that there was a lower progression of PDAC in mice lacking Nox1. However, unlike in humans, we did not see a correlation between high CA-19-9 levels and the progression of PDAC in mice. For instance, high levels of CA-19-9 were observed at early stages of PDAC, but not at later stages. HbA1C levels were not modified in mice with PDAC at any stage, indicating that the remaining healthy pancreatic tissue was able to normalize the glycemia.

Received: 02/15/2023 Accepted: 03/29/2023

Correspondence: Heer Patel, Augusta University, 1120 15th St. Augusta, GA 30912, HPATEL9@augusta.edu