Ponce Health Sciences University-Moffitt Cancer Center Partnership

Winter 2021-2022 Newsletter

http://psm-moffitt.org

The geographic proximity and large Hispanic populations in Florida and Puerto Rico have driven the formation of an academic partnership between the Ponce Health Sciences University and Moffitt Cancer Center. The complementary expertise at both institutions provides a synergistic means of studying the cancer problem in Puerto Ricans, and in the Hispanic population in general.

The Partnership's focus is on developing and improving cancer care outcomes for Hispanics in Puerto Rico and Florida by enhancing cancer care, personalized medicine, participation in clinical research and understanding the underlying basic mechanisms of cancer.

The PHSU-MCC Partnership is supported by a grant from the National Cancer Institute. The Principal Investigators are: Dr. Jaime Matta (PHSU, Contact PI), Dr. Kenneth Wright (MCC, Contact PI), Dr. Julie Dutil (PHSU), and Dr. Alvaro Monteiro (MCC).

¡Salud! Serie de charlas Ponce, PR

November 24, 2021: After almost two years of virtual activities, in-person events resumed with a Ponce Salud! Serie de Charlas held at the Santa Isabel Elderly Home on November 24, 2021. This event was a collaboration with our Community Advisory Panel member (CAP), Lydia Echevarría. The event speakers, Dr. Claudio Bernaschina (Urologist) and Dr. Lynnette Ruiz (Investigator), discussed HPV and related cancers in women and men such as: oral cancer, early detection and risk factors. Additionally, our Community Health Educator (CHE), Brenda Ramos, spoke on overall cancer prevention through lifestyle changes. The event was attended by residents of the Santa Isabel Elderly Home as well as Ponce medical students interested in urology. The 90% of attendees expressed they had learned something new during our event.

¡Salud! Serie de charlas Tampa, FL

October 9, 2021: The Moffitt Outreach Core held a virtual Salud! Serie de Charlas event in collaboration with CAP member, Viviam Sifontes, president of Latinas Unidas por Un Nuevo Amanecer (LUNA) on October 9, 2021. The event addressed the topics of breast cancer prevention, treatment, and survivorship, and clinical trials. Additionally, information regarding Moffitt's screening voucher system was shared with participants. Speakers for the event included our CHE, Brenda Ramos, Clinical Trials Navigator and Educator, Viviam Sifontes, and Moffitt Community Outreach Worker, Viviana Suárez. This event was open to the public via Facebook Live. Half of the participants indicated this was the first time they attended an event by the Outreach Core.

Research Spotlight

Prostate cancer (PCa) is a primary focus research area within the U54 Partnership. Currently there are two pilot projects in PCa whose main achievements are summarized below. Both projects are sharing blood and tumor samples and receive substantial support through two cores; PRBB and QSC. There are very few studies on prostate cancer health disparities in Puerto Rican men despite existing data from the Puerto Rico Cancer Registry showing that it is the first cancer in terms of incidence and mortality in PR. Recent studies reported that Puerto Rican men have a higher rate of poor outcomes than NHW regardless of treatment.

Research Project: The epigenetic predictors of aggressive prostate cancer in Puerto Rican men

Dr. Gilberto Ruiz-Deyá

Dr. Jong Y. Park

Co-Investigators: **A. Berglund (MCC)/J. Matta (PHSU)**

Epigenetic alterations have a critical role in cancer initiation and progression. Dysregulation of DNA methylation has been investigated extensively by our team and others as a promising biomarker for prostate cancer progression and aggressiveness. Dysregulation of DNA repair capacity in blood has hardly been studied in PCa. The DNA methylation variant 5-hydroxymethylcytosine (5hmC) has recently emerged as a new biomarker candidate. We are investigating the role of ancestry structure in progression of PCa in PR men. This study has focused in the discovery of differentially methylated genes, including ones involved in two DNA repair pathways, and validate identified methylated genes associated with aggressiveness of prostate cancer (PCa) among Puerto Rico (PR). Our study has helped provided research training one postdoctoral researcher and five MD students. Based on epigenome-wide analysis with DNA from 49 PR men with PCa, we identified 892 differentially methylated genes in prostate tumor tissues as compared with normal tissues. Regarding PCa aggressiveness, 141 differentially methylated genes were identified. Ancestry proportions of PR men were estimated as African, European, and Indigenous American; these were 24.1%, 64.2%, and 11.7%, respectively. The preliminary data in terms of DNA repair capacity shows a statistically significant decrease in repair in the blood of PCa patients n=15) compared to controls (n=6). Our study has produced two-peer reviewed publications (Ruiz-Deya et al. 2021, International Journal of Molecular Sciences, Anders et al. 2022, Biomolecules), and several presentations in national meetings including three AACR meetings. One of the publications and AACR presentation (April 2022) is the result of the combined efforts of both PCa pilot projects. The project team also recently received a prestigious grant award for three years and $1,176,000 from the DOD for a study titled “Reduction of lethal prostate cancer disparities in underserved Hispanic/Latino populations”.

Research Project: Evaluation of gene expression signatures predictive of disease aggressiveness and chemoresistance in Puerto Rican Men with prostate cancer.

Dr. Carlos J. Diaz Osterman

Dr. Kosj Yamoah

The use of precision medicine approaches for prostate cancer has gained momentum in recent years be the development of the Decipher Test (Veracyte, Inc.) as a genomic prognostic tool. The test uses a 22-gene signature expressed in tumor tissues to determine risk of clinical endpoints including biochemical recurrence, metastasis, and survival outcomes. An additional advantage of this tool is the ability to evaluate novel gene signatures for prognostic/predictive value using existing Decipher datasets. Thus, the platform has been used to evaluate drug sensitivity scores and molecular pathway activation signatures, providing critical insight to targeted therapy development. Amidst concerns that precision medicine use may be widening the health disparities gap among cancer patients, the research team has built on Dr. Yamoah’s pioneering work evaluating Decipher in African American men and has designed this U54 Pilot Project to evaluate (1) existing gene signatures and (2) novel oncogenic-driven therapy resistance signatures using the Decipher platform in tumors from Puerto Rican men. Though the study is ongoing, interim analyses indicate that tumors from Puerto Rican men (n= 22) carry higher risk scores, therapy response scores (abiraterone, docetaxel), and immune content compared to those from matched African American or European American men. The research team’s ongoing efforts will evaluate a set of novel gene signatures indicative of therapy resistance and molecular pathway activation to further determine the predictive potential of this precision medicine tool in the Puerto Rican population.