MARCH 4, 2024 VOL. 06

THE RESEARCH REVIEW

School of Medicine Quarterly Newsletter

IN THIS ISSUE

NEW NIH AWARDS

Epigenetic Regulation of Langerhans Cell Histiocytosis Pathophysiology and Microenvironment by HDAC3

PI: *Peter Dimitrion- Department of* Cancer Biology

Award Number: 1F30GM149139-01A1

Langerhans cell histiocytosis (LCH) is a rare inflammatory myeloid neoplasm with a wide range of clinical manifestations and severity caused by mutations that constitutively activate mitogen-activated protein kinase (MAPK) signaling in myeloid lineage cells-most commonly BRAFv600E. Treatment of LCH remains unacceptable due to significant drug-induced toxicity and inability of current treatment strategies to eliminate LCH precursor cells leading to high-rates of disease recurrence. This F30 proposal seeks to define the therapeutic potential of targeting HDAC3 to ameliorate LCH.

Defining Cancer Intervention Targets by Functional Genomics Analysis of Outbred F1 Mice

PI: *Dr. Jennifer Jacob - Department of* Oncology

Award Number: 1R01CA278818-01A1

Our central hypothesis is that targeting regulatory genes of cancer progression will impede tumor growth and prevent disease recurrence. Our study goals are two-fold: to discover cancer regulatory genes with HER2/Neu-expressing Diversity Outbred (DO) F1 mice; and to test intervention strategies directed at actionable targets such as LILRB4, a myeloid antigen-presenting cell (APC) checkpoint molecule. The development of spontaneous mammary tumors in HER2/neu-transgenic mice captures the substantial interactions among tumor, stromal and immune cells, and provides a translational research platform.

Novel mechanism of activation of the Renin-Angiotensin-System by inflammatory cells in diabetic kidney disease

PI: *Dr. Mariela Mendez - Department of Physiology*

Award Number: 1R21DK138393-01

Kidney inflammatory cell infiltration contributes to Diabetic kidney disease, but specific subpopulations have not been identified, and the crosstalk signaling with specific kidney cells is less clear. We will identify subpopulation of inflammatory cells with novel methods and study whether Th17 cells and IL17 activate the renin angiotensin system by acting directly on JG cells to induce glomerular and kidney injury.

Identification of Protective Innate Immune Memory Responses Against HIV Acquisition in the Human Female Genital Tract

PI: *Dr. Marta Rodriguez-Garcia -Department of Biochemistry, Microbiology and Immunology*

Award Number: 7R21AI172065-03

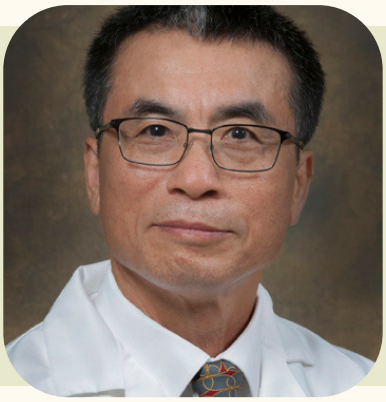
To prevent HIV acquisition in women and enable medical advances, the defense mechanisms that protect the female genital tract (FGT) from HIV infection need to be identified. This proposed research will investigate defense mechanisms that exist in genital dendritic cells and neutrophils. The identification of a new form of protection against HIV in the FGT will open new pathways for the development of HIV prevention strategies for women.

Molecular Mechanisms of Neuroprotection in Polyglutamine-Dependent Degeneration

PI: *Dr. Sokol Todi - Department of Pharmacology*

Award Number: 2R01NS086778-10A1

Age-dependent neurodegeneration is a major health and socioeconomic burden that will worsen as human lifespan steadily increases. The mechanisms of degeneration initiation and progression, as well as protective pathways to combat disease, remain poorly understood. We propose to elucidate how proteins implicated in the polyglutamine family of degenerative diseases are regulated in intact animals and in human cells with the purpose of learning new ways to combat them therapeutically.



Role of Programmed Cell Death Pathways in Bacterial Keratitis

PI: *Dr. Fu-Shin Yu -Department of Ophthalmology, Visual and Anatomical Sciences*

Award Number: 1R01EY035785-01

Diabetic patients are known to have a higher incidence of infection, with increased disease severity and an increased rate of multi-drug resistance. In the diabetic (DM) cornea, this results in increased susceptibility to and the rapid progression of microbial keratitis. This proposed study will allow for a better understanding of cornea immunity, identify factors and pathways responsible for the increased susceptibility of diabetic corneas to microbial infection, and to the identification of mechanism-based therapies for treating microbial keratitis, for both T1 and T2DM patients.

Sperm Mitochondrial Biomarkers and Male Reproductive Health

PI: *Dr. Richard Pilsner- Department of Physiology*

Award Number: 1R01HD110462-01A1

Male factor infertility is responsible in as much as 50% of cases of couple infertility, and has been observed to represent an early life predictor of later life disease risk. Conventional semen parameter analysis remains the most prevalent diagnostic tool for assessing male fertility, but semen parameters – as proxies for true biological measures of sperm function – poorly predict male infertility and reproductive success. This proposed research builds on exciting preliminary data suggesting sperm mitochondrial DNA as novel biomarkers that directly measure sperm fitness and holds promise to improve our understanding of the etiology of male reproductive health and take a critical step toward developing interventions for male sub- and infertility.

Genetic Variation in Cancer Risk and Outcomes in African Americans

PI: *Dr. Ann Schwartz -Department of Oncology*

Award Number: 1P01CA272239-01A1

The Administrative Core provides the leadership and administrative infrastructure to support Program-related activities, provides fiscal and regulatory oversight, and coordinates mechanisms of feedback, evaluation, and official communication with both the NCI and the community. This Core enables scientists to focus on their research by providing efficient overall management.

NEW DOD AWARDS

Cytochrome c Acetylation Drives Prostate Cancer Aggressiveness and Warburg Effect

PI: *Dr. Maik Huettemann- Center for Molecular Medicine & Genetics*

Award Number: HT9425-24-1-0073

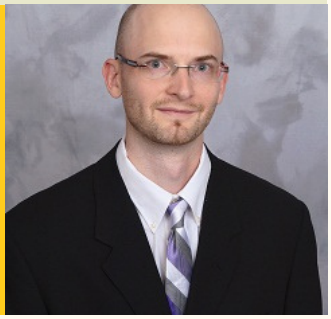
This proposal will Our proposal primarily addresses the PCRP overarching challenge "Define the biology of prostate cancer progression to lethal prostate cancer to reduce death" by studying a new PCa pathway that targets Cytc and, once understood, can be exploited for PCa treatment. We will explore Cytc acetylation as a driver of PCa aggressiveness and metastasis. If Cytc acetylation is central to PCa progression, aggressiveness, and metastasis as we expect, it can serve as a prognostic/diagnostic marker and, more importantly, would make possible the future development of a drug preventing this modification.

Epigenetic therapeutic targeting of enhancer hubs for breast cancer

PI: *Dr. Benjamin Kidder- Department of Oncology*

Award Number: HT9425-24-1-0023

Triple-negative breast cancer (TNBC) is particularly challenging due to its resistance to treatment and likelihood of recurrence. Our study focuses on the role of epigenetic processes in TNBC, particularly transcriptional enhancers that regulate gene activity. By targeting these enhancers, we hope to develop more effective treatments for TNBC. Our innovative approach involves using advanced genomics tools and repurposed gene editing technology (CRISPR/Cas9) to study and silence specific enhancer hubs using a CRISPR repressor system to turn off oncogenes and genes involved in TNBC cell growth. This strategy aims to overcome limitations of current treatments, which can have off-target effects on normal cells.



OTHER NEW AWARDS

BIOMARKERS TO IMPROVE TARGETING OF BREAST CANCER PREVENTION IN WOMEN WITN ATYPICAL HYPERPLASIA
PI: *Dr. Julie Boerner- Department of Oncology-25W8H*

CHARACTERIZING THE RELATIONSHIP BETWEEN MEDICAL MISTRUST, HEALTH BEHAVIORS AND NEIGHBORHOOD LEVEL FACTORS IN AFRICAN AMERICAN CANCER SURVIVORS.
PI: *Dr. Ariel Washington - Department of Oncology-3U01CA199240*

AGGRESSIVE COLORECTAL CANCER SUBTYPES AND SOCIAL DISADVANTAGE IN A RACIALLY DIVERSE COHORT
PI: Dr. Kristen Purrington- Department of Oncology-25W9A

AFRICAN ANCESTRY IMMUNE CELL ATLAS: GENETICS, EPIGENETICS AND ENVIRONMENT
PI: *Dr. Francesca Luca- Center for Molecular Medicine & Genetics-25W94*

DUAL-ACTING NANOFORMULATIONS FOR THE TREATMENT OF OCULAR BACTERIAL INFECTIONS
PI: *Dr. Ashok Kumar - Department of Ophthalmology, Visual and Anatomical Sciences-25X14*

PROPHYLACTIC COVID-19 MINICIRCLE- DNA VACCINE TARGETING EMERGING VARIANTS OF SARS-COV-2
PI: *Dr. Ramesh Batchu - Department of Surgery-25X13*

WAYNE STATE UNIVERSITY CENTER FOR HEALTH EQUITY AND COMMUNITY KNOWLEDGE IN URBAN POPULATIONS (CHECK-UP)
PI: Dr. Hayley Thompson- Department of Oncology-25W9B

IPA AGREEMENT- MENG DENG
PI: *Dr. Zhengquing Hu- Department of Otolaryngology-2WFJ*

IPA AGREEMENT- PAGADALA
PI: *Dr. Zhengquing Hu- Department of Otolaryngology-2WFS*

IPA AGREEMENT- HENDERSON
PI: *Dr. Zhengquing Hu- Department of Otolaryngology-2WFK*

IPA AGREEMENT- ANIKA TABASSUM
PI: Dr. Zhengquing Hu- Department of Otolaryngology-2WFK

PEDIATRIC GENERAL SURGERY RESEARCH INFRASTRUCTURE GRANT
PI: *Dr. Christina Shanti - Department of Surgery-25X1D*

MICHIGAN DIABETES RESEARCH CENTER
PI: *Dr. Colleen Buggs-Saxton - Department of Pediatrics-25W9H*

SEQUENCING FAMILIAL LUNG CANCER
PI: *Dr. Kristen Purrington- Department of Oncology-25W8K*

SWOG NETWORK GROUP OPERATIONS CENTER OF THE NCTN
PI: *Dr. Lawrence Flaherty - Department of Oncology-25X1S*

STI HIV Clinical Services
PI: *Dr. Shira Heisler - Department of Internal Medicine-25W9H*

RYAN WHITE PART C OUTPATIENT EI S PROGRAM
PI: *Dr. Gretchen Newman- Department of Internal Medicine-2WFL*

SOUTHWEST ONCOLOGY GROUP (SWOG) LEADERSHIP ROLE FUNDING
PI: *Dr. Philip Philip - Department of Oncology-25X1F*

ASTHMA AND TECHNOLOGY IN EMERGING AFRICAN AMERICAN ADULTS (THE ATHENA PROJECT)
PI: *Dr. April Carcone - Department of Family Medicine-25W9Q*

NEW IN RESEARCH NEWS

AI (Artificial Intelligence) Use in Peer Review

NIH doesn't allow Artificial Intelligence technologies for the peer review process as this is a breach of confidentiality but it has not discouraged its use in writing an application and warns that anyone using it for this purpose does so at their own risk. See the links below for additional reading regarding the policy.

- **Using AI in Peer Review Is a Breach of Confidentiality**
- **The Use of Generative Artificial Intelligence Technologies is Prohibited for the NIH Peer Review Process**

Sponsored Program Administration Proposal Submission Deadline Policy Effective 1/9/23

All proposals in final form, including all necessary components/documents and necessary approvals, should be submitted via Cayuse to SPA at least three (3) full business days prior to the funding agency's submission deadline to receive comprehensive and proper review. For proposals containing terms and conditions binding upon award, as much lead time as possible should be provided with a minimum of an additional two (2) business days required to ensure proper review.

For more info on NIH updates and things relevant to your research check out the Research Administration Services (RAS) blog here.

SOM RESEARCH FACTS

The SoM award total at this point for 2024 is $46,522,962** and approximately 69% of the proposals submitted were awarded.

We also compared the number of proposals submitted and the number of awards received through February 2023 to this year, see below for the figures.

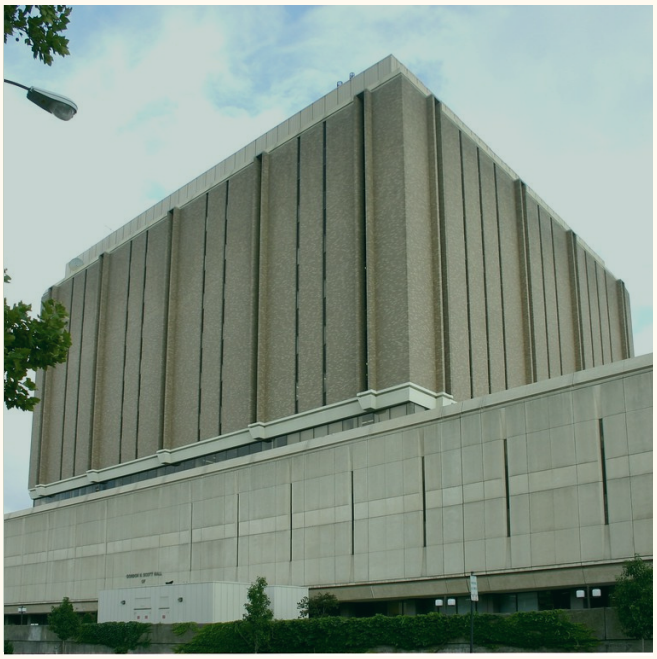
Proposals

2023 $224,276,008/252 submitted
2024 $186,239,441/203 submitted

Awards

2023 $39,024,871/122 awarded
2024 $46,522,962/141 awarded**

**Please note that the amounts for proposals and awards are per OVPR data.



NOTE: We strive to include all new awards for the quarter in the newsletter. However, if you wish to guarantee the mention of your award, please don't hesitate to send the details to us at cp8951@wayne.edu.