Ph.D. in Clinical Investigation (PCI)

ALBERT EINSTEIN COLLEGE OF MEDICINE
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Introduction

PhD Concentration in Clinical Investigation

The PhD in Clinical Investigation (PCI) provides rigorous advanced training that prepares individuals for an independent research career in clinical and translational science, preparing them to conduct research that aims to improve the health of the population using the methodologies of clinical and translational science. The PCI identifies, educates, supports, and mentors talented PhD and MD-PhD candidates to become impactful and successful scientists. The PCI is offered as a Concentration for predoctoral PhD students enrolled in Einstein’s graduate division and for M.D./PhD students in Einstein’s Medical Scientist Training Program (MSTP).

Students enrolled in Einstein’s PhD or MD-PhD programs can take any number of the three rotations in year one with PCI Faculty. Faculty from any academic department at Einstein may mentor a PCI student, provided they have the qualifications (skills, experience, environment, and support) to serve as a translational research mentor for a predoctoral trainee.

What is PCI?

A training approach that emphasizes clinical/translational research methods and quantitative approaches, focusing on projects with direct application to human health across all diseases or organ systems. The PCI seeks to promote multidisciplinary investigation and to prepare its students to meaningfully and effectively contribute to investigation within the emerging construct of “team science.”

Mentors/Departments

A unique aspect of the PCI is that students do not declare in any specific basic science department; departmental responsibilities are managed by the Einstein-Montefiore Institute for Clinical and Translational Research (ICTR). Therefore, any qualified faculty member, irrespective of departmental appointment, may serve as a PCI mentor if they meet mentoring standards (experience/track record, commitment, and a robust research operation that can support students’ investigations.)
Program Requirements
PhD in Clinical Investigation (PCI)
Albert Einstein College of Medicine

Program Goal: To provide novel, innovative, and forward-looking pre-doctoral training for biomedical investigators seeking to develop careers in translational research, creating new knowledge to help promote human health and prevent or treat disease.

Curriculum:

- First year graduate students pursue any course of study consistent with general graduate school policies (e.g., 21 credit hours of course work, and 3 rotations, in year 1). Students potentially interested in PCI are encouraged to enroll in the Design and Conduct of Clinical Research course and to consult with our program leadership for advice regarding course and/or rotation selection.

- Second year: 6-week Intensive summer course in epidemiology, biostatistics, study design, and data analysis; further required epi/stats course work in the fall semester; advanced elective courses in spring of year 2 and beyond.

Required Courses (usually taken in the second year of graduate school):
Clinical Research: Summer Intensive
Multivariable Regression
Epidemiologic Research Methods

Recommended:
Year 1: Design and Conduct of Clinical Research (strongly recommended for those without clinical research experience)
Year 2: and beyond Further methodologically or analytically oriented coursework specific to each trainee, to be determined by program directors and mentors.

Additionally: All PCI courses are integrated with our MS in Clinical Research Methods program; graduate students take classes with medical students (in the MD/MS track) and faculty-level MDs and PhDs.

Program Leaders:
Dean Hosgood, PhD, (Epidemiology and Population Health) Dean.Hosgood@einsteinmed.edu
Paul Marantz, MD, MPH (ICTR) Paul.Marantz@einsteinmed.edu
Louis Weiss MD, MPH (Pathology, Medicine) Louis.weiss@einsteinmed.edu
Sofia de Oliveira, PhD (Development & Molecular Biology) Sofia.deoliveira@einsteinmed.edu
Jacqueline M. Achkar, M.D., M.Sc.
Professor, Department of Medicine (Infectious Diseases)
Associate Director of Translational Bench-to-Bedside Research Training, Clinical Research Training Program, Co-Director, Global Health Center
Associate Director of T32 for “Geographic Medicine and Emerging Infections”

Dr. Achkar is an Infectious Diseases trained physician-scientist with an additional master’s degree in clinical research methods. She is the Associate Director of Translational Bench-to-Bedside Research Training of the Clinical Research Training Program and has extensive experience in training and mentoring MD and PhD students (incl. PCI students), post-doctoral clinical and research fellows, and junior faculty members.

RESEARCH AREAS: Human host responses to *Mycobacterium tuberculosis* – i) identification of TB biomarkers towards development of simple and rapid diagnostic tests; and ii) identification and investigation of protective antibodies against TB

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIH/NIAID, 1 R01 AI146329 (Achkar), Title: “Characteristics and protective efficacy of human antibodies against *M. tuberculosis*”, Role: PI (35% effort; $502,863)

The objectives of this proposal are to study polyclonal human antibody responses to the capsule of *Mycobacterium tuberculosis* and to generate and investigate human monoclonal antibodies (mAbs) to the capsular polysaccharide arabinomannan. The overarching goal is to determine the glycan surface epitopes most relevant for antibody-mediated protection against tuberculosis. The knowledge gained could inform new strategies for developing both vaccines and antibody-based immunotherapies against TB.
Adebola Adedimeji, PhD, MBA, MPH, MS

Associate Professor, Department of Epidemiology and Population Health (Health Behavior Research & Implementation Science)

RESEARCH AREA: Behavioral Epidemiology, HIV/AIDS, Cancers

SELECTED PUBLICATIONS:


SELECTED GRANTS:

H6N1ZF5HJ2G3
Anastos (PI); Adedimeji, Mutesa, Yotebieng (Co-PI)
9/1/20 – 5/31/24
Einstein/Rwanda/DRC Consortium for Research HIV/HPV/Malignancies
National Cancer Institute
Julia Arnsten, MD, PhD or MPH
Professor, Department of Medicine (General Internal Medicine)

RESEARCH AREA: Behavioral medicine, including adherence with medication-taking, nicotine dependence, and substance abuse.

SELECTED PUBLICATIONS:


Batchelder AW, Brisbane M, Litwin AH, Nahvi S, Berg KM, Arnsten JH. "Damaging what wasn't damaged already": psychological tension and antiretroviral adherence among HIV-infected methadone-maintained


SELECTED GRANTS:

Title: Does medical cannabis reduce opioid analgesics in HIV+ and HIV- adults with pain?
Major Goals: Our overarching goal is to understand how medical cannabis use affects opioid analgesic use over time, with attention to THC/CBD content, HIV outcomes, and adverse events.
Project Number: 5R01DA044171-02
PD/PI: Arnsten, J.
Source of Support: NIH/NIDA
Project/Proposal Start and End Date: 7/1/2017 – 6/30/2024 (NCE)
Total Award Amount (including Indirect Costs): $3,845,698

Title: Does medical cannabis reduce opioid use? A randomized controlled trial
Major Goals: Specific Aims: In a 4-arm randomized controlled trial, we will examine how medical cannabis use affects opioid analgesic use (Aim 1) and adverse events (Aim 2). We hypothesize that (a) medical cannabis use (vs. no use) will reduce opioid analgesic use; (b) the effect of medical cannabis use on opioid analgesic use will differ by THC/CBD content; (c) medical cannabis use (vs. no use) will have more adverse events (cannabis use disorder, illicit drug use, diversion, accidents, hospitalizations/ER visits); and (4) the effect of medical cannabis use on adverse events will differ by (THC/CBD content).
PD/PI: Arnsten, J.
Source of Support: Laura and John Arnold Foundation
Project/Proposal Start and End Date: 11/01/18-10/31/23
Total Award Amount (including Indirect Costs): $2,054,259

Title: Integrated Care for Chronic Pain and Opioid Use Disorder: The IMPOWR Research Center at Montefiore/Einstein (IMPOWR-ME)
Major Goals: The aims of IMPOWR-ME are to: 1) create a robust and sustainable research infrastructure to rigorously test and disseminate integrated and cost-effective evidence-based practices for people with chronic pain and opioid use disorder; 2) partner with people with lived experience with chronic pain and opioid use disorder and diverse stakeholders in all stages of the research; and 3) provide opportunities for multidisciplinary early stage investigators to become independent researchers focusing on chronic pain and opioid use disorder.

**Project Number:** 1RM1DA055437  
**PD/PI:** MPI Starrels / Arnsten / Gabbay  
**Source of Support:** NIH/NIDA  
**Project/Proposal Start and End Date:** 9/30/2021 – 7/31/2026  
**Total Award Amount** (including Indirect Costs): $13,941,307
SELECTED PUBLICATIONS:


Cheney,L.,Guzik ,H., Macaluso, F., Macian,F., A.M. Cuervo, A.M., Berman, J.W. (2020) HIV Nef and ART have an Inhibitory Effect on Autophagy in Human Astrocytes that may contribute to HIV associated Neurocognitive disorders. Cells. 2020:9, 1426. PMCID: PMC7349791


Bezawit W. Megra, Eliseo A. Eugenin, and Joan W. Berman (2018) Inflammatory mediators reduce surface PrPc on human BMVEC resulting in decreased barrier integrity. Accepted, Laboratory Investigation.

SELECTED GRANTS:

R01 DA041931
Berman/Volsky (MPI)
04/15/2017-02/28/2022 (NCE)
Effect of Buprenorphine on Monocytes in the Context of NeuroAIDS and Opioid Abuse

R01 MH112391
Berman/Morgello (MPI)
07/19/2017-04/30/2023 (NCE)
Monocyte CNS HIV Entry & Neurodegeneration: Translational Studies in the CART Era

R01 DA044584
Berman/Goldstein (MPI)
07/01/2017-05/31/2023 (NCE)
Impact of Illicit Drugs, HIV, and ART on Neuroinflammation and BBB Disruption

R01 DA048609
Berman/Goldstein (MPI)
05/01/2019-04/30/2024
Mechanisms of Opioid-mediated HIV Neuropathogenesis

P30 AI124414
Goldstein (PI)
05/01/2022-04/30/2027
Einstein-Rockefeller-CUNY Center for AIDS Research
Advanced Technology and Biomarkers Core, Core Director, Joan W. Berman
Helena Blumen, PhD, MS

Associate Professor, Department of Medicine (Geriatrics) and Neurology (Cognitive and Motor Aging). Associate director: Resnick Gerontology Center. Director: Neuroimaging of Gait and Cognition Lab.

RESEARCH AREA: Brain health and the interrelationship between social, cognitive, and physical functions in aging and dementia – including lifestyle interventions that promote neuroplasticity and improve such functions.

SELECTED PUBLICATIONS:


* First author is CRTP mentee


** First author is postdoctoral mentee


*** First author is medical student mentee


SELECTED GRANTS:

2020-2025 1R01AG062659-01A1, NIH/NIA. Blumen, H.M. (PI). Trajectories and Modifiable Risk factors of Brain, Gait and Cognitive decline in Aging and Pre-dementia Role: PI

2020-2025 1R01AG068167-01, Verghese, J & Knotkova, H (Co-PIs). Non-Invasive Home Neurostimulation for Mild to Moderate Alzheimer's Disease: Double-Blind, Sham Controlled Randomized Clinical Trial. Role: Co-Investigator.

Robert D. Burk, MD

Professor and Vice Chair for Translational Research, Department of Pediatrics (Pediatric Genetic Medicine); Professor, Departments of Microbiology & Immunology; Epidemiology & Population Health; and, Obstetrics, Gynecology & Women’s Health.

RESEARCH AREAS:
- Translational Research combining large cohort studies with laboratory based cutting-edge technologies.
- Defining the evolution and causality of human papillomaviruses (HPVs) and cancer.
- Developing and analyzing the human microbiome (stool, oral and cervicovaginal samples) as etiological variables in human disease.

SELECTED PUBLICATIONS:


SELECTED GRANTS:


Pablo E. Castillo, MD, PhD

Professor, Department of Neuroscience, Department of Psychiatry and Behavioral Sciences

RESEARCH AREA: Experience-dependent brain plasticity and its dysregulation in disease.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01 NS113600 Activity-dependent plasticity in an associative hippocampal circuit: mechanisms, synaptic learning rules and involvement in disease.

R01 MH 125772 Presynaptic forms of long-term plasticity in the CNS.

R01 MH116673 Synaptic Mechanisms for Contextual Memory Formation

R01 NS115543 Activity-dependent Transcriptional Pathways Underlying Synaptic Mechanisms for Memory Discrimination and Generalization
Earle Chambers, PhD, MPH
Professor, Department of Family & Social Medicine
Professor, Department of Epidemiology and Population Health
Professor, Department of Psychiatry and Behavioral Sciences

RESEARCH AREA: Intersection of social epidemiology and social medicine

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01 HL166318-01, National Heart, Lung, And Blood Institute
Chambers, Earle C (PI)
01/01/23-12/31/26
Bronx Neighborhood Redevelopment and CVD in mid-life and older adults

R01 DK121896-01, National Institute of Diabetes and Digestive and Kidney Diseases
Chambers, Earle C (MPI)
09/16/19-08/31/24
Power-Up: An Effectiveness Trial of the Diabetes Prevention Program Tailored for Black and Latino Men

P30 DK111022, National Institute of Diabetes and Digestive and Kidney Diseases
Gonzalez (PI)
Role: Director, Population Health and Health Systems Core
Role: Director, Enrichment Program
09/2021-08/2026
Ana Maria Cuervo, MD, PhD

Professor, Department of Developmental and Molecular Biology
Professor, Department of Medicine (Hepatology)
Co-Director Institute for Aging Research

RESEARCH AREA: Molecular basis of malfunctioning of autophagy (cellular quality control system) with age and the contribution of defects on this cellular pathway to age-related disorders such as neurodegeneration, metabolic disorders, and cancer.

Our group is interested in understanding how altered proteins can be eliminated from the cells and their components recycled. We have linked alterations in lysosomal protein degradation (autophagy) with different neurodegenerative diseases including Parkinson’s, Alzheimer’s, and Huntington’s disease. We have also proven that restoration of normal lysosomal function prevents accumulation of damaged proteins with age, demonstrating this way that removal of these toxic products is possible. We have pioneered studies demonstrating a tight link between autophagy and metabolism, whereby autophagy coordinates glucose and lipid metabolism and failure of different autophagic pathways with age contributes to important metabolic disorders such as diabetes or obesity.

SELECTED PUBLICATIONS:


Schneider JL, Suh Y, **Cuervo AM***. Deficient chaperone-mediated autophagy in liver leads to metabolic disregulation. Cell Metab. 20:417-432, 2014


Scrivo A, Bourdenx M, Pampliega O, **Cuervo AM**. Selective autophagy as a potential therapeutic target for neurodegenerative disorders. Lancet Neurol 17(9):802-815, 2018


**SELECTED GRANTS:**

5P01 AG031782-13A1 NIH/NIA: Autophagy in aging: testing geroscience in Alzheimer’s disease

R37 AG21904-20 NIH/NIA: Decreased Protein Degradation in Aging

Research Grant - The Rainwaters Foundation: Targeting chaperone-mediated autophagy and endosomal microautophagy in Tau pathology

Research Grant - The JPB Foundation: Selective autophagy and Parkinson’s Disease
Johanna Daily, MD, MS

Professor, Department of Medicine (Infectious Disease)

RESEARCH AREA: Biology and host response to Plasmodium falciparum infection

I am a physician scientist, trained in Infectious Diseases and Epidemiology and study human cohorts to address basic immunology, pathogenesis and refine clinical models of disease in malaria and more recently in COVID-19. My core research program in malaria studies host and parasite factors associated with cerebral malaria, through the study of naturally infected cohorts and in animal models of malaria over the past two decades. Recently we identified pipecolic acid as a putative mechanism of coma in cerebral malaria using combined population cohort studies and animal models of experimental cerebral malaria. During the pandemic, I contributed to COVID-19 projects including recruiting COVID-19 patients for convalescent plasma studies used in our Expanded Access Treatment Program and our RCT of convalescent plasma versus placebo. I have mentored three medical students toward their Clinical Research Training Program (CRTP), and multiple graduate students, post-doctoral fellows and K funded physician scientists in the area of infectious diseases. I am the career development associate program director for the Department of Medicine Internal Medicine Residents and serve the same role with the Master students in the CRTP. My skills in clinical and translational research and education will serve me well as a co-mentor to Dr. Sy in the area of cohort studies and arboviral epidemiology and clinical research

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIAID  1 R01 AI164864-01  Daily (PI) 2022-2027  15%

NIAID  1 R21 AI162007-01  Daily (PI) 2021-2023  15%
Identifying adjunctive therapy in the experimental model of malaria to improve cerebral malaria outcomes.

NINDS 1R01 NS123445-01  Daily, Lipton (MPI) 2022-2027  15%
Characterizing persistent subclinical neurobehavioral effects of COVID-19 in a diverse urban population.
Sofia de Oliveira, PhD
Assistant Professor, Department of Developmental & Molecular Biology, and Department of Medicine

RESEARCH AREA: Aging and diet impact on Neutrophils and their role in disease progression (Polytraumatic injury, Non-alcoholic fatty liver disease, liver cancer).

SELECTED PUBLICATIONS:


NIH/NIGMS R35GM147416-01; PI: de Oliveira, S. **Neutrophils in polytrauma – from recruitment to phenotypic and functional reprogramming.** Trauma is a major public health crisis worldwide, and the number one leading cause of death from age 1 to 46. Neutrophils play a crucial pathological role in posttraumatic inflammatory response. Importantly, dysregulation of neutrophil responses and function due to pre-existent metabolic syndrome and associated meta-inflammation, contribute to increased susceptibility to develop posttraumatic complications in high-risk groups. Therefore, the goal of this work is to determine the mechanisms governing neutrophil responses in polytrauma in healthy and meta-inflammation conditions.

P&F Award from Marion Bessin Liver Research Center. PI: de Oliveira, S. **Investigating the role of innate immune cells in the liver microenvironment during NASH progression.**

Andrew McDonough B+ Foundation. PI: de Oliveira, S.; **The role of inflammation in the liver microenvironment of a Fibrolamellar Carcinoma zebrafish model.**

P&F Award from Einstein’s Nathan Shock Center in the Basic Biology of Aging. PI: de Oliveira, S.; **Understanding neutrophil function in age-related immunometabolic dysfunction.**
Carol Derby, PhD
Professor, Department of Neurology

RESEARCH AREA: Relation of cardiovascular risk factors to the natural history of Alzheimer's Disease and Dementia

SELECTED PUBLICATIONS:

Anti-Müllerian Hormone Level Decline in Patients Undergoing Hysterectomy With and Without Oophorectomy Compared With Natural Menopause

Availability of healthy foods, fruit and vegetable consumption, and cognition among urban older adults

Carotid intima media thickness and white matter hyperintensity volume among midlife women

Discrimination and Education Quality Moderate the Association of Sleep With Cognitive Function in Older Black Adults: Results From the Einstein Aging Study


Menopausal Vasomotor Symptoms and White Matter Hyperintensities in Midlife Women

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review

Research output: Contribution to journal › Article › peer-review
Longitudinal Associations of Air Pollution With Body Size and Composition in Midlife Women: The Study of Women’s Health Across the Nation
Research output: Contribution to journal › Article › peer-review

Menopause Is Associated with an Altered Gut Microbiome and Estrobolome, with Implications for Adverse Cardiometabolic Risk in the Hispanic Community Health Study/Study of Latinos
Research output: Contribution to journal › Article › peer-review

Patterns of menstrual cycle length over the menopause transition are associated with subclinical atherosclerosis after menopause
Research output: Contribution to journal › Article › peer-review

Reliabilities of Intra-Individual Mean and Intra-Individual Variability of Self-Reported Pain Derived From Ecological Momentary Assessments: Results From the Einstein Aging Study
Research output: Contribution to journal › Article › peer-review

Sexual assault and white matter hyperintensities among midlife women
Research output: Contribution to journal › Article › peer-review

SELECTED GRANTS:

Active
Einstein Aging Study
National Institute on Aging
9/1/85 → 3/31/24

Finished
The Study of Women's Health Across the Nation (SWAN): The Impact of Midlife and the Menopause Transition on Health and Functioning in Early Old Age
Derby, C. A.
9/30/20 → 8/31/21
Project: Research project

The Study of Women's Health Across the Nation (SWAN): The Impact of Midlife and the Menopause Transition on Health and Functioning in Early Old Age
National Institute on Aging
9/30/20 → 8/31/22
Project: Research project

Application of ambulatory methods for assessing short- and long-term associations of sleep health with cognitive decline in older adults
Derby, C. A.
4/15/19 → 1/31/22
Project: Research project

Application of ambulatory methods for assessing short- and long-term associations of sleep health with cognitive decline in older adults
Derby, C. A. & Buxton, O. M.
National Institute on Aging
4/15/19 → 1/31/23
Project: Research project

Project 2: Autonomic Dysfunction and Early Cognitive Changes
Derby, C. A.
National Institute on Aging
4/1/16 → 5/31/20
Project: Research project

PREVENTION & DETECTION OF CHD IN WOMEN: A CD-ROM
Dunn, J. E. & Derby, C. A.
National Heart, Lung, and Blood Institute
8/17/00 → 7/31/01
Project: Research project

PREVENTION AND MANAGEMENT OF CHD IN WOMEN--A CD ROM
Derby, C. A., McKinlay, J. & Dunn, J.
4/1/99 → 10/31/03
Project: Research project
CATCH--A STUDY OF INSTITUTIONALIZATION
Derby, C. A. & Osganian, S. K.
National Heart, Lung, and Blood Institute
5/1/98 → 3/31/02
Project: Research project

CATCH--A STUDY OF INSTITUTIONALIZATION
Derby, C. A.
5/1/98 → 3/31/02
Project: Research project

CVD TRENDS 1980 TO 1991--A GENDER SPECIFIC PERSPECTIVE
Derby, C. A.
7/1/96 → 6/30/01
Project: Research project

CVD TRENDS 1980 TO 1991--A GENDER SPECIFIC PERSPECTIVE
Derby, C. A. & Derby, C. A.
National Heart, Lung, and Blood Institute
7/1/96 → 6/30/01
Project: Research project

GYNECOLOGIC IMPACT OF THE MENOPAUSAL TRANSITION
9/30/94 → 6/30/20
Project: Research project

The Study of Women Across a Lifespan: SWAN
National Institute on Aging
9/30/94 → 6/30/20
Project: Research project

DEMENTIA IN THE ELDERLY--ALZHEIMER'S DISEASE OR ISCHEMIA
1/1/01 → 5/31/21
Project: Research project
Teresa DiLorenzo, PhD
Professor, Department of Microbiology & Immunology

RESEARCH AREA: Autoimmune diseases and autoantigens; immunopathogenesis of type 1 diabetes

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIH R01 DK135079
Multi-PI - DiLorenzo, Teresa P. and Purcell, Anthony 2/1/23 - 1/31/25
The “Dark Immunopeptidome” as a Source of CD8 T Cell Epitopes in Type 1 Diabetes

NIH R01 AI123730
Multi-PI - DiLorenzo, Teresa P. and Almo, Steven C. 2/1/18 - 1/31/24
Structural, Functional, and Mechanistic Analysis of Autoreactive CD8 T Cells

Diabetes Action Research and Education Foundation
PI - DiLorenzo, Teresa P. 1/1/23 - 12/31/23
Precision Biologics for the Treatment of Type 1 Diabetes

Beatson Foundation 2023-008
PI - DiLorenzo, Teresa P. 6/1/23 - 5/31/25
Immunotherapeutic Strategies for the Induction and Maintenance of Remission in Type 1 Diabetes

NIH P30 DK020541
PI - Pessin, Jeffrey E. 4/1/20 - 3/31/25
Regional Einstein-Mount Sinai Diabetes Research Center (ES-DRC)
Role: Co-director of the Immuno-technology Core
SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01 CA244768
Duong (PI)
9/16/20-5/31/21
MRI STUDY OF CHEMOBRAIN IN PEDIATRIC ONCOLOGY PATIENTS

R01 EY027751
Duong (PI)
9/16/17-9/15/20
MRI OF DIABETIC RETINOPATHY

R01 EY030996
Duong (PI)
4/1/20 -2/28/21
BRAIN MRI OF HUMAN GLAUCOMA

R01 NS129936
Duong (PI)
1/1/23 -12/31/23
MRI Study of Hydrogen Water and Minocycline Combination Therapy for Ischemic Stroke
RESEARCH AREA: We use microelectrode and electrochemical recordings to evaluate the role of the basal ganglia in experimental animals, and in some humans implanted with electrodes for the treatment of movement disorders or epilepsy, performing complex behavioral tasks. The goals are to understand the neural mechanisms and circuits underlying learning, decision-making, and motivation, how derangements in these processes contribute to disease, and translating these insights into novel neuro-modulatory treatments for neurological and behavioral disorders.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Active
Combined Cortical and Subcortical Recording and Stimulation as a Circuit-Oriented Treatment for Obsessive-Compulsive Disorder
Dougherty, D. D. D., Widge, A. A. S. & Eskandar, E. N.
National Institute of Neurological Disorders and Stroke
9/30/16 → 11/30/23

Finished
Integrated Systems Neuroscience Studies of Anaesthesia
Brown, E. N., Eskandar, E. N., Kopell, N. & Solt, K.
2/10/17 → 1/31/22
Core B: Administrative Core
Eskandar, E. N.
1/1/17 → 1/31/22

Project 2: Non-Human Primate Studies of Anesthetic Action
Brown, E. N. & Eskandar, E. N.
National Institute of General Medical Sciences
1/1/17 → 1/31/22

Combined Cortical And Subcortical Recording And Stimulation As A Circuit-Oriented Treatment For Obsessive-Compulsive Disorder
Eskandar, E. N.
9/30/16 → 12/29/21

Striatal Stimulation for Augmentation of Recovery after Brain Injury
Eskandar, E. N.
National Institute of Neurological Disorders and Stroke
9/30/13 → 1/31/19

Striatal Stimulation for Augmentation of Recovery after Brain Injury
Eskandar, E. N. & Rose, S. A.
9/30/13 → 1/31/19

Transitioning Early Career Neurosurgeons to Scientific Independence
Eskandar, E. N.
7/1/12 → 6/30/22

Neurosurgeon Research Career Development Program (NRCDP)
Eskandar, E. N. & Eskandar, E. N.
National Institute of Neurological Disorders and Stroke
7/1/12 → 6/30/23
Aaron Fox, MD, MS

Associate Professor, Department of Medicine (General Internal Medicine)

RESEARCH AREA: Opioid use disorder treatment in primary care, harm reduction, and criminal-legal settings

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01DA057654
(PI: Behrends) Role: Co-Investigator
9/30/2022 – 9/29/2025
Expansion of mail-delivered harm reduction services in the US
Goal: Needle Exchange Technologies (NEXT) is the first formal internet-based mail-delivery syringe services program in the United States (US). This study will use policy analysis and longitudinal research designs to investigate the opportunities for expanding NEXT’s services.

RM1DA055437
(MPI: Starrels, Arnsten, Gabbay)
9/30/2021 - 7/31/2023
Integrated Care for Chronic Pain and Opioid Use Disorder: The IMPOWR Research Center at Montefiore/Einstein (IMPOWR-ME)
Goal: To create a robust and sustainable research infrastructure to rigorously test and disseminate integrated and cost-effective evidence-based practices for people with chronic pain and opioid use disorder
Role: PI for Project 3: Randomized trial of buprenorphine microdose inductions during hospitalization

R01MD016744
(PI: Akiyama), Role: Co-Investigator
09/21/21-05/31/26
Leveraging community health workers to improve SARS-CoV-2 testing and mitigation among criminal justice-involved individuals accessing a corrections-focused community-based organization
Goal: To test an onsite Point-of-Care SARS-CoV-2 testing and education strategy in a corrections-focused
community-based organization

**R01DA044878**
(PI: Fox), Role: PI
08/01/17-02/28/24

*Buprenorphine treatment at syringe exchanges to reduce opioid misuse and HIV risk*

Goal: To test in a randomized controlled trial the efficacy, safety, and cost-effectiveness of buprenorphine treatment initiation at syringe exchange programs
Professor, Department of Psychiatry and Behavioral Sciences

RESEARCH AREA: Multimodal studies of adolescent depression and reward deficits, the comorbidity of depression and substance use people living with HIV, and neuropsychiatric sequelae of COVID-19

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01 NIMH
Gabbay (contact), Sharma (PI), Berman (PI)
09/2022 - 08/2027
$3,849,104
Project title: Inflammation, BBB disruption, and Reward Function in the Pathogenesis of Depression among PWH

R01 NIMH
Gabbay (Contact), Sharma (PI)
10/2021-10/2026
$4,223,247
Project title: The Neuroimmunology of Depression in Women Living With HIV

R01 NIMH
Gabbay (contact), Alpert (PI)
06/2021-05/2026
$4,199,975
Project title: A Multimodal Parent-Focused Intervention for Vulnerable Populations in the Bronx
R01 NIDA
Gabbay (PI), Starrels (PI), Sharma (PI)
09/2021-09/2026
$4,199,997
Project title: Neural Underpinnings of Cannabis Use and Depression in Young PLWH

R01 NIMH
Gabbay (PI)
04/2020-01/2025
$3,964,686
Project title: Biobehavioral Predictors of Illness Progression in Adolescent Depression
Evripidis Gavathiotis, PhD

Professor, Department of Biochemistry

RESEARCH AREA: chemical biology, structural biology, medicinal chemistry, drug discovery, cell death, apoptosis, mitochondria, autophagy, oncogenic signaling, cancer, aging

SELECTED PUBLICATIONS:


SELECTED GRANTS:
NIH/NCI R01CA178394       6/1/2020 - 5/30/2025
Title: Small Molecule Activators of Pro-apoptotic BAX for Cancer Therapy
Role: Principal Investigator

NIH/NCI R01CA223243       12/2/2019 - 12/1/2024
Title: Allosteric inhibitors targeting oncogenic BRAFV600E
Role: Principal Investigator

NIH/NIA P01AG03178       4/1/2020 - 3/31/2025
Title: Autophagy In Aging: Testing Geroscience In Alzheimer’s Disease
Role: Core Leader, Chemical Biology and Therapeutics Innovation Core

DOD/ PR191593P1       7/1/2020 - 6/30/2023
Title: Development of Small Molecule BAX Inhibitors to Prevent Cancer Therapy-Induced Cardiomyopathy
Role: Co-Principal Investigator
Michelle Gong, MD, MS

Professor, Department of Medicine (Critical Care)

RESEARCH AREA: Critical care delivery and management of acute respiratory failure and acute respiratory distress syndrome (ARDS), clinical trials, sepsis.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

U01 HL122998; U01 HL123009
Gong (PI); Thompson (PI)
6/17/14-12/31/23
Clinical Trials Research Network for the Prevention and Early Treatment of Acute Lung Injury (PETAL Network) – Clinical Center

R18 HS026188
Gong (PI)
9/1/18-6/30/22
TREAT ECARDS: Translating Evidence into Action: Electronic Clinical Decision Support in ARDS
OT2 HL156812
Thomas (PI), Role: Co-Investigator, Site PI, Network lead
9/1/20-12/31/23
A Multicenter, Adaptive, Randomized Controlled Platform Trial of the Safety and Efficacy of Antithrombotic Strategies in Hospitals Adults with COVID-19

75D30122C14944
Self (PI), Role: Site PI
9/1/22-8/31/23
Surveillance of Acutely Ill Adults with Respiratory Viruses, including SARS-CoV-2 (IVY5)

R61 HL162980
Moskowitz (PI), Role: Co-Investigator
9/1/22-8/31/27
Hospital Airway Resuscitation Trial

75N91019D00024; OT2 HL156812
Neaton (PI); Thomas (PI), Role: Co-Investigator, Site PI
5/1/22-4/30/24
Strategies and Treatments for Respiratory and Viral Emergencies Study (STRIVE)

UH3HL147001
Boeckh (PI), Role: Site PI
9/16/20-8/31/26
1/2 Ganciclovir to Prevent Reactivation of Cytomegalovirus in Patients with Acute Respiratory Failure and Sepsis
U01 HL123009
Schoenfeld (PI); Thompson (PI), Role: Site PI
8/1/21-12/31/23
PETAL ASTER: CCC for NHLBI Prevention and Early Treatment of Acute Lung Injury PETAL Network

OT2HL156812
Thomas (PI), Role: Site PI
3/1/21-12/31/23
A Multicenter, Adaptive, Randomized, Blinded Controlled Trial of the Safety and Efficacy of Investigational Therapeutics for Hospitalized Patients with COVID-19 (ACTIV-4D RAAS NECTAR)

OT2HL156812
Thomas (PI), Role: Site PI
9/1/20-9/30/23
A Multicenter, Adaptive, Randomized, Blinded Controlled Trial of the Safety and Efficacy of Investigational Therapeutics for Hospitalized Patients with COVID-19 (ACTIV-3A TICO)

OT2HL156812
Thomas (PI), Role: Site PI
9/1/20-5/31/23
A Multicenter, Adaptive, Randomized, Blinded Controlled Trial of the Safety and Efficacy of Investigational Therapeutics for Hospitalized Patients with COVID-19 (ACTIV-3B TESICO)
John Greally, DMed, PhD
Professor, Departments of Genetics and Pediatrics
RESEARCH AREA: Medical genomics

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIH 1R01AG057422
Greally, John (PI), Lappalainen, Tuuli (PI)
9/15/18–5/31/24
Understanding Cellular and Transcriptional Regulatory Changes in Human Aging
NIH 1R21HG012404
Greally, John (PI)
8/23/22-7/31/23
A Clinical Trial of GenomeDiver for Improved Diagnosis of Pediatric Rare Diseases
The Gritsman laboratory focuses on the role of signal transduction pathways in the developmental decisions made by stem cells and progenitors during adult hematopoiesis, as well as in the initiation and progression of myeloid malignancies. The goals of our research are to understand the mechanisms by which signaling pathways, such as the PI3 kinase pathway, influence the self-renewal and differentiation of hematopoietic stem cells, as well as pre-leukemic and leukemic stem cells. We also aim to identify new therapeutic strategies to prevent the progression from premalignant to malignant conditions, or to reduce the risk of relapse after initial therapy, with a better therapeutic window. We use murine retroviral bone marrow transplantation murine models, genetically modified murine models, and patient-derived xenotransplantation models to investigate the roles of the PI3 kinase/AKT pathway and other signaling pathways in hematopoiesis and in myeloid neoplasms, including acute myeloid leukemia, myelodysplastic syndrome and myeloproliferative neoplasms. Some of this research has generated new potential treatment approaches for myeloid leukemia that have been tested in the clinic. In addition, we investigate the roles of kinase signaling pathways in the interactions between hematopoietic stem cells and leukemic stem cells with the bone marrow microenvironment, and mechanisms of resistance to kinase inhibitors.

SELECTED PUBLICATIONS:


SELECTED GRANTS:
1/1/20-12/31/23 Research Scholar Grant 134154-RSG-19-130-01-DCC (Gritsman, K)
American Cancer Society
RON Kinase as a Therapeutic Target in Myeloproliferative Neoplasms

9/1/2022-5/31/2026 R01DK130895 (Gritsman, K.)
NIH/NIDDK
PI3 Kinase Inactivation in Myelodysplastic Syndrome

1/1/2022-12/31/2023 5R01 DK056638-22 (Gritsman, K.)
NIH/NIDDK
Regulation and Function of Hematopoietic Stem Cell Niches

9/1/21-8/31/24 CA200503 (Shechter, D.) Role: co-PI
DoD - CDMRP Idea Award
NPM1c Posttranslational Glutamylation in Leukemogenesis
**Chandan Guha, MBBS, PhD**  
Professor, Department of Radiation Oncology

RESEARCH AREA: Radiation Therapy, Low-intensity focused ultrasound (LOFU), Cancer Immunotherapy, acute radiation syndrome (ARS), Delayed effects of acute radiation exposure (DEARE), Radiation mitigators, Stem cells, Cell therapy, Immune dysfunction, Carbon ion radiation therapy, Hepatocyte transplantation

**PROJECTS:**

**Radiation-based Immune Priming Therapy: In situ tumor vaccines**  
Radiation therapy (RT) has been used as a standard treatment modality for many solid tumors. While tumoricidal properties of RT are instrumental for standard clinical application, irradiated tumors can potentially serve as a source of tumor antigens in vivo, where dying tumor cells would release various tumor antigens slowly over time. However, RT alone may not generate sufficient anti-tumoral immune responses, which results in cancer recurrence in the primary site or distant organs. Therefore, supplemental treatments are needed to enhance immune cell activity against tumors. Our laboratory has developed several strategies in combination with RT for cancer treatment and evaluated various cancer types in mouse models. For example, low-intensity focused ultrasound (LOFU) treatment generates thermal and physical stress to the cancer cells and enhances the exposure of tumor antigens. LOFU combined with RT, reverses immune anergy of T cells in tumor draining lymph nodes and promotes the induction of anti-tumoral immunity. Another strategy is to stimulate presentation of tumor antigens released from irradiated tumor cells by professional antigen presenting cells in the tumor microenvironment. Our laboratory has identified that Fms-like tyrosine kinase 3 ligand (Flt3L) and anti-CD40 antibody can expand and activate dendritic cells, respectively. In this project, we are examining the timing of immune cell infiltration into the tumor after LOFU±RT and optimizing the schedule of each treatment in combination. The goal is to translate these pre-clinical studies to human clinical trials to treat various forms of cancer.

**Stem cell- and Immune- based regenerative approaches to mitigate Radiation-induced Organ Injury**  
In the event of nuclear plant leakage or nuclear terrorist attack, victims are exposed to high dose ionizing radiation in a short period of time and will experience acute radiation syndrome (ARS), which can lead to death. Furthermore, the surviving victims may suffer from delayed effects of acute radiation exposure (DEARE) in many organs. Radiation is also commonly used in treating cancer patients with the possibility of developing radiation-induced toxicity in the surrounding normal tissue. Although there are several drugs approved by FDA to treat hematopoietic ARS (H-ARS), not many therapeutic agents are available to mitigate damage to other sensitive organs after radiation exposure. The goal of this project is to have a better understating of molecular mechanisms by which high dose radiation causes organ damage and mortality, leading to the development of novel radiation protectors, mitigators, or medical countermeasures. The highly proliferative stem and progenitor cells that regenerate blood cells in bone marrow and intestinal stem cells in the crypts of the digestive system are particularly susceptible to damage by ionizing radiation. Our laboratory has established several mouse models and radiation regimens to study radiation-induced organ injury, such as whole-body irradiation (WBI) for H-ARS, partial body irradiation (PBI) for gastrointestinal ARS (GI-ARS), whole thoracic irradiation (WTI) to examine pneumonitis and fibrosis with lung injury, and targeted irradiation to the rectum for radiation proctitis. Our laboratory has identified several growth factors, chemical compounds, and specific stem cell populations as radiation mitigators in various mouse models. We will further evaluate their effectiveness and mechanism(s) of action, ultimately leading to FDA approval for radiation exposure in humans. We are also studying the functional immuno-radiobiology of the regenerative immune system after WBI in mice and whether T-cell immune senescence and dysfunction of myeloid population contributes to DEARE. These studies will provide a blueprint for developing optimized immuno-conditioning regimens for immunization protocols in radiation survivors that can be extended to immunocompromised and elderly individuals.
population.

**Carbon Ion Radiation Therapy for Pancreatic Cancer**

Carbon ion radiotherapy (CIRT) is currently the world’s most advanced radiotherapeutic technique. With its physical characteristics, CIRT causes less toxicity of normal tissue and organs surrounding the tumor and is more effective at killing tumor compared to photon radiotherapy, like X-ray. Carbon ion stops at a depth inside our body and releases all its energy in the form of a peak dose in the tumor. Since the track stops at a depth, the particle beam of carbon ion does not go through the body, thereby causing less harm to surrounding normal tissues. Carbon ions cause DNA damage in the irradiated cells resembling infection by a DNA virus which provokes the body’s anti-viral defense system. In this project, we will study the immunological response of tumor, particularly in pancreatic cancer, and its microenvironment after CIRT in animal models with comparison to traditional X-ray therapy. This information will enhance the planning and usage of CIRT to cancer patients.

**Hepatocyte Transplantation for Treating Inherited and Chronic Liver Diseases**

Hepatocyte transplantation is a very attractive alternative for liver transplant to treat patients with inherited and chronic liver diseases in consideration of the limited number of liver donors. However, benefits of hepatocyte transplantation are hindered by the low efficacy of the transplanted hepatocytes to engraft and proliferate in the host liver. Our laboratory has pioneered the development of preparative hepatic irradiation in combination with growth factors to enhance the engraftment and repopulation of transplanted hepatocytes using rodent model. To mimic the clinical operation, a state-of-the-art image-guided hepatic irradiation model is utilized by using the small animal radiation research platform (SARRP). We are currently investigating several potential growth factors combined with irradiation to enhance the replaced area of transplanted hepatocytes in the host liver. We are also interested in exploring the use of progenitor cells as alternatives for hepatocytes for transplantation.

**SELECTED PUBLICATIONS:**


doi: 10.1038/ncomms13096.


SELECTED GRANTS:

NCI R01 CA226861: Use of focused ultrasound to increase melanoma immunogenicity and inhibit tumor-induced T cell tolerance.

NCI R01 CA228275: An integrated theranostic system for breast cancer.

NCI R44 CA192435: Immunomodulation of radiation therapy with Flt3L.

NIAID U01 AI170032: Regeneration of the immune system after radiation exposure.

NIAID U01 AI138324: Stromal cell therapy as a treatment against Gastrointestinal Acute Radiation Syndrome (GI-ARS).

NIAID U01 AI133608: Development of thrombopoietin mimetic (TPOm) as a mitigator against radiation-induced endovascular injuries.

NIDDK U01 DK103155: Understanding stem cell heterogeneity and niche function in intestinal regeneration after irradiation.

NCI R01 CA257509: Relative immunological effectiveness (RIE) of carbon ion radiation therapy (CIRT) for pancreatic cancer.
Meredith Hawkins, MD, MS

Professor, Department of Medicine (Endocrinology)
Harold and Muriel Block Chair in Medicine
Associate Director, Einstein-Mt. Sinai Regional Diabetes Center
Director, Global Diabetes Institute

RESEARCH AREAS: Delineating central regulation of glucose metabolism (first studies to be performed in humans to address these questions). Adipose tissue inflammation: impact of nutrients in recruiting and activating inflammatory cells to infiltrate adipose tissue. Malnutrition-Modulated Diabetes Mellitus and other forms of diabetes that are unique to low and middle income settings. Hypoglycemia-Associated Autonomic Failure.

SELECTED PUBLICATIONS:

Lontchi-Yimagou E, DasGupta R, Kehlenbrink S, Koppaka S, Carey M, Stein DT, Thomas N, Hawkins M. An Atypical form of diabetes in low BMI individuals. Diabetes Care 2022 45(6):1428-1437. doi: 10.2337/dc21-1957. PMID: 35522035 (This represents the results of a 12 year collaboration in India to investigate a poorly understood form of diabetes. To date, the paper has received over 9,000 reads and has been picked up by 94 news outlets.)


SELECTED GRANTS:

R01 DK069861 (Hawkins) 06/01/06- 04/30/27
Restoring Central Regulation of Glucose Production in Type 2 Diabetes
Role: Principal Investigator

This is the continued funding of a project that has been funded by NIH since 2006. The goals of the current funding period are to determine whether lowering free fatty acid (FFA) concentrations can restore central regulation of glucose metabolism in humans with type 2 diabetes and in appropriate animal models.
Regional Einstein-Mount Sinai Diabetes Research Center (ES-DRC)

This award is for a regional diabetes research center through the combined efforts of the Albert Einstein College of Medicine, Mount Sinai School of Medicine and affiliated faculty institutions. This award is focused on basic, pre-clinical, clinical and community levels. The funds from this award are used to support biomedical core facilities.

**Roles:** Associate Director of Center; Director of Enrichment Program; Consultant on Translational Research Core

**R01AR077042-01A1 (Abramowitz) 07/01/2021-06/30/2026**

Preserving physical function in patients with kidney disease

**Role:** Co-Investigator
Betsy, Herold, MD
Professor, Department of Pediatrics and Department of Microbiology & Immunology

RESEARCH AREA: Prevention of HIV and HSV and other sexually transmitted infections

SELECTED PUBLICATIONS:


Cheshenko, N., Pierce, C., and Herold, B. C. Herpes simplex viruses activate phospholipid scramblase to redistribute phosphatidylserines and Akt to the outer leaflet of the plasma membrane and promote viral entry. PLoS Pathog. 2018 Jan 2;14(1):e1006766 PMC5766253

SELECTED GRANTS:

Active
Optimizing the Generation of Monoclonal Antibodies for Prevention and Treatment of HSV Disease
Herold, B. & Kuraoka, M.
National Institute of Allergy and Infectious Diseases
6/6/23 → 5/31/28

Multi-center Evaluation of the Threat of Established and Emerging Respiratory Viral Infections in Pediatric Transplant Recipients
National Institute of Allergy and Infectious Diseases
9/17/21 → 8/31/23

Impact of the vaginal microbiome on topical HIV pre-exposure prophylaxis (PrEP)
Herold, B.
National Institute of Child Health and Human Development
4/12/19 → 3/31/24

Finished
Impact of the vaginal microbiome on topical HIV pre-exposure prophylaxis (PrEP)
Herold, B.
4/12/19 → 3/31/22

Mechanisms Underlying the HIV-HSV-2 Syndemic
Herold, B.
12/5/17 → 11/30/21

Mechanisms Underlying the HIV-HSV-2 Syndemic
Herold, B. & Herold, B. C.
National Institute of Allergy and Infectious Diseases
12/5/17 → 11/30/22

Attenuated HSV Vaccines That Induce Protective Mucosal Antibodies
Jacobs Jr., W. R., Herold, B., Kelsoe, G. H. & Jacobs, W. R.
National Institute of Allergy and Infectious Diseases
3/1/16 → 2/28/21

Attenuated HSV Vaccines That Induce Protective Mucosal Antibodies
Herold, B.
3/1/16 → 2/28/21

Drug at the Right Place & Concentration: Optimizing Combination Vaginal Ring PrEP
National Institute of Allergy and Infectious Diseases
1/18/13 → 12/31/19

Impact of Mucosal Immune Environment and semen on Prep and PD
Herold, B.
National Institute of Allergy and Infectious Diseases
1/18/13 → 12/31/19

Administrative Core
Herold, B.
National Institute of Allergy and Infectious Diseases
1/18/13 → 12/31/19

Administrative Core
12/1/12 → 12/31/19
Dean Hosgood, PhD

Associate Professor, Department of Epidemiology and Population Health

RESEARCH AREA: Cancer epidemiology, environmental health, global health

SELECTED PUBLICATIONS:


Selected Grants:

MECC Pilot Project Award (MPI: Shastri, Hosgood) 09/15/2022 - 08/31/2023
Outdoor Air Pollution and Non-Small Cell Cancer (NSCLC) in the Bronx
The major goal of this project is (1) to study the relationship between the outdoor air pollution (OAP) exposures and progression-free and overall survival among NSCLC patients in the Bronx and (2) generate a novel murine model to provide mechanistic insights between OAP exposure and NSCLC.
Role: Principal Investigator

4UH3CA257869-03 (MPI: Alatise, Fedorak, Kingham) 05/01/2020 - 06/30/2024
Point of Care, Real Time Urine Metabolomics Test To Diagnose Colorectal Cancers and Polyps in Low- and Middle-Income Countries
The research, development, and validation of a urine metabolomic test to diagnose colorectal cancer and polyps in high-risk patients such as those with bloody stools, first degree relatives of those diagnosed with colorectal cancer, and colorectal cancer survivors.
Role: Subcontract PI/Co-Investigator

1U01CA242740-01 (PI: Hosgood) 09/01/2020 - 08/31/2024
Assessing the Relative and Absolute Risk for Site-Specific Cancer Mortality Attributed to Household Air Pollution
Pollution
The major goal of this project is to study pivotal questions relating to the adverse health effects of household air pollution (HAP), including (1) if biomass (i.e., wood) use is associated with lung cancer mortality, and (2) if HAP is associated with increased risk of cancers other than lung cancer. Using 13 cohort studies for a combined sample size of >550,000 subjects, we will be the first to prospectively evaluate cancer site-specific mortality and HAP.
Role: Principal Investigator

D43CA260646-01A1 (MPI: Alatise, Kingham) 03/01/2022 - 02/28/2027
Expanding Cancer Research Capacity in Nigeria with Team Science
The major goal is this project is to establish an international research training program aimed at creating a Cohort of highly skilled Nigerian Investigators able to lead independent oncology research programs, fostering team science, bolstering research administration capacity in Nigeria, and creating long-term research partnerships between Nigerian and US Cancer Researchers.
Role: Subcontract PI/Co-Investigator

2P01AG003949 (MPI: Derby, Katz) 04/01/2022 - 03/31/2027
Einstein Aging Study
The major goal of this project is to will apply novel methods to increase understanding of modifiable risk factors for Alzheimer’s disease and associated dementias (ADRD) by examining their effects on cognitive performance and decline prior to ADRD onset. The project will provide new information regarding mechanisms linking exposures to cognitive outcomes and will inform future targeted interventions.
Role: Co-Investigator
Carmen R. Isasi, MD, PhD

Professor, Department of Epidemiology and Population Health & Department of Pediatrics

RESEARCH AREA: Socio-cultural and biological underpinnings of disparities in CVD and diabetes across the lifespan

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIH/NHLBI HHSN268200625235C
**Hispanic Community Health Study/Study of Latinos (HCHS/SOL)** This a multicenter cohort study to examine the prevalence and development of disease in Hispanics, the role of acculturation, and to identify risk factors that play protective or harmful roles in Hispanics. The target population of 16,000 persons of Hispanic origin, specifically Cuban, Puerto Rican, Mexican, and Central American, to be recruited through four Field Centers affiliated with San Diego State University, Northwestern University in Chicago, Einstein College of Medicine in New York, and the University of Miami.

NIH/NIMHD R01 MD015204
**Social stress, epigenetics and cardiometabolic health among Latino youth.** Completion of this project would allow us to elucidate the impact social and economic stressors have on epigenetic and cardiometabolic markers that may help explain how stress shapes persistent population health disparities among young Latino populations.

NIH/NHLBI R01 HL152475
**Nasal epithelial epigenomics and transcriptomics and asthma in Hispanic adults.** This proposal will address an important, yet unstudied, aspect of asthma “omics”: the identification of epigenomic and transcriptomic markers and/or determinants of asthma outcomes among adults in two Hispanic groups at intermediate to high risk of asthma (of Dominican and Puerto Rican background).

NIH/NIA 1RF1AG077639
**Early and life course socioeconomic adversity and dementia risk in Hispanic/Latinos.** The goals of the study are to understand how early and sustained adverse socio-economic conditions shape risk of Alzheimer’s disease and related dementias (ADRSs) in a cohort of Hispanics/Latinos adults. We will learn about the most influential factors for ADRDs risk in a population in whom the traditional genetic and educational attainment factors do not predict ADRDs risk well.

NIH/NIDDK 1U01DK134988
**Metabolic, behavioral and social determinants of youth onset T2D.** This is a multicenter cohort study that will enroll 3000 children nationwide who are at risk of developing youth onset type 2 diabetes. The goals are to identify risk and protective factors associated with incident T2D during childhood. Findings will inform best screening and preventive approaches.
William R. Jacobs Jr., PhD
Professor, Department of Microbiology & Immunology

RESEARCH AREA: Mycobacterium tuberculosis genetics

SELECTED PUBLICATIONS:


SELECTED GRANTS:

ACTIVE

**Title: Molecular Genetic Analysis of Mycobacterium tuberculosis**

Notably, this grant just received a merit award and will be funded for the next 10 years

Major Goals: (1) Elucidate the genetic determinants for INH and AMK tolerance in vitro and in vivo. (2) Analyze the metabolic state of the Mtb persister CIMSAUX mutant and the immune mechanisms required for its sterilization. (3) Determine the role of the structural maintenance of chromosome (SMC) gene in Mtb persistence.

*Status of Support: Active

Project Number: R01AI026170-38

Name of PD/PI: Jacobs, William R. Jr.

*Source of Support: NIH

*Primary Place of Performance: Albert Einstein College of Medicine

Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/1/2019-8/31/2023

Total Award Amount (including Indirect Costs): $2,766,749

**Title: Genetic engineering of Mycobacterium leprae to Glow and Grow**

Major Goals: (1) Develop a transformation system using a BRET-nanoLuc gene with an integration-proficient plasmid and M.leprae cells isolated from mouse foot pads. (2) Genetically complement M. leprae with M. tb genes encoding panBCD-irtAB-metC (PIM) or other potentially necessary genes to enable M. leprae to grow on artificial media.

*Status of Support: Active

Project Number: 1R21AI68785-01

Name of PD/PI: Jacobs, William R. Jr.

*Source of Support: NIH

*Primary Place of Performance: Albert Einstein College of Medicine
Title: Generation of Herpes Simplex Virus-2ΔgD Vaccines for Humans
Major Goals: (1) Improve complementing cell line for higher yields (2) Develop virus vectors and demonstrate their utility as multivalent vaccine platforms for the delivery of foreign viral or bacterial antigens (3) Explore utility of Δg(GJDI)-1/-2 vectors to deliver therapeutic antibodies, or to mediate gene editing (4) Develop in vitro and in vivo models to measure antibody-dependent cell cytotoxicity (ADCC) effector mechanisms of vaccine protection.
*Status of Support: Active
Project Number: X-VAX Technology, Inc.
Name of PD/PI: Jacobs, William R. Jr.
*Source of Support: Other
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 05/20/2022-04/30/2024
Total Award Amount (including Indirect Costs): $462,000

PI has additional consulting agreement that is work outside of that being done in the research laboratory.

Title: Development of novel Mycobacterium tuberculosis challenge strain
Major Goals: (1) Generate a non-invasive system for sensitive and quantitative detection of CIMSAUX.(2) Determine the ability of a CIMSAUX strain expressing NIR-FP to predict vaccine efficacy.
*Status of Support: Active
Project Number: INV-035697
Name of PD/PI: Jacobs, William R. Jr.
*Source of Support: Bill and Melinda Gates Foundation
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 04/06/2021-04/05/2025
*Total Award Amount (including Indirect Costs): $2,652,740

Title: Rapid phenotypic detection of complex and emergent TB drug-resistance using a next-generation nanoluminiscence reporter phage
Major Goals: (1) To establish correlates of resistance with TM4::GeNL phage and conventional culture-based diagnostics (2) Detect drug resistance to new and repurposed antimycobacterial agents in sputum of MDR-TB patients (3) Measure dynamic changes in treatment response and detect emergent resistance in sputum of MDR-TB patients
*Status of Support: Active
Project Number: 1R01AI176407-01
*Source of Support: NIH
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 03/01/2023-02/29/2028
Total Award Amount (including Indirect Costs): $1,176,975

Title: Generation of a Complete Set of Precise Null Bar Coded Deletion Mutants of Mycobacterium TB
Major Goals: (1) Complete phasmid construction, quality control, and scaled-up production for distribution of the complete collection of PNBCD phasmid reagents. (2) Produce PNBCD phage lysates from phasmids at distribution scale. (3) Improve allelic exchange frequencies for gene knockouts to enable high throughput
construction of *Mtb* PNBCD strains. (4) Construct PNBCDs of high-value gene families in an attenuated BSL2-approved *Mtb* strains and in virulent *Mtb* H37Rv, Erdman, Beijing, and KZN strains. (5) Distribute PNBCD reagents, data, and protocols through BEI/ATCC

*Status of Support: Active
Project Number: R24AI134650
Name of PD/PI: Jacobs, William R. Jr.
*Source of Support: NIH
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 05/01/2023-08/31/2028
* Total Award Amount (including Indirect Costs): $2,045,224

Name of PD/PI: Jacobs, William R. Jr.
*Source of Support: NIH
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/01/2023-08/31/2028
Total Award Amount (including Indirect Costs): $3,901,995

**Title:** knockouts to enable high throughput construction of *Mtb* PNBCD strains. (4) Construct PNBCDs of high-value gene families in an attenuated BSL2-approved *Mtb* strains and in virulent *Mtb* H37Rv, Erdman, Beijing, and KZN strains. (5) Distribute PNBCD reagents, data, and protocols through BEI/ATCC

*Status of Support: Active
Project Number: R24AI134650
Name of PD/PI: Jacobs, William R. Jr.
*Source of Support: NIH
*Primary Place of Performance: Albert Einstein College of Medicine
Project/Proposal Start and End Date: (MM/YYYY) (if available): 09/01/2023-08/31/2028
Total Award Amount (including Indirect Costs): $2,045,224
Robert Kaplan, PhD  
Professor, Department of Epidemiology and Population Health  
RESEARCH AREA: Epidemiology of cardiovascular disease, diabetes

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Hispanic Community Health Study PI: Kaplan, NIH/NHLBI (HHSN268200625235C) The overall goal of this project is to recruit 4,000 Hispanic/Latino adults 18-74 years of age in Bronx NY and obtain long-term followup on CVD, asthma, COPD, diabetes, cancer, and other health outcomes, as part of the multicenter Hispanic Community Health Study.

Gut Origins of Latino Diabetes (GOLD) MPI: Kaplan/Burk/Knight, NIH/NIMHD/NIA (1R01MD011389-01) This proposal will examine the determinants and outcomes of gut microbiome alterations among Hispanic/Latino adults participating in the Hispanic Community Health Study / Study of Latinos.

Cardiometabolic Outcomes in Multi-ethnic Physical Activity & Sedentary Behavior Study (COMPASS) MPI: Mossavar-Rahmani/Kaplan/Vasan, NIH/NHLBI (5R01HL136266) This proposal will examine the patterns of exercise and sedentary behavior associated with cardiometabolic outcomes among a multiethnic population of Latinos from the HCHS-SOL cohort and non-Hispanics from the Framingham Heart Study Third Generation study.
Marla Keller, MD
Professor, Department of Medicine (Infectious Disease)

RESEARCH AREA: HIV and women, vaginal microbicides

SELECTED PUBLICATIONS:


Ursell LK, Gunawardana M, Chang S, Mullen M, Moss JA, Herold BC, Keller MJ, McDonald D, Gonzalez A, Knight R, Baum MM. Comparison of the vaginal microbial communities in women with recurrent genital


SELECTED GRANTS:

Einstein-Montefiore Clinical and Translational Science Award Hub
Keller, M. J. & Kim, M.
3/3/23 → 2/29/24

Keller, M. J.
National Institute of Allergy and Infectious Diseases
1/1/19 → 12/31/19

Clinical and Translational Science Award
Keller, M. J., Kim, M. M. Y. & Shamoon, H.
National Center for Advancing Translational Sciences
3/22/18 → 2/28/23

Clinical and Translational Science Award
Shamoon, H., Shamoon, H. & Keller, M. J.
National Center for Advancing Translational Sciences
9/26/13 → 4/30/18

Drug at the Right Place & Concentration: Optimizing Combination Vaginal Ring PrEP
National Institute of Allergy and Infectious Diseases
1/18/13 → 12/31/19

Keller, M. J.
National Institute of Allergy and Infectious Diseases
1/18/13 → 12/31/19

Clinical Study to Measure Pharmacokinetics, Pharmacodynamics and Safety of a TDF
Keller, M. J.
National Institute of Allergy and Infectious Diseases
9/1/11 → 8/31/13

Novel Mucosal Models Predictive of Microbicide Safety
Herold, B. & Keller, M. J.
National Institute of Allergy and Infectious Diseases
8/1/10 → 7/31/14

Safety of Non-Medicated Intravaginal Rings for Microbicide Delivery
Keller, M. J.
National Institute of Allergy and Infectious Diseases
7/1/10 → 6/30/12

Safety of Non-Medicated Intravaginal Rings for Microbicide Delivery
Keller, M. J. & Rose, S. A.
7/1/10 → 6/30/12
Intravaginal Ring Delivery of Safe & Effective Microbicides to Prevent HIV & HSV
Herold, B., Buckheit, R. W., Keller, M. J., Kiser, P. F. & Mitchnick, M.
National Institute of Allergy and Infectious Diseases
9/10/09 → 8/31/15

Novel Mucosal Models Predictive of Microbicide Safety
Herold, B. C., Keller, M. J. & Herold, B.
National Institute of Allergy and Infectious Diseases
9/1/08 → 8/31/09

Microbicide Effects on Efficacy, Safety, Innate Immunity
Keller, M. J. & Keller, M. J.
National Institute of Allergy and Infectious Diseases
9/1/05 → 2/29/12

Microbicide Effects on Efficacy, Safety, Innate Immunity
Keller, M. J. & Rose, S. A.
9/1/05 → 2/29/12

MULTITARGETED MICROBICIDE COMBINATIONS TO BLOCK HIV
Keller, M. J.
National Center for Research Resources
3/1/04 → 2/28/07

TO EVALUATE THE EFFICACY OF SAMMA AND ITS LEADING DERIVATIVES AGAINST HIV-1
Keller, M. J.
National Center for Research Resources
3/1/04 → 2/28/07

Multitargeted Microbicide Combinations to Block HIV
Herold, B., Keller, M. J. & Klotman, M. E.
National Institute of Child Health and Human Development
9/26/02 → 6/30/04

In Vivo Antiviral &Inflammatory Effects of Microbicides
Keller, M. J.
National Institute of Child Health and Human Development
10/1/01 → 9/30/02

Optimization of Microbicide Combinations Against HIV-1
Herold, B., Herold, B., Keller, M. J. & Rose, S. A.
1/1/01 → 6/30/07
Libusha Kelly, PhD
Associate Professor, Department of Systems and Computational Biology

RESEARCH AREA: Drug metabolism by the gut microbiome; microbial pharmacokinetics; phages; Sickle Cell Disease; microbial diversity

The microbiome is a personal and flexible ecosystem of bacteria, viruses, fungi, and small eukaryotes living in and on our bodies. I am interested in the microbiome as a sentinel of human physiology, constantly sensing, processing, and responding to signals from internal and external perturbations. My lab seeks to understand the processes and interactions that drive microbiome connections to, and influence over, human physiology by studying microbiomes as complex, interconnected systems using multi-disease, multi-ecosystem approaches. The broader goal of our work is to understand how to harness microbial ecology, from our bodies to the global oceans, to improve ecosystem health. Our publications have generated new insights into microbiome drug metabolism, discovered novel phage populations, pioneered computational approaches to improve analysis of microbiome data, and characterized novel connections between microbiome dynamics and disease.

SELECTED PUBLICATIONS:


Complete List of Indexed Published Work in MyBibliography:

SELECTED GRANTS:

NIH NHLBI R01HL069438
Kelly (PI)
09/30/21-08/31/25
In vivo mechanisms mediating sickle cell vaso-occlusion and organ damage.
Department of Defense Peer Reviewed Cancer Research Career Development Award CA171019
Kelly (PI)
06/01/18-06/01/22
Preventing adverse patient responses to cancer chemotherapeutics.
NSF Biological Oceanography 1435868
Kelly (PI)
09/01/14-02/28/18
Collaborative Research: How can bacterial viruses succeed in the marine environment?
Mimi Kim, ScD
Professor, Department of Epidemiology & Population Health

RESEARCH AREA: Clinical trials methodology; epidemiologic methods, clinical prediction models, survival analysis, misclassification and measurement error.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Clinical and Translational Science Award (MPI)
National Center for Advancing Translational Sciences; 5/1/23-4/30/30
The mission of this award is to create a robust and collaborative research enterprise that is committed to advancing clinical and translational science and promoting health equity, catalyzing innovations to overcome research roadblocks across the translational spectrum, creating and maintaining a skilled and diverse research workforce, and accelerating the process of turning discoveries in the laboratory, clinic, and community, into health benefits for all.

Adverse Pregnancy Outcomes in Women with Systemic Lupus Erythematosus: Improving and Validating Risk Prediction (MPI)
NIH/National Institute of Arthritis, Musculoskeletal and Skin Diseases; 9/1/20-8/31/23
The goal of this project is to develop and externally validate an accurate and clinically useful prediction model for adverse pregnancy outcomes in SLE patients.

**TNF-alpha Blockade with Certolizumab to Prevent Pregnancy Complications in High-Risk Patients with APS (Subcontract PI)**
NIH/National Institute of Arthritis, Musculoskeletal and Skin Diseases; 8/15/16-8/31/24
This study is conducting the first trial of a biologic therapy to prevent adverse pregnancy outcomes (APOs) in high-risk antiphospholipid antibody syndrome (APS) pregnancies.

**Surveillance and Treatment to Prevent Fetal Atrioventricular Block Likely to Occur Quickly (STOP BLOQ) (Subcontract PI)**
NIH/ National Institute of Arthritis, Musculoskeletal and Skin Diseases; 9/01/20-6/30/25
This study aims to assess whether the level of anti-Ro/SSA can predict fetuses at greatest risk of atrioventricular block (AVB), if mothers can themselves identify reversible fetal cardiac injury by home monitoring, whether expeditious treatment of fetal incomplete AVB can restore normal rhythm, and if weekly echocardiographic testing is necessary to surveil for AVB.
David Loeb, MD, PhD

Professor, Department of Pediatrics (Pediatric Hematology-Oncology)

RESEARCH AREA: Understanding bone tumor metastasis.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

7/1/23 – 6/30/25
Treatment-Induced Metastasis in Ewing Sarcoma
Congressionally Directed Medical Research Program, US Department Of Defense
The goal of this work is to determine if chemotherapy or radiation therapy increases the dissemination of Ewing sarcoma cells from the primary tumor and, if so, whether targeted inhibition of this process can improve survival in preclinical models.

11/1/21 – 10/31/24
Targeting Urea Cycle Dysfunction to Prevent and Treat Ewing Sarcoma Metastasis V Foundation
The goals of this work are to characterize the Urea Cycle in Ewing sarcoma and to define the effects of DFMO on this and related metabolic pathways and to optimize the combination of DFMO with chemotherapy in preclinical models.

7/9/21 – 6/30/26
Targeting DKK-1 to Prevent Osteosarcoma Metastasis National Cancer Institute
The goals of this project are to define the Wnt signaling pathways regulated by DKK-1 in osteosarcoma, to optimize the application of differentiation therapy in osteosarcoma to prevent metastasis, and to determine the utility of plasma DKK-1 levels as a biomarker of prognosis and response to therapy in osteosarcoma.
Paul Marantz, MD, MPH
Professor, Department of Epidemiology and Population Health

RESEARCH AREA: Educational and training programs that provide research skills to health professionals and biomedical scientists

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Active
CTSA Predoctoral T32 at Albert Einstein College of Medicine
Marantz, P. R. & Hosgood, H. D.
National Center for Advancing Translational Sciences
7/6/23 → 6/30/28

CTSA K12 Program at Einstein-Montefiore
Marantz, P. R. & Melamed, M. L.
National Center for Advancing Translational Sciences
7/1/23 → 6/30/28

The Center of Excellence in Promoting LHS Operations and Research at Einstein/Montefiore (EXPLORE)
Cunningham, C. O., Marantz, P. R. & Rinke, M. L.
9/30/18 → 9/29/23

Einstein Aging Study
National Institute on Aging
9/1/85 → 3/31/24

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Finished
NRSA Training Core
Marantz, P. R.
3/22/18 → 2/28/22

Institutional Career Development Core
Marantz, P. R.
3/22/18 → 2/28/22

NRSA Training Core
Marantz, P. R. & Marantz, P. R.
National Center for Advancing Translational Sciences
3/22/18 → 2/28/23

Institutional Career Development Core
Stephenson-Hunter, C. S. & Marantz, P. R.
National Center for Advancing Translational Sciences
3/22/18 → 2/28/23

Education and training program in patient-centered outcomes research
Marantz, P. R., Marantz, P. R. & Marantz, P. R.
6/5/14 → 5/31/19

Strengthening Behavioral & Social Science in Medical School Education (R25)
5/19/11 → 4/30/17

Strengthening Behavioral & Social Science in Medical School Education (R25)
Gruppuso, P. A., Joo, P. A., Marantz, P. R. & Joo, P. A.
National Institute of Child Health and Human Development
5/19/11 → 4/30/17

Become/Doctor/Albert Einstein/Medicine/Curriculum
Marantz, P. R.
9/27/05 → 8/31/11

Become/Doctor/Albert Einstein/Medicine/Curriculum
Marantz, P. R. & Marantz, P. R.
National Institute of Child Health and Human Development
9/27/05 → 8/31/11

Clinical Research Training Program at Einstein
Marantz, P. R.
9/19/05 → 5/31/08

Clinical Research Training Program at Einstein
Marantz, P. R. & Marantz, P. R.
National Center for Research Resources
9/19/05 → 5/31/07

CLINICAL RESEARCH CURRICULUM AWARD
Marantz, P. R.
6/1/99 → 5/31/00

CLINICAL RESEARCH CURRICULUM AWARD
Marantz, P. R. & Marantz, P. R.
National Heart, Lung, and Blood Institute
6/1/99 → 5/31/04

CLINICAL CONGESTIVE HEART FAILURE IN THE ELDERLY
Marantz, P. R.
National Institute on Aging
10/1/86 → 9/30/91
Michal Melamed, MD, MHS
Professor, Departments of Medicine (Nephrology), Pediatrics and Epidemiology & Population Health

RESEARCH AREA: Epidemiology of chronic kidney disease, racial and ethnic disparities in kidney disease, metabolic acidosis, vitamin D, clinical trials in kidney disease, mentorship and training programs

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R01 DK 131811-01A1 (MPI: Melamed, Reidy, Nickolas, Kumar)  8/15/2022-7/31/2025
NIH/NIDDK
“Bone In CKD Alkali Response Pilot Trial (BICARb Pilot Trial)”
Major Goals: The major goal of this study is to conduct a pilot, double-blinded, randomized, placebo-controlled trial in 15 children and 88 adults evaluating the skeletal effects of potassium alkali therapy.

R01 DK132823-01 (MPI: Raphael, Melamed)  8/24/2022-7/31/2026
NIH/NIDDK
“Cardiovascular effects of oral bicarbonate in CKD”
Major goals: To study the effects of oral bicarbonate in almost 400 participants from 3 randomized placebo controlled trials on 1) volume status and 2) vascular calcification.

R18 DK118471-01 (MPIs: Golestaneh, Cavanaugh, Melamed)  9/06/2018-7/31/2023
NIH/NIDDK
“Peer Mentorship to Improve Outcomes in Patients on Maintenance Hemodialysis”
Major Goals: The goal of this grant is to train patients on maintenance hemodialysis to become peer mentors to other patients and then test whether the mentees experience fewer hospitalizations and ED visits.

NIH/ NIDDK U2C/TL1 DK129502-01A1 (contact MPI: Melamed)  9/15/2022-6/30/2027
“New York Consortium for Interdisciplinary Training in Kidney, Urological and Hematological Research (NYC Train KUHR)”
This multi-PI, multi-institutional training program brings together the Albert Einstein College of Medicine, Icahn School of Medicine at Mount Sinai, Columbia University Irving Medical Center and the Renaissance School of Medicine at Stony Brook University to create an interdisciplinary training program for pre-doctoral and post-doctoral candidates concentrating on research in kidney, urology and hematology.

NIH/ NCATS K12 TR004411-01 (MPIs: Marantz, Melamed)  7/1/2023-6/30/2028
“CTSA K12 Program at Einstein-Montefiore”
To provide support and education for junior faculty members at Einstein-Montefiore who are developing their careers as clinical and translational scientists.

NIDDK K26 DK138488-01 (PI: Melamed)  12/1/2023-11/30/2028
“Mentoring in Kidney Health to Improve Equity”
This award will protect Dr. Melamed’s time to allow her to mentor multiple trainees, including individuals from groups Underrepresented in Medicine, into academic careers in clinical research in Kidney Health. Dr. Melamed will also gain additional training in health equity research.
Sofiya Milman, MD, MS
Associate Professor, Department of Medicine (Endocrinology and Geriatrics)
Associate Professor, Department of Genetics

RESEARCH AREA: Discovery of biological mechanisms that protect against common age-related diseases, like diabetes, cancer, Alzheimer's, and cardiovascular disease in families with exceptional longevity.

SELECTED PUBLICATIONS:


Zhang WB, Ye K, Barzilai N, Milman S. The antagonistic pleiotropy of insulin-like growth factor 1. Aging Cell 2021; 20(9), e13443; PMCID: PMC8441393


SELECTED GRANTS:

R01AG061155-01A1: Somatotropic Signaling and Resilience to Aging and Alzheimer's Disease (PI: Milman)

UH3AG064704-01: Identifying protective omics profiles in centenarians and translating these into preventive and therapeutic strategies (PI: Perls; contract-PI: Milman)

U19AG073172: Resilience/Resistance to Alzheimer's Disease in Centenarians and Offspring (RADCO) (PI: Perls; contract-PI: Milman)

AFAR: SuperAgers Family Study (PI: Milman)

P30AG038072: Einstein's Nathan Shock Center of Excellence in Basic Biology Of Aging (PI: Barzilai)
RESEARCH AREA: I use tools of cognitive neuroscience to understand the brain in health and disease, focusing on processes such as attention, multisensory integration, sensory and perceptual processing, and executive functions. I use psychophysics and high-density electrophysiology (and fMRI when appropriate), in addition to deep clinical and cognitive phenotyping when appropriate, to probe basic perceptual and cognitive function in healthy adults, the development of these processes over childhood, and how differences in neural function and perceptual and cognitive processing contribute to neurodevelopmental and neuropsychiatric disorders. My lab was one of the first to show that multisensory integration is impaired in autism, a finding that we have substantiated for both social and non-social stimuli and that has been replicated by many other groups now. In my translational work I continue to focus on visual and auditory sensory processing and neurosciallatory activity in autism. In addition, I have interest in rare genetic conditions due to their potential to provide insight into the neurobiological pathways underlying more common idiopathic conditions. These include Rett Syndrome, 22q11.2 deletion syndrome, KDM5C missense mutation syndrome and ANKS1B haploinsufficiency syndrome. I have a robust record of collaboration with Einstein and non-Einstein investigators. I am the Co-Director of the NIH funded Rose F. Kennedy Intellectual and Developmental Research Center.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Simons Foundation: Neuro-Oscillatory Function and Network Communication in ASD and Unaffected Siblings. Identification of neural biomarkers of ASD is critical to facilitating translational research, measuring treatment effects, and, ideally, to determining high risk for ASD prior to clinical diagnosis, when intervention is likely to be most effective. Using high density electroencephalographic recordings of human brain activity, this program of research therefore aims to address this pressing need by investigating local and network neuro-oscillatory function in children with ASD.

U01 TR002764-01A1HD098067 (Agency: NICHD): Harnessing Clinical Genomic Characterization to Accelerate Translational Advances for Patients with IDD. The aims of this grant are to establish standards for feasible neurobehavioral characterization of IDD patients, to integrate phenotypic and clinical genomic characterization of these patients and to establish an IDD patient registry.
Cystinosis Research Network: Cognitive Control Systems in Cystinosis: This project characterizes different components of executive functioning (memory updating, set shifting, conflict monitoring, and inhibition) in cystinosis. To this end we use high-density electrophysiology (EEG)—a non-invasive method that allows one to directly measure functional brain activity at the millisecond scale and thus reliably assess the integrity of information processing at the neural level— and standardized cognitive functional assessments and test children and adults with and without cystinosis.
Jelena Radulovic, MD, PhD

Professor, Department of Neuroscience

RESEARCH AREA: Animal models to examine brain mechanisms by which memories of stressful events cause fear, anxiety, and depression.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Mechanisms of Stress-Enhanced Aversive Conditioning (5R01MH078064-18)

Cortico-hippocampal mechanisms of context memory (5R01MH108837-09)
Carlos Jose Rodriguez, MD, MPH

Professor (tenured), Department of Medicine (Cardiology)

RESEARCH AREA: Cardiovascular Epidemiology, Heart Failure, Hypertension and Hypertensive, Heart Disease, Impact of Psychosocial and Behavioral Factors on Cardiovascular Health, Cardiovascular Minority Health and Health Disparities, Echocardiography, Cholesterol Management

SELECTED PUBLICATIONS (2022):


**SELECTED GRANTS:**

**NIH / NHLBI**

**Vascular Determinants of Stage B Heart Failure among Hispanics/Latinos**
The overall goals are to determine comprehensive vascular phenotypes in Hispanics/Latinos as well as the relation of cardiac-vascular coupling to the rich database of clinical, cultural, and psychosocial risk factors from HCHS/SOL; to help delineate key vascular factors associated with cardiac structure and function trajectories as well as a pooled cohort analysis of existing FHS/JHS/Omni vascular datasets.

**NIH / FDA**

**AHA Tobacco Regulation and Addiction Center (A-TRAC)**
The overall goals are to 1) understand the relationship between biomarkers of cardiovascular dysfunction/injury, measures of subclinical cardiovascular disease and clinical cardiovascular events with specific measures of exposure to tobacco smoke in epidemiologic cohorts; and 2) to provide a comprehensive assessment of knowledge, attitudes, risk perception and behaviors related to tobacco use, tobacco products, and smoking cessation programs in vulnerable understudied populations with the use of community-based participatory multi-disciplinary approaches.

**NIH / NHLBI**

**Hispanic Community Health Study/Study of Latinos (HCHS/SOL) Bronx Field Center**
HCHS-SOL is a prospective, population-based, cohort study designed to examine risk and protective factors for chronic diseases and to quantify morbidity and mortality in US Hispanics/Latinos (H/Ls) of diverse backgrounds. Objectives are to: 1) expand the evidence on putative causes of prevalent chronic diseases in H/Ls; 2) describe long-term changes in risk and protective factors with continuing acculturation; 3) assess the impact of biomedical, lifestyle, SES, sociocultural factors, and healthcare access on the health of H/Ls; 4) continue to provide a platform and infrastructure for ancillary studies using data and specimens from
HCHS/SOL participants; 5) leverage the diversity among HCHS-SOL participants for genetic epidemiological studies; 6) continue to inform participants and the general H/L community about the study progress and findings; and 7) continue to provide early stage investigators, particularly from under-represented groups, with opportunities for mentored research, manuscripts, and career development.

NIH/NHLBI
MACS/WIHS Combined Cohort Study
Aims are to evaluate HIV infection and associated factors as determinants of myocardial dysfunction and disease as assessed by state-of-the-art echocardiography and magnetic resonance imaging in a longitudinal observational cohort of demographically matched men and women with or at risk for HIV infection.

NIH / NHLBI
Genetic Architecture of Cardiac Structure and Function and Impact on Heart Failure
The goal of this project to utilize the echocardiographic data we have in the Echocardiographic Study of Latinos (ECHO-SOL) and ECHO-SOL 2 to identify common, rare and structural genetic variants associated with cardiac structure and function, as well as HF; and to improve HF risk prediction by incorporating genetic predisposition to cardiac structure and function alterations.

NIH / NHLBI
Non-Alcoholic Fatty Liver Disease and Cardiovascular Disease in Hispanics/Latinos
There is evidence that Hispanics/Latinos may have more fatty liver disease than other ethnic groups, and that their burden of heart disease is underappreciated. This study will evaluate environmental and/or genetic influences on these disorders, assess their interrelationship, and provide information to improve the heart and liver health of this vulnerable population.

PCORI
PRagmatic EValuation of evENTs And Benefits of Lipid-lowering in oldEr adults (PREVENTABLE)
This is a pragmatic randomized control clinical trial designed to generate knowledge about the role of statins in older adults, a population in which risk/benefit for primary prevention has been under studied. This study is designed to prove the usefulness of statins for primary cardiovascular prevention in adults over age 75, in the setting of multiple chronic conditions as well as determining whether common conditions such as cognitive impairment or HFrEF may be improved by an effective vascular prevention. Other Objectives are to collect bio-specimens to advance precision health.

NIH / NIA
The Study of Women’s Health Across the Nation (SWAN)
SWAN is a multi-site longitudinal, epidemiologic study designed to examine the health of women during their middle years. The study will examine how the physical, biological, psychological and social changes during midlife impact health and functioning in early old age. The goal of SWAN’s research is to help scientists, health care providers and women learn how mid-life experiences affect health and quality of life during aging.

NIH / NHLBI
Network for Cardiothoracic Surgical Investigations in Cardiovascular Medicine
The Cardiothoracic Surgical Trials Network (CTSN) was created to develop a strong evidence base for the treatment of cardiac surgery patients. The CTSN data coordinating center, leadership, sites and clinical investigators have developed a research agenda of to design and conduct practice-changing collaborative randomized controlled trials that evaluate clinically meaningful questions and address important public health issues. These trials span the spectrum from translational, to confirmatory, to comparative effectiveness.
Joanna Starrels, MD, MS
Professor, Department of Medicine (Division of General Internal Medicine)
Professor, Department of Psychiatry & Behavioral Sciences
Associate Chief (Research), Division of General Internal Medicine

RESEARCH AREA: My work focuses on the intersection of substance use and pain, particularly: use of prescribed opioids for pain, risks and benefits of medical cannabis for chronic pain, and treatment of chronic pain in people with opioid use disorder. I use diverse research methods, from clinical trials to qualitative research.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

NIDA RM1 DA055437: Integrated Care for Chronic Pain and Opioid Use Disorder: The IMPOWR Research Center at Montefiore/Einstein (IMPOWR-ME)
NIDA K24DA046309: Mentoring junior investigators to tackle the opioid epidemic
NIDA R01DA039046: Prescription Opioid Use, Misuse, Disorders and HIV Outcomes
Ulrich Steidl, MD, PhD

Professor, Department of Cell Biology

RESEARCH AREA: Hematopoietic stem cells (HSC), leukemia stem cells (LSC), preleukemic stem cells, tumor heterogeneity, transcription, transcriptional plasticity, molecular noise, targeted therapy, translational computational biology

SELECTED PUBLICATIONS:


SELECTED GRANTS:

R35 CA253127, Steidl (PI), 09/01/21 – 08/31/28
Molecular and Cellular Regulation of Pre-Leukemic Stem Cells and their Therapeutic Targeting

R01 HL105832, Verma/Steidl (MPI), 07/01/19 – 06/30/24
STAT3 Inhibition as a Therapeutic Strategy against MDS Stem Cells

R01 HL157948, Steidl/Will (MPI), 04/01/21 – 02/28/25
Contribution of Macrophages in the HSC Niche

96
Sylvia Suadicani, PhD

Associate Professor, Department of Urology, Department of Molecular Pharmacology

RESEARCH AREA: Molecular mechanisms in benign bladder dysfunction, bladder physiology and pathophysiology.

Research in Dr. Suadicani’s laboratory focuses on investigating mechanisms underlying the development of urogenital conditions to identify novel molecular mediators that can be therapeutically targeted. Current studies are addressing bladder dysfunction in diabetes and aging, interstitial cystitis, chronic pelvic pain, and female sexual dysfunction. Her laboratory uses both animal and cellular models combined with physiological, pharmacological, molecular, and histological approaches to investigate these mechanisms.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Grant project title: “Pannexin 1 channel, a novel molecular mediator and potential therapeutic target for Interstitial Cystitis”

Funding agency: Department of Defense (DoD) - CDMRP W81XWH2110465

Principal Investigator: Suadicani, SO

Dates: 04/01/2021 – 03/31/2025

Major Goals: This project will test the overarching hypothesis that Panx1 channels play a key role in events leading to bladder sensitization, micturition dysfunction and pelvic pain in IC by amplifying ATP signaling and activating the bladder inflammasome. The main objectives of this project are to (1) demonstrate that Panx1 channels are novel molecular mediators and therapeutic targets for IC, and (2) obtain pre-clinical validation for use of Panx1 blockers to treat and ameliorate urinary symptoms in IC patients.

Grant project title: “Pannexin 1 channels: new players in diabetic bladder dysfunction”

Funding agency: NIH NIDDK - R01 DK122153

Principal Investigator: Suadicani, SO

Dates: 09/03/2019 – 06/30/2024 (NCE)

Major Goals: The main goal of this grant is to investigate the role of urothelial pannexin 1 (Panx1) channels in the emergence and temporal progression of diabetic bladder dysfunction (DBD). Findings from proposed studies will demonstrate that Panx1 channels are novel molecular mediators and potential therapeutic targets to manage DBD and prevent bladder decompensation at later stages of the disease.
Yaron Tomer, MD

Professor, Department of Medicine (Endocrinology)

RESEARCH AREA: Immunogenetics of autoimmune Thyroid disease (AITD) and type 1 diabetes (T1D)

SELECTED PUBLICATIONS:


SELECTED GRANTS:

2022-2025

Source: NIH-NIDDK.

Project Name: Analyzing Genetic and Environmental Molecular Mechanisms Causing Autoimmune Thyroid Diseases.

Principal Investigators: Yaron Tomer, M.D. (contact PI), and Mihaela Stefan-Lifshitz, PhD (MPI).

2023-2025

Source: NIH-NCI.

Project Name: Endocrine tissue molecular pathways dysregulated by immune checkpoint inhibitors causing ICI-triggered adverse events.

Principal Investigators: Yaron Tomer, M.D. (contact PI), and Mihaela Stefan-Lifshitz, PhD (MPI).
Joe Verghese, MBBS, MS
Professor, Department of Neurology
RESEARCH AREA: Aging and mobility and cognition

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Kerala-Einstein Study: Healthy lifestyle, vascular disease, and cognitive decline
**Type:** R01AG039330; **Agency:** National Institute on Aging, Fogarty Institute
**Role:** Principal Investigator (contact), Multiple-PI: PS Mathuranath, VG Pradeep
**Aim:** Examine risk factors for cognitive decline in the southern Indian state of Kerala.

The biological underpinnings of Motoric Cognitive Risk syndrome: a multi-center study
2020 – 2025
**Type:** 1R01AG057548-01A1; **Agency:** National Institute on Aging
Role: Principal Investigator
Aims: Examine biological and brain substrates of Motoric Cognitive Risk syndrome in 8 cohorts in 6 countries.

Non-Invasive Home Neurostimulation for Mild to Moderate Alzheimer’s Disease: Double-Blind, Sham Controlled Randomized Clinical Trial
2020 – 2025
Type: R01 AG068167-01;
Agency: National Institute on Aging
Role: Principal Investigator (Co-PI: Helena Knotkova, PhD)
Aims: Double blind sham controlled randomized trial of the efficacy and neuroplasticity effects of transcranial direct current stimulation in mild to moderate Alzheimer’s disease patients.

5-Cog Battery to improve detection of cognitive impairment and dementia
09/25/2017 – 08/31/2022
Type: 1UG3NS105565-01; Agency: NINDS
Role: Principal Investigator
Aim: This UG3/UH3 project intends to further develop and validate a 5-minute screen (5-Cog) to identify persons at high risk of developing dementia and to flag them for further evaluation
Targeting signal transduction in hematologic malignancies:
Cytokines play important roles in the regulation of normal hematopoiesis and a balance between the actions of hematopoietic growth factors and myelosuppressive factors is required for optimal production of different hematopoietic cell lineages. The myelodysplastic syndromes (MDS) are collections of heterogeneous hematologic diseases characterized by refractory cytopenias due to ineffective hematopoiesis. These preleukemic disorders are common causes of anemia in the elderly and are rapidly increasing in incidence. We have also demonstrated that the TGF-beta superfamily/smad, IRAK and MAP kinase pathways is overactivated in MDS. Our work has led to clinical trials with Luspatercept, Galunisertib, CA4948, ARRY-614 and various other promising agents in MDS. We are trying to study the molecular mechanisms that lead to the activation of these pathways in MDS and are using small molecule inhibitors in mouse models to target these pathways.

Targeting aberrant stem and progenitor cells in myelodysplastic neoplasms:
We have demonstrated that aberrant stem cells persist during morphological remissions and are involved in relapse. We have identified novel targets against MDS/AML stem cells that are being tested in various studies. We are also conducting sequencing/epigenetic analysis of highly purified human stem cells and evaluating the role of these alterations in transformation of MDS to AML.

SELECTED PUBLICATIONS:


SELECTED GRANTS:

Active
Diversity-focused Montefiore Einstein Clinical Oncology Training Program in the Bronx
Verma, A. K. & Saenger, Y. M.
4/1/23 → 3/31/24

Therapeutic targeting of IRAK4 in MDS
Verma, A. K. & Starczynowski, D. T.
9/2/22 → 7/31/23

Finished
STAT3 inhibition as a therapeutic strategy against MDS stem cells
Verma, A. K. & Steidl, U. G.
National Heart, Lung, and Blood Institute
7/23/19 → 6/30/23

Cooperative Research Agreements Related to the World Trade Center Health Program (U01)
Verma, A. K.
1/1/19 → 6/30/20
Project: Research project
Therapeutic targeting of MDS stem cells
Steidl, U. G. & Verma, A. K.
8/20/18 → 6/30/22

Therapeutic targeting of MDS stem cells
National Heart, Lung, and Blood Institute
8/20/18 → 6/30/22

Therapeutic targeting of glutamine metabolism in MDS
4/1/16 → 3/31/21

Therapeutic targeting of glutamine metabolism in MDS
National Cancer Institute
4/1/16 → 3/31/21

Neoplasms12%
Therapeutic targeting of MicroRNA-21 in Myelodysplastic syndromes
National Institute of Diabetes and Digestive and Kidney Diseases
9/1/14 → 5/31/18

Therapeutic targeting of MicroRNA-21 in Myelodysplastic syndromes
9/1/14 → 5/31/18
TOXOPLASMOSIS: *Toxoplasma gondii* is a ubiquitous Apicomplexan protozoan parasite that infects humans, mammals and birds. Despite recent progress in understanding the biology of the rapidly replicating form (tachyzoite), very little is known about the cyst form (bradyzoite). The bradyzoite stage plays a critical role in maintenance of latent infection, the relapse of infections and the development of chronic neurological disease. Our research is focused on the identification of cyst wall (bradyzoite) proteins and how they function.

MICROSPORIDIOSIS: Microsporidia are "emerging" human and veterinary pathogens that contain a unique organelle, the polar tube, which is involved in invasion. While the description of the polar tube occurred over 100 years ago, the biochemical components of this structure and its formation during invasion remain to be definitively determined. Our research is focused on the: (1) characterization of the structure and composition of the polar tube and spore wall; and (2) the identification of therapeutic agents for microsporidiosis.

SELECTED PUBLICATIONS:


Mayoral J, Shamamian P Jr, Weiss LM. In vitro characterization of protein effector export in the bradyzoite


SELECTED GRANTS:

Active
Microsporidia: invasion apparatus
Weiss, L. L. M. & Weiss, L. M.
National Institute of Allergy and Infectious Diseases
5/16/16 → 5/31/24

Geographic Medicine and Emerging Infections
Tanowitz, H. B., Weiss, L. M., Kim, K. & Weiss, L. M.
National Institute of Allergy and Infectious Diseases
7/1/08 → 8/31/23

Geographic Medicine and Emerging Infections
Tanowitz, H. B., Kim, K. & Weiss, L. M.
7/1/06 → 8/31/24

Finished
Composition and formation of the cyst wall
Weiss, L. M.
6/1/18 → 5/31/22

Composition and formation of the cyst wall
Weiss, L. L. M. & Weiss, L. M.
National Institute of Allergy and Infectious Diseases
6/1/18 → 5/31/23

Development of Novel MetAP2 inhibitors as potential therapeutics for Microsporidiosis
Weiss, L. M.
4/1/18 → 3/31/22

Development of Novel MetAP2 inhibitors as potential therapeutics for Microsporidiosis
Das, B. C. & Weiss, L. M.
National Institute of Allergy and Infectious Diseases
4/1/18 → 3/31/22

Toxoplasma gondii Glycosylation
Weiss, L. M.
National Institute of Allergy and Infectious Diseases
12/7/16 → 11/30/18

Toxoplasma gondii Glycosylation
Weiss, L. M.
12/7/16 → 11/30/18

Toxoplasma gondii: cyst wall glycobiology
Weiss, L. M.
12/1/16 → 11/30/18

Microsporidia: invasion apparatus
Weiss, L. M.
5/16/16 → 5/31/22
Marcel Yotebieng, MD, MPH, PhD

Professor, Department of Medicine (General Internal Medicine)

RESEARCH AREA: HIV, Tuberculosis. Infectious disease. Implementation science, Clinical Trial, Observational cohort,

SELECTED PUBLICATIONS:


SELECTED GRANTS:

**R01AI176309-01**  
Torrelles, Restrepo, Yotebieng (MPI)  
04/05/2023 - 04/31/2028  
Improving rapid phenotypic drug susceptibility testing for drug resistant tuberculosis in high-burden areas

**U01AI096299**  
Anastos, Nash, Yotebieng (MPI)  
07/01/2021 – 05/31/2026  
Central Africa International Epidemiologic Databases to Evaluate AIDS (CA-IeDEA)

**R01HD105526**  
Kwiek, Yotebieng (PI)  
03/01/2021 - 05/31/2026  

**U54CA254568**  
Anastos, Adebola, Mutesa, Castle, Yotebieng (MPI)  
09/01/2020 - 08/31/2025  
Einstein/Rwanda/DRC Consortium for Research in HIV/HPV/Malignancies

**R01HD087993**  
Babakazo, Yotebieng (MPI)  
06/01/2016 - 05/31/2022 (NCE)  
Long term outcomes of therapy in women initiated on lifelong ART because of pregnancy in DR Congo
SELECTED PUBLICATIONS:


SELECTED GRANTS:

**NIH R01CA175495** Zang (PI)
07/01/2014-11/30/2025
The B7x pathway in the tumor microenvironment.

**NIH R01CA262132** Zang (PI)
12/01/2022 – 11/30/2027
A new immune checkpoint pathway in human bladder cancer

**DOD Breakthrough Award BC190403** Zang/Guo (MPIs)
12/15/2019-12/14/2023
Targeting B7x to overcome stem cell-mediated immunosuppression in triple-negative breast cancer

**DOD PC210331** Zang (PI)
07/01/2022 - 06/30/2025
A novel immune checkpoint pathway in human prostate cancer

**Price Family Foundation Award** Zang (PI)
10/18/2021 - 10/30/2023
Novel bispecific immune checkpoint inhibitors targeting both human NK cells and T cells

**NextPoint Therapeutics sponsored research project** Zang (PI)
11/16/2020 - 12/05/2025
Humanized NSG mice in vivo studies and novel first-in-class bispecific mAbs
Sebastian Strong Foundation Discovery Science Award  Zang (PI)
08/01/2023 - 07/31/2026
A novel CAR-T therapy to treat human rhabdomyosarcoma