27th Annual Celebration
October 3, 2022

Eleanor and Miles Shore Faculty Development Awards Program

HARVARD
MEDICAL SCHOOL

HARVARD
School of Dental Medicine

Eleanor and Miles Shore
Faculty Development Awards Program
2022 Celebration
4:00 to 6:00 PM

Welcome
Carol K. Bates, MD
Associate Dean for Faculty Affairs

Historical Perspective
Eleanor Shore, MD
Senior Consultant to the Office for Clinical and Academic Affairs
Harvard Medical School

Recognition of 2022 Recipients

Closing Remarks
George Q. Daley, MD, PhD
Dean of the Faculty of Medicine

History of Program

In 1995, The Fiftieth Anniversary Program for Scholars in Medicine was established to celebrate the 50th anniversary of the admission of women to Harvard Medical School (HMS) and to acknowledge the important contributions of women to the School. As part of this celebration, a fellowship program was established to help junior faculty, women and men, at the point in their careers when they must teach, do research, compete for grants, publish, or practice (if a clinical faculty member) at the same time they may be assuming increased family or other responsibilities.

In 1996, recipients of the first ten awards were honored in celebration. The program was renamed in 2004 to honor the efforts of Dr. Eleanor Shore, former Dean for Faculty Affairs, and Dr. Miles Shore, Bullard Professor of Psychiatry, Emeritus, on behalf of the 50th Anniversary Program for Scholars in Medicine.

Today, the program continues to honor the Shores' pioneering efforts and lasting dedication to the development of junior faculty as the Eleanor and Miles Shore Faculty Development Awards Program (Shore Program). Reflecting on the 25th Anniversary of the program in 2020, we are proud of the continued support of over 60+ sponsored faculty awards each year.

Mariana L. Acuña-Aravena, PhD
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: David E. Cohen, MD, PhD

Project Title: Acyl-CoA Thioesterase 12 (Acot12)-Mediated Regulation in Cellular Metabolic Fluxes

Project Description: An excess of fat, when deposited in the liver or circulating in the blood, is associated with chronic metabolic disorders, including non-alcoholic fatty liver disease and coronary heart disease. This research aims to investigate unexplored biochemical pathways that are expected to identify novel therapeutic targets for the treatment of these diseases. Acetyl-CoA is a key intermediate molecule of fat metabolism and a critical regulator of cellular function. Acyl-CoA thioesterase 12 (Acot12) is an enzyme that degrades acetyl-CoA. Although we have shown that Acot12 may control fat production in the liver, details about how it influences metabolism and disease development are required. This project aims to investigate both the metabolic function and cellular location of Acot12 in liver cells. We will use sensitive stable-isotope methods to characterize how Acot12 limits the biosynthesis of excess fats from glucose molecules in the setting of overnutrition. Furthermore, knowledge of the precise location(s) of Acot12, revealed by using sophisticated microscopic techniques, will provide important insights into mechanisms for controlling the production of fats at a molecular level. When taken together, these studies are expected to provide novel insights management of common chronic metabolic diseases.

Meghan Baker, MD, ScD
Assistant Professor of Population Medicine
Harvard Pilgrim Health Care Institute

Harvard Pilgrim Health Care Institute Department of Population Medicine's Robert H. Ebert, MD Fellowship

Mentor: Richard Platt, MD, MS

Project Title: Surveillance for asymptomatic Clostridioides difficile carriage among high risk hospitalized patients to prevent infections and transmission

Project Description: We propose a novel intervention to identify and protect patients at high risk for Clostridioides difficile infection (CDI), a common, morbid, and potentially deadly complication of medical care. We will identify C. difficile carriers by culturing vancomycin-resistant enterococcus surveillance swabs for toxigenic C. difficile and then conduct a randomized trial to determine the impact of an infection control, environmental services, and pharmacy prevention bundle on CDI. We anticipate this initiative will demonstrate a simple and efficient means to identify asymptomatic carriers and establish an effective and generalizable strategy to protect carriers from developing hospital-onset CDI and transmitting C. difficile to others.

Maria A. Battistone, PhD
Instructor in Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Dennis Brown, PhD

Project Title: Unexpected role of proton-secreting epithelial cells in mucosal immunity of the urogenital tract

Project Description: Acute kidney injury (AKI) is a frequent and fatal complication in hospitalized patients. AKI is currently diagnosed only after renal injury has occurred, and there is no specific cure. There is a clear need for the development of early markers of AKI and an associated therapy to reverse/prevent this complication. This proposal addresses these clinical gaps by leveraging novel signaling mechanisms by which epithelial proton-secreting intercalated cells communicate damage to immunocytes in the kidney. We will also provide crucial concepts of mucosal immunology and cell–cell interactions, all of which are critical but understudied facets of human health.

Mehdi Benamar, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Talal A. Chatila, MD

Project Title: Role of Notch3+ Regulatory T Cells in Multiple Sclerosis

Project Description: MS is an autoimmune disease that results from the breakdown of immune tolerance to our self-neuronal tissues. A key immune cell type involved in keeping immune tolerance to self-tissues is regulatory T (Treg) cells. Indeed, several studies revealed that MS patients present a functional defect in these cells. However, the mechanisms involved in the loss of regulatory T cell function in MS remain unclear. Our studies identify a critical mechanism involving a protein named NOTCH3 that disrupts Treg cell function in MS and explore ways of resetting this mechanism to reestablish immune tolerance in this disease.

Saba H. Berhie, MD
Instructor in Obstetrics, Gynecology and Reproductive Biology
Brigham and Women's Hospital

Brigham and Women's Hospital Obstetrics and Gynecology Foundation Fellowship

Mentors: Sarah E. Little, MD, MPH and Louise E. Wilkins-Haug, MD, PhD

Project Title: Postpartum Hypertension: A Pilot Study to Assess Feasibility of Home Blood Pressure Monitoring

Project Description: The United States (US) has one of the highest rates of maternal morbidity and mortality when compared to peer nations and hypertension is one of the key drivers of this troubling trend. The postpartum period – defined as up to a year after delivery – is a crucial moment in pregnancy care that is often ignored with perilous consequences as more than half of maternal deaths occur during this time. The American College of Obstetricians and Gynecologists recommend a blood pressure check within 1 week of delivery for all women with hypertensive disorders of pregnancy or within 72 hours if the pregnancy was complicated by severe hypertension. A remote care model to meet these goals is the next natural step. We propose a project where we enroll 30 postpartum people with hypertensive disorders of pregnancy and assess the safety, feasibility, and patient satisfaction of a remote BP monitoring program in the postpartum period.

Amy J. Bregar, MD
Assistant Professor of Obstetrics, Gynecology and Reproductive Biology
Massachusetts General Hospital

Dorothy Rackemann Fellowship established by the Vincent Memorial Hospital/Massachusetts General Hospital for Research in Reproductive Biology

Mentor: Steven J. Skates, PhD

Project Title: Early Detection of Ovarian Cancer by Uterine Lavage DNA genome-wide methylation analysi

Project Description: The high mortality rate of ovarian cancer is largely attributable to the late stage at which it is typically diagnosed. It is widely acknowledged that detection of ovarian cancer at earlier stages would lead to significant improvements in survival outcomes. However, efforts to develop early detection strategies for ovarian cancer have had limited success. For cancer screening in the general population, multi-cancer early detection tests based on measurement of circulating tumor DNA are showing excellent promise. However, the DNA signal in blood appears to be especially weak with low sensitivity in patients with early-stage ovarian cancer. We hypothesize that uterine lavage may provide a more abundant and earlier signal for ovarian tumor DNA than blood, and could potentially represent a superior screening strategy.

Yun-Yun K. Chen, MD
Instructor in Anaesthesia
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Anesthesiology, Perioperative and Pain Medicine Faculty Development Fellowship

Mentor: Kristin Schreiber, MD, PhD

Project Title: Personalizing Preprocedural Sedation for Regional Anesthesia: A Randomized Trial and Qualitative Assessment of Patient-Centered Outcomes and Experience

Project Description: Regional anesthesia in the form of a nerve block can be an important part of a surgical patient's perioperative pain regimen. A patient's mental processing of pain (ex: pain catastrophizing) may affect their experience with procedural pain. Regional anesthesia may be accompanied by procedural pain and is often provided in the presence of pharmacologic sedation. However, some patients may prefer to retain control and receive education. The goal of the study is to assess whether a surgical patient's pain catastrophizing profile affects their experience with procedural pain when receiving either pharmacologic sedation or intraprocedural education and reassurance during regional anesthesia.

Taek-Chin Cheong, PhD
Instructor in Pathology
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Roberto Chiarle, MD

Project Title: Genome-wide identification of oncogenic fusions in human cancer

Project Description: Tyrosine kinase (TK) fusions are oncogenic drivers in human cancers, but they are targetable by specific TK inhibitors. However, TK fusions can also be acquired during the development of resistance to targeted therapies. In this project, I propose to build on a novel technique I recently developed to systemically identify spontaneous recurrent TK fusions occurring in the genome of cancer cells subjected to targeted therapies. Leveraging this approach, I expect to generate a large-scale catalog of oncogenic TK fusions in human cancers. A large-scale catalog will be a very useful tool for interpreting novel fusions with uncertain oncogenic potential.

Sung Eun Choi, PhD
Instructor in Oral Health Policy and Epidemiology
Harvard School of Dental Medicine

Harvard School of Dental Medicine Fellowship in honor of Aina M. Auskaps, DMD

Mentor: Christine A. Riedy, PhD

Project Title: Predicting frequent emergency department visits for dental-related conditions

Project Description: Patients who use the emergency department (ED) for non-urgent conditions are likely to return for multiple visits. "Frequent ED users" account for a substantial share of ED visits and cost. Socioeconomically disadvantaged patients are especially vulnerable to repeat ED visits because of the inability to access definitive dental treatment. In addition to individual factors, area-level social determinants of health (SDOH) are an increasing focus of health care delivery systems to enable improved targeting, resource allocation, and risk prediction. Hence, we aim to develop a prediction model of dental-related frequent ED visits using machine learning approaches, incorporating area-level SDOH.

Lauren Collen, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital Division of Gastroenterology and Nutrition Shore Grant Fellowship

Mentor: Scott B. Snapper, MD, PhD

Project Title: Characterization of Defective STAT3 Activation in Very Early Onset Inflammatory Bowel Disease

Project Description: We have identified an index patient with very early onset inflammatory bowel disease (VEOIBD) and a novel defect in regulation of STAT3, a signaling molecule within the cell. We hypothesize that the defect in regulating STAT3 signaling results in his disease; moreover, a pilot data in a larger cohort of VEOIBD patient and healthy controls has revealed subsets of patients who also have alterations in STAT3 signaling. This study will identify a novel cause of VEOIBD in an index patient and unveil a larger role of STAT3 regulation in VEOIBD more broadly, providing insight into mechanisms of IBD pathogenesis and precision medicine approaches.

Clarissa Z. Cooley, PhD
Instructor in Radiology
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Lawrence L. Wald, PhD

Project Title: Portable MRI Technology for Neonatal Care

Project Description: The aim of this work is to develop dedicated MRI scanners optimized for neonatal brain imaging at the NICU bedside. While MRI brain imaging offers high diagnostic value to NICU patients, transport of these fragile patients to the scanner can introduce significant safety concerns and is often logistically prohibitive. Our proposed scanner designs are truly portable, allowing transport of the scanner to the incubator with a design-focus on minimizing manipulation and disturbance of the patient and care equipment.

Kathleen J. Cullion, MD, PhD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Daniel S. Kohane, MD, PhD

Project Title: Developing nanoparticle drug delivery systems for venous malformations

Project Description: Venous malformations (VMs) consist of malformed veins that do not work correctly. Treatment options for children suffering with VMs are limited. Treatment with sirolimus has proven efficacious; however, systemic drug delivery was associated with treatment-limiting side effects. Therefore, I propose an innovative strategy using nanoparticle drug delivery systems to deliver sirolimus. Nanoparticles can maximize drug delivery and minimize systemic toxicity because they can be designed to specifically dwell within the malformed veins that comprise VMs. I hypothesize the blood vessels that comprise VMs will be leaky, allowing for nanoparticles to preferentially penetrate and deliver drug to the malformed vessels.

Swati Deshmukh, MD
Assistant Professor of Radiology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Radiology Fellowship

Mentors: James V. Rawson, MD, Bettina Siewert, MD, Jim Wu, MD

Project Title: "The House of Wellness": Designing, Building, and Implementing a Wellness Strategy for Faculty in the Department of Radiology

Project Description: Physician burnout and moral distress, exacerbated during the pandemic, have reached alarming rates, with detrimental effects on individual faculty as well as healthcare organizations at large. The goal of this project is to design, build, and implement a comprehensive wellness strategy for peer-driven flourishment and meaningful change, acknowledging the need for post-pandemic reconstruction of peer support built on a foundation of leadership responsibility.

Gillian Diercks, MD
Instructor in Otolaryngology Head and Neck Surgery
Massachusetts Eye and Ear

Massachusetts Eye and Ear Fellowship

Mentor: Christopher J. Hartnick, MD

Project Title: Impact of comprehensive feeding evaluation on frenotomy rate and breastfeeding outcomes in infants with ankyloglossia

Project Description: Frenotomy is an increasingly common procedure performed on infants for treatment of ankyloglossia (tongue-tie), however there is limited evidence that it improves breastfeeding outcomes. While incorporation of a comprehensive feeding evaluation may reduce frenotomy rates by nearly 70%, its effect on breastfeeding success is unknown. The proposed prospective study will compare frenotomy rate and 6-month feeding-related outcomes in infants referred for frenotomy who receive surgical consultation with and without feeding evaluation. This information can offer insights into the benefits of a team-based approach to management of infants with ankyloglossia and feeding difficulties.

Darius Ebrahimi-Fakhari, MD, PhD
Instructor in Neurology
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Mustafa Sahin, MD, PhD

Project Title: Functional Genomic Screen To Identify Novel Therapeutic Targets For Childhood-Onset Hereditary Spastic Paraplegia

Project Description: The hereditary spastic paraplegias (HSP) are a group of over 80 neurogenetic diseases that cause progressive spasticity and weakness. Here we focus on a rare but prototypical form of HSP in children, caused by mutations in the adaptor protein complex 4 (AP-4), a central regulator of protein trafficking in cells. Building on our prior work in patient-derived nerve cells, we have adapted ATG9A mislocalization as a surrogate for AP-4 deficiency in a high-throughput assay using automated microscopy. We will employ this assay in an arrayed CRISPR-mediated loss-of-function screen, to identify gene targets for drug discovery.

Jocelyn R. Farmer, MD, PhD
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Harvard Medical School Award in honor of Orah S. Platt, MD

Mentor: Shiv S. Pillai, MD, PhD

Project Title: Utility of transient elastography for the early detection of nodular regenerative hyperplasia in patients with common variable immunodeficiency

Project Description: Nodular regenerative hyperplasia (NRH) is a form of liver disease that is associated with high morbidity and mortality among patients with immunodeficiency. Currently, a liver biopsy is the gold standard for diagnosis; however, a non-invasive technique could potentially facilitate earlier disease recognition and treatment. The goal of this work is to evaluate the utility of ultrasound-based transient elastography in the diagnostic work-up of NRH among patients with immunodeficiency. The overarching goal of this work is to improve the care of our immunodeficiency patients through earlier disease recognition.

Yangfang Feng, PhD
Instructor in Dermatology
Massachusetts General Hospital

Massachusetts General Hospital Department of Dermatology Fellowship

Mentor: Tayyaba Hasan, PhD

Project Title: Shining new light with an established therapy: Eradicating persistent bacterial infections with photodynamic therapy

Project Description: Bacterial persisters are a major source of morbidity and mortality for nearly half of relapsed hospital infections. Despite the clinical significance, treatments for these bacteria are sorely lacking. This research proposes to re-task a clinical treatment for cancer, known as photodynamic therapy (PDT), to eliminate bacterial persisters. PDT attacks bacteria by generating lethal quantities of reactive oxygen species, which can attack a broad range of cellular constituents and thereby avoid the bacterial persistence defense mechanisms. If successful, this study can shift clinical practice for a number of chronic diseases, such as cystic fibrosis, pneumonia, and tuberculosis.

Jessica Harder, MD
Instructor in Psychiatry
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Katherine Burdick, PhD

Project Title: Relationship Between Environmental Endocrine Disrupting Chemicals and Neuropsychiatric Outcomes in Depression

Project Description: This study will evaluate how everyday chemicals throughout our environment – in food packaging, medication coating, and plastics – affect mood and cognition in middle and older age. These chemicals are called ‘endocrine disruptors’ because they interfere with the body’s natural hormone functioning. Endocrine disrupting chemicals are known to change emotions, behavior, and thinking in children, putting them at risk for problems like depression, anxiety, and inattention. However, it is not known whether exposure impacts mood and cognition in later life. Understanding factors in our environment that contribute to mood and cognitive problems in older women will help us identify new approaches to preventing and treating these conditions.

Christian Jacome-Galarza, PhD
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Ellen M. Gravallese, MD

Project Title: RNA sequencing to determine gene expression in healing macrophages in inflammatory arthritis

Project Description: Macrophages are some of the most diverse cells in the body. There are two major lineages of macrophages, those derived from bone marrow progenitors that participate in destruction of microorganisms; and those derived from embryonic tissues that promote tissue growth and repair throughout life. These functions occur normally in healthy individuals but are altered and imbalanced in diseases such as inflammatory arthritis (IA). However, the identity and tissue repair functions of macrophages in IA is not fully understood. We have developed new methods to identify and determine the functions of these two distinct lineages of macrophages within tissues. This project is focused on leveraging on these methods to identify synovial macrophages with tissue repair functions that will be important as therapeutic targets to induce tissue repair in IA. Our preliminary data on healthy synovial macrophages shows a clear distinction in gene signatures. The goal is to use these gene signatures to identify new approaches to promote tissue repair in IA.

Nelia Jain, MD
Instructor in Medicine
Dana-Farber Cancer Institute

Dana-Farber Cancer Institute Fellowship Award

Mentor: Ariela R. Orkaby, MD

Project Title: Integrating Frailty Assessment into Palliative Care to Improve Illness Understanding and Prognostication in Older Advanced Heart Failure (HF) Patients (INTERFACE-HF)

Project Description: People with advanced heart failure (HF) are physiologically similar to older adults and face high symptom burden, decreased quality of life, and complex medical decisions, leading to palliative care referrals. Frailty, a syndrome of declining physiologic reserve, impacts illness trajectory and prognosis in HF. However, frailty is not routinely assessed in HF and existing prognostic models are imprecise, limiting patients' understanding that HF is a life-limiting diagnosis. This study will evaluate the feasibility of incorporating frailty measurement into palliative care assessment of HF patients and examine the relationship between frailty and illness understanding, quality of life, and prognostic awareness.

Rachel Jimenez, MD
Assistant Professor of Radiation Oncology
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Tomas G. Neilan, MD

Project Title: Accelerated Proton Therapy for Breast Cancer and Impact on Cardiac Function

Project Description: Approximately 60% of all breast cancer patients receive radiotherapy (RT) as part of their care. Yet, breast RT can unintentionally expose the heart to RT and breast RT is associated with an increase in both cardiovascular disease and heart failure. Over the past decade, proton beam radiation, a special form of RT that allows for precise dose shaping and less normal tissue exposure, has been studied with the hope of better sparing the heart from radiation injury. However, rapid developments in breast RT are changing the treatment paradigm in breast cancer from low dose RT administered daily over 5-6 weeks to accelerated, high intensity treatment delivered over only 5 days. While this abbreviated regimen increases convenience for patients and decreases cost, there have been no studies evaluating the safety of a 5-day RT regimen using proton therapy or its impact on cardiac injury. Therefore, the primary aim of this proposal is to test whether accelerated proton beam radiation preserves cardiac function by among breast cancer patients with left-sided breast cancer using cardiac MRI.

Naima T. Joseph, MD
Instructor in Obstetrics, Gynecology and Reproductive Biology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Gynecology and Obstetrics Fellowship

Mentor: Chloe A. Zera, MD

Project Title: Addressing health system barriers to COVID-19 vaccination for pregnant and recently pregnant persons

Project Description: Although Massachusetts is a national leader in COVID-19 vaccination, only 15% of Black and Hispanic women have received their first dose, despite facing increased risk for worse disease outcomes, especially in pregnancy. Targeted efforts delivered by health systems can potentially improve vaccination rates. Our goal is to engage community health centers and prenatal providers at BIDMC, specifically practices that account for the majority of births to Black and Hispanic residents in Massachusetts, to develop and implement provider education and vaccine administration protocols, in order to improve uptake in this high-risk population.

Youssef Jounaidi, PhD
Instructor in Anaesthesia
Massachusetts General Hospital

Massachusetts General Hospital Department of Anaesthesia Fellowship

Mentor: Stuart A. Forman, MD, PhD

Project Title: GABAAR Alpha 6 gene knockout in Zebrafish: A model for anxiety/depression

Project Description: Depression is often associated with anxiety, isolation, and increased suicide ideation. Isolation, and stress, during the Covid pandemic, led in 2021 to 32.8% increase in depression in adults, from only 8.5% before the pandemic. Zebrafish live in a group and can provide a tool to study the impact of GABA receptors deficiency that could amplify anxiety/depression and perhaps suicidal ideation under stress. We ablated a GABA receptor called a6 subunit involved in a multitude of stress-associated disorders. Our animal model shows high impulsivity with anxiety and symptoms of depression and could be used to identify non-benzodiazepine compounds without addictive side effects.

Andrew R. Ketterer, MD
Assistant Professor of Emergency Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Emergency Medicine Research Development Award

Mentor: Nicole M. Dubosh, MD

Project Title: A simulation-based randomized controlled trial on teaching best practices in firearm safety

Project Description: Firearm injury is one of the leading causes of death in the US. The high prevalence of gun carriage correlates to this fact and presents a safety risk to healthcare providers. Unfortunately, only a minority of physicians report personal familiarity with firearms, creating a safety risk if a physician encounters a firearm in the clinical care space. We are investigating how an educational intervention on the principles of firearms safety affects the ability of resident emergency physicians to safely remove a firearm during a simulated clinical encounter.

Khameer Kidia, MD
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentors: Joseph Rhatigan, MD and Peter J. Rohloff, MD, PhD

Project Title: Thinking too much: Decolonizing Global Mental Health

Project Description: This book project will synthesize a decade of global mental health research with queer and decolonial theory into a book manuscript that will argue that psychiatry in the Global South is a band aid for structural violence perpetrated by colonialism and late capitalism. Through critical analysis of the many research projects in Zimbabwe on which I have been an investigator, I will hold accountable the racist and colonial entanglement of Western psychiatry with the international development industrial complex and prescribe systems and policy solutions to reform the field of global mental health.

Jessica S. Kremen, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Elizabeth R. Boskey, PhD

Project Title: Understanding experiences with "detransition" and cessation of gender-affirming treatment (CGAT) in a large pediatric gender clinic

Project Description: I am interested outcomes of gender-affirming medical care for transgender and gender diverse (TGD) youth. Much has been made in the public discourse about TGD individuals who "detransition"-- stop hormones or puberty blockers because they identify with the sex assigned at birth. However, youth may stop gender-affirming medications for many reasons, such as lack of support for gender transition. Little data is available on the frequency with which youth discontinue gender affirming treatment, and the reasons for discontinuation. This project will examine the clinical course of a large cohort of TGD youth receiving gender-affirming care at Boston Childrens Hospital.

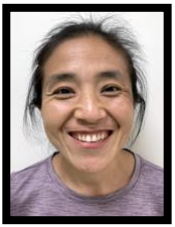
Maureen M. Leonard, MD
Assistant Professor of Pediatrics
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Alessio Fasano, MD

Project Title: Elucidating The Role of Viral Factors Influencing Celiac Disease Onset

Project Description: The incidence of the autoimmune condition celiac disease has quadrupled over the past two decades and is expected to continue to rise, yet the prevalence of the genes associated with disease and the trigger have not changed. This suggests a critical role for environmental factors contributing to disease pathogenesis. Exposure to infections in early life have been linked to celiac disease. Utilizing a prospective birth cohort of infants at-risk of celiac disease, I propose to examine how exposure to viral illness in early life alters intestinal permeability and influences microbiome trajectories, leading to development of celiac disease.



Jing Li, PhD
Instructor in Biological Chemistry and Molecular Pharmacology
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Timothy A. Springer, PhD

Project Title: Activation mechanisms of latent TGF-β1 by integrins αVβ6 and αVβ8

Project Description: I will study how integrins αVβ6 and αVβ8 activate latent TGF-β1, which is important in development, wound-healing, immune regulation, and tumor biology. The mechanism of activation of TGF-β1, and whether tensile force is required, has important implications in therapeutic interventions. We hypothesize that the tensile force exerted by the actin cytoskeleton through integrins plays an important role in αVβ6-mediated TGF-β1 activation but possibly not in αVβ8-mediated activation. To test this, I will measure single-molecule force exertion by TGF-β1-binding integrins with tension gauge tethers. I will also measure tensile force-dependent activation of TGF-β1 by integrins.

Nina Mann, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Friedhelm Hildebrandt, MD

Project Title: Discovery of Novel Monogenic Causes of Voiding Dysfunction

Project Description: Disorders of voiding are common in the general population but can lead to substantial morbidity, including frequent urinary tract infections, renal scarring, and psychosocial stress. Normal bladder function requires the coordinated interactions of sensory cells, smooth muscle cells, and the central nervous system, the mechanisms of which are poorly understood. We aim to apply whole exome sequencing to identify novel genetic causes of voiding dysfunction and to apply relevant cellular models to gain a better understanding of the processes that regulate normal bladder emptying and filling.

Marie-Charlotte Meinsohn, PhD
Instructor in Surgery
Massachusetts General Hospital

Massachusetts General Hospital Department of Surgery Faculty Development Fellowship

Mentor: David Pépin, PhD

Project Title: Elucidating the mechanisms of primordial follicle quiescence and activation

Project Description: Women are born with a finite number of oocytes, which remain mostly dormant within primordial follicles. Upon activation, each primordial follicle develops irreversibly towards ovulation or death. Gradually, the ovarian reserve dwindles with age, finally triggering menopause upon its depletion. How primordial follicles remain dormant is one of the biggest mysteries of biology. Therapies capable of modulating this process could have broad applications from contraception to fertility preservation during chemotherapy. Here we propose to explore the mechanism of primordial follicle quiescence, and specifically how the Anti-Mullerian Hormone (AMH) and Wnt pathways coordinate quiescence and activation respectively.

Phillip D. Michaels, MD
Instructor in Pathology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Pathology Fellowship

Mentor: Christine R. Bryke, MD

Project Title: MECOM genomic aberrations, expression, and clinical significance in myeloid neoplasms

Project Description: The World Health Organization (WHO) revised 4th edition for Tumours of Haematopoietic and Lymphoid Tissues has codified a unique class of acute myeloid leukemia (AML) that harbors either an inv(3)(q21q26) or t(3;3)(q21;q26) chromosomal aberration that results in promoter hijacking of GATA2 and overexpression of MECOM. The significance of this form of AML is the particularly poor overall survival despite modern chemotherapy. However, recent literature has indicated that other myeloid neoplasms (MN), aside from AML, that harbor inv(3)/t(3;3) have a poor prognosis. Although this is accepted, it has now been elucidated that rearrangements involving MECOM with other partners have an equally poor prognosis. As rearrangements yield overexpression of MECOM, the primary aim of this study is elucidate whether copy number alterations (CNA) of MECOM yield a similar protein expression profile, thus potentially identifying a new group of MECOM altered MN with a poor prognosis.

Melissa Musser, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital Division of Gastroenterology and Nutrition Shore Grant Fellowship

Mentor: Meenakshi Rao, MD, PhD

Project Title: Examining the role of IPANs and IPAN-derived CGRP in gut homeostasis and disease

Project Description: The enteric nervous system (ENS) is populated by glia and several neuronal subtypes, including intrinsic primary afferent neurons (IPANs). IPANs are the major source of calcitonin-gene related peptide (CGRP) within the intestine. Outside the gut, CGRP has known roles in vasodilation, migraine, and inflammation, yet few studies have examined the role of IPANs and IPAN-derived CGRP in homeostasis or disease. We aim to define the function of IPANs and IPAN-derived CGRP in gut homeostatic processes, such as motility, and in disease, such as infection and autoimmune disorders.

Anne M. Neilan, MD, MPH
Assistant Professor of Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentors: Andrea L. Ciaranello, MD and Kenneth A. Freedberg, MD

Project Title: Clinical impact, cost and cost-effectiveness of transplanting hearts from HCV-infected donors

Project Description: Many heart transplant candidates die while awaiting a donor heart. With the opioid epidemic, Hepatitis C viremic (HCV+) donor hearts have increased in number, however, these organs historically have been declined. Recent data show that these organs can be safely transplanted into uninfected recipients with a short-course of antiviral medication to prevent recipient HCV infection. In this Claflin Distinguished Scholar Award, we propose to develop a microsimulation model to project the clinical and economic impacts of HCV+ heart donor eligibility on heart transplant candidates in the US. This research has the potential to inform future policies regarding HCV+ heart donation in the US.

Michael N. O'Hare, PhD
Instructor in Ophthalmology
Massachusetts Eye and Ear

Alice J. Adler Fellowship of the Schepens Eye Research Institute

Mentor: Joseph F. Arboleda-Velasquez, MD, PhD

Project Title: Targeting the myogenic response to protect the diabetic retina

Project Description: Diabetic retinopathy (DR) is the most common microvascular complication of diabetes mellitus and remains a major cause of irreversible vision loss and blindness worldwide. Current treatments for DR including anti-VEGF and laser photocoagulation have the inherent limitation that they are end-stage treatments. There is a pressing need to identify early-stage therapeutic targets that prevent DR progression. One of the earliest changes in the diabetic retina is a disruption of blood flow autoregulation and the myogenic response that is believed to contribute to several microangiopathies associated with DR. This project aims to restore the myogenic response using RNA-based therapeutic interventions.

Chiamaka (Amaka) Onwuzurike, MD
Instructor in Obstetrics, Gynecology and Reproductive Biology
Brigham and Women's Hospital

Brigham and Women's Hospital Obstetrics and Gynecology Foundation Fellowship

Mentor: Julianna Schantz-Dunn, MD

Project Title: Assessing quality of obstetric care through use of patient-reported experience measures for respectful maternity care

Project Description: This study aims to measure the gaps in respectful maternity care within our health system as their impact on patient experience and birth outcomes. Specifically, using a mixed-methods study design, we aim to: (1) measure the prevalence of perceived disrespect and mistreatment during childbirth, (2) identify antepartum and intrapartum predictors of patient-reported mistreatment during childbirth, (3) explore the association between maternal morbidity and patient-reported experiences of disrespect and mistreatment in labor and (4) understand patient perspectives on the experience of mistreatment during childbirth and its impact on future pregnancy-related care decisions.

Nicole D. Pecora, MD, PhD
Assistant Professor of Pathology
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Pathology Fellowship

Mentor: Manfred Brigl, MD

Project Title: A genomic investigation of extended spectrum beta-lactamase (ESBL)-producing E. coli in the Greater Boston Area

Project Description: Bacterial infections caused by multidrug-resistant organisms (MDROs) are a major cause of morbidity and mortality in the U.S. (2.8 million infections and 35,000 deaths in 2019). According to the Centers for Disease Control, one of the most rapidly expanding classes of MDRO is extended spectrum √ü-lactamase (ESBL)-producing E. coli, associated with 197,400 cases and 9,100 deaths in 2019. Using whole genome sequencing to look at the strain type and detailed organization of antibiotic resistance genes, this project will produce a high resolution map of the ESBL-producing E.coli in the Boston area to help understand the circulating strain types and provide public health data about the patients that they are most likely to affect.

Eleni M. Rettig, MD
Instructor in Surgery
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Surgery Junior Fellowship in honor of Robert T. Osteen, MD

Mentor: Ravindra Uppaluri, MD, PhD

Project Title: Characterizing Sensitivity and Specificity of Salivary TTMV-HPV Testing in HPV-Positive Oropharynx Cancer Patients and Controls (SPOT HPV Study)

Project Description: The SPOT-HPV Study will evaluate a new saliva test designed to detect cell-free DNA from HPV-positive throat cancers, which are increasing in the United States. This is the first saliva test designed to distinguish HPV DNA in cancer cells from infectious oral HPV DNA, which is much more common than throat cancer. This test may represent an important clinical tool for the diagnosis and monitoring of HPV-positive throat cancers.

Gabriela Querejeta-Roca, MD
Instructor in Anaesthesia
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Anesthesiology, Perioperative and Pain Medicine Faculty Development Fellowship

Mentor: Douglas Shook, MD

Project Title: Cardiac Surgical Team Familiarity Quotient

Project Description: The digitalization of the perioperative information provides a unique opportunity to study non-technical, intraoperative, team-based factors that may contribute to surgical outcomes using big data approaches. We will utilize intraoperative data recorded in the Multicenter Perioperative Outcomes Group (MPOG) and postoperative outcomes from the Society of Thoracic Surgeons (STS) database. The “Team Familiarity Project” aims to study whether cardiac surgical teams with a higher “familiarity quotient” are associated with better outcomes following cardiac surgery. In addition, we hypothesize that bigger teams with lower expertise scores are associated with worse outcomes by introducing significant “noise” to effective team communication.

Altaf Saadi, MD, MSc
Instructor in Neurology
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Margarita Alegría, PhD

Project Title: Understanding Trajectories of Cognitive, Affective, and Quality of Life Outcomes among Asylum-Seekers

Project Description: Asylum-seekers and refugees are among the most marginalized, having suffered from traumatic experiences like war and concurrently navigating immigration-related challenges like language barriers. This project aims to follow a cohort of asylum-seekers over 12-months to explore the role of individual and community-level factors shaping cognition, mood, and quality of life. Individual factors include demographic, migration-related and health status characteristics (e.g., childhood trauma and brain injury), while community-level factors include perceived discrimination and neighborhood context. Understanding trajectories of neuropsychiatric health outcomes, including buffering protective factors, will inform multi-level interventions reducing risk for cognitive decline and poor mental health in this population.

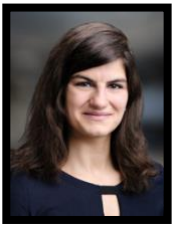
Alec A. Schmaier, MD, PhD
Instructor in Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Medicine Fellowship

Mentor: Robert C. Flaumenhaft, MD, PhD

Project Title: The role of TMEM16 proteins in prothrombotic endothelial extracellular vesicles

Project Description: Blood clotting is a major cause of cardiovascular disease including heart attacks and strokes. Cells lining our blood vessels, known as endothelial cells, become inflamed and may participate in clotting by releasing tiny fragments called extracellular vesicles. We have identified two proteins in the TMEM16 family that promote their release. We have also found a drug already in clinical use, benzbromarone, that may block them. This project studies how TMEM16 proteins regulate the formation of these clot-forming vesicles. Using mouse models, we will determine how extracellular vesicles promote abnormal clotting and whether benzbromarone can help prevent this.



Stefanie Schmieder, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Wayne I. Lencer, MD

Project Title: Structure and Function of Glycosphingolipid-enriched Apical Membrane Nanodomains in Innate Host Defense

Project Description: During an infection, the first cellular structure enteropathogenic viruses and toxins encounter is the plasma membrane. Pathogens need to adhere to receptors in the plasma membrane in order to be internalized into the host cell. These receptors are often membrane lipids. My research aims to understand how the structure of the lipid receptor and the plasma membrane lipidome in general contribute to pathogen uptake and how cells evolved to use these lipid receptors on the other hand as sensors for pathogen invasion.

Alfred Pokmeng See, MD
Assistant Professor of Neurosurgery
Boston Children's Hospital

Boston Children's Hospital Department of Neurosurgery Fellowship

Mentor: Edward R. Smith, MD

Project Title: Characterizing the effect of EPHB4 mutations on response to pathologic flow and shear stress by endothelial cells in vein of Galen malformations

Project Description: Abnormal connections of the brain blood vessels, broadly called brain vascular malformations, often have excessive amounts of blood flowing through the abnormal vessels. This poses a risk of stroke from poor blood flow in the normal brain or bleeding in the malformation. Studies in blood vessels outside of the brain show that abnormal blood flow changes the behavior of cells lining the blood vessels. Recent studies have found that many of these brain vascular malformations result from genetic mutations. This project studies how abnormal flow can combine with abnormal genes to cause the problems we see in brain vascular malformations.

Sankalp Sehgal, MD
Instructor in Anaesthesia
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Anaesthesia John Hedley-Whyte Research Fellowship

Mentor: Bala Subramaniam, MBBS

Project Title: PEctoraLis nerve block for anaLgesia in patients Undergoing Cardiovascular Implantable Electronic Device procedures: A randomized, triple-blinded, placebo-controlled trial (PELLUCID)

Project Description: CIED (cardiovascular implantable electrical devices) procedures are being implanted with increasing frequency in patients with arrhythmias, heart failure, and risk factors for sudden cardiac death. Opioid prescription usage and persistent use of opioids after CIED procedures remains very high and in the context of current opioid crisis, there is a growing need to find alternatives to optimize pain control and limit opioid use. Peripheral nerve blocks are relatively low-risk and easy-to-perform for procedures on chest wall and have not been studied well in this patient population. We plan to investigate their use systematically in a triple-blinded placebo-controlled randomized trial to explore their potential for analgesia in CIED procedures.

Steven Siegel, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentors: Leslie Kean, MD, PhD and Seth Rakoff-Nahoum, MD, PhD

Project Title: Personalizing COVID-19 Protection in Stem Cell Transplant Patients

Project Description: The COVID-19 pandemic has highlighted the vulnerability of patients with impaired immune systems. Even with COVID-19 vaccination reducing disease in healthy adults and children, immunocompromised patients are not always protected after COVID-19 vaccination. In this project, we seek to better understand which children who undergo stem cell transplant, a treatment of last resort for many blood cancers and other types of diseases, will be protected after COVID-19 vaccination – and which will need to be protected in other ways. To do this, we will study the immune responses these children make after vaccination.

Tregony C. Simoneau, MD
Assistant Professor of Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Jonathan M. Gaffin, MD

Project Title: Improving Asthma Morbidity by Virtual Home Visits for Children with Severe Asthma

Project Description: Asthma home visits have been shown to improve asthma outcomes. These visits usually combine elements of asthma education, including medication adherence evaluation, and home environment evaluation and remediation. Studies that focus on home environment remediation alone, have not resulted in improved asthma outcomes, suggesting that the asthma education and medication adherence are key elements to the success of these visits. In this study, I will use the database from the Community Asthma Initiative, a Boston-based asthma home visit program established in 2005, to determine patient and family-level factors associated with improved adherence following an asthma home visit intervention.

Shifali Singh, PhD
Instructor in Psychiatry
McLean Hospital

McLean Hospital Fellowship

Mentor: Laura T. Germine, PhD

Project Title: Characterizing fluctuations in cognitive status to inform clinical decision making in neuropsychological evaluations

Project Description: Neuropsychological evaluations capture a snapshot of an individual's cognitive, psychiatric, and daily functioning. Patients often self-report symptoms consistent with severe memory impairment yet appear to be cognitively intact in traditional neuropsychological evaluations. Thus, this study aims to fill this gap in traditional in-person neuropsychological services by evaluating everyday fluctuations in cognitive status using cognitive and speech ecological momentary assessment. Doing this will help enable clinicians and researchers in evaluating individuals' everyday cognitive, psychiatric, and daily functioning outside the clinic.

Jonathan E. Slutzman, MD
Instructor in Emergency Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Emergency Medicine Fellowship

Mentor: Paul D. Biddinger, MD

Project Title: Modified Delphi survey to develop a standard method for conducting, reporting, and evaluating life cycle assessment (LCA) studies in health care

Project Description: Life Cycle Assessment (LCA) is a powerful tool to measure the environmental impacts of a product or process from cradle to grave. While it has been used for many years in various fields, it has only been applied in health care fairly recently, with much variability in how it has been done. This project uses a modified Delphi technique with experts and leaders in health care LCA to develop consensus guidelines on how to perform LCA studies in health care, enabling broader applicability, generalizability, and comparability.

Hatim Thaker, MD
Instructor in Surgery
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentors: Rosalyn M. Adam, PhD and Min Dong, PhD

Project Title: Functional assessment of novel Botox strategies to improve neurogenic bladder treatment

Project Description: Patients with neurogenic bladder (NGB) have urinary issues such as incontinence, infections, and a potential for kidney damage. Treatment includes medications, such as Botox, to maintain the bladder as a low pressure, high volume reservoir for urine. However, Botox in the bladder has a high failure rate after repeated treatments. We recently found that a toxin receptor called Syt-1 is highly expressed in bladders, and may serve as a better target for bladder paralysis than the target of Botox. In this study, we test the efficacy of a novel, engineered toxin (called A-B chimera) that targets this bladder-specific receptor in a mouse model of NGB.

Shreya P. Trivedi, MD
Instructor in Medicine
Beth Israel Deaconess Medical Center

Eleanor and Miles Shore Family Award

Mentor: Kelly L. Graham, MD

Project Title: Self-Directed Learning Practices among Internal Medicine Residents: A Multi-Institutional Study

Project Description: The clinical learning environment has become more demanding and therefore, trainees must make choices about how to best support their learning outside of work. This multi-institutional study will investigate the self-directed learning (SDL) habits of Internal Medicine residents, the perceived effectiveness of learning modalities, and assess predictors of use of different resources and time allocation to SDL. These findings will inform ways medical educators may better support trainees' lifelong learning and potentially modify parts of the modern-day clinical environment for the evolving needs of trainees.

Miriam Udler, MD, PhD
Assistant Professor of Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Mentor: Jose C. Florez, MD, PhD

Project Title: Type 2 Diabetes Genetic Clustering in Diverse Populations

Project Description: Dr. Udler and her team study the genetic basis of metabolic diseases, including type 2 diabetes. Using large population-based genetic studies, they have recently identified key genetic pathways related to type 2 diabetes development. Through the Claflin Distinguished Scholars Award, they will expand upon their prior work to study these disease pathways in populations of more diverse genetic ancestry. This research has the potential to improve understanding of why people develop diabetes, advance genetics research in populations traditionally under-represented in biomedical research, and facilitate translation of genomic discoveries to patient care.

Puja J. Umaretiya, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Kira Bona, MD

Project Title: Reducing Inequities Through Systematic Social Needs Screening in Pediatric Palliative Care

Project Description: Historically marginalized children with cancer experience inequitable psychosocial outcomes including increased pain and inferior quality of life; their parents are more likely to have unmet communication needs and experience severe distress. Social determinants of health (SDOH) underlie these racial, ethnic, and class-based disparities but have not been systematically considered in palliative care delivery and research. We aim to evaluate the feasibility of systematic SDOH evaluation at the time of pediatric palliative care consult, identify SDOH-associated child- and parent-outcomes, and adapt an SDOH-targeted intervention for pediatric advanced cancer care with the ultimate goal of advancing health equity in child and parent well-being.

Sarinnapha M. Vasunilashorn, PhD
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Medicine Fellowship

Mentor: Edward R. Marcantonio, MD

Project Title: Understanding the Vulnerable Brain: Polygenic Risk of Alzheimer's Disease, Inflammation, and Postoperative Delirium

Project Description: Delirium (acute confusion) is a common, morbid, and costly geriatric syndrome, with strong epidemiological associations with Alzheimer's Disease (AD). This project uses a cohort of older adults undergoing major elective surgery to advance understanding of the potential shared pathophysiology underlying the delirium-AD relationship. Specifically, I will determine whether genetic risk for AD identifies individuals with a "vulnerable brain," who may be predisposed to bad outcomes, including delirium, cognitive decline, and AD, in the presence of an inflammatory insult (e.g., surgery). These findings will inform targeted strategies to identify older adults vulnerable to adverse brain-related outcomes under stress and high inflammation.

Richard Voit, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentor: Vijay G. Sankaran, MD, PhD

Project Title: Mechanisms of MECOM network co-regulation in the transcriptional control of AML

Project Description: Precise regulation of gene expression underlies the intricate balance of the maintenance and differentiation of hematopoietic stem cells. When this balance is disrupted, bone marrow failure or leukemia can develop so a deeper understanding of key regulatory factors is essential to prevent and treat benign and malignant blood disorders. I have recently elucidated a gene expression network controlled by the transcription factor MECOM that when dysregulated can cause either complete stem cell loss or highly aggressive leukemia. I now seek to better understand the co-regulation of this network and identify therapeutic vulnerabilities that can be the target of novel therapies.

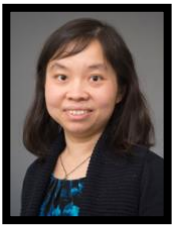
Franziska Wachter, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentors: Jessica A. Pollard, MD and Susan E. Prockop, MD

Project Title: A Pilot Study to evaluate the Feasibility and Tolerability of post-hematopoietic stem cell transplant prophylaxis with Decitabine combined with Filgrastim for children and young adults with AML, MDS and related myeloid malignancies

Project Description: Relapse of the underlying blood cancer after allogenic stem cell transplant remains a major challenge. Novel approaches to decrease the incidence of re-occurrence after stem cell transplant are urgently needed. I propose to examine if it is feasible to administer decitabine in combination with filgrastim to acute myeloid leukemia patients after their stem cell transplant. The proposed studies will also dissect how decitabine impacts immune system mediated protection against relapse. Overall, the proposed study will contribute to a better understanding of the role and underlying mechanism of post-transplant maintenance therapy as a novel treatment approach to improve long-term survival rates of pediatric patients with blood cancers.



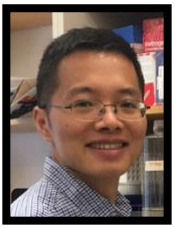
Hui Wang, PhD
Assistant Professor of Radiology
Massachusetts General Hospital

Massachusetts General Hospital Department of Radiology Faculty Award

Mentor: Bruce Fischl, PhD

Project Title: Multi-scale connectome of human cerebellum

Project Description: Recent clinical examination has supported that the role of cerebellum expands from pure motor and sensory controls to broad cognitive functions including emotion, language and execution; however, the underlying neuroanatomical structures supporting those cognitive functions have not been fully understood. This hinders the development of targeted therapy in cerebellar disorders. The goal of this project is to leverage a multiscale imaging framework to unveil the neuronal pathways in the human cerebellum, from cellular level to the entire brain space. The framework builds up a state-of-art diffusion weighted magnetic resonance imaging and an optical microscopy developed by PI Dr. Wang to chart the comprehensive cerebellar connectivity map.



Yubao Wang, PhD
Instructor in Medicine
Dana-Farber Cancer Institute

Dana-Farber Cancer Institute Fellowship Award

Mentor: Thomas M. Roberts, PhD

Project Title: Bi-modal regulation of gene expression by cyclin-dependent kinase 12

Project Description: Cyclin-dependent kinase 12 (CDK12) promotes the production of messenger RNA from a DNA template, and is invariably co-amplified with the HER2 oncogene in cancers. Our preliminary study finds a crucial role for CDK12 in cancer cell growth, and, intriguingly, the dependence is largely mediated by controlling MYC expression. To understand how CDK12 bi-modally regulates gene expression, we propose to develop a genetic system that rapidly and selectively induces the degradation of CDK12 protein. Such a tool is expected to target CDK12 with unprecedented selectivity, allowing us to discover the biochemical functions of CDK12 during transcription regulation.

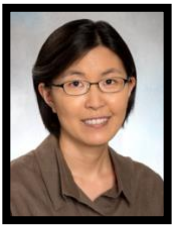
Jillian F. Wise, PhD
Instructor in Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Medicine Fellowship

Mentor: Michael S. Lawrence, PhD

Project Title: Exploiting the evidence left behind from DNA-damaging cancer therapies for future treatments

Project Description: Throughout our lifetime we are exposed to many toxins and agents that can introduce damage to our DNA. Interestingly, some toxins introduce changes in our DNA that are not random and rather they leave patterns or fingerprints in our DNA. Even cancer therapies can damage our DNA. We measured the impact of therapeutic DNA damaging agents in a cancer cohort and revealed a unique and atypical pattern in temozolomide-resistant cancer patients. We seek to determine the necessary cancer cell components that allow for this novel pattern and how to target it to improve patient outcomes.



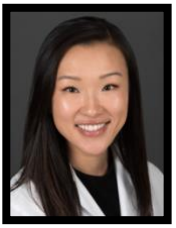
Jeong H. Yun, MD, MPH
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Medicine Fellowship

Mentor: Craig P. Hersh, MD

Project Title: The role of inflammation in the heterogeneity of COPD

Project Description: Chronic obstructive pulmonary disease (COPD) is a debilitating lung disease with variable degree of airway disease and tissue destruction. Inhaled steroids are a mainstay of treatment of COPD to reduce airway inflammation. However, whether inflammation is the most important target for all COPD patients is not known. We propose to analyze a well-characterized, large lung tissue study with novel digital cytometry techniques to determine the immune cell profiles associated with airway disease and emphysema. Understanding immunologic profiles can guide future mechanistic studies and research into targeted immunomodulatory therapies.



Jia Zhu, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital OFD/BTREC/CTREC Faculty Career Development Fellowship

Mentors: Yee-Ming Chan, MD, PhD and Joel N. Hirschhorn, MD, PhD

Project Title: Genetic Dissection of the Pathophysiology of Polycystic Ovary Syndrome

Project Description: Polycystic ovary syndrome (PCOS) is a common and major health concern in reproductive-aged women; however, its treatment remains limited by an incomplete understanding of its pathophysiology. The goal of this study is to dissect the underlying causes of PCOS by pinpointing the biological pathways that lead to PCOS, as well as PCOS-associated features in women, men, and children. This work will allow for the deconstruction of PCOS into distinct subtypes in women, which will pave the way for a precision-medicine approach to the diagnosis, risk stratification, and treatment of PCOS in women and its associated conditions in men and children.

Zhaozhong Zhu, ScD
Assistant Professor of Emergency Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Emergency Medicine Fellowship

Mentor: Kohei Hasegawa, MD

Project Title: Uncovering the mechanism of severity in infants hospitalized with bronchiolitis: airway long non-coding RNAs

Project Description: Bronchiolitis is an important public health problem and the leading cause of hospitalization for U.S. infants, with ~130,000 hospitalizations annually. Even among hospitalized infants, the severity of bronchiolitis ranges from moderate severity to near-fatal and fatal infections. However, it remains unclear the underlying mechanisms of bronchiolitis severity. In an ongoing, diverse cohort of U.S. children (53% African-American or Hispanic) with a history of severe bronchiolitis, the investigators will elucidate the mechanisms of bronchiolitis severity by using nasopharyngeal airway long non-coding RNA (lncRNA) data. This research aims to identify novel lncRNAs and their functions for bronchiolitis severity.

2022 Award Recipients by Sponsoring Institution

Beth Israel Deaconess Medical Center

Department of Anesthesia John Hedley-Whyte Research Fellowship
Sankalp Sehgal, MD

Department of Emergency Medicine Research Development Award
Andrew R. Ketterer, MD

Department of Gynecology and Obstetrics Fellowship
Naima T. Joseph, MD

Department of Medicine Fellowship
Alec A. Schmaier, MD, PhD
Sarinnapha M. Vasunilashorn, PhD

Department of Pathology Fellowship
Phillip D. Michaels, MD

Department of Radiology Fellowship
Swati Deshmukh, MD

Boston Children's Hospital

Department of Neurology Faculty Development Fellowship
Siddharth Srivastava, MD

OFD/BTREC/CTREC Faculty Career Development Fellowship
Mehdi Benamar, PhD
Taek-Chin Cheong, PhD
Lauren Collen, MD
Kathleen J. Cullion, MD, PhD
Darius Ebrahimi-Fakhari, MD, PhD
Jessica S. Kremen, MD
Jing Li, PhD
Nina Mann, MD
Melissa Musser, MD, PhD
Stefanie Schmieder, PhD
Alfred Pokmeng See, MD
Steven Siegel, MD, PhD
Tregony C. Simoneau, MD
Hatim Thaker, MD
Puja J. Umaretiya, MD
Richard Voit, MD, PhD
Franziska Wachter, MD
Jia Zhu, MD

Brigham and Women's Hospital

Department of Anesthesiology, Perioperative and Pain Medicine Faculty Development Fellowship
Yun-Yun Kathy Chen, MD
Gabriela Querejeta Roca, MD

Department of Medicine Fellowship
Jeong H. Yun, MD, MPH

Department of Obstetrics and Gynecology Foundation Fellowship
Saba H. Berhie, MD
Chiamaka (Amaka) Onwuzurike, MD

Department of Pathology Fellowship
Nicole D. Pecora, MD, PhD

Department of Surgery Junior Fellowship in honor of Robert T. Osteen, MD
Eleni M. Rettig, MD

Faculty Career Development Award
Mariana L. Acuña-Aravena, PhD
Jessica Harder, MD
Christian Jacome-Galarza, PhD
Khameer Kidia, MD

Dana-Farber Cancer Institute

Dana-Farber Cancer Institute Fellowship

Nelia Jain, MD, MA

Yubao Wang, PhD

Harvard Medical School

Eleanor and Miles Shore Family Award

Shreya P. Trivedi, MD

Harvard Medical School Award in honor of Orah S. Platt, MD

Jocelyn R. Farmer, MD, PhD

Harvard Pilgrim Health Care Institute

Department of Population Medicine's Robert H. Ebert, MD Fellowship

Meghan Baker, MD, ScD

Harvard School of Dental Medicine

Harvard School of Dental Medicine Fellowship in Honor of Aina M. Auskaps, DMD

Sung Eun Choi, PhD

Massachusetts Eye and Ear

Alice J. Adler Fellowship of the Schepens Eye Research Institute

Michael N. O'Hare, PhD

Massachusetts Eye and Ear Fellowship

Gillian Diercks, MD

Massachusetts General Hospital

Claflin Distinguished Scholar Awards

Maria A. Battistone, PhD

Clarissa Z. Cooley, PhD

Rachel Jimenez, MD

Maureen M. Leonard, MD

Anne M. Neilan, MD, MPH

Altaf Saadi, MD, MSc

Miriam Udler, MD, PhD

Department of Anaesthesia Fellowship

Youssef Jounaidi, PhD

Department of Dermatology Fellowship

Yangfang Feng, PhD

Department of Emergency Medicine Fellowship

Jonathan E. Slutzman, MD

Zhaozhong Zhu, ScD

Department of Medicine Fellowship

Jillian F. Wise, PhD

Department of Radiology Faculty Award

Hui Wang, PhD

Department of Surgery Faculty Development Fellowship

Marie-Charlotte Meinsohn, PhD

Dorothy Rackemann Fellowship established by the Vincent Memorial Hospital/Massachusetts General Hospital for Research in Reproductive Biology

Amy J. Bregar, MD

McLean Hospital
McLean Hospital Fellowship
Shifali Singh, PhD

2022 Review Committee

Thanks are due to these individuals for their service and assistance with the growth of the awards program and their review and ranking of the proposed recipients for selection.

Raymond M. Anchan, MD, PhD
Assistant Professor of Obstetrics, Gynecology and Reproductive Biology,
Brigham and Women's Hospital

Aarti Asnani, MD
Assistant Professor of Medicine, Beth Israel Deaconess Medical Center

Jodi L. Babitt
Associate Professor of Medicine, Massachusetts General Hospital

Carol K. Bates
Associate Dean for Faculty Affairs, Harvard Medical School

Richard T. Born, MD
Professor of Neurobiology, Harvard Medical School

Miriam A. Bredella
Professor of Radiology, Massachusetts General Hospital

Sunil K. Chauhan
Associate Professor of Ophthalmology, Schepens Eye Research Institute

Laura E. Fredenburgh, MD
Associate Professor of Medicine, Brigham and Women's Hospital

Michele R. Hacker, ScD
Associate Professor of Obstetrics, Gynecology and Reproductive Biology,
Beth Israel Deaconess Medical Center

Theresa A. Hadlock, MD
Professor of Otolaryngology Head and Neck Surgery, Massachusetts Eye and Ear

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Associate Professor of Ophthalmology, Schepens Eye Research Institute

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Professor of Cell Biology, Harvard Medical School

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Dean for Faculty Affairs, Harvard Medical School

Margaret A. Kenna, MD
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Program Director for Academic Affairs, Office for Faculty Affairs, Harvard Medical School

Mary R. Loeken, PhD
Associate Professor of Medicine, Joslin Diabetes Center

Joelle Lomax, PhD
Program Director for Academic Affairs, Office for Faculty Affairs, Harvard Medical School

Diana Longden
Administrative Coordinator, The Joint Committee on the Status of Women, Harvard Medical School

Caleb Nelson, MD
Associate Professor of Surgery, Boston Children's Hospital

Lise E. Nigrovic, MD
Associate Professor of Pediatrics, Boston Children's Hospital

Mizuki Nishino Hatabu, MD
Professor of Radiology, Dana-Farber Cancer Institute

Emily Oken, MD
Professor of Population Medicine, Harvard Pilgrim Health Care Institute

Ann Poduri, MD
Professor of Neurology, Boston Children's Hospital

Valerie E. Stone, MD
Professor of Medicine, Brigham and Women's Hospital

Joanne Wolfe, MD
Professor of Pediatrics, Dana-Farber Cancer Institute

Faculty Development Program, Office for Faculty Affairs

Carol K. Bates
Associate Dean for Faculty Affairs

Brian R. Crete
Faculty Development Program Manager

Award Honorees

Alice J. Adler, PhD

Dr. Adler was a biochemist at Schepens Eye Research Institute from 1976 to 2001. In January of 1985 she was promoted to Senior Scientist and in 2001 she became Emeritus Senior Scientist/Scientific Advisor. Her work focused on components of the retina and mechanisms of vision. Dr. Adler was the first scientist to identify retinol binding that transports Vitamin A to the space between the photoreceptors, which is needed to create rhodopsin, the visual pigment. Retinal binding also transports Vitamin A to the retinal pigment epithelial cells that store retinol and convert it to a form that the photoreceptors can use. Dr. Adler further identified xanthophyll-binding proteins in the human retina and proposed that they bind to the same site on microtubules (the latter bind taxol, a compound used to treat breast cancer). Her work included studies of age-related macular degeneration and was critical to our understanding of retinal diseases.

Aina M. Auskaps, DMD

Dr. Auskaps was the first woman to earn the degree of DMD from Harvard School of Dental Medicine in 1955. Prior to coming to Harvard, Dr. Auskaps earned a DDS degree in her home country of Latvia. She requalified in Germany in 1945. Dr. Auskaps started at HSDM conducting research in the Department of Biochemistry and Nutrition. Once her DMD degree was completed she returned to the department once again as faculty. Dr. Auskaps also served as the first woman president of the HSDM Alumni Association and received the Distinguished Alumni Award in 1983. She maintained a private family practice for 45 years out of her home in Jamaica Plain, MA. An extensive interview of Dr. Auskaps is available at the Harvard Countway Library, Archives for Diversity and Inclusion.

Jane D. Claflin

Jane Claflin was an extraordinary benefactor and dedicated volunteer leader at Massachusetts General Hospital where she served as trustee, fund-raiser, friend, and cheerleader. She was the force behind the MGH programs that support women in their professional careers and a major reason the MGH opened a backup childcare center. The MGH met Jane Claflin in the late 1950s soon after she, her husband Morton Claflin, and their two sons moved to Boston. One of Mrs. Claflin's passions was to ensure that the MGH is a welcoming, comfortable, friendly, and supportive place for women. In 1993, she helped create the Women in Academic Medicine Committee, serving as its chair. Her work led to the formation in 1997 of the Office for Women's Careers to support, recruit, and retain women faculty members. Mrs. Claflin focused attention on the difficulty women had in sustaining research productivity during their child-rearing years, which too often limited career advancement. The MGH's Executive Committee on Research responded to the call by establishing funding for junior women faculty to help them through this critical period. The awards were named the Claflin Distinguished Scholar Awards in honor of their greatest champion.

Robert H. Ebert, MD, DPhil, AM

As Dean of Harvard Medical School from 1965 to 1977, Dr. Ebert increased recruitment and enrollment of minority students, established affiliations between HMS teaching hospitals and neighborhood health centers, and created the Division of Health Sciences and Technology, a combined MD-PhD program run collaboratively by MIT and HMS. In 1969, he founded Harvard Community Health Plan, the nation's first academic health maintenance organization. After earning his medical degree from the University of Chicago, he served as a Marine Corps physician, and was one of the American doctors who went to Nagasaki to treat Japanese suffering from radiation sickness and related illnesses after the United States dropped an atomic bomb on that city. Upon his return from the war, Dr. Ebert taught at the University of Chicago. In 1964, he was recruited to Boston to serve as Chief of Medical Services at Massachusetts General Hospital. A year later, he was selected to lead Harvard Medical School. After stepping down as dean of HMS, Dr. Ebert became president of the Milbank Memorial Fund, a foundation that supports projects in medicine and health. In 1992, he helped establish the HMS/Harvard Community Health Plan Department of Ambulatory Care and Prevention as a joint project between the school and the HMO.

Robert T. Osteen, MD

Dr. Osteen is an associate professor of surgery at Harvard Medical School and spent over 30 years at Brigham and Women's Hospital, retiring as a senior surgeon in 2006.Throughout his distinguished career as a prominent surgical oncologist, Dr. Osteen received numerous prizes for excellence in teaching. At the Brigham he oversaw the Department of Surgery education program, chaired the hospital's Cancer Committee, and acted as the Cancer Liaison Physician to the Commission on Cancer of the American College of Surgeons. He contributed to the development of several clinical programs, including the Dana-Farber Cancer Institute's Autologous Bone Marrow Transplant Program, a program for breast conserving surgery, and techniques for implantation and chemotherapy administration through an intra-arterial infusion pump. Through the Commission on Cancer, he helped to develop a National Cancer Database that collects information from approximately 75% of the patients with cancer throughout the United States annually.

Orah S. Platt, MD

Dr. Platt is Professor of Pediatrics Emerita at Boston Children's Hospital. She received her MD degree from Harvard Medical School and trained in pediatrics at MGH followed by a hematology oncology fellowship at Dana Farber Cancer Institute and Children's Hospital. She began her faculty career as an instructor and advanced to become the 55th female professor at HMS in 1997. As an NIH funded investigator, her research focused on the pathophysiology, epidemiology, and experimental therapeutics of sickle cell anemia and on membrane protein alterations in abnormal red cells. She also held several clinical leadership roles at Boston Children's, including as medical director of the hematology clinic, the hematology laboratory, and ultimately of the department of laboratory medicine. She held important leadership roles in medical student and fellowship education culminating in her 22 years of leadership of the William Bosworth Castle Society, a role critically important for medical students' education and well-being. Her leadership extended to her critical advisory role to Deans of Harvard Medical

School from 2000 to 2022 as Boston Children's representative on the Council of Academic Deans.

Dorothy Rackemann

At Harvard Medical School, Dorothy Rackemann (1918–1996) was the Administrative Assistant to the Dean from 1968 to 1978 and the Assistant Registrar from 1978 to 1991. She also held key roles in both the Vincent Memorial Hospital and The Vincent Club. The former, a free-standing hospital for women established in Boston in 1891, was the precursor of the Vincent Department of Obstetrics & Gynecology at Massachusetts General Hospital. The Vincent Club, founded a year later, remains the fundraising arm of the Vincent organization. Miss Rackemann, as she was known—and "Dodie" as she preferred—served as both President of The Vincent Club and President of the Vincent Memorial Hospital Board of Trustees. Active at the Vincent for more than 50 years, she was described as a "tremendous force in nurturing, clarifying and strengthening the ties between the Vincent and the Massachusetts General Hospital."

Eleanor G. Shore, MD, MPH

Dr. Eleanor G. Shore served as the Dean for Faculty Affairs at Harvard Medical School from 1989 to 2005 and has since served as Senior Consultant to the Office of Academic and Clinical Affairs. She trained at Harvard Medical School during the postwar "experimental" era, between 1945 and 1955, when women were admitted on a trial basis. She worked as a primary care physician at the Harvard University Health Services for many years. She served as Assistant to the President of Harvard University for Health Affairs for 8 years during Derek Bok's term as president. Later she served as Deputy Director of the Harvard Medical School Center of Excellence in Women's Health. In 1995 in her role as Dean, she launched the 50th Anniversary Fellowship Program for Scholars in Medicine, which commemorates the admission of women to Harvard Medical School; the program was renamed to honor Drs. Eleanor and Miles Shore in 2004. In 2001, the Association of American Medical Colleges awarded Dr. Shore the History Maker Award for her work to make medical career structures more equitable. Dr. Shore has generously made personal donations to the fellowship program on a nearly annual basis since the start of the program.

Miles F. Shore, MD

Dr. Miles F. Shore, Bullard Professor of Psychiatry, Emeritus was Superintendent and Chief of the HMS Department of Psychiatry at the Massachusetts Mental Health Center from 1975 to 1993. In that role he was responsible for a comprehensive program of research, teaching, and patient care focusing on patients with serious mental illnesses cared for by the public sector. A system of care was developed featuring community programs to replace inpatient care in large institutions. He was a Visiting Scholar at Harvard Kennedy School, teaching courses on the history of mental health policy, leadership, and health policy for physicians. For twelve years he chaired the Promotion and Review Board assessing the progress of HMS students in successfully completing the MD degree. He continued to write on issues of patient safety and disrespect in the culture of medicine. As a strong supporter of faculty development, he personally contributed to the fellowship program on a nearly annual basis since the program began.

Thank you to all of the affiliates, departments, and individual donors who have supported more than 1300 awards through the last 27 years of the program