23rd Annual Celebration
November 28, 2018

Eleanor and Miles Shore 50th Anniversary Fellowship Program for Scholars in Medicine

HARVARD
MEDICAL SCHOOL

HARVARD
School of Dental Medicine

Eleanor and Miles Shore 50th Anniversary
Fellowship Program for Scholars in Medicine
2018 Annual Reception

4:00 p.m. **Arrival & Light Refreshments**

4:30 p.m. **Welcome**
Carol K. Bates, MD
Associate Dean for Faculty Affairs

Historical Perspective
Eleanor G. Shore, MD, MPH
Senior Consultant to the Office of Academic and Clinical Affairs

Presentation of Awards
Nancy J. Tarbell, MD
Dean for Academic and Clinical Affairs

Carol K. Bates, MD
Associate Dean for Faculty Affairs

5:15 p.m. **Reception**

The 50th Anniversary Fellowship Program for Scholars in Medicine was established in 1995 to celebrate the admission of women to Harvard Medical School, to acknowledge the important contributions that women have made to the School, and to enhance the quality and diversity of the Faculty of Medicine. 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.

Christina M. Astley, MD, ScD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentor: Joel Hirschhorn, MD, PhD

Project Title: Immunologic Signatures of Type 1 Diabetes Onset and Temporary Remission

Project Description: Type 1 diabetes (T1D) is a disease that affects children and leads to a life-long dependence on insulin injections. Some patients have a temporary remission that can help us better understand the mechanisms of T1D. We propose to recruit pediatric patients early in their disease and follow them over time to determine whether they have remission. We will then use novel technologies to identify markers of previous virus infection or unique immune system features. These immunologic signatures of T1D onset and temporary remission can be translated into tests to prioritize research studies for subgroups of patients or provide disease prognosis.

Gabrielle M. Baker, MD
Instructor in Pathology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Pathology Fellowship

Mentor: Laura C. Collins, MD

Project Title: Granulomatous Mastitis, with Emphasis on Cystic Neutrophilic Granulomatous Mastitis: Retrospective Analysis with Further Elucidation of the Spectrum of Associated Histologic Findings

Project Description: Granulomatous Mastitis (GM) is an uncommon inflammatory process that may signify infection or constitute manifestation of a systemic disorder; excluding these etiologies, a diagnosis of Idiopathic GM (IGM) may be rendered. Due to distinct microscopic features a subset of IGM is now known as Cystic Neutrophilic GM (CNGM); a subset of CNGM is associated with corynebacteria. This study will re-evaluate cases of IGM to identify those better classified as CNGM and further elucidate the spectrum of microscopic findings in CNGM. Appropriate classification may significantly impact patient care in a disease with significant morbidity and a frequently protracted clinical course.

Arunava Bandyopadhaya, PhD
Instructor in Surgery
Massachusetts General Hospital

Massachusetts General Hospital Department of Surgery Faculty Development Fellowship

Mentor: Laurence G Rahme, PhD

Project Title: Potentiation of Tolerance to Infection-Induced Inflammation and Immunopathology

Project Description: Effective treatments for chronic bacterial infections are limited by multi-drug resistance, and the are lack of effective therapies that reduce infection-induced inflammation. We identified a small volatile molecule excreted by Pseudomonas aeruginosa, 2-aminoacetophenone (2-AA), that modulates host innate immune responses through reprogramming of epigenome and metabolism in a manner that trains host to tolerate infection which is defined as the host's ability to cope with bacterial encounter without a consequent reduction in host fitness. The proposed elucidation of the interplay between metabolome and epigenetic modifications for "host tolerance training" mechanisms could be critical for our understanding of tolerance to infection and infection-induced immunopathology.

Beate C. Beinvogl, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentor: Samuel Nurko, MD

Project Title: The role of bile acids in pediatric Irritable Bowel Syndrome

Project Description: To gain a better understanding of the role of bile acids in pediatric Irritable Bowel Syndrome (IBS) , this prospective clinical study using serum markers of bile acid metabolism (C4 and FGF 19) will identify a subgroup of patients with abnormal bile acid metabolism among patients with diarrhea and constipation-predominant IBS.

Leslie A. Bilello, MD
Instructor in Emergency Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Emergency Medicine Fellowship

Mentor: Jonathan A. Edlow, MD

Project Title: Retrospective Review of Pregnant & Postpartum Patients Presenting for Evaluation

Project Description: Neurologic symptoms during pregnancy and the postpartum period defined up to 6 weeks after delivery may be due to severe life threatening illnesses that must be assessed effectively in order to provide the correct diagnosis and treatment. This project aims to investigate the epidemiology of adult pregnant and postpartum patients presenting to the emergency department with acute neurologic complaints by exploring diagnostic and treatment approaches and studying the use of radiographic imaging and specialist consultation. We hope to identify current diagnostic and therapeutic practice patterns in an effort to target areas of improvement.

Kimberly G. Blumenthal, MD
Assistant Professor of Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentor: Rochelle P. Walensky, MD

Project Title: Using Novel Methods to Advance Drug Allergy Epidemiology

Project Description: Adverse drug reactions (ADRs) cause substantial morbidity and mortality. Penicillins and other β-lactam antibiotics are the most common cause of drug hypersensitivity reactions (HSRs), the immune-mediated subset of ADRs. Although identification of HSRs and HSR risk factors are important to the delivery of safe and optimal patient care, US studies of HSR epidemiology are few and limited by flawed case detection methods. The aim of the project is to determine the frequency and predictors of β-lactam hypersensitivity reactions and to determine the healthcare resource impact of hypersensitivity reactions, using a unique cohort of Partners HealthCare outpatients over a 10-year period.

Melissa A. Burns, MD
Instructor in Pediatrics
Dana-Farber Cancer Institute

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

Mentors: David Williams, MD; Alan Cantor, MD, PhD; Alejandro Gutierrez, MD

Project Title: Therapeutic Targeting of the Hedgehog Pathway in T-cell Acute Lymphoblastic Leukemia

Project Description: Children with T-cell acute lymphoblastic leukemia (T-ALL) who do not respond to standard therapy have a poor prognosis. My research focuses on defining key genetic changes that underlie this disease in order to develop new and effective treatments. I have now identified the Hedgehog pathway as a driver of treatment-resistant T-ALL. The Hedgehog pathway is an important cancer signaling pathway which can be targeted by the FDA approved drug vismodegib. As such, my current efforts are centered on developing an effective strategy to target Hedgehog-mutant T-ALL, which I expect will lead to the development of new precision medicine treatments for children with this rare disease.

Nisse V. Clark, MD
Instructor in 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: Jeffrey L. Ecker, MD

Project Title: Improving surgical treatment options for benign gynecologic disease

Project Description: Minimally-invasive surgery including laparoscopy and hysteroscopy offers well-documented advantages compared to open surgery in treating gynecologic disease. My aim is to increase patient access to minimally-invasive surgery by serving as a referral service for patients with complex anatomy or multiple medical comorbidities. My project seeks to enhance clinical research in gynecologic surgery with the purpose of identifying and improving quality surgical care. My work will emphasize the emerging role of patient-reported outcomes measures in evaluating treatment options for common benign gynecologic conditions including fibroids, abnormal bleeding and endometriosis.

Alon S. Dagan, MD
Instructor in Emergency Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Emergency Medicine Fellowship

Mentor: Larry Nathanson, MD

Project Title: A Low Cost Monitoring System for the Detection of Clinically Significant Vital Sign Events

Project Description: In low resource emergency departments, strained staffing ratios and lack of telemetry can put patients at risk for clinical deterioration and unexpected cardiac arrest. While traditional telemetry systems can provide real-time continuous vital signs, they are too expensive for widespread use in these settings. We hypothesize that a low-cost, wrist-worn, heart rate/fitness tracker can provide sufficient information to detect clinically significant heart rate changes and could act as an alert system in otherwise unmonitored patients. In this study we test this hypothesis by comparing test characteristics of a low-cost monitor vs. gold standard telemetry in the Emergency Department setting.

Shinjita Das, MD
Instructor in Dermatology
Massachusetts General Hospital

Massachusetts General Hospital Department of Dermatology Fellowship

Mentor: Joseph C. Kvedar, MD

Project Title: Development of a Direct-Care Teledermatology Model in an Accountable Care Organization

Project Description: The current teledermatology practice at MGH is an e-consult model, whereby a primary care doctor submits photos of a patient's skin concern to a dermatologist for review via the electronic medical record. I wish to expand our current model to include a direct-to-patient teledermatology service. A direct-care teledermatology model would streamline care for patients, reduce no-show and cancellations, and open clinic slots for patients who need to be seen more urgently. My approach will involve evaluating such a direct-care model in patients with acne and then expanding to other skin conditions, such as eczema and psoriasis.

Laura E. Dichtel, MD
Instructor in Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentor: Karen K. Miller, MD

Project Title: The Growth Hormone and Insulin-like Growth Factor-1 Axis in Nonalcoholic Fatty Liver Disease and Nonalcoholic Steatohepatitis

Project Description: Nonalcoholic fatty liver disease (NAFLD) is highly prevalent, present in approximately 80% of obese individuals. Nonalcoholic steatohepatitis (NASH) is the progressive form of the disease characterized by liver inflammation and fibrosis. NASH-related cirrhosis is expected to be the leading indication for liver transplant by the year 2020, however, the pathophysiology of NAFLD and NASH are poorly understood. Growth hormone has lipolytic and anti-inflammatory properties, and the goal of this project is to determine its effect on liver fat, inflammation and fibrosis in NASH. I hope to further our understanding of this disease and identify novel therapies where few currently exist.

Leona A. Doyle, MD
Assistant Professor of Pathology
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Pathology Fellowship

Mentor: Christopher D. M. Fletcher, MD

Project Title: Radiation-Associated Sarcomas: Identification of Prognostic Clinicopathologic Features and Distinctive Molecular Signatures

Project Description: Radiation-associated sarcomas are a devastating consequence of radiation therapy and tend to have a poor prognosis. In order to optimally treat patients, better markers are needed to stratify recurrence risk. The goals of this study are 1) to identify clinical and pathologic parameters that can accurately predict patient outcome and could be modified to improve it - specifically surgical approaches, and 2) to characterize genetic changes in these tumors and potentially identify useful biomarkers. The findings should have significant impact, both diagnostically and therapeutically, for patients with radiation-associated sarcomas.

Daniel R. Duncan, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentor: Rachel L. Rosen, MD

Project Title: A Prospective Study of Aspiration in Children Admitted to Boston Children's Hospital after Brief Resolved Unexplained Event

Project Description: Brief resolved unexplained events (BRUE) are frightening episodes characterized by the appearance of life-threatening choking, cyanosis, and limpness in previously healthy infants. National guidelines recommend limited testing based on history and physical exam but our preliminary research suggests that swallowing dysfunction is an under-recognized cause of these events and that infants' presenting history cannot predict which children aspirate. We are performing a prospective study of empiric formula thickening to prevent recurrent events in these infants. The results of this study would add evidence for a potentially treatable etiology for BRUE and large-scale implementation of this strategy could prevent significant morbidity.

Tobias Elze, PhD
Assistant Professor of Ophthalmology
Schepens Eye Research Institute

Alice J. Adler Fellowship of the Schepens Eye Research Institute

Mentor: Patricia A. D'Amore, PhD

Project Title: Retinal Biomarkers for Cognitive Performance

Project Description: Alzheimer's Disease (AD) is a severe neurodegenerative disease accompanied by cognitive decline. While AD diagnosis requires time-consuming neuropsychological tests, eye imaging can be conveniently performed within seconds. AD is associated with decreased retinal nerve fiber layer thickness (RNFLT). In this project, we investigate the relationship between RNFLT and five dimensions of cognitive performance in a population based study with nearly 10,000 participants. We aim to identify retinal biomarkers for each cognitive dimension that may assist clinicians in the decision whether neuropsychological testing is indicated and lay the foundations for earlier detection of AD and better progression monitoring.

Katharine M. Esselen, MD
Assistant Professor of Obstetrics, Gynecology and Reproductive Biology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Obstetrics and Gynecology Fellowship

Mentor: Michele R. Hacker, ScD

Project Title: Understanding financial toxicity in patients with gynecologic cancers

Project Description: "Financial toxicity" is how a disease and its treatments impose significant financial burden on a patient. Surveys estimate one-third of patients experience significant financial burden from cancer care. Financial toxicity is linked to worse quality of life, and severe financial distress is associated with increased mortality in patients with cancer. Ovarian cancer is an excellent model to study financial toxicity as most patients present with advanced disease and undergo multi-modality treatment with surgery and chemotherapy, similar to other solid tumors. Patients often achieve remission, but the vast majority recurs. Treatment for recurrence usually consists of chemotherapy that may include expensive novel agents. The goal of this study is to quantify financial toxicity among patients with ovarian cancer.

Caitlin Farrell, MD
Instructor in Pediatrics
Boston Children's Hospital

Boston Children's Hospital Pediatric Emergency Medicine Faculty Development Award

Mentor: Lois K. Lee, MD

Project Title: A Multi-level Approach to Pediatric Trauma Management: EMS Community Outreach, Clinical Education, and Epidemiology

Project Description: The first interface with emergency care after trauma is often via Emergency Medical Systems (EMS). The 2006 Institute of Medicine report identifies barriers to quality pre-hospital pediatric care which include limited training, infrequent exposure to pediatric cases, and provider discomfort. The Children's Safety Initiative noted a need for education around both pediatric assessment and procedural skills (airway management, IV/IO access). This two-part project will assess pediatric knowledge and skills within a local EMS agency and will leverage EMS databases to analyze pre-hospital trauma care provided to children which will inform a targeted educational curriculum with the ultimate goal of providing better emergency care to injured children.

Katie P. Fehnel, MD
Instructor in Neurosurgery
Boston Children's Hospital

Boston Children's Hospital Department of Neurosurgery Fellowship

Mentor: Edward R. Smith, MD

Project Title: Axon Guidance Factors in Pediatric Low-Grade Glioma

Project Description: A key biological driver of brain tumor growth is the ability of tumor cells to migrate and invade surrounding tissue, present in both low-grade and high-grade tumors. This grant seeks to better understand the molecular drivers of tumor migration and invasion so that improved diagnostic and therapeutic tools can be developed. In particular, this approach specifically identifies unique targets in low-grade tumors, offering novel insights into the under-studied biology of low grade brain tumors.

Jenna L. Galloway, PhD
Assistant Professor of Orthopedic Surgery
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentor: David T. Scadden, MD

Project Title: Yap function in adult tendon mechanotransduction

Project Description: Tendon injuries affect millions of individuals each year and incur significant healthcare costs. These injuries have a slow and limited healing capacity with few treatment options. Despite being widespread, our fundamental understanding of the molecular mechanisms regulating the tendon's response to exercise remains limited. The goal of this proposal is to determine the function of the Yap gene in exercise-induced changes in the tendon. Knowledge of these processes would have broad impact in expanding our understanding of the pathways governing tendon biology and would provide new targets for therapeutic strategies aimed at improving or preventing injury.

Lilit Garibyan, MD, PhD
Assistant Professor of Dermatology
Massachusetts General Hospital

Dr. Lynne Reid/Drs. Eleanor and Miles Shore Fellowship

Mentor: R. Rox Anderson, MD

Project Title: Controlled Topical Cooling for Treatment of Pain

Project Description: Pain is a major problem after burns, surgery and injury. Current treatments have limitations include opioid addictions, which has become a major crisis in the United States. There is a strong need for development of new, safe, long-lasting and drug free methods of treating pain. Our laboratory has demonstrated that controlled topical cooling used for non-invasive fat removal (cryolipolysis) also leads to loss of pain sensation in the treatment area, lasting about 2 months. We want to develop a new topical cooling method specific for targeting nerves in the skin as a drug-free, safe, effective and long-lasting treatment for pain.

Lillian Guenther, MD
Instructor in Pediatrics
Dana-Farber Cancer Institute

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

Mentors: David Williams, MD; Kimberly Stegmaier, MD

Project Title: Interrogation of CITED2 as Novel Target in Ewing Sarcoma

Project Description: Ewing sarcoma is an aggressive pediatric bone tumor. Our lab tries to identify critical genes on which Ewing cells are dependent for survival. In doing this, we hope to identify weaknesses we can exploit to kill cancer cells. I am interested in one such gene, CITED2. CITED2 has been identified as important in some adult cancers but has not been studied in Ewing. I have found that Ewing cells grow more slowly when CITED2 is silenced. I aim to study whether CITED2 is critical for Ewing cell survival, and to understand CITED2's function in Ewing cells. My goal is that these investigations will lead to new therapies for Ewing sarcoma patients.

Kiersten L. Gurley, MD
Instructor in Emergency Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Emergency Medicine Fellowship

Mentor: Jonathan A. Edlow, MD

Project Title: Development and implementation of a dizziness pathway for the adult Emergency Department (ED) patient

Project Description: Differentiating benign conditions from dangerous causes (stroke) is a major focus in emergency department management of the acutely dizzy patient. Currently, misdiagnoses are frequent and diagnostic testing costs are high. We hypotheszie that the development and implementation of an ED pathway for the acutely dizzy adult will reduce misdiagnosis and thereby improve the quality of patient care. Patient satisfaction will further be increased by decreasing the number of hospital admissions, unnecessary testing and neurology consults which prolong ED stays.

Matthew L. Hemming, MD, PhD
Instructor in Medicine
Brigham and Women's Hospital

Dana-Farber Cancer Institute Fellowship

Mentor: Scott A. Armstrong, MD, PhD

Project Title: Exploring the sarcoma enhancer landscape to identify disease-specific vulnerabilities

Project Description: Sarcomas are uncommon cancers which are poorly understood and in desperate need for biological discovery, biomarkers and treatments. This project aims to characterize different sarcomas by how the expression of their genes is coordinated, and extend this information to learn how these cancers develop. Understanding which genes are most highly regulated by cells may reveal the primary drivers of disease. Preliminary research using these methods has identified a gene that is correlated with the development of sarcoma metastasis, and a drug that disrupts gene regulation can combat sarcomas resistant to standard treatments.

Lauren A. Henderson, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentors: Talal Chatila, MD; Peter Nigrovic, MD

Project Title: Th1 Reprogramming of Regulatory T Cells in Oligarticular Juvenile Idiopathic Arthritis

Project Description: Oligoarticular Juvenile Idiopathic Arthritis (oligoJIA) is defined by a curious feature, arthritis in less than 5 joints in a pattern that may remain stable for years. The cause of the disease is unknown. We propose that regulatory T (Treg) cells, which normally control inflammation, are reprogrammed in the arthritic joint and become effector T cells that promote arthritis. I will leverage high dimensional immunophenotyping and functional assays to evaluate Treg cells from patient samples. These studies are expected to confirm the role of Th1-like, tissue-resident Treg cells in driving arthritis in oligoJIA, potentially identifying novel treatment approaches for the disease.

Stuart H. Hershman, MD
Instructor in Orthopedic Surgery
Massachusetts General Hospital

Massachusetts General Hospital Department of Orthopaedics Shore Fellowship

Mentor: Mitchel B. Harris MD

Project Title: Can Pre-operative Serum Albumin Levels Can Predict Which Patients are at Greatest Risk for Complications Following Surgical Management of Acute Osteoporotic Vertebral Compression Fractures?

Project Description: A estimated 25% of postmenopausal women will experience at least one compression fracture in their lifetime. Patients who sustain these fractures have an increased risk of mortality for several years after the fracture and have almost a 20% chance of developing a second compression fracture within 12 months. Osteoporosis may be caused by many things including hormonal changes, smoking, medications, and inadequate nutrition. Albumin is a protein in our blood which has been shown to be a marker of nutritional status; it has also been shown to be reduced in postmenopausal women with osteoporosis. This study will explore the association between albumin levels and post-operative complication rates in patients with acute osteoporotic vertebral compression fractures who undergo surgery.

Emily P. Hyle, MD
Assistant Professor of Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentors: Rochelle P. Walensky, MD; Edward T. Ryan, MD

Project Title: The Clinical Impact of Empiric Antibiotics for Traveler's Diarrhea: a Model-Based Analysis

Project Description: Traveler's diarrhea remains the most common health issue among the 70 million U.S. residents who traveled internationally in 2015. To better understand current practices regarding traveler's diarrhea treatment and the possible benefits and harms of empiric antibiotics, I propose to develop a novel Monte Carlo microsimulation model in collaboration with the Global TravEpiNet (GTEN) Consortium, which has the largest existing database of U.S. international travelers seeking pretravel medical care. The novel model of traveler's diarrhea described in this proposal can offer new insights into the benefits and downsides of prescribing empiric antibiotics to travelers.

Elizabeth F. Janiak, ScD
Instructor in Obstetrics, Gynecology and Reproductive Biology
Brigham and Women's Hospital

Brigham and Women's Hospital Obstetrics and Gynecology Foundation Fellowship

Mentor: Alisa Goldberg MD

Project Title: Improving Fertility Control for People who Use Opioids: a Patient-Centered Approach

Project Description: After rising precipitously over the past two decades, prenatal exposure to opioids now affects more than 14.7 per 1,000 live births in Massachusetts. Like people with other chronic diseases, those experiencing substance use disorder will benefit from deferring childbearing until treatment and symptoms are optimized. This interdisciplinary project will explore how health systems can better serve the contraceptive needs of individuals who use opioids and are at risk for unintended pregnancy. We will use qualitative research methods to engage patients in developing innovative strategies for contraceptive service delivery suited to their unique needs.

Kristin N. Javaras, PhD
Assistant Professor of Psychology in the Department of Psychiatry
McLean Hospital

McLean Hospital Fellowship

Mentor: Shelly Greenfield, MD

Project Title: Measuring Emotional Eating in the Real World

Project Description: Negative emotion is the most commonly reported trigger for binge eating, making it important to understand how and why eating behavior changes in response to emotion. Most studies of this phenomenon rely on having people provide multiple daily reports of their emotional state and eating behavior, which can be challenging and burdensome. Wearable technology (like fitness bands) can provide passive, objective information about people's real-world experiences, potentially reducing the need for these reports. Thus, the proposed study will examine the feasibility and acceptability of using wearable technology to measure emotion and eating behavior in young women experiencing clinically-significant binge eating.

Lissette Jimenez, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentor: Christopher Duggan, MD

Project Title: Biomarkers for Intestinal Rehabilitation in Children with Short Bowel Syndrome

Project Description: Intestinal failure (IF) is a condition of decreased absorptive capacity that requires specialized nutrition support to maintain adequate hydration and growth, with the most common form in children being short bowel syndrome (SBS). Clinical outcomes among patients with IF are related to the process of intestinal adaptation, with no reliable and valid biomarkers currently available. We are conducting a prospective cohort study among children with SBS to identify serum and fecal biomarkers to objectively measure the process of intestinal adaptation over time.

Louise P. King, MD
Assistant Professor of Obstetrics, Gynecology and Reproductive Biology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Obstetrics and Gynecology Fellowship

Mentor: Michele R. Hacker, ScD

Project Title: Ethical issues surrounding surgical training in obstetrics and gynecology residency and surgical volume practice

Project Description: Surgical training in obstetrics and gynecology is truncated. While general surgery residents are trained with attention to surgical technique for five years, the American Board of Obstetrics and Gynecology calls for only 18 months of abdomino-pelvic surgery training during a four--year residency. Typical obstetrician--gynecologists devote only 15% of their practice to surgical gynecology. Such low volume is associated with higher complication rates, longer operative times, and longer time before return to daily activities for patients. There have been multiple calls to reform this system. This proposal aims to achieve steps towards policy change by examining the situation both nationally and in one system.

Douglas S. Krakower, MD
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Medicine Fellowship

Mentors: Kenneth H. Mayer, MD; Michale Klompas, MD

Project Title: Automated HIV Risk Prediction to Optimize Pre-Exposure Prophylaxis in Primary Care

Project Description: Pre-exposure prophylaxis (PrEP) is an HIV prevention strategy in which people who are at high risk for HIV acquisition can take HIV medications on a daily basis to reduce their risk of infection. PrEP can decrease the risk of HIV acquisition up to 99%. However, clinicians rarely prescribe PrEP. Previously, we developed an automated computer algorithm that uses electronic health records data to identify persons at high risk for HIV acquisition. Now, we will test whether using this algorithm to notify clinicians about their high-risk patients can increase PrEP prescribing to these patients, which could prevent new HIV infections.

Miranda B. Lam, MD
Instructor in Radiation Oncology
Brigham and Women's Hospital

The Peter Mauch Radiation Oncology Fellowship for Junior Faculty

Mentor: Ashish K. Jha, MD

Project Title: Impact of Accountable Care Organizations on quality, cost and equity of healthcare in the U.S.

Project Description: The U.S. is undergoing important changes in healthcare delivery and ACOs are one of the most important models being tested. My proposed study will identify national and local patterns of cancer care delivery among ACOs, compare them to non-ACOs, and assess their potential impact on cost, quality and equity of healthcare delivery. We aim to examine these issues to understand the likelihood that new models of care delivery, such as ACOs, will improve the value of cancer care.

Rebecca Luckett, MD, MPH
Instructor in Obstetrics, Gynecology and Reproductive Biology
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Obstetrics and Gynecology Fellowship

Mentor: Sarah Feldman, MD

Project Title: Follow-up cervical cancer screening in HIV positive women in Botswana

Project Description: Cervical cancer is the leading cause of cancer mortality in Botswana. The Ministry of Health and Wellness plans to implement HPV primary screening, however, the appropriate triage test and screening intervals in HIV positive women have yet to be determined. This study will evaluate one-year follow-up of a cohort of 300 women who had baseline cervical cancer screening with HPV testing, cytology and Visual Inspection with Acetic Acid, with the aim of determining the accuracy of sequential cervical cancer screening, incidence of new cervical histopathologic abnormalities and the prevalence of persistent cervical histopathologic abnormalities.

Lisa Mahoney, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentors: Wayne I. Lencer, MD; Rachel L. Rosen, MD

Project Title: Exhaled Breath Condensate Metabolomic Biomarkers of Extraesophageal Reflux

Project Description: Many children presenting with respiratory symptoms are empirically treated with acid suppression medications for suspected gastroesophageal reflux disease despite lack of sensitive diagnostic testing for extraesophageal reflux disease (EERD). The goal of this research is to develop a sensitive, noninvasive diagnostic test that directly assesses the impact of gastroesophageal reflux on the lung. We hypothesize that there is a unique metabolite profile in a noninvasively-collected exhaled breath condensate sample that can accurately diagnose EERD. The potential impact of these studies is great as they may offer a way to reduce unnecessary medication trials and decrease utilization of invasive diagnostic procedures.

Julia L. Marcus, PhD
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: Michael Klompas, MD

Project Title: Leveraging social media to assess patterns of HIV preexposure prophylaxis use

Project Description: Once-daily antiretroviral medications, also called preexposure prophylaxis (PrEP), can be used to prevent HIV infection. However, some PrEP users may be taking PrEP in ways that are not currently recommended and may not be sufficient to protect against HIV infection. This mixed-methods study will leverage social media to assess patterns of PrEP use, including non-daily dosing strategies and use of PrEP without a prescription, in a national sample of PrEP users in the U.S.

Kiran P. Maski, MD, MPH
Assistant Professor of Neurology
Boston Children's Hospital

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

Mentors: Scott L. Pomeroy, MD, PhD; Thomas E. Scammell, MD

Project Title: Cognitive Effects of Disrupted Nighttime Sleep in Pediatric Narcolepsy

Project Description: Narcolepsy type 1 (NT1) is a chronic, disabling neurological disorder that is caused by selective loss of the hypocretin neurons, resulting in unstable sleep-wake states. This sleep-wake state instability manifests a severe form of nocturnal sleep disruption termed "disrupted nighttime sleep" (DNS). It is unknown how to objectively define DNS and whether DNS contributes to common cognitive co-morbidities associated with NT1. In this proposal, we will validate objective measures of DNS, determine its associations with sleep dependent memory processes and identify plausible mechanisms that underlie the relationship between sleep disturbances and cognition.

Dennis J. McNicholl, D.O.
Instructor in Anaesthesia
Brigham and Women's Hospital

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

Mentor: Richard D. Urman, MD

Project Title: Designing a Novel, Evidence-Based Anesthesia Resident Curriculum for Non-OR Anesthesia (NORA)

Project Description: One of the most rapidly growing areas of anesthesia coverage,the non-operating room environment, hosts an increasing proportion of patients who are critically ill, deemed not fit for surgical interventions, but in need of imaging or other procedures. This project will develop an intranet website, an interactive curriculum, case conferences and resident assessments.

Shibani S. Mukerji, MD
Instructor in Neurology
Massachusetts General Hospital

Harvard Medical School Fellowship in honor of Ruth Blumfeld Kundsin

Mentors: Dana Gabuzda, MD; Merit E. Cudkowicz, MD

Project Title: Targeting Arterial Inflammation and Brain Metabolism in Adults with HIV infection

Project Description: Depression is a critical medical challenge affecting the morbidity of millions of people living with HIV despite availability of effective antiretroviral therapy. Recent studies suggest cardiovascular disease (CVD) is associated with depression in HIV-infected adults, but the mechanisms by which atherosclerotic disease influences depressive symptoms and vice-versa are poorly understood. In this multidisciplinary proposal integrating neuroimaging, vascular imaging, immune and metabolite profiles from the blood metabolome, I aim to identify shared pathways influencing depression and arterial inflammation in HIV-infected adults on ART.

Karen C. Nanji, MD, MPH
Assistant Professor of Anaesthesia
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentor: David W. Bates, MD

Project Title: The Use of a Novel Clinical Decision Support Tool to Prevent Medication Errors and Adverse Drug Events in the Operating Room

Project Description: Our recent study showed that one in twenty perioperative medication administrations, and every second operation, involved a medication error and/or adverse drug event. We have developed a real-time platform-independent clinical decision support software tool that our preliminary data suggest has the potential to prevent the majority of medication errors in the operating room. The aim of the proposed research is to define the impact of our novel clinical decision support software tool on perioperative medication errors (MEs) and adverse drug events (ADEs), and our hypothesis is that the tool will reduce their incidence, ultimately making surgery safer for patients.

Gili Naveh, PhD
Assistant Professor of Oral Medicine, Infection, and Immunity
Harvard School of Dental Medicine

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

Mentor: Roland Baron, PhD, DDS

Project Title: Structural modification as a functional barrier in the periodontal ligament

Project Description: Periodontal disease is a chronic inflammatory disease of bacterial origin where the host immune response destroys the periodontal tissues. It is one of the most abundant diseases in modern society which affects up to 70% of the population at the age of 65. Currently it is not clear what protective mechanism of periodontal tissues collapses and leads to a destructive process and to periodontal disease. Our recent study of the periodontal ligament structure suggests that a certain region is made of dense collagenous network and might have such a protective role through impeding the bacterial invasion process. This research is aimed at elucidating the function of this unique structure.

Matthew A. Nehs, MD
Assistant Professor of Surgery
Brigham and Women's Hospital

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

Mentor: Francis D. Moore, Jr., MD

Project Title: Metabolic therapies for anaplastic thyroid cancer

Project Description: Anaplastic thyroid cancer (ATC) is a fatal disease with median survival of 6 months from the time of diagnosis. Patients often present with inoperable disease, and conventional treatments with chemotherapy and external beam radiation are rarely curative. ATC is a rapidly-growing malignancy with a high metabolic rate as seen on PET CT scan, which utilizes radioactive glucose to detect tissues with a high metabolic rate. This study will investigate the role of metabolism on tumor cell growth both in vivo and in vitro. We will use the ketogenic diet in mice as a way to restrict the glucose available to tumors, and we will treat tumor cells with compounds that inhibit their metabolic rate. By altering the its metabolism, we may provide an adjunctive therapy for anaplastic thyroid cancer.

Sarah M. Nelson, PhD
Instructor in Psychology in the Department of Psychiatry
Boston Children's Hospital

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

Mentors: Charles B. Berde, MD, PhD; Deirdre E. Logan, PhD

Project Title: Biomarkers of Allostatic Load: the Phenomenology and Association with Pain-related and Psychosocial Outcomes in Youth with Chronic Pain

Project Description: Allostatic load (i.e., significant "wear and tear" on the body's nervous system) can account for increased nervous system sensitization and neuroendocrine dysfunction and may be related to chronic pain. However, this has never before been examined in youth. The current study proposes to examine allostatic load, using an established composite measure, in a tertiary pediatric chronic pain clinic. An exploratory aim will also be to examine allostatic load in the context of youth with a history of chronic pain and adverse childhood experiences. Results from this study may be used to better develop treatments for youth with chronic pain.

Eduardo Novais, MD
Assistant Professor of Orthopedic Surgery
Boston Children's Hospital

Boston Children's Hospital Musculoskeletal Career Development Fellowship

Mentors: Young-Jo Kim, PhD MD; Peter M. Waters, MD

Project Title: Relative Contribution of Epiphyseal Tubercle and Peripheral Cupping to Capital Femoral Epiphysis Stability: New Insights to the Pathogenesis of SCFE and Cam-FAI Morphology

Project Description: The epiphyseal tubercle has been proposed as a stabilizer of the femur. Peripheral cupping of the epiphysis has also been cited as important for stabilization. However, the potential contribution of these structures to the stability remains unknown. We measured the epiphyseal tubercle and peripheral cupping in children and we used a finite element modeling to study the contribution of the tubercle and cupping to epiphysis loading. We showed that epiphyseal tubercle act as the primary stabilizer of the head-neck junction in younger children and this role is gradually transferred to epiphyseal cupping as the tubercle shrinks and cupping grows.

Anne O'Donnell-Luria, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentors: Daniel MacArthur, PhD; Christopher A. Walsh, MD, PhD

Project Title: Evaluating How the Altered Epigenetic Landscape in Mendelian Chromatin Disorders Contributes to Phenotype

Project Description: Mutations in chromatin modifying proteins are increasingly recognized as causes of Mendelian disease but no treatment is currently available. In coordination with the EpiChroma Genetics Clinic, this project will explore the altered epigenetic landscape in individuals with mutations in histone modifying enzymes, particularly in Rubeinstein-Taybi, Kleefstra and Oculofaciocardiodental syndrome. By evaluating the epigenetic alterations that occur in individuals with these disorders, we can learn which genes are dysregulated in these conditions, which will improve our understanding of gene regulation in general and more specifically how to approach therapeutic development for these disorders.

Heather E. Olson, MD
Assistant Professor of Neurology
Boston Children's Hospital

Boston Children's Hospital Department of Neurology Faculty Development Fellowship

Mentor: Annapurna Poduri, MD

Project Title: Genotype-phenotype analysis of CDKL5 disorder compared to other early life epileptic encephalapathies

Project Description: This study investigates genotype-phenotype correlations in diagnosis of early life epilepsy and management of infantile spasms, in both cases comparing CDKL5 disorder to other early life suspected or confirmed genetic epilepsies. It leverages data from the CDKL5 Center of excellence, the Epilepsy Genetics program and the Pediatric Epilepsy Research Consortium to answer these focused questions. The approach and knowledge, focused on CDKL5 disorder in this proposal, will be applicable to numerous early life genetic epilepsies and may ultimately lead to the development of targeted therapies in the vulnerable population of children with early life epilepsy.

Ariela R. Orkaby, MD
Instructor in Medicine, Part-time
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Jane A. Driver, MD

Project Title: Association between non-steroidal anti-inflammatory drug use, frailty, and function in older men

Project Description: Frailty is a common condition affecting many older adults, and is associated with increased risk of illness, institutionalization, and death. Frailty may be cause by increased levels of inflammation in the body. Preventive strategies for frailty are urgently needed as the population ages. This study will examine the relationship between commonly used anti-inflammatory medications, such as ibuprofen, and the risk of frailty, in order to better understand possible preventive therapies for frailty.

Jodie Ouahed, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentors: Wayne I. Lencer, MD; Scott B. Snapper, MD, PhD

Project Title: Role of Interferon Signalling in Mucosal Homeostasis and Infantile-Onset Inflammatory Bowel Disease

Project Description: Inflammatory bowel disease (IBD) is a global disease with incidence rising most among young patients. Our understanding of its pathogenesis has focused on the role of genetics and interaction of the commensal microbiome, with emphasis on host-bacterial crosstalk. Recent data implicated the virome in mucosal homeostasis. The molecular cascade triggered during inflammation includes production of interferons (IFN), known for their anti-viral activities. We identified two patients presenting within months of life with IBD and rare damaging mutations in these cytokines. This proposal focuses on a novel role for these in maintaining mucosal homeostasis and protection from IBD.

Anne L. Piantadosi, MD, PhD
Instructor in Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Medicine Fellowship

Mentors: Pardis Sabeti, MD; Rochelle P. Walensky, MD

Project Title: Metagenomic sequencing for unbiased pathogen detection in patients with central nervous system infection

Project Description: There is an urgent need for methods to rapidly identify and characterize viruses that cause central nervous system (CNS) infection; over 60% of patients with encephalitis have no cause identified despite extensive testing. Metagenomic (unbiased) next-generation sequencing allows the detection of any potential pathogen. I currently use metagenomic sequencing to identify viruses in a clinical study of patients with CNS infection at Massachusetts General Hospital. This project will provide valuable information regarding the causes of infectious encephalitis on a population level, will lead to clinically meaningful applications in infectious disease diagnostics, and will generate viral genomic data for further study.

Virginia M. Pierce, MD
Assistant Professor of Pathology
Massachusetts General Hospital

Massachusetts General Hospital Department of Pathology Fellowship

Mentors: Mary Jane Ferraro, PhD; David N. Louis, MD

Project Title: Screening for high-level gentamicin resistance among viridans group streptococci: improving management of endocarditis

Project Description: Viridans group streptococci (VGS) are common pathogens in endocarditis. Because adding gentamicin to a β-lactam antimicrobial is predicted to result in synergistic bacterial killing, guidelines recommend including gentamicin when treating many patients with VGS endocarditis. Resistance of VGS to other antimicrobials has increased, but whether high-level gentamicin resistance (HLGR) has emerged is unknown because this phenotype is not routinely assayed in VGS by clinical laboratories. In the presence of unrecognized HLGR, physicians might prescribe gentamicin, a toxic antimicrobial, without benefit. We will determine the prevalence of HLGR among contemporary clinical VGS and characterize isolates using synergy studies and genome sequencing.

Maxim Pimkin, MD, PhD
Instructor in Pediatrics
Dana-Farber Cancer Institute

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

Mentors: David Williams, MD; Alan Cantor, MD, PhD; Stuart Orkin, MD

Project Title: Divergent Core Transcriptional Curcuitries Highlight Context-Specific Vulnerabilities in AML

Project Description: Acute myeloid leukemia (AML) is of the deadliest pediatric cancers, responsible for 10% of total cancer mortality in children. AML is caused by mutations in normal bone marrow stem cells that make them malignant. There are many AML-causing mutations, and they result in many different subtypes of AML with very different responsiveness to treatment and outcomes. We propose to systematically identify and characterize the most critical transcription factors (proteins that regulate the function of genes) in AML, called "core regulatory circuitries" (CRCs). By identifying the common and divergent CRCs in the context of the various AML subtypes, we will gain new insights into the most critical mechanisms of AML survival. Importantly, our preliminary data show that CRCs can accurately predict AML vulnerabilities – i.e. they reliably highlight critical genes without which AML cancer cells cannot survive. We propose to extend our data by characterizing AML CRCs in an integrated, unbiased way, in all major subtypes of AML. Our data will create the basis for a new functional classification of AML and identify new targets for drug development.

Justin T. Pitman, MD
Instructor in Emergency Medicine
Mount Auburn Hospital

Mount Auburn Hospital Department of Emergency Medicine Faculty Development Fellowship

Mentor: Gary Setnik, MD

Project Title: Pulmonary Embolism Pathway

Project Description: We are developing of policies to standardize care delivery to patients within the emergency department. Our current efforts are focused on unifying diagnostic and therapeutic management pathways of pulmonary emboli (blood clot in lungs) among the departments of Emergency Medicine, Radiology, and Pulmonary / Critical Care. The goals are several fold: reduction of unnecessary testing, reducing unnecessary hospital admissions, standardization of patient treatment across multiple medical specialties and departments, and standardization of disposition based on severity of illness.

Craig D. Platt, MD, PhD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentor: Raif S. Geha, MD

Project Title: Mechanisms of the COPI Complex in Mediating Humoral Immunity and Viral Control

Project Description: We have identified 5 siblings with a previously undescribed primary immunodeficiency caused by a missense mutation in COPG1, which encodes the gamma1-COP subunit of the COPI complex. This complex shuttles proteins from the Golgi to the ER and is essential for ER homeostasis. The affected patients demonstrate immune dysfunction characterized by CMV and EBV viremia, hepatitis, and recurrent pneumonia. Given the limitations of studying patient samples, we generated a mouse model that caries the patient mutation. We aim to use this model to dissect the previously uncharacterized role of gamma1-COP in humoral immunity and control of viral infection.

James Rhee, MD
Instructor in Anaesthesia
Massachusetts General Hospital

Massachusetts General Hospital Department of Anesthesia Fellowship

Mentors: Anthony Rosenzweig, MD; Jeanine P. Wiener-Kronish, MD

Project Title: The Regulation of Cardiac Inflammation and Remodeling after Myocardial Infarction by Family with sequence similarity 3D (FAM3D)

Project Description: Many survivors of heart attack (or "myocardial infarction") unfortunately go on to develop heart failure, which itself carries very high morbidity and mortality rates despite medical therapy. The molecular factors that determine acute infarct expansion, or whether a heart later recovers function or declines into failure, are unclear. We used a cutting-edge approach to screen proteins in the blood of patients after their heart attacks, and identified a molecule (FAM3D) that is not only a biomarker of recovery, but is dynamically increased after heart attack, regulates inflammation, and helps to limit tissue injury. FAM3D is thus a tantalizing therapeutic target.

Elisabeth D. Riviello, MD
Assistant Professor of Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Medicine Fellowship

Mentors: Robert Fowler, MD, Mac; Daniel Talmor, MD, PhD

Project Title: From Berlin to Kigali to Boston: validation of a global definition of ARDS

Project Description: The Acute Respiratory Distress Syndrome (ARDS) affects 25% of ventilated patients and carries a hospital mortality rate of 40% worldwide. The Berlin definition of ARDS requires chest radiographs and arterial blood gases, which are not available in resource-constrained settings and may be unnecessarily invasive in resource-rich settings. We developed the Kigali modification of the Berlin definition in Rwanda using ultrasound and pulse oximetry. The current study will seek to provide the first description of hospital-wide incidence of ARDS in a high-income country, and to validate the modified definition. We hope this work will facilitate epidemiologic and interventional ARDS studies worldwide.

Stephanie Roberts, MD
Instructor in Pediatrics
Boston Children's Hospital

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

Mentors: Joseph A. Majzoub, MD; Ursula B. Kaiser, MD

Project Title: Elucidating the Mechanism of Mkrn3 Action through Overexpression in the Mouse Hypothalamus: a Key Player of Pubertal Timing in Children

Project Description: The mechanism by which pubertal onset occurs remains one of science's great mysteries. Makorin Ring Finger Protein 3 (MKRN3) is the first identified protein with an apparent inhibitory input on pubertal onset. The role of this key neuroendocrine player in pubertal timing will be studied to understand its mechanism of action and ability to cause delayed puberty when overexpressed in mice. This will inform our understanding of normal and abnormal pubertal timing and be a potential new therapeutic treatment for suppressing the reproductive axis.

Ahmad R. Sedaghat, MD, PhD
Assistant Professor of Otolaryngology
Massachusetts Eye & Ear

Massachusetts Eye and Ear Fellowship

Mentor: Andrew D. Luster, MD, PhD

Project Title: Translational profiling of the adaptive immune response in chronic rhinosinusitis

Project Description: We will identify the profile of the adaptive immune response in the peripheral blood and sinus tissue of chronic rhinosinusitis (CRS) patients and compare it to that of healthy control patients to find differences. We will identify the correlations between the prevalence of specific T and B lymphocyte subsets in CRS patients and these patients' clinical outcomes. By achieving these specific aims, my expected outcome is to gain novel insights into the immunologic basis of CRS, identify possible therapeutic targets, and identify novel biomarkers for CRS patients' prognosis and responses to treatments.

Jennifer M. Singleton, MD
Instructor in Emergency Medicine
Beth Israel Deaconess Medical Center

Beth Israel Deaconess Medical Center Department of Emergency Medicine Fellowship

Mentor: Joshua W. Joseph, MD

Project Title: Neurologic Outcomes Following Implementation of an Expedited Imaging Protocol (Code Cord) for Patients with Suspected Spinal Cord Compression

Project Description: Atraumatic spinal cord compression is a neurologic emergency with potential for permanent paralysis, sensory loss and loss of bowel/bladder function. While urgent operative decompression is warranted, the optimal time window is not known or well-studied. With use of electronic timestamps and an efficient MR imaging pathway for patients with this condition, we aim to evaluate the effects of expedited imaging, diagnosis and operative management as indicated for patients in the "Code Cord" protocol.

Sara K. Tedeschi, MD, MPH
Instructor in Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Faculty Career Development Award

Mentor: Daniel H. Solomon, MD

Project Title: Identifying pseudogout and its risk factors in electronic medical record data

Project Description: Pseudogout is an acute inflammatory arthritis causing joint pain and swelling, similar to gout. In contrast to gout, risk factors for pseudogout and its clinical consequences are not well understood. Pseudogout is defined by synovial fluid calcium pyrophosphate crystals plus joint pain, swelling and tenderness. It characterizes the most dramatic phenotype of calcium pyrophosphate deposition disease (CPPD). A billing code-based algorithm for CPPD has been published but did not specifically focus on identifying pseudogout. Among a sample of patients in the Partners Healthcare electronic medical record (EMR) who fulfilled the CPPD algorithm, only 18% had pseudogout based on EMR review. In Aim 1, we will apply advanced bioinformatics methods, including natural language processing, to develop a pseudogout algorithm within the Partners EMR. We hypothesize that >70% of patients fulfilling the algorithm will have pseudogout. In Aim 2, we expect that osteoarthritis, hyperparathyroidism and hemochromatosis—which have been associated with CPPD—will be associated with pseudogout. We hypothesize that older age, female sex, and recent hospitalization increase pseudogout risk. The overarching goal of our project is to establish and use an EMR-based cohort to understand the burden of disease and identify potential therapeutic targets for this painful, inflammatory disease.

Shannon N. Tessier, PhD
Instructor in Surgery
Massachusetts General Hospital

Massachusetts General Hospital Department of Surgery Faculty Development Fellowship

Mentor: Mehmet Toner, PhD

Project Title: Induction of suspended animation to recover marginal livers for transplantation

Project Description: Despite the success of organ transplantation, there is a severe shortage of viable donor organs necessitating innovative methods to recover marginal organs to increase the donor pool. We borrow lessons from hibernating primates in nature to improve ischemia tolerance and leverage the zebrafish to bridge discoveries in organ transplantation.

Deirdre K. Tobias, ScD, SM
Assistant Professor of Medicine
Brigham and Women's Hospital

Brigham and Women's Hospital Department of Medicine Fellowship

Mentor: JoAnn E. Manson, DrPH, MD

Project Title: Effect of randomized aspirin use in the Women's Health Study on cancer incidence and mortality, by baseline chronic inflammation

Project Description: Inflammation may in-part explain the link between obesity and cancer risk. Aspirin is associated with a reduced risk of cancer incidence and mortality. Identifying women more likely to benefit from aspirin for cancer prevention may have immense public health implications, given this treatment is not without risks (e.g. bleeding). This project will examine randomized aspirin vs. placebo on total and site-specific cancer incidence and mortality, by baseline chronic inflammation and obesity status in N~28,000 women in the Women's Health Study, a completed randomized clinical trial of 100 mg aspirin vs. placebo in initially healthy US women aged ≥45 years.

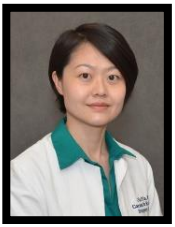
Susan R. Wilcox, MD
Assistant Professor of Emergency Medicine
Massachusetts General Hospital

Massachusetts General Hospital Department of Emergency Medicine Fellowship

Mentors: Carlos A. Camargo, Jr., DrPH, MD; David F. M. Brown, MD

Project Title: Epidemiology of Patients with Pulmonary Hypertension Presenting to the Emergency Department

Project Description: Pulmonary hypertension (PH) is a heterogeneous condition of elevated blood pressure within the lungs, either as primary pathology or secondary to other diagnoses. Although PH is associated with substantial morbidity and mortality, management of PH historically has not been part of emergency medicine (EM) training or practice. There are currently no epidemiologic assessments of patients presenting to the Emergency Department (ED) with PH. We aim to establish demographic patterns of ED visits of patients with PH, and in turn, set the stage for future research to improve outcomes in this under-studied patient population.



Jia Yin, MD, PhD
Instructor in Ophthalmology
Massachusetts Eye & Ear

Harvard Cornea Center of Excellence Fellowship

Mentor: Reza Dana, MD

Project Title: Neuro-modulation of Angiogenesis in Corneal Inflammation

Project Description: The transparent cornea is the outermost layer of the eye. It is the most densely innervated tissue in the human body, and yet is devoid of blood vessels. Corneal diseases such as infection, inflammation, burn, and transplantation rejection can result in corneal neovascularization and nerve degeneration. This project aims to understand how corneal blood vessels and nerves interact and influence each other in normal and disease states. Findings from this project will elucidate the interconnectivity of neuronal, immune and vascular systems. The proposed anti-angiogenic and neurotrophic treatments have direct translational values in treating vision-threatening conditions such as neurotrophic keratopathy.

Christopher Yuskaitis, MD, PhD
Instructor in Neurology
Boston Children's Hospital

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

Mentors: Mustafa Sahin, MD, PhD; Annapurna Poduri, MD

Project Title: The Critical Role of Nutrient Sensing in the Developing Brain: Implications for Epileptogenesis and Brain Malformations

Project Description: Epilepsy affects approximately 1% of the population and one in 200 children. Studying epilepsy-related genes, such as DEPDC5, provides insight into universal mechanisms underlying brain development and epilepsy. In non-neuronal cells, DEPDC5 is a critical negative regulator of mTOR complex 1 (mTORC1)-mediated amino acid signaling. The overall goal of this project is to determine if the biochemical and behavioral effects of neuronal DEPDC5 loss are also mediated through mTOR-dependent amino acid mechanisms. This work will provide novel insights into the role of DEPDC5 in neuronal function and, more broadly, improve our overall understanding of epileptogenesis and brain development.

Korilyn S. Zachrison, MD
Assitant Professor of Emergency Medicine
Massachusetts General Hospital

Claflin Distinguished Scholar Award

Mentor: Lee H. Schwamm, MD

Project Title: Examining the Efficiency of Massachusetts Stroke Systems of Care in order to Improve Stroke Patient Outcomes

Project Description: This study uses state-level Massachusetts data to study stroke systems of care. Stroke patients are often transferred between hospitals in order to access disability-reducing treatments. One of these treatments is only available at a small subset of hospitals. This study will use network analysis methods to study the movement of stroke patients between hospitals in Massachusetts, to evaluate the efficiency of the state stroke systems, and to identify areas for improving the network in order to maximize patient outcomes and reduce disability among stroke patients.

2018 Fellowship Recipients by Institution

Beth Israel Deaconess Medical Center

Department of Emergency Medicine Fellowship

Leslie A. Bilello, MD
Alon S. Dagan, MD
Kiersten L. Gurley, MD
Jennifer M. Singleton, MD

Department of Gynecology and Obstetrics Fellowship

Katharine M. Esselen, MD
Louise P. King, MD
Rebecca Luckett, MD, MPH

Department of Medicine Fellowship

Douglas S. Krakower, MD
Elisabeth D. Riviello, MD

Department of Pathology Fellowship

Gabrielle M. Baker, MD

Boston Children's Hospital

Department of Neurology Faculty Development Fellowship

Heather E. Olson, MD

Department of Neurosurgery Fellowship

Katie P. Fehnel, MD

Division of Gastroenterology and Nutrition Shore Grant Fellowship

Beate C. Beinvogl, MD
Daniel R. Duncan, MD
Lissette Jimenez, MD

Musculoskeletal Career Development Fellowship

Eduardo Novais, MD

OFD/BTREC/CTREC Faculty Career Development Fellowship

Christina M. Astley, MD, ScD
Melissa A. Burns, MD
Lillian Guenther, MD
Lauren A. Henderson, MD
Lisa Mahoney, MD
Kiran P. Maski, MD, MPH
Sarah M. Nelson, PhD
Anne O'Donnell-Luria, MD, PhD
Jodie Ouahed, MD
Maxim Pimkin, MD, PhD
Craig D. Platt, MD, PhD
Stephanie Roberts, MD
Christopher Yuskaitis, MD, PhD

Pediatric Emergency Medicine Faculty Development Fellowship

Caitlin Farrell, MD

Brigham and Women's Hospital

Department of Anesthesiology, Perioperative and Pain Medicine Faculty Development Fellowship

Dennis J. McNicholl, D.O.

Department of Medicine Fellowship

Deirdre K. Tobias, MSc, DSc

Department of Pathology Fellowship

Leona A. Doyle, MD

Department of Surgery Junior Fellowship in Honor of Robert T. Osteen, MD

Matthew A. Nehs, MD

Faculty Career Development Award
Ariela R. Orkaby, MD
Sara K. Tedeschi, MD, MPH

Obstetrics and Gynecology Foundation Fellowship
Elizabeth F. Janiak, ScD

The Peter Mauch Radiation Oncology Fellowship for Junior Faculty
Miranda B. Lam, MD

Dana-Farber Cancer Institute
Dana-Farber Cancer Institute Fellowship
Matthew L. Hemming, MD, PhD

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

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

Massachusetts Eye and Ear

Massachusetts Eye and Ear Fellowship
Ahmad R. Sedaghat, MD, PhD

Massachusetts General Hospital
Claflin Distinguished Scholar Awards
Kimberly G. Blumenthal, MD
Laura E. Dichtel, MD
Jenna L. Galloway, PhD
Emily P. Hyle, MD
Karen C. Nanji, MD, MPH
Korilyn S. Zachrison, MD

Department of Anaesthesia Fellowship
James Rhee, MD

Department of Dermatology Fellowship
Shinjita Das, MD

Department of Emergency Medicine Fellowship
Susan R. Wilcox, MD

Department of Medicine Fellowship
Anne L. Piantadosi, MD, PhD

Department of Orthopaedics Shore Fellowship
Stuart H. Hershman, MD

Department of Pathology Fellowship
Virginia M. Pierce, MD

Department of Surgery Faculty Development Fellowship
Arunava Bandyopadhaya, PhD
Shannon N. Tessier, PhD

Dorothy Rackemann Fellowship established by the Vincent Memorial Hospital/MGH for Research in Reproductive Biology
Nisse V. Clark, MD

Dr. Lynne Reid/Drs. Eleanor and Miles Shore Fellowship
Lilit Garibyan, MD, PhD

Harvard Medical School Fellowship in honor of Ruth Blumfeld Kundsin
Shibani S. Mukerji, MD

McLean Hospital
McLean Hospital Fellowship
Kristin N. Javaras, PhD

Mount Auburn Hospital
Department of Emergency Medicine Faculty Development Fellowship
Justin T. Pitman, MD

Schepens Eye Research Institute
Alice J. Adler Fellowship of the Schepens Eye Research Institute
Tobias Elze, PhD

Selection Committees

Thanks are due to these individuals for their service and assistance with the growth of the fellowship and the selection of fellowship recipients.

2018 Academic Promise Evaluation Committee

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

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

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

Miriam A. Bredella
Professor of Radiology, Massachusetts General Hospital

Jack D. Burke, Jr.
Professor of Psychiatry, Cambridge Health Alliance

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

Maureen T. Connelly
Dean for Faculty Affairs, Harvard Medical School

John L. Dalrymple
Associate Professor of Obstetrics, Gynecology and Reproductive Biology, Beth Israel Deaconess Medical Center

S. Jean Emans
Mary Ellen Avery Professor of Pediatrics, Boston Children's Hospital

German O. Gallucci
Raymond J. and Elva Pomfret Nagle Associate Professor of Restorative Dentistry and Biomaterials Sciences, Harvard School of Dental Medicine

Chenghua Gu
Professor of Neurobiology, Harvard Medical School

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Associate Professor of Medicine, Joslin Diabetes Center

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Kimmie Ng
Assistant Professor of Medicine, Dana-Farber Cancer Institute

Mizuki Nishino Hatabu
Associate Professor of Radiology, Dana Farber Cancer Institute

Annapurna Poduri
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Thomas D. Sequist
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Caren G. Solomon
Associate Professor of Medicine, Brigham and Women's Hospital

Sulpicio De Guzman Soriano
Professor of Anaesthesia, Boston Children's Hospital

Lawrence C. Tsen
Associate Professor of Anaesthesia, Brigham and Women's Hospital

Bethany M. Westlund
Associate Dean for Faculty Affairs, Harvard Medical School

2018 Personal Need Evaluation Committee

Carol K. Bates
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Maureen T. Connelly
Dean for Faculty Affairs, Harvard Medical School

Dagmara Cotti
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Executive Director, External Education, Harvard Medical School

Jessica Halem
LGBT Program Director, Diversity Inclusion and Community Partnership, Harvard Medical School

Margaret (Marly) Kenna
Professor of Otolaryngology, Boston Children's Hospital

Tara L. Lauriat
Program Director, Faculty Appointments, Office for Faculty Affairs, Harvard Medical School

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

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

Ellen P. McCarthy
Assistant Dean of Development and Diversity, Harvard Medical School

Laura E. Riley
Charles Montraville Green and Robert Montraville Green Associate Professor of Obstetrics, Gynecology and Reproductive Biology, Massachusetts General Hospital

Caren G. Solomon
Associate Professor of Medicine, Brigham and Women's Hospital

Bethany M. Westlund
Associate Dean for Faculty Affairs, Harvard Medical School

Gail M. Williams
Director of Administration, Office of Faculty Affairs, Harvard Medical School

Faculty Development Program, Office for Faculty Affairs

Carol K. Bates
Program Director and Associate Dean for Faculty Affairs

Brian R. Crete
Faculty Development Coordinator

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 as a faculty member 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 Archives for Women in Medicine.

Jane D. Claflin

Jane Claflin is an extraordinary benefactor and dedicated volunteer leader at Massachusetts General Hospital where she has served as trustee, fund-raiser, friend, and cheerleader. She is the force behind the MGH programs that support women in their professional careers and a major reason the MGH opened a backup child care 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 has been 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.

Ruth Blumfeld Kundsin, ScD

Ruth Kundsin, ScD is Associate Professor of Microbiology and Molecular Genetics, Emerita. She was an early voice on women's careers in academic medicine and edited "Women & Success: The Anatomy of Achievement," a compilation of papers from a conference that she co-chaired for the New York Academy of Sciences in 1973. Her publications include work as early as 1957 on contamination in the hospital environment studying pathogens on hospital floors, surgical gloves, and other sites. She was the hospital epidemiologist at Peter Bent Brigham Hospital from 1970-1982. She also published books on architectural design and indoor pollution, the impact of

sexually transmitted infection on the fetus, and a book on airborne contagion.

Peter M. Mauch, MD

Dr. Mauch came to Harvard Medical School as a resident in radiation oncology in 1975 and was a member of the Harvard Medical School Faculty for nearly 40 years. His lab work, the study of hematopoietic stem cells, was supported by NIH R01 funding for over 20 years and his clinical work in the treatment of patients with Hodgkin lymphoma began when he was a resident. He published over 350 papers and was a co-editor of 6 books. Promoted to full professor in 1999, Dr. Mauch mentored numerous medical students and residents. He gave educational sessions at annual meetings and served as the first chair of the American Society of Radiation Oncology (ASTRO) outcomes committee and chair of the ASTRO Educational Sessions for 6 years. He also served on the Radiation Study Section and contributed to both the oral and written boards for the American Board of Radiology. His efforts included helping young faculty develop their careers in academic medicine.

Robert T. Osteen, MD

Dr. Osteen is Senior Surgeon, Associate Professor of Surgery, and Associate Chairman of the Department of Surgery at the Brigham and Women's Hospital. Dr. Osteen joined the faculty of Harvard Medical School in 1975 and has since received numerous prizes for excellence in teaching. At the Brigham and Women's Hospital, he oversees the Surgery department's education program, chairs the hospital's Cancer Committee, and acts as the Cancer Liaison Physician to the Commission on Cancer of the American College of Surgeons. He has 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.

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."

Lynne M. Reid, MD, MBBS

Dr. Lynne M. Reid is the S. Burt Wolbach Professor of Pathology, Emeritus at Harvard Medical School. After training in Australia, she moved to London and was the first person to serve as Dean of the Cardiothoracic Institute at London University. She came to Harvard in 1976 as Head of the Department of Pathology at Boston Children's Hospital. Her research interests included lung growth and how it is affected by childhood diseases including cystic fibrosis, scoliosis, and respiratory distress syndrome. She also studied chronic bronchitis, emphysema, and pediatric pulmonary and arterial hypertension. The Lynne M. Reid papers are at Countway Library in the Archives for Women in Medicine. Dr. Reid has generously made personal donations to the fellowship program on a nearly annual basis since the start of the program.

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. Since 1993, he has been 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 continues to write on issues of patient safety and disrespect in the culture of medicine. As a strong supporter of faculty development, he has 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 900 fellows through the last 23 years of the program