Medical Resident Investigator Track (MeRIT) Program

MENTOR CATALOG

(a partial list)

Baylor College of Medicine

MARGARET M. & ALBERT B. ALKEK
DEPARTMENT OF
MEDICINE

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Baylor College of Medicine

Mentor Brochures, continued.

PROGRAM SUMMARY

Rolando E. Rumbaut, MD, PhD

Director, MeRIT Program,
Vice Chair for Research,
Department of Medicine,
Baylor College of Medicine

Galant Chan, MD

Director, Medicine Residency Program,
Department of Medicine,
Baylor College of Medicine

The Department of Medicine at Baylor College of Medicine (BCM) has a long-standing commitment to the career development of the next generation of academic physician-scientists. Baylor provides an exceptional environment for clinical and research training. Our physician-scientist training program (PSTP) is named the MeRIT (Medical Resident Investigator Track) program. The MeRIT program fulfills the requirements of the **American Board of Internal Medicine (ABIM) research pathway**.

The depth and breadth of opportunities for MeRIT Program training with preeminent investigators are truly remarkable, with opportunities in basic science, clinical, translational, and health services research. The MeRIT program allows residents to pursue their research interests with faculty from Baylor and affiliated academic institutions. This brochure provides a very small sampling of the many faculty members committed to serve as primary mentors for MeRIT trainees. A broader listing of the extensive research opportunities and potential mentors available for MeRIT trainees can be found by browsing through the list of the many interdisciplinary **research centers** at BCM.

The curriculum involves two years of clinical training in Internal Medicine (instead of the usual three years), clinical training in a subspecialty (if applicable) and three uninterrupted years of research training. During the 3 research years, the primary clinical experiences will consist of at least one half-day per week in a continuity clinic. Furthermore, 1 of the research years can be used to fulfill the research requirement for subspecialty board certification. In addition to the primary research mentor, each trainee will have a defined mentoring committee. Research training is integrated with Baylor's **Clinical Scientist Training Program** and interested trainees have the option of pursuing an advanced graduate degree.

Internal medicine residents selected for the MeRIT program are expected to be among the top applicants, not only on the basis of extraordinary clinical competence but also on commitment to pursuing academic careers as physician-scientists. MeRIT scholars are assured funding for the entire 5 years of the program, and will receive a supplement to support educational/scientific expenses and are anticipated (though not required) to pursue subspecialty training at Baylor. Applicants accepted into the MeRIT program will be assured a position in their selected subspecialty fellowship.

As you make plans for residency training, we encourage you to consider the MeRIT Program and think about collaborating with its distinguished group of faculty.

ACADEMIC APPOINTMENTS

Professor and Section Chief,
Atherosclerosis and Lipid Metabolism,
Department of Medicine

Professor,
Department of Molecular and Human Genetics

Professor,
Department of Molecular Physiology and Biophysics

ADDITIONAL TITLES

Director,
The Maria and Alando J. Ballantyne, MD Atherosclerosis Clinical Research Laboratory

Director,
Center for Cardiometabolic Disease Prevention

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Baylor College of Medicine

CHRISTIE BALLANTYNE, MD

PRIMARY DEPT. AND SECTION

Medicine - Cardiology and Cardiovascular Research

RESEARCH INTERESTS

- Atherosclerosis
- Inflammation
- Leukocyte–endothelial adhesion molecules
- Biomarkers for atherosclerosis and cardiovascular disease
- Preventive cardiology and atherosclerosis imaging
- Precision medicine
- Lipids
- Obesity, metabolic syndrome, and diabetes
- Genetics of lipid disorders, atherosclerosis, and cardiovascular disease
- Coronary artery disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Ongoing clinical trials in the area of lipids and atherosclerosis
- Genomic studies related to personalized medicine with the Human Genome Center at Baylor
- Population health with multi-omic research (targeted biomarkers, proteomics, metabolomics, genomic) research involving the NIH-funded Atherosclerosis Risk in Communities cohort with a focus on cardiovascular disease in the elderly and healthy aging

RELEVANT PUBLICATIONS

Bhatt DL, Steg PG, ... Ballantyne CM; REDUCE-IT Investigators. **Cardiovascular Risk Reduction with Icosapent Ethyl for Hypertriglyceridemia.** N Engl J Med. 2019 Jan 3;380(1):11-22. PMID: 30415628.

Jia X, Sun W, Hoogeveen RC, ... Ballantyne CM. **High-Sensitivity Troponin I and Incident Coronary Events, Stroke, Heart Failure Hospitalization, and Mortality in the ARIC Study.** Circulation. 2019;139:2642-2653. PMID: 31030544.

Deshotels MR, Hadley TD, ... Ballantyne CM. **Genetic Testing for Hypertriglyceridemia in Academic Lipid Clinics: Implications for Precision Medicine-Brief Report.** Arterioscler Thromb Vasc Biol. 2022 Dec;42(12):1461-1467. PMID: 36325899.

ACADEMIC APPOINTMENTS

Professor,
Departments of Medicine,
Pediatrics,
Molecular Physiology &
Biophysics

ADDITIONAL TITLES

Division Chief
Thrombosis Research
Baylor College of Medicine

Research Health Scientist,
Research Service Line,
Michael E. DeBakey VA Medical Center

Co-Director, Center for Translational Research on Inflammatory Diseases (CTRID)

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Baylor College of Medicine

MIGUEL A. CRUZ, PhD

PRIMARY DEPT., SECTION, & DIVISION

Medicine - Cardiovascular Research: Thrombosis Research

RESEARCH INTERESTS

- Thrombosis
- Systemic Inflammation
- Von Willebrand factor
- Vimentin
- Platelet adhesion
- Extracellular hemoglobin and thrombosis

RESEARCH OPPORTUNITIES FOR TRAINEES

- Role of free hemoglobin in thrombosis in ECMO/LVAD
- Molecular mechanisms of thrombo-inflammatory diseases

RELEVANT PUBLICATIONS

Da Q, Teruya M, ... Cruz MA. **Free hemoglobin increases von Willebrand factor-mediated platelet adhesion in vitro: implications for circulatory devices.** Blood. 2015;126(20):2338-2341. PMID: 26307534.

Martinez-Vargas M, Cebula A, ...Cruz MA. **A Novel Interaction Between Extracellular Vimentin and Fibrinogen in Fibrin Formation.** Thromb Res. 2023;221:97-104. PMID: 36495717.

Nguyen TC, Marini JC,...Cruz MA. **Pediatric Swine Model of Methicillin-Resistant Staphylococcus aureus Sepsis-Induced Coagulopathy, Disseminated Microvascular Thrombosis, and Organ Injuries.** Crit Care Explor. 2023 Jun; 5(6): e0916. PMID: 37255626.

ACADEMIC APPOINTMENTS

Professor,
Departments of Medicine,
Division of Cardiovascular Research

ADDITIONAL TITLES

J. S. Abercrombie Chair, Atherosclerosis and Lipoprotein Research II

Associate Section Chief,
Department of Medicine
Section of Cardiovascular Research

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nal@bcm.edu

Baylor College of Medicine

NA LI, PhD

PRIMARY DEPT., SECTION, & DIVISION

Medicine - Cardiovascular Research

RESEARCH INTERESTS

- Molecular mechanisms of cardiac arrhythmias (atrial fibrillation, sinus node dysfunction)
- Rare Cardiac Arrhythmia
- Inflammation in cardiac arrhythmogenesis
- Therapeutic development

RESEARCH OPPORTUNITIES FOR TRAINEES

- Elucidating the role of innate and adaptive immune cells in arrhythmogenesis
- Deciphering the role of clonal hematopoiesis in the pathogenesis of cardiac arrhythmias
- Investigating the association between the metabolic disorder and atrial myopathy

RELEVANT PUBLICATIONS

Yuan Y, Martsch P, Chen X, Martinez E, Li L, Song J, Poppenborg T, Bruns F, Kim JH, Kamler M, Martin JF, Abu-Taha I, Dobrev D, Li N. **Atrial Cardiomyocyte-Restricted Cleavage of Gasdermin D Promotes Atrial Arrhythmogenesis.** Eur Heart J. 2025 Apr 1;46(13):1250-1262. PMID: 39927987.

Li L, Coarfa C, Yuan Y, et al. **Fibroblast-Restricted Inflammasome Activation Promotes Atrial Fibrillation and Heart Failure With Diastolic Dysfunction.** JACC Basic Transl Sci. 2025;10(7):101244. PMID: 40243956.

Song J, Navarro-Garcia JA, Wu J, et al. **Chronic Kidney Disease Promotes Atrial Fibrillation via Inflammasome Pathway Activation.** J Clin Invest. 2023;133(19):e167517. Published 2023 Oct 2. PMID: 37581942.

ACADEMIC APPOINTMENTS

Professor,
Departments of Integrative Physiology and Medicine

ADDITIONAL TITLES

Director,
Cardiovascular Research Institute (CVRI)

Juanita P. Quigley Endowed Chair in Cardiology

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Baylor College of Medicine

XANDER WEHRENS, MD, PHD

PRIMARY AND SECONARY DEPT.

Integrative Physiology
Medicine - Cardiology

RESEARCH INTERESTS

- Electrophysiology and arrhythmias, in particular atrial fibrillation
- Inherited cardiomyopathies
- Gene therapy and genome editing of heart disease
- Patient-derived induced pluripotent stem cells to model cardiac diseases

RESEARCH OPPORTUNITIES FOR TRAINEES

- Elucidating mechanisms of post-operative atrial fibrillation in patient biopsies and mouse models
- Genome editing in vivo to cure inherited and acquired arrhythmia syndromes
- Patient-derived induced pluripotent stem cells to uncover mechanisms of inherited arrhythmias and cardiomyopathies
- Role of immune cells and inflammatory signaling in atrial fibrillation

RELEVANT PUBLICATIONS

Hulsurkar MM, Lahiri SK, Moore O, Moreira LM, ... Wehrens XHT. **Atrial-Specific LKB1 Knockdown Represents a Novel Mouse Model of Atrial Cardiomyopathy with Spontaneous Atrial Fibrillation.** Circulation. 2021 Sep 14;144(11):909-912. PMID: 34516304.

Moreira LM, Takawale A, Hulsurkar M, et al. **Paracrine Signalling by Cardiac Calcitonin Controls Atrial Fibrogenesis and Arrhythmia.** Nature. 2020 Nov;587(7834):460-465. PMID: 33149301.

Campbell HM, Quick AP, ... Wehrens, XHT. **Loss of SPEG Inhibitory Phosphorylation of Ryanodine Receptor Type-2 Promotes Atrial Fibrillation.** Circulation. 2020;142(12):1159-1172. PMID: 32683896.

ACADEMIC APPOINTMENTS

Associate Professor,
Departments of Medicine
and Pediatrics

ADDITIONAL TITLE

Research Health Scientist.
Center for Translational
Research on Inflammatory
Diseases (CTRID),
Michael E. DeBakey Veterans
Affairs Medical Center

CONTACT ME AT

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Baylor College of Medicine

VINOD VIJAYAN, PHD

PRIMARY DEPT., SECTION, & DIVISION

Medicine - Cardiovascular Research: Thrombosis Research

RESEARCH INTERESTS

- Platelets and thrombosis
- Lung cancer and platelets
- Platelets and sepsis
- Endothelial biology

RESEARCH OPPORTUNITIES FOR TRAINEES

- Role of platelet signaling in lung cancer metastasis
- Platelet phosphatases in sepsis

RELEVANT PUBLICATIONS

Lichtenberger LM, Vijayan KV. **Is COVID-19-Induced Platelet Activation a Cause of Concern for Patients with Cancer?** Cancer Res. 2021 Mar 1;81(5):1209-1211. Epub 2020 Dec 21. PMID: 33355186.

Yanagisawa M, Han H, ... Vijayan KV. **Protein Phosphatase 1 γ Modulates Steady-State BAD Phosphorylation and Murine Platelet Survival.** Thromb Haemost. 2023 Jun;123(6):645-648. Epub 2023 Feb 10. PMID: 36764308.

Bashir DA, Da Q, ... Vijayan KV. **Secretion of von Willebrand Factor and Suppression of ADAMTS-13 Activity by Markedly High Concentration of Ferritin.** Clin Appl Thromb Hemost. 2021 Jan-Dec;27:1076029621992128. PMID: 33539188.

ACADEMIC APPOINTMENT

Associate Professor,
Departments of Medicine and Molecular & Cellular Biology

CONTACT ME AT

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Baylor College of Medicine

SEAN M. HARTIG, PHD

PRIMARY DEPT. AND SECTION

Medicine - Endocrinology, Diabetes and Metabolism

RESEARCH INTERESTS

- Cell biology of obesity and fatty liver diseases
- Mechanisms of energy balance disorders

RESEARCH OPPORTUNITIES FOR TRAINEES

- Fundamentals of metabolism in the periphery
- Developmental biology of adipose tissue
- Endocrine contributions of adipose tissue to energy balance

RELEVANT PUBLICATIONS

Masschelin PM, Saha P, ... Hartig SM. **Vitamin B2 enables regulation of fasting glucose availability.** Elife. 2023 Jul 7;12:e84077. PMID: 37417957.

Cox AR, Masschelin PM, ... Hartig SM. **The Rheumatoid Arthritis Drug Auranofin Lowers Leptin Levels and Exerts Anti-Diabetic Effects in Obese Mice.** Cell Metab, 34:1932-1946, 2022. PMID: 36243005.

Cox AR, Chernis N, ... Hartig SM. **STAT1 Dissociates Adipose Tissue Inflammation From Insulin Sensitivity in Obesity.** Diabetes. 2020 Dec;69(12):2630-2641. PMID: 32994273.

ACADEMIC APPOINTMENT

Associate Professor and E.L. Wagner, M.D., Chair of Internal Medicine II

Section Chief, Department of Medicine

CONTACT ME AT

Mark.Herman@bcm.edu

Baylor College of Medicine

MARK A. HERMAN, MD

PRIMARY DEPT. AND SECTION

Medicine - Endocrinology, Diabetes and Metabolism

RESEARCH INTERESTS

- Fatty liver and cardiometabolic diseases
- Cellular nutrient sensing mechanisms
- Transcriptional regulation of systemic metabolism

RESEARCH OPPORTUNITIES FOR TRAINEES

- Molecular physiology of insulin resistance and fatty liver disease
- The role of excessive fructose consumption in cardiometabolic disease
- Translational metabolic studies in humans

RELEVANT PUBLICATIONS

Herman MA, Birnbaum MJ. **Molecular aspects of fructose metabolism and metabolic disease.** Cell Metab. 2021 Dec 7;33(12):2329-2354. PMID: 34619074.

Sargsyan A, Doridot L, ... Herman MA. **HGFAC is a ChREBP-regulated hepatokine that enhances glucose and lipid homeostasis.** JCI Insight. 2023 Jan 10;8(1):e153740. PMID: 36413406.

Herman MA, Peroni OD, Villoria J, et al. **A novel ChREBP isoform in adipose tissue regulates systemic glucose metabolism.** Nature. 2012 Apr 19;484(7394):333-8. PMID: 22466288.

ACADEMIC APPOINTMENT

Associate Professor,
Department of Medicine

ADDITIONAL TITLE

Lead,
HIV Metabolic Clinic,
Thomas Street Health Center

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Baylor College of Medicine

RAJAGOPAL V. SEKHAR, MD

PRIMARY DEPT. AND SECTION

Medicine - Endocrinology, Diabetes and Metabolism

RESEARCH INTERESTS

- Bioenergetics and mitochondrial metabolism in aging, diabetes and cognitive impairment
- Novel mechanistic origins of Insulin resistance
- A rethink on the pathophysiology of diabetes
- Novel approach to combating diabetic complications
- Metabolic syndrome
- Metabolic complications of HIV
- Cognitive impairment in Alzheimer's disease, HIV and diabetes
- Inflammation and endothelial dysfunction
- Non-Alcoholic Fatty Liver Disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Human clinical trials in aging, diabetes and cognitive impairment
- Rodent and cellular studies in aging, diabetes, cognitive impairment, and brain health

RELEVANT PUBLICATIONS

Kumar P, Liu C, ... Sekhar RV. **Supplementing Glycine and N-Acetylcysteine (GlyNAC) in Older Adults Improves Glutathione Deficiency, Oxidative Stress, Mitochondrial Dysfunction, Inflammation, Physical Function, and Aging Hallmarks: A Randomized Clinical Trial.** J Gerontol A Biol Sci Med Sci. 2023 Jan 26;78(1):75-89. PMID: 35975308.

Nguyen D, Samson SL, ... Sekhar RV. **Impaired mitochondrial fatty acid oxidation and insulin resistance in aging: novel protective role of glutathione.** Aging Cell. 2013 Jun;12(3):415-25. doi: 10.1111/acel.12073. Epub 2013 Apr 19. PMID: 23534396.

Sekhar RV. **GlyNAC (Glycine and N-Acetylcysteine) Supplementation Improves Impaired Mitochondrial Fuel Oxidation and Lowers Insulin Resistance in Patients with Type 2 Diabetes: Results of a Pilot Study.** Antioxidants (Basel). 2022 Jan 13;11(1):154. PMID: 35052658.

ACADEMIC APPOINTMENT

Professor,
Department of Medicine

ADDITIONAL TITLE

Staff Physician,
Medical Care Line,
Michael E. DeBakey VA Medical Center

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Dennis.Villareal@bcm.edu

Baylor College of Medicine

DENNIS T. VILLAREAL, MD

PRIMARY DEPT. AND SECTION

Medicine - Endocrinology, Diabetes and Metabolism

RESEARCH INTERESTS

- Sarcopenia
- Sarcopenic obesity
- Frailty

RESEARCH OPPORTUNITIES FOR TRAINEES

- Role of weight loss and exercise therapies in reversing sarcopenic obesity and frailty
- Mechanisms for the reversal of sarcopenic obesity/frailty and slowing of aging by lifestyle intervention therapy
- Body composition and bone quality changes in response to intensive lifestyle intervention in older adults with obesity

RELEVANT PUBLICATIONS

Colleluori G, Aguirre L, ... Villareal DT. **Aerobic Plus Resistance Exercise in Obese Older Adults Improves Muscle Protein Synthesis and Preserves Myocellular Quality Despite Weight Loss.** Cell Metab. 2019 Aug 6;30(2):261-273.e6. PMID: 31279675.

Celli A, Barnouin Y, ... Villareal DT. **Lifestyle Intervention Strategy to Treat Diabetes in Older Adults: A Randomized Controlled Trial.** Diabetes Care. 2022 Sep 1;45(9):1943-1952. PMID: 35880801.

Villareal DT, Aguirre L, Gurney AB, et al. **Aerobic or Resistance Exercise, or Both, in Dieting Obese Older Adults.** N Engl J Med. 2017 May 18;376(20):1943-1955. PMID: 28514618.

ACADEMIC APPOINTMENT

Professor,
Department of Medicine

ADDITIONAL TITLE

Staff Physician,
Medical Care Line,
Michael E. DeBakey VA Medical Center

CONTACT ME AT

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Baylor College of Medicine

REINA VILLAREAL, MD

PRIMARY DEPT. AND SECTION

Medicine - Endocrinology, Diabetes and Metabolism

RESEARCH INTERESTS

- Effect of weight loss and inhibition of aromatase activity on hormonal profile in severely obese men with hypogonadism
- Bone quality in patients with type 2 diabetes mellitus
  - Effect of testosterone therapy on bone metabolism of men with type 2 diabetes and hypogonadism
- Bone metabolism in obese metabolically healthy and unhealthy adults

RESEARCH OPPORTUNITIES FOR TRAINEES

- Aromatase inhibitors and weight loss in severely obese men with hypogonadism
- Testosterone therapy and bone quality in men with diabetes mellitus and hypogonadism
- A comparison of bone health in metabolically healthy and metabolically unhealthy obese adults

RELEVANT PUBLICATIONS

Colleluori G, Aguirre L, ... Armamento-Villareal R. **Testosterone Therapy Effects on Bone Mass and Turnover in Hypogonadal Men with Type 2 Diabetes.** J Clin Endocrinol Metab. 2021 Jul 13;106(8):e3058-e3068. PMID: 33735389.

Vigevano F, Gregori G, ... Armamento-Villareal R. **In Men With Obesity, T2DM Is Associated With Poor Trabecular Microarchitecture and Bone Strength and Low Bone Turnover.** J Clin Endocrinol Metab. 2021 Apr 23;106(5):1362-1376. PMID: 33537757.

Colleluori G, Chen R, ... Armamento-Villareal R. **Aromatase Inhibitors Plus Weight Loss Improves the Hormonal Profile of Obese Hypogonadal Men Without Causing Major Side Effects.** Front Endocrinol (Lausanne). 2020 May 15;11:277. PMID: 32499757.

ACADEMIC APPOINTMENT

Associate Professor,
Department of Medicine

ADDITIONAL TITLE

Investigator,
Research Service Line,
Michael E. DeBakey VA Medical Center

CONTACT ME AT

Aaron.Thrift@bcm.edu

Baylor College of Medicine

AARON P. THRIFT, PHD

PRIMARY DEPT. AND SECTION

Medicine - Epidemiology and Population Sciences

RESEARCH INTERESTS

- Epidemiology and outcomes of gastrointestinal cancers and pre-cancer conditions
- Genetic epidemiology
- Risk prediction
- Descriptive epidemiology
- Systematic review and meta-analysis

RESEARCH OPPORTUNITIES FOR TRAINEES

- Trends in cancer burden
- Obesity, alcohol, and cancer risk
- Germline genetics of advanced liver disease in minority populations

RELEVANT PUBLICATIONS

Dong J, Buas MF, ... Thrift AP. (2018). **Determining Risk of Barrett's Esophagus and Esophageal Adenocarcinoma Based on Epidemiologic Factors and Genetic Variants.** Gastroenterology. 154(5):1273-1281.e3. PMID 29247777.

Dong J, Levine DM, ... Thrift AP. **Interactions Between Genetic Variants and Environmental Factors Affect Risk of Esophageal Adenocarcinoma and Barrett's Esophagus.** Clin Gastroenterol Hepatol. 16(10):1598-1606.e4. PMID 29551738.

Cotton CC, Haidry R, Thrift AP, et al. (2018). **Development of Evidence-Based Surveillance Intervals After Radiofrequency Ablation of Barrett's Esophagus.** Gastroenterolgy. 155(2):316-326.e6. PMID 29655833.

ACADEMIC APPOINTMENTS

Professor and Chair,
Margaret M. and Albert B. Alkek Department of Medicine

Vice President,
Learning Health System

ADDITIONAL TITLES

Director,
Texas Medical Center Digestive Diseases Center (TMC DDC)

Adjunct Professor, University of Texas School of Public Health

Director, Texas Collaborative Center for Hepatocellular Cancer

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HashemE@bcm.edu

Baylor College of Medicine

HASHEM EL-SERAG, MD, MPH

PRIMARY DEPT. AND SECTION

Medicine - Gastroenterology and Hepatology

RESEARCH INTERESTS

- Epidemiology and outcomes of digestive disorders especially:
  - Barrett's esophagus
  - Viral hepatitis
  - Chronic liver disease
  - Hepatocellular carcinoma
  - Dyspepsia and gastroesophageal reflux disease
- Screening and surveillance of GI and liver cancers

RESEARCH OPPORTUNITIES FOR TRAINEES

- Risk factors of hepatocellular carcinoma
- Biomarkers of hepatocellular carcinoma
- Prevalence and risk factors for non-alcoholic fatty liver disease
- Predictive algorithms for surveillance and diagnosis of hepatocellular carcinoma
- Risk factors for Barrett's esophagus progression into cancer

RELEVANT PUBLICATIONS

Tayob N, Corley DA, ... El-Serag HB. **Validation of the Updated Hepatocellular Carcinoma Early Detection Screening Algorithm in a Community-Based Cohort of Patients With Cirrhosis of Multiple Etiologies.** Clin Gastroenterol Hepatol. 2021 Jul;19(7):1443-1450.e6. PMID: 32768590.

Nguyen TH, Thrift AP, Rugge M, El-Serag HB. **Prevalence of Barrett's esophagus and performance of societal screening guidelines in an unreferred primary care population of U.S. veterans.** Gastrointest Endosc. 2021 Feb;93(2):409-419.e1. PMID: 32565183.

Thrift AP, Kanwal F, ... El-Serag HB. **Risk stratification for hepatocellular cancer among patients with cirrhosis using a hepatic fat polygenic risk score.** PLoS One. 2023 Feb 28;18(2):e0282309. PMID: 36854015.

ACADEMIC APPOINTMENTS

Distinguished Service Professor,
Department of Molecular Virology & Microbiology

Cullen Foundation Endowed Chair

ADDITIONAL TITLES

Emeritus Founding Director, Texas Medical Center Digestive Diseases Center (DDC)

Co-Director, Gastrointestinal Experimental Model Systems (GEMS) Core, Texas Medical Center DDC

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Baylor College of Medicine

MARY K. ESTES, PHD

PRIMARY DEPTS. AND SECTIONS

Molecular Virology & Microbiology
Medicine - Gastroenterology and Hepatology, Infectious Diseases

RESEARCH INTERESTS

- GI virus (Norovirus and Rotavirus) pathogenesis
- Gastrointestinal virus vaccines
- Human organoid models for understanding health and disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Host factors that restrict or enhance GI virus infections
- Antivirals to treat chronic GI virus infection
- Bile and host receptors that regulate GI virus infection

RELEVANT PUBLICATIONS

Murakami K, Tenge VR, ... Estes MK. **Bile acids and ceramide overcome the entry restriction for GII.3 human norovirus replication in human intestinal enteroids.** Proc Natl Acad Sci U S A. 2020 Jan 21;117(3):1700-1710. Epub 2020 Jan 2. Erratum in: Proc Natl Acad Sci U S A. 2020 Jul 7;117(27):16084. PMID: 31896578.

Blutt SE, Crawford SE, ... Estes MK. **Use of human tissue stem cell-derived organoid cultures to model enterohepatic circulation.** Am J Physiol Gastrointest Liver Physiol. 2021 Sep 1;321(3):G270-G279. Epub 2021 Jul 21. PMID: 34288725.

Blutt SE, Estes MK. **Organoid Models for Infectious Disease.** Annu Rev Med. 2022 Jan 27;73:167-182. Epub 2021 Oct 13. PMID: 34644153.

ACADEMIC APPOINTMENTS

Professor and Section Chief,
Department of Medicine

ADDITIONAL TITLES

Editor-in-Chief,
Clinical Gastroenterology and Hepatology

Co-Director,
Texas Medical Center Digestive Diseases Center (TMC DDC) for Gastrointestinal Development, Infection, and Injury

Investigator,
Clinical Epidemiology and Comparative Effectiveness Program,
Center for Innovations in Quality, Effectiveness and Safety (IQuESt),
Michael E. DeBakey VA Medical Center

CONTACT ME AT

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Baylor College of Medicine

FASIHA KANWAL, MD, MSHS

PRIMARY DEPT. AND SECTION

Medicine - Gastroenterology and Hepatology

RESEARCH INTERESTS

- Chronic liver disease
- Patient centered care
- Quality improvement
- Structure, processes, and outcomes of care
- Use of large databases to conduct high quality observational studies to address clinical questions pertaining to liver disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Patient centered care for individuals with advanced liver disease
- Quality of care for patients with liver diseases
- Risk and risk factors for progression to clinically meaningful outcomes in patients with chronic liver diseases (metabolic dysfunction associated steatotic liver disease, alcohol related liver disease, hepatitis B, hepatitis C, and cirrhosis)
- Prevention and early detection of hepatocellular cancer

RELEVANT PUBLICATIONS

Kanwal F, Tapper EB, Ho C, et al. (2019). **Development of Quality Measures in Cirrhosis by the Practice Metrics Committee of the American Association for the Study of Liver Diseases.** Hepatology. 69(4):1787-1797. PMID 30586188.

Kanwal F, Kramer JR, Mapakshi S, et al. (2018). **Risk of Hepatocellular Cancer in Patients With Non-Alcoholic Fatty Liver Disease.** Gastroenterology. 155 (6):1828-1837.e2. PMID 30144434.

Kanwal F, Hernaez R, Liu Y, et al. **Factors Associated With Access to and Receipt of Liver Transplantation in Veterans With End-stage Liver Disease.** JAMA Intern Med. 2021 Jul 1;181(7):949-959. PMID: 34028505.

ACADEMIC APPOINTMENT

Herman Brown Endowed Professor and Chief of Research,
Department of Medicine

ADDITIONAL TITLE

Co-Director,
Texas Medical Center Digestive Disease Center (TMC DDC)

CONTACT ME AT

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Baylor College of Medicine

JASON MILLS, MD, PHD

PRIMARY DEPT. AND SECTION

Medicine - Gastroenterology and Hepatology

RESEARCH INTERESTS

- Metaplasia
- Precancerous lesions
- Molecular/cellular tumorigenesis
- Gastrointestinal (GI) stem cells
- GI inflammation
- GI repair and regeneration
- Barrett's esophagus
- Patient-derived organoids
- Multi-omics approach to disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Using patient-derived organoids to study tumorigenesis and metaplasia
- Understanding conserved mechanisms underlying recruitment of stem cells for regeneration and tumorigenesis (aka paligenosis)
- Stem cell differentiation into GI functional lineages (e.g., parietal cells and chief cells)

RELEVANT PUBLICATIONS

Miao ZF, Sun JX, ... Mills JC. **DDIT4 licenses only healthy cells to proliferate during injury-induced metaplasia.** Gastroenterology 2021. 160:260-271. PMID: 32956680.

Miao ZF, Lewis MA, ... Mills JC. **A Dedicated Evolutionarily Conserved Molecular Network Licenses Differentiated Cells to Return to the Cell Cycle.** Dev Cell. 2020 55:178-194. PMID: 32768422.

Miao ZF, Adkins-Threats M, ... Mills JC. **A Metformin-Responsive Metabolic Pathway Controls Distinct Steps in Gastric Progenitor Fate Decisions and Maturation.** Cell Stem Cell. 2020 26:910-925 PMID: 32243780.

ACADEMIC APPOINTMENTS

Professor and Section Chief,
Department of Medicine

ADDITIONAL TITLES

Associate Chief of Staff for Research,
Michael E. DeBakey VA Medical Center

Director,
Center for Innovations in Quality, Effectiveness, and Safety (IQuESt),
Michael E. DeBakey VA Medical Center

CONTACT ME AT

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Baylor College of Medicine

LAURA A. PETERSEN, MD, MPH

PRIMARY DEPT. AND SECTION

Medicine - Health Services Research

RESEARCH INTERESTS

- Assessing how health care policy, organization, and financing affects the quality and safety of health care
- Health care quality measurement methods
- Implementing research into practice

RESEARCH OPPORTUNITIES FOR TRAINEES

- Measuring quality and value in health care
- Studying impacts of policies such as Medicaid expansion on health care quality
- Identifying optimal nurse staffing in the hospital using big data

RELEVANT PUBLICATIONS

Petersen LA, Simpson K, Pietz K, et al. **Effects of individual physician-level and practice-level financial incentives on hypertension care: a randomized trial.** JAMA. 2013 Sep 11;310(10):1042-50. PMID: 24026599.

Knox MK, Mehta PD, ... Petersen LA. **A Novel Use of Bar Code Medication Administration Data to Assess Nurse Staffing and Workload.** Appl Clin Inform. 2022 Dec 6. PMID: 36473498.

O'Mahen P, Petersen LA. (2021). **To Battle COVID-19's Twin Economic and Health Crises, Medicaid Needs Flexible Funding Structures for Stabilization.** J Gen Intern Med. 36(4):1067-70. PMID 33483809.

ACADEMIC APPOINTMENT

Professor,
Department of Medicine

ADDITIONAL TITLES

Chief,
Health Policy, Quality and Informatics
Center for Innovations in Quality, Effectiveness and Safety (IQuESt),
Michael E. DeBakey VA Medical Center

Director,
Diagnosis Improvement Safety Center (DISCovery)

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Baylor College of Medicine

HARDEEP SINGH, MD, MPH

PRIMARY DEPT. AND SECTION

Medicine - Health Services Research

RESEARCH INTERESTS

- Understanding and reducing diagnostic errors
- Use of health information technology to improve health care
- Safety of electronic health record implementation and use

RESEARCH OPPORTUNITIES FOR TRAINEES

- Measurement of patient safety outcomes, including missed, delayed and incorrect diagnosis using multiple methods
- Research on health care improvement strategies and implementation science

RELEVANT PUBLICATIONS

Sittig DF, Singh H. (2012). **Electronic Health Records and National Patient-Safety Goals.** N Engl J Med. 367 (19): 1854-60. PMID 23134389.

Singh H, Graber ML. (2015). **Improving Diagnosis in Health Care - The Next Imperative for Patient Safety.** N Engl J Med. 373 (26): 2493-5. PMID 26559457.

Singh H, Giardina TD, Meyer AN, et al. (2013). **Types and Origins of Diagnostic Errors in Primary Care Settings.** JAMA Intern Med. 173 (6): 418-25. PMID 23440149.

ACADEMIC APPOINTMENTS

Assistant Professor,
Department of Molecular & Cellular Biology

Assistant Professor (adjunct),
Department of Bioengineering,
Rice University

ADDITIONAL TITLES

Member,
Dan L. Duncan Cancer Center

CPRIT Scholar

V Scholar,
Baylor College of Medicine

Member,
Center for Cancer Epigenetics,
MD Anderson Cancer Center

CONTACT ME AT

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Baylor College of Medicine

H. COURTNEY HODGES, PHD

PRIMARY DEPARTMENT

Molecular & Cellular Biology

RESEARCH INTERESTS

- Epigenetic dysfunction in pediatric and adult malignancies
- Chromatin biology and transcription
- Drug development and chemical biology
- Disordered protein in gene regulation

RESEARCH OPPORTUNITIES FOR TRAINEES

- Mechanisms and vulnerabilities related to transcriptional deregulation in pediatric and adult malignancies
- Translational studies of emerging small-molecule therapeutics targeting chromatin regulatory systems
- Drug development involving bifunctional molecules
- The contributions of disordered protein towards gene regulation

RELEVANT PUBLICATIONS

Chambers C, Cermakova K, ... Hodges HC. **SWI/SNF Blockade Disrupts PU.1-Directed Enhancer Programs in Normal Hematopoietic Cells and Acute Myeloid Leukemia.** Cancer Res. 2023 Apr 4;83(7):983-996. PMID: 36662812.

Smith EA, Hodges HC. **The Spatial and Genomic Hierarchy of Tumor Ecosystems Revealed by Single-Cell Technologies.** Trends Cancer. 2019 Jul;5(7):411-425. PMID: 31311656.

Cermakova K, Demeulemeester J, Lux V, et al. **A ubiquitous disordered protein interaction module orchestrates transcription elongation.** Science. 2021 Nov 26;374(6571):1113-1121. PMID: 34822292.

ACADEMIC APPOINTMENT

Assistant Professor,
Center for Cell and Gene Therapy,
Lester and Sue Smith Breast Center

ADDITIONAL TITLES

Program Director,
Cell and Gene Therapy (CAGT) Summer Research Internship Program

Member,
Dan L. Duncan Comprehensive Caner Center (DLDCCC)

CONTACT ME AT

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Baylor College of Medicine

VALENTINA HOYOS, MD

PRIMARY DEPT. AND SECTION

Medicine - Hematology and Oncology

RESEARCH INTERESTS

- Cellular and gene therapies
- Immunotherapies for breast cancer
- T cell genetic engineering

RESEARCH OPPORTUNITIES FOR TRAINEES

- Adoptive T cell therapies for the treatment of breast cancer
- Genetic engineering of T cells to enhance their anti-tumor function
- Overcoming the immune-suppressive breast cancer microenvironment

RELEVANT PUBLICATIONS

Hoyos V, Vasileiou S, Kuvalekar M, et al. **Multi-Antigen-Targeted T-Cell Therapy to Treat Patients with Relapsed/Refractory Breast Cancer.** Ther Adv Med Oncol. 2022 Jul 15;14:17588359221107113. PMID: 35860837.

Shafer P, Kelly LM, Hoyos V. **Cancer Therapy with TCR-Engineered T Cells: Current Strategies, Challenges, and Prospects.** Front Immunol. 2022 Mar 3;13:835762. PMID: 35309357.

Nalawade SA, Shafer P, ... Hoyos V. **Selectively Targeting Myeloid-Derived Suppressor Cells through TRAIL Receptor 2 to Enhance the Efficacy of CAR T Cell Therapy for Treatment of Breast Cancer.** J Immunother Cancer. 2021 Nov;9(11):e003237. PMID: 34815355.

ANG LI, MD, MS

ACADEMIC APPOINTMENT

Assistant Professor,
Department of Medicine

CONTACT ME AT

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PRIMARY DEPT. AND SECTION

Medicine - Hematology and Oncology

RESEARCH INTERESTS

- Natural language processing and machine learning methods
- Clinical epidemiology and health services research via multi-institutional EHR and claims databases
- Topic area: cancer associated thrombosis (thrombosis/hemostasis in general)
- Topic area: transplant associated thrombotic microangiopathy

RESEARCH OPPORTUNITIES FOR TRAINEES

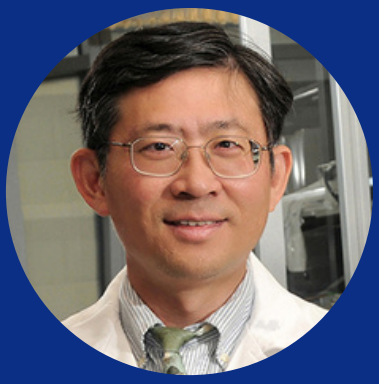
- Development of NLP driven clinically validated computable phenotypes in thrombosis/hemostasis
- Disparity and outcomes research in patients with cancer
- Comparative effectiveness research in thrombosis/hemostasis
- Implementation research to develop patient-centric clinical decision support tools

RELEVANT PUBLICATIONS

Martens KL, Li A, La J, et al. **Epidemiology of Cancer-Associated Venous Thromboembolism in Patients With Solid and Hematologic Neoplasms in the Veterans Affairs Health Care System.** JAMA Netw Open. 2023 Jun 1;6(6):e2317945. PMID: 37306999.

Li A, May SB, La J, et al. Venous thromboembolism risk in cancer patients receiving first-line immune checkpoint inhibitor versus chemotherapy. Am J Hematol. 2023 Aug;98(8):1214-1222. PMID: 37161855.

Li A, De Las Pozas G, Andersen CR, et al. **External validation of a novel electronic risk score for cancer-associated thrombosis in a comprehensive cancer center.** Am J Hematol. 2023 Jul;98(7):1052-1057. PMID: 37067102.



ACADEMIC APPOINTMENTS

Professor,
Departments of Medicine and Molecular & Cellular Biology

ADDITIONAL TITLES

Program Director,
Oncology Scholar Training Program

Co-Director,
Program in Integrative Molecular and Biomedical Sciences

Co-Director, Program in Cancer & Cell Biology Graduate Program

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Baylor College of Medicine

WEEI-CHIN LIN, MD, PHD

PRIMARY DEPT. AND SECTION

Medicine - Hematology and Oncology

RESEARCH INTERESTS

- Cell cycle regulation
- Development of cancer therapeutics
- Clinical hematology

RESEARCH OPPORTUNITIES FOR TRAINEES

- Mechanisms of cell cycle and DNA replication checkpoint defects in cancer
- Mechanisms of breast cancer metastasis and loss of estrogen receptor
- Novel targeted therapies against mutant p53 in breast cancer and ovarian cancer
- Developing novel synthetic lethal targeted therapy for cancer
- New biomarker and therapeutic target for platinum resistance in lung cancer
- New strategies to reverse the resistance to immune checkpoint inhibitors

RELEVANT PUBLICATIONS

Garan LA, Xiao Y, Lin WC. **14-3-3tau drives estrogen receptor loss via ERalpha36 induction and GATA3 inhibition in breast cancer.** Proc Natl Acad Sci U S A. 2022 Oct 25;119(43):e2209211119. PMID: 36252018.

Ho SR, Lee YC, Ittmann MM, Lin FT, Chan KS, Lin WC. **RNF144A deficiency promotes PD-L1 protein stabilization and carcinogen-induced bladder tumorigenesis.** Cancer Lett. 2021 Nov 1;520:344-360. PMID: 34400221.

Xiao Y, Lin FT, Lin WC. **ACTL6A promotes repair of cisplatin-induced DNA damage, a new mechanism of platinum resistance in cancer.** Proc Natl Acad Sci U S A. 2021 Jan 19;118(3):e2015808118. PMID: 33408251.

ACADEMIC APPOINTMENT

Associate Professor,
Center for Cell and Gene Therapy,
Department of Medicine

ADDITIONAL TITLES

Faculty,
Translational Biology and Molecular Medicine Graduate Program

Member,
Dan L. Duncan Comprehensive Caner Center (DLDCCC)

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Baylor College of Medicine

PREMAL LULLA, MBBS

PRIMARY DEPT. AND SECTION

Medicine - Hematology and Oncology

RESEARCH INTERESTS

- T cell immunotherapy
- Hematopoietic stem cell transplants

RESEARCH OPPORTUNITIES FOR TRAINEES

- Immune reconstitution post-allogeneic hematopoeitic stem cell transplantation
- Identification of novel leukemia antigens for T cell immunotherapy
- Clonal hematopoesis and its effects on adaptive immunity

RELEVANT PUBLICATIONS

Lulla PD, Naik S, Vasileiou S, et al. **Clinical Effects of Administering Leukemia-Specific Donor T Cells to Patients with AML/MDS after Allogeneic Transplant.** Blood. 2022 Feb 24;139(8):1257. Erratum for: Blood. 2021 May 13;137(19):2585-2597. PMID: 35201328.

Lulla PD, Tzannou I, Vasileiou S, et al. **The Safety and Clinical Effects of Administering a Multiantigen-Targeted T Cell Therapy to Patients with Multiple Myeloma.** Sci Transl Med. 2020 Jul 29;12(554):eaaz3339. PMID: 32727914.

Vasileiou S, Hill L, ... Lulla P. **Allogeneic, off-the-shelf, SARS-CoV-2-specific T cells (ALVR109) for the treatment of COVID-19 in high-risk patients.** Haematologica. 2023 Jul 1;108(7):1840-1850. PMID: 36373249.

ACADEMIC APPOINTMENT

Assistant Professor,
Center for Cell and Gene Therapy,
Department of Medicine

ADDITIONAL TITLE

Member,
Dan L. Duncan Comprehensive Caner Center (DLDCCC)

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CARLOS RAMOS, MD

PRIMARY DEPT. AND SECTION

Medicine - Hematology and Oncology

RESEARCH INTERESTS

- Hematopoietic stem cell transplantation
- Chimeric antigen receptors for cancer therapy
- Cellular therapy for virus-associated tumors

RESEARCH OPPORTUNITIES FOR TRAINEES

- CD19-CAR iNKT cells as therapy for B cell lymphomas
- Allogeneic CD30-CAR T cells as therapy for Hodgkin lymphoma
- Cellular therapy for virus-associated tumors

RELEVANT PUBLICATIONS

Ramos CA, Grover NS, Beaven AW, et al. **Anti-CD30 CAR-T Cell Therapy in Relapsed and Refractory Hodgkin Lymphoma.** J Clin Oncol. 2020 Nov 10;38(32):3794-3804. PMID: 32701411.

Ramos CA, Rouce R, Robertson CS, et al. **In Vivo Fate and Activity of Second- versus Third-Generation CD19-Specific CAR-T Cells in B Cell Non-Hodgkin's Lymphomas.** Mol Ther. 2018 Dec 5;26(12):2727-2737. PMID: 30309819.

Gomes-Silva D, Ramos CA. **Cancer Immunotherapy Using CAR-T Cells: From the Research Bench to the Assembly Line.** Biotechnol J. 2018 Feb;13(2):10.1002/biot.201700097. PMID: 28960810.

ACADEMIC APPOINTMENT

Professor and Director,
Dan L. Duncan Comprehensive Cancer Center

ADDITIONAL TITLE

Senior Associate Dean,
Cancer Programs,
Dan L. Duncan Comprehensive Cancer Center

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Baylor College of Medicine

PAVAN REDDY, MD

PRIMARY DEPT. AND SECTION

Dan L. Duncan Comprehensive Cancer Center

RESEARCH INTERESTS

- Transplant and cancer Immunology
- Allogeneic stem cell transplantation
- Epithelial cell biology

RESEARCH OPPORTUNITIES FOR TRAINEES

- Interface of microbiome and host tissues (GI tract and stem cells) in immune mediated GI diseases like GI GVHD and IBD
- Cellular- molecular biology and 3D genomic architecture T cell subsets and dendritic cells
- Mitochondrial biology
- Develop and perform clinical trials informed by laboratory insights.

RELEVANT PUBLICATIONS

Peltier D, Radosevich M, ... Reddy P. **RNA-seq of Human T-Cells after Hematopoietic Stem Cell Transplantation Identifies Linc00402 as a Novel Regulator of T-Cell Alloimmunity.** Science Translational Medicine. 2021 Mar 17;13(585):eaaz0316. PMID: 33731431.

Fujiwara H, Seike K, ... Reddy P. **Mitochondrial Complex II In Intestinal Epithelial Cells Regulates T-cell Mediated Immunopathology.** Nature Immunology. 2021 Nov;22(11):1440-1451. PMID: 34686860.

Sun Y, Dotson GA, ... Reddy P. **Rearrangement of T Cell Genome Architecture Regulates GVHD.** iScience. 2022 Aug 6;25(9):104846.). PMID: 36043052.

ACADEMIC APPOINTMENT

Professor,
Departments of Pediatrics, Molecular Virology and Microbiology, and Pathology

ADDITIONAL TITLE

Director,
Translational Biology and Molecular Medicine (TBMM) Graduate Program

Director,
Translational Research Laboratories,
Center for Cell and Gene Therapy

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Baylor College of Medicine

CLIONA M. ROONEY, PhD

PRIMARY DEPT. AND SECTION

Pediatrics - Hematology and Oncology

RESEARCH INTERESTS

- Allog-cell immunotherapy for virus-associated diseases and malignancies
- Improving the function and survival of T-cell immunotherapies
- Virus-specific T-cells
- Overcoming CAR T-cell mediated toxicity

RESEARCH OPPORTUNITIES FOR TRAINEES

- Enhancement of CAR-modified Epstein-Barr virus-specific T-cells in the patient using epigenetic activation of EBV
- Targeting the tumor environment to enhance therapeutic T-cell functions

RELEVANT PUBLICATIONS

Sharma S, Woods M, ... Rooney CM. **Naive T cells inhibit the outgrowth of intractable antigen-activated memory T cells: implications for T-cell immunotherapy.** J Immunother Cancer. 2023 Apr;11(4):e006267. PMID: 37072346.

Sauer T, Parikh K, ... Rooney CM. **CD70-specific CAR T-cells have potent activity against Acute Myeloid Leukemia (AML) without HSC toxicity.** Blood. 2021 Jul 29;138(4):318-330. PMID: 34323938.

Quach DH, Becerra-Dominguez L, Rouce RH, Rooney CM. **A Strategy to protect off-the-shelf cell therapy products using virus-specific T-cells engineered to eliminate alloreactive T-cells.** J Transl Med 2019 Jul 24;17(1):240. PMID: PMID: 31340822.

ACADEMIC APPOINTMENTS

Professor,
Departments of Medicine and Pathology & Immunology

Vice Chair for Immunology,
Department of Pathology & Immunology

ADDITIONAL TITLE

Staff Physician,
Immunology,
Medical Care Line,
Michael E. DeBakey VA Medical Center

CONTACT ME AT

DCorry@bcm.edu

Baylor College of Medicine

DAVID B. CORRY, MD

PRIMARY DEPT. AND SECTION

Medicine - Immunology, Allergy, and Rheumatology

RESEARCH INTERESTS

- Allergic airway disease
- Fungi
- Dementia
- Emphysema
- MicroRNAs

RESEARCH OPPORTUNITIES FOR TRAINEES

- Fungal pathogenesis of allergic airway disease
- Fungal pathogenesis of chronic cerebritis and dementia
- MicroRNA-dependent control of inflammatory lung disease
- Design and testing of novel antifungal agents

RELEVANT PUBLICATIONS

Grunig G, Warnock M, ... Corry DB. (1998). **Requirement for IL-13 Independently of IL-4 in Experimental Asthma.** Science. 282:(5397) 2261-2263. PMID 9856950.

Lee S-H, Goswami S, Grudo A, et al. (2007). **Anti-Elastin Autoimmunity in Tobacco Smoking-Induced Emphysema.** Nat Med. 13:(5)567-569. PMID 17450149.

Wu Y, Zeng Z, ... Corry DB. **Candida albicans elicits protective allergic responses via platelet mediated T helper 2 and T helper 17 cell polarization.** Immunity. 2021 Nov 9;54(11):2595-2610.e7. PMID: 34506733.

ACADEMIC APPOINTMENT

Professor,
Department of Medicine

ADDITIONAL TITLES

Director,
Clinical Allergy and Immunology Services in Section of Immunology, Allergy and Rheumatology

Nancy Chang Chair and Director,
Human Immunology Research Biology of Inflammation Center

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Baylor College of Medicine

SANJIV SUR, MD

PRIMARY DEPT. AND SECTION

Medicine - Immunology, Allergy, and Rheumatology

RESEARCH INTERESTS

- Regulation and immunomodulation of Th2 and Th17 inflammation
- Role of DNA damage, DNA sensing, and DNA repair in regulation of innate and allergic inflammation
- Molecular mechanisms of DNA damage, DNA sensing, and DNA repair in human early and late phase responses induced by pollens in an allergen challenge chamber
- Role of DNA damage, DNA sensing, and DNA repair in Alzheimer's disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Immune and molecular mechanisms of asthma and allergic lung inflammation
- Role of epigenetics, DNA damage, DNA sensing, and DNA repair in allergic inflammation and Alzheimer's disease

RELEVANT PUBLICATIONS

Hosoki K, Redding D, ... Sur S. **Innate mechanism of pollen- and cat dander-induced oxidative stress and DNA damage in the airways.** J Allergy Clin Immunol. 2017 Nov;140(5):1436-1439.e5. Epub 2017 Jun 2. PMID: 28583369.

Hosoki K, Boldogh I, ... Sur S. **Myeloid differentiation protein 2 facilitates pollen- and cat dander-induced innate and allergic airway inflammation.** J Allergy Clin Immunol. 2016 May;137(5):1506-1513.e2. Epub 2015 Nov 14. PMID: 26586036.

Boldogh I, Bacsi A, ... Sur S. **ROS generated by pollen NADPH oxidase provide a signal that augments antigen-induced allergic airway inflammation.** J Clin Invest. 2005 Aug;115(8):2169-79. PMID: 16075057.

ACADEMIC APPOINTMENT

Senior Faculty and Section Chief, Department of Medicine

CONTACT ME AT

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Baylor College of Medicine

JASVINDER SINGH, MD, MPH

PRIMARY DEPT. AND SECTION

Medicine - Immunology, Allergy, and Rheumatology

RESEARCH INTERESTS

- Assessment of pain, function and quality of life in patients with various types of arthritis, including gout, rheumatoid arthritis and joint replacement
- Epidemiology and outcomes of rheumatic diseases using large public database such as NIS, NHANES, NEDS, etc.
- Trials of comparative effectiveness in rheumatoid arthritis

RESEARCH OPPORTUNITIES FOR TRAINEES

- Epidemiology and outcomes of rheumatic diseases using large public database such as NIS, NHANES, NEDS, etc.
- Secondary data analyses on patient decision-aid for decision making for immunosuppressives in people with lupus
- Systematic reviews of treatments and behavioral interventions in people with rheumatic diseases

RELEVANT PUBLICATIONS

Singh JA, Cameron C, Noorbaloochi S, ... Wells GA. **Risk of serious infection in biological treatment of patients with rheumatoid arthritis: a systematic review and meta-analysis.** Lancet. 2015 Jul 18;386(9990):258-65. Epub 2015 May 11. PMID: 25975452; PMCID: PMC4580232.

Strand V, Singh JA. **Improved health-related quality of life with effective disease-modifying antirheumatic drugs: evidence from randomized controlled trials.** Am J Manag Care. 2008 Apr;14(4):234-54. PMID: 18415967.

Hearld L, Hall A, Kelly RJ, Karabukayeva A, Singh J. **Organizational context and the learning and change readiness climate for implementing an evidence-based shared decision-making aid in US rheumatology clinics.** J Health Organ Manag. 2021 Jul 8. PMID: 34232597.

ACADEMIC APPOINTMENT

Assistant Professor,
Departments of Medicine and Pediatrics

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Baylor College of Medicine

ANDREW DINARDO, MD, PHD

PRIMARY AND SECONDARY DEPT.

Pediatrics - Global Health
Medicine - Infectious Diseases

RESEARCH INTERESTS

- Immunology of co-infection
- Tuberculosis
- Epigenetic regulation of immunity
- HIV
- Global health

RESEARCH OPPORTUNITIES FOR TRAINEES

- Basic & translational science investigations of epigenetic regulation of host immunity
- Basic & translational science investigations of metabolic mediators of epigenetic-mediated immune suppression
- Clinical global health research in post-Tuberculosis (TB) cardiovascular disease, lung disease, and mortality
- Studies to mitigate helminth induced loss of vaccine immunity

RELEVANT PUBLICATIONS

DiNardo AR, Netea MG, Musher D. (2021). **Post-Infectious Epigenetic Immune Modifications: A Double-Edged Sword.** NEJM; 2021. The New England Journal of Medicine. 384(3), 261–270. PMID 33471978.

DiNardo AR, Rajapakshe K, Nishiguchi T, et al. (2020). **DNA Hyper-Methylation During Tuberculosis Dampens Host Immune Responsiveness.** Journal of Clinical Investigation. 130(6), 3113–3123. PMID 3215282.

Bobak C, Abhimanyu, Natarajan H, et al. (2022). **DNA Hypermethylation, Cellular Senescence, and Premature Epigenetic Aging in Humans and Guinea Pigs with Tuberculosis.** Aging. 14(5), 2174–2193. PMID 35256539.

ACADEMIC APPOINTMENTS

Professor and Section Chief, Department of Medicine

ADDITIONAL TITLES

Director, Texas Developmental Center for AIDS Research

Chief, Clinical Effectiveness and Population Health Program, Center for Innovations in Quality, Effectiveness and Safety (IQuESt), Michael E. DeBakey VA Medical Center

CONTACT ME AT

TPG@bcm.edu

Baylor College of Medicine

THOMAS P. GIORDANO, MD, MPH

PRIMARY DEPT. AND SECTIONS

Medicine - Infectious Diseases

RESEARCH INTERESTS

- HIV clinical, outcomes and health services research
- Adherence and retention in HIV care
- HIV epidemiology and public health
- Ending the HIV epidemic
- HIV-related comorbidities

RESEARCH OPPORTUNITIES FOR TRAINEES

- Developing and testing interventions to improve retention in HIV care
- Measuring adherence and retention in HIV care
- Developing and testing epidemiology and health delivery strategies to end the HIV epidemic

RELEVANT PUBLICATIONS

Giordano TP, Cully J, Amico KR, et al. **A Randomized Trial to Test a Peer Mentor Intervention to Improve Outcomes in Persons Hospitalized With HIV Infection.** Clin Infect Dis. 2016 Sep 1;63(5):678-686. Epub 2016 May 23. PMID: 27217266.

English K, May SB, ... Giordano TP. **Retention in Care and Viral Load Improvement After Discharge Among Hospitalized Out-of-Care People With HIV Infection: A Post Hoc Analysis of a Randomized Controlled Trial.** Open Forum Infect Dis. 2020 May 26;7(6):ofaa193. eCollection 2020 Jun. PMID: 32550239.

White DAE, Anderson ES, Basham K, et al. **Clinical Utility of the Signal-to-Cutoff Ratio of Reactive HIV Antigen/Antibody Screening Tests in Guiding Emergency Physician Management.** J Acquir Immune Defic Syndr. 2022 Mar 1;89(3):332-339. PMID: 35147582.

ACADEMIC APPOINTMENTS

E. L. Wagner Endowed Professor,
Department of Medicine

Professor, Department of Molecular Virology and Microbiology and Huffington Center for Aging

ADDITIONAL TITLES

Chief of Basic and Translational Research,
Section of Infectious Diseases,
Department of Medicine

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Baylor College of Medicine

INDIRA MYSOREKAR, PHD

PRIMARY DEPT. AND SECTIONS

Medicine - Infectious Diseases

RESEARCH INTERESTS

- Urinary tract infections and mucosal immunity in the urinary bladder
- Viral infections in pregnancy (Zika virus, SARS-CoV-2, HIV)
- Maternal microbiome, fetal immunity, and reproductive immunology
- Infectious disease mechanisms

RESEARCH OPPORTUNITIES FOR TRAINEES

- Using bladder organoids to test drivers of aging and means to reverse age -associated changes
- Testing how SARS-CoV-2 infection alters placental barrier function
- Investigate how ZIKA virus traffics to protected cells

RELEVANT PUBLICATIONS

Verma S, Joshi CS, ... Mysorekar IU. **SARS-CoV-2 colonization of maternal and fetal cells of the human placenta promotes alteration of local renin-angiotensin system.** Med. 2021 May 14;2(5):575-590.e5. PMID: 33870242.

Ligon MM, Wang C, ... Mysorekar IU. **Single cell and tissue-transcriptomic analysis of murine bladders reveals age- and TNFα-dependent but microbiota-independent tertiary lymphoid tissue formation.** Mucosal Immunol. 2020 Nov;13(6):908-918. PMID: 32366865.

Ligon MM, Wang C, DeJong EN, Schulz C, Bowdish DME, Mysorekar IU. **Single cell and tissue-transcriptomic analysis of murine bladders reveals age- and TNFα-dependent but microbiota-independent tertiary lymphoid tissue formation.** Mucosal Immunol. 2020 Nov;13(6):908-918. PMID: 32366865; PMCID: PMC7572484.

ACADEMIC APPOINTMENT

Professor,
Department of Medicine

ADDITIONAL TITLES

Director,
Airways Clinical Research Center

Chief,
Section of Pulmonary, Critical Care, and Sleep Medicine,
Ben Taub Hospital

Member,
Faculty Senate

Director,
Asthma and COPD Clinic,
Ben Taub Hospital

Editor-in-Chief,
Respiratory Medicine

Associate Editor,
Current Opinion in Pulmonary Medicine

Editorial Board,
Pulmonary Pharmacology & Therapeutics and
Therapeutic Advances in Chronic Disease

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Baylor College of Medicine

NICOLA (NICK) HANANIA, MD

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

- Airway pharmacology
- COPD comorbidities
- Airway biomarkers
- Bronchodilators
- Cohort studies, clinical and translational trials: asthma and chronic obstructive pulmonary disease (COPD)

RESEARCH OPPORTUNITIES FOR TRAINEES

- Asthma and COPD clinical trials and observational studies
- Access to large databases of ongoing studies in asthma and COPD (ACRC Network and COPD Gene Network)
- Quality improvement projects – COPD readmissions
- Aging in asthma and COPD

RELEVANT PUBLICATIONS

Parulekar AD, Martinez C, ... Hanania NA. (2017). **Examining the Effects of Age on Health Outcomes of Chronic Obstructive Pulmonary Disease: Results From the Genetic Epidemiology of Chronic Obstructive Pulmonary Disease Study and Evaluation of Chronic Obstructive Pulmonary Disease Longitudinally to Identify Predictive Surrogate Endpoints Cohorts.** J Am Med Dir Assoc. 18 (12):1063-68. PMID: 29169736.

Hanania NA, Korenblat P, Chapman KR, et al. (2016). **Efficacy and Safety of Lebrikizumab in Patients with Uncontrolled Asthma (LAVOLTA I and LAVOLTA II): Replicate, Phase 3, Randomised, Double-Blind, Placebo-Controlled Trials.** Lancet Respir Med. 4(10):781-96. PMID: 27616196.

Hanania NA, Wenzel S, Rosen K, et al.. (2013). **Exploring the Effects of Omalizumab in Allergic Asthma: An Analysis of Biomarkers in the EXTRA Study.** Am J Respir Crit Care Med. 187(8):804-11. PMID: 23471469.

ACADEMIC APPOINTMENTS

Nancy Chang, PhD Endowed Professorship for the Biology of Inflammation Center,
Department of Medicine

Co-Director,
Clinical Scientist Training Program,
Graduate School of Biomedical Sciences

ADDITIONAL TITLE

Staff Physician,
Pulmonary and Critical Care,
Medical Service Line,
Michael E. DeBakey VA Medical Center

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Baylor College of Medicine

FARRAH KHERADMAND, MD

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

- Immune cells in lung disease: COPD and asthma
- Inflammation and biomarkers in the lungs
- Models of lung cancer

RESEARCH OPPORTUNITIES FOR TRAINEES

- Lung immunity under normal or inflammatory conditions
- Immune responses to lung tumors
- Clinical trial in treatment of lung cancer

RELEVANT PUBLICATIONS

Kheradmand F, Zhang Y, Corry DB. **Contribution of adaptive immunity to human COPD and experimental models of emphysema.** Physiol Rev. 2023 Apr 1;103(2):1059-1093. PMID: 36201635.

Chang CY, You R, ... Kheradmand F. **Chronic exposure to carbon black ultrafine particles reprograms macrophage metabolism and accelerates lung cancer.** Sci Adv. 2022 Nov 18;8(46):eabq0615. PMID: 36383649.

Scieszka D, Byrum SD, ... Kheradmand F. **Subchronic Electronic Cigarette Exposures Have Overlapping Protein Biomarkers with Chronic Obstructive Pulmonary Disease and Idiopathic Pulmonary Fibrosis.** Am J Respir Cell Mol Biol. 2022 Oct;67(4):503-506. PMID: 36178855.

ACADEMIC APPOINTMENTS

Associate Professor,
Department of Medicine

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FRANCESCA POLVERINO, MD, PHD

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

- Early origins of fixed airflow limitations
- Individual susceptibility to cigarette smoke
- Repurposing of existing drugs for the treatment of COPD

RESEARCH OPPORTUNITIES FOR TRAINEES

- Analyses of lung tissue from individuals who were diagnoses with COPD in their 30s and 40s
- Analysis of blood and lung tissue from individuals with COPD and have developed pulmonary autoimmune manifestations leading to severe emphysema
- Study of the effects of metformin in COPD

RELEVANT PUBLICATIONS

Soriano JB, Polverino F, Cosio BG. **What is early COPD and why is it important?** Eur Respir J. 2018 Dec 6;52(6):1801448. PMID: 30309976.

Polverino F, Wu TD, Rojas-Quintero J, et al. **Metformin: Experimental and Clinical Evidence for a Potential Role in Emphysema Treatment.** Am J Respir Crit Care Med. 2021 Sep 15;204(6):651-666. PMID: 34033525.

Polverino F, Washko GR, Covar RA, et al. **The Low Flyers: Persistent Airflow Limitation in Young Adults.** Lancet Respir Med. 2022 Sep;10(9):819-822. Epub 2022 Jul 15. PMID: 35850124.

ACADEMIC APPOINTMENTS

Professor and Section Chief, Department of Medicine

CONTACT ME AT

Ivan.Rosas@bcm.edu

Baylor College of Medicine

IVAN O. ROSAS, MD

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

The long-term goal of our pulmonary research program is to better understand pathologic mechanisms that contribute to development and progression of parenchymal lung disease thereby enabling us to develop novel diagnostic and therapeutic strategies. Our clinical research studies have shown that subclinical pulmonary fibrosis can be detected in at-risk populations including families affected with pulmonary fibrosis, smokers and patients affected with rheumatoid arthritis. These studies are transformative as they provide critical evidence that prevention is feasible in common parenchymal lung diseases associated with high morbidity and mortality. Our mechanistic research studies focus on Idiopathic Pulmonary Fibrosis (IPF) and Chronic Obstructive Pulmonary Disease (COPD), we employ cutting edge genomic technologies and animal models to determine how select molecular derangements contribute to development and progression of lung disease

RESEARCH OPPORTUNITIES FOR TRAINEES

- Detection of subclinical interstitial lung disease in at risk populations using molecular markers
- Phenotypic and molecular overlap of primary and inflammatory lung fibrosis
- Validation of IPF and COPD molecular targets identified through single-cell RNA sequencing

RELEVANT PUBLICATIONS

Doyle TJ, Hunninghake GM, Rosas IO. (2012). **Subclinical Interstitial Lung Disease: Why You Should Care.** Am J Respir Crit Care Med. 185(11):1147-53. PMID 22366047.

Morse D, Rosas IO. (2014). **Tobacco Smoke-Induced Lung Fibrosis and Emphysema.** Annu Rev Physiol. 76:493-513. PMID 24274738.

Adams TA, Schupp JC, Poli S, et al. (2019). **Single Cell RNA-seq Reveals Ectopic and Aberrant Lung Resident Cell Populations in Idiopathic Pulmonary Fibrosis.** http://dx.doi.org/10.1101/759902.

ACADEMIC APPOINTMENTS

Professor,
Departments of Medicine and Pediatrics

Vice Chair for Research,
Department of Medicine

ADDITIONAL TITLES

Deputy Associate Chief of Staff/Research,
Michael E. DeBakey VA Medical Center

Director,
Center for Translational Research on Inflammatory Diseases (CTRID)

CONTACT ME AT

RRumbaut@bcm.edu

Baylor College of Medicine

ROLANDO E. RUMBAUT, MD, PHD

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

- Sepsis
- Microvascular thrombosis
- Inflammation

RESEARCH OPPORTUNITIES FOR TRAINEES

- Microvascular thrombosis in experimental sepsis
- Mechanisms of platelet-endothelial interactions in inflammation
- Role of platelets in inflammation

RELEVANT PUBLICATIONS

De La Cruz A, Hargrave A, Magadi S, Courson JA, Landry PT, Zhang W, Lam FW, Bray MA, Smith CW, Burns AR, Rumbaut RE. **Platelet and Erythrocyte Extravasation across Inflamed Corneal Venules Depend on CD18, Neutrophils, and Mast Cell Degranulation.** Int J Mol Sci. 2021 Jul 8;22(14):7360. PMID: 34298979.

Bray M, Guzel MA, ... Rumbaut RE. **High levels of von Willebrand factor with reduced specific activities in hospitalized patients with or without COVID-19.** J Thromb Thrombolysis. 2022 Aug;54(2):211-216. PMID: 35881214.

Bray MA, Sartain SE, Gollamudi J, Rumbaut RE. **Microvascular thrombosis: experimental and clinical implications.** Transl Res. 2020 Nov;225:105-130. PMID: 32454092.

ACADEMIC APPOINTMENT

Assistant Professor,
Department of Medicine

ADDITIONAL TITLE

Investigator,
Center for Innovations in Quality, Effectiveness, and Safety (IQuESt),
Michael E. DeBakey VA Medical Center

CONTACT ME AT

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Baylor College of Medicine

TIANSHI DAVID WU, MD, MHS

PRIMARY DEPT. AND SECTION

Medicine - Pulmonary, Critical Care, and Sleep Medicine

RESEARCH INTERESTS

- Asthma phenotyping
- Effects of metabolic disease and multi-morbidity on asthma outcomes
- Epidemiology, management, and outcomes of difficult-to-control and severe asthma
- Pharmacoepidemiology and electronic health record epidemiology

RESEARCH OPPORTUNITIES FOR TRAINEES

- Effects of insulin resistance on the lung
- Validating asthma outcomes within the VA network
- Identifying differential response to asthma medications by comorbidities

RELEVANT PUBLICATIONS

Wu TD, Fawzy A, Brigham E, et al. (2021). **Association of Triglyceride-Glucose Index and Lung Health: A Population-Based Study.** Chest. 160(3):1026-1034. PMID: 33839084.

Wu TD, Fawzy A, Akenroye A, et al. (2021). **Metformin Use and Risk of Asthma Exacerbation Among Asthma Patients with Glycemic Dysfunction.** J Allergy Clin Immunol Pract. 9(11):4014-4020.e4. PMID: 34293503.

Tooba R, Wu TD. (2022). **Obesity and asthma: A focused review.** Respir Med. 204:107012. PMID: 36279813.

ACADEMIC APPOINTMENT

Associate Professor,
Department of Medicine

ADDITIONAL TITLE

Nephrologist,
Medical Care Line,
Michael E. DeBakey VA Medical Center

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SANKAR NAVANEETHAN, MBBS, MPH

PRIMARY DEPT. AND SECTION

Medicine - Nephrology

RESEARCH INTERESTS

- Health services research in nephrology
- Cardiovascular disease and obesity in CKD
- Systematic reviews in nephrology

RESEARCH OPPORTUNITIES FOR TRAINEES

- Trainees would have the opportunity to work on various research projects using large national databases
- Participate and lead systematic reviews

RELEVANT PUBLICATIONS

Navaneethan SD, Akeroyd JM, Ramsey D, et al. **Facility-Level Variations in Kidney Disease Care among Veterans with Diabetes and CKD.** Clin J Am Soc Nephrol. 2018 Dec 7;13(12):1842-1850. PMID: 30498000.

Navaneethan SD, Jolly SE, Schold JD, et al. (2017). **Pragmatic Randomized, Controlled Trial of Patient Navigators and Enhanced Personal Health Records in CKD**. Clin J Am Soc Nephrol. 12(9):1418- 1427. PMID 28778854.

Schauer PR, Bhatt DL, Kirwan JP, et al. (2017). **Bariatric Surgery Versus Intensive Medical Therapy for Diabetes - 5-Year Outcomes.** N Engl J Med. 376(7)):641-651. PMID 28199805.