Collaborative Research Training in Thrombosis and Inflammation

T32 Research Training Program

Mentor Catalog

Baylor College of Medicine

CTRID CENTER FOR TRANSLATIONAL RESEARCH ON INFLAMMATORY DISEASES
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## About the Cover

**Fibrin Falls (2021)**  
Justin Courson, Ph.D.  
CTRID T32 Trainee

This photograph was captured by CTRID T32 trainee Dr. Justin Courson using scanning electron microscopy. The image displays a small bleed frozen in time.
The goal of our Collaborative Research Training in Thrombosis and Inflammation (NIH/NHLBI T32) research training program at the Center for Translational Research on Inflammatory Diseases (CTRID) is to train clinician-scientists and non-clinician scientists (PhD) for collaborative research careers in two inter-related topics: thrombosis and inflammation.

The program consists of 2-3 years of research training, enriched by didactic courses, an outstanding seminar series and a vibrant scientific environment. In addition to training clinician-scientists in biomedical research, PhD scientists will be trained in translational medicine offering a direct interaction with patients with clinical conditions related to the focus of this T32. Trainees have the opportunity to interact with basic, clinical, translational, and health services research and uniquely investigate both thrombosis and inflammation.

This brochure provides academic information and research interests about the faculty members committed to serving as primary mentors for trainees in our T32 research training program. The faculty mentors in our training program represent a total of 10 academic units within 5 departments at BCM and 3 neighboring Texas Medical Center institutions. The multidisciplinary, cross-departmental, collaborative nature of CTRID provides an outstanding environment for training of future independent clinician and PhD scientists.

Our T32 training program on thrombosis and inflammation continues to pave the way for new biological insights and novel ways of prevention and treatment of diseases accompanied by thrombosis and inflammation by educating future clinician- and non-clinician scientists for collaborative research careers in thrombosis and inflammation.

We encourage you to consider our Collaborative Research Training in Thrombosis and Inflammation T32 Program and our distinguished group of faculty mentors for your early-career research endeavors.
The thematic research interests of our T32 program mentors, stratified in a simplified manner according to primarily thrombosis, inflammation, and combined topics is shown below. This scheme is used to ensure that the mentoring groups selected for each trainee incorporates concepts relevant to both thrombosis and inflammation.

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VAHID AFSHAR-KHARGHAN, MD

PRIMARY DEPARTMENT
SECTION OF BENIGN HEMATOLOGY - DIVISION OF INTERNAL MEDICINE

RESEARCH INTERESTS
- Cancer-associated thrombosis
- Role of hemostatic factors in cancer progression
- Role of the complement system in the progression of cancer
- Immunoregulatory role of platelets
- The interaction between the complement system and hemostatic factors

RESEARCH OPPORTUNITIES FOR TRAINEES
- The impact of complement system on tumor growth and antitumor immune response
- Immunoregulatory role of platelets
- Pathogenesis of cancer associated venous thrombosis
- Clonal hematopoiesis and cardiovascular disease
- The impact of platelets on the growth of cancer

RELEVANT PUBLICATIONS


CHRISTINE BEETON, PhD

PRIMARY DEPARTMENT
INTEGRATIVE PHYSIOLOGY

RESEARCH INTERESTS
- Rheumatoid arthritis
- Autoimmunity
- Microthrombi
- Thrombo-inflammation
- Systemic inflammation
- Ion channels

RESEARCH OPPORTUNITIES FOR TRAINEES
- Phenotype and function of KCa1.1 channel in synoviocytes during rheumatoid arthritis
- Targeting Kv1.3 channels in thrombo-inflammation
- Development of new Kv1.3 blockers and their delivery

RELEVANT PUBLICATIONS


ALAN BURNS, PhD

ACADEMIC APPOINTMENTS
Professor, Departments of Vision Sciences, College of Optometry, University of Houston
Adjunct Associate Professor, Department of Pediatrics, Section of Leukocyte Biology, Baylor College of Medicine

CONTACT INFORMATION
aburns@central.uh.edu

PRIMARY DEPARTMENT
VISION SCIENCES - OPTOMETRY
PEDIATRICS - LEUKOCYTE BIOLOGY

RESEARCH INTERESTS
- Biological imaging
- Electron microscopy
- Inflammation
- Leukocyte biology
- Platelets
- Wound healing
- Obesity
- Metabolic syndrome
- Ocular surface
- Cornea

RESEARCH OPPORTUNITIES FOR TRAINEES
- Mechanisms of platelet extravasation in the injured cornea
- Diet-induced obesity and its effect on corneal wound healing

RELEVANT PUBLICATIONS


DAVID CORRY, MD

ACADEMIC APPOINTMENT
Professor, Department of Medicine, Section of Immunology, Allergy and Rheumatology, Baylor College of Medicine

ADDITIONAL TITLE
Fulbright Endowed Chair in Pathology, Pathology & Immunology and Medicine, Baylor College of Medicine

CONTACT INFORMATION
dcorry@bcm.edu

PRIMARY DEPARTMENT
MEDICINE - IMMUNOLOGY, ALLERGY AND RHEUMATOLOGY

RESEARCH INTERESTS
- Asthma
- Immunity
- Fungi
- MicroRNAs
- Alzheimer’s Disease
- Colitis

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


MIGUEL A. CRUZ, PhD

ACADEMIC APPOINTMENT
Professor, Departments of Medicine, Pediatrics, Molecular Physiology & Biophysics, Baylor College of Medicine

CONTACT INFORMATION
miguelc@bcm.edu

ADDITIONAL TITLES
Research Health Scientist, Research Service Line, Michael E. DeBakey VA Medical Center
Co-Director, Center for Translational Research on Inflammatory Diseases (CTRID), Michael E. DeBakey VA Medical Center

RELEVANT PUBLICATIONS


PRIMARY DEPARTMENT
MEDICINE - CARDIOVASCULAR RESEARCH: THROMBOSIS RESEARCH

RESEARCH INTERESTS
• Thrombosis
• 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
ACADEMIC APPOINTMENTS
Professor, Department of Medicine, Section of Pulmonary Medicine, Baylor College of Medicine

Nancy Chang, Ph.D. Endowed Professorship for the Biology of Inflammation Center, Co-Director of Physician Scientist Training Program (CSTP), Baylor College of Medicine

ADDITIONAL TITLE
Co-Director of Lung Precision Oncology Program (LPOP), Pulmonary and Critical Care, Medical Service Line, Michael E. DeBakey VA Medical Center

CONTACT INFORMATION
farrahk@bcm.edu

FARRAH KHERADMAND, MD

PRIMARY DEPARTMENT
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 diseased conditions
- Immune responses to lung tumors

RELEVANT PUBLICATIONS


**ACADEMIC APPOINTMENT**
Associate Professor, Department of Pediatrics, Division of Pediatric Critical Care Medicine, Baylor College of Medicine

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

**CONTACT INFORMATION**
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**FONG LAM, MD**

**PRIMARY DEPARTMENT**
PEDIATRICS - CRITICAL CARE

**RESEARCH INTERESTS**
- Platelets
- Neutrophils
- Endothelium
- Sepsis
- Thrombosis

**RESEARCH OPPORTUNITIES FOR TRAINEES**
- Novel drug/peptide development to combat viral adhesion and inflammation
- Testing novel microfluidic devices for apheresis in vivo and in vitro
- Identifying the role of platelet-leukocyte-endothelial interactions in liver diseases

**RELEVANT PUBLICATIONS**


SEAN MARRELLI, PhD

ACADEMIC APPOINTMENT
Professor,
Department of Neurology,
McGovern Medical School,
University of Texas Health Sciences Center at Houston

ADDITIONAL TITLE
Director,
MicroCT Imaging Facility,
McGovern Medical School,
University of Texas Health Sciences Center at Houston

CONTACT INFORMATION
sean.p.marrelli@uth.tmc.edu

PRIMARY DEPARTMENT
NEUROLOGY

RESEARCH INTERESTS
• Vascular biology
• Stroke
• Thrombosis

RESEARCH OPPORTUNITIES FOR TRAINEES
• Regulation of cerebral blood flow in healthy and post-stroke conditions
• Therapeutic targeting of post-stroke thrombosis
• Novel methods of promoting therapeutic hypothermia following stroke

RELEVANT PUBLICATIONS


TRUNG NGUYEN, MD

ACADEMIC APPOINTMENT
Associate Professor, Department of Pediatrics, Section of Critical Care, Baylor College of Medicine

ADDITIONAL TITLE
Staff Physician, Pediatric Critical Care Medicine, Texas Children’s Hospital

CONTACT INFORMATION
trungn@bcm.edu

PRIMARY DEPARTMENT
PEDIATRICS - CRITICAL CARE

RESEARCH INTERESTS
- Multiple organ dysfunction syndrome
- Thrombosis
- Sepsis
- Immune dysregulation

RESEARCH OPPORTUNITIES FOR TRAINEES
- Sepsis – induced coagulopathy
- Sepsis – induced multiple organ dysfunction syndrome

RELEVANT PUBLICATIONS


LAVANNYA PANDIT, MD, MS

PRIMARY DEPARTMENT

MEDICINE - PULMONARY, CRITICAL CARE, AND SLEEP MEDICINE

RESEARCH INTERESTS

- Physiologic and molecular mechanisms of pulmonary vascular disease
- Pulmonary hypertension
- COVID-19 clinical trials and mechanisms of hypoxemic respiratory failure and inflammation

RESEARCH OPPORTUNITIES FOR TRAINEES

- Anatomic microniches and their contribution to vascular remodeling in pulmonary hypertension
- COVID-19 Therapeutic Interventions and Vaccines
- Neutrophil Exosomes: New Pathogenic Entities in COPD
- Lung precision oncology

RELEVANT PUBLICATIONS


ANTONY RODRIGUEZ, PhD

ACADEMIC APPOINTMENT
Assistant Professor, Department of Medicine, Section of Immunology, Allergy & Rheumatology, Baylor College of Medicine

RELEVANT PUBLICATIONS


CONTACT INFORMATION
antonyr@bcm.edu

RESEARCH INTERESTS
• COPD
• Interstitial lung disease
• MicroRNAs
• Alveolar type 2 progenitor stem cells
• Lung Inflammation

RESEARCH OPPORTUNITIES FOR TRAINEES
• MicroRNAs regulation in COPD and interstitial lung disease
• Mechanism of microRNAs in Alveolar type 2 progenitor stem cells
• MicroRNAs in interstitial lung disease

ADDITIONAL TITLES
Graduate Faculty Member, Immunology & Microbiology Graduate Program, Baylor College of Medicine
Graduate Faculty Member, Development, Disease Models & Therapeutics Graduate Program, Baylor College of Medicine

PRIMARY DEPARTMENT
MEDICINE - IMMUNOLOGY, ALLERGY, AND RHEUMATOLOGY
ROLANDO RUMBAUT, MD, PhD

PRIMARY DEPARTMENT

MEDICINE - PULMONARY, CRITICAL CARE, AND SLEEP MEDICINE

RESEARCH INTERESTS

- Microcirculation
- Inflammation
- Thrombosis

RESEARCH OPPORTUNITIES FOR TRAINEES

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

RELEVANT PUBLICATIONS


SARAH E. SARTAIN, MD

PRIMARY DEPARTMENT
PEDIATRICS - HEMATOLOGY AND ONCOLOGY

RESEARCH INTERESTS
- Thrombosis
- Inflammation
- Complement
- von Willebrand Factor

RESEARCH OPPORTUNITIES FOR TRAINEES
- Investigating non-canonical mechanisms of alternative complement pathway activation in thromboinflammation
- Investigating the interaction of complement and von Willebrand factor

RELEVANT PUBLICATIONS


PERUMAL THIAGARAJAN, MD

ACADEMIC APPOINTMENTS
Professor, Department of Pathology & Immunology, Baylor College of Medicine
Professor, Department of Medicine, Section of Hematology and Oncology, Baylor College of Medicine

ADDITIONAL TITLE
Medical Director, Blood Bank and Clinical Hematology Laboratory, Michael E. DeBakey VA Medical Center

CONTACT INFORMATION
perumalt@bcm.edu

PRIMARY DEPARTMENT
PATHOLOGY AND IMMUNOLOGY
MEDICINE - HEMATOLOGY AND ONCOLOGY

RESEARCH INTERESTS
• Hemostasis
• Platelets
• Lupus anticoagulant

RESEARCH OPPORTUNITIES FOR TRAINEES
• Transbilayer movement of anionic phospholipids in hemostasis: causes and consequences
• Mechanism of hypercoagulable state in Lupus anticoagulant/antiphospholipid antibody syndrome
• Utilization of cloned antibodies, patient samples and β2-glycoprotein I-deficient mice
• Investigate unexplained bleeding and thrombotic disorders to understand the control mechanisms in hemostasis
• Testing hypothesis that defective clearance of phosphatidylinerine-expressing microvesicles and mitochondria predispose to the procoagulant state

RELEVANT PUBLICATIONS


VINOD VIJAYAN, PhD

ACADEMIC APPOINTMENTS
Associate Professor, Department of Medicine, Division of Thrombosis, Baylor College of Medicine
Associate Professor, Department of Molecular Physiology and Biophysics, Baylor College of Medicine
Associate Professor, Department of Pediatrics, Baylor College of Medicine

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

CONTACT INFORMATION
vvijayan@bcm.edu

PRIMARY DEPARTMENT
MEDICINE - THROMBOSIS

RESEARCH INTERESTS
- Platelets
- Endothelial cells
- Phosphoprotein phosphatase
- Cancer metastasis
- Sepsis

RESEARCH OPPORTUNITIES FOR TRAINEES
- Role of platelet signaling in lung cancer metastasis
- Platelet phosphatases in inflammation

RELEVANT PUBLICATIONS


DENNIS VILLAREAL, MD

ACADEMIC APPOINTMENT
Professor, Department of Medicine, Section of Endocrinology, Diabetes and Metabolism, Baylor College of Medicine

CONTACT INFORMATION
dennis.villareal@bcm.edu

PRIMARY DEPARTMENT
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 and frailty by intensive lifestyle interventions
- Body composition and bone quality changes in response to intensive lifestyle intervention in older adults with obesity

RELEVANT PUBLICATIONS


QIZHI CATHY YAO, MD, PhD

PRIMARY DEPARTMENT

SURGERY - SURGICAL ONCOLOGY

RESEARCH INTERESTS

- Pancreatic cancer pathogenesis and therapy
- Virus-like particles (VLPs) vaccine and cancer immunotherapy
- Modulation of pancreatic cancer microenvironment for effective treatment

RESEARCH OPPORTUNITIES FOR TRAINEES

- Stratification of Pancreatic Cancer Subpopulations for Effective Immunotherapy
- Mesothelin mechanism of action in pancreatic cancer tumor microenvironment
- Role of fibrinogen in pancreatic cancer pathogenesis

RELEVANT PUBLICATIONS


ACADEMIC APPOINTMENTS

Professor,
Department of Surgery,
Division of Surgical Oncology,
Baylor College of Medicine

Professor,
Department of Molecular Viology & Microbiology,
Baylor College of Medicine

Professor,
Department of Pathology & Immunology,
Baylor College of Medicine

Professor,
Department of Pharmacology,
Baylor College of Medicine

ACADEMIC APPOINTMENTS

Professor,
Department of Surgery,
Division of Surgical Oncology,
Baylor College of Medicine

Professor,
Department of Molecular Viology & Microbiology,
Baylor College of Medicine

Professor,
Department of Pathology & Immunology,
Baylor College of Medicine

Professor,
Department of Pharmacology,
Baylor College of Medicine

ADDITIONAL TITLE

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

CONTACT INFORMATION

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ANDREW YEE, PhD

PRIMARY DEPARTMENT

PEDIATRICS - HEMATOLOGY AND ONCOLOGY

RESEARCH INTERESTS

- Hemostasis
- Thrombosis
- Inflammation
- von Willebrand factor

RESEARCH OPPORTUNITIES FOR TRAINEES

- Functional genomics of von Willebrand factor
- Cell type specific roles of von Willebrand factor
- Role of free hemoglobin in thrombosis
- Non-canonical activation of complement pathways

RELEVANT PUBLICATIONS

