

Collaborative Research Training in Thrombosis and Inflammation

T32 Research Training Program



Mentor Catalog

Baylor
College of
Medicine



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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.

PROGRAM SUMMARY

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.

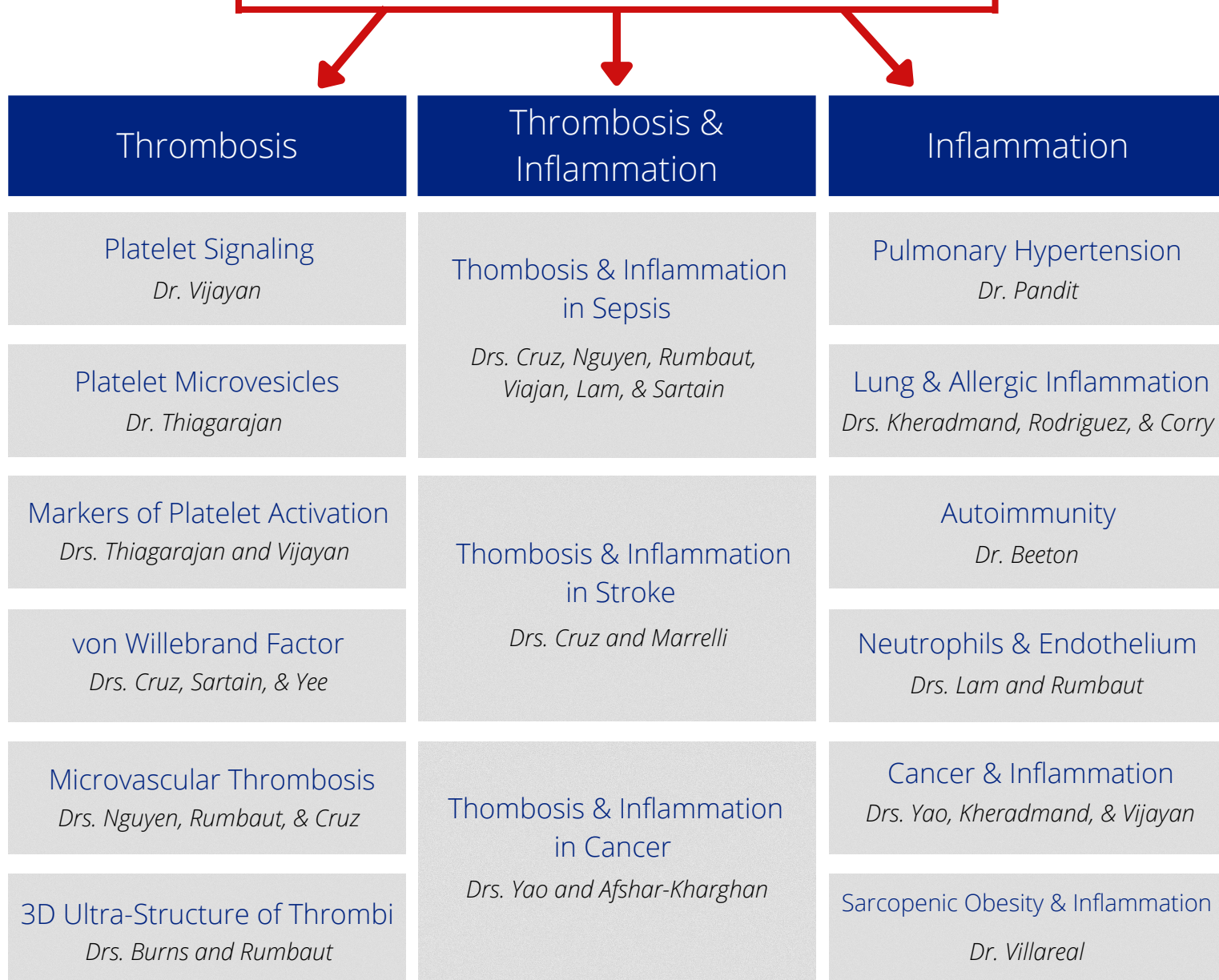
We encourage you to consider our Collaborative Research Training in Thrombosis and Inflammation T32 Program and our distinguished group of faculty mentors for your early-career research endeavors.



THEMATIC RESEARCH INTERESTS

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.

Collaborative Research Training in Thrombosis and Inflammation





ACADEMIC APPOINTMENT

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VAHID AFSHAR- KHARGHAN, MD

➤ PRIMARY DEPARTMENT AND SECTION

PULMONARY MEDICINE - SECTION OF BENIGN
HEMATOLOGY

➤ 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

Hu, Q., Hisamatsu, T., ... Afshar-Kharghan, V. (2017). **Role of Platelet-Derived Tgfβ1 in the Progression of Ovarian Cancer**. Clinical cancer research : an official journal of the American Association for Cancer Research, 23(18), 5611–5621. PMID: 28611202.

Cho, M. S., Noh, K., ... Afshar-Kharghan, V. (2017). **Role of ADP receptors on platelets in the growth of ovarian cancer**. Blood, 130(10), 1235–1242. PMID: 28679740.

Haemmerle, M., Taylor, M. L., ... Afshar-Kharghan, V., ... Sood, A. K. (2017). **Platelets reduce anoikis and promote metastasis by activating YAP1 signaling**. Nature communications, 8(1), 310. PMID: 28827520.



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➤ 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

Hu, X., Laragione, T., ... Beeton, C. (2012). **KCa1.1 potassium channels regulate key proinflammatory and invasive properties of fibroblast-like synoviocytes in rheumatoid arthritis.** J Biol Chem. 287(6):4014-22. PMID: 22074915.

Tanner, M. R., Hu, X., ... Beeton, C. (2015). **KCa1.1 inhibition attenuates fibroblast-like synoviocyte invasiveness and ameliorates disease in rat models of rheumatoid arthritis.** Arthritis Rheumatol. 67(1):96-106. PMID: 25252152.

Tanner, M. R., Tajhya, R. B., ... Beeton, C. (2017). **Prolonged immunomodulation in inflammatory arthritis using the selective Kv1.3 channel blocker HsTX1[R14A] and its PEGylated analog.** Clin Immunol. 180:45-57. PMID: 28389388.



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➤ PRIMARY DEPARTMENTS AND SECTIONS

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

Courson, J. A., Landry, P. T., ... Rumbaut, R.E., Burns, A.R. (2021). **Serial block-face scanning electron microscopy (SBF-SEM) of Biological Tissue Samples.** J Vis Exp. (169). PMID: 33843931.

Hargrave, A., Courson, J. A., ... Burns, A.R. (2021). **Corneal dysfunction precedes the onset of hyperglycemia in a mouse model of diet-induced obesity.** Plos One, 15:e0238750. PMID: 32886728.

De La Cruz, A., Hargrave, A., ... Burns, A.R., Rumbaut, R.E. (2021). **Platelet and erythrocyte extravasation across inflamed corneal venules depends on CD18, neutrophils, and mast cell degranulation.** Int J Mol Sci. 22 14:7360. PMID: 34298979.



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➤ PRIMARY DEPARTMENT AND SECTION

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

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

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

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



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➤ PRIMARY DEPARTMENT AND SECTION

**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

➤ RELEVANT PUBLICATIONS

Da, Q., Teruya, M., ...Cruz, M.A. (2015). **Free Hemoglobin Increases von Willebrand Factor-Mediated Platelet Adhesion in Vitro: Implications for Circulatory Devices.** Blood. 126(20):2338-41. PMID 26307534.

Da, Q., Behymer, M., ... Cruz, M.A. (2014). **Platelet Adhesion Involves a Novel Interaction between Vimentin and von Willebrand Factor under High Shear Stress.** Blood. 123(17):2715-21. PMID 24642750.

Valladolid, C., Yee, A., Cruz, M.A. (2018). **von Willebrand Factor, Free Hemoglobin and Thrombosis in ECMO.** Front Med (Lausanne). 5:228. PMID 30175099.



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➤ PRIMARY DEPARTMENT 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 diseased conditions
- Immune responses to lung tumors

➤ RELEVANT PUBLICATIONS

Le, D.T., Huynh, T.R., ... Kheradmand, F., Tyner, J.J., Paust, S. (2021). **Natural killer cells and cytotoxic T lymphocytes are required to clear solid tumor in a patient-derived xenograft.** JCI Insight. 6(13):e140116. PMID: 34081628.

Wu, Y., Zeng, Z., ... Kheradmand, F., Corry, D.B. (2021). **Candida albicans elicits protective allergic responses via platelet mediated T helper 2 and T helper 17 cell polarization.** Immunity. S1074-7613(21)00339-3. PMID: 34506733.

Madison, M.C., Landers, C.T., ... Kheradmand, F. (2019). **Electronic cigarettes disrupt lung lipid homeostasis and innate immunity independent of nicotine.** J Clin Invest. 129(10):4290-4304. PMID: 31483291.



FONG LAM, MD

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➤ PRIMARY DEPARTMENT AND SECTION

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

Valladolid, C., Martinez-Vargas, M., ... Lam, F., Rumbaut, R.E., Nguyen, T.C., Cruz, M.A. (2020). **Modulating the rate of fibrin formation and clot structure attenuates microvascular thrombosis in systemic inflammation.** Blood advances. 14 (4(7)): 1340-1349. PMID: 32259201.

Gorgis, N.M., Kennedy, C., ... Lam, F. (2019). **Clinical Consequences of Cardiomyopathy in Children With Biliary Atresia Requiring Liver Transplantation.** Hepatology. 69 ((3)): 1206-1218. PMID: 30076624.

Lam, F.W., Da, Q., Guillory, B., Cruz, M.A. (2018). **Recombinant human vimentin binds to P-selectin and blocks neutrophil capture and rolling on platelets and endothelium.** J Immunol. 200 ((5)): 1718-1726. PMID: 29335256.



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ADDITIONAL TITLE

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➤ 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

Kim, G. S., Stephenson, J. M., ... Marrelli, S. P. (2021). **Determining the effect of aging, recovery time, and post-stroke memantine treatment on delayed thalamic gliosis after cortical infarct.** Scientific reports, 11(1), 12613. PMID: 34131204.

Fasipe, T. A., Hong, S. H., ... Marrelli, S. P. (2018). **Extracellular Vimentin/VWF (von Willebrand Factor) Interaction Contributes to VWF String Formation and Stroke Pathology.** Stroke, 49(10), 2536–2540. PMID: 30355099.

Hong, S. H., Herman, A. M., Stephenson, J. M., ... Marrelli, S. P., & Wythe, J. D. (2020). **Development of barium-based low viscosity contrast agents for micro CT vascular casting: Application to 3D visualization of the adult mouse cerebrovasculature.** Journal of neuroscience research, 98(2), 312–324. PMID: 31630455.



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➤ PRIMARY DEPARTMENT AND SECTION

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

Brubaker, L. S., Saini, A., Nguyen, T. C., et al. (2022). **Aberrant fibrin clot structure visualized ex vivo in critically ill patients with severe acute respiratory syndrome Coronavirus 2 infection.** Critical care medicine, 50(6), e557–e568. PMID: 35170535.

Lin, H., Scull, B. P., ... Nguyen, T.C., et al. (2021). **IFN- γ signature in the plasma proteome distinguishes pediatric hemophagocytic lymphohistiocytosis from sepsis and SIRS.** Blood advances, 5(17), 3457–3467. PMID: 34461635.

Valladolid, C., Martinez-Vargas, M., ... Nguyen, T. C., & Cruz, M. A. (2020). **Modulating the rate of fibrin formation and clot structure attenuates microvascular thrombosis in systemic inflammation.** Blood advances, 4(7), 1340–1349. PMID: 32259201.



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➤ PRIMARY DEPARTMENT AND SECTION

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

Rajagopal, K., Bryant, A. J., ... Pandit, L. M., et al. (2021). **Idiopathic pulmonary fibrosis and pulmonary hypertension: Heracles meets the Hydra**. British journal of pharmacology, 178(1), 172–186. PMID: 32128790.

Darwiche, T., Collum, S. D., ... Pandit, L. M., et al. (2019). **Alterations in cardiovascular function in an experimental model of lung fibrosis and pulmonary hypertension**. Experimental physiology, 104(4), 568–579. PMID: 30663834.

Salama, C., Han, J., ... Pandit, L., et al. (2021). **Tocilizumab in patients hospitalized with Covid-19 pneumonia**. The New England journal of medicine, 384(1), 20–30. PMID: 33332779.



ANTONY RODRIGUEZ, PhD

ACADEMIC APPOINTMENT

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ADDITIONAL TITLES

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➤ PRIMARY DEPARTMENT AND SECTION

MEDICINE - IMMUNOLOGY, ALLERGY, AND
RHEUMATOLOGY

➤ 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

➤ RELEVANT PUBLICATIONS

Lu, W., You, R., ... Rodriguez, A., et al. (2015). **The microRNA miR-22 inhibits the histone deacetylase HDAC4 to promote T(H)17 cell-dependent emphysema.** Nature immunology, 16(11), 1185–1194. PMID: 26437241.

Nam, J. W., Rissland, O. S., ... Rodriguez, A., et al. (2014). **Global analyses of the effect of different cellular contexts on microRNA targeting.** Molecular cell, 53(6), 1031–1043. PMID: 24631284.

Gurha, P., Wang, T., ... Rodriguez, A. (2013). **microRNA-22 promotes heart failure through coordinate suppression of PPAR/ERR-nuclear hormone receptor transcription.** PloS one, 8(9), e75882. PMID: 24086656.



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➤ PRIMARY DEPARTMENT AND SECTION

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

De La Cruz, A., Hargrave, A., ... Rumbaut, R. E. (2021). **Platelet and Erythrocyte Extravasation across Inflamed Corneal Venules Depend on CD18, Neutrophils, and Mast Cell Degranulation.** International journal of molecular sciences, 22(14), 7360. PMID: 34298979.

Courson, J. A., Hanlon, S. D., ... Rumbaut, R. E. (2020). **Serial block-face scanning electron microscopy: A provocative technique to define 3-dimensional ultrastructure of microvascular thrombosis.** Thrombosis research, 196, 519–522. PMID: 33099176.

Bray, M. A., Sartain, S. E., Gollamudi, J., & Rumbaut, R. E. (2020). **Microvascular thrombosis: experimental and clinical implications.** Translational research : the journal of laboratory and clinical medicine, 225, 105–130. PMID: 32454092.



SARAH E. SARTAIN, MD

ACADEMIC APPOINTMENT

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ADDITIONAL TITLE

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➤ PRIMARY DEPARTMENT AND SECTION

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

Sartain, S. E., Turner, N. A., & Moake, J. L. (2016). **TNF Regulates Essential Alternative Complement Pathway Components and Impairs Activation of Protein C in Human Glomerular Endothelial Cells.** J. Immunol (Baltimore, Md. : 1950). 196(2), 832-845. PMID: 26673143.

Sartain, S. E., Turner, N. A., & Moake, J. L. (2018). **Brain microvascular endothelial cells exhibit lower activation of the alternative complement pathway than glomerular microvascular endothelial cells.** J Biol Chem. 293(19): 7195-7208. PMID: 29555686.

Sartain, S., Shubert, S., Wu, M. F., Wang, T., & Martinez, C. (2020). **The alternative complement pathway activation product Ba as a marker for transplant-associated thrombotic microangiopathy.** Pediatric Blood & Cancer. 67(3), e28070. PMID: 31774252.



PERUMAL THIAGARAJAN, MD

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➤ PRIMARY DEPARTMENTS AND SECTIONS

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 $\beta 2$ -glycoprotein I-deficient mice
- Investigate unexplained bleeding and thrombotic disorders to understand the control mechanisms in hemostasis
- Testing hypothesis that defective clearance of phosphatidylserine-expressing microvesicles and mitochondria predispose to the procoagulant state

➤ RELEVANT PUBLICATIONS

Dasgupta, S. K., Rivera, S., & Thiagarajan, P. (2020). **Lisinopril-Induced Angioedema in a Patient with Plasma Prekallikrein Deficiency**. *TH open : companion journal to thrombosis and haemostasis*, 4(1), e33–e35. PMID: 31984307.

Dasgupta, S. K., & Thiagarajan, P. (2020). **Cofilin-1-induced actin reorganization in stored platelets**. *Transfusion*, 60(4), 806–814. PMID: 32159862.

Thiagarajan, P., Parker, C. J., & Prchal, J. T. (2021). **How Do Red Blood Cells Die?** *Frontiers in physiology*, 12, 655393. PMID: 33790808.



BARBARA TRAUTNER, MD, PhD

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ADDITIONAL TITLES

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➤ PRIMARY DEPARTMENT AND SECTION

MEDICINE - INFECTIOUS DISEASES AND HEALTH
SERVICES RESEARCH

➤ RESEARCH INTERESTS

- Urinary tract infections
- Healthcare-associated infections
- Antimicrobial stewardship
- Bacteriophage
- Asymptomatic bacteriuria

➤ RESEARCH OPPORTUNITIES FOR TRAINEES

- AHRQ R01: Reducing urine culture contamination in primary care
- AHRQ R01: reducing use of antibiotics without a prescription among outpatients in a safety net healthcare system
- AHRQ R18: A randomized, controlled trial of how to implement antibiotic stewardship for ASB
- VA RR&D and Neilsen Foundation: Bacteriophage to treat multidrug-resistant UTI in persons with spinal cord injury

➤ RELEVANT PUBLICATIONS

Green, S. I., Clark, J. R., ... Maresso, A. (2023). **A retrospective, observational study of 12 cases of expanded access customized phage therapy: production, characteristics, and clinical outcomes.** Clinical infectious diseases : an official publication of the Infectious Diseases Society of America, ciad335. PMID: 37279523.

Grigoryan, L., Paasche-Orlow, M. K., ... Trautner, B. W. (2023). **Antibiotic Use Without a Prescription: A Multisite Survey of Patient, Health System, and Encounter Characteristics.** Clinical infectious diseases : an official publication of the Infectious Diseases Society of America, 77(4), 510–517. PMID: 37094252.

Grigoryan, L., Naik, A. D., ... Trautner, B. W. (2022). **Analysis of an Antibiotic Stewardship Program for Asymptomatic Bacteriuria in the Veterans Affairs Health Care System.** JAMA network open, 5(7), e2222530. PMID: 35877123.



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➤ PRIMARY DEPARTMENT AND SECTION

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

Lichtenberger, L.M., Vijayan, K.V. (2019). **Are Platelets the Primary Target of Aspirin's Remarkable Anticancer Activity?** Cancer Res. 79(15):3820-3823. PMID: 31300475.

Da, Q., Han, H., ... Vijayan, K.V. (2019). **In vitro phosphorylation of von Willebrand factor by FAM20c enhances its ability to support platelet adhesion.** J Thromb Haemost. 17(6):866-877. PMID: 30864273.

Pradhan, S., Khatlani, T., Nairn, A.C., Vijayan, K.V. (2017). **The heterotrimeric G protein G β 1 interacts with the catalytic subunit of protein phosphatase 1 and modulates G protein-coupled receptor signaling in platelets.** J Biol Chem. 292(32):13133-13142. PMID: 28615442.



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➤ PRIMARY DEPARTMENT AND SECTION

MEDICINE - ENDOCRINOLOGY, DIABETES AND
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➤ 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

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

Batsis, J. A., & Villareal, D. T. (2018). **Sarcopenic Obesity in Older Adults: Aetiology, Epidemiology and Treatment Strategies.** Nat Rev Endocrinol. 14(9):513-537. PMID 30065268.

Villareal, D. T., Aguirre, L., Gurney, A. B., et al. (2017). **Aerobic or Resistance Exercise, or Both, in Dieting Obese Older Adults.** N Engl J Med. 376(20):1943-1955. PMID 28514618.



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➤ PRIMARY DEPARTMENT AND SECTION

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

Marin-Muller, C., Li, D.,... Yao, Q. (2013). **A Tumorigenic Factor Interactome Connected through Tumor Suppressor MicroRNA-198 in Human Pancreatic Cancer**. *Clinical Cancer Research*, 19(21):5901-13. PMID: 23989979.

Poteet, E., Liu, D., ... Yao, Q. (2019). **Mesothelin and TGF- α predict pancreatic cancer cell sensitivity to EGFR inhibitors and effective combination treatment with trametinib**. *PLoS One*. 14(3):e0213294. PMID: 30921351.

Lewis, P. E., Poteet, E. C., ... Yao, Q. (2020). **CTLA-4 Blockade, during HIV Virus-Like Particles Immunization, Alters HIV-Specific B-Cell Responses**. *Vaccines*. 8(2), 284. PMID: 32517277.



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➤ PRIMARY DEPARTMENT AND SECTION

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

Yee, A., Dai, M., ... Ginsburg, D. (2021). **Phage Display Broadly Identifies Inhibitor-reactive Regions in von Willebrand factor**. J Thromb Haemost. 19(11), 2702–2709. PMID: 34255925.

Huttinger, Z.M., Haynes, L.M., Yee, A., ... Ginsburg, D. (2021). **Deep mutational scanning of the plasminogen activator inhibitor-1 functional landscape**. Sci Rep. 11(1):18827. PMID: 34552126.

Cleuren, A., van der Ent, M.A., ... Yee, A., ... Ginsburg, D. (2019). **The in vivo Endothelial Cell Translatome is Highly Heterogeneous across Vascular Beds**. Proc Natl Acad Sci USA. 116(47):23618–23624. PMID: 31712416.



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PEDIATRICS - HEMATOLOGY AND ONCOLOGY

➤ RESEARCH INTERESTS

- T-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, C. M. (2023). **Naive T cells inhibit the outgrowth of intractable antigen-activated memory T cells: implications for T-cell immunotherapy.** Journal for immunotherapy of cancer, 11(4), e006267. PMID: 37072346.

Sauer, T., Parikh, K., ... Rooney, C. M. (2021). **CD70-specific CAR T cells have potent activity against acute myeloid leukemia without HSC toxicity.** Blood, 138(4), 318–330. PMID: 34323938.

Quach, D. H., Becerra-Dominguez, L., ... Rooney, C. M. (2019). **A strategy to protect off-the-shelf cell therapy products using virus-specific T-cells engineered to eliminate alloreactive T-cells.** Journal of translational medicine, 17(1), 240. PMID: 31340822.