News from the University of Kansas Medical Center

DEPARTMENT OF PATHOLOGY & LABORATORY MEDICINE

WINTER 2022

FEBRUARY 28, 2022

Russell J. Eilers Endowed Professor and Chair Department of Pathology and Laboratory Medicine

IN THIS ISSUE:

THIS IS THE OFFICIAL PUBLICATION OF THE DEPARTMENT OF PATHOLOGY & LABORATORY MEDICINE UNIVERSITY OF KANSAS MEDICAL CENTER | 3901 RAINBOW BOULEVARD 5019 DELP, KANSAS CITY, KANSAS 66160
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Doctor Zheng and colleague awarded $1.8 million grant by the National Heart, Lung and Bloood Institute

Doctor Zheng and colleague, Xiaohui (Frank) Zhang, Ph.D., Associate Professor of Bioengineering at Lehigh University, will serve as co-principal investigators on the project, "Mechanism underlying cofactor-dependent proteolysis of von Willebrand factor."

von Willebrand factor (VWF) is a large multimeric plasma protein that plays a critical role in hemostasis by capturing flowing platelets onto the damaged vascular wall, allowing the subsequent formation of platelet and fibrin plugs. The inability to process the ultra-large VWF may result in life-threatening thromboses, such as thrombotic thrombocytopenic purpura (TTP). Conversely, excessive proteolysis of VWF may occur as in the cases of von Willebrand Disease or in acquired von Willebrand syndrome resulting from aortic stenosis and extracorporeal membrane oxygenation.

The research teams will collaborate by utilizing single-molecule force spectroscopy and atomic force microscopy to determine how coagulation factor VIII binding to VWF unravels the mechanical forces and induces conformational change in the central A2 domain of VWF, where the ADAMTS13 cleavage site resides. The results of their research will assist in understanding the molecular mechanism underlying factor VIII-dependent regulation of VWF proteolysis by ADAMTS13 under pathophysiological conditions. This may also aid in the development of novel therapeutics for prevention and treatment of the bleeding and thrombotic disorders such as acquired von Willebrand syndrome and TTP.

This project allows both research groups the opportunity to combine their expertise in the areas of TTP, ADAMTS13, VWF, and biomechanics.

"Dr. Zhang and I are quite different in training and expertise, but we share a common interest in basic biology (cont'd nof VWF and ADAMTS13. His and my group have collaborated long before this research grant," Zheng said.

Taking advantage of the unique combination of molecular, biochemical, and single-molecule biophysical tools and skillsets in both laboratories, they will begin to elucidate the molecular mechanisms underlying the cofactor (such as factor VIII)-dependent proteolytic cleavage of VWF by ADAMTS13 and other proteases under mechanical force and under pathophysiological conditions.

Zheng's laboratory has long been interested in understanding the pathogenesis of and developing novel therapeutics for TTP, a potentially fatal blood disorder.

Zheng was among the first group of scientists who discovered and cloned ADAMTS13, a plasma enzyme that degrades VWF. The deficiency of this plasma ADAMTS13 enzyme, resulting from primarily autoantibodies against ADAMTS13, is the primary cause of TTP. Without prompt diagnosis and treatment, TTP is fatal. Therapeutic plasma exchange in conjunction with corticosteroids, rituximab, and caplacizumab has been established as the standard of care to date. Zheng's laboratory has made seminal contributions in the biology of ADAMTS13, VWF, pathogenesis of TTP, and novel therapeutics of TTP. More recently, Zheng's research team has focused on the biomechanical mechanisms of protein folding, conformational change, and protein-protein interactions. Understanding these fundamental questions leads to developing a better therapeutic strategy for TTP and other thrombotic disorders.

Khursheed Iqbal, Ph.D., Research Assistant Professor, and Michael J. Soares, Ph.D., University Distinguished Professor, have recently published an article in Environmental Health Perspectives

Evaluation of placentation and the role of the aryl hydrocarbon receptor pathway in a rat model of dioxin exposure

Our environment is replete with chemicals that can affect embryonic and extraembryonic development. Dioxins, such as 2,3,7,8-tetrachlorodibenzo-pp-dioxin (TCDD), are compounds affecting development through the aryl hydrocarbon receptor (AHR).

The purpose of this investigation was to examine the effects of TCDD exposure on pregnancy and placentation and to evaluate roles for AHR and cytochrome P450 1A1 (CYP1A1) in TCDD action.

Actions of TCDD were examined in wild-type and genome-edited rat models. Placenta phenotyping was assessed using morphological, biochemical, and molecular analyses.

TCDD exposures were shown to result in placental adaptations and at higher doses, pregnancy termination. Deep intrauterine endovascular trophoblast cell invasion was a prominent placentation site adaptation to TCDD. TCDD-mediated placental adaptations were dependent upon maternal AHR signaling but not upon placental or fetal AHR signaling nor the presence of a prominent AHR target, CYP1A1. At the placentation site, TCDD activated AHR signaling within endothelial cells but not trophoblast cells. Immune and trophoblast cell behaviors at the uterine–placental interface were guided by the actions of TCDD on endothelial cells.

We identified an AHR regulatory pathway in rats activated by dioxin affecting uterine and trophoblast cell dynamics and the formation of the hemochorial placenta.

Khursheed Iqbal, Stephen H. Pierce, Keisuke Kozai, Pramod Dhakal, Regan L. Scott, Katherine F. Roby, Carrie A. Vyhlidal, and **Michael J. Soares**. Evaluation of Placentation and the Role of the Aryl Hydrocarbon Receptor Pathway in a Rat Model of Dioxin Exposure. *Environmental Health Perspectives* 2021. 129:11 CID: 117001 https://doi.org/10.1289/EHP9256

Kaela Varberg, Ph.D., Post-Doctoral Fellow in Dr. Michael J. Soares' Laboratory has two articles recently published in the Proceedings of the National Academy of Sciences (PNAS) of the United States of America

Intersection of regulatory pathways controlling hemostasis and hemochorial placentation

Human placenta formation is characterized by the development of specialized cells arising from the embryo called trophoblast cells. During pregnancy, trophoblast cells invade into uterine blood vessels to increase maternal blood flow to support fetal growth and development. In these two studies published in PNAS, we used human cell and rat models to identify important aspects of trophoblast cell development.

We investigated how factors involved in blood clotting are important to trophoblast cell development and function. One key anti-clotting factor we studied was tissue factor pathway inhibitor (TFPI). By disrupting TFPI, we impaired trophoblast cell development and function, including their ability to promote increased blood delivery to the

baby during pregnancy. We established TFPI as an important regulator of trophoblast cell-guided placental development; a fundamental process that is shared across species.

Why is this important? We wanted to identify potential connections between bleeding disorders and diseases of placentation. We studied a prominent regulator of blood clotting, referred to as TFPI. In addition to regulating blood clotting, we found that TFPI is also important for the development of trophoblast cells in pregnancy.

Masanaga Muto, Damayanti Chakraborty, Kaela M. Varberg, Ayelen Moreno-Irusta, Khursheed Iqbal, Regan L. Scott, Ross P. McNally, Ruhul H. Choudhury, John D. Aplin, Hiroaki Okae, Takahiro Arima, Shoma Matsumoto, Masatsugu Ema, Alan E. Mast, Elin Grundberg, **Michael J. Soares.** Intersection of regulatory pathways controlling hemostasis and hemochorial placentation. *Proc Natl Acad Sci USA*. 2021 Dec 14;118(50):e2111267118.

ASCL2 reciprocally controls key trophoblast lineage decisions during hemochorial placenta development

The placenta is comprised of trophoblast cells that specialize into two primary subtypes: villous and extravillous. Trophoblast subtypes develop from precursor cells that display conserved expression of the transcriptional regulator achaete-scute homolog 2 (ASCL2). ASCL2 disruption impaired extravillous but promoted villous trophoblast formation, revealing dual functionality in the regulation of trophoblast cell subtypes. Promotion of extravillous trophoblast cell formation was also observed in the rat. We established ASCL2 as a critical and conserved regulator of trophoblast cell development.

Why is this important? Defective placentation leads to the development of pregnancy disorders and suboptimal maternal and fetal health outcomes. Central to the establishment and function of the placenta are trophoblast cells. We identified a critical regulator of trophoblast cell fate that represents an entry point into understanding the etiology of pregnancy disorders arising from deficits in placentation.

Combined Summary: Overall, both TFPI and ASCL2 are critical to trophoblast cell function, including the ability to invade into the uterus to promote blood delivery to the baby during pregnancy. Ensuring sufficient blood delivery to the baby is important for growth and development. Thus, TFPI and ASCL2 are important factors contributing to successful pregnancy outcomes.

Kaela M. Varberg, Khursheed Iqbal, Masanaga Muto, Mikaela E. Simon, Regan L. Scott, Keisuke Kozai, Ruhul H Choudhury, John D. Aplin, Rebecca Biswell, Margaret Gibson, Hiroaki Okae, Takahiro Arima, Jay L. Vivian, Elin Grundberg, **Michael J. Soares**. ASCL2 reciprocally controls key trophoblast lineage decisions during hemochorial placenta development. *Proc Natl Acad Sci USA*. 2021 Mar 9;118(10):e2016517118

WELCOME NEW STAFF

STEVE BEELER, MLS(ASCP)^{CM}

Steve joined us as Senior Director of Pathology and Laboratory Medicine, effective Jan 10, 2022. Steve will oversee all lab services in the Kansas City Division as administrative leader. Working closely with the chair and service chief of Pathology and Laboratory Medicine and other outstanding lab leadership teams, he will guide our success in resolving our space issues, insourcing new and much needed clinical lab services, deploying Beaker and developing outreach services. Steve has 20 years leadership experience and comes from Ben Taub Hospital in Houston, where he served as Administrative Lab Director. Prior to that, Steve served as VP of Operations at QualTex Laboratories and has previous leadership positions at the American Red Cross Blood Services. Steve's experience in laboratory and pathology leadership will be invaluable to our growth and success.

RETIREMENT ANNOUNCEMENT

After 21 years of service, **Marsha Danley** is retiring on May 2, 2022. Marsha is the go-to person for many of our faculty in the department and institution in handling tough and challenging experiments requiring histology and immunohistochemistry expertise. She has been a true resource for our department and the research efforts on campus. Marsha, thank you for your dedication and commitment, you will be missed.

FACULTY NEWS & ACCOLADES

CONGRATULATIONS TO THE FOLLOWING FACULTY FOR THEIR RECENT ACCOMPLISHMENTS

NIKKI CHENG, PH.D., ASSOCIATE PROFESSOR

Dr. Nikki Cheng, Associate Professor of Pathology and Laboratory Medicine, was selected by a committee of former Interdisciplinary Graduate Program in Biomedical Sciences (IGPBS) students, faculty, and leadership, to assume the role of **Associate Director of (IGPBS),** effective January 1, 2022. Dr. Cheng's extensive experience will be beneficial in her new role, as she has mentored high school students, undergraduates, and six graduate students in her laboratory.

IVAN DAMJANOV, M.D., PH.D., PROFESSOR EMERITUS

Ivan Damjanov, M.D., Ph.D., Professor Emeritus and colleague, Harsh Mohan, MD, have authored the book **"Pathology Simplified: A Quick Review for Examination Preparation."** The book was written for Indian medical graduates who have completed their undergraduate medical education and are now preparing to take NEET-PG (National Eligibility cum Entrance Test for Postgraduate admission). This exam was designed to select the best young physicians for additional specialty training. Every year approximately 70,000 candidates take PG-NEET in India. Pathology is included in this exam, and comprises approximately 20% of all the questions, which are presented in the standard multiple-choice format. The material in this book is presented in the form of questions and short answers, with multiple-choice questions at the end of each chapter.

KATIE DENNIS, M.D., ASSOCIATE PROFESSOR

Dr. Katie Dennis and TUKHS Decedent Affairs staff, Ciara Wright, Ph.D., were featured on the University of Kansas Health System's Morning Medical Update on January 27, 2022. They discussed the influx of Covid-19 patients and the need to be empathetic and treat every decedent as a relative. According to Dr. Dennis, the morgue saw more overall deaths in January than during the entire pandemic. **https://youtu.be/G8ufF5A7Dso**

ANDREW GODWIN, PH.D., UNIVERSITY DISTINGUISHED PROFESSOR

Dr. Godwin was presented a $75,000 check from the OVERRUN Ovarian Cancer Foundation on January 11th, 2022. The OVERRUN Ovarian Cancer Fellowship was established to support graduate students or postdoctoral fellows in the field of ovarian cancer. The foundation has donated nearly $500,000 to the Godwin laboratory over the past ten years (November 2012 to present). "The OVERRUN Ovarian Cancer Foundation's support at The University of Kansas Cancer Center enables young researchers to think outside the box and try innovative research that may not typically be federally funded." (source)

SHARAD C. MATHUR, M.D., PROFESSOR AND CHIEF OF PAHTOLOGY AT VA HOSPITAL, KANSAS CITY

The Medical Student Assembly Student Voice Committee will recognize Dr. Sharad Mathur's receipt of **M1 Most Inspiring Award & Outstanding M2 Lecturer Award** during the 24th Annual A Grand Affair on Saturday, March 19, 2022. Thank you for your dedication to KU medical education.

SOUMEN PAUL, PH.D., PROFESSOR

Dr. Paul and colleagues were awarded the Magee Award's third-place prize for their project: ***Epigenetic Regulation of Trophoblast Function, Infertility and Early Pregnancy Loss.*** mageesummit.org/mageeprize/

TODD STEVENS, M.D., ASSOCIATE PROFESSOR

Dr. Stevens joined the department on November 29, 2021 and has recently been appointed **Associate Professor on the Clinical Scholar Track** by the University of Kansas, School of Medicine.

SHI WEI, M.D., PH.D., ATKINSON ENDOWED PROFESSOR

Dr. Wei joined the department on December 15, 2021, as Barbara Atkinson Endowed Professor and has recently been appointed **Professor of Pathology with Tenure** status by the University of Kansas, School of Medicine.

DA ZHANG, M.D., PROFESSOR

Dr. Da Zhang has accepted the role of **Director, Bone Marrow Laboratory**, Department of Pathology and Laboratory Medicine, effective January 3, 2022, to replace Dr. Mark Cunningham who has been in the role since 2003 – more than 18 years. We thank **Dr. Cunningham** for his outstanding contribution in establishing and advancing the lab. Dr. Zhang joined the department in 2005 after completing his fellowship training at Memorial Sloan-Kettering, New York. He was promoted to Professor in 2017 and become the Director of the Hematopathology Fellowship in 2020. He holds leadership roles in the American Society for Hematopathology, the Kansas City Society of Pathologists, and serves on several national editorial boards.

X. LONG ZHENG, M.D., PH.D., RUSSELL J. EILERS ENDOWED PROFESSOR AND CHAIR

Dr. Zheng has been named as **Joint Faculty in the Department of Biochemistry and Molecular Biology,** to aid in inter-departmental collaboration and graduate education efforts. Dr. Zheng's research focuses on the biochemistry of ADAMTS13, a plasma metalloprotease that cleaves on von Willebrand factor, pathogenesis and novel therapeutics of immunce thrombotic thrombocytopenic purpura (iTTP) and other immune thrombotic disorders.

LABORATORY DIVISION UPDATE

FRED V. PLAPP, M.D., PH.D., PROFESSOR, VICE CHAIR FOR CLINICAL AFFAIRS AND MEDICAL DIRECTOR OF CLINICAL LABORATORIES

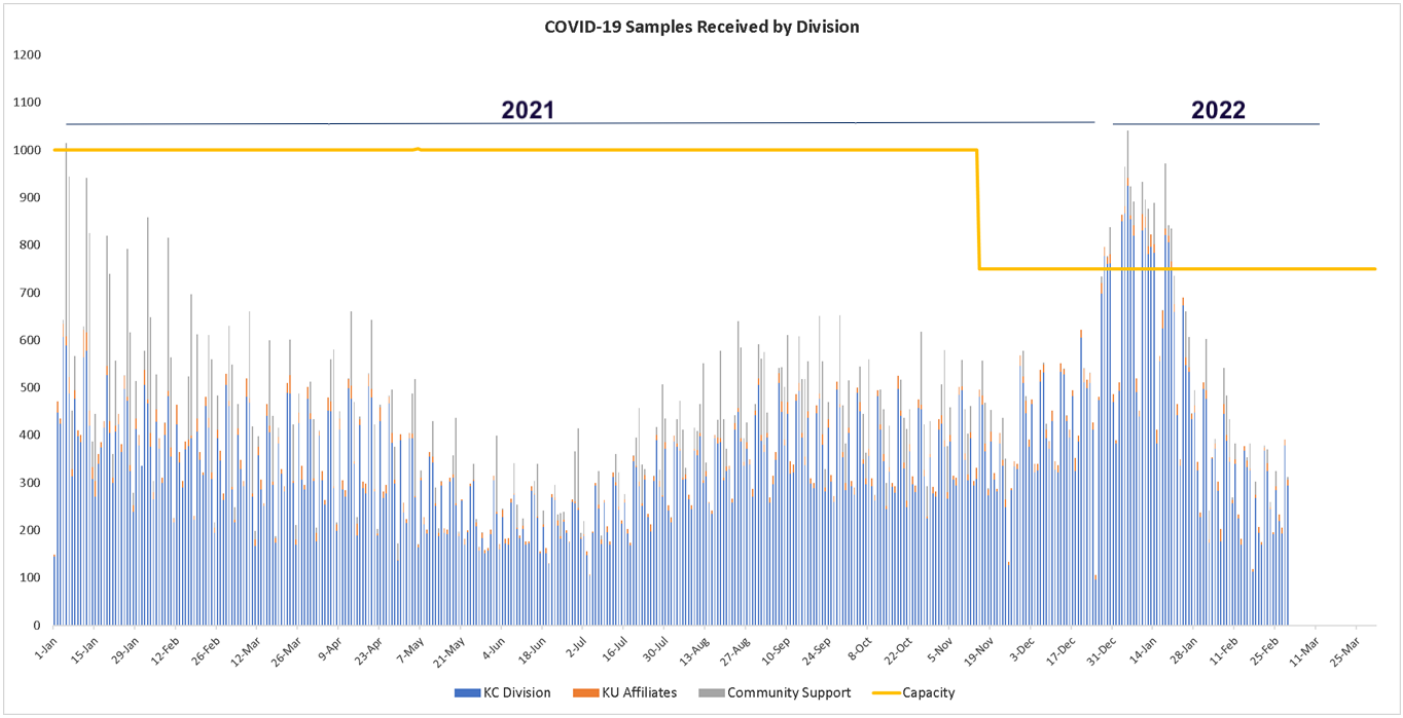
The Chemistry section continues to struggle with shortages of gold and mint-top Vacutainer tubes. We have had to purchase red-top tubes, which are not compatible with our automation and must be processed manually. Many volunteers from throughout the organization, including the executive office, have volunteered to assist.

Chemistry is also validating a new Beckman Coulter DxI immunoassay analyzer to replace an analyzer that is frequently out of service. Chemistry is also validating a new urine drug screen for Fentanyl.

Our Point of Care section supports point of care testing throughout The University of Kansas Health System. Currently, our team is managing 369 glucose meters, 92 iSTAT, 16 Coaguchek, 3 AVOX co-oximeters, 18 Hemochron heparin analyzers , 4 HMS heparin analyzers, and 2 refractometers. They have recently standardized protocols for competency testing, method evaluation, and instrument to instrument correlations. They are waiting on the arrival of point of care molecular testing for influenza, RSV, and Group A Strep to replace rapid antigen testing.

RACHAEL LIESMAN, PH.D., ASSISTANT PROFESSOR AND MEDICAL DIRECTOR OF CLINICAL MICROBIOLOGY LABORATORY

Despite being short-staffed, the staff in the clinical microbiology and molecular microbiology laboratories continue to perform more than 400 SARS-coV2 PCR tests per day, on average during the past three months, to support our patient care at the University of Kansas Medical Center.



TRAINEE NEWS

KATIE L. DENNIS, M.D.
ASSOCIATE PROFESSOR;
DIRECTOR, RESIDENCY PROGRAM;
DIRECTOR, CYTOPATHOLOGY FELLOWSHIP

CONTINUED ACGME ACCREDITATION

The residency program and all three fellowship programs achieved ACGME continued accreditation.

USMLE STEP 3 & COMLEX LEVEL 3 EXAMS

All of our residents successfully passed their USMLE Step 3 and COMLEX Level 3 exams. All residents will take the National RISE exam at the end of March.

RESIDENCY RECRUITMENT

The residency program has completed interviews for Match 2022 and look forward to seeing who we Match on March 18th.

NEW BLOOD BANKING/TRANSFUSION MEDICINE FELLOWSHIP, JULY 1, 2022

We are excited to announce the Accreditation Council for Graduate Medical Education (ACGME) has approved the Blood Banking/Transfusion Medicine Fellowship, effective July 1, 2022!

ZHAN (JOHNNY) YE, M.D., PH.D.
ASSISTANT PROFESSOR;
ASSOCIATE MEDICAL DIRECTOR, BLOOD BANK; MEDICAL DIRECTOR, KU CANCER CENTER LABORATORIES

The fellowship will be led by Zhan (Johnny) Ye, M.D., Ph.D., Assistant Professor. The fellowship will fill an unmet need, as there is currently no such fellowship in the Kansas City metro area or surrounding region – including Kansas, Nebraska, and Oklahoma. The nearest BB/TM fellowship is in St. Louis, Missouri. This fellowship will allow us to better serve hospitals in Kansas and West Missouri.

"With more than 30,000 units issued a year at The University of Kansas Health System (TUKHS), our blood bank laboratory provides reliable support to the health system and maintains top-tier performance in patient blood management" said Dr. Zheng, Chair of Pathology and Laboratory Medicine at KUMC. Our BB/TM fellows will receive extensive training in all aspects of transfusion medicine and hemostasis. The blood bank and hemostasis laboratories are also actively involved in clinical trials and supporting translational research, so fellows will have many opportunities to participate in outstanding clinical service and cutting-edge research projects. They will also spend significant time in apheresis, blood donation, coagulation, and pediatric transfusion management by rotating in TUKHS stem cell and therapeutic apheresis service and at the Community Blood Center and Children's Mercy Hospital. We are confident that this program will train highly qualified transfusion medicine physicians and blood bankers to meet the challenge for excellence in patient care, education, and research, as well as community outreach.

PROGRAM LEADERSHIP AND SUPPORT

- **Zhan (Johnny) Ye, M.D., Ph.D.,** Assistant Professor, Program Director - Department of Pathology and Laboratory Medicine, KUMC
- **X. Long Zheng, M.D., Ph.D.,** Professor and Chair - Department of Pathology and Laboratory Medicine, KUMC
- **Mark Cunningham, M.D.,** Professor - Department of Pathology and Laboratory Medicine, KUMC
- **Fred Plapp, M.D., Ph.D.,** Professor - Department of and Laboratory Medicine, KUMC
- **Jed Gorlin, M.D.,** Medical Director – Community Blood Center, Kansas City
- **Lejla Music-Aplenc, M.D.,** Director, Transfusion Service – Children's Mercy Hospital
- **Tamara Osborn,** Program Coordinator – Department of Patholog and Laboratory Medicine, KUMC

POST-DOCTORAL NEWS

POST-DOCTORAL GRANT AWARDS - GODWIN LAB

Identification of Novel and Synergistic Drug Combinations for Refractory and Recurrent Ewing Sarcoma

Biomedical Research Training Program
PI: Soumya Turaga, Ph.D., 01/01/2022-12/31/2022, $13,000
Mentor: Andrew Godwin, Ph.D.

Learn more about the **Godwin Lab**

SOCIETY FOR THE STUDY OF REPRODUCTION (SSR) TRAVEL FELLOW AWARDS - SOARES LAB

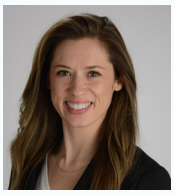
Esteban Dominguez, Ph.D.
Post-Doctoral Fellow

Involvement of transcription factor AP-2 gamma in trophoblast cell development and placentation

Ayelen Moreno, Ph.D.
Post-Doctoral Fellow

Species Specificity of PEG3 and TAF7L Involvement in Invasive Trophoblast Cell Development and Hemochorial Placentation

Regan Scott, M.S., Graduate Student



CDKN1C Contributes to The Regulation of Invasive Trophoblast Cells and Hemochorial Placentation

Mikaela Simon, M.S., Graduate Student

Role of FSTL3 in trophoblast cell lineage development and placentation

SSR PLATFORM COMPETITION FIRST PLACE - SOARES LAB

Marija Kuna, Ph.D., Post-Doctoral Fellow
CITED2 Regulates Placentation and The Invasive Trophoblast Cell Phenotype

Learn more about the **Soares Lab**

RESEARCH & SCHOLARLY ACTIVITIES

RECENT GRANTS

ANDREW K. GODWIN, PH.D.

Liquid Biopsy Using Tumor Specific Extracellular Vesicles for the Early Detection of Epithelial Ovarian Cancer

The Honorable Tina Brozman Foundation (Tina's Wish),
Role: Contact PI
PI: Steven Soper, Ph.D. 01/01/2022-12/31/2023
$300,000

X. LONG ZHENG, M.D., PH.D.

Mechanism Underlying Cofactor-Dependent Proteolysis of von Willebrand Factor

NIH, National Heart, Lung and Blood Institute
Role: Contact PI
02/01/2022-01/31/2026, $459,810 year
$1.8M total (link)

KEY PRESENTATIONS

ANDREW K. GODWIN, PH.D.

KUMC Virtual Roundtable: Genetic Screening in Rural Communities

Kansas Institute for Precision Medicine and Center for Genetic Services and Health Disparities: Advancing Precision Medicine at the University of Kansas. January 28th, 2022 (virtual).

Tumor Extracellular Vesicle Proteomic Fingerprinting of Ovarian Cancer for the Early Detection with Nanoengineered Microfluidic Platforms: From Biomarkers to Cancer Pathogenesis

Ovarian Cancer Midwest Focus Conference, Hormel Institute, Austin, MN. November 11-12th, 2021

X. LONG ZHENG, M.D., PH.D.

Special Lecture Series in Leadership, Professionalism, Wellness and Friendship Development Program

Chinese American Pathologist Association (CAPA). Sunday, January 30, 2022 (Virtual). Doctor Zheng presented in a webinar and shared his experience as a new chair: **"Between Rocks and Hard Surfaces: Differing Expectation sof the Department Chair"**.

RECENT ABSTRACTS & PUBLICATIONS

WEI CUI, M.D.

AML with Germline DDX41 Variants is a Clinicopathologically Distinct Entity with an Indolent Clinical Course and Favorable Outcome

Li P, White T, Xie W, **Cui W,** Peker D, Zeng G, Wang HY, Vagher J, Brown S, Williams M, Kovacsovics T, Patel JL. *Leukemia* 2021 Oct 20. doi: 10.1038/s41375-021-01404-0. Epub ahead of print.

Outcomes of VDPACE with an Immunomodulatory Agent as a Salvage Therapy in Relapsed/Refractory Multiple Myeloma with Extramedullary Disease

Abdallah AO, Rehman GM, Ahmed N, Mohan M, **Cui W**, Shune L, Mahmoudjafari Z, McGuirk J, Ganguly S, Atrash S.. *EJ. Haem.* 2(4), 2021 Nov. 757-764.

Hepatocytic p62 Suppresses Ductular Reaction and Tumorigenesis in Mouse Livers with mTORC1 Activation and Defective Autophagy

Chao X, Wang S, Fulte S, Ma X, Ahamed F, **Cui W,** Liu Z, Rülicke T, Zatloukal K, Zong WX, Liu W, Ni HM, Ding WX. *J Hepatol.* 2021 Oct 25:S0168-8278(21)02151-6. doi: 10.1016/j.jhep.2021.10.014.

ANDREW K. GODWIN, PH.D.

Breast and Prostate Cancer Risks for Male BRCA1 and BRCA2 Pathogenic Variant Carriers Using Polygenic Risk Scores

Barnes, D.R, et. al. *J Natl Cancer Inst.*, 2022 Jan 11;114(1):109-122. doi: 10.1093/jnci/djab147 (PMID: 34320204) PMCID: PMC8121813.

Polygenic Risk Modelling for Prediction of Epithelial Ovarian Cancer Risk

Dareng, E.O., et. al. *Eur J Hum Genet.*, 2022 Jan 14. doi: 10.1038/s41431-021-00987-7. Online ahead of print. (PMID:35027648).

Residual Cancer Burden after Neoadjuvant Chemotherapy and Long-Term Survival Outcomes in Breast Cancer: A Multi-Center Pooled Analysis of 5161 Patients

Yau, C., et. al. *Lancet Oncol.,*2022 Jan; 2022 Jan;23(1):149-160. doi: 10.1016/S1470-2045(21)00589-1. Epub 2021 Dec 11. PMID: 34902335.

Evaluation of the Predicted Sensitivity to Endocrine Therapy (SET2,3 index) and the 21-gene Recurrence Score Node-Positive Postmenopausal Breast Cancer: Results from an Analysis in the SWOG S8814 Trial in Node-Positive Postmenopausal Breast Cancer

Speers, C.W., Symmans, W.F., Barlow, W.E., Trevarton, A., The, S., Du, L., Rae, J.M., Shak, S., Baehner, R., Osborne, C.K., Sharma, P., Pusztai, L., Albain, K.S., **Godwin, A.K.,** Thompson, A. *San Antonio Breast Cancer Symposium*, December 7-10, 2021, San Antonio, Texas.

Immunogenicity of SARS-CoV-2 Vaccination in Subjects on Active Treatment for Breast Cancer

Bivona, C., Li, K., Sharma, P., He, J., Martin, G., **Godwin, A.K.,** et al. *San Antonio Breast Cancer Symposium*, December 7-10, 2021, San Antonio, Texas.

ANDREW K. GODWIN, PH.D., FARIBA BEHBOD, PHARM.D., PH.D., STEPHEN HYTER, PH.D., RASHNA MADAN, MBBS & HARSH PATHAK, PH.D.

Pom-poms Prepared Exosomes Enable Highly Specific Cancer Biomarker Detection

N. He, S. Thippabhotla, C. Zhong, Z. Greenberg, L. Xu, Z. Pessetto, **A. K. Godwin,** Y. Zeng, M. He. *Nano Nature Communications Biology* 2022, Accepted

Immunogenicity of SARS-CoV-2 Vaccination in Hematopoietic Stem Cell Transplant and Chimeric Antigen Receptor T-Cell Therapy Recipients

Mushtaq, M.U., Nelson, M., Bivona, C.R., **Godwin, A.K,** Sharma, P., Martin, G., Li, K., Streeter, N., Zhang, J., Abdelhakim, H., Hoffmann, M., Liu, B., Zheng, C., Mitchell, L., Pessetto, Z., **Pathak, H.,** Abhyankar, S., Khan, Q., McGuirk, J.P. *Transplantation & Cellular Therapy Meetings*, February 3, 2022, Salt Lake City, Utah.

Grand Challenge PRECISION Consortium. Mouse-INtraDuctal (MIND): An In Vivo Model for Studying the Underlying Mechanisms of DCIS Malignancy

Hong, Y., Limback, D., Elsarraj, H.S., Harper, H., Haines, H., Hansford, H., Ricci, M., Kaufman, C., Wedlock, E., Xu, M., Zhang, J., May, L., Cusick, T., Inciardi, M., Redick M., Gatewood, J., Winblad, O., Aripoli, A., Huppe, A., Balanoff, C., Wagner, J.L., Amin, A.L., Larson, K.R., Ricci, L., Tawfik, O., Razek, H., Obaldo Meierotto, R., **Madan, R., Godwin, A.K.,** Thompson, J., Hilsenbeck, S.G., Futreal, A., Thomspson, A., Hwang, E.S., Fan, F., **Behbod, F.** *The Journal of Pathology,* 2022 Feb;256(2):186-201. doi: 10.1002/path.5820 [Epub 2021 Dec 13] (PMID:34714554).

Mouse-INtraDuctal (MIND): An In Vivo Model for Studying the Underlying Mechanisms of DCIS Malignancy

Hong, Y., LImback, D., Elsarraj, H.S., Rastogi, A., Harper, H., Haines, H., Hansford, H., Ricci, M., Kaufman, C., Wedlock, E., Xu, M., Zhang, J., May, L., Cusick, T., Inciardi, M., Reddick, M., Gatewood, J., Winblad, O., Aripoli, A., Huppe, A., Balanoff, C., Wagner, J.L., Amin, A.L., Larson, K.E., Ricci, L., Tawfik, O., Razek, H, Obaldo Meierotto, R., **Madan, R., Godwin, A.K.,** Thompson, J., HIlsenbeck, S.G., Futreal, A., Thompson, A., Hwang, E.S., Fan, F., **Behbod, F.** *San Antonio Breast Cancer Symposium,* December 7-10, 2021, San Antonio, Texas.

Discovering Small Extracellular Vesicle-associated MicroRNA Signatures to Detect Diverse Ovarian Cancer Subtypes

Tetlow, A.L., **Pathak, H., Godwin, A.K.** *KU Cancer Center Research Symposium*, November 15-19, 2021, virtual (selected for oral presentation – D3ET program).

Discovering Small Extracellular Vesicle-associated MicroRNA Signatures to Detect Diverse Ovarian Cancer Subtypes

Gibbs, B.K, Roy, A., Douglas, J., Whitaker, A., Ndi, C., **Pathak, H.,** Neuenswander, S., Broward, M., Freudenthal, B, Schoenen, F., **Godwin, A.K.** *KU Cancer Center Research Symposium,* November 15-19, 2021. Virtual.

Targeting Aurora Kinase A and Mitotic Kinesin KIF11 in Ovarian Cancer

Sabu, P., Puri, R., Turaga, S., **Pathak, H.B., Godwin, A.K.** *KU Cancer Center Research Symposium*, November 15-19, 2021, virtual (selected for oral presentation – D3ET program)

Extracellular Vesicle Proteomic Fingerprinting of Serous Ovarian Cancer and Fallopian Tube Cell Lines and Tissue Explants to Identify Novel Biomarkers for Early Detection

Trinidad, C.V., Sardiu, M., Bantis, L., **Pathak, H., Godwin, A.K.** *KU Cancer Center Research Symposium*, November 15-19, 2021. Virtual

A Phase II Study of Perioperative mFOLFOX Chemotherapy Plus Pembrolizumab Combination in Patients with Potentially Resectable Adenocarcinoma of the Esophageal, Gastroesophageal Junction (GEJ) and Stomach

Sun, W., Saeed, A., Al-Rajabi, R., Kasi, A., Veermachaneni, N., Al-Kasspooles, M., Baranda, J., Phadnis, M., **Godwin, A.K.,** Olyaee, M., **Madan, R.,** Nagji, A., Williamson, S.A. *ASCO Gastrointesinal Cancer Symposium,* January 20-22, 2022, San Francisco, CA (Virtual).

Impact of Post Treatment ctDNA and Residual Cancer Burden (RCB) on Outcomes in Patient with Triple Negative Breast Cancer (TNBC) and Residual Disease

Sharma, P., Stecklein, S.R., Kimler, B.F., Yoder, R., Schwensen, K., Staley, J.M., Khan, Q.J., O'Dea, A.P., Nye, L., Elia, M., Heldstab, J., Home, T., **Hyter, S.,** Isakova., K., **Pathak, H.B., Godwin, A.K.** *San Antonio Breast Cancer Symposium*, December 7-10, 2021, San Antonio, Texas.

NELLI S. LAKIS, M.D., MS.C.

FOXO3 Regulates a Common Genomic Program in Aging and Glioblastoma Stem Cells

Audesse AJ, Karashchuk G, Gardell ZA, **Lakis N.S.,** et al., *Aging and Cancer.* 2021; 2: 137– 159. https://doi.org/10.1002/aac2.12043

FRED V. PLAPP, M.D. PH.D.

Assessing Provider Utilization of COVID-19 Inflammatory Marker Trends in Hospitalized Patients and Implications in Optimizing Value-Based Care During a Pandemic

Kansas Journal of Medicine. March 2022 Online. Pending Publication

MICHAEL J. SOARES, PH.D.

Special Issue for Frontiers in Cell and Developmental Biology: Multi-omics Approaches to the Study of Placental Development and Disease

Tuteja, G., **Soares, M.J.** (2021) https://www.frontiersin.org/research-topics/15249/multi-omics-approaches-to-study-placental-development-and-disease

MICHAEL J. SOARES, PH.D., ELIN GRUNDBERG, PH.D. & KHURSHEED IQBAL, PH.D., JAY L. VIVIAN, PH.D.

The Toxicity of PCB126 to Energy Metabolism in Liver is AhR Mediated in Rats

Eti, N.A., Flor, S., **Iqbal, K.,** Klenov, V.E., Gibson-Corley, K.N., **Soares, M.J.,** Ludewig, G., and Robertson, L.W. *Toxicology* 466: 153054. (2022)

ASCL2 Reciprocally Controls Key Trophoblast Lineage Decisions During Hemochorial Placenta Development

Varberg, K.M., **Iqbal K.,** Muto M., Simon M.E., Scott R.L., Kozai K., Choudhury R.H., Aplin J.D., Biswell R., Gibson M., Okae H., Arima T., **Vivian J.L., Grundberg E., Soares M.J.,** *Proc Natl Acad Sci USA*. 2021 Mar 9;118(10):e2016517118.

Intersection of Regulatory Pathways Controlling Hemostasis and Hemochorial Placentation

Muto, M., Chakraborty, D., Varberg, K.M., Moreno-Irusta, A., McNally, R.P., **Iqbal, K.,** Scott, R.L., Choudhury, R.H., Aplin, J.D., Okae, H., Arima, T., Matsumoto, S., Ema, M., Mast, A.E., **Grundberg, E.**, and **Soares, M.J.** *Proc Natl Acad Sci USA. 2021 Dec 14;118(50):e2111267118.*

LIANG ZHENG, PH.D. & X. LONG ZHENG, M.D., PH.D.

Neutrophil Extracellular Traps (NETs) Contribute to the Formation of Microvascular Thrombosis in Immune Thrombotic Thrombocytopenic Purpura

Yada N., Sui J., **Zheng L., Zheng X.L.** *ASH Society 63rd Annual Meeting and Exhibition Meeting,* Atlanta, GA. December 12, 2021. *Blood* 2021; 138 (Supplement 1): 1020. doi: https://doi.org/10.1182/blood-2021-153272

Single B Cell Immunoglobulin Sequencing Identifies Distinct Features of Monoclonal Antibodies in Patients with Immmune Thrombotic Thrombocytoepenic Purpura

Liu Szumam, Abdelgawwad M, Liu Shanrun, **Zheng XL.** *ASH Society 63rd Annual Meeting and Exhibition Meeting*, Atlanta, GA. December 12, 2021. Blood 2021; 138 (Supplement 1): 2081. doi: https://doi.org/10.1182/blood-2021-149233

UPCOMING EVENTS

INSTITUTE FOR REPRODUCTION AND PERINATAL RESEARCH SEMINAR SERIES

THURSDAYS, 8:30-9:30 AM
WAHL HALL WEST AUDITORIUM (UNLESS OTHERWISE NOTED)

MARCH 31, 2021 | TIME 8:30-9:30 AM

TBD: YI LI, PhD, Baylor College of Medicine, Houston, Texas

APRIL 14, 2022 | TIME 8:30-9:30 AM

TBD: Baron Chanda, Ph.D., Washington University, St. Louis, Missouri

APRIL 21, 2022 | TIME 8:30-9:30 AM

TBD: Paola Rinaudo, M.D., Ph.D., University of California, San Francisco

MAY 5, 2022 | TIME 8:30-9:30 AM

IVAN DAMJANOV LECTURE IN STEM CELL RESEARCH

TBD: Robert Blelloch, M.D., Ph.D., University of California, San Francisco

For more information (Link)

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MAKE PLANS TO ATTEND THE 2ND ANNUAL DIAGNOSTIC UPDATES IN PATHOLOGY & LABORATORY MEDICINE CONFERENCE ON SATURDAY, JUNE 4TH, 2022. VISIT THE MEETING WEBPAGE FOR REGISTRATION MATERIALS.

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