

DEPT. OF TOXICOLOGY AND CANCER BIOLOGY NEWSLETTER

Volume 7, Issue 1

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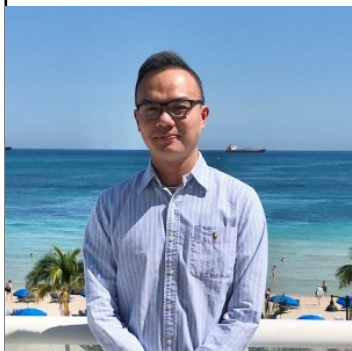
SUPPORT THE DEPARTMENT

Gifts to the department will be directed toward emerging needs and opportunities for our students, faculty research support, and unrestricted support for the department.

[Click here](#) to donate. Once on the UKY Donation webpage, please select the "Graduate Center for Toxicology Gifts Fund" to donate directly to the Department of Toxicology and Cancer Biology.

Thank you for your support!

New Grants (New grants are shared once the department receives PADR 1 stating the account has been created):



Ka-Wing "Will" Fong (PI in grants below):

American Cancer Society, "The Role of SETDB1 in Prostate Cancer".

Total funding: \$946,000 for 4 years. Androgen receptor (AR) signaling drives early-stage castration-resistant prostate cancer (CRPC), yet resistance to androgen signaling inhibitors (ASIs) such as enzalutamide inevitably emerges. The long-term goal of this study is to identify new therapeutic vulnerabilities in ASI-resistant CRPC. Emerging evidence suggests that epithelial-mesenchymal transition (EMT) contributes to prostate cancer metastasis and therapy resistance, but the underlying regulatory mechanisms remain poorly understood. Our preliminary studies identify a SETDB1-RhoB signaling axis that regulates EMT in prostate cancer. SETDB1 amplification occurs in ~15% of metastatic CRPC and epigenetically suppresses RhoB expression, promoting EMT, metastasis, and resistance to ASI therapy. Pharmacologic restoration of RhoB signaling using a SETDB1 antisense oligonucleotide (ASO) or the NEDD8-activating enzyme inhibitor MLN4924 suppresses EMT and limits metastasis in enzalutamide-resistant models. We hypothesize that SETDB1 drives metastasis through RhoB-loss-induced EMT and that SETDB1 inhibition or RhoB restoration will overcome therapeutic resistance.

Mike Slive Foundation for Prostate Cancer Research, "Targeting TRIM28-mediated Metabolic-Epigenetic Crosslink to Treat Metastatic Castration-Resistant Prostate Cancer". Total funding: \$50,000 for 1 year. The proposed research aims to determine whether TRIM28 regulates histone lactylation via metabolic reprogramming in metastatic castration-resistant prostate cancer.



Xia Liu (PI in grant below):

American Cancer Society, "p38d in Tumor-Associated "Emergency"

Granulopoiesis and Immunosuppression". Total funding: \$946,000 for 4 years.

Triple-negative breast cancer (TNBC) is the most aggressive breast cancer subtype, characterized by early metastasis, poor prognosis, and limited targeted therapies. Although anti-PD1 immunotherapy has been approved for TNBC, most patients do not respond, highlighting a critical need for strategies to improve its efficacy. Increasing evidence indicates that the accumulation of immunosuppressive neutrophils, also known as polymorphonuclear myeloid-derived suppressor cells (PMN-MDSCs), is a major driver of resistance to anti-PD1 therapy. Our objective is to develop strategies that selectively target these immunosuppressive neutrophils to restore anti-tumor immunity in TNBC. These studies will elucidate how tumors dysregulate granulopoiesis to promote TNBC progression and may identify p38 δ as both a therapeutic target and a biomarker to improve patient responses to anti-PD1 therapy.

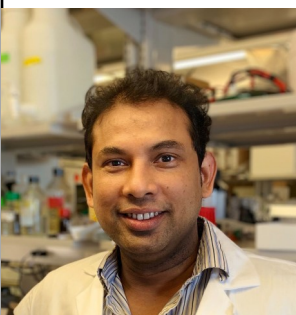
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New Grants (continued): (New grants are shared once the department receives PADR 1 stating the account has been created):

Andrew Lane (PI in grant below) and Teresa Fan and Richard Higashi (Co-Is in grant below):

National Institute of General Medical Sciences, COBRE “University of Kentucky Center for Cancer Metabolism (Metabolism Core)”. Total funding: \$182,840 for 1 year. This grant supports metabolism services and advice for the Cancer & Metabolism COBRE members (Projects and Pilot studies) especially using stable isotope tracers. The Metabolism Core also develops methods for users according to need.



Eunus Ali (PI in grant below):

National Institute of General Medical Sciences, COBRE “Regulation of One-carbon Metabolism and Purine Synthesis by YRDC in Hepatocellular Carcinoma (Project 2)”. Total funding: \$299,573 for 1 year. Liver cancer, in particular hepatocellular carcinoma, remains as one of the most aggressive and heterogeneous cancers with very little to no improvement in survival in the past decade. Surgery, ablation or embolization therapy are some of the major options but all of them are associated with patient's painful sufferings and huge expense. Accordingly, targeted therapy, which uses drugs to target specific genes and proteins that help cancer cells survive and grow - is emerging in the treatment of liver cancer. The rationale of this project is to identify or define if we could target an overexpressed protein in liver cancer (e.g., YRDC protein).



Mary Mohrin (PI in grant below):

National Institute of General Medical Sciences, COBRE “Targeting SIRT7 Regulation of Mitochondrial Quality Control to Short Circuit Age-related Diseases of the Hematopoietic System (Project 1)”. Total funding: \$299,572 for 1 year. This grant will investigate how mitochondria and the nucleolus –two key stress sensors in hematopoietic stem cells– communicate, how this cross-talk breaks down with age, and whether restoring it can prevent clonal hematopoiesis or leukemia. Our data identify the longevity protein SIRT7 as a dynamic coordinator of this dialogue, linking mitochondrial and nucleolar stress responses. Using our new SIRT7 transgenic mouse, we will test whether enhancing this protective pathway preserves stem cell function and delays blood-system aging.

Recently Accepted or Published Manuscripts:

Center for Environmental and Systems Biochemistry (CESB): Teresa Fan, Rick Higashi, and Andrew Lane:

1. S. Daneshmandi, Q. Yan, E. Cortes Gomez, J. E. Choi, E. Katsuta, E. Gharib, P. Singh, **R. M. Higashi, A.N. Lane, T. W-M. Fan**, J. Wang, E. Repasky, P. McCarthy, H. Mohammadpour (2026). 6-Phosphogluconate dehydrogenase promotes mitochondrial fusion and immune suppression in tumor-associated monocytic suppressor cells. *Nat Commun* **17**, 229.
2. **A.N.Lane** (2026) Homage to James Feeney, a pioneer of biological NMR – Part I *Front. Mol. Biosci. - Structural Biology* in press.
3. X.Yang, O. Spellecy, Q. Javeria, R. Han, K.Zhu, S. Xu, Y. Zhang, I. Aryal, R. Lung, D. W. Piecoro, **T. Scott, P. Lin**, L. Chen, L. Brewer, Z. Guo, N. Kyprianou, R. Guo, O. Thibault, B. Yang, A-H. Lin, A. Faisal, D. Napier, and C. Wang (2026) Crosstalk Between Integrin Signaling and NAD⁺ Biosynthetic Pathways Promotes Glycolysis, Proliferation, Survival, and Tumor Growth in Triple-Negative Breast Cancer" **accepted** *Oncogene*.

Xiaoqi Liu and Zhiguo Li

1. Farah, E. G., **Li, Z., and Liu, X.** (2026) Molecular pathways driving enzalutamide resistance in prostate cancer: roles of Notch signaling and DNA methyltransferases. *Serican Journal of Medicine*, 3(1), 24973. <https://doi.org/10.17161/sjm.v3i1.24973>.

Recently Accepted or Published Manuscripts (continued):

Xiaoqi Liu and Zhiguo Li (continued):

2. Li, C., **Li, Z.**, and **Liu, X.** (2026) Prostate Cancer: Etiology, Diagnosis, and Treatment. *Serican Journal of Medicine*, 3(1), 24992. <https://doi.org/10.17161/sjm.v3i1.24992>.

3. Simpson, K., **Li, Z.**, and **Liu, X.** (2026) Metabolic Reprogramming and DNA Damage Response in Prostate Cancer: Implications for Treatment. *Serican Journal of Medicine*, 3(1), 24976. <https://doi.org/10.17161/sjm.v3i1.24976>.

Amrita Machwe and David Orren:

Machwe A, Clark SB, Harned H, Sawardekar T, Slone SA, Ji H, **Orren DK**. Comparison of the 1C2 reference filtered cigar to the 1R6F reference filtered cigarette. *Nico. Tobacco Res.* Jan 21, 2026 (online ahead of print).

Kate Zaytseva:

1. [Inhibition of fatty acid synthase enhances therapeutic efficacy and delays acquired resistance to BRAF-targeted therapy in colorectal cancer](#). Geisen ME, Tessmann JW, Kelson CO, He D, Wang C, Faisal ASM, Beswick EJ, Baca Y, Rock S, Kolesar JM, **Zaytseva YY**. *Neoplasia*. 2026 Mar;73:101283. doi: 10.1016/j.neo.2026.101283. Epub 2026 Feb 5. PMID: 41650686

2. [FASN Inhibition Enhances the Efficacy of Chemotherapy in Colorectal Cancer by Inhibiting the DNA Damage Response](#). Banerjee M, **Zaytseva YY**, Reusch EM, Napier DL, Hasani S, Rychahou P, Izumi T, Cheek DA, Li J, Flight RM, Moseley HNB, Weiss HL, McCulloch W, Evers BM, Gao T. *Cancer Res.* 2026 Feb 9. doi: 10.1158/0008-5472.CAN-25-1917. Online ahead of print. PMID: 41661672.

3. Impact of PFAS exposure on lipid metabolic pathways: mechanisms and implications in carcinogenesis. Ferguson EJ, Tessmann JW, **Zaytseva YY**. *Frontiers in Toxicology*. Volume 8 - 2026 | <https://doi.org/10.3389/ftox.2026.1768277>

Changhai Tian:

Hamdalla RH., Bhaskar VB., and **Tian CH#**. Brain-Derived Extracellular Vesicles Potentially Mediate Crosstalk with Peripheral Organs in Neurodegenerative Diseases. *Front Cell Dev Biol.* 2026 Jan 6; 13:1710150. doi: 10.3389/fcell.2025.1710150. PMID: 41567979; PMCID: PMC12816253.

Faculty Activity:

Center for Environmental and Systems Biochemistry (CESB): Teresa Fan, Rick Higashi, and Andrew Lane:

1. Study Section: **T. Fan**. NCI Clinical translational study section January 2026.
2. Study Section: **T. Fan, A.N. Lane**. NCI Program Project: Cancer Research ZRG1 CTH-Z (45) March 19-20, 2026.
3. Grants Funded: **T. Fan, R. Higashi**. Run for the Roses, \$5,000.

Jin-Ming Yang:

1. NIH Study Section: BCO study section on January 13-14, 2026, and on March 17-18, 2026.
2. NIH Study Section: SPORE P50 study section ZRG1 BTC-T (42) on February 25-26., 2026

Xiaoqi Liu:

1. Seminar Presentation: Wright State University, Department of Biochemistry and Molecular Biology, Dayton, OH, 45435. "Moving PLK1 Beyond Mitosis". February 13, 2026.
2. Seminar Presentation: Texas Tech University, Department of Biological Sciences, Lubbock, TX, 79409. "Moving PLK1 Beyond Mitosis". March 12, 2026.

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Faculty Activity (continued):

Changhai Tian:

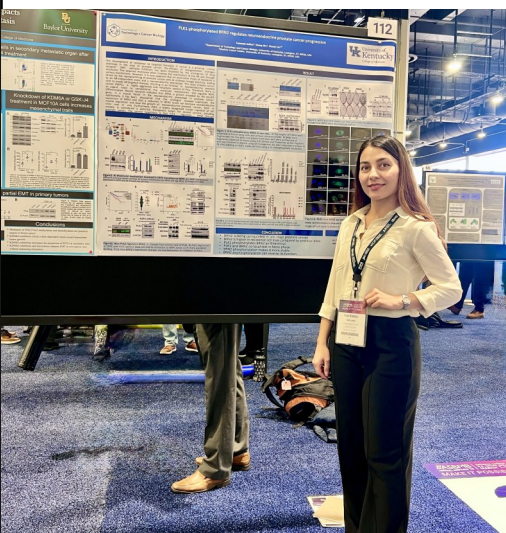
1. Serve as an AHA Ad hoc reviewer of 2026 Innovative Cardiac Basic Sciences Project Award LOI phase. LOI score due January 30, 2026.
2. 2026 Bugher Foundation Collaborative Symposium Mentor-Mentee Matchup (serving as Mentor), New Orleans, Louisiana, USA, February 3, 2026.
3. Presentation: Sun, LJ, Hamdalla R., and **Tian, CH**. *Nrf2 Secretion Mechanism and Potential Therapeutic Application in Cardiogenic Dementia*. AHA Bugher Foundation Collaborative Symposium 2026, New Orleans, LA, February 2-3, 2026.
4. Presentation: Sun, LJ, Hamdalla R., and **Tian, CH**. *Nrf2 Secretion Mechanism and Potential Therapeutic Application in Cardiogenic Dementia*. Annual International Stroke Conference 2026, New Orleans, LA, February 4-6, 2026.
5. Serve as an AHA Ad hoc reviewer of 2026 Bridge Transformational Project Award (26.B.TPA). Score due March 13, 2026.
6. 2026 Ad hoc interviewer for IBS Graduate Program, University of Kentucky, February 13, 2026.
7. 2026 Spring semester, serve as moderator of DTCB Trainee Talk Series of University of Kentucky, 12:00PM-1:00 PM, February to March 2026.

Lab Activity:

Dr. Xiaoqi Liu's Lab:

Min Zhang, PhD Student:

Invited to give a seminar talk at Missouri State University on Friday, March 6, 2026. Min's talk title: "Molecular Drivers of Lineage Plasticity and Therapeutic Resistance in Prostate Cancer".



Fatemeh Seilani, PhD Student:

Received the Graduate Student/Postdoctoral Research Award from the American Society for Biochemistry and Molecular Biology (ASBMB) for reimbursement of travel costs of up to \$1,000 to the ASBMB conference from March 7-10, 2026 to present her project titled "Plk1-BRN2 signaling axis drives lineage plasticity in castration-resistant prostate cancer" on March 10, 2026.

Fatemeh also received the UKY COM Student Travel Award of up to \$800. She will use this award to attend the American Association for Cancer Research (AACR) conference in San Diego, CA in April 2026. Fatemeh will present her poster titled "Plk1-BRN2 signaling axis drives lineage plasticity in castration-resistant prostate cancer" at the AACR conference.

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Lab Activity (Continued):

Dr. Xiaoqi Liu's Lab:

Sai Wu, PhD Student:

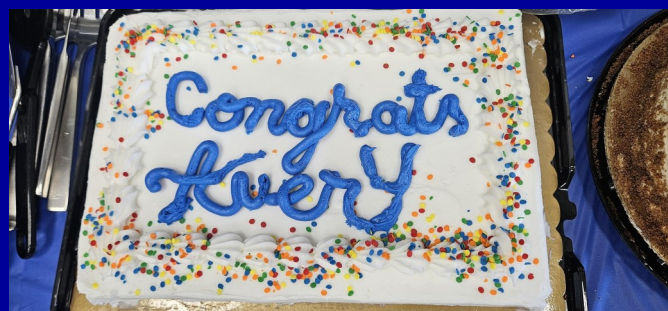
Received the UKY COM Student Travel Award of up to \$800. Sai will use this award to attend the AACR conference in San Diego, CA in April 2026. Sai will present his poster titled "CHAF1A phosphorylation by PLK1 promotes AR-driven enzalutamide resistance in prostate cancer".

Congratulations!

Dr. Avery Childress successfully defended his dissertation in January 2026. Congrats to him and his mentor Dr. Christine Brainson, and other committee members Drs. Jin-Ming Yang, Xia Liu, and Sarah D'Orazio!



L to R: Dr. Christine Brainson, Dr. Avery Childress



L to R: Dr. Tanner DuCote, Christian Gosser, Amber Nguyen, Sara Dickens, Yindan Lin, Dr. Christine Brainson, Dr. Avery Childress, Dave-Preston Esoe, Dr. Xiulong Song

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Spring 2026 Semester: DTCB Monday Seminars

12:00-1:00 PM

MN 463

January 12: Student Seminar: Felix Oyelami
(Dr. Jin-Ming Yang)
February 2: Student Seminar: Hamed Maasoumyhaghighi
(Dr. Xiaoqi Liu)
February 9: Dr. Zhiguo Li, University of Kentucky
February 16: Student Seminar: Mohammad Farahani
(Dr. Xiaoqi Liu)
February 23: Student Seminar: Sai Wu
(Dr. Xiaoqi Liu)
March 2: Dr. Tianyan Gao, University of Kentucky
March 9: Dr. Jason Wu, Washington State University
(Dr. Mohrin)
March 16: Student Seminar: Amos Akinyemi
(Dr. Zhiguo Li)
March 23: Dr. Susan Kasper, University of Cincinnati
(Dr. Xiaoqi Liu)
March 30: Dr. Houfu Guo, University of Kentucky
April 13: Student Seminar: Fatemeh Seilani
(Dr. Xiaoqi Liu)
April 20: Dr. Yan Liu, Northwestern University
(Dr. Xia Liu)
April 27: Dr. Houjian Cai, University of Georgia
(Dr. Fong)
May 4: Student Seminar: Min Zhang
(Dr. Xiaoqi Liu)
May 8: Dr. Jessie Guo, Rutgers Cancer Institute
(Dr. Ali)
May 11: Student Seminar: Dave-Preston Esoe
(Dr. Brainson)
May 18: Student Seminar: Kahleel Guerrier (MN 563)
(Dr. Chaiswing)
June 1: Dr. Sushant Kachhap, John Hopkins
(Dr. Xiaoqi Liu)

Spring 2026 Semester: DTCB Faculty Grant Talk Series

12:00-1:00 PM

HKRB 410

February 13: Dr. Guan-Yu Xiao
February 27: Dr. Jinghui Liu
March 13: Dr. Yanquan Zhang
March 27: Dr. Changhai Tian
April 10: Dr. Xia Liu
April 24: Dr. Will Fong

Spring 2026 Semester: DTCB Trainee Talk Series

12:00-1:00 PM

HKRB 150

February 6: Christian Gosser (Dr. Brainson) and Dr. Daniel Plaughter (Dr. Brainson)
February 20: Dr. Jia Peng (Dr. Xiaoqi Liu) and Dr. James Rao (Dr. Xiaoqi Liu)
March 6: Dr. Fang Wang (Dr. Fu) and Dr. Josiane Tessmann (Dr. Zaytseva) in MN 463
April 3: Rakibul Alam (Dr. Li) and Dr. Chih-Ling Wang (Dr. Mohrin)
May 1: Yumeng Xin (Dr. Hsin-Sheng Yang), Yinping Jiang (Dr. Qingding Wang), and Lu Fang (Dr. Ali)

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The Student Forum recently held elections for the 2026-27 term.

The election results are:

President - Andrew Shinkle

Vice President - Kahleel Guerrier

Graduate Student Congress Representative (Doctoral) - Md Rakibul Alam

Graduate Student Congress Representative (Master's) - Jan Wilson



The Student Forum continues to coordinate activities for all students to participate in!
Make sure you are checking your email for future activities and meetings.



The Forensics Oral Presentations will be given by the 2026 graduating class of the Forensics program. The students will present on their Spring 2026 internship experiences.

Date: Friday, May 8th

Time: 1:00– 3:30 PM

Location: HKRB 150

NEWSLETTER ITEMS

Want to include something in the next newsletter? Send your stuff to Ashley Cowan at ToxAndCancerBio@uky.edu

