DEPT. OF TOXICOLOGY AND CANCER BIOLOGY NEWSLETTER

Volume 4, Issue 2

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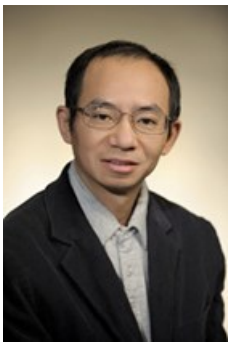
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NEWSLETTER ITEMS

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



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



Dr. Jian Fu (PI in grant below):

NIH R01 HL163712: "Inflammatory Injury Caused by Silica Exposure" Total Funding: $382,500 for the 1st year. The project is to investigate the specific role of myeloid HDAC6 in silicosis and evaluate the therapeutic potential of HDAC6 as a target to treat silicosis.

Recent Publications:

Drs. Teresa Fan, Rick Higashi and Andrew Lane:

T. W.-M. Fan, J. Winnike, A.Al-Attar, A.C. Belshoff, P. K. Lorkiewicz, J. L. Tan, M. Wu, **R. M. Higashi**, **A.N. Lane** (2023) Differential Inhibition of anaplerotic pyruvate carboxylation and glutaminolysis-fueled anabolism underlies distinct toxicity of selenium agents in human lung cancer. Metabolites **13**:774

Drs. Xiaoqi Liu and Jinghui Liu:

Liu, J., Zhao, Y., He, D., Jones, K.M., Tang, S., Allison, D.B., Zhang, Y., Chen, J., Zhang, Q., Wang, X., Li, C., Wang, C., Li, L. and **Liu, X.** (2023) A kinome-wide CRISPR screen identifies CK1α as a novel target to overcome enzalutamide resistance of prostate cancer. Cell Reports Medicine, 4, 101015.

Featured Publication: Enzalutamide is the major drug to be used to treat castration-resistant prostate cancer, therefore, developing new approaches to overcome enzalutamide resistance is of high clinical relevance. Dr. Jinghui Liu, a Research Assistant Professor at the Lab of Dr. Xiaoqi Liu, used a kinome-wide CRISPR screening to identify casein kinase 1a (CK1a) as a target to overcome enzalutamide resistance of prostate cancer. The authors showed that CK1a phosphorylates and modulates the protein abundance of ataxia telangiectasia mutated (ATM). Inhibition of CK1a stabilizes ATM, resulting in the restoration of double-strand break signaling, and thus increases enzalutamide-induced cell death and growth arrest. The work was recently published (Liu et al., 2023, Cell Reports Medicine, 4, 101015).

Faculty Awards and Recognitions:



Dr. Nathan Vanderford:

Dr. Vanderford has been elected to a three year term as a UK College of Medicine University senator. As a senator, Dr. Vanderford will be a faculty voice in the governance of the college and University.

Dr. Christine Brainson:

Dr. Brainson is going to be the Co-leader of Molecular and Cellular Oncology program at MCC.

Dr. Luksana Chaiswing:

Dr. Chaiswing has been selected to receive an Early Career Investigator (ECI) Travel Award to attend the 17th International Congress for Radiation Research combined with the 69th Annual Meeting of the Radiation, held at the Société du Palais des Congrès de Montréal in Montréal, Canada.

Faculty Activity:

Dr. Xiaoqi Liu:
May 28-May 30, 2023. Dr. Xiaoqi Liu was invited to give an oral presentation entitled “A kinome-wide CRISPR screen identified CK1a as a novel target to overcome enzalutamide resistance of prostate cancer” on the 1st SCBA-DGM (Society of Chinese Bioscientists in America - Division of Genome Maintenance) annual meeting in New Brunswick, NJ

Dr. Teresa Fan:
1. April 3, 2023. DTCB seminar "*Interrogating cancer metabolism in-patient and patient-derived models*"
2. June 13, 2023. Cold Spring Harbor Metabolomics Workshop “*Exploring human tumor metabolism in situ and in preclinical models using Stable Isotope Resolved Metabolomics (SIRM)*”
3. June 14, 2023. Cold Spring Harbor Metabolomics Workshop “*Introduction to NMR for SIRM*”

Dr. Luksana Chaiswing:
June 21-June 22, 2023. Adhoc- reviewer: NCI Basic mechanisms in Cancer Health disparities (Special Emphasis Panel, ZRG1 OBT-Y (55))

Dr. Changhai Tian:
1. March 03, 2023. Ad hoc interviewer for IBS Graduate Program, College of Medicine, University of Kentucky.
2. May 5, 2023. The American Heart Association (AHA) Transformational Brain Committee, meeting day.
3. May 17-May 21, 2023. Poster presentation titled "Cardiac extracellular vesicles regulate brain inflammation in heart failure" in the International Society for Extracellular Vesicles (ISEV) Annual meeting in Seattle, WA, USA.

Dr. Jinghui Liu:
April 14-April 19, 2023. Dr. Jinghui Liu, a Research Assistant Professor of Dr. Xiaoqi Liu lab, was invited to give an oral presentation entitled “A kinome-wide CRISPR screen identified CK1a as a novel target to overcome enzalutamide resistance of prostate cancer” on AACR annual meeting held in Orlando, FL.

Lab Activity:

Dr. Xiaoqi Liu’s Lab: Many members of Dr. Xiaoqi Liu’s lab presented posters at the 2023 AACR annual meeting including Alston Zhang, Kate Jones, Kendall Simpson, Xinyi Wang and Drs. Yanquan Zhang, James Rao, Ricky Wang, Fengyi Mao, and Chaohao Li.

Photo of DTCB faculty, staff, and students at the AACR conference in Orlando, FL.



Lab Activity (Continued):



Mariah Geisen (Dr. Kate Zaytseva lab): Mariah Geisen has been awarded first place in poster presentation at the 14th Annual Trainee Research Day. There were a total of 52 posters from the graduate students. She also presented the Dean's Distinguished Lecture on May 9, 2023.



Nolan Marcum (Dr. Luksana Chaiswing lab):
1. Nolan Marcum, an Agricultural and Medical Biotechnology undergraduate student in Dr. Chaiswing's lab, has been selected for the 2023 Office of Biomedical Education's Summer Undergraduate Research Fellowship, UK.
2. He has also been accepted into UK College of Medicine Early Assurance Program for medical school.



Olivia Thornsbury (Dr. Luksana Chaiswing lab): Olivia Thornsbury, a Biology undergraduate student in Dr. Chaiswing's lab, has been accepted into UK College of Medicine Early Assurance Program for medical school.



Haafsah Fariduddin (Dr. Luksana Chaiswing lab): Haafsah Fariduddin's, a Neuroscience undergraduate student in Dr. Chaiswing's lab, abstract was accepted for the 2023 National Conference on Undergraduate Research at WI.

MCC Research Day:

The DTCB members clearly played a role in the overall success of the MCC Research Day on May 12, 2023!

Trainee Oral Presentation:
Caitlin Miller's abstract has been selected for oral presentation (Dr. Luksana Chaiswing lab).
Fengyi Mao's abstract also selected for oral presentation (Dr. Xiaoqi Liu lab).

Faculty Oral Presentation:
Dr. Christine Brainson

Markey Women Strong Awardee:
Dr. Christine Brainson

Poster Awardee:
Caitlin Miller's poster presentation was awarded 1st place in basic science (Dr. Luksana Chaiswing lab).

***Dr. Nathan Vanderford's R25 success (perfect score) was highlighted in Dr. Mark Evers' presentation.

May 12, 2023:
Photo including Caitlin Miller (far right).



Dr. Ying Liang will be leaving the university on 6/30/2023. Dr. Liang has been a faculty member in DTCB for over 8 years. We wish her the best of luck on her next adventure!



Congratulations to our PhD students who recently graduated!



Dr. Pratik Thapa successfully defended his thesis in April 2023. Congrats to him and his mentor, Dr. Qiou Wei, and other committee members: Drs. Daret St. Clair, Tianyan Gao, Jin-Ming Yang, and Nathan Vanderford!



Dr. Tanner DuCote successfully defended his thesis in April 2023. Congrats to him and his mentor, Dr. Christine Brainson, and other committee members: Drs. Jill Kolesar, Tianyan Gao, and Subbarao Bondada!



Dr. Yanning Hao successfully defended her thesis in May 2023. Congrats to her and her mentor, Dr. Qiou Wei, and other committee members: Drs. Xiaoqi Liu, Christine Brainson, and Chang-Guo Zhang!



ACTION program High School Students in the DTCB Labs:

Click here to learn more about the ACTION program.

Zhiguo Li Lab:

Hannah Hamric and Ethan Dennison

Xiaoqi Liu Lab:

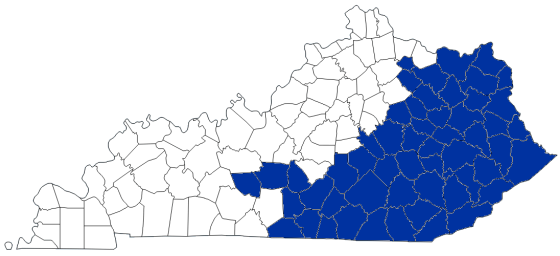
Rachel Henderson and Sophia Beaudoin

Kate Zaytseva Lab:

Bailey Reeves and Hayley Galvinski



Appalachian Career Training in Oncology (ACTION) Program



Student Spotlight:

Kahleel Guerrier (Dr. Luksana Chaiswing lab):

Kahleel Guerrier has been selected for 2023 the Lyman T. Johnson Diversity Fellowship.



I was born in Miami, Florida as a second-generation Haitian immigrant and to be first-generation PhD student. My mother was a nurse and worked really hard to relocate my siblings and I to Atlanta for a safer environment and better schools.

Not long after beginning my undergraduate degree, I realized scientific research is where I would like to focus my passion. Working with Dr. Timothy J. Fort, at Valdosta State University, allowed me to gain experience using cardiograms, small animal dissection, controlled drug treatment, and processing cardiogram data. Attending research conferences to present our project was also how I became very proficient at public speaking and presentation of my research. Working with Dr. Dean Duncan at Valdosta State University allowed me to become even more aquatinted with the balance of lab work and school. For our project, I utilized many chemical lab techniques and procedures such as micro pipetting, product synthesis under anhydrous conditions, chromatography, and operation of instruments such as Nuclear Magnetic Resonance, Mass Spectroscopy, High Performance Liquid Chromatography, in order to synthesize precursor tungsten polyoxometalate products. In Dr. Xiaoqi Liu's lab at the University of Kentucky, I utilized a profusion of lab techniques such as Western Blotting, BEAS-2B (epithelial lung cell line) culture, and Immunohistochemistry staining to observe the pathological and proteinaceous effects of cadmium toxicity on lung/prostate cancer prognosis. I am currently in Dr. Luksana Chaiswing's lab at the University of Kentucky. In very little time I learned to culture various prostate cancer cell lines, capillary based automated western blot (Jess™), and cell viability assays (Presto Blue, Trypan Blue, WST, & Live/Dead, etc.), radiation, and many other techniques to investigate effectiveness and mechanism of redox drug treatment as radiosensitizer for prostate cancer. My time in the laboratory, as well as the simultaneous cancer biological academia vastly improved my knowledge of toxicology and cancer biology.

A principal factor involved with my well roundedness is my contribution to diversity and the next generation of scientists. This is shown well in my extracurricular activities. For example, my inclusion in Louis Stokes Alliance for Minority Participation (LSAMP), along with academic, research, and presentation requirements, required me to meet with award recipients (and associate scholars) monthly. This allowed me to interact with other students of diverse backgrounds, learn about each other, share knowledge, and speak about our experiences and how we can overcome them. My time working with Lisa Norwood, CEO of the non-profit Mother's Raising, gave me the chance to show historically underrepresented young boys that research in STEM fields is not outside their reach despite lack of examples in their environment. I taught online classes, told my stories through writing, and advised them that one cannot let one's past limit their future. My duty towards inclusion has also been fulfilled by my membership in Valdosta State University's Caribbean Student's Association (CaribSA). As CaribSA, we organized many events to give back and add to the diversity of our campus such as food drives, Caribbean bake sales, clothes drives, and community events. Through my leadership roles, I have shown the ability to guide others. My positions as a Valdosta State University peer mentor and student instructor in Organic Chemistry allowed me to utilize this ability and my chemistry proficiency, as I organized study events, tutored, and held open dialogue with the professor and students.

Forensic Events:

Congratulations to all of our MS in Forensic Toxicology and Analytical Genetics students on their recent graduation!
The 2023 Forensic Poster Session held on May 4, 2023 in the BBSRB Atrium was a huge success! Please see photos from the event below.



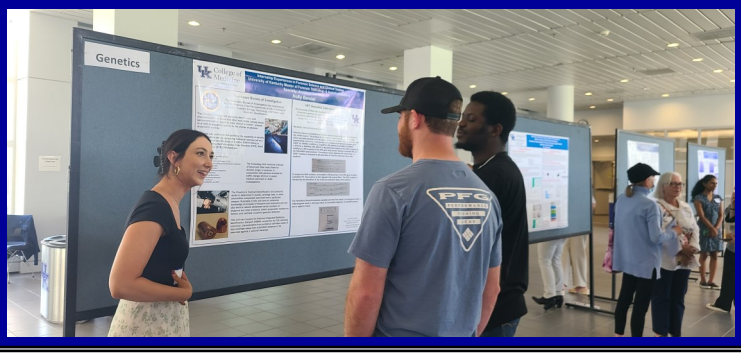
GRADUATED STUDENTS:

Holly Bendel
Ravyn Borrum
Robyn Borrum
Tiffany Burton
Brittany Ferguson
Kendyll Freeman
Amanda Haw
Corinne Hill
Mohammad Jaloudi
Kathleen Reed
Trinity Rudd
Samantha Stanley
Cassandra Whitlatch











SAVE THE DATE:

The Forensics Retreat will be held on

Friday, August 18, 2023.

Student Activity:

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 Student forum has held several events in April 2023:

April 6, 2023 - students participated in SoundOff! Trivia at Pivot Brewing
April 12, 2023 - Lunch and Learn: Responsible Conduct of Research seminar and discussion
April 14, 2023 - Cookie Time check in with the students
April 22, 2023 - Spent the day at Cincinnati Zoo for Earth Day
April 28, 2023 - End of the Year Cookout at Shillito Park

Photos below are from the Cincinnati Zoo and the end of the year cookout at Shilito Park.






New Business Office Staff Member:



Nicole McElligott: Nicole McElligott joined the DTCB Business Office staff as Administrative Support Associate I. She received a bachelors in Child and Family Studies from EKU in 2020 and taught for 5 years. She decided she wanted a change of pace, so now here she is at UK. She also plan on continuing her education in the near future. In her free time, Nicole loves going to concerts (Her very first concert was Motley Crue when she was 9), playing computer games, going out with friends, and painting. She is an avid crystal collector and loves travelling to conventions. Her favorite movie is The Grand Budapest Hotel and her favorite show is Parks and Recreation. One thing she dreams of doing, is opening her own animal sanctuary someday.



SAVE THE DATE: DEPARTMENT OF TOXICOLOGY & CANCER BIOLOGY'S DEPARTMENT RETREAT WILL BE SATURDAY, SEPTEMBER 30, 2023.