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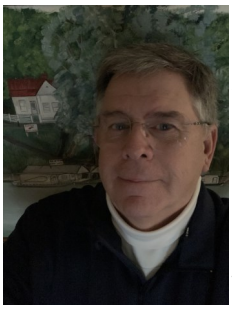
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## New Members to Department

**Mr. Mike Ward** joined us as a lecturer in the Professional Master's Degree Program in summer 2019. A nearly lifelong resident of Kentucky he graduated from Eastern Kentucky University with a Bachelor's Degree in Chemistry in 1975. Upon graduation he began working in what would become the Kentucky Medical Examiner's Toxicology Laboratory, serving there for 33 years as a forensic toxicologist and ultimately as the laboratory supervisor. During his tenure in the ME Office he acquired a Post-Baccalaureate Certificate in Paralegal Studies from Sullivan University, a Master's Degree in Forensic Toxicology and a second Master's in Drug Chemistry from the University of Florida. He is certified as a Toxicological Chemist by the National Registry of Certified Chemists in Washington, D.C. After retirement from the ME Office he began teaching at Eastern Kentucky University in the Forensic Science Program teaching drug chemistry and toxicology in addition to other classes. He also serves as a teaching assistant in the University of Florida online forensic science program. His consultation firm, ToxChem Consultations, L.L.C., was incorporated in 2013 and he has consulted on legal cases from around the Commonwealth as well as in other states at the County, State and Federal level. He is qualified as an expert witness in forensic toxicology in each of these jurisdictions. He is married to Renee and they have two young daughters.



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**Dr. Xia Liu** joined our department on January 1, 2020 as an assistant professor. Dr. Liu obtained her PhD from Peking Union Medical College & Chinese Academy of Medical Science, China. Before she joined us, Dr. Liu was a research assistant professor at Northwestern University. She was recruited by UK as a scholar of the COBRE Center for Cancer and Metabolism (CCM) program, and the recipient of a Susan G Komen Career Catalyst Research (CCR) Grant. Currently, there are four major projects in her laboratories: targeting neutrophils to inhibit metastasis, metabolism of metastasis-initiating breast cancer cells, the role of lipid raft in breast cancer metastasis and generation of patient circulating tumor cell-derived-xenograft (CDX) breast cancer models for preclinical studies. Her publications can be found on the website of our department faculty page. She is eager to collaborate with both basic scientists and physicians for translational research. She always believes that "Alone we can do so little, together we can do so much!"

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## Recent Grants

| Name | Title | Sponsor |
|---|---|---|
| Brainson, Christine | Targeting Epigenetic Heterogeneity to Improve Lung Cancer Immunotherapy Response | NCI |
| Brainson, Christine | Methionine Metabolism and Lung Cancer Lineage Fate | ACS |
| Fan, Teresa | Biosynthetic Pathways in Cardiac Remodeling | University of Louisville |
| Lane, Andrew | Understanding How Adrenergic Signaling Influences Immune Contexture of Tumors and the Efficacy of Checkpoint Inhibitors | Roswell Park Cancer Institute |
| Liang, Ying | Targeting Latexin for Radiation Mitigation | P2D, Inc |
| Li, Zhiguo | Targeted Treatment of Arsenic-Induced Lung Cancer by PLK1 Inhibitors | NIH (UK-CARES P30, Career Development Awardee) |

| Name | Title | Sponsor |
|---|---|---|
| Li, Zhiguo | Targeted Treatment of Arsenic-Induced Lung Cancer by PLK1 Inhibitors | NIH (UK-CARES P30, Career Development Awardee) |
| Liu, Xiaoqi | Training Grant in Molecular Mechanisms of Toxicity | NIEHS |
| St. Clair, Daret | Chemo Induced Cognition Impairment-Mechanisms and Prevention | KY Cabinet for Health and Family Services |
| Vanderford, Nathan | Appalachian Career Training in Oncology (ACTION) Program | NCI |
| Wang, Zhishan | MGMT Down-Regulation in the Carcinogenicity of Hexavalent Chromium | NIEHS |
| Yang, Chengfeng | Mechanism of Hexavalent Chromium Carcinogenesis—Role of Long Non-Coding RNA Dysregulation | NIEHS |
| Yang, Jingming | Nucleus Accumbens-Associated Protein-1 in Melanoma Immunotherapy | NCI |



**Student Spotlight: Aria Byrd**

My lengthy academic career as a B.S., M.S., and now, PhD student has allowed me to find my niche in the sciences; it has allowed me to identify not only my interests, but also my passions. My growing fascination with understanding how the body responds to both voluntary and involuntary environmental exposures has lead me to pursue a doctoral degree in Toxicology and Cancer Biology.

I am currently seeking to understand the complex molecular processes that drive development of lung diseases. The goal of my dissertation research is to determine how the role of Polycomb Repressive Complex 2 (PRC2) directs proper lung stem cell fate, and how this process is dysregulated in lung disease. To achieve my objective, I am using a mouse model of deletion of the histone methyltransferase EZH2, sorting mouse

## Recent Graduations



Dr. Jazmyne Barney with mentor, Dr. Bernhard Hennig.
Defended July 2019



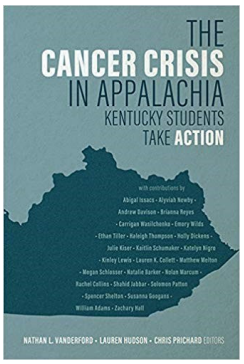
Dr. Kara Chan with mentor, Dr. Guo-Min Li.
Defended July 2019




Dr. Peter Van Wie.
Defended November 2019

## Featured Work

### Dr. Nathan Vanderford Set to Release Book




Cancer incidence and mortality rates are staggeringly high in Kentucky, especially in the eastern portion of the state that lies in the Appalachian Mountain region. The statistics that show that Kentucky ranks number one in the United States for cancer incidence and mortality rates are very important, but the data do not tell the personal stories of how cancer affects individuals, families and entire communities. Telling some of these stories was the premise behind *The Cancer Crisis in Appalachia*. This book consists of essays written by twenty-five students who are participants in the Appalachian Career Training in Oncology Program directed by Dr. Nathan Vanderford, Assistant Professor in Toxicology and Cancer Biology. Each student describes how cancer has impacted their lives or the lives of their family and they explore their thoughts on what could be done to lower the cancer burden in their communities.

*The Cancer Crisis in Appalachia: Kentucky Students Take ACTION* will be released March 23, 2020, but is available for pre-order via **amazon**.

### NIH Funds Two R01s for Dr. Zhishan Wang



In August 2018, Dr. Zhishan Wang received funding from NIEHS for her study titled, "Epigenetic Mechanism of the Synergistic Tumorigenic Effect of Arsenic and Benzo[a]pyrene Co-exposure," where the goal is to determine the mechanism of the effect of arsenic and BaP co-exposure. The project is currently awarded for five years with a total expected award of $1,721,250.

In September 2019, she, again, received funding from NIEHS for her project titled, "MGMT Down-regulation in Lung Carcinogenicity of Hexavalent Chromium." Her hypothesis in this study is that up-regulation of HMTases by chronic C(VI) exposure down-regulates the expression of MGMT leading to increased levels of highly mutagenic DNA lesion $O^6$-MeG and promoting Cr(VI) carcinogenesis. The project is currently awarded for five years with a total expected award of $1,636,357.

Congratulations to Dr. Wang and her team!

**Dr. Xiaoqi Liu**

- Student, Ricky Wang, recently graduated with PhD with a thesis entitled, "A Novel Mechanism for Prostate Cancer Progression: From Polo-like Kinase 1 to Epigenetics". Ricky will join Dr. Liu as a post-doc.
- Drs. Zhiguo Li and Jinghui Liu, and four graduate students, Evan Kong, Fengyi Mao, Chaohao Li and Elia Farah, attended SBUR Annual Meeting in New Orleans, Nov. 11-14. They all presented posters.
- Two new lab members: Dr. Zhongdong Hu, a visiting scholar from Beijing University of Chinese Medicine where Dr. Hu is an associate professor and has extensive experience with anti-tumorial activity of natural products. Miss Xinyi Wang, a new first year graduate student. Miss Wang worked at Emory University for two years and has a lot of experience with mouse genetics.

**Dr. Chengfeng Yang**

- On 12/9/2019, Dr. Chengfeng Yang was appointed as an Associate Editor for Toxicological Sciences, the official journal of Society of Toxicology (SOT).
- On 11/22/2019, one provisional patent application was filed for Chengfeng Yang, Zhishan Wang, Yunfei Li. "Re-purposing a lipid-lowering agent for cancer therapy".
- On 12/17/2019, one provisional patent application was filed for Chengfeng Yang, Zhishan Wang, Yunfei Li. "Developing ultra-small miriplatin nanodots for cancer therapy".

**Dr. Teresa Fan**

- New lab member, Scientist, Dr. Ming Jiang

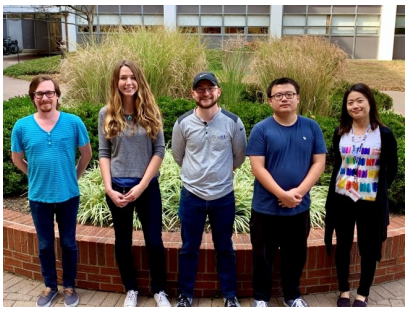


**DR. LUKSANA CHAISWING**

Dr. Chaiswing receives Tenure Track Faculty appointment starting February 1, 2020.

**Successful Qualifying Exam**

(From left to right)



Congratulations to Tanner DuCote (Mentor: Dr. Christine Brainson), Stephanie Rock Bryant (Mentor: Dr. Mark Evers), Nick Howard (Mentor: Dr. Isabel Mellon), Chaohao Li (Mentor: Dr. Xiaoqi Liu), and Martina Lin (Mentor: Dr. Chengfeng Yang) for successfully passing their qualifying exam!

**Fall 2019 Welcomes First Class for Master's in Forensic Toxicology & Analytical Genetics Program**

The Fall 2019 semester welcomed seven students to the department's new Professional Master's in Forensic Toxicology and Analytical Genetics program. This two-year program has two areas of concentration: Toxicology/Chemistry and Analytical Genetics. Through the common core curriculum, students in both concentrations will have foundational information and skill set in advanced forensic science, writing, communication, professionalism, ethics, legal perspectives, and workplace-specific laboratory skills. Through a rigorous targeted finishing curriculum, including internship experiences, the graduates will be competitive for workforce deployment in the areas of private industry drug testing, private DNA analysis, forensic governmental divisions, hospital clinical labs and more.

More information about the program can be found **here**.

## Presentations/Speaker Engagements

| When | Who | What | Where |
|---|---|---|---|
| 11/2/19 | T. Fan | Mapping human tumor metabolism in vivo & in preclinical models using Stable Isotope –Resolved Metabolomics (SIRM) | U. Missouri |
| 11/2/19 | A. Lane | New methods in Stable Isotope Resolved Metabolomics for Preclinical Studies | U. Missouri |
| 11/12/19 | Xiaoqi Liu | Polo-like Kinase 1: From Cell Biology to Cancer Therapeutics | Society of Basic Urologic Research Annual Meeting |
| 11/19/19 | Xiaoqi Liu | PLK1 in Genomic Instability | DNA Repair Video Conference |
| 12/5/19 | A. Lane | Multiplexed Stable Isotope Resolved Metabolomics for Cancer Biochemistry | U. Cinci Cancer Center |
| 1/9/20 | R. Higashi | MS Methods for SIRM | Metabolomics Forum UKY |
| 3/12/20 | A. Lane | What Fluxomics Isn't | Metabolomics Forum UKY |
| 5/27-5/25/20 | A. Lane | TBA | ACS CERM, Ohio SU |
| 5/29/20 | A. Lane | TBA | Nationwide Childrens, OSU |
| 6/18-6/22/20 | N. Vanderford | Mentorship Impediments: How Imposter Syndrome, Implicit Bias and Mental Well-Being Impact Scientific Diversity | American Society for Microbiology (ASM) Microbe 2020 |
| 7/6-7/9/20 | T. Fan | TBA | Euromar 2020, Bilbao Plenary Lecture |
| 7/24/20 | T. Fan | TBA | 7th CESB Metabolism on Metabolism, UKY |
| 7/24/20 | R. Higashi | TBA | 7th CESB Metabolism on Metabolism, UKY |

## How Dept. is Serving

**Dr. Xiaoqi Liu:**
- 2019 NIH: Cellular Signaling and Regulated System (CSRS) study section, ad hoc member. Sept 26-27
- 2019 NIH: NCI Special Emphasis Panel/Scientific Review Group, 2020/01 ZCA1 SRB-A (J1) S meeting. October 4
- 2020 NIH: A Special Emphasis Panel for the Academic Research Enhancement Award (AREA) Program (R15). February 25

**Dr. Richard Higashi**:
- NIH IPCA. October 2019
- NIH. Febuary 2020

**Dr. Andrew Lane**:
- AHA. October 2019

**Dr. Teresa Fan**:
- NCI. November 2019
- NIGMS. February 2020

**Dr. Chenfeng Yang:**
- Review panel for NIEHS Special Emphasis Panel/Scientific Review Group 2019/10 ZES1 JAB-D (SF) 1 (Superfund Research Program Phase 2 in-person review), 7/23-24/2019, RTP, NC
- Review panel for NIEHS Special Emphasis Panel/Scientific Review Group 2020/01 ZES1 LWJ-D (01) Functional RNA Modifications Environment and Disease, 9/16-17/2019, RTP, NC
- Review panel for NIH/NCI Basic Cancer Work Force Development (the combination of basic science with the pragmatic elements of drug development) Special Emphasis review panel (ZRG1 OBT-B 55), 9/26/2019, online virtue review meeting.
- Review panel for NIEHS Special Emphasis Panel/Scientific Review Group 2020/01 ZES1 LWJ-S (R3) 1 Revolutionizing Innovative, Visionary Environmental health Research (RIVER) (R35 Outstanding Investigator Award), 11/24/2019, RTP, NC

**Dr. Jin-Ming Yang:**
- NIH. March 5-6, 2019; July 10-11, 2019; November 7-8, 2019.

**Dr. Jian Fu:**
- February, 2019, Member, Grant Review Committee, National Institutes of Health (NIH): NANO (Nanotechnology) Study Section.
- May 2019, Member, Grant Review Committee, National Institutes of Health (NIH): ZRG1-BST-T-55, Tobacco Regulatory Science Special Emphasis Panel.
- October, 2019 Member, Grant Review Committee, National Institutes of Health (NIH): III (Innate Immunity and Inflammation) Study Section
- March, 2020 Member, Grant Review Committee, National Institutes of Health (NIH): III (Innate Immunity and Inflammation) Study Section

## Department News



### Dr. Daret St. Clair Receives Distinguished Alumna Award

Dr. St. Clair was chosen by the University of Iowa's selection committee as the recipient of a 2020 University of Iowa Roy J. and Lucille A. Carver College of Medicine Distinguished Alumna Award for Achievement in her work in molecular biology and free radical biology, and for her efforts as a mentor and role model to the next generation of cancer biologists. Dr. St. Clair has been asked to travel back to the University of Iowa in October to accept the award and share her story of success and expertise with colleagues and students. She was nominated by Dr. Jian Jian Li.

Congratulations, Dr. St. Clair!

### Award Mechanism for Publications

To encourage publications, the department is offering the following award mechanism:

- If a manuscript has been asked for a revision, and you think additional funds towards the project will assist in getting your manuscript published, you can submit an award request to the Award Committee, chaired by Dr. Qiou Wei. A budget justification and the review comments will need to be submitted.
- Depending on the level of the journal, the Award Committee will recommend to Dr. Liu how much the award should be.
  - JBC level publication is the standard = $3,000
  - *Cancer Research* publication = up to $5,000
  - *Cancer Cell* publication = up to $10,000

### Fall 2020 Student Data

**As of 2/13/2020:**

**- 19 PhD applications have been submitted**
**- 8 Forensic applications have been submitted**
**- 21 PhD applications are "In Progress"**
**- 16 Forensic applications are "In Progress"**

**February 7, 2020**
**- 6 Ph.D. Candidates interviewed**

**- March 13, 2020**
**- 5 Ph.D. Candidates will interview**

### DEPT. RECEIVES MONETARY GIFT

We received a $2,000 gift from Dr. Michael Graziano, Ph.D., DABT, the Vice-President of Drug Safety Evaluation at Bristol Myers Squibb



### INCLUDED ATTACHMENTS

- Recent Publications
- Faculty Grant Talk Series Schedule
- Student and Staff Seminars Schedule
- Monday Seminars Schedule
- 2020 CESB Symposium Announcement