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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 learn more and donate.

Thank you for your support!

Recent Grants (March-May)

Name	Title	Sponsor
Izumi, Tadahide	A Genomic Locus Associated with Radiation Resistance of Oral Cancer Cells	National Cancer Institute
Orren, David	Cigar Reference Products Program	Food and Drug Administration
Goellner, Eva	CCSG Pilot: Targeting the Synthetic Lethal Relationship Between Deficiencies in DNA Mismatch Repair and WRN Helicase to Treat MSI-high Tumors	National Cancer Institute
Lane, Andrew	Defining Genetic and Metabolic Requirements of Aggressive Breast Cancer (KY SOW)	Univ. of Cincinnati (National Cancer Institute)
Lane, Andrew	New Activities of the Human DEK Oncogene	Cincinnati Childrens Hospital Medical Center (National Cancer Institute)

Drs. Teresa Fan and Kate Zaytseva Receive 2020 Markey Women Strong Distinguished Researcher Grant

On May 7, Drs. Teresa Fan and Kate Zaytseva were awarded the 2020 Markey Women Strong Distinguished Researcher Grant. The researchers, as chosen by the UK Markey Cancer Foundation's Markey Women Strong members, are each awarded with a $50,000 grant to fund their proposed cancer research.

The 2020 grant recipients include Dr. Teresa Fan whose research is focused on early detection of pancreatic cancer, and Dr. Kate Zaytseva whose research focuses on the role lipid metabolism plays in colorectal cancer.



Dr. Teresa Fan



Dr. Kate Zaytseva

To learn more about the Markey Women Strong program or becoming a member, **click here**.

Recent Publications (March-May)

Li, C., Lanman, N.A., Kong, Y., He, D., Mao, F., Farah, E., Zhang, Y., Liu, J., Wang, C., Wei, Q., and **Liu, X.** (2020) Inhibition of the erythropoietin-producing receptor EPHB4 antagonizes androgen receptor overexpression and reduce enzalutamide resistance. *J. Biol. Chem*., 295: 5470-5483. PMID: 32184358.

Book Chapter: Ms. No. SPRO-D-20-00019. Interactions of Hematopoietic Stem Cells with Bone Marrow Niche. Springer Protocols. **Liang, Y.**

Gao M, Herlinger AL, Wu R, Wang TL, Shih IM, Kong B, Rangel LBA, **Yang JM**. NAC1 attenuates BCL6 negative autoregulation and functions as a BCL6 coactivator of FOXQ1 transcription in cancer cells [published online ahead of print, 2020 May 14]. *Aging (Albany NY)*. 2020;12:10.18632/aging.103203. doi:10.18632/aging.103203

Cao DS, Jiang SL, Guan YD, Chen XS, Zhang LX, Zhang Y, Chen AF, **Yang JM**, Cheng Y. A multi-scale systems pharmacology approach uncovers the anti-cancer molecular mechanism of Ixabepilone [published online ahead of print, 2020 May 8]. *Eur J Med Chem*. 2020;199:112421. doi:10.1016/j.ejmech.2020.112421

Lane, A.N.* Higashi, R.M., Fan, T. W-M. (2020) Metabolic reprogramming in tumors: the importance of the tumor microenvironment. *Genes & Diseases* **7**, 185-198 PMC7083762

Sengupta, D., Cassell, T.A., Teng, K-u., Hu, P, **Fan, T. W-M.*,** Ghoshal, K.*(2020) Regulation of hepatic glutamine metabolism by miR-122. *Molecular Metabolism* **34,** 174-186 PMCID:PMC7044666

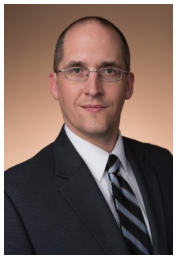
J. S. Hardwick, M. M. Haugland A. H. El-Sagheer, D. Ptchelkine F. R. Beierlein., **A. N. Lane**, T. Brown, J. E. Lovett, and E. A. Anderson (2020). Establishing 2'-spin labeling as a minimally perturbing tool for DNA structural analysis. *NAR* **48**:2830-2840 PMC7102949

Xiao GG, Zhang Z, Lu B, Wang H, **Fan TW,** Boros LG, Gao P, Pan Y, Go VLW.(2020) Proceedings of the 3rd International Conference for Cancer Metabolism and Therapy, October 12-14, 2018, Shanghai, China. *Pancreas*. **49**:149-157 PMC7028465

R. Panarsky, D.R. Crooks, **A.N. Lane,** Y. Yang, T.A. Cassel, **T. Fan,** W. M. Linehan, J. A. Moscow (2020) Fumarate hydratase-deficient renal cell carcinoma cells respond to asparagine by activation of the unfolded protein response and stimulation of the hexosamine biosynthetic pathway. *Cancer & Metabolism*. **In Press**

Wang, T., Gnanaprakasam, J., Hong, B., Sun, H., Liu, L., Miller, E., Song, X., Cassel, T.A., Sun, Q., Vicente-Munoz, S., Warmoes, M.O., **Lane, A.N.**, Song, X., **Fan, T W-M.*, &** Wang, R*. Inosine is an alternative carbon supply that supports effector T cell proliferation and antitumor function under glucose restriction. *Nature Metabolism.* **In Press**

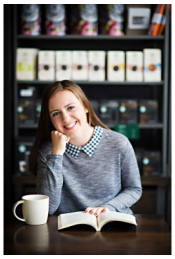
Award Winners



Dr. Vanderford (Faculty): Award for Excellence in Research on Graduate Students given by Graduate Student Congress



Aria Byrd (Ph.D. Student): Pillar Award for Belonging & Engagement given by Graduate Student Congress



Lauren Hudson, an undergrad who does research with Dr. Vanderford, won the Eller and Billings Award from the UK Appalachian Center



Student Spotlight

Fall 2020 will welcome Ph.D. student, **Courtney Kelson**.

With the intention of eventually pursuing a career in medicine, Georgia native Courtney Kelson earned her bachelor's degree in biological sciences from Georgia State University. But after learning the full extent of her options, another field piqued her interest – cancer research.

Click here to read how course variety in the MSMS Program helped Courtney find her calling.

Alumni Spotlight



Michael J. Graziano, Ph.D., DABT is currently the Vice-President of Drug Safety Evaluation at Bristol Myers Squibb.

Mike was born and raised in Palisades Park, New Jersey. As an undergraduate, he attended Rutgers University and received a B.S. degree in Animal Science in 1979. He then attended Louisiana State University where he received a M.S. degree in Veterinary Toxicology in 1981. Mike received his Ph.D. in Toxicology from the University of Kentucky in 1985. At UK, Mike was in the Insecticide Toxicology Laboratory under the direction of the late H. Wyman Dorough. The title of his dissertation research was "*Influence of cigarette smoking on biotransformation processes in rats*." After UK, Mike was a Post-Graduate Research Toxicologist in the Pesticide Chemistry and Toxicology Laboratory at the University of California-Berkeley under the direction of the late John Casida. In 1987, he joined Parke-Davis Pharmaceutical Research Division/Warner-Lambert Company in Ann Arbor, Michigan as a Study Director in the Department of Drug Safety Evaluation. Over the next 16 years, he continued to progress in his career and became Director of Anticancer and Antibacterial Toxicology Programs for Parke-Davis and then Pfizer after they acquired Warner-Lambert Company in 2000. In 2003, Mike joined Bristol Myers Squibb in New Jersey as Executive Director in Drug Safety Evaluation and was promoted to Vice-President in 2006. In his current role as VP, Mike is responsible for the nonclinical safety testing and reporting of all drugs in the BMS development portfolio. He also has oversight of the Veterinary Science organization, which supports biology research across all BMS discovery sites.

Mike has been a diplomate of the American Board of Toxicology since 1990, co-edited a book on the genotoxicity and carcinogenicity testing of pharmaceuticals, and has authored/co-authored more than 100 scientific publications and abstracts, many dealing with the nonclinical safety of new therapeutic agents. Mike represents BMS on several professional and industry consortiums including PhRMA, EFPIA, and BioCelerate and is currently the PhRMA Deputy Topic leader for the ICH S1 Expert Working Group which is working on revisions to the carcinogenicity testing guidelines for pharmaceuticals. Some other notable accomplishments in his career include supporting the research and development of many drugs that positively influence the lives of patients such as Lyrica, Eliquis, Orencia, Opdivo, and Farxiga. Mike is also a former Adjunct Faculty member for the UK Graduate Center for Toxicology and was recognized as a distinguished Rutgers 250th Anniversary Fellow in 2016.

SEEKING ALUMNI

Any interested alumni who would like to be spotlighted in an upcoming newsletter please contact Morgan Rothermel at Morgan.Rothermel@uky.edu

Good luck to our Forensic Student, Jonathan Gallup!

Jonathan began his required internship on June 1 with Luxor Scientific in Greenville, South Carolina.



History of the Graduate Program in the Dept. of Toxicology and Cancer Biology

(By: Dr. Davy Jones)

Background – Early University Activities Toward Toxicology Programming. "Toxicology" first appeared in the minutes of the UK Board of Trustees in its action (1949) on instruction in the new UK College of Pharmacy curriculum that included "Pharmacology and Toxicology". During the 1960s, the Board of Trustees showed increased University attention to insecticides, herbicides and their effect on the environment and humans. The University established (1963) a division concerned with "forensic pathology and toxicology," in the new Medical Center's Department of Pathology. Dr. Wyman Dorough (Entomology) was recruited in 1968 to establish a nationally-visible research program in the chemistry, detection and toxicology of insecticides, and their effect on the environment, plants and animal organisms.

Graduate Degree Program in Toxicology Established - 1969. With the above momentum, Dr. T.Z. Csaky submitted to the Graduate School Dean Lewis Cochran a proposal to establish a new Toxicology graduate degree. Dr. Csaky was the inaugural Director of Graduate Studies (and also Pharmacology Chair), so the degree was initially homed in the Dept. of Pharmacology.

Graduate Center for Toxicology Established - 1977. The 1970s saw an era of University establishment of new kinds of educational units responsible for primarily research or for homing only graduate degrees. The very first graduate center established by the University of Kentucky was the 1977 "Graduate Center for Toxicology," ("GCT"), with Dr. Csaky as Acting GCT Director, and Dr. Dorough as Associate Director of Graduate Studies.

Expansion of Activities in Environmental Toxicology. In 1983 Dr. Wesley Birge (an Environmental Toxicologist from the Biology Department) became the next GCT Director.

Over the next decade the GCT trained students in a wide variety of toxicological disciplines, from biochemical to ecological to clinical toxicology. In particular, the program attained a zenith in centering training on an environmental toxicology perspective.

Under the new Directorship of Dr. Thomas Tobin the T32 was funded for an "Environmental Toxicology Training Program". The initial award supported trainees in the areas of (1) Environmental Toxicology, (2) Immunotoxicology, and (3) Molecular Mechanisms. This T32 program has been continuously (re)funded for the past 30+ years and been essential to the stable support for doctoral trainees.

The GCT is Raised to a Dept. of Toxicology and Cancer Biology. Dr. Mary Vore was appointed in 1993 as the next GCT Director.

As the GCT entered its 4th decade, national sources of programmatic funding were shifting, and joint GCT faculty were more in Medicine-related sciences and fewer from Biology or Agriculture. In 2004, the GCT unit formally moved from the Graduate School over into the College of Medicine. The GCT engaged close alignment with the Markey Cancer Center (MCC) and the Center for Research on Environmental Disease. In 2015, the GCT faculty formally proposed, and the Board of Trustees approved, changing the unit to a "Department of Toxicology and Cancer Biology," (DTCB) reflecting both the increased number of faculty with primary appointment in the unit and the expansion of Cancer Biology as an area of its student training and faculty research.

Interim Dept. Chair Dr. Daret St. Clair (2016) led the new dept. to imagine itself in new ways, expanding the diversity of the research areas and faculty personnel, and in new kinds of Ph.D. career paths. Dr. St. Clair was the prime originator of the faculty's development of a 'first of its kind' professional Master of Forensic Toxicology and Analytical Genetics.

The Department Looks Forward. On October 1, 2018, Dr. Xiaoqi Liu became the current Chair of the Department of Toxicology and Cancer Biology. During the spring of 2019, Dr. Liu garnered all of the department faculty into an integrated process of creating the following new, five-year Strategic Plan.



Left to right: Isabel Mellon, DGS 2015-present; Mary Vore, Chair 1993-2016; Xiaoqi Liu, Chair 2019-present; Daret St. Clair, Chair 2016-2018; Tom Tobin, Chair 1988-1993; David Orren, DGS 2006-2011

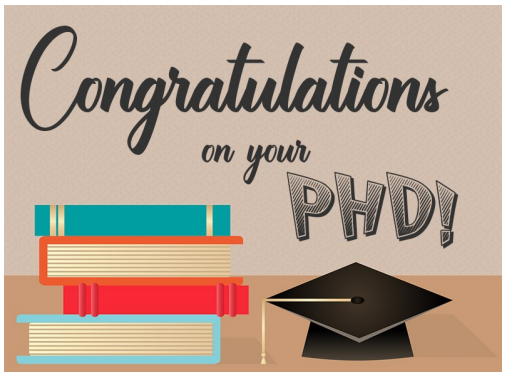
Fall 2020 will welcome:
7 students to our Ph.D. program
11 students to our Master's in Forensic Toxicology & Analytical Genetics program

WELCOME!

Recent Graduations



Dr. Diane Begemann. Mentored by Dr. Natasha Kyprianou. Defended March 2020.





Dr. Jeremy Johnson. Mentored by Dr. Mark Evers. Defended May 2020.

DTCB Student Forum

The Department of Toxicology and Cancer Biology Student Forum is a student-run organization that aims to foster a culture of community and inclusion among graduate students, and to advocate on their behalf to enhance the graduate student experience. The forum strives to take action on issues students are concerned about by providing students with a voice in departmental proceedings and within the Graduate Student Congress. The DTCB student forum also hosts social events to provide students with opportunities to cultivate friendships and collaborations. Formal student forum meetings are held once per semester.



Stephanie Bryant—President







From left to right: Jenni Ho, Aria Byrd, Tanner DuCote—Rules Committee

Not Pictured:
Kendall Collins—Vice President
James Drury—Graduate Student Congress