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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!

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

Dr. Mary Mohrin (PI in grant below):

National Institute of General Medical Sciences, "Targeting SIRT7 Regulation of Mitochondrial Quality Control to Short Circuit Age-related Diseases of the Hematopoietic System." Total funding: \$110,132 for 1 years. I aim to demonstrate that mitochondrial quality control (mitoQC) responses are dysregulated with age due to loss of SIRT7 and that this contributes to defects in the aged hematopoietic system, such as clonal hematopoiesis.



Recently Accepted or Published Manuscripts:

Dr. Xiaoqi Liu:

Liu, X. and Li, B. (2024) The 1st SAU Annual Conference on Urological Research. Serican Journal of Medicine, Vol. 1, No 1, 22815. https://doi.org/10.17161/serican.vol1.22815.

Liu, X. and Li, B. (2024) The 2nd SAU Annual Conference on Urological Research. Serican Journal of Medicine, Vol. 1, No 1, 23103. https://doi.org/10.17161/serican.vol1.23103.

Dr. Nathan Vanderford:

Rose, L.H., Burke, H. & Vanderford, N.L. Educating and Retaining the Cancer-Focused Biomedical Workforce from Rural Appalachian Kentucky: The Impact of Experiential Learning and Scholarship Funding. J Canc Educ (2024). https://doi.org/10.1007/s13187-024-02520-y

Dr. Yekaterina Zaytseva:

Kelson, C. O., Tessmann, J. W., Geisen, M. E., He, D., Wang, C., Gao, T., Evers, B. M., & Zaytseva, Y. Y. (2024). Upregulation of Fatty Acid Synthase Increases Activity of β-Catenin and Expression of NOTUM to Enhance Stem-like Properties of Colorectal Cancer Cells. Cells, 13(19), 1663. https://doi.org/10.3390/cells13191663

Featured Publication:

Rose, L.H., Burke, H. & Vanderford, N.L. Educating and Retaining the Cancer-Focused Biomedical Workforce from Rural Appalachian Kentucky: The Impact of Experiential Learning and Scholarship Funding. J Canc Educ (2024). https://doi.org/10.1007/s13187-024-02520-y

With funds from the UK Women and Philanthropy group, we provided needbased scholarships to students in the Appalachian Career Training in Oncology (ACTION) Program. In this manuscript, we evaluated the impact of ACTION and the scholarships on ACTION students. The ACTION Program and scholarships, motivated students to attend the University of Kentucky, encouraged students to pursue a career in science or medicine, and eased



students' financial burden. The data demonstrate the positive impact of a cancer-focused experiential program and scholarships on rural, underserved students.

The Markey Cancer Center's Appalachian Career Training in Oncology (ACTION) Program offers Appalachian Kentucky high school and undergraduate students enrolled at the University of Kentucky the opportunity to gain cancer research, clinical, outreach and education experiences that will enrich their interest in pursuing a biomedical career with a focus on cancer-related careers. ACTION was created in 2016 through a National Cancer Institute (NCI) Continuing Umbrella of Research Experiences (CURE) supplement and has been funded as an NCI Youth Enjoy Science program since 2018.

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Faculty Activity:

Dr. Luksana Chaiswing:

NIH/NCI Study Section: K99-K00 Transition to Independence Study Section. 10/16/2024—10/17/2024

SRF TOOLkit Seminar & Luncheon. 12/5/2024, HKRB 150, University of Kentucky. "Cancer treatment and cognitive impairment: A Celebration of Dr. Allen Butterfield's SRF Contributions and Career."

Mike Slive Foundation Grant Review Committee. 12/13/2024.

The Society for Redox Biology and Medicine 31st Annual Conference, Savannah, Georgia, USA. November 20—November 24, 2024.



Dr. Changhai Tian:



Conference Abstract Reviewer for the Society for Redox Biology and Medicine (SfBRM) held November 20-23, 2024.

Ad hoc Reviewer of NIH ZRG1 EMS-Y 58 R, RFA Panel: Understanding Chronic Conditions Understudied Among Women — Special Emphasis Panel (SEP)

Attended Review Meeting for NIH ZRG1 EMS-Y 58 R, RFA Panel virtually on October 30-31, 2024.

Ad hoc Reviewer of the UKRI (United Kingdom Research and Innovation) opportunity, October 24, 2024.

American Heart Association (AHA) Regenerative Cell Biology—2024 Fellowship Basic Science 5 Committee, November 21, 2024.

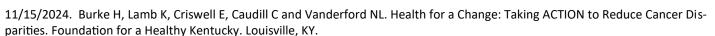
Dr. Nathan Vanderford:

10/22/2024 Vanderford NL. Science Writing and Research Administration Careers for PhDs ...and Mostly...How to Get Them. George Washington University, School of Medicine and Health Sciences, Department of Biochemistry and Molecular Medicine. Washington, D.C.

10/24/2024 Vanderford NL. Addressing Cancer Disparities and Social Determinants of Health in Unique Rural Populations: Taking ACTION in Appalachian Kentucky. 2024 NCODA International Fall Summit. Orlando World Center Marriott. Orlando, FL. (Plenary Presentation, ~1000 attendees)

11/1/2024 Vanderford NL, Anderson T, Ghuneim S, and Swanson H. Is Graduate School Right for Me? Kentucky Academy of Science Annual Meeting. Kentucky State University. Frankfort, KY.

11/6/2024. Vanderford NL. Taking ACTION to Reduce Cancer Disparities in Appalachian Kentucky. University of Kentucky, Appalachian Center and Appalachian Studies Program. Lexington, KY.



11/16/2024. Vanderford NL. Using Photovoice to Explore the Cancer Disparities in Appalachian Kentucky. LexArts Arts and Health Symposium, LexArts ArtsPlace. Lexington, KY.



Dr. Jinming Yang

Participation in the NIH Study Section of ZRG1 BTC-M 02M on December 5, 2024.



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Faculty Awards and Recognition:

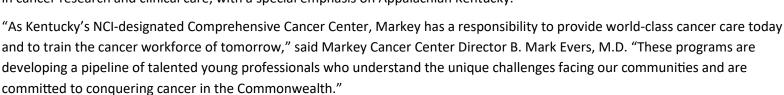
Lt. Gov. Coleman Highlights Cancer Education and Prevention provided by two (2) Markey

Programs

Kentucky Lt. Gov. Jacqueline Coleman visited UK HealthCare's Albert B. Chandler Hospital on Friday to recognize the importance of cancer education and prevention in the Commonwealth and highlight two innovative UK Markey Cancer Center programs that are training the next generation of cancer researchers and health care providers.

The event showcased two successful education initiatives led by the Markey Cancer Center: Appalachian Kentucky Career Training in Oncology (ACTION) and the Summer Health Experience (SHE) in Oncology. These programs prepare Kentucky high school and undergraduate students for careers

in cancer research and clinical care, with a special emphasis on Appalachian Kentucky.



The ACTION program, launched in 2016, has engaged 155 students from 40 of Kentucky's 54 Appalachian counties. Program results show that the majority of undergraduate alumni advance to graduate or professional programs with nearly half enrolling in medical school.

"Most of our students have been personally impacted by cancer and are determined to develop solutions to this challenge," said Nathan Vanderford, PhD, director of the ACTION program and as Associate Professor in UK's College of Medicine. "By providing hands-on research experience, clinical shadowing opportunities, and community outreach activities, it is empowering the next

generation to tackle Kentucky's cancer crisis."

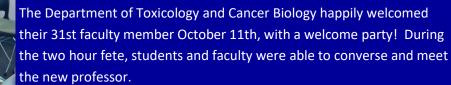
Both the ACTION and SHE in Oncology programs provide unique opportunities for Kentucky students to gain hands-on experience in cancer research and clinical care. While ACTION focuses on engaging students from the Appalachian Kentucky counties in year-round training, SHE in Oncology provides intensive summer experiences for those interested in science and medicine and who identify as underrepresented in the sciences (i.e., underserved populations, low-income, first-generation college-bound, and/or living with a disability). Together, these programs are creating future cancer professionals committed to serving Kentucky communities, and as such they serve as models for the transformational impact of cancer education on Kentucky's youth.



Students from Markey's ACTION and SHE in Oncology programs joined Lt. Gov. Coleman to commemorate Cancer Education and Prevention Month. Mark Cornelison | UK Photo

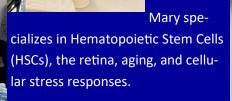
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DTCB Welcomes New Professor, Dr. Mary Mohrin, with welcome party!





Mary Mohrin has spent the last 20 years in California, despite being born in New Jersey. She received her PhD from UCSF, completed her postdoc requirements at UC Berkely and spent 10 years working in industry with Calico Labs and Genentech!







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Lab Activity:

Dr. Luksana Chaiswing:

The SfRBM 31st Annual Conference, Savannah, GA November 20-24, 2024



UK Participants attend the SfRBM Conference in Savannah, GA. (L to R): Dr. Ivan Spasojevic (Duke University), Dr. Pradolej Sompol (Duke University), Dr. Ines Batinic-Haberle, Dr. Luksana Chaiswing, Dr. William St. Clair, Dr. Burcu Balkan, Dr. Daret St. Clair, Nolan Marcum, Sara Macias Palacio, Kahleel Guerrier

Sara Macias Palacio selected for **Oral Presentation** at SfRBM! 33 Abstracts selected from more than 300 submissions! **Travel Award Received**!

Palacio S, Rummel N, Campbell JM, Butterfield AD, Bondada S, Weiss H, Villano J, Batinic-Haberle I, St. Clair DK, Chaiswing L. Radiation-induced Glioblastoma Extracellular Vesicles Containing 4HNE Promote Microglia-Mediated Neurotoxicity.



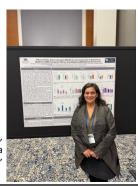


Kahleel Guerrier selected for **Featured Poster Presentation** at SfRBM! 30 posters selected from 211 accepted posters! **Received Young Investigator Award** (awarded to 10 outstanding graduate students and postdoctoral fellows!)

Guerrier KE, St. Clair DK, Xu FF, Tadahide I, Fan T, Higashi R, Islam JM, Cunniff B, Weiss H, **Chaiswing L**. Leveraging Mitochondrial Metabolic and Energetic Differences to Target Prostate Cancer Regrowth Post Radiotherapy.

Nolan Marcum and Dr. Burcu Balkan selected for poster presentations at SfRBM! Marcum NI, Campbell JM, Allison D, St. Clair W, St. Clair DK, Chaiswing L. Identifying A Relationship Between Oxidative Stress And Immune Infiltration In Prostate Cancer Patients With Health Disparities Using Prostate Tumor Microarrays. (Young Investigator Award, Presented to one outstanding undergraduate student)

Chulrick W, **Balkan BM**, Palacio S, Campbell JM, Xu FF, Subbarao B, Weiss H, Batinic-Haberle I, Spasojevic I, Butterfield AD, St. Clair DK, St. Clair WH, **Chaiswing L**. "Effects of Redox Active Antioxidant BMX-001 on the Enhancement of Glioblastoma Multiforme (GBM) Therapeutic Efficacy while Mitigating GBM-Mediated Neurotoxicity"



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Lab Activity:

Dr. Luksana Chaiswing (continued):

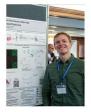
Sara Macias Palacio awarded **First Place Poster Presentation** at 1st Bioelectronics and Nanomedicine Research Center Symposium!

Sep 2024 Sara Palacio. "Can Glioblastoma-derived extracellular vesicles be an indicator of neuronal damage?". The 1st Bioelectronics and Nanomedicine Research Center Symposium BNRC symposium, University of Kentucky.

00: 1

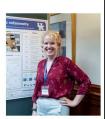
Sara Palacio

"Can glioblastomaderived extracellular
vesicles be an indicator
of neuronal damage?"



Congratulations to the poster session winners!

Brock Harvey
"Immunotherapeutic
Potential of Cell
Membrane-Derived
Nanovesicles for
Personalized Medicine'



Rebekah Duke-Crockett "Toward fully automated cyclic voltammetry experiments"

Outstanding Poster Award

received by Sara Macias Palacio at 14th Annual Markesbery Symposium on Aging and Dementia!

Oct 2024 Sara Palacio. "Extracellular Vesicles Derived from Glioblastoma After Radiation Promote Microglia-Mediated Neurotoxicity". The 14th annual Markesbery Symposium on Aging and Dementia. Todd Lee Building, University of Kentucky. Outstanding Poster Award

Palacio chosen for **Research Data Blitz Presentation** at the Annual Neuroscience Clinical-Translational Research Symposium! 1 of 7 presentations selected!

Oct 2024 Sara Palacio, "Extracellular Vesicles Derived from Glioblastoma After Radiation Promote Microglia-Mediated Neurotoxicity". The annual Neuroscience Clinical-Translational Research Symposium. HKRB 150. University of Kentucky.





Poster Presentations at CNS Metabolism Symposium!

Dec 2024. **Palacio S**, Rummel N, Campbell JM, Butterfield AD, Bondada S, Weiss H, Villano J, Batinic-Haberle I, St. Clair DK, **Chaiswing L**. Radiation-induced Glioblastoma Extracellular Vesicles Containing 4HNE Promote Microglia-Mediated Neurotoxicity. The 1st CNS Metabolism Symposium. HKRB 150. University of Kentucky

Dec 2024. Chulrick W, **Balkan BM**, Palacio S, Campbell JM, Xu FF, Subbarao B, Weiss H, Batinic-Haberle I, Spasojevic I, Butterfield AD, St. Clair DK, St. Clair WH, **Chaiswing L.** "Effects of Redox Active Antioxidant BMX-001 on the Enhancement of Glioblastoma Multiforme (GBM) Therapeutic Efficacy while Mitigating GBM-Mediated Neurotoxicity". The 1st CNS Metabolism Symposium. HKRB 150. University of Kentucky.



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Li Lab Activity:

Akinyemi attends ABRCMS in Pittsburgh, PA! Selected as Oral Presenter!

Nov 2024 Amos Akinyemi. "Targeting ER Stress Sensors to Overcome Enzalutamide Resistance in Advanced Prostate Cancer." Annual Biomedical Research Conference for Minoritized Students, Pittsburgh, PA.

Amos was awarded the outstanding presenter award and a travel grant for his **outstanding oral presentation** during the graduate symposium!





Amos joined members of UK's College of Pharmacy at ABRCMS!

Akinyemi selected as mentor for graduate students for University of Kentucky Start to Finish Mentorship Program!

A good mentor motivates you, a great mentor shapes you.

That is exactly what Amos Akinyemi hopes to do with his mentee.

Connected through the University of Kentucky's <u>Center for Graduate and Professional Diversity Initiatives</u> (CGPDI) <u>Start to Finish (STF) Mentoring</u> Program, Akinyemi knows firsthand what a great mentor can do for their mentee.

"STF works to enhance the academic experience for students through formal and informal engagements to foster a greater sense of belonging in their academic journey," said David Robinson, CGPDI assistant director. "Mentorship is important because it guides us through the things that we didn't even know that we didn't know. So often we would like to pour into our younger selves if we could. Mentorship gives individuals an opportunity to pay it forward with knowledge, wisdom and experience."

Per Akinyemi," I just don't want to be a lone ranger as I grow. I want to make sure those younger ones learn from my little experience."

Akimyemi accepted as member of Black in Cancer!

Black in Cancer was founded in 2020 and aims to strengthen the network between Black people in the cancer space whilst highlighting Black excellence in cancer research and medicine. The work we do can be further disseminated into two key areas – the BiC Pipeline Program (BiCPP) and the Cancer Awareness Project (CAP).

The arm of our organization dedicated to pipeline programs is committed to empowering ambitious cancer researchers throughout their educational journey, facilitating their transition into successful careers. To date, we've provided comprehensive support across the entire pipeline, spanning from undergraduate students to postdoctoral researchers. This support includes mentoring, funding, and career guidance through a range of initiatives. Our collaborative efforts with esteemed partners, including Cancer Research UK, The Emerald Foundation, and various universities and leading cancer centers in the US and UK, make these initiatives possible.

Our initiatives for cancer awareness strive to educate the community and enhance participation in clinical trials by empowering patients and advocates with culturally informed information in an accessible manner. Our collaborative efforts with the FDA have extended to two cycles of the annual Black Family Cancer Awareness Week, held in June over the Juneteenth weekend.

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Top photo L to R: Dr. Courtney Kelson and Dr. Kate Zaytseva

Right Photo L to R: Dr. Josiane Tessmann, Mariah Geisen, Jerika Durham, Dr. Courtney Kelson, and Dr. Kate Zaytseva

Courtney Kelson successfully defended her thesis and was awarded her PhD on October 25th, 2024! Courtney's thesis was entitled, "Elucidating the Role of Fatty Acid Synthase in APC-Driven Colorectal

Courtney is pictured with Dr. Kate Zaytseva and the other members of her lab at the University of Kentucky.

Courtney has relocated to Indianapolis, IN and is seeking MSL roles within industry.



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MS in Forensic Toxicology and Analytical Genetics 2nd year students will begin their internships! Check out where they're going!

Aislin Blair:

UKY Gluck Equine Research Center — Genetic Testing **Lexington Police Department**

Gabrielle Boyd:

Luxor Scientific

South Carolina Law Enforcement Division (SLED)

Bethany Flannery:

UKHC Clinical Molecular & Genomic Pathology Lab **Lexington Police Department**

Jooli Hansen:

KCA Laboratories

UKY College of Public Health with Dr. Rachel Vickers-Smith (completed Summer 2024)

Kelli Harpe:

UKY College of Public Health with Dr. Rachel Vickers-Smith KY Division of Lab Services—Environmental Chemical Branch

Megan Hayden:

University of Louisville: Dr. Mayukh Banerjee's Lab (completed Summer 2024)

Marshall Toxicology

Konner Schieman:

TruDiagnostic

BioPet Laboratories

Good Luck to all of you on your internships! We look forward to hearing about your experiences at the Poster Presentations!

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Student Forum Activity:



Student Forum Hosts Spooky Halloween Party with Pumpkin Painting and More!

On November 1st (when you'd least expect it!), students gathered to celebrate Halloween with pumpkin painting, costumes, and Halloweentown.

Tacos were also served, though their spookiest trick was the hot mango salsa!

Left Side (F to B): Joolie Hansen, Jerika Durham, Tempany Arbogast Right Side (F to B): Mariah Geisen, Sara Macias Palacio, Andrew Shinkle Not Pictured: Dave-Preston Esoe, Kevin Fulp

Student Forum Feeds Cancer Impacted Families at the Hope Lodge Ahead of Thanksgiving!

Students visited the ACLS Hope Lodge on Thursday 11/14 to prepare chili, grilled cheese sandwiches, and sides for more than 40 families impacted by cancer!

Front Row (L to R): Jerika Durham, Sara Macias Palacio, Mariah Geisen

Back Row (L to R): Niyi Obaleye, Felix Oyelami, Liang Zeng



L to R: Mariah Geisen, Dr. Xiaoqi Liu, Amos Akinyemi, Kevin Fulp

1st Annual Tristin Miller Outstanding Citizen Award Selected!

Graduate students in the Department of Toxicology and Cancer Biology have selected Amos Akinyemi as the first recipient of the Tristin Miller Outstanding Citizen Award.

Students selected represent: generosity of time for others, general support of students, staff and faculty, overall citizenship.

Miller was a PhD student with DTCB who tragically passed away last November. The award was created in his memory for a student who embodies Tristin's friendly personality, smiling face, and care for other people!



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Dr. Chih-Ling Wang—Dr. Mary Mohrin's Lab

I started my academic journey at National Taiwan Normal University, where I conducted research on the utilization of plant extracts for obesity prevention. As I progressed through my master's program, my passion for research grew, solidifying my determination to pursue a long-term career in science. Subsequently, I completed my PhD at National Taiwan University, where my research focused on exploring the beneficial effects of dietary wild bitter gourd in a castration-induced muscular atrophy and aging mouse model. Throughout my doctoral studies, I developed a profound interest in aging research. This passion led me to transition into the field of stem cell aging during my postdoctoral training. My postdoctoral work, which included studies on stem cell aging, cognitive aging, and fatty liver disease, combined with my graduate training in obesity and muscular atrophy, has prepared me to lead a research program in aging-related diseases. Outside of the lab, I enjoy traveling, cooking and playing the piano.





Dr. Rajesh Moorthy—Dr. Eunus Ali's Lab

I am , a new post-doctoral research scholar from Dr. Eunus S. Ali's lab (Department of Toxicology and Cancer Biology). I have joined as a post doctoral scholar from on 12/01/2024. Previously, I have completed my Ph.D. (Biochemistry) in Bharathidasan University, Tiruchirappalli, Tamil Nadu, India in January 2024. My research Interests are RNA Interference (RNAi) and Molecular Oncology. My thesis Title is "Role of miR-375/Hoxa5 Axis In Breast Cancer Progression." I have an expertise in cell culture handling, cell staining, microscopic imaging techniques, Gel Electrophoresis, Real-Time PCR, Western Blot and RNAi and I am also voluntarily acting as a participant, presenter and organizer in our departmental events of the University as well as in outside colleges and universities.

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Spring 2025 Semester: DTCB Monday Seminars 12:00-1:00 PM MN 463

Jan 13 - Student Seminar: Tempany Arbogast (Dr. C. Brainson)

Jan 27 — Dr. Jennifer Yu, Cleveland Clinic (Dr. L. Chaiswing)

Feb 03 - Dr. Deliang Guo, Ohio State University (Dr. Q. Wei)

Feb 10 — Dr. Su Deng, Yale University (Dr. Z. Li)

Feb 17 — Dr. Luksana Chaiswing, University of Kentucky (Dr. X. Liu)

Feb 24 — Dr. Zongbing You, Tulane University (Dr. H-S Yang)

Mar 03 — Dr. Junran Zhang, Ohio State University (Dr. T. Izumi)

Mar 10 — Dr. Wenliang Li, UT Health Houston (Dr. Q. Wei)

Mar 24 — Dr. Will Fong, University of Kentucky (Dr. X. Liu)

Mar 31 — Student Seminar: Jerika Durham (Dr. K. Zaytseva)

Apr 07 — Dr. Maria S. Sosa, Albert Einstein College (Dr. J-M Yang)

Apr 14 — Dr. Antino Allen, UAMS College of Pharmacy (Dr. L.

Chaiswing)

Apr 21 — Dr. Xiaojing Ma, Weill Cornell University (Dr. Xia Liu)

May 05 — Dr. Changhai Tian, University of Kentucky (Dr. X. Liu)

NEWSLETTER ITEMS

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



Spring 2025 Semester: DTCB Faculty Grant Talk Series

12:00-1:00 PM

HKRB 410

Jan 17 — Dr. Luksana Chaiswing

Feb 07 — Dr. Xia Liu

Mar 07 — Dr. Changhai Tian

Apr 04 — Dr. Will Fong

Apr 18 — Dr. Guan-Yu Xiao

Spring 2025 Semester: DTCB Trainee Talk Series
12:00-1:00 PM
MN 463

Jan 31 — Kevin Fulp (Xiao) & Niyi Obaleye (Xiao)

Feb 14 — Hamed Maasoumyhaghighi (Liu) &

Mohammad Farahani (Liu)

Feb 28 — Sai Wu (Liu) & Fatemah Seilani (Liu)

Mar 14 — Amos Akinyemi (Li) & Md Rakibul Alam(Li)

Mar 28 — Christian Gosser (Brainson) & Avery

Childress (Brainson)

Apr 11 — Han Cong (Fong) & Dave-Preston Esoe

(Brainson)

Apr 25 — Maria Nur (Liu) & Min Zhang (Liu)



Department of Toxicology and Cancer Biology