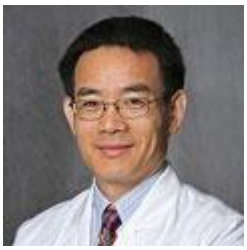
Meharry Cancer Summer Research Program
Mentor Project Descriptions/Research Project Areas

A. Basic/Translational Research



Zhenbang Chen, Ph.D.

The research in Dr. Zhenbang Chen's laboratory focuses on dysregulated signaling pathways in prostate cancer. His group has published several important discoveries on SKP2, androgen receptor (AR), ARF and MET essential oncogenic signaling in prostate cancer. Students in his laboratory will use cultured cells and animal models to explore molecular signaling pathways that influence prostate cancer growth and progression.

Recent Publications:

1: Celada SI, Li G, Celada LJ, Lu W, Kanagasabai T, Feng W, Cao Z, Salsabeel N, Mao N, Brown LK, Mark ZA, Izban MG, Ballard BR, Zhou X, Adunyah SE, Matusik RJ, Wang X, Chen Z. Lysosome-dependent FOXA1 ubiquitination contributes to luminal lineage of advanced prostate cancer. Mol Oncol. 2023 Oct;17(10):2126-2146. doi: 10.1002/1878-0261.13497. Epub 2023 Aug 21. PMID: 37491794; PMCID: PMC10552895.

2: Smith T, White T, Chen Z, Stewart LV. The KDM5 inhibitor PBIT reduces proliferation of castration-resistant prostate cancer cells via cell cycle arrest and the induction of senescence. Exp Cell Res. 2024 Apr 1;437(1):113991. doi: 10.1016/j.yexcr.2024.113991. Epub 2024 Mar 8. PMID: 38462208; PMCID: PMC11091958.

3: Brown LK, Kanagasabai T, Li G, Celada SI, Rumph JT, Adunyah SE, Stewart LV, Chen Z. Co-targeting SKP2 and KDM5B inhibits prostate cancer progression by abrogating AKT signaling with induction of senescence and apoptosis. Prostate. 2024 Jun;84(9):877-887. doi: 10.1002/pros.24706. Epub 2024 Apr 11. PMID: 38605532.

4: Ochieng J, Korolkova OY, Li G, Jin R, Chen Z, Matusik RJ, Adunyah S, Sakwe AM, Ogunkua O. Fetuin-A Promotes 3-Dimensional Growth in LNCaP Prostate Cancer Cells by Sequestering Extracellular Vesicles to Their Surfaces to Act as Signaling Platforms. Int J Mol Sci. 2022 Apr 5;23(7):4031. doi: 10.3390/ijms23074031. PMID: 35409390; PMCID: PMC8999611.

Sanford Barsky, M.D.

The research of Dr. Barsky's laboratory is focused in the field of tumor biology and metastasis, particularly on discoveries underlying the mechanisms of metastatic progression of human breast cancer with a focus on inflammatory breast cancer, a disease that affects minorities and a disease with striking health care disparities. Recently the lab observed that inflammatory breast cancer produces lymphovascular emboli that bud into daughter emboli which eventually form micrometastases. Students working in Dr. Barsky's lab would study the molecular mechanisms involved in this phenomenon.

<u>Recent Publications:</u>

1: Ye Y, Wang J, Izban MG, Ballard BR, Barsky SH. Initiation of tumor dormancy by the lymphovascular embolus. Oncotarget. 2024 Oct 11;15:726-740. doi: 10.18632/oncotarget.28658. PMID: 39392391; PMCID: PMC11468568.

2: Ye Y, Wang J, Dillard J, Barsky SH. Tumor Dormancy Within the Lymphovascular Embolus Is Regulated by Multiple Metabolism-signaling Pathways. Anticancer Res. 2024 Oct;44(10):4165-4173. doi: 10.21873/anticanres.17247. PMID: 39348960.

3: Modi AP, Nguyen JPT, Wang J, Ahn JS, Libling WA, Klein JM, Mazumder P, Barsky SH. Geometric tumor embolic budding characterizes inflammatory breast cancer. Breast Cancer Res Treat. 2023 Feb;197(3):461-478. doi: 10.1007/s10549-022-06819-6. Epub 2022 Dec 6. PMID: 36473978; PMCID: PMC9734724.

Sakina Eltom, D.V.M, Ph.D.

The research in Dr. Eltom's laboratory overlaps molecular aspects of environmental toxicology and chemical carcinogenesis. One area of research explores molecular mechanisms involved in the signaling pathways of the aryl hydrocarbon receptor (AhR) in breast cancer. The second area of research involves the examination of the differential role of environmental chemicals on the etiology of breast cancer in pre-menopausal African American and Caucasian women. The overall objective of this study is to identify biological factors contributing to the ethnic variation in breast cancer and provide mechanistic data on the possible differential role of environmental chemicals on the biology of breast cancer. Students working within the Eltom laboratory will use cell lines to study the biology of AhR and the effects of environmental chemicals on breast cancer.

Recent Publications:

1: Wang X, Zhang L, Dai Q, Si H, Zhang L, Eltom SE, Si H. Combined Luteolin and Indole-3-Carbinol Synergistically Constrains ERα-Positive Breast Cancer by Dual Inhibiting Estrogen Receptor Alpha and Cyclin-Dependent Kinase 4/6 Pathway in Cultured Cells and Xenograft Mice. Cancers (Basel). 2021 Apr 27;13(9):2116. doi: 10.3390/cancers13092116. PMID: 33925607; PMCID: PMC8123907.

2: Taha Z, Eltom SE. The Role of Diet and Lifestyle in Women with Breast Cancer: An Update Review of Related Research in the Middle East. Biores Open Access. 2018 May 1;7(1):73-80.

3: Ochieng J, Nangami GN, Ogunkua O, Miousse IR, Koturbash I, Odero-Marah V, McCawley LJ, Nangia-Makker P, Ahmed N, Luqmani Y, Chen Z, Papagerakis S, Wolf GT, Dong C, Zhou BP, Brown DG, Colacci AM, Hamid RA, Mondello C, Raju J, Ryan EP, Woodrick J, Scovassi AI, Singh N, Vaccari M, Roy R, Forte S, Memeo L, Salem HK, Amedei A, Al-Temaimi R, Al-Mulla F, Bisson WH, Eltom SE. The impact of low-dose carcinogens and environmental disruptors on tissue invasion and metastasis. Carcinogenesis. 2015 Jun;36 Suppl 1:S128-59.

4: Humphrey-Johnson A, Abukalam R, Eltom SE. Stability of the aryl hydrocarbon receptor and its regulated genes in the low activity variant of Hepa-1 cell line. Toxicol Lett. 2015 Mar 4;233(2):59-67.

Amadou Gaye, Ph.D.

Dr. Gaye's research focuses on three main themes: (1) biostatistical methods development for epidemiological and genomic studies, (2) investigation of multifactorial conditions, particularly cardiometabolic diseases and cancer in African descent populations, and (3) capacity building among underrepresented groups. His career is dedicated to creating innovative biostatistical solutions, with an emphasis on applying genomics to understand complex disease mechanisms and addressing health inequities. Students working in Dr. Gaye's lab will perform projects focused on genomics and cancer.

Recent Publications:

1: Gaye A, Sene ARG, Gadji M, Deme A, Cisse A, Ndiaye R. Toward building a comprehensive human pan-genome: The SEN-GENOME project. Am J Hum Genet. 2024 Oct 3;111(10):2074-2078. doi: 10.1016/j.ajhg.2024.08.017. Epub 2024 Sep 20. PMID: 39305906; PMCID: PMC11480787.

2: Diallo A, Abbas M, Goodney G, Price E, Gaye A. Relationship between LDL-cholesterol, small and dense LDL particles, and mRNA expression in a cohort of African Americans. Am J Physiol Heart Circ Physiol. 2024 Sep 1;327(3):H690-H700. doi: 10.1152/ajpheart.00332.2024. Epub 2024 Jul 19. PMID: 39028281; PMCID: PMC11901346.

3: Hinton A Jr, Neikirk K, Le H, Oliver A, Harris C, Martin P, Gaye A. N-lactoyl phenylalanine suppresses appetite and obesity with important implications for aging and age-related diseases. Aging Adv. 2024 Dec;1(2):172-173. doi: 10.4103/agingadv.agingadv-d-24-00011. Epub 2024 Dec 20. PMID: 39845129; PMCID: PMC11752169.

4: Hinton A Jr, Neikirk K, Le H, Harris C, Oliver A, Martin P, Gaye A. Estrogen receptors in mitochondrial metabolism: age-related changes and implications for pregnancy complications. Aging Adv. 2024 Dec;1(2):154-171. doi: 10.4103/agingadv.agingadv-d-24-00012. Epub 2024 Dec 20. PMID: 39839811; PMCID: PMC11748122.

Shalonda Ingram, Ph.D.

The Ingram Lab focuses largely on dopamine and reward pathway mechanisms involved in addiction, depression, and Parkinson disease (PD). They are also focused on central nervous system (CNS) based neoplasms, gliomas in particular. Preliminary studies from the lab have revealed the role of dopamine transporter (DAT) oligomerization in trafficking and activity as well as the role of cholesterol in DAT activity at the synapse in response to methamphetamine (METH) treatment. Whole cell Stable Isotope Labeling of Amino Acids (SILAC) studies revealed proteins that are up- or down-regulated upon METH treatment in dopaminergic neurons which revealed proteins of interest PARK7/DJ-1 and DARPP-32, two proteins that have significance in oncogenesis. As a result, the lab is examining glioma mechanisms involving DJ-1 and DARPP-32 such as

a. DJ1 redox mechanisms in gliomas
b. DJ1 dysregulation role in oncogenesis of gliomas
c. DARPP-32 mechanisms of regulating PP1 in gliomas and downstream effects

<u>Recent Publications:</u>

1: Ingram SM, Rana T, Manson AM, Yayah FM, Jackson EGB, Anderson C, Davids BO, Goodwin JS. Optogenetically-induced multimerization of the dopamine transporter increases uptake and trafficking to the plasma membrane. J Biol Chem. 2021 Jan- Jun;296:100787. PMID: 34015332; PMCID: PMC8203837.

2: Oladapo HO, Tarpley M, Sauer SJ, Addo KA, Ingram SM, Strepay D, Ehe BK, Chdid L, Trinkler M, Roques JR, Darr DB, Fleming JM, Devi GR, Williams KP. Pharmacological targeting of GLI1 inhibits proliferation, tumor emboli formation and in vivo tumor growth of inflammatory breast cancer cells. Cancer Lett. 2017 Dec 28;411:136-149. PMCID: PMC5720365.

3: Russell JK, Ingram SM, Teal LB, Lindsley CW, Jones CK. M1/M4-Preferring Muscarinic Cholinergic Receptor Agonist Xanomeline Reverses Wake and Arousal Deficits in Nonpathologically Aged Mice. ACS Chem Neurosci. 2023 Feb 1;14(3):435-457. PMID: 36655909; PMCID: PMC9897218.

Dana Marshall, Ph.D.

Dr. Dana Marshall's research focuses on identifying factors that contribute to the disparity in mortality between African-American males and their Caucasian counterparts. Her work includes the acquisition of clinical and demographic information from individuals treated for oral cancer at Nashville General Hospital at Meharry and in the Meharry Oncology Clinics. Patient tissues are evaluated molecularly for HPV as well as for other molecular clues predictive of outcome. She also works with cell lines, characterizing the role of Alpha2-HS glycoprotein (AHSG) in enhancing metastatic properties of oral squamous cell carcinoma cells while also characterizing isoforms of human AHSG using mass spectrometry.

Recent Publications:

1: Appah EO, Ballard BR, Izban MG, Jolin C, Lammers PE, Parrish DD Jr, Marshall DR. A rapidly growing human papillomavirus-positive oral tongue squamous cell carcinoma in a 21-year old female: A case report. Oncol Lett. 2018 May;15(5):7702-7706.

2: Thompson PD, Sakwe A, Koumangoye R, Yarbrough WG, Ochieng J, Marshall DR. Alpha-2 Heremans Schmid Glycoprotein (AHSG) modulates signaling pathways in head and neck squamous cell carcinoma cell line SQ20B. Exp Cell Res. 2014 Feb 15;321(2):123-32

3: Mittendorf KF, Bland HT, Andujar J, Celaya-Cobbs N, Edwards C, Gerhart M, Hooker G, Hubert M, Jones SH, Marshall DR, Myers RA, Pratap S, Rosenbloom ST, Sadeghpour A, Wu RR, Orlando LA, Wiesner GL. Family history and cancer risk study (FOREST): A clinical trial assessing electronic patient-directed family history input for identifying patients at risk of hereditary cancer. Contemp Clin Trials. 2025 Jan;148:107714. doi: 10.1016/j.cct.2024.107714. Epub 2024 Oct 10. PMID: 39395532.

4: Odiase P, Ma J, Ranganathan S, Ogunkua O, Turner WB, Marshall D, Ochieng J. The Role of Fetuin-A in Tumor Cell Growth, Prognosis, and Dissemination. Int J Mol Sci. 2024 Nov 30;25(23):12918. doi: 10.3390/ijms252312918. PMID: 39684629; PMCID: PMC11641224.

Pamela Martin, Ph.D.

Dr. Martin is a biochemist and molecular biologist that has studied the role of sigma receptor ligands in preventing retinal ganglion cell apoptosis in diabetic retinopathy. Students working with Dr. Martin's group would perform research on cancer-associated retinopathy and other cancer-related collaborative projects.

Recent Publications:

1: Jadeja RN, Martin PM. Oxidative Stress and Inflammation in Retinal Degeneration. Antioxidants (Basel). 2021 May 17;10(5):790. doi: 10.3390/antiox10050790. PMID: 34067655; PMCID: PMC8156590.

2: Jadeja RN, Thounaojam MC, Bartoli M, Martin PM. Implications of NAD+ Metabolism in the Aging Retina and Retinal Degeneration. Oxid Med Cell Longev. 2020 May 9;2020:2692794. doi: 10.1155/2020/2692794. PMID: 32454935; PMCID: PMC7238357.

3: Abdelrahman AA, Powell FL, Jadeja RN, Jones MA, Thounaojam MC, Bartoli M, Al-Shabrawey M, Martin PM. Expression and activation of the ketone body receptor HCAR2/GPR109A promotes preservation of retinal endothelial cell barrier function. Exp Eye Res. 2022 Aug;221:109129. doi: 10.1016/ j.exer.2022.109129. Epub 2022 May 29. PMID: 35649469.

4: Jadeja RN, Jones MA, Abdelrahman AA, Powell FL, Thounaojam MC, Gutsaeva D, Bartoli M, Martin PM. Inhibiting microRNA-144 potentiates Nrf2-dependent antioxidant signaling in RPE and protects against oxidative stress-induced outer retinal degeneration. Redox Biol. 2020 Jan;28:101336. doi: 10.1016/j.redox.2019.101336. Epub 2019 Sep 29. PMID: 31590045; PMCID: PMC6812120.

Smita Misra, Ph.D.

Dr. Misra's research focuses on various aspects of breast carcinogenesis, particularly the gene expression regulation, posttranscriptional regulation of RNA and the molecular mechanisms of breast tumor growth, aggressiveness, progression to invasion and metastasis. The objective of this work is to understand the basis for the progression of breast cancer, with the aim to develop novel biomarkers for the detection and targeted therapies that may be useful in the development of chemotherapy and cure/control/eradication of breast cancer in particular along with other cancers. Students working with Dr. Misra would examine gene expression and RNA regulation within human breast cancer cells.

<u>Recent Publications:</u>

1: Walters TS, McIntosh DJ, Ingram SM, Tillery L, Motley ED, Arinze IJ, Misra S. SUMO-Modification of Human Nrf2 at K110 and K533 Regulates Its Nucleocytoplasmic Localization, Stability and Transcriptional Activity. Cell Physiol Biochem. 2021 Mar 27;55(2):141-159. doi: 10.33594/000000351. PMID: 33770425; PMCID: PMC8279473.

2: Ellison M, Mittal M, Chaudhuri M, Chaudhuri G, Misra S. The role of the redox/miR-6855-3p/PRDX5A axis in reversing SLUG-mediated BRCA2 silencing in breast cancer cells. Cell Commun Signal. 2020 Jan 27;18(1):15. doi: 10.1186/s12964-019-0493-5. PMID: 31987042; PMCID: PMC6986021.

3: Bailey CK, Mittal MK, Misra S, Chaudhuri G. High motility of triple-negative breast cancer cells is due to repression of plakoglobin gene by metastasis modulator protein SLUG. J Biol Chem. 2012 Jun 1;287(23):19472-86. doi: 10.1074/jbc.M112.345728. Epub 2012 Apr 11. PMID: 22496452; PMCID: PMC3365985.

4: Mittal MK, Singh K, Misra S, Chaudhuri G. SLUG-induced elevation of D1 cyclin in breast cancer cells through the inhibition of its ubiquitination. J Biol Chem. 2011 Jan 7;286(1):469-79. doi: 10.1074/jbc.M110.164384. Epub 2010 Nov 2. PMID: 21044962; PMCID: PMC3013006.

Siddharth Pratap, Ph.D.

Dr. Pratap is Director of Bioinformatics and Proteomics at Meharry Medical College. Dr. Pratap has collaborated with program mentors on cancer-focused genomics and proteomics research. He will serve as a co-research mentor for students performing cancer bioinformatics research projects and provide advice on the appropriate bioinformatics tools needed to complete each student's study.

Recent Publications:

1: Paromov V, Uversky VN, Cooley A, Liburd LE 2nd, Mukherjee S, Na I, Dayhoff GW 2nd, Pratap S. The Proteomic Analysis of Cancer-Related Alterations in the Human Unfoldome. Int J Mol Sci. 2024 Jan 26;25(3):1552. doi: 10.3390/ijms25031552. PMID: 38338831; PMCID: PMC10855131.

2: Beasley HK, Widatalla SE, Whalen DS, Williams SD, Korolkova OY, Namba C, Pratap S, Ochieng J, Sakwe AM. Identification of MAGEC2/CT10 as a High Calcium-Inducible Gene in Triple-Negative Breast Cancer. Front Endocrinol (Lausanne). 2022 Mar 10;13:816598. doi: 10.3389/fendo.2022.816598. PMID: 35355564; PMCID: PMC8959981.

3: Olokpa E, Mandape SN, Pratap S, Stewart MV. Metformin regulates multiple signaling pathways within castration-resistant human prostate cancer cells. BMC Cancer. 2022 Sep 29;22(1):1025. doi: 10.1186/s12885-022-10115-3. PMID: 36175875; PMCID: PMC9520831.

4: Wiley K, Findley L, Goldrich M, Rakhra-Burris TK, Stevens A, Williams P, Bult CJ, Chisholm R, Deverka P, Ginsburg GS, Green ED, Jarvik G, Mensah GA, Ramos E, Relling MV, Roden DM, Rowley R, Alterovitz G, Aronson S, Bastarache L, Cimino JJ, Crowgey EL, Del Fiol G, Freimuth RR, Hoffman MA, Jeff J, Johnson K, Kawamoto K, Madhavan S, Mendonca EA, Ohno-Machado L, Pratap S, Taylor CO, Ritchie MD, Walton N, Weng C, Zayas-Cabán T, Manolio TA, Williams MS. A research agenda to support the development and implementation of genomics-based clinical informatics tools and resources. J Am Med Inform Assoc. 2022 Jul 12;29(8):1342-1349. doi: 10.1093/jamia/ocac057. PMID: 35485600; PMCID: PMC9277642.

Amos Sakwe, Ph.D.

Dr. Sakwe's research focuses on the molecular basis of cancer progression, metastasis and chemoresistance. His laboratory uses molecular and cell biology, and biochemical techniques as well as animal models of breast cancer to study the role of calcium binding and calcium activated proteins in breast cancer progression and metastasis. The laboratory is also interested in drug discovery techniques to identify drugs that attenuate the progression of breast cancer. Students working in the Sawke laboratory will use human cell lines and other *in vitro* models to study breast cancer progression and metastasis.

<u>Recent Publications:</u>

1: Beasley HK, Widatalla SE, Whalen DS, Williams SD, Korolkova OY, Namba C, Pratap S, Ochieng J, Sakwe AM. Identification of MAGEC2/CT10 as a High Calcium-Inducible Gene in Triple-Negative Breast Cancer. Front Endocrinol (Lausanne). 2022 Mar 10;13:816598. doi: 10.3389/fendo.2022.816598. PMID: 35355564; PMCID: PMC8959981.

2: Williams SD, Sakwe AM. Reduced Expression of Annexin A6 Induces Metabolic Reprogramming That Favors Rapid Fatty Acid Oxidation in Triple-Negative Breast Cancer Cells. Cancers (Basel). 2022 Feb 22;14(5):1108. doi: 10.3390/cancers14051108. PMID: 35267416; PMCID: PMC8909273.

3: Williams SD, Smith TM, Stewart LV, Sakwe AM. Hypoxia-Inducible Expression of Annexin A6 Enhances the Resistance of Triple-Negative Breast Cancer Cells to EGFR and AR Antagonists. Cells. 2022 Sep 27;11(19):3007. doi: 10.3390/cells11193007. PMID: 36230969; PMCID: PMC9564279.

4: Kenchappa DB, Korolkova O, Sakwe N, Odiase P, Izban MG, Sakwe A, Ochieng J. Fetuin-A Modulates Tumor Growth and Invasion in a Basal-like Triple Negative Breast Cancer Cell line, MDA-MB-468. J Pharm Pharmacol Res. 2025;9(1):1-9. doi: 10.26502/fjppr.0103. Epub 2025 Feb 4. PMID: 40124677; PMCID: PMC11928157.

Anil Shanker, Ph.D.

The central focus of Dr. Anil Shanker's laboratory is to understand the molecular mechanisms of intratumoral functional cross-talk between T lymphocytes and natural killer (NK) cells. They are also invested in dissecting the mechanisms of immunomodulation by the proteasome inhibitor bortezomib, Notch ligands, and neurotransmitters in adoptive T cell/NK cell transfer settings in an effort to optimize lymphocyte effector function for cancer therapy. His laboratory is also interested in identifying common functional immune signatures and specifying Notch and lymphocyte repertoires in racial and ethnic minorities that could correlate with strong anti-tumor responses. Students working in Dr. Shanker's laboratory will use *in vitro* and *in vivo* models of cancer to explore these different aspects of cancer immunology.

<u>Recent Publications:</u>

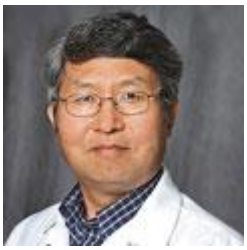
1: Kanagasabai T, Hawaz M, Ellis K, Fah O, Mikhaeil H, Nguyen P, Tombo N, Shanker A, Sampath C, Khoury ZH, Cade J, Ferguson A, Gangula P. Effects of Topoisomerase II alpha Inhibition on Oral Cancer Cell Metabolism and Cancer Stem Cell Function. Dent Res Oral Health. 2024;7(2):58-65. doi: 10.26502/droh.0076. Epub 2024 Apr 29. PMID: 38957610; PMCID: PMC11218736.

2: Kanagasabai T, Dunbar Z, Ochoa SG, Farris T, Dhandayuthapani S, Wijeratne EMK, Gunatilaka AAL, Shanker A. Bortezomib in Combination with Physachenolide C Reduces the Tumorigenic Properties of KRASmutP53mut Lung Cancer Cells by Inhibiting c-FLIP. Cancers (Basel). 2024 Feb 4;16(3):670. doi: 10.3390/cancers16030670. PMID: 38339421; PMCID: PMC10854725.

3: Uzhachenko R, Shimamoto A, Chirwa SS, Ivanov SV, Ivanova AV, Shanker A. Mitochondrial Fus1/Tusc2 and cellular Ca2+ homeostasis: tumor suppressor, anti-inflammatory and anti-aging implications. Cancer Gene Ther. 2022 Oct; 29(10) :1307-1320. doi: 10.1038/s41417-022-00434-9. Epub 2022 Feb 18. PMID: 35181743; PMCID: PMC9576590.

4: Thomas PL, Nangami G, Rana T, Evans A, Williams SD, Crowell D, Shanker A, Sakwe AM, Ochieng J. The rapid endocytic uptake of fetuin-A by adherent tumor

cells is mediated by Toll-like receptor 4 (TLR4). FEBS Open Bio. 2020 Dec; 10(12): 2722-2732. doi: 10.1002/2211-5463.13008. Epub 2020 Nov 3. PMID: 33073533; PMCID: PMC7714080.



Deok-Soo Son, D.V.M., Ph.D.

The laboratory of Dr. Son examines the role of proinflammatory chemokines on the progression of ovarian cancer and the link between obesity and breast cancer. Students working in this laboratory will have an opportunity to study chemokine networks in models of human ovarian cancer in order to determine which chemokines can be used as biomarkers and therapeutic targets. In a second project, the Son lab has identified a proinflammatory chemokine profile linking obesity and breast cancer. Students working on this project will perform experiments designed to define the roles of obesity-promoted proinflammatory chemokines on the progression of breast cancer.

Recent Publications:

1: Son DS, Done KA, Son J, Izban MG, Virgous C, Lee ES, Adunyah SE. Intermittent Fasting Attenuates Obesity-Induced Triple-Negative Breast Cancer Progression by Disrupting Cell Cycle, Epithelial-Mesenchymal Transition, Immune Contexture, and Proinflammatory Signature. Nutrients. 2024 Jul 1;16(13):2101. doi: 10.3390/nu16132101. PMID: 38999849; PMCID: PMC11243652.

2: Gibbs C, So JY, Ahad A, Michalowski AM, Son DS, Li Y. CXCL14 Attenuates Triple-Negative Breast Cancer Progression by Regulating Immune Profiles of the Tumor Microenvironment in a T Cell-Dependent Manner. Int J Mol Sci. 2022 Aug 18;23(16):9314. doi: 10.3390/ijms23169314. PMID: 36012586; PMCID: PMC9409254.

3: Choe D, Lee ES, Beeghly-Fadiel A, Wilson AJ, Whalen MM, Adunyah SE, Son DS. High-Fat Diet-Induced Obese Effects of Adipocyte-Specific CXCR2 Conditional Knockout in the Peritoneal Tumor Microenvironment of Ovarian Cancer. Cancers (Basel). 2021 Oct 8;13(19):5033. doi: 10.3390/cancers13195033. PMID: 34638514;PMCID: PMC8508092.

4: Ignacio RMC, Lee ES, Son DS. Potential Roles of Innate Immune Chemokine and Cytokine Network on Lipopolysaccharide-Based Therapeutic Approach in Ovarian Cancer. Immune Netw. 2019 Jun 17;19(3):e22. doi: 10.4110/in.2019.19.e22. PMID: 31281719; PMCID: PMC6597445.

LaMonica Stewart, Ph.D.

Dr. Stewart's laboratory studies signaling pathways activated by the peroxisome proliferator activated receptor (PPARγ). Her laboratory also studies interactions between the androgen receptor signaling pathway and PPARγ in human prostate cancer cells. Students working in Dr. Stewart's laboratory will use human prostate cancer cell lines to explore how PPARγ agonists and anti-diabetic drugs regulate prostate cancer growth and progression.

Recent Publications:

1: Williams SD, Smith TM, Stewart LV, Sakwe AM. Hypoxia-Inducible Expression of Annexin A6 Enhances the Resistance of Triple-Negative Breast Cancer Cells to EGFR and AR Antagonists. Cells. 2022 Sep 27;11(19):3007. doi:10.3390/cells11193007. PMID: 36230969; PMCID: PMC9564279.

2: Smith T, White T, Chen Z, Stewart LV. The KDM5 inhibitor PBIT reduces proliferation of castration-resistant prostate cancer cells via cell cycle arrest and the induction of senescence. Exp Cell Res. 2024 Apr 1;437(1):113991. doi: 10.1016/j.yexcr.2024.113991. Epub 2024 Mar 8. PMID: 38462208; PMCID: PMC11091958.

3: Olokpa E, Moss PE, Stewart LV. Crosstalk between the Androgen Receptor and PPAR Gamma Signaling Pathways in the Prostate. PPAR Res. 2017; 2017:9456020.

4: Olokpa E, Bolden A, Stewart LV. The Androgen Receptor Regulates PPARγ Expression and Activity in Human Prostate Cancer Cells. J Cell Physiol. 2016 Dec;231(12):2664-72.

Qingguo Wang, PhD.
Dr. Wang is a data scientist that uses computing technology to discover causes of and treatment for cancer. Students working with Dr. Wang will learn bioinformatics tools and other techniques to analyze cancer-focused genomics and transcriptomics research.

Recent Publications:

1: Wang Q, Wang B-Y, Pratap S, Xie H. Oral microbiome associated with differential ratios of *Porphyromonas gingivalis* and *Streptococcus cristatus*. Microbiol Spectr. 2024 Feb 6;12(2):e0348223. doi: 10.1128/spectrum.03482-23. Epub 2024 Jan 17. PMID: 38230927; PMCID: PMC10846039.

2: Wang Q, Gupta V, Cao A, Singhal A, Gary T, Adunyah SE. A Case Study of Enhancing the Data Science Capacity of an RCMI Program at a Historically Black Medical College. Int J Environ Res Public Health. 2023 Mar 8;20(6):4775. doi: 10.3390/ijerph20064775. PMID: 36981686; PMCID: PMC10048727.

3: Ochs-Balcom HM, Preus L, Du Z, Elston RC, Teerlink CC, Jia G, Guo X, Cai Q, Long J, Ping J, Li B, Stram DO, Shu XO, Sanderson M, Gao G, Ahearn T, Lunetta KL, Zirpoli G, Troester MA, Ruiz-Narváez EA, Haddad SA, Figueroa J, John EM, Bernstein L, Hu JJ, Ziegler RG, Nyante S, Bandera EV, Ingles SA, Mancuso N, Press MF, Deming SL, Rodriguez-Gil JL, Yao S, Ogundiran TO, Ojengbede O, Bolla MK, Dennis J, Dunning AM, Easton DF, Michailidou K, Pharoah PDP, Sandler DP, Taylor JA, Wang Q, O'Brien KM, Weinberg CR, Kitahara CM, Blot W, Nathanson KL, Hennis A, Nemesure B, Ambs S, Sucheston-Campbell LE, Bensen JT, Chanock SJ, Olshan AF, Ambrosone CB, Olopade OI, The Ghana Breast Health Study Team, Conti DV, Palmer J, García-Closas M, Huo D, Zheng W, Haiman C. Novel breast cancer susceptibility loci under linkage peaks identified in African ancestry consortia. Hum Mol Genet. 2024 Apr 8;33(8):687-697. doi:10.1093/hmg/ddae002. PMID: 38263910; PMCID: PMC11000665.

B. Clinical/Community-Based Research

Leah Alexander, Ph.D., M.P.H.

Dr. Alexander is a passionate advocate for community-engaged research, blending her academic expertise with the lived experiences of communities. Her research focuses on critical public health issues, including HIV prevention among African American women and clergy, health promotion within faith-based organizations, cancer prevention, public interest technology, and maternal health.

Recent Publications:

1: Jones SC, Schlundt D, Williams N, Smalls M, Idrizi K, Alexander LR, Anthony M, Selove R. Challenges in Disseminating Evidence-Based Health Promotion Programs in Faith Community Settings: What We Need to Include. Health Promot Pract. 2025 May;26(3):579-591. doi: 10.1177/15248399241259688. Epub 2024 Jul 27.PMID: 39066625; PMCID: PMC11979308.

2: Griffith DM, Jaeger EC, Valdez LA, Schaefer Solle N, Garcia DO, Alexander LR. Developing a "Tailor-Made" Precision Lifestyle Medicine Intervention for Weight Control among Middle-aged Latino Men. Ethn Dis. 2020 Apr 2;30(Suppl 1):203-210. doi: 10.18865/ed.30.S1.203. PMID: 32269462; PMCID: PMC7138438.

3: Sanderson M, Pérez A, Weriwoh ML, Alexander LR, Peltz G, Agboto V, O'Hara H, Khoder W. Perinatal factors and breast cancer risk among Hispanics. J Epidemiol Glob Health. 2013 Jun;3(2):89-94. doi: 10.1016/j.jegh.2013.02.004. Epub 2013 Mar 13. PMID: 23856570; PMCID: PMC3713414.

4: Chandler CJ, Schlundt DG, Dagostino C, Bonnet KR, Sellers AJ, Pichon LC, Alexander LR. PrEP Navigator Perceptions of the Implementation of Injectable PrEP on HIV Prevention in Tennessee. Int J Environ Res Public Health. 2025 Apr 23;22(5):662. doi: 10.3390/ijerph22050662. PMID: 40427779; PMCID: PMC12110792.

Flora Ukoli, M.D., M.P.H.

The research of Dr. Flora Ukoli focuses on developing culturally appropriate prostate cancer education interventions particularly for low-income and low-education populations that will improve the level of knowledge about prostate cancer and positively impact attitude to early detection. A second area of interest is to investigate dietary exposures that might contribute in some way to the high prostate cancer risk and burden observed in African-Americans. Students working with Dr. Ukoli will have the opportunity to perform community-based participatory research and epidemiological studies to determine the effect of diet and gene-environment interactions on prostate cancer risk.

Recent Publications:

1: Williams JR, Yeh VM, Bruce MA, Szetela C, Ukoli F, Wilkins CH, Kripalani S. Precision Medicine: Familiarity, Perceived Health Drivers, and Genetic Testing Considerations Across Health Literacy Levels in a Diverse Sample. J Genet Couns. 2018 Aug 13. doi: 10.1007/s10897-018-0291-z. [Epub ahead of print]

2: Zhou YE, Buchowski MS, Liu J, Schlundt DG, Ukoli FA, Blot WJ, Hargreaves MK. Plasma Lycopene Is Associated with Pizza and Pasta Consumption in Middle-Aged and Older African American and White Adults in the Southeastern USA in a Cross-Sectional Study. PLoS One. 2016 Sep 1;11(9):e0161918.

3: Sanderson M, Fowke JH, Lipworth L, Han X, Ukoli F, Coker AL, Blot WJ, Hargreaves MK. Diabetes and prostate cancer screening in black and white men. Cancer Causes Control. 2013 Oct;24(10):1893-9.

4: Ukoli FA, Patel K, Hargreaves M, Beard K, Moton PJ, Bragg R, Beech D, Davis R. A tailored prostate cancer education intervention for low-income African Americans: impact on knowledge and screening. J Health Care Poor Underserved. 2013 Feb;24(1):311-31.