DEPARTMENT OF MEDICINE

Epidemiology and Population Sciences Section

ANNUAL REPORT 2018 - 2019

Epidemiology Section Art - Cancer Below the Belt

#CBTB www.cancerbelowthebelt.com

The Section of Epidemiology and Population Sciences studies the role that endogenous and exogenous sources have in the development of complex human diseases. Sources of exposures include genetic, behavioral and environmental factors that can have effects through intermediate processes such as epigenetic obesity or metabolic processes. Because we focus on complex disease etiology we also use and develop quantitative approaches and study model systems to understand mechanisms in disease biology. Particular strengths of the section include genetic and molecular epidemiology, statistical genetics, geospatial effects on risk and behavioral epidemiology. The Institute of Clinical and Translational Research is housed in the Section of Epidemiology and Population Sciences and co-led by Dr.'s Amos and Balasubramanyam.

Our mission is to create a premiere multidisciplinary research program in epidemiology and population sciences (including but not limited to cancer prevention sciences) that is translational in nature and has relevance to the patients and the population that the College serves. Our gos is to foster the highest quality epidemiologic research and to serve as the centralized resource for the college for innovative epidemiologic research, collaboration, education, and service.

- To achieve these objective we will conduct nationally and internationally recognized and well-funded multidisciplinary epidemiology research.
- Continue focus on areas of existing faculty expertise in adult and pediatric cancer epidemiology i.e. molecular, genetic, and viral/immunoprevention/infectious disease epidemiology. Additional faculty recruitment in nutritional epidemiology/obesity research; pharmacogenomics, cancer control and screening, survivorship/outcomes.
- Extend research too diabetes, neurosciences and cardiovascular clinical science.
- Generate community-based research in high-risk and minority/underserved populations.
- Develop strong collaborations with the University of Texas School of Public Health and the BCM Center for Precision Environmental Health.
- Translate research to the scientific community, general public and beyond.

HIGHLIGHTS

Dr's Amos and Cheng, showed that baseline or post-diagnostic exposure to simvastatin and atorvastatin was associated with extended survival in non-small-cell lung cancer. Drs Amos and Cheng applied a biological model to characterize outcomes following immunotherapy for renal cancer. Dr. Amos serves as PI of the Coordinating Center for the Molecular Characterization of Screen-Detected Lesions Network (U01) that includes the design of new studies. Dr's Amos and Cheng developed a computational immune profiling model for early stage lung cancer. This algorithm can infer immune cell infiltration in tumor tissues based on gene expression data. Dr. Cheng recently completed a study of the role that VISTA has in the development of autoimmunity and suppression of cancer by studying its impact in immunomodulation using single cell RNA sequencing methods. Dr. Amos assisted Dr. El-Serag to develop a coordinating center grant for studying hepatocellular carcinoma. Dr. Amos serves as a co-leader for the newly awarded NIEHS core grant supporting the Center for Precision Environmental Health under Dr. Cheryl Walker.

Dr. Badr is currently conducting a multi-site randomized controlled trial of CareSTEPS, a psychosocial intervention for informal caregivers of advanced lung cancer patients. Dr. Badr received a discovery award from the NCI to participate in the Speeding Research Interventions into Practice (SPRINT) program and develop an implementation plan for moving CareSTEPS into clinical practice settings.

Dr's Thrift and El-Serag have an active research program in Barrett's Esophagus (BE), a precursor to esophageal adenocarcinoma (EAC). EAC is a rapidly advancing cancer in white males in our catchment area. Dr's Thrift and El-Serag have published >25 relevant papers during the past five years and identified risk factors associated with BE and EAC.

Prostate cancer in African-American (AA) men is one of the high-risk cancers in our catchment area. There are several initiatives underway to address this problem. Dr's Bondy and Thrift are the Texas PIs for the RESPOND African American Prostate Cancer Study, the largest study to date of prostate cancer in AAs.

An inter-programmatic collaboration among Dr's Liu, Amos, and Spitz led to the discovery of rare variants in the lymphotoxin beta gene, prolyl 3-hydroxylase gene, and disheveled associated activator of morphogenesis 2 gene that strongly associated with increased risk of lung cancer among individuals with a family history of lung cancer. Dr. Li used data from the Oncoarray project to identify novel gene-gene interactions that affect lung cancer risk, which led to her successful R21 application.

Dr. Minard leads the biostatistical core for the ICTR and won an award from the Graduate School for Biomedical Science with Dr. Hilsenbeck for best teaching for a required course in biostatistics for graduate students.

Dr. Bondy is a leading force in glioma epidemiology, having established two international glioma consortia of 14 sites that collected both glioma families (Gliogene) and sporadic cases and control (GICC). Dr's Bondy, Huse (MDACC), and Amos have an inter-institutional project in the MDACC Brain Tumor SPORE entitled "Somatic and germline distinctions arising in Black and Hispanics". Dr. Bondy and colleagues from the GICC Consortium have multiple publications using Mendelian randomization. Her group is collaborating with the quantitative modeling group to develop novel methods such as LD Score Regression to determine novel phenotypes associated with glioma and lung cancer using UK Biobank Data.

FACULTY

EPIDEMIOLOGY & POPULATION SCIENCES

Melissa Bondy, Ph.D.
Yanhong Liu, Ph.D., M.S.
Aaron Thrift, Ph.D.
Margaret Spitz, M.D.

Cancer Prevention & Research Of Texas (CPRIT) Post–Graduate Training in Integrative Cancer Epidemiology. First Row L/R: Michael Scheurer, Margaret Spitz, Maral Adel Fahmideh, Quinn Ostrom, Jing Dong. Second Row L/R: Melissa Bondy, Philip Lupo, Xiaotao Zhang, Jeremy Schraw

POSTDOCTORAL ASSOCIATES

Jing Dong, Ph.D.
Quinn Ostrom, Ph.D., M.P.H.
Jeremy Schraw, Ph.D.
Xiaotao Zhang, Ph.D.

CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

INSTITUTE FOR CLINICAL & TRANSLATIONAL RESEARCH

Chris Amos, Ph.D., M.S.
Jinyoung Byun, Ph.D.
Chao Cheng, Ph.D., M.S.
Younghun Han, Ph.D.
Yafang Li, Ph.D.
Charles Minard, Ph.D.

FACULTY – SECONDARY APPOINTMENT

Richard Finnell, Ph.D.
Philip Lupo, Ph.D.
Michael Scheurer, Ph.D., M, P. H.
Cheryl Walker, Ph.D.

PRESS

Melissa Bondy: #BrainTumorAwarenessMonth, Better Together with Maria Menounos. In this interview with host and glioma survivor Maria Menounos, Dr. Bondy discusses Gliogene, the largest study of familial brain cancer. Podcast-Maria Menounos-Melissa Bondy.

Melissa Bondy: Did Harvey make us sick? Still more questions than answers. Baylor College of Medicine has three Harvey health-related projects under way. Each of these studies is examining contaminates, their sources and possible toxicity. Houston Chronicle-Hurrican Harvey.

Highway 288 into Medical Center - Hurricane Harvey

Harvey Symposium - 2 Years After, Mayor Turner Proclamation that on August 22nd, 2019 is Hurricane Harvey Research Day. Also pictured, Judge Ed Emmett, Baylor President, Dr. Paul Klotman.

Panel discussion emergency response planning - preparing for Harvey

Jing Dong and Aaron Thrift: An article by Jing Dong, Ph.D., and Aaron Thrift, Ph.D., "Less surgery among blacks linked to worse esophageal cancer survival." Discussing racial disparities in esophageal cancer treatment is featured in Healio Gastroenterology.

Jeremy Schraw: An Article by Jeremy Schraw, Ph.D. "Birth Defects Linked to Increased Risk of Childhood Cancer. Certain non-chromosomal defects are strongly associated with specific childhood cancers." In TheScientist.

Jourdan Brown, Research Coordinator for the RESPOND Study

Melissa Bondy and Aaron Thrift: A NCI press release regarding the largest coordinated research effort to study biological and non-biological factors associated with aggressive prostate cancer in African-American men. Cancer.gov-Respond

TEACHING ACTIVITIES

Hoda Badr

- ☑ Translational Research & Population Health (TRAP), Baylor College of Medicine
- ☑ Mentorship of Post-doctoral Fellows, Graduate and Undergraduate Students, Baylor College of Medicine

Jinyoung Byun

- ☑ Bioinformatics and Genome Analysis, Baylor College of Medicine and U.T. M.D. Anderson

Jing Dong

- ☑ Genetic Epidemiology & Population Genetics, Baylor College of Medicine

Charles Minard

- ☑ Biostatistics, Graduate School for Biomedical Sciences, Baylor College of Medicine

Quinn Ostrom

- ☑ Fundamentals of Epidemiology, Baylor College of Medicine

Jeremy Schraw

- ☑ Introductory Data Analysis in R, Baylor College of Medicine
- ☑ Fundamentals of Epidemiology, Baylor College of Medicine

Xiaotao Zhang

- ☑ Fundamentals of Epidemiology, Baylor College of Medicine
- ☑ Overview of Epidemiology Study Designs, Texas Children's Hospital

AWARDS AND HONORS

Chao Cheng

- ☆ Rising Stars Award funded by Cancer Prevention and Research Institute of Texas (CPRIT)

Quinn Ostrom

- ☆ Enrico Anglesio Prize, International Association of Cancer Registries

Jeremy Schraw

- ☆ Young Investigator Talent Award, International Society of Pediatric Oncology (SIOP)

Aaron Thrift

- ☆ American Gastroenterological Association (AGA) Institute Clinical Guidelines Committee

Younghun Han and Jinyoung Byun, EPI/ICTR - Annual Volunteer Day

Jesus Sotelo - Annual Volunteer Day

CARE Team

The Section of Epidemiology and Population Sciences instituted a CARE Team. Responsible for recognizing academic achievement and promoting employee wellness activities.

Katelin Reishus - Annual Volunteer Day - Project C.U.R.E.

RESEARCH ACTIVITIES

CHRIS AMOS

U01CA230997-01 (PI: Kanwal) NIH/NCI $505,467 09/01/2018 – 08/31/2023

Risk Stratification for Early Detection of Liver Cancer
The Translational Research Center (TRC) includes a multidisciplinary team of clinical and translational researchers that has a strong record of accomplishment of collaborative work, with the collective mission of reducing the burden of HCC.

U01CA196386 & CA196386S1 NCI/NIH $804,583 09/01/2015 – 08/31/2020

Center for Molecular and Cellular Findings of Screen-Detected Lung Lesions
This grant coordinates design and analysis of a network of grants involved in molecular studies of screen detected lesions. Additionally, we will support data collection across the network.

1R01CA186566 (PI: Hassan, Amos, Roberts) NIH/NCI $98,125 (sub) 04/01/2015 – 06/30/2019

Genome-Wide Association Study (GWAS) in Hepatocellular Carcinoma (HCC)
This grant studies genetic and environmental contributions to the development of Hepatocellular Carcinoma in U.S. populations. Genetic effects will be elucidated with a genome-wide association study and environmental effects will be studied by Mendelian Randomization and mediation analyses.

1P30ES030285-01 (PI: Walker) NIH/NIEHS $1,000,000 04/01/2019 – 03/31/2024

Gulf Coast Center for Precision Environmental Health
The GC-CEPH will be the focal point and catalyst for impactful EHS research, bi-directional communication with local communities and stakeholders, and the engine driving translation of precision environmental health research advances to improve human health.

1R01CA239342-01(PI: Wang) NIH/NCI $9,282 (sub only) 04/01/2019 – 03/31/2023

Statistical methods and tools for cancer risk prediction in families with germline mutations in TP53
To improve the clinical management of individuals with a family history of early-onset cancers by developing mathematical models to assess 1) germline mutation carrier probability prior to TP53 testing and 2) the absolute lifetime risk of developing cancers in individuals with TP53 mutations.

RR170048 CPRIT $1,200,000 09/01/2017 – 08/31/2022

Evaluating Lung Cancer Etiology and Risk through Clinical and Genomic Analysis
The goal of this grant is to identify and characterize genomic features of early stage lung cancer lesions that predict recurrence.

MELISSA BONDY

1U19CA214254-01-A1 NIH/NCI $217,776 (sub only) 07/01/2018 – 06/30/2023

Research on Prostate Cancer in African American Men
The overall goal of this proposal is to better understand and define the roles of genetics, immunity, and access to care among African American men with prostate cancer.

51R01CA232754-01 NIH/NCI $954,904 05/09/2019 - 04/30/2023

(MPI) Characterizing germline and somatic alterations by glioma subtypes and clinical outcome.
The overall goal of this proposal is to identify interactions between germline risk SNPs, somatic mutations, and clinical outcomes in glioma patients.

CHAO CHENG

1R21CA227996 NIH/NCI $217,776 (sub only) 04/01/2019 – 03/31/2021

Computational Identification of new candidate drugs for lung cancer treatment
The major goal of this project is to integrate genomic data and population-based longitudinal healthcare data to identify new candidate drugs for the treatment of lung cancer from FDA approved drugs.

RR180061 CPRIT $1,200,000 04/01/2019 – 03/31/2021

Integrative computational approaches for improving cancer immunotherapy
The major goal of this project is to develop computational models that integrate diverse genomic data to categorize cancer types and stratify patients within a cancer type to improve treatment efficacy of immunotherapy.

R01CA225028-01A1 (PI: Turk) NIH/NCI $9,557 (sub only) 02/01/2018 – 01/31/2023

Tissue resident memory T cell responses to Cancer
The major goal of this project is to test the hypotheses that a diverse complement of functional memory T cells in peripheral tissues underlies the durable tumor immunity observed in mice and melanoma patients with vitiligo and other cutaneous inflammatory events.

AARON THRIFT

P30 CA0125123-S (PI: Osbourne, CK) Pilot Award NCI $50,000 01/01/2019 – 12/31/2019

The gut microbiome in cirrhosis and Hepatocellular carcinoma
The goal of this study is to characterize the gut microbiome in cirrhosis patients and examine for differences by race/ethnicity and underlying etiology

P30 CA0125123-S (PI: Osbourne, CK) Pilot Award NCI $50,000 06/01/2018 - 05/30/2019

Admixture mapping of cirrhosis and Hepatocellular carcinoma in African Americans
The goal of this study is to discover genes that underlie ethnic variation in risk of cirrhosis and, in an exploratory aim, how this variation relates to risk of Hepatocellular carcinoma.

PP160089 CPRIT $494,590 09/01/2016 – 08/31/2019

PREVENT HCC – through Screening, Vaccination and Treatment of Viral Hepatitis
The goal of this study is to reduce liver cancer incidence in high-risk residents of Harris County, TX through education, screening, vaccination and treatment.

CX001616-01 (PI: El-Serag, H) Dept. Veterans Affairs $200,000 09/01/2017 – 09/30/2021

Prevalence and predictors of nonalcoholic fatty liver disease (NAFLD) in Veterans
The goal of this study is to determine the burden of non-alcoholic fatty liver disease among patients receiving primary care at the Department of Veterans Affairs (VA) health care system.

P30 CA0125123-S NCI $157,729 09/01/2017 – 08/31/2019

DCC HHS Smoking Cessation Treatment Program
The goal of this study is to establish a smoking cessation program within the Dan L Duncan Comprehensive Cancer Center that will serve cancer patients in Harris County, Texas.

YAFANG LI

R21 CA235464 NCI/NIH $239,984 07/01/2019 - 06/30/2021

Genetic Interaction Analysis Involving Oncogenesis Related Genes In Lung Cancer
This study will provide insights about the complicated biological interactions that are critical for gene regulation, biochemical networks, and developmental pathways implicated in lung carcinogenesis.

MARGARET SPITZ

RP160097 CPRIT $750,097 03/01/2016 - 02/28/2021

Cancer Prevention Post-Graduate Training Program in Integrative Epidemiology
Create a novel, multidisciplinary, three-year training and career development program for postdoctoral candidates in Integrative Cancer Epidemiology.

PUBLICATIONS

1. Amirian ES, **Ostrom QT,** Armstrong GN, Lai RK, Gu X, Jacobs DI, Jalali A, Claus EB, Barnholtz-Sloan JS, Il'yasova D, Schildkraut JM, Ali-Osman F, Sadetzki S, Jenkins RB, Lachance DH, Olson SH, Bernstein JL, Merrell RT, Wrensch MR, Johansen C, Houlston RS, Scheurer ME, Shete S, **Amos CI**, Melin B, **Bondy ML**. Aspirin, NSAIDs, and Glioma Risk: Original Data from the Glioma International Case-Control Study and a Meta-analysis. Cancer Epidemiol Biomarkers Prev. 2019 Mar; 28(3):555-562. doi: 10.1158/1055-9965.EPI-18-0702. Epub 2018 Nov 27. PubMed PMID: 30482874; PubMed Central PMCID: PMC6401283.

2. **Badr H**, Reese JB. Introduction to the JPO special issue: Innovations and real world applications of relationship research in cancer. J Psychosoc Oncol. 2019Mar-Apr;37(2):127-130. doi: 10.1080/07347332.2019.1579887. PubMed PMID: 31008699

3. **Badr H**, Sobrero M, Chen J, Kotz T, Genden E, Sikora AG, Miles B. Associations between pre-, post-, and peri-operative variables and health resource use following surgery for head and neck cancer. Oral Oncol. 2019 Mar;90:102-108. doi:10.1016/j.oraloncology.2019.02.004. Epub 2019 Feb 11. PubMed PMID: 30846167;PubMed Central PMCID: PMC6410733.

4. **Badr H**, Bakhshaie J, Chhabria K. Dyadic Interventions for Cancer Survivors and Caregivers: State of the Science and New Directions. Semin Oncol Nurs. 2019 Aug;35(4):337-341. doi: 10.1016/j.soncn.2019.06.004. Epub 2019 Jun 24. Review. PubMed PMID: 31248677; PubMed Central PMCID: PMC6660372.

5. **Badr H**, Herbert K, Chhabria K, Sandulache VC, Chiao EY, Wagner T. Self-management intervention for head and neck cancer couples: Results of a randomized pilot trial. Cancer. 2019 Apr 1;125(7):1176-1184. doi:10.1002/cncr.31906. Epub 2018 Dec 6. PubMed PMID: 30521075; PubMed Central PMCID: PMC6420382.

6. **Badr H**, Herbert K, Bonnen MD, Asper JA, Wagner T. Dyadic Coping in Patients Undergoing Radiotherapy for Head and Neck Cancer and Their Spouses. Front Psychol. 2018 Oct 15;9:1780. doi: 10.3389/fpsyg.2018.01780. eCollection 2018. PubMed PMID: 30374316; PubMed Central PMCID: PMC6196240.

7. **Byun J**, Schwartz AG, Lusk C, Wenzlaff AS, de Andrade M, Mandal D, Gaba C, Yang P, You M, Kupert EY, Anderson MW, Han Y, Li Y, Qian D, Stilp A, Laurie C, Nelson S, Zheng W, Hung RJ, Gaborieau V, Mckay J, Brennan P, Caporaso NE, Landi MT, Wu X, McLaughlin JR, Brhane Y, Bossé Y, Pinney SM, Bailey-Wilson JE, Amos CI. Genome-wide association study of familial lung cancer. Carcinogenesis. 2018 Sep 21;39(9):1135-1140. doi: 10.1093/carcin/bgy080.

8. **Dong J**, Gharahkhani P, Chow WH, Gammon MD, Liu G, Caldas C, Wu AH, Ye W, Onstad L, Anderson LA, Bernstein L, Pharoah PD, Risch HA, Corley DA, Fitzgerald RC; Stomach and Esophageal Cancer Study (SOCS) Consortium, Iyer PG, Reid BJ, Lagergren J, Shaheen NJ, Vaughan TL, MacGregor S, Love S, Palles C, Tomlinson I, Gockel I, May A, Gerges C, Anders M, Böhmer AC, Becker J, Kreuser N, Thieme R, Noder T, Venerito M, Veits L, Schmidt T, Schmidt C, Izbicki JR, Hölscher AH, Lang H, Lorenz D, Schumacher B, Mayershofer R, Vashist Y, Ott K, Vieth M, Weismüller J, Nöthen MM, Moebus S, Knapp M, Peters WHM, Neuhaus H, Rösch T, Ell C, Jankowski J, Schumacher J, Neale RE, Whiteman DC, **Thrift AP**. No Association Between Vitamin D Status and Risk of Barrett's Esophagus or Esophageal Adenocarcinoma-a Mendelian Randomization Study. Clin Gastroenterol Hepatol. 2019 Feb 1. pii: S1542-3565(19)30088-6. doi: 10.1016/j.cgh.2019.01.041. [Epub ahead of print]

9. **Dong J**, Gu X, El-Serag HB, **Thrift AP**. Underuse of Surgery Accounts for Racial Disparities in Esophageal Cancer Survival Times: A Matched Cohort Study. Clin Gastroenterol Hepatol. 2019 Mar;17(4):657-665.e13.

10. **Dong J**, Levine DM, Buas MF, Zhang R, Onstad L, Fitzgerald RC; Stomach and Oesophageal Cancer Study (SOCS) consortium, Corley DA, Shaheen NJ, Lagergren J, Hardie LJ, Reid BJ, Iyer PG, Risch HA, Caldas C, Caldas I, Pharoah PD, Liu G, Gammon MD, Chow WH, Bernstein L, Bird NC, Ye W, Wu AH, Anderson LA, MacGregor S, Whiteman DC, Vaughan TL, **Thrift AP**. Interactions Between Genetic Variants and Environmental Factors Affect Risk of Esophageal Adenocarcinoma and Barrett's Esophagus. Clin Gastroenterol Hepatol. 2018 Oct; 16(10): 1598-1606.e4.

11. **Dong J**, Wong LJ, Mims MP. Mitochondrial inheritance and cancer. Transl Res. 2018 Dec; 202: 24-34. Review.

12. Gorlov I, Orlow I, Ringelberg C, Hernando E, Ernstoff MS, Cheng C, Her S, Parker JS, Thompson CL, Gerstenblith MR, Berwick M, **Amos C**. Identification of gene expression levels in primary melanoma associated with clinically meaningful characteristics. Melanoma Res. 2018 Oct;28(5):380-

389. doi: 10.1097/CMR.0000000000000473. PubMed PMID: 29975213; PubMed Central PMCID: PMC6448582.

13. Gorlov IP, Gorlova OY, **Amos CI**. Untouchable genes in the human genome: Identifying ideal targets for cancer treatment. Cancer Genet. 2019 Feb;231-232:67-79. doi: 10.1016/j.cancergen.2019.01.005. Epub 2019 Jan 24. PubMed PMID: 30803560; PubMed Central PMCID: PMC6727980.

14. Gorlov IP, Pikielny CW, Frost HR, Her SC, Cole MD, Strohbehn SD, Wallace-Bradley D, Kimmel M, Gorlova OY, **Amos CI**. Gene characteristics predicting missense, nonsense and frameshift mutations in tumor samples. BMC Bioinformatics. 2018 Nov 19;19(1):430. doi: 10.1186/s12859-018-2455-0. PubMed PMID: 30453881;PubMed Central PMCID: PMC6245819.

15. Frost HR, **Amos CI**. A multi-omics approach for identifying important pathways and genes in human cancer. BMC Bioinformatics. 2018 Dec 12;19(1):479. doi: 10.1186/s12859-018-2476-8. PubMed PMID: 30541428; PubMed Central PMCID: PMC6292115

16. Ji X, Bossé Y, Landi MT, Gui J, Xiao X, ..., **Amos CI**. Identification of susceptibility pathways for the role of chromosome 15q25.1 in modifying lung cancer risk. Nat Commun. 2018 Aug 13;9(1):3221. doi: 10.1038/s41467-018-05074-y. PubMed PMID: 30104567; PubMed Central PMCID: PMC6089967.

17. Kamal Y, Cheng C, Frost HR, **Amos CI**. Predictors of disease aggressiveness influence outcome from immunotherapy treatment in renal clear cell carcinoma. Oncoimmunology. 2018 Oct 16;8(1):e1500106. doi: 10.1080/2162402X.2018.1500106. eCollection 2019. PubMed PMID: 30546942; PubMed Central PMCID: PMC6287778.

18. Jacobs DI, Fukumura K, Bainbridge MN, Armstrong GN, Tsavachidis S, Gu X, Doddapaneni HV, Hu J, Jayaseelan JC, Muzny DM, Huse JT, **Bondy ML**. Elucidating the molecular pathogenesis of glioma: integrated germline and somatic profiling of a familial glioma case series. Neuro Oncol. 2018 Nov 12;20(12):1625-1633. doi: 10.1093/neuonc/noy119. PubMed PMID: 30165405; PubMed Central PMCID: PMC6231201.

19. **Li Y**, Xiao X, Bosse Y, Gorlova O, Gorlov I, **Han Y**, **Byun J**, … , **Amos CI**. Genetic interaction analysis among oncogenesis-realted genes revealed novel genes and networks in lung cancer development. Oncotarget, 2019, March 5; 10(19): 1760-1774. PMID: 30956756.

20. **Liu Y**, Ajami NJ, El-Serag HB, et al. Dietary quality and the colonic-associated gut microbiome in humans. American Journal of Gastroenterology, PMID:31291462.

21. **Ostrom QT**, Egan KM, Nabors LB, Gerke T, Thompson RC, Olson JJ, LaRocca R, Chowdhary S, Eckel-Passow JE, Armstrong G, Wiencke JK, Bernstein JL, Claus EB, Il'yasova D, Johansen C, Lachance DH, Lai RK, Merrell RT, Olson SH, Sadetzki S, Schildkraut JM, Shete S, Houlston RS, Jenkins RB, Wrensch MR, Melin B, Amos CI, Huse JT, Barnholtz-Sloan JS, **Bondy ML**. Glioma risk associated with extent of estimated European genetic ancestry in African Americans and Hispanics. Int J Cancer. 2019 Apr 9. doi: 10.1002/ijc.32318. [Epub ahead of print] PubMed PMID: 30963577.

22. **Ostrom QT**, Coleman W, Huang W, Rubin JB, Lathia JD, Berens ME, Speyer G, Liao P, Wrensch MR, Eckel-Passow JE, Armstrong G, Rice T, Wiencke JK, McCoy LS, Hansen HM, **Amos CI**, Bernstein JL, Claus EB, Houlston RS, Il'yasova D, Jenkins RB, Johansen C, Lachance DH, Lai RK, Merrell RT, Olson SH, Sadetzki S, Schildkraut JM, Shete S, Andersson U, Rajaraman P, Chanock SJ, Linet MS, Wang Z, Yeager M; GliomaScan consortium , Melin B, **Bondy ML**, Barnholtz-Sloan JS. Sex-specific gene and

pathway modeling of inherited glioma risk. Neuro Oncol. 2019 Jan 1;21(1):71-82. doi: 10.1093/neuonc/noy135. PubMed PMID: 30124908; PubMed Central PMCID: PMC6303471. Thrift AP, Liu Y, Tsavachidis S, et al. Ancestry and risk of hepatic fibrosis and inflammation in patients with HCV infection. Clin Gastroenterol Hepatol 2018. PMID: 30342914.

23. **Thrift AP**, **Liu Y**, Tsavachidis S, White DL, El-Serag HB. Ancestry and risk hepatic fibrosis and inflammation in patients with HCV infection. Clin Gastroenterol Hepatol 2018. PMID: 30342914.

24. **Thrift AP**, Natarajan Y, Liu Y, El-Serag HB. Statin Use After Diagnosis of Hepatocellular Carcinoma Is Associated With Decreased Mortality. ClinGastroenterol Hepatol. 2019 Sep;17(10):2117-2125.e3. doi: 10.1016/j.cgh.2018.12.046. Epub 2019 Jan 6. PubMed PMID: 30625400; PubMed Central PMCID: PMC6612541

25. **Thrift AP**, Kunzmann AT. Time to Tailor Surveillance Intervals of Nondysplastic Barrett's Esophagus According to Segment Length and Persistence Over Multiple Endoscopies. Clin Gastroenterol Hepatol. 2019 Apr;17(5):832-834. doi: 10.1016/j.cgh.2018.09.025. Epub 2018 Sep 26. PubMed PMID: 30267865.

26. **Thrift AP**. Barrett's Esophagus and Esophageal Adenocarcinoma: How Common Are They Really? Dig Dis Sci. 2018 Aug;63(8):1988-1996. doi: 10.1007/s10620-018-5068-6. Review. PubMed PMID: 29671158.

27. **Liu Y,** O'Brien JL, Ajami N J, Scheurer ME, Amirian ES, Armstrong G, Tsavachidis S, **Thrift AP**, Jiao L, Wong MC, Smith DP, **Spitz MR**, **Bondy ML**, Petrosino JF, Kheradmand F. Lung tissue microbial profile in lung cancer is distinct from emphysema. Am J Cancer Res 2018. PMID: 30323970.

28. **Liu Y**, Lusk CM, Cho MH, Silverman EK,..**Amon CI**, **Spitz MR**. Rare variants in known susceptibility loci and their contribution to risk of lung cancer. J Thorac Oncol 2018. PMID: 29981437.

29. Ratcliff CG, Vinson CA, Milbury K, **Badr H**. Moving family interventions into the real world: What matters to oncology stakeholders? J Psychosoc Oncol. 2019 Mar-Apr;37(2):264-284. doi: 10.1080/07347332.2018.1498426. Epub 2018 Nov 13. PubMed PMID: 30421667; PubMed Central PMCID: PMC6476646. Zhang X, Pang L, Sharma VS, Li R, Nyitray AG, Edwards BJ. Prevalence and factors associated with malnutrition in older patients with cancer. Journal of Geriatric Oncology, In press. PMID: 30982752.

30. **Zhang X**, Tang T, Pang L, Sharma VS, Li R, Nyitray AG, Edwards BJ. Malnutrition and overall survival in patients with cancer: a systematic review and meta-analysis. Journal of Geriatric Oncology. In press. PMID: 30917937

31. **Zhang X**, Pang L, Sharma VS, Li R, Nyitray AG, Edwards BJ. The validity of three malnutrition-screening markers among older patients with cancer. BMJ Supportive & Palliative Care. PMID: 31239256. DOI: 10.1136/bmjspcare-2018-001706

32. **Ostrom QT***, Gittleman H*, Truitt G, Boscia A, Kruchko C, Barnholtz-Sloan JS. CBTRUS Statistical Report: Primary Brain and Other Central Nervous System Tumors Diagnosed in the United States in 2011-2015. Neuro Oncol. 2018 Oct 1;20(suppl_4):iv1-iv86. doi: 10.1093/neuonc/noy131. PubMed PMID: 30445539; PubMed Central PMCID: PMC6129949. **(*Contributed equally to manuscript)**

33. **Ostrom QT**, Gittleman H, Kruchko C, Barnholtz-Sloan JS. Primary brain and other central nervous system tumors in Appalachia: regional differences in incidence, mortality, and survival. J Neurooncol. 2019 Mar;142(1):27-38. doi: 10.1007/s11060-018-03073-z. Epub 2018 Dec 12. PubMed PMID: 30543034.

34. **Ostrom QT**, Gittleman H, Kruchko C, Barnholtz-Sloan JS. Primary brain and other central nervous system tumors in Appalachia: regional differences in incidence, mortality, and survival. J Neurooncol. 2019 Mar;142(1):27-38. doi: 10.1007/s11060-018-03073-z. Epub 2018 Dec 12. PubMed PMID: 30543034.

PRESENTATIONS

1. **Byun J**, **Han Y**, **Amos C**I. Genetic Architecture of Lung Cancer using Machine-Learning Approaches in Genome-Wide
   Association Studies. 2019 ACTS Annual Meeting, Washington, DC. Oral Presentation.
2. **Byun J**, **Han Y**, **Amos CI**. Genetic interactions in lung cancer using machine-learning approaches in genome-wide association studies [abstract]. In: Proceedings of the 110th Annual Meeting of the American Association for Cancer Research; 2019 March 29 – April 3; Atlanta, GA. Philadelphia (PA): AACR; 2019. Abstract nr 1593. Poster Presentation.
3. **Li Y**, **Han Y**, **Amos CI**. Genetic interaction analysis among oncogenesis-related genes revealed novel genes and gene networks in lung cancer development. 2018 American Society of Human Genetics (ASHG) conference. Poster presentation.
4. **Liu, Y**. Transcriptome analysis links immune genes allelic expression imbalances to lung cancer. 2019 America Association for Cancer Research (AACR) Annual Meeting. Poster presentation.
5. **Zhang X**. Malnutrition and overall survival in older adults in US, findings from National Health and Nutrition Examination Survey (NHANES). APHA's 2018 Annual Meeting & Expo (Nov. 10 - Nov. 14), San Diego, CA. Poster presentation.
6. **Zhang X**. Trends in major depression in older adults in United States: National Health and Nutrition Examination Survey (NHANES), 2007-2016. APHA's 2018 Annual Meeting & Expo (Nov. 10 - Nov. 14), San Diego, CA. Poster presentation.
7. **Zhang X**. Physical activity and overall survival in older adults in US, findings from National Health and Nutrition Examination Survey (NHANES), 2007-2011. APHA's 2018 Annual Meeting & Expo (Nov. 10 - Nov. 14), San Diego, CA. Oral presentation.
8. Edwards BJ, **Zhang X**. Effect of fractures on overall survival in cancer patients: The NHANES database. 2019 MASCC/ISOO annual meeting, San Francisco, June 21-23, 2019. Oral Presentation.
9. Edwards BJ, **Zhang X**. Effect of fractures on overall survival in cancer patients: The NHANES database. 2019 ASCO Annual Meeting, Chicago, Illinois, May 31-June 4, 2019. Publication only.
10. **Thrift, A**. Esophageal and gastric cancer risk in HIV-infected individuals. CNIHR Workshop, Bethesda, Maryland, August 2018.

11. **Thrift, A**. The global epidemic of oesophageal cancer. Cancer Research UK International Symposium Oesophageal Cancer, London, England, April 2019.

12. **Ostrom QT**, Gittleman H, Kruchko C, Barnholtz-Sloan J. *I*ncidence Patterns of Primary Brain and Other Central Nervous System Tumors in Appalachia. Oral Presentation at Society for Neuro-Oncology (SNO) 2018 Annual Meeting in New Orleans, LA. November 15-18, 2018.

13. **Ostrom QT**, Cote D, Ascha M, Kruchko C, Barnholtz-Sloan J. *R*acial and Ethnic Differences in Adult Glioma Incidence and Survival in the United States. Poster Presentation at Society for Neuro-Oncology (SNO) 2018 Annual Meeting in New Orleans, LA. November 15-18, 2018.

14. **Ostrom QT**, Armstrong G, **Amos C**, Bernstein J, Claus E, Eckel-Passow J, Il'yasova D, Johansen C, Lachance D, Lai R, Merrell R, Olson S, Schildkraut J, Shete S, Houlston R, Jenkins R, Wrensch M, Melin B, Barnholtz-Sloan J, **Bondy M**. Previously Identified Common Glioma Risk SNPs are Associated With Familial Glioma. Poster Presentation at Society for Neuro-Oncology (SNO) 2018 Annual Meeting in New Orleans, LA. November 15-18, 2018.

15. **Ostrom QT**, Armstrong G, **Amos C**, Bernstein J, Claus E, Eckel-Passow J, Il'yasova D, Johansen C, Lachance D, Lai R, Merrell R, Olson S, Schildkraut J, Shete S, Houlston R, Jenkins R, Wrensch M, Melin B, Barnholtz-Sloan J, **Bondy M**. Previously Identified Common Glioma Risk SNPs are Associated With Familial Glioma. Poster presentation at American Association for Cancer Research (AACR) 2019 Annual Meeting in Atlanta, GA. April 2019.

16. **Ostrom QT**, Gittleman H, Kruchko C, Wilson R, Barnholtz-Sloan JS. Relative Survival after Diagnosis with a Primary Brain or Other CNS Tumor in the National Program of Cancer Registries, 2001-2014. Oral presentation at North American Association of Central Cancer Registries (NAACCR)/International Association of Cancer Registries (IACR) Combined Annual Conference 2019 in Vancouver, British Columbia. June 2019.