UNIVERSITY OF HAWAI'I
CANCER CENTER

Cancer Epidemiology Program
Faculty Recruitment Seminar

Racial/Ethnic differences in smoking-related biomarkers and the risk of lung cancer: the Multiethnic Cohort Study

Monday, (October 29, 2018)
12:00 noon

Sung-Shim Lani Park, Ph.D.

Assistant Professor of Research Preventive Medicine
Keck School of Medicine
University of Southern California
Los Angeles, CA

University of Hawai`i Cancer Center
701 Ilalo Street
Sullivan Conference Center
Light refreshments to follow

CURRICULUM VITAE
SUNG-SHIM (LANI) PARK
JULY 11, 2018

PERSONAL INFORMATION:

Work
USC Keck School of Medicine
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Citizenship: USA

EDUCATION AND PROFESSIONAL APPOINTMENTS

EDUCATION:

2001	A.B., East Asian Languages and Culture, Columbia College of Columbia University, New York, NY (Mentor: Gary Okihiro)
2007	MPH, Epidemiology, University of California, Los Angeles, Fielding School of Public Health, Los Angeles, CA (Mentor: Zuo-Feng Zhang)
2008	Student Summer Internship, International Agency Research on Cancer (IARC), Lyon, France
2010	Ph.D, Epidemiology, University of California, Los Angeles, Fielding School of Public Health, Los Angeles, CA (Mentor: Zuo-Feng Zhang)

POST-GRADUATE TRAINING:

2010-2013	Cancer Epidemiology, Epidemiology Program, University of Hawaii Cancer Center, Honolulu, HI (Mentor: Loïc Le Marchand)

ACADEMIC APPOINTMENTS:

2013- present	Assistant Professor of Research	Department of Preventive Medicine, University of Southern California, Keck School of Medicine, Los Angeles, CA

HONORS, AWARDS:

1998-2000	Deans' List	Columbia University, New York, NY
2007	Delta Omega, Iota Chapter	University of California-Los Angeles, CA, Los Angeles, CA
2007	Juneal Marie Smith Fellowship in International Nutrition	University of California-Los Angeles, CA, Los Angeles, CA
2009, 2010	Graduate School Travel Grant	University of California-Los Angeles, CA, Los Angeles, CA
2009	Wayne Soohoo Memorial Scholarship	University of California-Los Angeles, CA, Los Angeles, CA
2010	New Investigator Workshop Award	American Society for Preventive Oncology
2010	Dean's Outstanding Student Award – Epidemiology	University of California-Los Angeles, CA, Los Angeles, CA
2012	AACR-Bristol-Myers Squibb oncology Scholar-in-Training Award	Philadelphia, PA

2013-2015	National Institute of Health-Health Disparities Loan Repayment Program Award	Washington, DC
2014	American Journal of Epidemiology top articles of the Year-2013	Baltimore, MD
2016	Top 20 frequently cited CEBP articles of 2015	Philadelphia, PA

TEACHING

DIDACTIC TEACHING:

UCLA

2010	Research Methods in Cancer Epidemiology; Epidemiology 244	2 hrs	Lecture title: *Considerations in Anthropometric Measures in Cancer Epidemiology*
2010-2011	Cancer Epidemiology; Epidemiology 242	2 hrs	Lecture title: *Body weight and Cancer*

USC

2014	Evidence-based medicine – Yr 1 Medical students	2 hrs	Lecturer for: Lung cancer screening
2015	Evidence based medicine – Yr 2 Medical students	2 hrs	Lecturer for: Liver cancer meta-analysis
Fall 2017-present	PM559: Cancer Epidemiology	4units	Course Instructor

GRADUATE STUDENT THESIS, EXAM AND DISSERTATION COMMITTEES:

2017-present	Daniel Mullen	Dissertation Committee	USC-PIBBs
2017-present	Shannon Sullivan	Dissertation Committee	University of Minnesota-Environmental Health

SERVICE

PROFESSIONAL SOCIETY MEMBERSHIPS:

2006	Minority Training Program in Cancer Control Research (MTPCCR)
2008	American College of Epidemiology (ACE) Annual Meeting 2008 Student Programming Committee
2007-present	American Association for Cancer Research (AACR)
2007-present	American Society for Preventive Oncology (ASPO)

DEPARTMENT SERVICE:

2016-present	Reviewer, PhD admissions committee	USC, Department of Preventive Medicine-Epidemiology
2018	Doctoral exam	

COMMUNITY SERVICE:

2008-2011	Alumni Representative Committee (ARC)	Columbia University, New York, NY	Alumni interviewer for prospective Columbia College applicants

RESEARCH AND SCHOLARSHIP

MANUSCRIPT REVIEW:

2010-present	American Journal of Epidemiology, Cancer Causes and Control, Cancer Epidemiology Biomarkers and Prevention
2012- present	PLOSOne
2016-present	BMC Cancer, PLOSgenetics

MAJOR AREAS OF RESEARCH INTEREST:

Research Areas

1. Cancer epidemiology
2. Lung cancer
3. Cancer disparities

GRANT SUPPORT - CURRENT:

Grant No.	4U01HG007397 (Haiman)	*Dates of Award:* 9/01/2013 - 5/31/2018
Agency	NHGRI	*Percent Effort:* 10%
Title	Epidemiology of Putative Causal Variants in the Multiethnic Cohort	
Description:	The goal of this study is to investigate the role of biologically relevant genetic variants in a broad range of chronic diseases and risk factors, focusing on conditions disproportionately represented in non-European ancestry populations	
Role:	Co-Investigator	
Total Direct Costs	$833,421	

Grant No.	4P01CA168530 (PI: Le Marchand/PL: Cheng)	*Dates of Award:* 9/1/2016 – 8/31/2018
Agency	NCI	*Percent Effort:* 10%
Title	Obesity, Body Fat Distribution, and Cancer Risk in the Multiethnic cohort	
Description:	The goal of this study is to measure body fat using imaging methods, and identify blood biomarkers and lifestyle behaviors that predict body fat distribution in a multiethnic population in order to investigate their associations with risk of breast and colorectal cancers in the Multiethnic cohort study.	
Role:	Co-Investigator	
Total Direct Costs	$120,642	

Grant No.	1 R01 ES026171-01A1 (MPIs: Cheng/Wu)	*Dates of Award:* 9/30/2016 – 8/31/2020
Agency	NCI	*Percent Effort:* 16%
Title	A cohort study of air pollution, lung cancer, and COPD in Los Angeles County	
Description:	The goal of the project is to investigate the association between measures of traffic-related air pollution and risk of lung cancer and chronic obstructive pulmonary disease (COPD)	
Role:	Co-Investigator	
Total Direct Costs	$422,347	

Grant No.	2P01CA138338 (PI:Hecht/PL: Park)	*Dates of Award:* 10/01/2016 – 8/31/2021
Agency	NCI	*Percent Effort:* 17%

Title	Mechanism of ethnic/racial differences in lung cancer due to cigarette smoking; Project 1: Ethnic differences in smoking-related biomarkers and risk of lung cancer	
Description:	The goal is to investigate whether smoking-related biomarkers and epigenetic markers are associated with lung cancer risk and determine whether these biomarkers explain the difference in disease risk across populations.	
Role:	Project Leader – Project 1	
Total Direct Costs	$1,863,369	

Grant No.	26IR-0001	*Dates of Award:* 07/01/2017-06/30/2019
Agency	TRDRP (Park)	*Percent Effort:* 12%
Title	Nicotine metabolism and predicting lung cancer risk in African Americans	
Description:	The major goal of this project is to leverage genetics to construct a logistically feasible means to estimate the urinary CYP2A6 activity biomarker to evaluate lung cancer risk in African Americans.	
Role:	PI	
Total Direct Costs	$300,000	

Grant No.	5U01CA199277-03	*Dates of Award:* 09/1/2015-08/31/2020
Agency	NCI (Lacey)	*Percent Effort:* 13% - Year3
Title	Innovative infrastructure to enhance the California Teachers Study	
Description:	To provide resources to a) extend innovative approaches to all other CTS infrastructure activities and b) document the efficiency gains of this approach to create a practical blueprint that other studies could consider.	
Role:	Co-Investigator	
Total Direct Costs	$2,031,423	

Grant No.	MGM-Pilot Funding	*Dates of Award:* 9/1/2017-8/31/2018
Agency	USC (Park)	*Percent Effort:* 2%
Title	Sequencing CYP2A6 to optimize use in lung cancer risk prediction research	
Description:	To replicate the methodology and genotyping calls for *CYP2A6* sequencing in African Americans (TRDRP 26IR-0001) using the Center for the Evaluation of Nicotine in Cigarettes (CENIC) study.	
Role:	PI	
Total Direct Costs	$31,382	

Grant No.	New Investigator	*Dates of Award:* 7/1/2018-June 30, 2022
Agency	TRDRP (Polfus)	*Percent Effort:* 5%
Title	Multiethnic Polygenic Risk Scores of Smoking Interactions for Lung Disease	
Description:	The objective of this project is to create genetic risk scores for lung cancer and chronic obstructive pulmonary disease.	
Role:	Co-Investigator	
Total Direct Costs	$450,000	

Grant No.	Application ID: 509133	*Dates of Award:* 11/1/2017-10/31/2020
Agency	CBCRP (Heck)	*Percent Effort:* 1%
Title	Ambient Air Toxics and Breast Cancer Risk	
Description:	The major goal of this project is to investigate the association of ambient air toxics and industrial pollutants will be related to breast cancer risk.	
Role:	Co-Investigator	

Total Direct Costs	Pending	
Grant No.	Awarded	*Dates of Award:* pending
Agency	ALCMI/Genentech	*Percent Effort:* 10%
Title	Epidemiology of young lung cancer	
Description:	The major goal of this project is to design a case-control study to study the lifestyle and environmental factors associated with young lung cancer risk.	
Role:	MPI	
Total Direct Costs	$300,000	

GRANT SUPPORT – PENDING/SUBMITTED:

Grant No.	High Impact Award	*Dates of Award:* Decision in July 2018 Score: 1.52
Agency	TRDRP (Park)	*Percent Effort:* 15%
Title	Geospatial neighborhood determinants of smoking habits and lung cancer risk	
Description:	The objective of this project is to identify the independent neighborhood-level determinants of smoking habits (e.g. status, intensity, dose, cessation) and lung cancer risk in five racial/ethnic groups with an emphasis on evaluating racial/ethnic disparities in risk.	
Role:	PI	
Total Direct Costs	$750,000	

Grant No.	1R01CA234549-01	*Dates of Award:* Resubmit in Fall 2018
Agency	NCI (MPIs: Park/Cheng)	*Percent Effort:* 20%
Title	The combined effects of tobacco policy, neighborhood stressors, and individual-level factors on changing smoking behavior and smoking-related cancers among five U.S. racial/ethnic groups	
Description:	The objective of this project is to integrate multi-levels of data to delineate the contributions tobacco public policies, neighborhood social stressors, and individual factors to changes in smoking status and the burden of smoking-related cancers in five major U.S. racial/ethnic groups.	
Role:	Contact PI	
Total Direct Costs	$2,500,000	

Grant No.	R44	*Dates of Award:* Resubmit in Sept 2018
Agency	NIDA (Baurley/Bergen)	*Percent Effort:* 10%
Title	Smokescreen Translational (TL) Research Platform	
Description:	The major goal of this project is to replicate the model to predict nicotine metabolism in a multiethnic population and help to find additional users of the online prediction program.	
Role:	Co-Investigator	
Total Direct Costs	Resubmit – Sept 2018	

Grant No.	R01	*Dates of Award:* Submitted in Feb 2017 Not Discussed – plans to resubmit
Agency	NCI (MPIs: Park/Murphy)	*Percent Effort:* 15%
Title	CYP2A6 Activity and Lung Cancer Risk in Multiethnic Populations	

Description: The major goal of this project is to construct a logistically feasible means to estimate the urinary CYP2A6 activity biomarker to evaluate lung cancer risk in multiethnic populations.
Role: Contact PI
Total Direct Costs Resubmit in Feb 2019

GRANT SUPPORT - PAST:

Grant No. *Dates of Award:* 2016
Agency Addario Lung Cancer Medical Institute *Percent Effort:* 10%
Title Epidemiology of young lung cancer – seed funding
Description: The major goal of this project is to design a case-control study to study the lifestyle and environmental factors associated with young lung cancer risk.
Role: MPI
Total Direct Costs $12,336

Grant No. 5P01CA138338 (PI: Hecht/ PL: Le Marchand) *Dates of Award:* 2009-2015
Agency NCI *Percent Effort:* 33%
Title Mechanisms of Ethnic Differences in Lung Cancer Due to Cigarette Smoking
Description: The goal of this study is to conduct a GWAS looking metabolite of nicotine and tobacco carcinogens
Role: Co-Investigator
Total Direct Costs $544,604

Grant No. 5U01HG004802 (Le Marchand) *Dates of Award:* 2008-2014
Agency NCI *Percent Effort:* 20%
Title Epidemiology of Putative Causal Variants in the Multiethnic Cohort
Description: The major goal of this project is to characterize in the five MEC ethnic/racial populations, the associations of putative causal variants discovered for various chronic diseases in large ongoing genomic studies.
Role: Co-Investigator
Total Direct Costs $254,589 (to USC)

Grant No. 5R01CA126895 (Le Marchand) *Dates of Award:* 2008-2014
Agency NCI *Percent Effort:* 40%
Title Whole-Genome Scan for Modifier Genes in Colorectal Cancer
Description: The major goal of this project is to conduct a whole-genome association study of colorectal cancer in the Multiethnic cohort study in order to identify susceptibility genes for this cancer.
Role: Co-Investigator
Total Direct Costs $603,641

Grant No. T32CA09142 (Zhang) *Dates of Award:* 2006-2010
Agency NCI *Percent Effort:* 100%
Title Cancer Epidemiology Training Center
Description: The goal is to provide training in cancer epidemiology to predoctoral students
Role: Doctoral Candidate
Total Direct Costs $315,255

THESIS:

2010 Ph.D	University of California, Los Angeles, CA	Associations of Lifestyle, Nutrition, and the Insulin-like growth factor pathway in cutaneous malignant melanoma

PUBLICATIONS:

REFEREED JOURNAL ARTICLES:

1. Roboz G, Giles FJ, Ritchie EK, Allen-Bard S, Curcio TJ, Wilkes MA, **Park SL**, Kantarjian HM, Faderl S, Ravandi F, Kelner MJ, Feldman EJ. *Phase I/II study of troxacitabine administered by continuous infusion in patients with refractory acute myeloid leukemia*. J Clin Oncol. 2007 Jan 1;25(1):10-5. PMID: 17146106.

2. **Park SL**, Chang SC, Cai L Cordon-Cardo C, Ding BG, Greenland S, Hussain SK, Jiang Q, Liu S, Lu ML, Mao JT, Morgenstern H, Mu LN, Ng LJ, Pantuck A, Rao J, Reuter VE, Tashkin DP, You NC, Yu CQ, Yu SZ, Zhao J, Belldegrun A, Zhang ZF. *Associations between variants of the 8q24 chromosome and nine smoking related cancer sites*. Cancer Epidemiol Biomarkers Prev 2008;17(11):3193-202. PMID: 18990762.

3. Hussain SK, Mu LN, Cai L, Chang SC, **Park SL**, Oh SS, Wang YR, Goldstein BY, Ding BG, Jiang Q, Rao J, You NC, Yu SZ, Papp J, Zhao JK, Wang H, Zhang ZF. *Genetic variation in immune regulation and DNA repair pathways and stomach cancer risk in China.* Cancer Epidemiol Biomarkers Prev 2009;18(8):2304-2309. PMID: 19661089.

4. Stern MC, Lin J, Figueroa JD, Juan J-M, Xian Y-B, Corral R, Joshi A, Gago-Dominguez M, Cortessis VK, Rothman N, Kogevinas M, Malats N, Silverman D, Chanock S, Real P, Wu X, Kelsey KT, Karagas MR, Andrew AS, Nelson HH, Kiltie AE, Bishop DT, Sak SC, Choudhury A, Barrett JH, Elliot F, Vineis P, Sacerdote C, Guarrera S, Polidoro S, Allione A, Matullo G, Fletcher A, Benhamou S, Taylor JA, Placidi D, Porru S, Carta A, Campagna M, Arici C, Zhang ZF, **Park SS**, Steineck G, Garcia-Closas M. *Polymorphisms in DNA repair genes, smoking, and bladder cancer risk: findings from the International Consortium of Bladder Cancer.* Cancer Res, 2009;69(17):6857-64. PMID: 19706757.

5. **Park, SL,** Goodman MT, Zhang ZF, Kolonel LN, Henderson BE, Setiawan VW, *Body size, adult BMI gain and endometrial cancer risk: The Multiethnic Cohort.* Int J Cancer, 2010;126(2):490-9. PMID: 19585578.

6. Oh SS, Chang SC, Cai L, Cordon-Cardo C, Ding BG, Greenland S, He N, Jiang Q, Kheifets L, Le A, Lee YCA, Liu S, Lu ML, Mao JT, Morgenstern H, Mu LN, Pantuck A, Papp JC, **Park SL**, Rao JY, Reuter VE, Tashkin DP, Wang H, You NCY, Yu SZ, Zhao JK, Belldegrun A, Zhang ZF. *Single-nucleotide polymorphisms of eight inflammation-related genes and their associations with smoking-related cancer*s. Int J Cancer, 2010;127(9):2169-2182. PMID: 20112337.

7. **Park SL**, Bastani D, Goldstein BY, Chang SC, Cai L, Cordon-Cardo C, Greenland S, He N, Hussain SK, Jiang Q, Lee YC, Liu S, Lu ML, Mao JT, Morgenstern H, Mu LN, Oh SS, Pantuck A, Papp JC, Rao J, Reuter VE, Tashkin DP, Wang H, You NC, Yu SZ, Zhao JK, Zhang ZF. *Association of NBS1 Polymorphisms in smoking related cancer sites.* Carcinogenesis, 2010 Jul;31(7):1264-71. PMID: 20478923.

8. **Park SL**, Lee YC, Marron M, Agudo A, Wolfgang A, Barzan L, Bencko V, Benhamou S, Bouchardy C, Canova C, Castellsague X, Conway DI, Healy CM, Holcatova I, Kjaeheim K, Lagiou P, Lowry RJ,

Macfarlane TV, Macfarlane GJ, McCartan BE, McKinney PA, Merletti F, Polabeln H, Richiardi L, Simonato L, Sneddon L, Talamini R, Trichopoulos D, Znaor A, Brennan P, Hashibe M. *The association between change in body mass index and upper aerodigestive tract cancers in the ARCAGE project: multicenter case-control study.* Int J Cancer, 2011 Mar 15;128(6):1449-61. PMID: 20506380.

9. **Park SL**, Setiawan VW, Kanetsky PA, Zhang ZF, Wilkens LR, Kolonel LN, Le Marchand L. *Insulin-like growth factor-1 and insulin like growth factor binding proteins-3 levels with malignant melanoma.* Cancer Causes Control, 2011 Sep;22(9):1267-75. PMID: 21698457.

10. Tarleton HP, **Park SL**, Zhu WM, Lee YC, Cui Y, Hashibe M, Greenland S, Morgenstern H, Tashkin DP, Cozen W, Mack TM, Zhang ZF. *Association between weight change and lung and head and neck cancers.* Int J Cancer, 2012 Sep 15;131(6). PMID: 22131048.

11. **Park SL**, Le Marchand L, Wilkens LR, Kolonel LN, Henderson BE, Zhang ZF, Setiawan VW. *Risk Factors for Malignant Melanoma in white and Non-white/non-African American Populations: The Multiethnic Cohort*. Cancer Prev Res, 2012 Mar;5(3):423-34. PMID: 22246617.

12. Lim U, Wilkens LR, Monroe KR, Caberto Christian, Tirrikainen M, Cheng I, **Park SL**, Stram DO, Henderson BE, Kolonel LN, Haiman CA, Le Marchand L. *Association of common genetic susceptibility variants for obesity with colorectal cancer risk: the Multiethnic Cohort and PAGE Studies*. International Journal Cancer, Apr 17 2012 Sep 15;131(6). PMID: 22511254

13. Pendergrass SA, Brown-Gentry K, Dudek S, Frase A, Torstenson ES, Goodloe R, Ambite JL, Avery CL, Buyske S, Bůžková P, Deelman E, Fesinmeyer MD, Haiman CA, Heiss G, Hindorff LA, Hsu CN, Jackson RD, Kooperberg C, Le Marchand L, Lin Y, Matise TC, Monroe KR, Moreland L, **Park SL**, Reiner A, Wallace R, Wilkens LR, Crawford DC, Ritchie MD. *Phenome-Wide Association Study (PheWAS) for Detection of Pleiotropy within the Population Architecture Using Genomics and Epidemiology (PAGE) Network*. PLOS Genetics, Epub 2013 Jan 31. PMID: 23382687.

14. **Park SL**, Cheng I, Pendergrass SA, Kucharska-Newton AM, Lim U, Ambite J, Caberto CP, Monroe KR, Schumacher F, Hindorff LA, Oetjens MT, Wilson S, Goodloe RJ, Love S, Henderson BE, Kolonel LN, Haiman CA, Crawford DC, North KE, Heiss G, Ritchie MD, Wilkens LR, Le Marchand L. *Association of the FTO Obesity Risk Variant rs8050136 With Percent Energy Intake from Fat in Multiethnic Populations: The PAGE Study.* Am J Epidemiol. 2013 Sep 1;178(5):780-90. PMID: 23820787

15. Cheng I, Kocarnik JM, Dumitrescu L, Noralane L, Chang-Claude J, Avery C, Caberto C, Love S, Slattery ML, Chan AT, Baron J, Hindorff LA, **Park SL**, Schumacher FR, Hoffmeister M, Kraft P, Butler A, Junkins HA, Duggan D, Hou L, Carlson CS, Monroe K, Lin Y, Carty CL, Mann S, Jing Ma J, Giovannucci E, Fuchs C, Newcomb P, Jenkins M, Hopper J, Haile R, Conti DV, Campbell PT, Potter J, Caan B, Schoen RE, Hayes R, Chanock S, Berndt S, Kury S, Bezieau S, Ambite JL, Kumaraguruparan G, Richardson D, Goodloe RJ, Dilks HH, Baker P, Zanke B, Lemire M, Gallinger S, Hsu L, Jiao S, Harrison T, Seminara D, Haiman CA, Kooperberg C, Wilkens LR, Hutter C, White E, Bush WS, Heiss G, Hudson TJ, Crawford DC, Brenner H, Casey G, Le Marchand L, Peters U. *Pleiotropic effects of genetic risk variants for other cancers on colorectal cancer risk: PAGE, GECCO, and CCFR Consortia.*-Gut, Epub 2013. PMID: 23935004.

16. Tarleton HP, Chang SC, **Park SL**, Cai L, Ding B, He N, Hussain SK, Jiang Q, Mu LN, Rao J, Wang H, You NC, Yu SZ, Zhao JK, Zhang ZF. *Genetic variation at 8q24, family history of cancer, and upper gastrointestinal cancers in a Chinese population*. Fam Cancer. 2013 Sep 13 PMID: 24030569.

17. Yang T, Chang P, **Park SL**, Bastani D, Chang SC, Morgenstern H, Tashkin DP, Mao JT, Papp JC, Rao JY, Cozen W, Mack TM, Greenland S, Zhang ZF. *Tobacco Smoking, NBS1 Polymorphisms, and Survival in Lung and Upper Aerodigestive Track Cancers with Semi-Bayes Adjustment for Hazard-ratio Variation*. Cancer Causes Control. 2013 Oct 29. PMID: 24166361.

18. Kocarnik JM, **Park SL**, Han J, Dumitrescu L, Cheng I, Wilkens LR, Schumacher FR, Kolonel LN, Carlson CS, Crawford DC, Goodloe RJ, Dilks H, Baker P, Richardson D, Ambite J, Song F, Quresh AA, Zhang M, Duggan D, Hutter C, Hindorff L, Bush WS, Kooperberg C, Le Marchand L, Peters U. *Replication of associations between GWAS SNPs and melanoma risk in the Population Architecture using Genomics and Epidemiology (PAGE) study*. Journal of Investigative Dermatology. 2014 Jan 30. PMID: 24480881.

19. **Park SL**, Fesinmeyer MD, Timofeeva M, Caberto C, Kocarnik JM, Han Y, Love S, Young A, Dumitrescu L, Lin Y, Wilkens LR, Matise T, Hindorff L, Fowke JH, Carty C, Buyske S, Schumacher FR, Butler A, Biggs M, Deelman E, Cote M, Rafnar T, Christiani DC, Field JK, Bickeboller H, Risch A, Heinrich J, Brennan P, Houlston R, Thun M, Albanes D, Caporaso N, Peters U, North KE, Heiss G, Crawford D, Bush WS, Haiman CA, Landi MT, Hung RJ, Kooperberg C, Amos CI, for the TRICL Research Team, Le Marchand L, Cheng I. Pleiotropic associations of risk variants identified for other cancers with lung cancer risk: The PAGE and TRICL consortia. JNCI. 2014 Apr 1;106(4). PMID 24681604.

20. Lim U, Kocarnik J, Bush WS, Matise TC, Caberto CP, **Park SL**, Carlson CS, Duggan D, Fesinmeyer MD, Haiman CA, Henderson BE, Kolonel LN, Peters U, Spencer K, Stram D, Tiirikainen M, Wilkens LR, Wu C, Manolio TA, Kooperberg C, Le Marchand L. *Pleiotropy of cancer risk variants on non-Hodgkin lymphoma*. PLOSOne. 2014 Mar 5;9(3):e89791. PMID: 24598796.

21. Setiawan VW, Schumacher F, Prescott J, Haessler J, Malinowski J, Wentzensen N, Yang H, Chanock S, Brinton L, Hartge P, Lissowska J, **Park SL**, Cheng I, Bush WS, Crawford D, Ursin G, Horn-Ross P, Bernstein L, Lu L, Risch H, Yu H, Sakoda LC, Doherty J, Chen C, Jackson R, Yasmeen S, Cote M, Kocarnik JM, Peters U, Kraft P, De Vivo I, Haiman CA, Kooperberg C, Marchand L. *Cross-cancer Pleiotropic Analysis of Endometrial Cancer: PAGE and E2C2 Consortia*. Carcinogenesis. 2014 Sep;35(9):2068-73. PMID: 24832084.

22. **Park SL**, Kotapati S, Murphy SE, Tretyakova N, Le Marchand L. *1,3 Butadiene metabolites in Three Populations with Different Risks of Lung Cancer.* Cancer Epidemiol Biomarkers Prev - 2014 Nov;23(11):2240-9. PMID: 28292921.

23. **Park SL**, Caberto CP, Lin Y, Goodloe RJ, Dumitrescu L, Love S, Matise T, Hindorff LA, Fowke JH, Schumacher FR, Beebe-Dimmer J, Chen C, Lifang Hou L, Thomas F, Deelman E, Han Y, Peters U, North KE, Heiss G, Crawford DC, Haiman CA, Wilkens LR, Bush WS, Kooperberg C, Cheng I, Le Marchand L. *Association of Cancer Susceptibility Variants with Risk of Multiple Primary Cancers: the Population Architecture using Genomics and Epidemiology Study.* Cancer Epidemiol Biomarkers Prev. 2014 Nov;23(11):2568-78. PMID: 25139936.

24. Murphy SE, **Park SS**, Thompson EF, Wilkens LR, Patel Y, Stram DO, Le Marchand L. *Nicotine N-glucuronidation relative to N-oxidation and C-oxidation and UGT2B10 genotype in five ethnic/racial groups*. Carcinogenesis 2014 Nov;35(11):2526-33. PMID: 25233931.

25. Patel Y, Stram DO, Wilkens LR, **Park SS**, Henderson BE, Le Marchand L, Haiman CA, Murphy SE. *The Contribution of Common Genetic Variation to Nicotine and Cotinine Glucuronidation in Multiple Ethnic/Racial Populations.* Cancer Epidemiol Biomarkers Prev. 2015 Jan;24(1):119-27. PMID: 25293881.

26. **Park SL,** Carmella SG, Ming X, Vielguth E, Stram DO, Le Marchand L, Hecht SS. *Variation in Levels of the Lung Carcinogen 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanol (NNAL) and its Glucuronides in the Urine of Cigarette Smokers from Five Ethnic Groups with Differing Risks for Lung Cancer.* Cancer Epidemiol Biomarkers Prev. 2015 Mar;24(3):561-9. PMID: 25542827

27. Kocarnik JM, **Park SL**, Han J, Dumitrescu L, Cheng I, Wilkens LR, Schumacher FR, Kolonel L, Carlson CS, Crawford DC, Goodloe RJ, Dilks HH, Baker P, Richardson D, Matise TC, Ambite J, Song F, Qureshi AA, Zhang M, Duggan D, Hutter C, Hindorff L, Bush WS, Kooperberg C,Le Marchand L, Peters U. *Pleiotropic and sex-specific effects of cancer GWAS SNPs on melanoma risk in the Population Architecture using Genomics and Epidemiology (PAGE) study*. PLOS ONE 2015 Mar 19;10(3):e0120491. PMID: 25789475.

28. Tambe NA, Wilkens LR, Wan P, Stram DO, Gilliland F, **Park SL**, Cozen C, Martínez-Maza O, Le Marchand L, Henderson BE, Haiman CA. *Atopic allergic conditions and colorectal cancer risk in the Multiethnic Cohort*. Am J Epidemiol. 2015 Jun 1;181(11):889-97. PMID: 25858290

29. **Park SL**, Carmella SG, Chen M, Patel Y, Stram DO, Haiman CA, Le Marchand L, Hecht SS. *Mercapturic Acids Derived from the Toxicants Acrolein and Crotonaldehyde in the Urine of Cigarette Smokers from Five Ethnic Groups with Differing Risks for Lung Cancer.* PLoS One. 2015 Jun 8;10(6):e0124841. PMID: 26053186.

30. Wang H, **Park SL,** Stram DO, Haiman CA, Wilkens LR, Hecht SS, Kolonel LN, Murphy SE, Le Marchand L. *Genetic ancestries and tobacco-derived biomarkers in the Multiethnic Cohort.* Am J Epidemiol. 2015 Dec 1;182(11):945-51. PMID: 26568573.

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