KATHLEEN CONWAY DORSEY
Curriculum Vitae

PERSONAL

Current Position: Research Assistant Professor
Department of Epidemiology
Director, Molecular Epidemiology Core Laboratory
Member, Lineberger Comprehensive Cancer Center
University of North Carolina at Chapel Hill

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EDUCATION

1990	PhD	New York University Major in Environmental Health Sciences (moved with graduate advisor from Univ. of TX)
1982-1986	--	Dept. of Pharmacology, Univ. of Texas Medical School, Houston
1981-1982	--	School of Pharmacy, Univ. of Colorado, Boulder, CO
1978	BS	University of Notre Dame, Notre Dame, IN Major in Biology

PROFESSIONAL EXPERIENCE

1993-present	Research Assistant Professor Director, Molecular Epidemiology Laboratory Department of Epidemiology and the Lineberger Comprehensive Cancer Center University of North Carolina at Chapel Hill
1990-1993	Postdoctoral Fellow, Lineberger Comprehensive Cancer Center, University of North Carolina at Chapel Hill
1980-1981	Research Technician, NY State Dept. of Health, Albany Medical College, Albany, NY

HONORS

2009	Delta Omega, National Public Health Honor Society
1991	Travel Award for AACR Special Conference
1990-1993	NIH Postdoctoral Fellowship; UNC-Chapel Hill
1988	Travel Award for Society of Toxicology Meeting, sponsored by Sterling Winthop
1986-1989	Predoctoral Traineeship, Dept. of Environmental Medicine, New York University

1983-1986 Predoctoral Traineeship, NIEHS Toxicology Training Grant
1981-1982 Teaching Assistant, University of Colorado, School of Pharmacy
1978 Graduation with Honors, University of Notre Dame
1974-1976 New York State Regents Scholarship

MEMBERSHIPS

American Association for Cancer Research
Molecular Epidemiology Working Group of AACR
Member, Delta Omega Public Health Honor Society, Theta Chapter

PATENT APPLICATIONS

1. *METHODS AND KITS FOR DETECTING MELANOMA*. UNC10001WO UNC Ref No.: 11-0009 PCT/US2011/051401 Thomas NE, Dorsey K, Edmiston S, Groben P.; U.S. provisional patent application Serial Number 61/382,623, September 14, 2010.

2. *INTERLEUKIN-2-INDUCIBLE T CELL KINASE (ITK) AS A THERAPEUTIC TARGET FOR CANCER TREATMENT.* Thomas NE, Edmiston S, Dorsey K, Groben P, Carson C. Filed September 28, 2011.

PUBLICATIONS

A. Books and Chapters

1. Weissman, B.E. and **Conway, K.** Genetic aspects of tumor suppressor genes. In: Adv. Genome Biol., (Ed.), Verma, R.S., JAI Press, Greenwich, CT, pp 143-162 (1995).
2. He, M., Liu, E., and **Conway, K.** Semi-quantitative reverse transcriptase polymerase chain reaction for detection of low abundance transcripts in human tumors. In: Reverse Transcriptase PCR, (Eds.), Larrick, J.W., and Siebert, P.D., Ellis Horwood, London, pp 289-299 (1995).
3. Costa, M., **Conway, K.**, Imbra, R. and Wang, X.-W.: "The involvement of heterochromatic damage in nickel-induced transformation and resistance." In: Nickel and Human Health: Current Perspectives, Advances in Environmental Sciences and Technology, E. Nieboer and A. Aitio, (Eds.), John Wiley and Sons, New York (1989).

B. *Refereed Papers and Articles (*student committee, or a senior author)

Manuscripts under review or in preparation

1. **Conway K***, Edmiston SN, Kuan PF, Bryant C, Tse C-K, Millikan RC. Breast tumor DNA methylation signatures associated with smoking in the Carolina Breast Cancer Study. *Breast Cancer Research and Treatment.* Submitted.
2. Parada H, Bradshaw PT, Steck SE, Engel LS, **Conway K***, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Post-diagnosis changes in cigarette smoking and survival following breast cancer. *British Journal of Cancer*. Submitted.
3. Parada H Jr, Bradshaw PT, Engel LS, **Conway K***, Steck SE, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Environmental Tobacco Smoke Exposure and Survival Following Breast *Cancer. Cancer Epid Biomark Prev*. Submitted.

4. Parada H, Steck SE, Bradshaw PT, Engel LS, **Conway K***, Teitelbaum SL, Neugut AI, Santella RM, Gammon MD. Grilled, barbecued, and smoked meat intake and survival following breast cancer. *Journal of the National Cancer Institute.* Submitted.
5. Niehoff N , White AJ, McCullough LE, Steck SE, Beyeae J, Mordukhovich I, Engg SM, Teitelbaum SL, Neugut AI, **Conway K***, Santella RM, Gammon MD. Polycyclic aromatic hydrocarbons and postmenopausal breast cancer: an evaluation of effect measure modification by body mass index and weight change. *Environmental Research*. Submitted.
6. Zhou X, Kuan PF, **Conway K**, Thomas NE, Kosorok MR. SRD: Sparse Ramp Discrimination for classification and variable selection on high-dimensional biological data. *Bioinformatics.* Submitted.
7. **Conway K*,** Edmiston SE, Kuan PF, Parker J, Wilkerson MA, Zhao X, Groben PA, Carson CC, Hao H, Parrish EA, Moschos SJ, Ollila DW, Thomas NE. Identification of a robust methylation predictor for melanoma diagnosis. In preparation for J Clin Oncol.
8. Kuan PF, **Conway K**, Edmiston SE, Parker J, Groben PA, Carson CC, Hao H, Parrish EA, Ollila DW, Thomas NE. Increased DNA methylation variability in primary melanomas. In preparation.
9. Commander LA, Carson CC, Pandey S, Nikolaishvili-Feinberg N, Groben PA, Kuan PF, Wheless A, Livasy C, Edmiston SN, Gibbs DC, Miller CR, Carey L, Moschos SJ, Ollila DW, **Conway K**, Thomas NE. Interleukin-2-inducible T cell kinase tumor protein levels associated with ER and PR negative breast cancer. In preparation.
10. **Conway K**, Sharon N. Edmiston SN, Bryant C, May R, Kuan PF, Millikan RC. DNA methylation signatures define differences in breast cancer prognosis in the Carolina Breast Cancer Study. In preparation.
11. **Conway K**, Edmiston SN, Parrish EA, Tolbert D, Wu L, Patten N, Tse C-K, Perou C, Millikan RC. P53 mutation profiles in the Carolina Breast Cancer Study and relationship to clinical features and survival. In preparation.

Manuscripts published

1. Butler EN, Tse CK, Bell ME, **Conway K***, Olshan AF, Troester MA. Active smoking and risk of Luminal and Basal-like breast cancer subtypes in the Carolina Breast Cancer Study. *Cancer Causes Control.* 27(6):775-86 (2016). PMID: 27153846
2. White AJ, Bradshaw PT, Herring AH, Teitelbaum SL, Beyea J, Stellman SD, Steck SE, Mordukhovich I, Eng SM, Engel LS, **Conway K***, Hatch M, Neugut AI, Santella RM, Gammon MD. Exposure to multiple sources of polycyclic aromatic hydrocarbons and breast cancer incidence. *Environ Int.* 89-90:185-92 (2016). PMCID: PMC4818720.
3. White AJ, Chen J, Teitelbaum SL, McCullough LE, Xu X, Hee Cho Y, **Conway K***, Beyea J, Stellman SD, Steck SE, Mordukhovich I, Eng SM, Beth Terry M, Engel LS, Hatch M, Neugut AI, Hibshoosh H, Santella RM, Gammon MD. Sources of polycyclic aromatic hydrocarbons are associated with gene-specific promoter methylation in women with breast cancer. *Environ Res.* 145:93-100 (2016). PMCID: PMC4706465.
4. Gibbs DC, Orlow I, Bramson JI, Kanetsky PA, Luo L, Kricker A, Armstrong BK, Anton-Culver H, Gruber SB, Marrett LD, Gallagher RP, Zanetti R, Rosso S, Dwyer T, Sharma A, La Pilla E, From L, Busam KJ, Cust AE, Ollila DW, Begg CB, Berwick M, Thomas NE; GEM Study Group. Association of Interferon Regulatory Factor-4 Polymorphism rs12203592 With Divergent Melanoma Pathways. *J Natl Cancer Inst.* 108(7) (2016). PMCID: PMC4948568
5. Hair BY, Xu Z, Kirk E, Harlid S, Sandhu R, Robinson WR, Wu MC, Olshan AF, **Conway K***, Taylor J, Troester MA. Body mass index associated with genome-wide methylation in breast tissue. *Breast Cancer Research and Treatment.* 151:453-63 (2015). PMCID: PMC4474159.

6. Hair BY, Troester MA, Edmiston SN, Parrish EA, Robinson WR, Wu MC, Olshan AF, Swift-Scanlan T, **Conway K***. Body mass index is associated with gene methylation in estrogen receptor-positive breast tumors. *Cancer Epid Biomarkers Prev*. 24:580-6 (2015). PMCID: PMC4355173.

7. Taylor NJ, Nikolaishvili-Feinberg N, Midkiff B, **Conway K**, Millikan RC, Geradts J. Rational manual and automated scoring thresholds for the immunohistochemical detection of TP53 missense mutations in human breast carcinomas. *Applied Immunohistochemistry & Molecular Morphology.* Jul 18; (2015). PMCID: PMC4716889

8. **Conway K**, Edmiston SN, Tse C-K, Bryant C, Kuan PF, Hair B, Parrish EA, May R, Swift-Scanlan T, Millikan RC. Racial variation in breast tumor promoter methylation in the Carolina Breast Cancer Study. *Cancer Epid Biomarkers Prev.* 24:921-30 (2015).PMCID: PMC4452445.

9. Thomas NE, Edmiston SN, Alexander A, Groben PA, Parrish E, Kricker A, Armstrong BK, Anton-Culver H, Gruber SB, From L, Busam KJ, Hao H, Orlow I, Kanetsky PA, Luo L, Reiner AS, Paine S, Frank JS, Bramson JI, Marrett LD, Gallagher RP, Zanetti R, Rosso S, Dwyer T, Cust AE, Ollila DW, Begg CB, Berwick M, **Conway K***; GEM Study Group. Association Between NRAS and BRAF Mutational Status and Melanoma-Specific Survival Among Patients With Higher-Risk Primary Melanoma. *JAMA Oncol.* 1:359-68 (2015). PMCID: PMC4486299.

10. Carson CC, Moschos SJ, Edmiston SN, Darr DB, Nikolaishvili-Feinberg N, Groben PA, Zhou X, Kuan PF, Pandey S, Chan KT, Jordan JL, Hao H, Frank JS, Hopkinson DA, Gibbs DC, Alldredge VD, Parrish E, Hanna SC, Berkowitz P, Rubenstein DS, Miller CR, Bear JE, Ollila DW, Sharpless NE, **Conway K**, Thomas NE. IL-2 Inducible T-cell kinase, a novel therapeutic target in melanoma. *Clin Cancer Res*. 21: 2167-76 (2015). PMCID: PMC4418029.

11. Gibbs DC, Orlow I, Kanetsky PA, Luo L, Kricker A, Armstrong BK, Anton-Culver H, Gruber SB, Marrett LD, Gallagher RP, Zanetti R, Rosso S, Dwyer T, Sharma A, La Pilla E, From L, Busam KJ, Cust AE, Ollila DW, Begg CB, Berwick M, Thomas NE. Inherited genetic variants associated with occurrence of multiple primary melanoma. *Cancer Epidemiol Biomarkers Prev.* 24:992-7 (2015). PMCID: PMC4452425.

12. **Conway K**, Edmiston SN, May R, Kuan P, Chu H, Bryant C, Tse CK, Swift-Scanlan T, Geradts J, Troester MA, Millikan RC. DNA methylation profiling in the Carolina Breast Cancer Study defines cancer subclasses differing in clinicopathologic characteristics and survival. *Breast Cancer Res.* 16:450 (2014). PMCID: PMC4303129.

13. Berwick M, MacArthur J, Orlow I, Kanetsky P, Begg CB, Luo L, Reiner A, Sharma A, Armstrong BK, Kricker A, Cust AE, Marrett LD, Gruber SB, Anton-Culver H, Zanetti R, Rosso S, Gallagher RP, Dwyer T, Venn A, Busam K, From L, White K, Thomas NE. MITF E318K's effect on melanoma risk independent of, but modified by, other risk factors. *Pigment Cell Melanoma Res.* 27:485-8 (2014). PMCID: PMC3988207.

14. Thomas NE, Slater NA, Edmiston SN, Zhou X, Kuan PF, Groben PA, Carson CC, Hao H, Parrish E, Moschos SJ, Berwick M, Ollila DW, **Conway K**. DNA methylation profiles in primary cutaneous melanomas are associated with clinically significant pathologic features. *Pigment Cell Melanoma Res.* Jul 1. doi: 10.1111/pcmr.12289. (2014). PMCID: PMC4211983.

15. Thomas NE, Busam KJ, From L, Kricker A, Armstrong BK, Anton-Culver H, Gruber SB, Gallagher RP, Zanetti R, Rosso S, Dwyer T, Venn A, Kanetsky PA, Groben PA, Hao H, Orlow I, Reiner AS, Luo L, Paine S, Ollila DW, Wilcox H, Begg CB, Berwick M. Tumor-infiltrating lymphocyte grade in primary melanomas is independently associated with melanoma-specific survival in the population-based genes, environment and melanoma study. *J Clin Oncol*. 31:4252-9 (2013). PMCID: PMC3821014.

16. Thomas NE, Kricker A, Waxweiler WT, Dillon PM, Busman KJ, From L, Groben PA, Armstrong BK, Anton-Culver H, Gruber SB, Marrett LD, Gallagher RP, Zanetti R, Rosso S, Dwyer T, Venn A,

Kanetsky PA, Orlow I, Paine S, Ollila DW, Reiner AS, Luo L, Hao H, Frank JS, Begg CB, Berwick M; Genes, Environment, and Melanoma (GEM) Study Group. Comparison of clinicopathologic features and survival of histopathologically amelanotic and pigmented melanomas: a population-based study. *JAMA Dermatol*. 150:1306-314 (2014). PMCID: PMC4262611.

17. Esserman LJ, Berry DA, Yau C, Cheang MCU, Carey, LA, Perou CM, DeMichele A, Gray J, van 't Veer LJ, **Conway-Dorsey K**, Lenburg ME, Davis SE, Buxton M, Hudis C, Krontiras H, Montgomery L, Tripathy D, Liu M, Olopade O, Livasy C, Dressler L, Chieng D, Singh B, Mies C, Rabban J, Chen Y, Giri D, Au A, Hylton N, and the I-SPY 1 TRIAL Investigators. Chemotherapy response and recurrence-free survival in neoadjuvant breast cancer depends on biomarker profiles: results from the I-SPY 1 TRIAL (CALGB 150007/150012; ACRIN 6657). *Breast Cancer Res Treat*. 132: 1049-62 (2012). PMCID: PMC3332388.
18. **Conway K**, Edmiston SN, Khondker ZS, Groben PA, Zhou X, Chu H, Kuan PF, Hao H, Carson C, Berwick M, Olilla DW, Thomas NE. DNA-methylation profiling distinguishes malignant melanomas from benign nevi. *Pigment Cell Melanoma Res*. 24:352-360 (2011). PMCID: PMC3073305.
19. Chang CM, Schroeder JC, Olshan AF, Dunphy CH, Huang W-Y, Baric RS, **Conway K**, Cerhan JR, Lynch CF, Rothman N, Cantor KP, Blair A. A case-control study of tobacco use and other non-occupational risk factors for lymphoma subtypes defined by t(14;18) translocations and bcl-2 expression. *Cancer Causes Control*. 21:1147-54 (2010). PMCID: PMC3052629.
20. Jordan J, Inga A, **Conway K**, Edmiston S, Wu L, Carey LA, Resnick MA. Altered function p53 missense mutations identified in with breast cancers can have subtle effects on transactivation. *Mol Cancer Res.* 8:701-16 (2010). PMCID: PMC2873663.
21. Thomas NE, Kanetsky PA, Edmiston SN, Alexander A, Begg CB, Millikan RC, Groben PA, Hao H, Busam K, Ollila DW, Berwick M, **Conway K**. Melanoma Molecular Subtypes: Unifying and Paradoxical Results*. J Invest Dermatol*. 130:12-4 (2010). PMCID: PMC2950747.
22. Chang CM, Schroeder JC, Huang W-Y, Dunphy CH, Baric RS, Olshan AF, **Conway K**, Dent GA, Cerhan JR, Lynch CF, Rothman N, Cantor KP, Blair A. Non-Hodgkin Lymphoma (NHL) subtypes defined by common translocations: utility of fluorescence in situ hybridization (FISH) in a case-control study*. Leukemia Res.* 34:190-5 (2010). PMCID: PMC2815151.
23. Thomas NE, Kanetsky PA, Edmiston SN, Alexander A, Begg CB, Groben PA, Hao H, Busam K, Ollila DW, Berwick M, **Conway K**. Relationship between germline MC1R variants and BRAF-mutant melanoma in a North Carolina population-based study*. J Invest Dermatol.* 130: 1463-5 (2010). PMCID: PMC2950750.
24. Mordukhovich I, Rossner P, Jr, Terry MB, Santella R, Zhang Y-J, Hibshoosh H, Memeo L, Mansukhani M, Long C-M, Garbowski G, Agrawal M, Gaudet MM, Steck SE, Sagiv SK, Eng SM, Teitelbaum SL, Neugut AI, **Conway-Dorsey K**, Gammon MD. Associations between polycyclic aromatic hydrocarbon-related exposures and *p53* mutations in breast tumors. *Environ Health Perspect.* 118:511-8 (2010). PMCID: PMC2854728.
25. Golubovskaya VM, **Conway-Dorsey K**, Edmiston SN, Tse CK, Lark AA, Livasy CA, Moore D, Millikan RC, Cance WG. FAK overexpression and p53 mutations are highly correlated in human breast cancer. *Int J Cancer.* 125:1735-8 (2009). PMCID: PMC2773794.
26. Millikan RC, Newman B, Tse C-K, Moorman P, **Conway K**, Smith LV, Labbok M, Geradts J, Bensen JT, Jackson S, Nyante S, Livasy C, Carey L, Earp HS, Perou CM. Epidemiology of basal-like breast cancer. *Breast Cancer Res Treat.* 109:123-39 (2008). PMCID: PMC2443103.
27. Thomas NE, Kanetsky PA, Edmiston SN, Alexander A, Hummer A, Millikan RC, Groben P, Hao H, Tolbert D, Berwick M, Begg C, Busam K, Mattingly D, Ollila DW, **Conway K**. Association of MC1R variants and BRAF mutations in melanoma remains an open question. *Cancer Epidemiol Biomark*

Prev. 16: 991-997 (2007).

28. **Conway K**, Parrish E, Edmiston SN, Tolbert D, Tse C-K, Moorman P, Newman B, Millikan RC. Risk factors for breast cancer characterized by the estrogen receptor alpha A908G (K303R) mutation. *Breast Cancer Res.* 9 (3): R36 (2007).
29. Thomas NE, Edmiston SN, Alexander A, Millikan RC, Groben P, Hao H, Tolbert D, Berwick M, Busam K, Begg CB, Mattingly D, Ollila DW, Tse C-K, Hummer A, Lee-Taylor J, **Conway K**. Number of nevi and early life ambient UV exposure are associated with *BRAF*-mutant melanoma. *Cancer Epidemiol Biomark Prev*. 16: 991-997 (2007).
30. Carey LA, Perou CM, Livasy CA, Dressler LG, Cowan D, **Conway K**, Karaca G, Troester MA, Tse C-K, Edmiston S, Deming SL, Geradts J, Cheang MCU, Nielsen TO, Moorman PG, Earp HS, Millikan RC. Race, breast cancer subtypes, and survival in the Carolina Breast Cancer Study. *JAMA* 295:2492-2502 (2006).
31. Stern MC, **Conway, K,** Li, Y, Mistry K, Taylor JA. DNA repair gene polymorphisms and probability of p53 mutation in bladder cancer. *Molecular Carcinogenesis* 45:715-9 (2006).
32. Cleveland RJ, Gammon MD, Edmiston SN, Teitelbaum SL, Britton JA, Terry MB, Eng SM, Neugut AI, Santella RM, **Conway K**. IGF1CA repeat polymorphisms, lifestyle factors and breast cancer risk in the Long Island Breast Cancer Study Project. *Carcinogenesis* 27: 758-65 (2006).
33. Millikan RC, Heard K, Winkel S, Hill EJ, Heard K, Massa B, Mayes L, Williams P, **Conway K**, Edmiston S, René de Cotret A. No association between the *MDM2* -309 T/G promoter polymorphism and breast cancer in African Americans or whites. *Cancer Epid Biomark Prev.* 15: 175-177 (2006).
34. **Conway K,** Parrish E, Edmiston SN, Tolbert D, Tse J, Geradts J, Livasy C, Singh H, Newman B, Millikan RC. The estrogen receptor alpha A908G (K303R) mutation occurs at a low frequency in invasive breast tumors: results from a population-based study. *Breast Cancer Res.* 7: R871-880 (2005). PMCID: PMC1410768.
35. Li Y, Millikan RC, Bell D, Cui C, Newman B, **Conway K.** Polychlorinated biphenyls, cytochrome P4501A1 polymorphisms, and breast cancer risk among African-American women and white women in North Carolina: a population-based case-control study. *Breast Cancer Res* 7: R12-18 (2004). PMCID: PMC1064095.
36. Li Y, Millikan, RC, Savitz, D, Olshan, A, Bell, DA, Cui, L, Tse, C-KJ, Newman B, **Conway, K.** Cigarette smoking, cytochrome P4501A1 polymorphisms, and breast cancer among African-American women and white women. *Breast Cancer Res.* 6: R460-73 (2004). PMCID: PMC468667.
37. Thomas NE, Alexander A, Edmiston S, Parrish E, Millikan RC, Berwick M, Groben P, Olilla D, Mattingly, D., **Conway K**. Tandem BRAF mutations in primary human melanomas. *J. Invest. Dermatol.* 122: 1245 (2004).
38. Slebos JC, Little RE, Umbach DM, Antipkin Y, Zadaorozhnaja TD, Mendel NA, Sommer CA, **Conway K,** Parrish E, Gulino S, Taylor JA. Mini- and microsatellite mutations in children from Chernobyl accident cleanup workers. *Mutation Res.* 559: 143-151 (2004).
39. Schroeder JC, **Conway K,** Li Y, Mistry K, Bell, D., Taylor JA. P53 mutations in bladder cancer: evidence for exogenous versus endogenous risk factors. *Cancer Res.* 63: 7530-7538 (2003).
40. Millikan R, Eaton A, Worley K, Biscocho L, Hodgson E, Huang W-Y, Geradts J, Iacocca M, Cowan D, **Conway K.**, Dressler L. *HER2* codon 655 polymorphism and risk of breast cancer in African Americans and whites. *Breast Cancer Res Treat.* 79: 355-364 (2003).
41. Van Gils, CH, **Conway, K**, Li, Y, Taylor, JA. HRAS1 variable number of tandem repeats

polymorphism and risk of bladder cancer. *Int. J. Cancer.* 100: 414-418 (2002).

42. **Conway, K**, Edmiston, S, Cui, L, Drouin S, Pang, J, Tse, C-K, Geradts J, Dressler L, Liu, ET, Millikan R, Newman, B. The prevalence and spectrum of p53 mutations associated with smoking in breast cancer. *Cancer Res.* 62: 1987-1995 (2002).
43. Jauert PA, Edmiston, SN, **Conway, K,** Kirkpatrick, DT. RAD1 controls the meiotic expansion of a human HRAS1 minisatellite allele inserted into the yeast genome. *Mol. Cell. Biol.,* 22: 953-964 (2002). PMCID: PMC133548.
44. Merrihew, RV, Cruickshank, RD, **Conway, K**, Weissman, BE. Human chromosome 11 alters the response of a squamous cell carcinoma cell line to 1,25-dihydroxyvitamin D3. *Exp. Cell Res.* 259: 191-203 (2000).
45. Chen, P., Wiencke, J.W., **Conway, K.**, Edmiston, S.N., Miike, R., Wrensch, M. Lack of association of Ha-ras VNTR rare alleles with adult glioma. *Neuro-oncology* 2: 120-124 (2000). PMCID: PMC1919515.
46. Huang, W.-Y., Newman, B., Millikan, R.C., **Conway, K.**, Hulka, B.S., Schell, M.J., Liu, E.T. Risk of breast cancer according to the status of Her-2/neu oncogene amplification. *Cancer Epid. Biomark. Prev*. 9:65-71 (2000).
47. Stark, A., Hulka, B.S., Joens, S., Novotny, D., Thor, A.D., Wold, L., Liu, E.T., **Conway, K.** HER-2/neu amplification in benign breast disease and the risk of subsequent breast cancer. *J. Clin. Oncol.* 18: 267-274 (2000).
48. Li, Y., Millikan, R., Newman, B, **Conway, K.**, Tse, C.-K. J., Liu, E.T. P57 (KIP2) polymorphisms and breast cancer risk. *Human Genetics,* 104: 83-88 (1999).
49. Olshan, A.F., Weissler, M.C., Pei, H., **Conway, K.** P53 mutations in head and neck cancer: new data and evaluation of mutational spectra. *Cancer Epidem. Biomark. Prev.* 6: 499-504 (1997).
50. Gioeli, D., **Conway, K.**, Weissman, B.E. Localization and characterization of a chromosome 11 tumor suppressor gene using organotypic raft cultures. *Cancer Res.* 57: 1157-1165 (1997).
51. Olshan, A.F., Weissler, M.C., Pei, H., **Conway, K.**, Anderson, S., Fried, D.B., Yarborough, W.G. Alterations of the p16 gene in head and neck cancer: frequency and association with p53, Prad-1 and HPV. *Oncogene* 14: 811-818 (1997).
52. **Conway, K.**, Edmiston, S.N., Hulka, B.S., Garrett, P.A., Liu, E.T. Internal sequence variations in the Ha-ras VNTR rare and common alleles identified by minisatellite variant repeat (MVR)-polymerase chain reaction (PCR). *Cancer Res.* 56: 4773-4777 (1996).
53. Millikan, R., Hulka, B., Thor, A., Zhang, Y., Edgerton, S., Zhang, X., Pei, H., He, M., Wold, L., Melton, L.J., Ballard, D., **Conway, K.**, Liu, E.T. p53 mutations in benign breast tissue. *J. Clin. Oncol.* 13: 2293-2300 (1995).
54. **Conway, K.**, Edmiston, S.N., Fried, D.B., Hulka, B.S., Garrett, P.A., Liu, E.T. Ha-ras rare alleles in breast cancer susceptibility. *Breast Cancer Res. Treat*. 35: 97-104 (1995).
55. **Conway, K.**, Morgan, D., Phillips, K., Yuspa, S.H. and Weissman, B.E.: Tumorigenic suppression of a human cutaneous squamous cell carcinoma cell line in the nude mouse skin graft assay. *Cancer Res.* 52: 6487-6495 (1992).
56. Klein, C.B., **Conway, K.**, Wang, X.-W., Bhamra, R.K., Lin, X., Cohen, M.D., Annab, L., Barrett, J.C. and Costa, M.: Senescence of nickel-transformed cells by an X chromosome: possible epigenetic control. *Science* 251: 796-799 (1991).
57. **Conway, K.**, Costa, M.: Nonrandom chromosomal alterations in nickel-transformed Chinese

hamster embryo cells. *Cancer Res.* 49: 6032-6038 (1989).

58. **Conway, K.**, Costa, M.: The involvement of heterochromatic damage in nickel-induced transformation. *Biol. Trace Element Res.* 21: 437-444 (1989).
59. **Conway, K**., Wang, X.W., Xu, L. and Costa, M.: Effect of magnesium on nickel-induced genotoxicity and cell transformation. *Carcinogenesis* 8(8): 1115-1121(1987).
60. Sunderman, F.W., Jr., Hopfer, S.M., Knight, J.A., McCully, K.S., Cecutti, A.G., Thornhill, P.G., **Conway, K**., Miller, C., Patierno, S.R. and Costa, M.: Physicochemical characteristics and biological effects of nickel oxides. *Carcinogenesis* 8: 305-313 (1987).
61. Sen, P., **Conway, K.**, Costa, M.: Comparison of the localization of chromosome damage induced by calcium chromate and nickel compounds. *Cancer Res.* 47: 2142-2147 (1987).
62. **Conway, K**., Sen, P., Costa, M.: Antagonistic effect of MgCl2 on the NiCl2-induced inhibition of DNA replication in CHO cells. *J. Biochem. Toxicol.* 1: 11-26 (1986).
63. Malkinson, A.M., **Conway, K.**, Bartlett, S., Butley, M.S. and Conroy, C.: Strain differences among inbred mice in protein kinase C activity. *Biochem. Biophys. Res. Commun.* 122: 492-498 (1984).

C. *Refereed Unpublished Oral Presentations and/or Abstracts

1. Thomas NE, Edmiston SN, Carson C, Groben PA, Nikolaishvili-Feinberg N, Zhou X, Kuan PF, Hao H, Darr D, Pandey S, Moschos S, Berwick M, Sharpless N, Olilla DW, **Conway K**. High-throughput DNA-methylation profiling from fixed melanocytic tissues for diagnosis and identification of therapeutic targets. IMAT meeting. November 21, 2013.

2. Thomas NE, Edmiston SN, Carson C, Groben PA, Nikolaishvili-Feinberg N, Zhou X, Kuan PF, Hao H, Darr D, Pandey S, Moschos S, Berwick M, Sharpless N, Olilla DW, **Conway K**. High-throughput DNA-methylation profiling from fixed melanocytic tissues for diagnosis and identification of therapeutic targets. Society of Melanoma Research meeting, November 2013.

3. Thomas NE, Busam K, From L, Kricker A, Armstrong B, Anton-Culver H, Gruber S, Gallagher R, Zanetti R, Rosso S, Dwyer T, Kanetsky PA, Venn A, Groben PA, Hao H, Orlow I, Reiner A, Luo L, Paine S, Ollila DW, Wilcox H, Begg CB, Berwick M, and The GEM Study Group. Tumor infiltrating lymphocyte grade in primary melanoma: relationship to pathologica features and melanoma-specific survival in the population-based GEM Study. Society of Melanoma Research meeting, November 2013.
4. **Conway K**, Edmiston SN, Groben PA, Zhou X, Kuan PF, Hao H, Carson C, Berwick M, Olilla DW, Thomas NE. Development of a methylation-based diagnostic assay for malignant melanoma: defining the factors affecting marker selection and assay performance. 13th Annual Innovative Molecular Analysis Technologies (IMAT) meeting, November, 2012.
5. **Conway K**, Edmiston SN, Groben PA, Zhou X, Kuan PF, Hao H, Carson C, Berwick M, Olilla DW, Thomas NE. Association of melanoma DNA-methylation with clinical attributes: implications for use of DNA-methylation as a diagnostic tool. 12th Annual Innovative Molecular Analysis Technologies (IMAT) meeting, Novermber, 2011.
6. Edmiston SN, Thomas NE, Groben P, Chu H, Kuan PF, **Conway K**. DNA methylation profiling in FFPE melanoma tissues. 11th Annual Innovative Molecular Analysis Technologies (IMAT) meeting, San Francisco, CA, October 25-26 (2010).

7. Sanchez DM, Layman A, Olshan A, **Conway-Dorsey K**, Smith JS. Prognosis of human papillomavirus (HPV)-positive versus HPV-negative head and neck cancers: a systematic literature review. Human Papillomavirus Conference (2010).
8. Pradhan SM, Carey L, Edmiston S, Moore D, I-SPY clinical investigators, **Conway K**. P53 mutation and differential response to neoadjuvant chemotherapy in women with locally advanced breast cancer: results from the I-SPY trial (CALGB 150007/1500012 & ACRIN 6657*). Am. Soc. Clin Oncol.* 2009.
9. Golubovskaya VM, **Conway K**, Moore D, Millikan R, Cance WG. FAK overexpression and p53 mutations positively correlate in a population-based series of breast cancer tumors. *Proc Am Assoc Cancer* Res 2008.
10. Jordan J, Inga A, **Conway K**, Carey LA, Resnick MA. Altered function p53 missense mutations associated with breast cancer can have subtle effects on transactivation. Department of Defense Breast Cancer Era of Hope meeting. June 2008.
11. Chang CM, Schroeder JC, Olshan AF, Dunphy CH, Huang W-Y, Baric RS, **Dorsey KC**, Cerhan JR, Lynch C, Rothman N, Cantor KP, Blair A. Fluorescence in Situ Hybridization (FISH) and Risk Factors for t(14;18)-Non-Hodgkin Lymphoma (NHL). NIH Festival, 2007.
12. Thomas NE, Alexander A, Edmiston SN, Millikan RC, Groben PA, Hao H, Berwick M, Busam K, Begg CB, Mattingly D, Ollila DW, Tse C-K, Hummer A, Lee-Taylor J, **Conway K**. Nevus-Prone Tendency Positively Effects the Association of High UV Exposure with *BRAF*-Mutant Melanoma AACR Molecular Epidemiology special conference, 2007.
13. Thomas NE, Kanetsky P, Edmiston SN, Alexander A, Hummer A, Millikan RC, Groben P, Hao H, Berwick M, Begg CB, Busam K, Mattingly D, Ollila DW, **Conway K**. Strength of association of MC1R Variants with BRAF mutations in melanoma remains an open question. Society of Invest Dermatol (2007).
14. **Conway K**, Edmiston SN, Tolbert D, Moore D, I-SPY Clinical Investigators, Esserman L, Carey LA on behalf of ACRIN, CALGB, and NCI SPORE. Preliminary evaluation of p53 mutation type, tumor characteristics and clinical response among neoadjuvantly treated breast cancer patients in I-SPY1 (CALGB 150007/ACRIN 6657). San Antonio Breast Cancer Symposium, San Antonio, TX. Dec. (2006).
15. **Conway K**, Parrish E, Edmiston SN, Tolbert D, Tse C-K, Millikan R. Risk factors for breast cancer defined by the presence of the estrogen receptor alpha A908G (K303R) mutation. 12th Annual SPORE Investigators' Workshop, Baltimore, MD. July (2006).
16. Thomas NE, Alexander A, Edmiston SN, Millikan RC, Groben P, Hao H, Tolbert D, Berwick M, Busam K, Begg C, Mattingly D, Ollila DW, **Conway K**. Melanomas arising in nevus-prone individuals are more likely to harbor a BRAF/NRAS mutation. *J Invest Dermatol* (2006).
17. Buxton MB, Carey LA, DeMichele A, **Dorsey KC**, Dressler L, Gray JW, Haqq CM, Perou C, Petricoin EF, ISPY Clinical Investigators, Au A, Bondi SM, Crothers J, Edmiston S, Harden AT, Madhavan S, Petrillo L; Hylton NM, Esserman LJ. Methods to optimize tissue collection and assay performance from 16-gauge core biopsies in the I SPY TRIAL. San Antonio Breast Cancer Symposium. Dec 2005.
18. Thomas NE, Alexander A, Edmiston SN, Millikan RC, Groben P, Berwick M, Busam K, Mattingly D, Hao H, Ollila DW, **Conway K**. Clinical correlates of BRAF/NRAS mutation in melanoma. 6th World Congress of Melanoma, Vancouver, BC. September (2005).
19. Thomas NE, Alexander A, Edmiston SN, Millikan RC, Groben P, Berwick M, Busam K, Mattingly D, Hao H, Ollila DW, Conway K. Melanoma in younger individuals is more likely to contain a BRAF

than NRAS mutation. *J Invest Dermatol* 124, A143 (2005).

20. **Conway K**, Parrish E, Edmiston SN, Gammon MD. Presence of the Estrogen Receptor Alpha A908G (K303R) Mutation in Benign and Invasive Breast Tissues from a Case-Control Study of Benign Breast Disease and Breast Cancer. Department of Defense Era of Hope Meeting, June, Philadelphia, PA. (2005).
21. Deming S, **Conway K**, Dressler L, Savitz D, Millikan R. The association between DDE and PCB blood levels and molecular subtypes of breast cancer. *Proc. Am. Assoc. Cancer Res*. (2003).
22. Thomas NE, Alexander A, Edmiston S, Parrish E, Millikan RC, Groben P, Ollila D, **Conway K**. Tandem BRAF mutations in primary human melanomas. *Proc. Am. Assoc. Cancer Res.* (2003).
23. Schroeder J.C., **Conway K.,** Taylor, J.A. P53 mutation, exposure, and genetic susceptiblity in a case-control study of bladder cancer. Congress of Epidemiology (2001).
24. Van Gils, C.H., **Conway, K.,** Li, Y., Taylor, J.A. HRAS1 variable number of tandem repeats polymorphism and risk of bladder cancer. *Proc. Am. Assoc. Cancer Res.* 42: 344 (2001).
25. **Conway, K.,** Edmiston, S.N., Cui, L., He, M., Pang, J., Mistry, K., Drouin, S., Li, Y., Geradts, J., Millikan, R., Newman, B. p53 mutations in the Carolina breast Cancer Study: spectrum and clinical associations. Minisymposium. *Proc. Am. Assoc. Cancer Res.* 40: 690 (1999).
26. Dressler, L.G., **Conway, K.,** Geradts, J., Edmiston, S., Cowan, D., Burroughs, M., Cui, L., He, M., Pang, J., Mistry, K., Drouin, S., Li, Y., Tse, J., Millikan, R., Newman, B. Immunohistochemistry can accurately detect missense mutations in the p53 gene: a comparison with gene sequencing in 196 breast tumors. *Proc. Am. Assoc. Cancer Res.* 40: 194 (1999).
27. Huang, W.Y., Newman, B., Millikan, R.C., **Conway, K.,** Liu, E.T. Breast cancer risk factors by HER-2/neu oncogene amplification status. Society of Epidemiologic Research (1999).
28. Stark, A., Hulka, B.B., Joens, S., **Conway, K.,** Novotny, D., Wold, L., Liu, E. HER-2 amplification in benign conditions of the breast and the risk of subsequent breast cancer. *Proc. Am. Assoc. Cancer Res.* 38 (1997).
29. **Conway, K.,** Edmiston, S.N., Hulka, B.S., Garrett, P.A., Liu, E.T. Allele length and minisatellite variant repeat analyses of the Ha-ras VNTR in a breast cancer case control study. *Proc. Am. Assoc. Cancer Res.* 37 (1996).
30. **Conway, K.,** Edmiston, S.N., Hulka, B.S., Garrett, P.A., Liu, E.T. Polymerase chain reaction (PCR)-based analyses of the Ha-ras VNTR allele length and sequence variations in a breast cancer case-control study. SPORE Investigator's Meeting, 1994.
31. **Conway, K.,** Morgan, D., Yuspa, S.H., and Weissman, B.E.: Suppression of tumorigenicity of the human skin squamous cell carcinoma cell line, A388, by human chromosome 11. AACR Special Conference "Negative Controls on Cell Growth and Their Breakdown during the Pathogenesis of Cancer", Chatham, MA, 1991.
32. **Conway, K.,** Weissman, B.E.: Introduction of chromosomes 11 and 3 modify the growth and tumorigenicity of a human epidermoid squamous cell carcinoma cell line." Keystone Symposium "Genomic Instability and Cancer, Tamarron, CO, 1991.
33. **Conway, K.,** Annab, L., Barrett, J.C., Costa, M.: Senescence of a nickel-transformed male Chinese hamster cell line with Xq deletion following introduction of a normal X chromosome. UCLA Symposium "Negative Controls on Cell Growth", Taos, NM. 1990.
34. **Conway, K.,** Annab, L., Wang, X.W., Klein, C.B., Lin, X.H., Bhamra, R., Barrett, J.C. and Costa, M. Senescence of a nickel-transformed Chinese hamster embryo cell line with Xq deletion following introduction of a normal Chinese hamster X chromosome. UCLA Symposium, "Negative Control of

Cell Growth, *J. Cell Biochem.* Suppl. 14C: 280 (1990).

35. **Conway, K**. Annab, L., Barrett, J.C. and Costa, M. Senescence of a nickel-transformed male Chinese hamster embryo cell line with Xq deletion following introduction of a normal Chinese hamster X chromosome. International Conference on Critical Target Genes in Chemical Carcinogenesis, National Institute of Environmental Health Sciences, Research Triangle Park, NC, Sept., 1989.
36. **Conway, K.,** Costa, M. Chromosomal changes associated with the transformation of Chinese hamster embryo cells by nickel. *Proc. Am. Assoc. Cancer Res.* 30 (1989).
37. **Conway, K.,** Costa, M. The involvement of heterochromatic chromosomal alterations in the nickel-induced transformation process. First International Meeting on Molecular Mechanisms of Metal Toxicity and Carcinogenicity, Urbino, Italy, 1988.
38. **Conway, K.,** Costa, M. Transformation of Chinese hamster embryo cells by nickel yields cell lines with altered heterochromatic staining patterns. *Proc. Am. Assoc. Cancer Res.* 29 (1988).
39. **Conway, K.,** Athwal, R.S.,Costa, M. Induction of aneuploidy by Ni(II) and Cr(VI) in a human/mouse hybrid cell system. *The Toxicologist* 8 (1988).
40. **Conway, K.,** Xu, L.,Costa, M. Protective effects of magnesium against nickel-induced DNA damage and cell transformation. *The Toxicologist* 7 (1987).
41. **Conway, K.**, Costa, M. Protective effects of MgCl2 in NiCl2-induced transformation, chromosomal aberrations and inhibition of DNA replication. *Federation Proceedings* (1986).
42. **Conway, K.**, Costa, M. The effects of NiCl2 on nuclear and nucleolar DNA replication in cultured mammalian cells. *The Pharmacologist* 27 (1985).
43. Patierno, S.R., **Conway, K.,** Costa, M.: Analysis of DNA-protein crosslinks by carcinogenic nickel compounds. *Proc. Am. Assoc. Cancer Res*. 26 (1985).
44. Christie, N.T., **Conway, K.,** Patierno, S.R., Pellis, N.R., Taylor, H.G. and Costa, M.: Analysis of oncogene changes in nickel-induced tumors in mice. *Proc. Am. Assoc. Cancer Res.* 25 (1984).

D. Other Unrefereed Works (including presentations and book reviews)

1. **Conway K.** DNA methylation profiling in clinical and epidemiologic studies of cancer. Department of Epidemiology seminar. Nov. 5, 2010.
2. **Conway K**. Illumina methylation array studies in melanomas and moles. GEM Melanoma Investigator's meeting: Feb 27, 2008.
3. **Conway K**. I-SPY study conference. Nov 2008. Evaluation of p53 mutation type, tumor characteristics and clinical response among neoadjuvantly treated breast cancer patients in I-SPY1 (CALGB 150007/ACRIN 6657).
4. **Conway K.** Illumina array-based methylation in breast cancer. UNC breast cancer SPORE Investigator's Meeting, Nov 2007.
5. **Conway, K**. Update on BRAF and NRAS Mutational Analysis in the GEM Population. Annual Genes, Environment & Melanoma (GEM) Investigators' Meeting, June 16-19, 2006, Sydney, Australia.
6. **Conway K.,** Parrish E., Edmiston S., Tolbert D., Geradts J., Singh H., Newman B., Millikan R. Presence of the estrogen receptor alpha A908G (K303R) mutation in invasive breast tumors of the Carolina Breast Cancer Study. 12th SPORE Investigator's Workshop, 2004.
7. **Conway, K.** Breakout Session on Breast Cancer. Detection of the Estrogen Receptor Alpha A908G

Mutation in Invasive Breast Tumors of the Carolina Breast Cancer Study. SPORE Investigator's Meeting (2004).

8. **Conway K,** Edmiston SN, Cui L, Drouin SS, Pang J, He M, Tse C-K, Geradts J, Dressler L, Liu ET. Millikan, R., Newman, B. P53 Mutations and the Risk of Breast Cancer Associated with Smoking. 10th SPORE Investigator's Workshop (2002).
9. **Conway, K.,** Edmiston, S., Cui, L., Drouin S, Pang, J., Tse, C.-K., Geradts J, Dressler L, Liu, E.T., Millikan R, Newman, B. The prevalence and spectrum of p53 mutations implicates smoking in breast cancer development. SPORE Investigator's Meeting (2000).
10. Dressler, L.G., **Conway, K.,** Geradts, J., Edmiston, S., Cowan, D., Burroughs, M., Cui, L., He, M., Pang, J., Mistry, K., Drouin, S., Li, Y., Millikan, R., Newman, B. Benefits and limitations of immunohistochemistry as a screen for p53 mutations: a comparison with gene sequencing in 196 UNC SPORE breast cancer specimens. SPORE Investigator's Meeting (1998).
11. **Conway, K.,** Edmiston, S.N., Cui, L.., He, M., Pang, J., Mistry, K., Drouin, S., Li, Y., Liu, E.T., Millikan, R.C., Newman, B. p53 gene mutations in the Carolina Breast Cancer Study: spectrum and association with patient tumor characteristics. SPORE Investigator's Meeting, 1998.
12. **Conway, K**., Edmiston, S.N., Hulka, B.S.,Garrett, P.A., Liu, E.T. Minisatellite variant repeat (MVR) and allele length analyses of the Ha-ras VNTR in a breast cancer case-control study. SPORE Investigator's Meeting, 1995.

Mass Media and Popular Press

New potential melanoma drug target discovered.
May 1, 2015. ScienceDaily.
https://www.sciencedaily.com/releases/2015/05/150501111527.htm

Research Identifies Potential Therapeutic Target to Slow Melanoma Growth
May 4, 2015
http://www.dovemed.com/current-medical-news/research-identifies-potential-target-slow-melanoma/

Biomarker test shows promise for melanoma diagnosis.
Feb 25, 2011. ScienceDaily.
http://www.sciencedaily.com/releases/2011/01/110124102925.htm

Epigenetics: Unlocking clues to cancer
Cancer Lines, Spring 2009.
http://unclineberger.org/subscribe/cancer-lines-archives/files/cancer-lines/spring-2009

UF researchers identify key target for cancer therapies.
April 21, 2008.
http://news.medinfo.ufl.edu/articles/from-the-lab/uf-researchers-identify-key-targt-for-cancer-therapies/

Different mutations found in melanoma depending on when in life sun exposure occurred.
Cancer Biology & Therapy, June 2007.
http://www.landesbioscience.com/journals/cbt/01-NewsCBT6-6.pdf

Study: Breast cancer in younger black women is more likely to be an aggressive variety.
June 6, 2006. http://www.eurekalert.org/pub_releases/2006-06/uonc-sbc060206.php

Smokers have higher prevalence of genetic mutations in breast cancer.

October, 2002. breastlink.org

TEACHING ACTIVITIES

A. Classroom Teaching

Molecular Techniques for Public Health Research (EPID 745) This course was designed to provide students with a basic understanding of nucleic acid and protein structure and function, molecular techniques commonly used in various areas of public health research to manipulate and analyze nucleic acids and proteins, factors related to the appropriate selection of molecular techniques to address a particular study/research question, issues concerning selection of controls and the sensitivity, specificity, discriminatory power and reproducibility of molecular techniques, importance of obtaining appropriately banked/preserved biological samples for analysis, and the contribution of "omics" to public health. An expanded understanding of public health-related research applications of the molecular techniques discussed in lectures is developed through required student presentations scheduled at the end of the course. Role: Co-Director with L. Stamm. Fall 2005, Fall 2006, Fall 2008.

B. Course Lectures

"DNA Methylation in Cancer" Graduate course: EPID 745/Fall 2008: Molecular Techniques for Public Health Research, November 2008.

"Somatic Mutational Analysis in Breast Cancer" Graduate Course: EPID 745/Fall 2006: Molecular Techniques for Public Health Research, November 2006.

"Somatic Mutational Analysis in Breast Cancer" Graduate Course: EPID 230/Fall 2005: Molecular Techniques for Public Health Research, November 2005.

STUDENT ADVISING/MENTORING

1. Member of Dissertation Committee

Ebonee Butler (2016, UNC Department of Epidemiology, Melissa Troester, advisor). Dissertation topic, "Etiologic markers of smoking and breast carcinogenesis."

Humberto Parada (2016, UNC Department of Epidemiology, Marilie Gammon, advisor). Dissertation entitled, "Post-diagnosis changes in polycyclic aromatic hydrocarbon sources of exposure and survival following breast cancer."

Matthew Psioda (2016, UNC Department of Biostatistics, Joseph Ibrahim, advisor). Dissertation entitled, "Statistical methods for Bayesian clinical trial design and DNA methylation deconvolution."

Alexandra White (2015, UNC Department of Epidemiology, Marilie Gammon, advisor). Dissertation entitled, "Multiple sources of PAH exposure, DNA methylation and breast cancer."

Brionna Hair (2015, UNC Department of Epidemiology, Melissa Troester, advisor). Dissertation entitled, "Body Mass Index, Breast Tissue, and the Epigenome."

Cindy Chang (2007, UNC Department of Epidemiology, Jane Schroeder, advisor). Dissertation entitled, "Fluorescence In Situ Hybridization (FISH) and Risk Factors for Non-Hodgkin Lymphoma (NHL) Subtypes Defined by t(14;18) Translocations and bcl-2 Expression."

Rebecca Cleveland (2005, UNC Department of Epidemiology, Marilie Gammon, advisor). Dissertation entitled, "Insulin-like growth factor-1 polymorphisms and breast cancer." Becky devised the assay and performed the genotyping work in my lab to identify IGF-1 repeat variants in samples from the LIBCSP for her dissertation project.

Yu Li (2005, UNC Department of Epidemiology, Bob Millikan, advisor).
Dissertation entitled, "Cigarette smoking, polychlorinated biphenyls, CYP1A1 polymorphisms and breast cancer among African-American and white women in North Carolina." Yu Li worked in my lab to carry out genotyping for CYP1A1 in cases and controls from the CBCS for his dissertation project.

2. Master's Paper Reader

Nikki Niehoff (2016, UNC Department of Epidemiology, Marilie Gammon, advisor). Master's paper entitled, "Polycyclic aromatic hydrocarbons and postmenopausal breast cancer: an evaluation of effect measure modification by body mass index and weight change."

Irina Mordukhovich (2009, UNC Department of Epidemiology, Marilie Gammon, advisor). Master's paper entitled, "Associations between PolycyclicAromatic Hydrocarbon-Related Exposures and p53 Mutations in Breast Tumors."

3. Undergraduates trained in the laboratory

Miriam Tepper

Claudia Salazar

Tommy Kimble

CONTRACTS AND GRANTS

Active

TRACs 4D Pilot Award (Conway/Thomas, dual PIs) 10/1/16 – 9/30/17 (0 calendar)
Advanced development of a methylation-based diagnostic test for melanoma
The goal is to convert a recently-developed diagnostic methylation signature for melanoma to a more clinically-useful bisulfite next-gen sequencing platform.
$50,000
Role: PI

1R03CA199487-01 (Conway/Thomas, dual PIs) 7/1/15 – 6/30/17 (1.2 calendar)
NIH/NCI
***TERT* promoter mutation as a melanoma biomarker**
The goal of this study is to determine whether the presence of *TERT* promoter mutations distinguish and are therefore diagnostic for primary melanomas compared with benign nevi, and to determine whether TERT mutations can be detected in serum from melanoma patients and thus serve as circulating biomarkers for patient management.
$152,000 total
Role PI

R01 CA112243 (Thomas) 5/13/05 - 6/30/16 (1.2 calendar)
NIH/NCI
Melanoma RAS/BRAF Mutation: Heterogeneity-Risk Prognosis

This study aims to determine the frequencies, risk factors and clinical associations of *NRAS* and *BRAF* mutations in melanomas in a large international population-based study. The competitive renewal will determine whether inherited variants of chemokines and their receptors, which are key modulators of tumor immunity, are associated with melanoma risk, survival, and tumor mutations in melanoma, with a particular focus on covariates of risk: age and ultraviolet radiation.
Role: Co-Investigator
$2,595,990 total

The V Foundation (Thomas/Olilla) 10/1/10 (one-time gift)
Tumor DNA-Methylation as a Biomarker for Melanoma
The goal is to identify highly methylated DNA CpG sites/genes that are specific for melanoma cells that are shed into the serum of advanced melanoma patients.
Role: Co-Investigator
$100,000 total

Submitted/planned
PO1 (Berwick/Thomas)
NIH/NCI
Project 2: Primary melanoma DNA methylation profiling for evaluating subtypes and survival
(Project Co-PIs: Conway and Thomas)
The goal of this program project is to identify molecular signatures and biomarkers that predict outcomes among primary melanoma patients. Project 2 focuses on whole-genome methylation.
PO1 received impact score of 30; re-submitted May 2016
Role: PI, Project 2; Co-investigator

RO1 (Thomas/Berwick)
NIH/NCI
Epidemiologic and Genomic Investigation of Melanoma Sub-Types
To be submitted Oct 2016
The objective of this proposal is to define melanoma subtypes with distinctive etiologies, identify the risk profiles of these subtypes, and conduct discovery studies to identify new genetic loci associated with melanoma risk.
Role: Co-investigator

2 RO1 CA112243-11 (Thomas)
NIH/NCI
Identification of Lethal Melanomas at the Time of Diagnosis
To be re-submitted Feb 2017
The goal of this project is to determine at the time of diagnosis which melanomas are the dangerous, potentially lethal ones. We will accomplish this by examining the genetic and immune alterations in tumor samples collected from almost 1700 patients who have 10-year survival data.
Role: Co-investigator

NCI/RO1 (Conway/Thomas, dual PIs)
To be submitted Feb. 2017
***TERT* promoter and gene mutational profiles for the early, specific diagnosis of melanoma**
The goal is to develop a mutational profile based on TERT promoter and other common gene mutations for melanoma diagnosis by comparing diverse primary melanomas with benign nevi.
Role: PI

Completed

1RO3CA173831-01 (Conway) 1/1/13 – 12/30/15
NIH/NCI
Detection of Tumor DNA in Plasma from Carolina Breast Cancer Study Patients
The goal is to conduct a pilot study to determine the feasibility of detecting hypermethylated tumor specific DNA in plasma from breast cancer patients in the CBCS and to evaluate clinical correlates.
Role: PI
$148,000 total

UCRF Innovation Award (Conway/Erie) 2/1/13 – 12/30/15
UNC Lineberger Comprehensive Cancer Center
Characterization of an epigenetic variant in the *MSH3* mismatch repair gene as a biomarker of chemoresistance in African American breast cancer cases
The goal is to assess expression and functional activity of MSH3 and other mismatch repair genes associated with an epigenotypic variant in MSH3, and to determine if the variant confers resistance to chemotherapies in breast cancer patients.
Role: PI
$191,410 total

2KR501307 (Conway) 01/01/2014 – 12/31/2014
NC TRACs Institute ($2K)
Identifying DNA methylation markers for breast cancer prognosis in the Carolina Breast Cancer Study
The goal is to identify a methylation-based prognostic signature for breast cancer in the CBCS.
Role: PI
$2,000 total

1R33CA160138-01 (Conway/Thomas, dual PIs) 10/1/11 - 9/30/14
NIH/NCI
High-Throughput DNA-Methylation Profiling from Fixed Melanocytic Tissues
The goal is to optimize and validate conditions for high-throughput DNA methylation profiling in formalin-fixed melanocytic tissues to facilitate clinical analysis of diagnostic specimens.
Role: PI
$999,083 total

KG081397 (Conway) 9/10/08 - 9/8/12
Susan G. Komen Foundation
Array-Based Gene Methylation Profiling for the Characterization of Breast Cancers in African American and White Women
The major goals of this project are to analyze gene promoter methylation profiles in the breast tumors of the Carolina Breast Cancer Study and to examine their correlations with clinical features, risk factors, tumor subtype and survival.
Role: PI
$599,779 total

1R21CA134368-01A (Conway/Thomas) 4/6/09 - 3/31/11
National Cancer Institute
DNA Methylation Profiling From Fixed Melanocytic Tissues
The goal is to determine whether FFPE tissues are a suitable source of DNA for high-throughput DNA methylation array profiling for selection of CpG sites that differ in methylation between melanomas

compared with benign nevi.
Role: PI
$176,148 total

Lineberger Comprehensive Cancer Center (Hair, advisee; Troester and Conway)
Developmental Research Award
Body mass index, breast cancer and the epigenome.
The goal of this project is to determine whether gene methylation is influenced by BMI status in non-diseased women, whether gene methylation correlates with gene expression, and whether the same methylation differences found in non-diseased women are present in women diagnosed with breast cancer.
Role: Co-PI
$48,601 total

LCCC Clinical Translation Research Award (Conway/Thomas) 3/1/08 – 2/28/09
Molecular Inversion Probe (MIP) Microarrays for Comparative Genomic Hybridization to Detect DNA Copy Number Alterations in Formalin-Fixed Human Melanomas
The goal is to develop the new SNP-based Affymetrix Molecular Inversion Probe (MIP) array assay to detect copy number changes in melanomas, with the eventual goal of utilizing this method for CGH in melanoma diagnostics.
Role: Co-PI
$46,048 total

Clinical Translational Research Award (Thomas) 1/1/07 - 1/1/08
Lineberger Comprehensive Cancer Center
Identification of Markers for Melanoma Diagnosis and Early Detection Using DNA Methylation Profiling
The goal for this work is to determine whether newly available high-throughput DNA methylation assays can identify patterns of methylation that can be used to discriminate melanoma from benign melanocytic lesions.
Role: Co-Investigator
$35,010 total

North Carolina Biotechnology Center (Conway) 1/1/07 - 1/1/08
Development of Affymetrix Molecular Inversion Probe Technology for Targeted High-Throughput Genotyping and Comparative Genomic Hybridization
To obtain an Affymetrix scanner upgrade to the Functional Genomics Core Facility to provide the capability to perform applications of the molecular inversion probe array technology.
Role: PI
$34,239 total

NCI – InterSPORE multi-institutional trial (Carey) 8/1/06 - 8/31/08
I-SPY2 - p53 Mutation Analysis to Predict Tumor Response in Patients Undergoing Neoadjuvant Treatment for Locally Advanced Breast Cancer
Evaluate p53 gene mutations using a combination of the Affymetrix p53 GeneChip, SSCP and sequencing in serial core biopsies from primary breast cancers prior to, during, and after conclusion of neoadjuvant chemotherapy with an anthracycline followed by a taxane with or without trastuzumab.
Role: Co-Investigator
$50,000 total

Clinical Translation Research Award (Conway) 7/1/06 - 6/30/07

Lineberger Comprehensive Cancer Center
Development of a Microarray-based "Cancer Mutation Chip" for the Detection of Specific Point Mutations in Human Tumors
Role: PI
$34,992 total

RO1 CA112243 (Thomas) 1/1/05 - 12/31/09
National Cancer Institute
Melanoma RAS/BRAF Mutations: Heterogeneity-Risk-Prognosis
This study aims to determine the population-based frequencies of NRAS and BRAF somatic mutations in melanomas in a large international cohort and their associations with histologic subtypes, known risk factors and prognostic indicators in melanoma.
Role: Co-Investigator
$2,500,000 total

1 RO1 CA92554-01A2 (Conway) 9/1/03 - 8/31/08
National Cancer Institute
Molecular Epidemiology of Smoking & Breast Cancer
The goal is to evaluate 800 invasive and 200 in situ breast tumors from the CBCS and CIS studies for LOH at chromosomal loci that are frequently deleted in both lung cancer and early forms of breast cancer, and that have been found to undergo preferential deletion in the lung tumors of smokers.
Role: PI
$873,000 total

DAMD17-02-1-0522 (Conway) 6/1/02 - 5/31/06
Department of Defense/Breast Cancer Research Program
Estrogen Receptor Alterations in Benign Breast Lesions and the Risk of Subsequent Breast Cancer
The aim of this study is to identify changes in estrogen receptors alpha and beta in benign breast tissues that may improve our ability to predict which women will develop breast cancer.
Role: PI
$435,716 total

DAMD 17-02-1-0521 (Carey) 8/1/02 - 7/31/07
Department of Defense/Breast Cancer Research Program
I-SPY1 - p53 Mutation Analysis to Predict Tumor Response in Patients Undergoing Neoadjuvant Treatment for Locally Advanced Breast Cancer
Evaluate p53 gene mutations using a combination of the Affymetrix p53 GeneChip, SSCP and sequencing in serial core biopsies from primary breast cancers prior to, during, and after conclusion of neoadjuvant chemotherapy with an anthracycline followed by a taxane with or without trastuzumab.
Role: Co-Investigator
$433,289 total

5-P50-CA58223-09A1 (Earp) 8/1/01 - 7/31/06
National Cancer Institute
(Conway; Project PI)
SPORE in Breast Cancer - Project 2: Carolina Breast Cancer Study: ER Alterations in Breast Cancer Development
Evaluate the immunohistochemical expression of ER-beta, ER-alpha, and the A908G mutation in ER-alpha in invasive and CIS breast tumors.
Role: Project 2 PI

$682,458 total

5-P50-CA58223-09A1 (Earp) 8/1/01 - 7/31/06
National Cancer Institute
SPORE in Breast Cancer - Project 5: Correlation of Molecular Markers with Response to Neoadjuvant Chemotherapy
To evaluate molecular and immunohistochemical markers in serial samples from primary breast cancers prior to, during, and after conclusion of neoadjuvant chemotherapy with an anthracycline followed by a taxane with or without trastuzumab.
Role: Project 5 Co-Investigator
$1,235,020 total

5-P50-CA58223-09A1 (Earp) 8/1/01 - 7/31/06
National Cancer Institute
SPORE in Breast Cancer - Core 1: Molecular Analysis and High Throughput Genotyping Core
The Molecular Core performs a wide range of PCR-based somatic genetic analyses on DNA obtained from formalin-fixed tumor sections and PCR-based genotyping on germline DNA purified from peripheral blood.
Role: Core 1 PI
$517,951

NCCU-UNC Planning Grant - Partnership in Cancer Research (Earp) 1/1/01-12/31/03
Pilot Project 1: Assay Development, and Resources and Infrastructure
The goal of Pilot Project #1 is for a team of investigators from the JLC-BBRI and the UNC Lineberger to develop and test assays to detect germline polymorphisms in genes that modulate androgen sensitivity and metabolism, and that have been previously found to be associated with increased risk of prostate cancer.
Role: Project Co-PI

5-P30-CA16086-27 (Earp) 12/1/99 - 11/30/04
National Cancer Institute
Cancer Center Core Support Grant - Molecular Epidemiology Core Facility
Core Facility to provide Molecular Epidemiological services to Cancer Center members.
Role: Co-Investigator

Lineberger Comprehensive Cancer Center (Conway) 7/1/99-6/30/00
Developmental grant
Estrogen Receptor Alpha and Beta Expression in Benign Breast Tissues and the Risk of Subsequent Breast Cancer
The goal of this study is to determine whether histologically normal breast epithelium of women who subsequently develop breast cancer demonstrates an increased or variant ER-α and ER-β content as measured by immunohistochemistry.
Role: PI
$25,000 total

NIH-ES-97-25 (contract) (Conway) 9/1/97-8/31/2002
National Institute of Environmental Health Sciences
Oncogene Analysis for Epidemiologic Studies
The goal of this contract is to provide molecular genetic analysis support for epidemiologic studies in collaboration with Dr. Jack Taylor at NIEHS.
Role: PI

$1,003,465 direct

RPG-97-110-01-CCE (Conway) 7/1/97 - 6/30/01
American Cancer Society
p53 Mutations in Benign Breast Lesions and Risk of Subsequent Cancer
The goal is to Investigate p53 mutations as a marker of risk of subsequent breast cancer in women diagnosed with benign breast disease.
Role: PI
$300,000

DAMD17-94-J-4053 (Conway/Baldwin) 7/1/94 - 6/30/98
Department of Defense/Breast Cancer Research Program
A Role for NF-kB/Rel Transcription Factors in Human Breast Cancer
The goal is to evaluate the role of NF-kappa B in breast cancer, including its potential interaction with alleles of the HRAS VNTR.
Role: Co-PI
$466,837 direct

PROFESSIONAL SERVICE

National

Peer Review Committees:

2015 Lineberger Comprehensive Cancer Center – UCRF grant review
2014 Lineberger Comprehensive Cancer Center – UCRF grant review
2013 Lineberger Comprehensive Cancer Center – UCRF grant review
2011 NCI Epidemiology study section, EPIC, special panel review
2010 Lineberger Comprehensive Cancer Center - population sciences small grant review
2008 NC TRACS - pilot project review
2006 UNC Center for Environmental Health and Susceptibility (CEHS) – pilot project review
2006 Army Medical Research Program in Breast Cancer, programmatic review
2003 Lineberger Comprehensive Cancer Center - developmental awards review
2003 NIH/NCI Epidemiology study section, EDC-2
2003 NIH/NCI Program Project review
2002 UNC Center for Environmental Health and Susceptibility (CEHS) – pilot project review
2000 Lineberger Comprehensive Cancer Center – clinical translation small grant review
1998 Epidemiology Study Section, Army Medical Research Program in Breast Cancer
1997 Epidemiology Study Section, Army Medical Research Program in Breast Cancer

Editorial boards, manuscript reviews:
Manuscripts reviewed for:

- Epigenetics
- PLOS One
- Cancer Epidemiology, Biomarkers & Prevention
- Breast Cancer Research
- Breast Cancer Research and Treatment
- Pigment Cell Melanoma Research
- Journal of Investigative Dermatology
- Cancer Research
- BMC Cancer

- Clinical Cancer Research
- Clinical Chemistry
- Biotechniques

Professional organizations:

American Association for Cancer Research
AACR Molecular Epidemiology Working Group
Delta Omega Honorary Public Health Society, Theta Chapter

Gillings School of Global Public Health

Data Security Task Force 2010-2011

Epidemiology Department

Laboratory Space Committee
Chair's Council

Lineberger Comprehensive Cancer Center

Director, Molecular Epidemiology Laboratory/Cancer Center Core Facility.
This core lab was established in 1992 as part of the first UNC Breast Cancer SPORE grant to support molecular epidemiologic and clinical translational studies of cancer using archival tumor specimens from population-based studies. Specializing in developing, optimizing and adapting technologies for use with formalin-fixed tissues, the lab has provided critical molecular support for epidemiologic and clinical translational studies of breast cancer, melanoma, head and neck cancer, bladder cancer, lung cancer that would otherwise have been impossible due to the challenging nature of these studies.