COURTNEY G. WOODS

135 Dauer Drive, CB 7431 • Chapel Hill, NC 27599
Phone (919) 962-4660 • courtney.woods@unc.edu

Lecturer
Department of Environmental Sciences and Engineering
Gillings Global School of Public Health
University of North Carolina at Chapel Hill

EDUCATION

Ph.D. Environmental Sciences and Engineering, minor in Toxicology — 2007
University of North Carolina at Chapel Hill
Advisor: Ivan Rusyn MD, PhD
Dissertation Title: Role of Nuclear-Receptor Independent Pathways in the Mechanism of Action of Peroxisome Proliferators

M.S. Chemical Engineering — 2003
Georgia Institute of Technology
Advisor: John D Muzzy, PhD
Thesis Title: Role of nano-articles on crystalline orientation in polypropylene/clay nanocomposite films

B.S. Chemical Engineering, minor in Materials Science & Engineering — 2001
University of Tennessee-Knoxville

PROFESSIONAL EXPERIENCE

Collaborating Faculty, Dept. of Health, Environment and Work, Universidade Federal da Bahia 2015-
Lecturer, Dept. of Environmental Sciences and Engineering, UNC- Chapel Hill 2012-
Research Investigator, Division of Computational Biology, The Hamner Institutes 2009-2011
Visiting Postdoctoral Fellow, Division of Computational Biology, The Hamner Institutes 2007 - 2009
Postdoctoral Fellow, Toxicology and Envr. Sciences, ExxonMobil Biomedical Sciences 2007 – 2009
Visiting Graduate Research Assistant, Nat'l Inst. of Envr. Health Sciences (NIEHS) 2003-2006

HONORS AND AWARDS

UNC Explorations in Global Health ($1500) 2016
UNC Global Partnerships Award ($1000) 2015
Newton Underwood Award for Excellence in Teaching (nominated by UNC ESE students) 2015
Fogarty Global Health Fellow 2014-2015
Fulbright Fellow 2014-2015
Faculty Research Int'l Travel Award, UNC Institute for the Study of the Americas 2013
Future Faculty Fellowship Program, UNC Center for Faculty Excellence 2012
FASEB Postdoctoral Professional Development and Enrichment Award 2008
NIEHS Toxicogenomics Research Consortium Meeting Best Poster Award 2004
Minority Trainee Research Forum Travel Award 2004
NSF-Sponsored Alliances for Graduate Education and the Professoriate (AGEP) Fellowship 2003
Georgia Tech School of Chemical Engineering Most Outstanding Teaching Assistant 2003
University of Tennessee Honors Program (with Honors Thesis) 1997-2001
Completed a 5-year Engineering B.S. & Co-op Program in 4 years 1997-2001

PUBLICATIONS

Book Chapters

Zhang Q, Bhattacharya S, Woods CG, Andersen ME. Ultrasensitive Response Motifs in Biochemical Networks. In :Krishnan, K., K., Andersen, M.E. (eds) Quantitative Modeling in Toxicology. 1st ed. John Wiley & Sons, Ltd.. 2010.

Refereed Articles

Northcross, AL, Woods, CG, Long, S, Barbaosa, N, Avila, E, Rêgo, RF. Assessing ambient air quality in a community near industrial sources in Bahia, Brazil. New Solutions (submitted Mar 2017)

Müller Jdos S, Falcão IR, Couto MC, Viana Wda S, Alves IB, Viola DN, Woods CG, Rêgo RF. Health-Related Quality of Life among Artisanal Fisherwomen/Shellfish Gatherers: Lower than the General Population. *Int J Environ Res Public Health*. 2016 May 5;13(5).

McMullen PD, Bhattacharya S, Woods CG, Sun B, Ross, SM, Miller ME, McBride M, LeCluyse, EL, Clewell RA, Andersen, ME. A map of the PPARα transcription regulatory network for primary human hepatocytes. *Chemico-Biological Interactions*. *2014.* 209:14-24.

Fu J, Zhang Q, Woods CG, Zheng H, Yang B, Qu W, Andersen ME, Pi J. Divergent Effects of Sulforaphane on Basal and Glucose-Stimulated Insulin Secretion in β-cells: Role of Reactive Oxygen Species and Induction of Endogenous Antioxidants. *Pharm Res*. 2013. 30(9):2248-59.

Xue P, Hou Y, Chen Y, Yang B, Fu J, Zheng H, Yarborough K, Woods CG, Liu D, Yamamoto M, Zhang Q, Andersen ME, Pi J. Adipose deficiency of Nrf2 in ob/ob mice results in sever metabolic syndrome. *Diabetes*. 2013 Mar;62(3):845-54.

Hou Y, Xue P, Woods CG, Wang X, Fu J, Yarborough , Qu W, Zhang Q, Andersen ME, Pi J. Association between arsenic suppression of adipogenesis and induction of CHOP10 via the endoplasmic reticulum stress response. *Environ Health Perspect*. 2013 Feb; 121 (2): 237-43.

Bhattacharya S, Shod LK, Zhang Q, Woods CG, Howell BA, Siler SQ, Woodhead JL, Yang Y, McCullen P, Watkins PB, Andersen ME. Modeling drug- and chemical- induced hepatotoxicity with systems biology approaches. *Front Physiol*.2013;3:462.

Yang B, Fu J, Zheng H, Xue P, Yarborough K, Woods CG, Hou Y, Zhang Q, Andersen ME, Pi J. Deficiency in the nuclear factor E2-related factor 2 renders pancreatic β-cells vulnerable to arsenic-induced cell damage. *Toxicol Appl Pharmacol*. 2012 Nov 1;264(3):315-23.

Zhan L, Zhang H, Zhang Q, Woods CG, Chen Y, Xue P, Dong J, Tokar EJ, Xu Y, Hou Y, Fu J, Yarborough K, Wang A, Qu W, Waalkes MP, Andersen ME, Pi J. Regulatory role of KEAP1 and NRF2 in PPARγ expression and chemoresistance in human non-small-cell lung carcinoma cells. *Free Radic Biol Med*. 2012 Aug 15;53(4):758-68.

Zhao R, Hou Y, Zhang Q, Woods CG, Xue P, Fu J, Yarborough K, Guan D, Andersen ME, Pi J.Cross-regulations among NRFs and KEAP1 and effects of their silencing on arsenic-induced antioxidant response and cytotoxicity in human keratinocytes. *Environ Health Perspect*. 2012 Apr;120(4):583-9.

Hou Y, Xue P, Bai Y, Liu D, Woods CG, Yarborough K, Fu J, Zhang Q, Sun G, Collins S, Chan JY, Yamamoto M, Andersen ME, Pi J. Nuclear factor erythroid-derived factor 2-related factor 2 regulates transcription of CCAAT/enhancer-binding protein β during adipogenesis. *Free Radic Biol Med*. 2012 Jan 15;52(2):462-72.

Xue P, Hou Y, Zhang Q, Woods CG, Yarborough K, Liu H, Sun G, Andersen ME, Pi J. Prolonged inorganic arsenite exposure suppresses insulin-stimulated AKT S473 phosphorylation and glucose uptake in 3T3-L1 adipocytes: involvement of the adaptive antioxidant response. *Biochem Biophys Res Commun*. 2011 Apr 8;407(2):360-5.

Zhao R, Hou Y, Xue P, Woods CG, Fu J, Feng B, Guan D, Sun G, Chan JY, Waalkes MP, Andersen ME, Pi J. Long isoforms of NRF1 contribute to arsenic-induced antioxidant response in human keratinocytes. *Environ Health Perspect*. 2011 Jan;119(1):56-62.

Fu J, Woods CG, Yehuda-Shnaidman E, Zhang Q, Wong V, Collins S, Sun G, Andersen ME, Pi J. Low-level arsenic impairs glucose-stimulated insulin secretion in pancreatic beta cells: involvement of cellular adaptive response to oxidative stress. *Environ Health Perspect*. 2010 Jun;118(6):864-70.

Zhang Q, Pi J, Woods CG, Andersen ME. A systems biology perspective on Nrf2-mediated antioxidant response. *Toxicol Appl Pharmacol*. 2010 Apr 1;244(1):84-97.
Pi J, Zhang Q, Fu J, Woods CG, Hou Y, Corkey BE, Collins S, Andersen ME. ROS signaling, oxidative stress and Nrf2 in pancreatic beta-cell function. Toxicol Appl Pharmacol. 2010 Apr 1;244(1):77-83.

Woods CG, Fu J, Xue P, Hou Y, Pluta, LJ, Yang L, Zhang Q, Thomas RS, Andersen ME, Pi J. Dose-dependent transitions in Nrf2-mediated adaptive response and related stress responses to hypochlorous acid in mouse macrophages (2009). *Toxicol Appl Pharm* 238(1):27-36.

Zhang Q, Pi J, Woods CG, Andersen ME. Phase I and II cross-induction of xenobiotic metabolizing enzymes: a feedforward control mechanism for potential hormetic responses (2009). *Toxicol Appl Pharm* 237 (3)345–356.

Ross PK, Woods CG, Bradford BU, Koysk O, Gatti DM, Cunningham ML, Rusyn I. Time course comparison of xenobiotic activators of CAR and PPARα in mouse liver (2009). *Toxicol Appl Pharm* .235(2):199-207.

Zhang Q, Pi J, Woods CG, Jarabek AM, Clewell HJ, Andersen ME. Hormesis and adaptive cellular control systems (2008). *Dose Response*. 6(2) 196-208.

Pi J, Zhang Q, Woods CG, Wong V, Collins S, Andersen ME. Activation of Nrf2-mediated oxidative stress response in macrophages by hypochlorous acid (2008). *Toxicol Appl Pharm.*226(3) 236-43.

Woods CG, Kosyk O, Bradford BU, Ross PK, Quo P, Ibrahim JG, Cunningham ML, Rusyn I. Time-course investigation of PPARα- and Kupffer cell-dependent effects of WY-14,643 in mouse liver using microarray gene expression (2007). *Toxicol Appl Pharm* .225(3) 267-77.

Beyer RP, Fry RC, Lasarev MR, McConnachie LA, Meira LB, Palmer VS, Powell CL, Ross PK, Bammler, TK, Bradford BU, Cranson AB, Cunningham ML, Fannin RD, Higgins GM, Hurban P, Kayton RJ, Kerr KF, Kosyk O, Lobenhofer EK, Sieber SO, Vliet PA, Weis BK, Wolfinger R, Woods

CG, Freedman JH, Linney E, Kaufmann WK, Kavanagh TJ, Paules RS, Rusyn I, Samson LD, Spencer PS, Suk W, Tennant RJ, Zarbl H; Members of the Toxicogenomics Research Consortium Multi-Center Study of Acetaminophen Hepatotoxicity Reveals the Importance of Biological Endpoints in Genomic Analyses (2007). *Toxicol Sci.* 99(1):326-37.

Porgribny IP, Tryndyak VP, Woods CG, Wiit SE, Rusyn I. Epigenetic effects of the continuous exposure to peroxisome proliferator WY-14,643 in mouse liver are dependent upon Peroxisome Proliferator Activated Receptor alpha (2007). *Mutat. Res.* 625(1-2):62-71

Woods CG, Burns AM, Bradford BU, Ross PK, Kosyk O, Swenberg JA, Cunningham ML, Holland, SM, Rusyn I. WY-14,643-induced cell proliferation and oxidative stress in mouse liver are independent of NADPH oxidase (2007). *Toxicol. Sci.* 98(2):366-74.

Woods CG, Vanden Heuval JP, Rusyn I. Genomic Profiling in Nuclear Receptor- Mediated Toxicity. (2007). *Toxicol Pathol*. 35(4):474-94.

Woods CG, Burns AM, Maki A, Bradford BU, Cunningham ML, Connor MD, Kadiiska MB, Mason, RP, Peters JP, Rusyn I. Sustained formation of alpha-(4-pyridyl-1-oxide)-N-tert-butylnitrone radical adducts in mouse liver by peroxisome proliferators is dependent upon peroxisome proliferator activated receptor-alpha, but not NADPH oxidase (2007). *Free Radic Biol Med*. 42(3):335-42.

Kono H, Woods CG, Maki A, Connor H, Mason R, Rusyn I, Fujii H. Electron spin resonance and spin trapping technique provide direct evidence that edaravone prevents acute ischemia-reperfusion injury of the liver by limiting free radical-mediated tissue damage (2006)**.** *Free Radic Res.* 40(6):579-88.

Non-referred Articles

Woods, CG, Muzzy, JD. Role of nanoparticles on crystalline orientation in polypropylene/clay nanocomposite films (2003). Society of Plastics Engineers Annual Technical Conference. 2: 2205-09.

KEY REFEREED ABSTRACTS *Contributions to over 35 conference abstracts*
Establishing Equitable Partnerships in Community-based Environmental Justice Research, International Society of Environmental Epidemiology 27th Annual Conference, São Paulo, Brazil (2015); *Symposium Chair*

Constructing a PPARα-mediated Transcriptional Network in Primary Human and Rat Hepatocytes. Society of Toxicology 50th Annual Meeting, Washington, DC (2011)

Organizing a PPARα- mediated Transcriptional Network in Primary Hepatocytes. Keystone Symposium on Nuclear Receptors: Signaling, Gene Regulation and Cancer, Keystone, CO (2010).

Regulatory role of kinase signaling in Nrf2-mediated antioxidant response. The European Nutrigenomics Organisation Meeting, Montecatini Terme, Italy (2009)

Toxicogenomic analysis of cardiovascular effects of diesel engine exhaust in ApoE-/- mice. Society of Toxicology 48th Annual Meeting, Baltimore, MD (2009)

Regulatory mechanis of Nrf2 activation by hypochlorous acid and concomitant activation of inflammatory pathways. Society of Toxicology 47th Annual Meeting, Seattle, WA (2008).

Role of nuclear receptor-independent mechanisms in long-term effects of nongenotoxic hepatocarcinogens. Conference on Current and Future Challenges in Envr. Health, Toxc., and Food Safety in Eastern and Central Europe, Kiev,Ukraine (2006).

Toxicogenomic analysis of nuclear receptor-mediated and nuclear receptor-independent responses to peroxisome proliferators. Society of Toxicology 45th Annual Meeting, New Orleans, NC (2005).

GRANTS & FUNDING

Submitted

NIEHS **(**1R21ES028402-01) Woods (Co-PI) Oct 2016
Investigation of lung function and stress response in adults exposed to odorous sulfur pollutants
Direct Costs: $275,000

Active

UJMT Fogarty Global Health Program Woods (PI) 2014-2017
Uncovering Petrogenic Pollutants in Brazil by Air Monitoring and Health Impact Assessment (UPPBAHIA)
Direct Costs: $76,510

Fulbright Commission Woods (PI) 2014-2015
Fulbright-Brazil Scientific Mobility
Total Direct Cost: $27,250

UNC Center for Faculty Excellence Woods 2014
Support for a Graduate Teaching Fellow to support ENVR 600
Total Direct Cost: $5000

Prior

UNC Center for Faculty Excellence Woods (PI) 2013
CFE 100+ Initiative: Engaging Students in Large Classes
Total Direct Cost: $5000

The goal of this teaching grant is to harmonize the content of the online and face-to-face course on Environment Health, which annually enrolls over 500 students in the UNC School of Public Health. The course redesign will implement video lectures, interviews with public health practioners (with podcast subscription) and and studio discussions, in which groups of 25 or fewer students will engage in focused discussions that are facilitated by teaching assistants.

NIEHS (F31 ES013342) Woods (PI) 2004-2007
Peroxisome Proliferator-Induced DNA Damage and Repair
Total Direct Cost: $93,945

The goal of this individual predoctoral NRSA project was to identify the cellular sources of oxidants in liver that are produced following exposure to peroxisome prolifators, a class of nongenotoxic rodent carcinogens. Additionally, the research project would elucidate the role that source-specific oxidants played in acute and chronic liver pathology.

MENTORING AND TEACHING

Thesis Advisor

Lívia Gonçalves (co-advisor)	MS, PPGSAT (UFBa)	Spring 2017

Committee Member

Frank Stillo, III	PhD, ENVR (UNC)	Spring 2018
Zahra Al Hamdani	PhD, ENVR (UNC)	Spring 2018
Chelsea Fizer	MS, ENVR (UNC)	Spring 2016
Wendel Viana	MS, PPGSAT (UFBa)	Spring 2015
Juliana Muller	MS, PPGSAT (UFBa)	Spring 2015
Dan Rosenbaum	MS, ENVR (UNC)	Spring 2014
Jennifer Casanova	MSPH, ENVR (UNC)	Spring 2013

Practicum and Independent Study

Shelby Rimmler	MS, HBEH & PLAN (UNC)	Spring 2017
Sarah Shaughnessy	MS, HBEH& PLAN (UNC)	Spring 2017
Sarah Shaughnessy	MS, HBEH & PLAN (UNC)	Summer 2016

Undergraduate Research

Nicholas Hastings	BS, AMST (UNC)	Spring 2017

Instructor

UNC	ENVR 600	Intro to Environmental Health	Fall & Spring 2013-2016, Spring 2017
UNC	ENVR 610	Global Environmental Health Inequities	Fall 2013-2014; Spring 2016-2017
UNC	ENVR 698	Ethics and Environmental Health Interventions	Spring 2017
UNC	ENVR 890-001	Community Driven-Research and Environmental Justice	Spring 2017
UNC	ENVR 890	Independent Study (Qualitative Research with EJ Communities)	Spring 2017
UFBa	MEDB73	Special Topics in Epidemiology: Global Perspectives on Environmental Health Inequities (co-instructor)	Spring 2015
The Hamner		Systems Biology & Dose Response Modeling Course (co-instructor)	Fall 2008

Guest Lecturer

UNC	SPHG 710	Foundations of Public Health Practice	Summer 2016
UFBa	PPGSAT	Department Seminar Series	Summer 2014
UNC	PUBH 756	Understanding & Addressing Health Disparities in the US	Spring 2014
UNC	ENVR 442	Biochemical Toxicology	Fall 2010

Pedagogy Training

Workshops at UNC Center for Faculty Excellence 2012-2013
- eQuality Essentials (8 wk course for online instructors)
- Evaluating Student Learning in Large Classrooms

Flipping the Classroom
Lesson Planning
Creating Dynamic Syllabi
Creating Effective Assignments
Course Development Institute on Service Learning
Redesigning and Planning Your Next Course

Future Faculty Fellowship Program (week-long training program) 2012
Institute for Teaching and Mentoring, Southern Regional Education Board 2003, 2007

SERVICE

University

Member, UNC Committee for Women and Minority Student Recruitment & Retention 2006

School of Public Health

MPH Core Implementation Committee 2016- Present
Advisory Board Member, ECHO Health Disparities Certificate Program 2013-Present
Co-advisor, GlobeMED Student group 2013-2014
Member, Advisory Committee for Summer Fellowship Programs 2012-2014

Environmental Sciences and Engineering Department

Member, ESE Academic Program Committee 2012-Present
Member, Research Faculty Search Committee 2012

Scientific Community and Professional Organizations

Review Editor, Frontiers in Toxicogenomics 2011-Present
Ad hoc Reviewer
Toxicology and Applied Pharmacology Journal
Oxidative Medicine and Cellular Longevity
Drug and Chemical Toxicology Journal
Toxicological Sciences Journal
Postdoc Representative, Mechanisms Specialty Section, Society of Toxicology 2008-2009
President, PostDocs and Graduate Students (PDoGS) Organization, Hamner Institutes 2008-2009

PROFESSIONAL ORGANIZATIONS

Society of Toxicology (SOT) 2004-Present
International Society of Environmental Epidemiology (ISEE) 2014-Present
Society of Risk Analysis (SRA) 2016-Present

LANGUAGES

English: native language
Portuguese: intermediate (speaking, reading, writing, comprehension)