COURTNEY G. WOODS

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Assistant Professor
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

Assistant Professor (clinical track), Dept. of Envr Sci. and Engr.,UNC-Chapel Hill	Sept 2017- Present
Program Director, MPH in Environmental Sciences and Engineering	Sept 2017- Present
Program Co-Lead, MPH in Health Equity, Social Justice and Human Rights	Feb 2018- Present
Collaborating Faculty, Dept. of Health, Environment and Work, Federal Univ. of Bahia	2015- Present
Lecturer, Dept. of Environmental Sciences and Engineering, UNC- Chapel Hill	2012-2017
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

Thorp Faculty Engaged Scholar, Class VII ($10,000)	2018-2020
Steve Wing International Environmental Justice Award	2017
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 *Corresponding Author

McMullen, PD, Bhattacharya, S, Woods, CW, Pendse SN, McBride, MT, LeCluyse, EL, Clewell, RA, Melvin E. Andersen, ME. Identifying qualitative differences in PPARα signaling networks in human and rat hepatocytes and their significance for next generation chemical risk assessment methods. (submitted to Toxicology In Vitro Oct 2018)

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. (submitted to New Solutions July 2018)

Guidry, VT, Rhodes, SM, Woods, CG*, Hall, DJ, Rinsky, JL. Connecting Environmental Justice and Community Health Effects of Hog Production in North Carolina. *NCMJ*. 2018. 79 (5): 324-328.

Müller JDS, Falcão IR, Couto MCBM, Viana WDS, Alves IB, Viola DN, Woods CG, Rêgo RCF.Artisanal fisherwomen/shellfish gatherers: analyzing the impact of upper limb functioning and disability on health-related quality of life.Cien Saude Colet. 2017. 22(11):3635-3644.

Müller JDS, Falcão IR, Couto MC, Viana WDS, Alves IB, Viola DN, Woods CG, Rêgo RCF. Health-Related Quality of Life among Artisanal Fisherwomen/Shellfish Gatherers: Lower than the General Population. *Int J Environ Res Public Health*. 2016. 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

Current

UNC Carolina Center for Public Service Woods (PI) 2018-2020
Thorp Engaged Scholar
Direct Costs $10,000

North Carolina Area Health Education Centers (NC AHEC) Woods (PI)
Enhancing Health Equity in Public Health Education and Practice 2018-2019
Direct Costs: $40,000

Prior

Schmidt Family Foundation Woods (PI) 2017-2018
11th Hr Project Student Fellowship –Adrien Wilkie
Direct Costs: $37,120

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

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

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

TEACHING

Instructor

UNC IDST 190-004	The Environment, Intersectionality and Sci Fi/Fantasty Film & Lit	Spring 2019
UNC ENVR 989	Environmental Crisis Mgmt	Summer 2018, Spring 2019
UNC ENVR 890-001	Community Driven-Research and Environmental Justice	Spring 2017- 2019
UNC SPHG 713	Understanding Public Health Issues	Fall 2018
UNC ENVR 600	Intro to Environmental Health	Fall and Spring 2013-2019
UNC ENVR 610	Global Environmental Health Inequities	Fall 2013-2018
UNC ENVR 698	Ethics and Environmental Health Interventions	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

NCSU TOX 701	Fundamentals of Toxicology	Fall 2018
UNC HBEH 700	Foundations of Health Behavior	Fall 2017
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

MENTORING

Thesis Advisor

Aleah Walsh	MS, ENVR (UNC)	Spring 2020
Lívia Gonçalves (co-advisor)	MS, PPGSAT (UFBa)	Spring 2017

Committee Member

Diamond Holloman	PhD, ENEC	ancipated Spring 2020
Adrien Wilkie	PhD, EPID (UNC)	ancipated Spring 2020
Frank Stillo, III	PhD, ENVR (UNC)	ancipated SP 2019
Blake Fulton	MSPH, ENVR (UNC)	Fall 2018
Sarah Long	MS, ENVR& DCRP (UNC)	Fall 2018

Yashvi Patel	MSEE, ENVR (UNC)	Summer 2018
Lindsay Wickersham	MS, ENVR (UNC)	Spring 2018
Allie George	MS, 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

Brandie Banner	MSPH, ENVR (UNC)	Fall 2017, Spring 2018
Shelby Rimmler	MS, HBEH	Spring 2017- Present
Sarah Shaughnessy	MS, HBEH & PLAN (UNC)	Spring 2017, Summer 2016

Undergraduate Research

Alexus Berndt	BS, Marine Sciences (NCSU)	Spring 2019
Nicholas Hastings	BS, AMST (UNC)	Spring 2017

SERVICE

Scientific Community and Professional Organizations

NIOSH Training Grant Program Review Panel 2018
Review Editor, Frontiers in Toxicogenomics 2011-2015
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

University

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

Gillings School of Public Health

Applied Practice Experience and Integraged Learning Experience Subcommittee 2018-Present
Workforce Development 2017- Present
MPH Core Implementation & Development Committees 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 Admissions Committee 2017-Present
Member, ESE Academic Programs Committee 2012-Present

Local Community

Volunteer, NC Parks and Recreation, Weaver Street Rec Center 2017- present

Founding Member, Earthseed Land Cooperative	2012- present
Board of Directors (2013) & Planning Committee (2010), NC Environ. Justice Network	2010- present
Group Leader, Durham Angoleirx Capoeira Angola Study Group	2010- present

PROFESSIONAL MEMBERSHIPS

Society of Toxicology (SOT)	2004-Present
International Society of Environmental Epidemiology (ISEE)	2014-2016
Society of Risk Analysis (SRA)	2016-2017

LANGUAGES

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