Curriculum Vitae

John Wilkinson IV

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304/696-3700 (Office) -3701 (Laboratory)

BIOGRAPHICAL

D.O.B: 15 August 1962

EDUCATIONAL TRAINING

Boston University School of Medicine Boston, MA.	Ph.D. May, 1996	Microbiology
Simon's Rock Early College Great Barrington, MA.	Bachelor of Arts, June 1984 (Honors Thesis)	Natural Sciences

RESEARCH INTERESTS

Oxidative Stress • Chemoprevention • Transsulfuration Pathway • Breast and Colon Cancer Experimental Therapeutics • Nutrition (Cholesterol, Lipid, and Iron Metabolism) • Transgenic Models

PROFESSIONAL EXPERIENCE

Jan 2007 to Present — Marshall University Joan C. Edwards School of Medicine, Department of Anatomy and Pathology

Assistant Professor of Anatomy and Pathology. I am using my transgenic model to study the impact of oxidant stress in chronic diseases, as well as various questions in iron biology.

July 2001 to Dec 2006 — Wake Forest University School of Medicine, Department of Cancer Biology

Research Assistant Professor of Cancer Biology. I have been developing a transgenic model system to enable temporal and tissue-specific control of ferritin expression *in vivo*. Ferritins impact on iron metabolism in vivo and its ability to modulate oxidant stress and oxidant stress related disease what we hope to determine. In addition, I have took a minor role in managing the general research activities at the Torti lab.

1999 to July 2001 — Wake Forest University School of Medicine, Department of Cancer Biology

Postdoctoral Fellow in the laboratory of Dr. Frank Torti, Director of the Comprehensive Cancer Center, and Chair of the Department of Cancer Biology. Research in the field of chemoprevention, focusing on the role of AP-1 in the antioxidant response, including ferritin H regulation, using *in vitro* systems and a c*fos* transgenic model.

1996 to 1999 — Fox Chase Cancer Center, Division of Population Science

Postdoctoral Associate and **Postdoctoral Fellow** in the laboratory of Dr. Margie L. Clapper, Associate Member, Division of Population Science, Fox Chase Cancer Center. Research in the field of chemoprevention, investigating the (techniques) **i**) regulation of mGSTμ1 (luciferase reporter constructs, northern, western analysis), **ii**) transcriptional response to the chemoprotective inducer oltipraz (northern blot, ATLAS™ gene array), **iii**) identification of ras mutations (DGGE), and **iv**) role of Fos in the basal expression of Phase II detoxication enzymes (enzymatic, western, northern analysis, routine cloning)

1989 -1996 Boston University School of Medicine, Department of Microbiology
Graduate Student conducting research with Dr. Selwyn A. Broitman, Professor of Microbiology/ Pathology, and Assistant Dean of Admissions at Boston University School of Medicine. Responsibilities have ranged widely and include **i**) development of extensive tissue culture experience, **ii**) conducting such animal surgeries as tumor implantations (colon, liver, spleen, in nude and normal mice) and Kupffer cell isolations (rats), **iii**) conducting biochemical studies including ras western blots, extensive TLC studies, isolation of membrane proteins, and ^{125}I-LDL receptor binding, cholesterol synthesis, and HMGCoA reductase activity assays, **iv**) development of familiarity with gas chromatography, and high pressure liquid chromatography, and **v**) assistance in the planning, and preparation of several grant application manuscripts to the NIH, ACS, and AICR. In my doctoral thesis I investigated the mechanisms responsible for colonic adenocarcinoma growth inhibition by lovastatin and perillyl alcohol *in vitro* and *in vivo*.

1987-1989 Boston University School of Medicine, Department of Microbiology
Research Technician conducting research with Dr. Broitman. Responsibilities were similar to those described above, and included keeping laboratory accounts. Research focused on the relationship between fish oil nutriture and colon cancer growth.

TEACHING EXPERIENCE

RECURRENT MEDICAL STUDENT TEACHING RESPONSIBILITIES

Course: Medical Cell and Molecular Biology (IDM 720)

Fall 2010 *Eight Lectures:* Organelles and Molecular Trafficking 1, 2, & 3, (3 hrs), Cytoskeleton I, 2, 3 (3 hrs), and Electron Transport and Oxidative Phosphorylation 1, 2 (2hrs).

Fall 2009 *Six Lectures:* Organelles and Molecular Trafficking 1, 2, & 3, (3 hrs) and Cytoskeleton I, 2, 3 (3 hrs).

Fall 2008 *Six Lectures:* Organelles and Molecular Trafficking 1, 2, & 3, (3 hrs) and Cytoskeleton I, 2, 3 (6 hrs).

Fall 2007 *Three Lectures*: Organelles and Molecular Trafficking 1, 2, & 3. (3 hrs)

RECURRENT GRADUATE TEACHING RESPONSIBILITIES

Fall 2010 **Course**: Cellular and Molecular Biology
Five Lectures: Organelles and Molecular Trafficking 1, 2, (2 hrs) and Cytoskeleton I, 2, & 3 (3 hrs).

Fall 2009 *Five Lectures*: Rough ER and Golgi, Smooth ER and Mitochondria (2 hrs) and Cytoskeleton I, 2, 3 (3 hrs).

Fall 2008 *Six Lectures***:** Organelles and Molecular Trafficking 1 & 2 (2 hrs) and Cytoskeleton I, 2, 3 (3 hrs).

Fall 2007 *Six Lectures*: Oxidative Phosphorylation (2 hrs)
Cholesterol and Bile Acid (1 hrs)
Organelles and Molecular Trafficking 1 & 2 (2 hrs)
Histones and Nitrogen Metabolism (1 hrs)

Winter 2009 **Course:** Cancer Biology
Two Lectures: Cancer Progression and the Vogelstein Model
Chemical Carcinogens and Cellular Defenses

RECURRENT TEACHING RESPONSIBILITIES AT WAKE FOREST UNIVERSITY SCHOOL OF MEDICINE

2002 - 2006 Department of Cancer Biology
Course: CARCINOGENS, DNA DAMAGE and REPAIR (CB 701)
Lecture "Transgenic Model Systems." 1.5 hrs.

2002- 2006 Department of Cancer Biology
Course: CANCER BIOLOGY JOURNAL EVALUATION (CB 712)

2001 - 2006 Department of Cancer Biology
Course: MOLECULAR PATHOGENESIS OF CANCER (CB 703)
Lecture "Vogelsteins Model of Colon Cancer Progression." 1.0 hrs

RECURRENT TEACHING RESPONSIBILITIES AT BOSTON UNIVERSITY SCHOOL OF MEDICINE

1993-1994 Department of Microbiology, **Laboratory Instructor**, Student Microbiology labs.
Multiple Lectures: covering entire semester.
Course: Medical Microbiology.

1991-1994 Department of Microbiology, **Teaching Assistant**, Student Microbiology labs.
Course: Medical Microbiology.

THESIS AND EXAMINATION COMMITTEES

I served on two thesis committees at WFUSM

1. **Member**, Ph.D. Thesis Committee. Stephanie Dance, Cancer Biology Dept., Meetings (2-3 hrs each) on: 3/4/04 (Prelim), 9/23/04 (Qualifying Exam), 1/13/2005 (First Research Report), 11/15/05 (Second Research Report), 7/31/07 (Dissertation Defense).

2. **Chair**, Ph.D. Thesis Committee Mebrahtu Sibhatu, Biochemistry Dept., Meetings (2-3 hrs each) on Early – Mid 2005 (Prelim), 9/2/2005 (Qualifying Exam), Summer 2006 (First Research Report), Sept 2007 (Dissertation Defense).

I currently serve on two Ph.D. thesis committees at MUSOM:

3. **Member**, Ph.D. Thesis Committee. Anne Silvis, Cancer Biology Cluster, Meeting (2 hrs each) on: 8/9/07 (Prelim), 10/31/09 (Grant Exam Oral Defense), 12/5/08 (First Post-Exam Meeting), 6/1/09 (Research Report), 6/29/10 (Research Report).

4. **Member**, Ph.D. Thesis Committee. Joeseph Adam Hall, Cell Development Cluster, Meeting (2 hrs each) on: 7/27/07 (Prelim), 5/14/08 (Research Report and Prelim II), 4/9/09 (Oral Exam).

HONORS, AWARDS, & PROFESSIONAL MEMBERSHIPS:

2008 **Member**, Educators Academy, Marshall University School of Medicine

2005 **Active Member** of the American Association for Cancer Research, 2005-??.

2003 **Member**, International BioIron Society, 2005-present.

2002 **Member**, Comprehensive Cancer Center, Wake Forest University School of Medicine.

2001 **Member**, East Coast Iron Club, 2001-present.

1999 Recipient, **Post-Doctoral Fellowship**, "Role of c-Fos in the Chemoprotective Antioxidant Response." Administrator: Cancer Research Foundation of America. Term: 1999-2001

1996 Recipient (**1st Prize**, Microbiology) of **Henry I. Russek Award for Student Achievement**

1995 **Associate Member** of the American Association for Cancer Research, 1995-2004.

1994 Oncobiology **Training Grant recipient** for independent research on the relationship between cholesterol metabolism and colon cancer.

1993 Recipient of **Graduate Student Award** for research into the relationship between proliferation and low density lipoproteins in colonic adenocarcinomas.

1984 **Honors** for Senior Thesis Project in Microbial Ecology at Simon's Rock Early College.

1979 **Finalist** in the National Merit Scholarship Program.

EXTRAMURAL AND INTRAMURAL GRANT SUPPORT

PENDING SUPPORT

RFA-RR-08-007 07/01/10 to 06/30/15,
NIH $30,000 yearly direct
Center for Biomedical Research Excellence in Nutrition and Cancer
Developmental Project within COBRE: Impact of Red Meat and Iron on Mammary Tumorigenesis in the C3(1)TAG Model

The goal of this project is to determine if iron delivered as heme in red meat impacts the development of mammary tumors in a transgenic T antigen driven tumorigenesis model.

My role is as PI of the Developmental Project, coordinating and conducting the studies.

ACTIVE SUPPORT

1R21CA133701-01A2 (Wilkinson, Sollars) 1/01/2010 to 12/31/2011 30% effort
NIH/NCI $176,168 yearly, $323,493 total
PA06-270 MECHANISMS OF ALCOHOL-ASSOCIATED CANCERS (R21)
Alcohol and Iron Derived Oxidant Stress Impact Epigenetic Regulation

The goal of this project is to determine if iron and ethanol impact epigenetic regulation via the transsulfuration pathway in the liver.

Overlap: None

COBRE External Advisory Committee 10/1/2008 - 7/31/2010
(Internal Grant) $15,000
Developing the C3(1)TAG Model to Study Ethanol Induced Changes in Mammary Tumorigenesis

The goal of this project overlaps with the proposed COBRE Junior Project: this is a seed internal grant to help "jump-start" the work and provide preliminary data.

COMPLETED AWARDS

Cellular Differentiation and Development Center 3/1/2008 -2/28/2009 (extended)
(Internal Grant) $20,000 total

Hepatic Labile Iron and Oxidant Stress: In Vivo Response to Ferritin

The goal of this project is to determine the impact of transgenic ferritin expression in the liver.

Overlap: None

1 RO1 CA101829-01A2 (Drotschmann/Scarpinato) 1/1/2005 –12/31/2009 10 % effort

NIH/NCI $205,000, yearly, $881,000 Total.
Repair Proteins: Interface between Cell death & Survival

The goal of this project is to determine the mechanistic role of mismatch repair proteins in chemotherapy-induced apoptosis . My role (10% effort) was to assist in the use of the tetracycline based model system. This role was completed in Dec, 2006.

1 K01 DK065876-03 (Wilkinson) 3/1/2004 – 11/30/2006 90% effort
NIH/NIDDK $112,644 yearly, $337,932 Total
Transgenic Ferritin Impacts Iron and Oxidant Stress.

The major goals of this project were to determine the impact of increased ferritin expression in the target organs on cellular and systemic iron metabolism.

OTHER PROFESSIONAL ROLES OF RESPONSIBILITY

2009 *Ad Hoc* **Reviewer**, Division of Molecular & Cellular Biosciences, NSF

2008 **Member**, IACUC, Marshall University School of Medicine. Term: Jan, 2008 – present.

2008 **Judge** (Clinical Science, oral presentations), Research Day 2008, Marshall University School of Medicine.

2007 **Judge** (Clinical Science, oral presentations), Research Day 2007, Marshall University School of Medicine.

2007 **Judge** (poster presentations), Sigma Xi Event, 2007, Marshall University School of Medicine.

2005 **Chair**, "Iron and Disease" Session, East Coast Iron Club, University of Pennsylvania.

2004 **Member**, Committee for Mentoring Evaluation (K. Drotschmann, Chair). We evaluated mentoring roles and responsibilities in the department. We produced mentoring guidelines and established the process of mentor evaluation by trainees within the department.

2004 **Member**, Barrier Committee, Animal Resources Program, Wake Forest University School of Medicine. Principal architect of new room entry procedures designed to maintain the integrity of the specific pathogen free barrier facility. Term: 2004-2006.

BIBLIOGRAPHY

ARTICLES

** Andrea D. Belalcázar, John G. Ball, Leslie M. Frost, Monica A. Valentovic, and John WilkinsonIV. **Transsulfuration is a significant source of sulfur for glutathione production in human mammary epithelial cells**. *Submitted to Metabolism*

Jiao Y, Wilkinson J 4th, Di X, Wang W, Hatcher H, Kock ND, D'Agostino R Jr, Knovich MA, Torti FM, Torti SV. **Curcumin, a cancer chemopreventive and chemotherapeutic agent, is a biologically active iron chelator**. Blood. 2009 Jan 8;113:462-9.

Wilkinson J. IV, Xiumin, D., Schönig, K., Buss, J.L., Kock, N.D., J. Mark Cline, Saunders, T.L., Bujard, H., Torti, S.V., and Torti, F.M. **Tissue-specific expression of ferritin H regulates cellular iron homeostasis *in vivo*. Biochem J, 395:501-507, 2006.

Yan Jiao, John Wilkinson IV, E. Christine Pietsch, Joan L. Buss, Roy P. Planalp, Frank M. Torti, Suzy V. Torti. **Iron chelation in the biological activity of curcumin.** Free Rad. Biol. Med., 40:1152-60, 2006.

John Wilkinson IV, E. Christine Pietsch, Suzy V. Torti, and Frank M. Torti. **Ferritin Regulation By Oxidants and Chemopreventive Xenobiotics. Adv. Enzyme Regul. 43:135-151, 2003. *(Review)*.

Greene, B.T., Thorburn, J., Thorburn, A., Planalp, R.P., Brechbiel, M.W., Jennings-Gee, J., Wilkinson J. IV, Torti, F.M. and Torti, S.V., **Activation of Caspase Pathways during Iron Chelator-Mediated Apoptosis** J Biol Chem 277(28):25568-25575, 2002.

Ruggeri, B.A., Robinson, C., Angeles, T., Wilkinson, J. IV, and Clapper, M.L. **The Chemopreventive Agent Oltipraz Possesses Potent Anti-Angiogenic Activity In Vitro, Ex Vivo, and In Vivo, and Inhibits Tumor Xenograft Growth.** Clin. Cancer Res. 8: 267-274, 2002.

Cerda, S., Wilkinson, J., Branch, S.K., and Broitman, S.A. **Enhancement of Sterol Synthesis by the Monoterpene Perillyl Alcohol is Unaffected by Competitive HMGCoA Reductase Inhibition.** Lipids 34:605-615, 1999.

Cerda, S., Wilkinson, J., Thorgeirsdottir, S., and Broitman, S.A. **Perillyl Alcohol Induced Cell Cycle Changes , Altered Actin Cytoskeleton, and Decreased Ras and p34^{cdc2} expression in Colonic Adenocarcinoma SW480 Cells** J Nut. Biochem. 10:19-30, 1999.

Wilkinson, J. IV, Radjendirane, V., Pfeiffer, G., Jaiswal, A.K., and Clapper, M.L. **Disruption of c-Fos leads to increased expression of NAD(P)H:quinone oxidoreductase and glutathione S-transferase.** Biochem. & Biophys, Res. Comm. 253:855-858, 1998.

John Wilkinson, IV and Margie L. Clapper **Detoxication Enzymes and Chemoprevention**. Proc. Soc. Exp. Bio. Med. 216:192-200, 1997. (*Review*)

Selwyn .A. Broitman, John Wilkinson IV, Sonia Cerda, Steven K. Branch. **Effects of Monoterpenes and Mevinolin on Murine Colon Tumor CT-26 *in vitro* and its Hepatic "Metastases" *in vivo***. Adv. Exp. Biol. Med., 401:111-130, 1996.

Cerda, S., Wilkinson, J. IV, and Broitman, S.A. **Regulation of cholesterol synthesis in 4 colonic adenocarcinoma cell lines**. Lipids, 30:1083-1092, 1995.

Selwyn A. Broitman, Sonia Cerda, and John Wilkinson IV, **Cholesterol Metabolism and Colon Cancer**. Prog. Food Nut. Sci., 17:1-40, 1993. (*Review*)

**** denotes publication where John Wilkinson is *corresponding* author

TECHNICAL ILLUSTRATION

John Wilkinson IV, Pathways in Biochemistry: **Lipoprotein Metabolism**. J. Nutritional Biochem, May, 1990.

SPEAKING ENGAGEMENTS

"Transgenic Ferritin Affects Iron Homeostasis", presented in mini-symposia at the International Bio-Iron Meeting, Hilton Hotel, Prague, Czech Republic, May, 2005.

"Cholesterol Metabolism and Colon Cancer", seminar presented to the Microbiology Department at the State University of New York, Binghamton, NY, 1995 (honorarium).

ABSTRACTS:

Development of a Murine Ferritin H Transgenic Model J. Wilkinson IV, S.V. Torti, F.M. Torti. Wake Forest University School of Medicine, Department of Cancer Biology (JWIV, FMT) and Department of Biochemistry (SVT). Presented at the World Congress on Iron Metabolism BioIron 2003, Washington DC, May 4-9, 2003.

C*fos* and Oltipraz Effect Ferritin Expression *in vivo*. John Wilkinson IV, Eva Christine Pietsch, Lynette C Everley, Margie Lee Clapper, Suzy V Torti, Frank M Torti, Wake Forest University School of Medicine, Winston-Salem, NC (JWIV, ECP, SVT, FMT); Fox Chase Cancer Cancer, Philadelphia, PA (LCE, MLC). Presented at the World Congress on Iron Metabolism BioIron 2001, Cairns, Queensland, Australia, August, 2001.

Effect of cfos Genotype and Oltipraz Treatment on Phase II Protein Expression in Mice. John Wilkinson IV, Lynette C. Everley, Gordon R Pfeiffer, E. Christine Pietsch, Margie L. Clapper, Suzy V. Torti, Frank M Torti. Proceedings of the American Association of Cancer Research, 42:1114 March, 2001.

Effect of oltipraz on the expression multiple genes(n=588) in ICR/Ha mice. Wilkinson, J. IV, Pfieffer, G., Everley, L.E., and Clapper, M.L. Proceedings of the American Association of Cancer Research, 40:1731 April, 1999.

Effects of *fos* and *jun* Transcriptional Factor Loss on the Basal Activity and Protein Expression of Specific Phase II Detoxication Enzymes. J. Wilkinson IV, R. Venugopal, G. Pfieffer, A. Jaiswal, and M.L. Clapper. Proceedings of the American Association of Cancer Research, 39:3327, March, 1998.

Diminished compensation of total HMGCoA reductase specific activity to mevinolin inhibition in CT26 colon tumors implanted in the liver and in normal colonic cells of the BALB/cByJ mouse. Branch, S.K., Wilkinson IV, J., Fanton, C., and Broitman, S.A. Proceedings of the American Association of Cancer Research, 38:417, April, 1997.

Perillyl alcohol, with and without mevinolin, differentiates SW480 colon carcinoma cells. Fanton, C., Wilkinson IV, J., and Broitman, S.A. Proceedings of the American Association of Cancer Research, 38:588, April, 1997.

Concurrent inhibition of ras expression and tumor growth in CT26 spleno-hepatic liver "metastases" by the mevinolin (MV) and the monoterpene limonene (LE) Wilkinson IV, J., Cerda, S., Cerda, S.R., Branch, S.K., Fanton, C., and Broitman, S.A. Proceedings of the American Association of Cancer Research, 38:643, April, 1997.

Effects of monoterpene perillyl alcohol (PA) and inhibitor mevinolin (MV) on hydroxymethylglutarylcoenzymeA reductase (HMGCoAR) in various *in vitro* systems. J. Wilkinson IV, S.K. Branch, and S.A. Broitman. Proceedings of the American Association of Cancer Research, 37:2461, April, 1996.

Limonene (LE) and mevinolin (MV) inhibit metastatic growth of murine colonic tumor CT-26 in livers of Balb/c mice. J. Wilkinson IV, S. Cerda, S.R. Cerda, S.K. Branch, and S.A. Broitman. Proceedings of the American Association of Cancer Research, 37:2641, April, 1996

Limonene and mevinolin affect growth of the human colonic adenocarcinoma LS174T implanted in the livers of nude mice. Wilkinson, J., Cerda, S., Cerda, S.R., Branch, S.K., and Broitman, S.A. Proceedings of the American Association of Cancer Research, 36:1776, March 1995.

Perillyl alcohol affects cholesterol metabolism in the colonic adenocarcinoma cell line SW480. Cerda, S., Wilkinson, J. IV, and Broitman, S.A. Proceedings of the American Association of Cancer Research, 36:2111, March 1995.

Inhibitors of cholesterol/isoprenoid pathways as potential chemotherapeutics in colon cancer. Broitman, S.A., Wilkinson, J. IV, and Cerda, S. Abstract # 1075P, World Congresses of Gastroenterology, Los Angeles, CA, October, 1994.

Enhanced antitumor activity of lovastatin and perillyl alcohol combination in the colonic adenocarcinoma cell line SW480. Cerda, S., Wilkinson, J. IV, and Broitman, S.A. Proceedings of the American Association of Cancer Research, 35:1996, April 1994.

Effect of low density lipoprotein (LDL) upon proliferation in three human adenocarcinoma cell lines. Wilkinson J, Broitman SA. Proceedings of the American Association of Cancer Research, 34:328 March 1993.

Cholesterol metabolism of human colonic adenoCA cell lines is different from fibroblasts: Response to sterols. Cerda, S., Wilkinson J., and Broitman, S.A. Proceedings of the American Association of Cancer Research, 34:79 March 1993.

OTHER ACTIVITIES:

Awarded San-Kyu (brown belt, first degree) in Aikido, 2001

Assistant Instructor, Fox Chase Karate Club, 1998-1999.

Student representative, Microbiology Departmental Faculty meetings, 1990-1994.

Co-Chairman of Social-Cultural Committee, Simon's Rock College, 1984.

Chairman of the Film Society, Simon's Rock College, 1983-1984.

Student representative, community council meetings, Simon’s Rock College, 1982.

Awarded Ich-Kyu (brown belt, third degree) Uechi-ryu Karate-do, 1984.