

# Curriculum Vitae – Joe Barber, Jr.

## Employment

2007-

### **Postdoctoral Research Associate**

Department of Pharmaceutical Sciences  
St Jude Children's Research Hospital  
Memphis, TN  
Principal Investigator-Dr. Erin Schuetz

2001-2007

### **Graduate Student Research Associate**

Department of Pharmacology  
University of Michigan  
Ann Arbor, MI  
Principal Investigator-Dr. Donna Shewach

2000

### **Laboratory Technician**

Department of Pathology  
University of Michigan  
Ann Arbor, MI  
Principal Investigator-Dr Steven Kunkel

## Education

2000-2007

### **PhD Pharmacology**

Department of Pharmacology  
University of Michigan  
Ann Arbor, MI  
Advisor-Dr. Donna S. Shewach

Thesis Title-The Effects of p53R2 on  
Gemcitabine-Mediated Cytotoxicity and  
Radiosensitization  
Thesis Defended-June 2007

1995-1999

### **B.S. Microbiology**

Department of Biological Sciences

Southern University and A&M College  
Baton Rouge, LA  
Advisor-Dr. Bryan A. Lewis

Thesis Title-*Chlamydia: Cause, Treatment, and Prevention*

## Research Interests

### Current Research Projects

I am currently a postdoctoral research associate in the laboratory of Erin Schuetz, PhD. Our lab studies pathways of drug metabolism, particularly the activation of drug detoxification mechanisms. In this aim, much of the work in this lab focuses on the xenosensors PXR and CAR. My current project investigates the regulation of PXR by FoxA2 in response to endogenous and exogenous signals. This project seeks to further current knowledge in the field by examining the cross-regulation between energy metabolism and drug detoxification pathways. I conduct independent research with guidance from the principal investigator. After data analysis and compilation, I present my findings in a variety of scientific arenas, including seminars, journals, and research conferences. Additionally, I serve as an editor and proofreader for manuscripts, poster presentations, grant proposals, and other documents as needed by members of the laboratory. I also participate in grant writing and training of new laboratory members.

### Previous Research

#### PhD Research 2001-2007

I worked in the lab of Donna Shewach, PhD. This lab focused on studying the metabolism and mechanism of action of nucleoside analogs. My project investigated the radiosensitizing mechanism of Gemcitabine. I explored the roles of ribonucleotide reductase (RR) subunits R2 and p53R2 in the radiosensitizing phenomenon. I studied these properties in a variety of tumor cell lines by using various doses of Gemcitabine and/or ionizing radiation. Specifically, I evaluated the expression patterns of both small RR subunits in response to Gemcitabine and/or ionizing radiation. In addition, I utilized siRNA technology to knock down p53R2 in an effort to increase Gemcitabine-mediated cytotoxicity and radiosensitization. I conducted independent research with guidance from the advisor. I presented my findings in variety of settings, including departmental seminars, research publications, and research conferences.

2000 – I had a four-month research rotation in the lab of Paul Hollenberg PhD under the guidance of Uta Kent PhD. My project examined the mechanism-based inactivation of P450 subtypes. In particular, I investigated the inactivation of CYP2B6 by a number of exogenous compounds in an *in vitro* reconstitution system.

2000 – I worked in the lab of Steven Kunkel PhD under the guidance of Cory Hogoboom PhD and Cynthia Bone-Larson PhD. I examined the role of chemokines in liver

regeneration following acetaminophen-induced damage. Also, I investigated chemokine and cytokine expression in fibrotic tissue samples.

1998-1999 – I conducted a dry research project on Chlamydia under the guidance of Bryan Lewis PhD.

## Teaching Experience

2003 I worked as a teaching assistant under Dr. Jon Maybaum for Dental Pharmacology. My primary responsibility was to conduct individual and group tutoring sessions. I was also heavily involved in preparing, proctoring, and grading examinations.

## Awards

2005 American Association for Cancer Research Minority Scholar Award  
2004 American Association for Cancer Research Minority Scholar Award  
2003 American Association for Cancer Research Minority Scholar Award  
2000 Rackham Graduate School Merit Fellow, University of Michigan  
1999 Highest Graduating GPA, College of Sciences, Southern University  
1999 *Magna cum Laude* Graduate, Southern University  
1998 Inducted, Beta Kappa Chi National Scientific Honor Society  
1998 Inducted, Beta Beta Beta National Biological Honor Society  
1997 Inducted, Golden Key National Honor Society  
1997-1999 Louisiana Association for Minority Participation Scholar  
1995-1999 Chancellor's Scholar, Southern University  
1995-1999 Dean's List, Southern University

## Organizations

2009- American Association for the Advancement of Science  
2008- International Society for the Study of Xenobiotics  
2007- National Postdoctoral Association  
2007- St Jude Postdoctoral Association  
2002- American Association for Cancer Research  
2000-2007 Association of Multicultural Scientists, University of Michigan  
2000-2007 Students of Color at Rackham, University of Michigan  
1998-1999 Southern University Microbiology Club  
1998- Beta Kappa Chi National Scientific Honor Society  
Served as Southern University Chapter President 1998-1999  
1998- Beta Beta Beta National Biological Honor Society

1997-	Served as Vice President 1999-2000, Southeast Region, District II
1997-1999	Golden Key National Honor Society
1995-1999	Louisiana Association for Minority Participation
	Southern University Honors College

## Research Skills

Protein	Total Protein Quantification, SDS-PAGE Western Blotting (p53, p53R2, R2, Actin, Lamin, FoxA2) siRNA Knockdown of Proteins (p53R2, Lamin, FoxA2) TnT Assay Electromobility Shift Assay Chromatin Immunoprecipitation
DNA	DNA extraction/isolation, quantification Polymerase Chain Reaction
Bioinformatics	Proficient in the use of <i>in silico</i> prediction programs, including Transfac, Genome Variation Server, UCSC Genome Browser
Cell Culture	Sterile Tissue Culture Techniques Plating, isolating, freezing solid tumor cells Long-term cell survival assays (cytotoxicity, radiosensitization) Transfections (siRNA, vector, transient with plasmids, lentivirus, adenovirus)
Animal Care	Experience with mice Macrophage Collection Liver Resection/Removal Euthanasia
Bacteria	Bacteria plating, isolation, identification
Techniques	Dual Parameter Flow Cytometry High Performance Lipid Chromatography Mass Spectrometry Reconstitution assays Enzyme assays Nucleotide pool analysis Gel purification Maxi and Mini Prep Site Directed Mutagenesis Luciferase Assays
Certifications/ Training	IATA Dangerous Goods Shipping St Jude Radiation Safety

St Jude Biological Safety  
Viral Transduction Safety  
CITIProgram Human Subjects Training

## Mentoring

2000-2007

In conjunction with the Association for Multicultural Scientists, I mentored middle and high school students interested in careers in health and medical research. Our group conducted scientific demonstrations, laboratory tours, and demonstrations of experimental techniques. In addition, I advised students on many topics, including college applications, career options, and study habits.

## Publications

Lin, Yvonne S, Yasuda, Kazuto, Assem, Mahfoud, Cline, Cynthia, Barber Jr., Joe, Li, Chia-Wei, Kholodovych, Vladyslav, Ai, Ni, Chen, J. Don., Welsh, William J, Schuetz, Erin G. The major human PXR splice variant, PXR.2, exhibits significantly diminished ligand-activated transcriptional regulation. *Drug Metabolism and Disposition*, 2009, in press.

Barber Jr., Joe, Robinson, Blaine W., Ostruszka, Leo J., Shewach, Donna S Shewach. The Effects of High-Dose dFdCyd on p53 Expression, Cell Cycle Distribution, and Radiosensitization in MCF-7 Breast Cancer Cells. *International Journal of Radiation Biology*, 2009, in revision.

Barber Jr., Joe, Donna S. Shewach. The Role of p53R2 in the Cellular Response to dFdCyd. *Cancer Research*, 2009, in preparation.

## Oral Presentations

Barber Jr., Joe. The Effects of p53R2 Expression of Gemcitabine-Mediated Cytotoxicity and Radiosensitization. Tennessee State University, Nashville, TN, 2007.

Barber Jr., Joe. The Effects of p53 and p53R2 Expression on Gemcitabine-Mediated Cytotoxicity and Radiosensitization. St. Jude Children's Research Hospital, Memphis, TN, 2006

Barber Jr., Joe. Induction of p53R2 by Gemcitabine and/or Ionizing Radiation and the Resulting Effects on Radiosensitization. University of Michigan, Ann Arbor, MI, 2004.

Barber Jr., Joe. The Effects of High Dose Gemcitabine on p53 Expression and Radiosensitization in MCF-7 Breast Cancer Cells. University of Michigan, Ann Arbor, MI, 2003.

## Communications

Barber Jr., Joe, Yasuda, Kazuto, Lamba, Jatinder K, Lan, Lubin, Schuetz, Erin G. Transcriptional Regulation of PXR by FoxA2. International Society for the Study of Xenobiotics 11<sup>th</sup> Annual North American Meeting: Receptors/Nuclear Receptors, San Diego CA 2008. Poster Presentation.

Barber Jr., Joe, Shewach, Donna S. siRNA for p53R2 inhibits increases in p53R2 expression following exposure to DNA damaging agents. American Association for Cancer Research 97<sup>th</sup> Annual Meeting: Experimental and Molecular Therapeutics 45, Washington, DC 2006. Poster Presentation.

Barber Jr., Joe, Ostruszka, Leo J., Shewach, Donna S. The Effects of dFdCyd and Ionizing Irradiation on p53R2 and R2 Expression During the Cell Cycle. Gordon Research Conference on Purines, Pyrimidines, and Related Substances, Newport RI 2005. Poster Presentation

Barber Jr., Joe, Ostruszka, Leo J., Shewach, Donna S. The Effects of dFdCyd and Ionizing Irradiation on p53R2 and R2 Expression During the Cell Cycle. American Association for Cancer Research 96<sup>th</sup> Annual Meeting: Experimental and Molecular Therapeutics 17, Anaheim, Orange County, CA 2005. Poster Presentation.

Barber Jr., Joe, Im, Mike M, Shewach, Donna S. Induction of p53R2 by dFdCyd Does Not Prevent R2 Expression. American Association for Cancer Research 95<sup>th</sup> Annual Meeting: Experimental and Molecular Therapeutics 26, Orlando FL 2004. Poster Presentation.

Barber Jr., Joe, Robinson, Blaine W, Shewach, Donna S. Expression of p53R2 Does Not Prevent dATP Depletion or Radiosensitization with dFdCyd in Wild-Type p53-Expressing Cells. Gordon Research Conference on Nucleosides, Nucleotides, and Oligonucleotides, Newport RI 2003. Poster Presentation.

Barber Jr., Joe, Robinson, Blaine W, Shewach, Donna S. Expression of p53R2 Does Not Prevent dATP Depletion or Radiosensitization with dFdCyd in Wild-Type p53-Expressing Cells. American Association for Cancer Research 94<sup>th</sup> Annual Meeting: Cellular, Molecular, and Tumor Biology 93, Washington, DC 2003. Poster Presentation

Barber Jr., Joe, Robinson, Blaine W., Ostruszka, Leo J., Shewach, Donna S. The Effects of Gemcitabine on p53 Expression, Cell Cycle Progression, and Radiosensitization in

MCF-7 Breast Cancer Cells. Department of Pharmacology/Phizer Poster Day, Ann Arbor, MI, 2002. Poster Presentation.

Barber Jr., Joe, Robinson, Blaine W., Ostruszka, Leo J., Shewach, Donna S. The Effects of Gemcitabine on p53 Expression, Cell Cycle Progression, and Radiosensitization in MCF-7 Breast Cancer Cells. Pharmacology Research Colloquium, Toledo, OH 2002. Poster Presentation.

Barber Jr., Joe, Robinson, Blaine W., Ostruszka, Leo J., Shewach, Donna S. The Effects of Gemcitabine on p53 Expression, Cell Cycle Progression, and Radiosensitization in MCF-7 Breast Cancer Cells. American Association for Cancer 93<sup>rd</sup> Annual Meeting: Experimental/Molecular Therapeutics 33, San Francisco, CA, 2002. Poster Presentation