

CURRICULUM VITAE

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EDUCATION AND TRAINING

**Undergraduate**

1974-1978 North Carolina State University, Raleigh, NC BS, 1978 Zoology

**Graduate**

1980-1984 Duke University, Durham, NC Ph.D., 1985 Pharmacology

**Post-Graduate**

1984-1988 Duke University, Durham, NC Fellowship Toxicology Training Program, Richard Whorton, Ph.D.

APPOINTMENTS AND POSITIONS

**ACADEMIC:**

2010- Professor Department of Environmental and Occupational Health, Graduate School of Public Health, University of Pittsburgh  
2010- Professor (secondary) Department of Pharmacology and Chemical Biology, School of Medicine, University of Pittsburgh  
2011- Faculty Vascular Medicine Institute, University of Pittsburgh  
2003-2010 Associate Professor Department of Environmental and Occupational Health, Graduate School of Public Health, University of Pittsburgh  
2005- Associate Professor (secondary) Department of Pharmacology and Chemical Biology, School of Medicine, University of Pittsburgh  
1998-2003 Associate Professor Department of Pharmacology and Toxicology, Dartmouth Medical School, Hanover, NH

1991-1998	Assistant Professor	Department of Pharmacology and Toxicology, Dartmouth Medical School, Hanover, NH
1988-1991	Research Assistant Professor	Division of Clinical Pharmacology, Thomas Jefferson Medical School, Philadelphia, PA
1988-1991	Assistant Professor (secondary)	Department of Pharmacology, Thomas Jefferson Medical School, Philadelphia, PA
1988	Medical Research Associate	Department of Medicine, Duke University, Durham, NC

### **NON-ACADEMIC**

2014-2017	Councilor	Society of Toxicology
2012-2015	Member, External Advisory Committee	Superfund Research Program, University of Arizona
2002-2008	Member, External Advisory Committee	Center for Environmental Sciences, University of Montana-Missoula
2005-2008	Chair, External Advisory Committee	Center for Environmental Sciences, University of Montana-Missoula
2000-2002	Chair	Radiation Safety Committee, Dartmouth College.
2000-2003	Head, Molecular Biology Core	Center for Environmental Health Sciences, Dartmouth College, Hanover, NH.
1991-2003	Member, Molecular Therapeutics Program	Norris Cotton Cancer Center, Dartmouth Medical School, Hanover, NH.
1991-1994	Clinical Trial Design Consultant	Hoechst Marion Roussel (Marion Merrell Dow), Kansas City, MO.
1988-1991	Head, Laboratory for Investigative Medicine	Division of Clinical Pharmacology, Thomas Jefferson University, Philadelphia, PA
1988-1991	Clinical Trial Design Consultant	Merck Sharp and Dohme Research Laboratories, West Point, PA.

### **MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES**

1995- present	North American Vascular Biology Organization (American Society for Investigative Pathology)
2001-present	American Physiological Society
1994-present	Society for Redox Biology and Medicine
2001-present	Society of Toxicology (member, Education Committee 2008-2011, Metals Specialty Section President 2010-2011, member, Communications Committee 2013-2014, Councilor 2014-2017, and Allegheny-Erie Chapter, Society of Toxicology (Vice President 2005-2015, Presidential chain 2017-2020)

### **Honors**

2005	Best Paper of the Year in Toxicological Sciences, Society of Toxicology
2016	National Institute of Environmental Health Science top publication from research funded grants.
2018	James L. Craig Award for Teaching Excellence, Graduate School of Public Health.

## PROFESSIONAL ACTIVITIES

### 1. Teaching

#### a. Courses Taught

##### University of Pittsburgh:

Years	Course Number: Title	Hours of lecture, credits, average enrollment	Primary Instructor
2018	PUBHLT 2025 Concepts and Methods in Global Health	1, 2, 30	Russell
2018-	MED 5222 MS-2 Digestion and Nutrition	1,?, 100	Landau
2019-	EOH 2013 Environmental Health and Disease	12, 3, 129	Barchowsky
2007-2018	EOH 2013 Environmental Health and Disease	12, 3, 115	Barchowsky
2009-2013	MED 5224 MS-2 Medical Pharmacology	6,?, 100	Defranco
2013-2016	MED 5115 Cellular and Pathologic Basis of Disease	3, 3, 100	Defranco
2009-2015	MED 5217 Cardiology	2, ?, 12	Defranco
2007-2014	MED 5222 MS-2 Digestion and Nutrition	2,?, 100	Duker
2009-	EOH 2180 Introduction to risk assessment	1.5, 3, 15	Fabisiak
2008-	EOH 2022 Pathophysiology	3, 3, 8	Pitt
2008-	EOH 2310 Molecular Fundamentals of Environmental Health	3, 3, 8	Opresko
2008	EOH 2304 Biomarkers and Molecular Epidemiology.	3,2,6	Ragin
2007-2015	MS-2 Medical School Pharmacology Course: Neuropharmacology Workshop	3,?, 10	Defranco
2007-2017	EOH 2504 Principles of Environmental Exposure	1.5, 3, 13	Clougherty
2008-2016	EPI 2220 Environmental Epidemiology	1.0, 3, 10	Talbott
2006-	EOH 2175 Principles of Toxicology (dermal toxicology)	1,3, 12	Fabiziak
2006-	MSCMP 3750 Angiogenesis: Molecular Pathways and Physiological Functions	6, 3, 7	Mars
2004- 2007	EOH 2012: Health, Disease, and Environment II	6,1, 110	Barchowsky
2004- 2005	EOH 2309 Bioorganic Toxicology	2, 2, 6	Pitt

2005	EOH 2308 Model Systems	6, 2, 6	Stripp
2004, 2006	EPI 2220: Environmental Epidemiology	1,2,10	Talbott
2004	PA-0101: Introduction Public Health	to 2,2,30 undergraduate	Bradford Campus:

### **c. Graduate Student Essays, Theses, and Dissertations**

#### **University of Pittsburgh**

Adam C. Straub, 2008, Ph.D. Environmental Health Sciences. Thesis Research: Mechanisms for arsenic-stimulated sinusoidal cell capillarization. Present position: Assistant Professor, Department of Pharmacology and Chemical Biology, University of Pittsburgh.

Antonia A. Nemeč, 2009, Ph.D. Environmental Health Sciences. Thesis Research: Signaling mechanisms of chromium regulation of protective pulmonary gene inducibility. Present position: Assistant Professor, Florida State University.

Diana Yesica Garciafigueroa, 2013, Ph.D. Environmental Health Sciences. Thesis Research: Receptor cross talk in arsenic-impaired fat metabolism. Present position: Postdoctoral Fellow, Allegheny Health System.

Shilpi Oberoi: 2014, Ph.D. Environmental Health Sciences. Thesis Research: Estimating the Global Burden of Disease caused by Arsenic in Food.

Amin Cheikhi: 2017, Ph.D. Environmental Health Sciences. Thesis Research: Power laws govern mitochondrial optimization of inheritable cellular memory and fate decisions. Present Position: Postdoctoral Fellow, Department of Physical and Rehabilitative Medicine, University of Pittsburgh.

Teresa Anguiano, 2013-, Predoctoral Fellow, Environmental Health Sciences. Thesis Research: Mechanisms of arsenic-impaired stem cell function.

Amrita Sahu, 2016-, Predoctoral Fellow, Environmental Health Sciences. Thesis Research: Mechanisms of age and environmental contaminate inhibition of muscle stem cells and regeneration.

#### **Dartmouth Medical School**

Melinda D. Treadwell, 1996, Ph.D. Pharmacology. Thesis Research: Activation of vascular endothelial cells in response to mineral fibers. Present Position: President, Keene State College, NH.

Jennifer A. Shumilla, 1999, Ph.D. Chemistry. Thesis Research: Mechanisms for inhibition of cytokine-induced lung epithelial cell gene expression by chromium. Senior Manager, Development Sciences, Genentech, San Francisco, CA

MJR Robert R. Roussel, 2000, Ph.D. Pharmacology. Thesis Research: Dose dependent effects of sodium arsenite on NF- $\kappa$ B and interleukin-8 in bronchial epithelial cells. Present Position: Deputy Commander, US Army Research Institute of Environmental Medicine.

Angeline S. Andrew, 2001, Ph.D. Pharmacology and Toxicology. Thesis Research: Mechanisms for regulation of lung epithelial cell fibrinolysis and cytokine expression by nickel. Present Position: Assistant Professor, Dartmouth Medical School, Dept of Epidemiology.

Nicole V. Soucy, 2003, Ph.D. Pharmacology and Toxicology. Thesis Research: Mechanisms of arsenite-induced vascular disease. Present Position: Advanced Toxicology Specialist, 3M Corporation, St. Paul, MN

Kimberly A. O'Hara, 2004, Ph.D. Pharmacology and Toxicology. Thesis Research: Signaling mechanisms for chromium-induced gene activation in pulmonary epithelial cells. Present Position: Lecturer, University of Manitoba, Winnipeg, Canada

**d. Student Awards and Honors.**

1995	Melinda D. Treadwell	Young Investigator Award, Oxygen Society
1999	Angeline S. Andrew	First Prize, Best Graduate Student Poster Award, Northeast Society of Toxicology
2000	Angeline S. Andrew	Third Annual Karen Wetterhahn Award, Superfund Basic Research Program, National Institute of Environmental Health Sciences.
2000	Angeline S. Andrew	Outstanding Scientific Presentation Award, Oxygen Society
2000	Angeline S. Andrew	Environmental Carcinogenesis Conference Poster Award, Vermont Cancer Center
2000	Angeline S. Andrew	Travel Award - 2000 Conference on Hazardous Waste Research, National Institute of Environmental Health Sciences
2001	Nicole V. Soucy	Young Investigator Award, Oxygen Society
2002	Nicole V. Soucy	Third Place, Metals Specialty Section
2005	Nicole V. Soucy	Best Paper of the Year (2004) in <i>Toxicological Sciences</i> , Society of Toxicology
2002	Kimberley A. O'Hara	Travel Award, Society of Toxicology
2002	Kimberley A. O'Hara	Honorable Mention, Carl C. Smith Graduate Student Award, Mechanisms Specialty Section, Society of Toxicology
2002	Kimberley A. O'Hara	Young Investigator Award, Oxygen Society
2003	Kimberley A. O'Hara	Third Place, Student Abstract Award, New England Pharmacologists
2003	Kimberley A. O'Hara	Taylor & Francis Graduate Student Award, Metals Specialty Section, Society of Toxicology
2004	Kimberley A. O'Hara	Young Investigator Award, Society for Free Radical Biology and Medicine
2005 - 2008	Adam C. Straub	STAR Fellowship award, Environmental Protection Agency
2006	Antonia A Nemeč	Allegheny-Erie Society of Toxicology Travel Award
2006	Adam C. Straub	Keleti Prize for Excellence in Environmental Health
2006	Adam C. Straub	Best Poster, Allegheny-Erie Regional Chapter of the Society of Toxicology annual meeting.
2006	Adam C. Straub	Outstanding student in the field of environmental public health. National Center for Environmental Health and the Agency for Toxic Substances and Disease Registry (NCEH/ATSDR).
2006	Harina Vin	MaryAnne Stock Student Research Award, Allegheny-Erie Regional Chapter of the Society of Toxicology
2008	Adam C. Straub	First Place, Doctoral Student Award, Dean's Day, Graduate School of Public Health. University of Pittsburgh.
2008	Adam C. Straub	Rosenkranz Award for Public Health Significance of Research, Dean's Day, Graduate School of Public Health. University of Pittsburgh.

2008	Antonia A. Nemec	Keleti Award for Excellence in Environmental Health. Dean's Day, Graduate School of Public Health. University of Pittsburgh.
2008	Adam C. Straub	First Place, Society of Toxicology Metals Specialty Section Student Award.
2008	Antonia A. Nemec	Third Place, Society of Toxicology Metals Specialty Section Student Research Award.
2009	Antonia A. Nemec	Third Place, Society of Toxicology Metals Specialty Section Student Research Award.
2009	Antonia A. Nemec	Best Research Presentation, Allegheny & Erie Regional Chapter of the Society of Toxicology.
2012	Yesica Garciafigueroa	Mary Anne Stock Student Research Award, Allegheny-Erie Regional Chapter of the Society of Toxicology
2013	Yesica Garciafigueroa	Second Place, Society of Toxicology Metals Specialty Section Student Research Award.
2013	Shilpi Oberoi	Second Place, Dean's Day Poster Award
2015	Amin Cheikhi	First Place, Society of Toxicology Metals Specialty Section Student Award.
2017	Teresa Anguiano	Mary Anne Stock Student Research Award, Allegheny-Erie Regional Chapter of the Society of Toxicology
2018	Teresa Anguiano	Society of Toxicology, Hispanic Organization of Toxicology Graduate Student Research award.

**e. Service on Comprehensive Examination Committees**

<b>Dates Served</b>	<b>Student Population</b>	<b>Type of Exam/ Number of Questions</b>
2004	1 student Infectious Diseases and Microbiology	Ph.D. Preliminary examination
2006	2 students, 1 Molecular Toxicology, 1 Pharmacology	Ph.D. Preliminary examination, Comprehensive Exams, Dissertation Defense
2007	2 students, Environmental and Occupational Health	Ph.D. Preliminary examinations
2008-2009	2 students: Environmental and Occupational Health	Dissertation Defense
2011-2012	3 students: 2 Environmental and Occupational Health, 1 Pharmacology and Chemical Biology	Ph.D. Preliminary examination, Comprehensive examination
2013-2014	5 students: 2 Environmental and Occupational Health, 3 School of Engineering	Ph.D. Preliminary and Comprehensive Exams

<b>Dates Served</b>	<b>Student Population</b>	<b>Type of Exam/ Number of Questions</b>
2014-2015	7 students: 2 Environmental and Occupational Health, 4 School of Engineering, 1 Pharmacology and Chemical Biology	Thesis research committees, Comprehensive examinations, Dissertation Defense.
2014-2015	4 students: 2 Environmental and Occupational Health, 2 Infectious Disease and Microbiology	Ph.D preliminary and comprehensive examinations, MPH thesis examination
2015-2016	7 students: 3 Environmental and Occupational Health, 4 School of Engineering	Ph.D. preliminary examination, Dissertation Defense
2016-2017	6 students: 4 Environmental and Occupational Health, 2 School of Engineering.	Ph.D. preliminary examination, Dissertation Defense
2017-2018	5 students: 3 Environmental and Occupational Health, 2 Epidemiology	Dissertation Defense, MPH thesis reader.
2018-2019	5 Students: 5 Environmental and Occupational Health, 1 Epidemiology	Preliminary exam, Comprehensive exam, MPH Reader

#### **f. Supervision of Post-Doctoral Students, Residents, and Fellows**

- 1997-2000 Karol R. Smith, Ph.D., Mechanisms of arsenite-induced signaling in endothelial cells. Present position: Clinical Nutritionist.
- 2001-2003 Jeffrey S. Shenberger. M.D. K08-HL-071905 Research Fellowship. Present position: Department of Pediatrics, Pennsylvania State University College of Medicine, Hershey, PA
- 2003- 2004 Rasilaben J. Vaghjiani, visiting Pre-doctoral Fellow. Present position: Senior Program Manager at Excerpta Medica BV-Adelphi Group.
- 2005-2006 Partha Basu, F33 ES014152 sabbatical fellowship: Proteomic determination of arsenical action. Present Position: Professor and Chair, Department of Chemistry and Chemical Biology, Indiana University-Purdue University, Indianapolis, IA.
- 2011-2015 Kevin Beezhold, Ph.D. MicroRNA in arsenic regulation of cell differentiation. Research Fellow, Childrens Hospital, Pittsburgh, PA.

#### **g. Other Teaching and Training**

##### **University of Pittsburgh Undergraduate/High School Training**

- Harina Vin, 2006, Summer research intern, "Arsenic regulation of liver stellate cell activation." Present position, undergraduate Rice University.
- Sarabeth A. Sandel, Summer undergraduate research intern 2007, "Chromium regulation of nickel-induced metallothionein in lung epithelial cells." Present position, undergraduate, Grove City University.

Lindsey Zubritsky 2008-2009 Environmental Health Sciences summer internship. Role of dicysteine containing motif in chromium VI activation of tyrosine kinase activity. Present Position: Medical Student, Penn State, Hershey.

Anastasia Stolz, 2009 RMB-ERC summer internship, Cytotoxicity of magnesium alloys. Present Position: undergraduate student at Dayton, University.

Amy Goodfriend, 2010 Environmental Health Sciences summer internship. Arsenic effects on lipid metabolism. Present position: Graduate student, University of Texas.

Vania Brister, 2012, Doris Duke Fellowship, Arsenic impact on osteogenic stem cell differentiation.

Hannah Klei 2012, Summer High School Intern, Arsenic effects on chondrogenesis.

Stephanie Akaki 2015, CEBIG Summer High School Intern, Long term epigenetic change from childhood arsenic anticancer therapy.

Molly Schreiner, 2108 -2019 Summer Intern, Slippery Rock University. EGFR in arsenic-induced loss of muscle quality and regeneration.

## **2. Research and Training**

### **a. Grants and Contracts Received**

#### **Active**

Years	Grant number and title	Source	Annual direct costs	Effort
02/16-01/21	R01ES025529-01 Dysfunctional Muscle Remodeling and Regeneration in Environmental Disease	NIEHS	\$375,000	30%
11/17-12/21	1R01AG052978-01 The Anti-Aging Role of Klotho in Skeletal Muscle Regeneration (PI: Ambrosio) role co-investigator	NIA	\$336,500	5%
9/14-6/19	1R01ES024233-01 Epigenetic and phenotypic effects of arsenic: impacts on cognition and Alzheimer's Disease (PI: Lefterov) role: co-investigator	NIEHS	\$350,000	5%

#### **Past**

12/13-11/18	1R01ES023696-01 Mechanisms of arsenic-induced muscle morbidity and reduced regenerative capacity	NIEHS	\$300,000	33%
9/08-8/18	NSF ERC: Revolutionizing Metallic Biomaterials (Borovitz) Project ES1.8 High content analysis of metal toxicity and effects.	NSF	\$25,000	5%
05/15-04/17	3R01ES023696-02S1 Mechanisms of arsenic-induced muscle morbidity and reduced regenerative capacity. Research Supplement to Promote Diversity in Health-Related Research	NIEHS	\$58,792	0%
9/12-8/14	1R21ES021243-01 Epigenomic impact of diet and toxicant exposure in Alzheimer's	NIEHS	\$135,000	5%



	disease etiology MPI: A Barchowsky, I Lefterov			
12/07-12/12	R01 ES013781-01 Mechanisms for arsenic induced vascular disease.	NIEHS	\$225,000	40%
9/11	R13 ES021130-01 Toxicology Education Summit	NIEHS	\$4000	0%
7/08-6/09	R01ES013781-01S1 Mechanisms for arsenic induced vascular disease: minority supplement.	NIEHS	\$45,000	0%
8/01-7/07	R01 ES10638-01 Regulation of transcriptional competence by chromium.	NIEHS	\$200,000	40%
4/95-3/05	P42 ES07373-07 Toxic Metals in the Northeast Project 1: Mechanisms for arsenic-induced vascular disease.	NIEHS	\$157,000	40%
8/96 -7/99	R01 HL52738-01: Molecular mechanisms for endothelial cell activation in response to asbestos.	NHLBI	\$100,000	60%
7/92 - 6/95	Council for Tobacco Research: Mechanism for oxidant-induced cell-cell interactions.	CTR	\$45,000	10%
1/91-12/94	R01 HL44454: Endothelial cell biology following oxidative stress	NHLBI	\$71, 000	50%
1992-1995	Investigations of the effects of anticholinesterase agents in relief of Alzheimer's disease	Marion Merrell Dow, Inc	\$33,000	5%
1989-1991	Endothelial cell biology following oxidative stress	PhMAF	\$50,000	5%

## **B. Invited Lectures and Major Seminars Related to Research (past 5 years):**

January 2014: University of Oregon, Mechanisms for pathogenic, arsenic-induced metabolic tissue remodeling. Corvallis, OR.

August 2014: 6th Symposium on Biodegradable Metals, Keynote address: Metals: Elemental Physiology and Pathogenesis. Matatea, Italy.

October 2014: Civil and Environmental Engineering, Carnegie Mellon University, Arsenic in Food and Water: A Global Public Health Risk, Pittsburgh, PA.

April 2015: Vascular Medicine Institute, University of Pittsburgh, Arsenic and stem cell regeneration: novel mitochondrial mechanism for an ancient poison. Pittsburgh, PA

June 2015: 14<sup>th</sup> International Conference on Long-Term Complications of Treatment of Children and Adolescents for Cancer: Toxin-Related Endothelial Cell and Vascular Injury. Arlington, VA.

October 2015: Society of Toxicology Central State Regional Chapter 2015 Annual Meeting: Arsenic and stem cell regeneration: novel mitochondrial mechanisms for an ancient poison. Kansas City, KS.

February 2016: Society of Toxicology ToxScholar visit to Washington College: Development of a Maryland Toxicologist: Farm to Pharmacology to Environmental Health. Chestertown, MD

March 2017: University of Rochester, Environmental impact on skeletal muscle maintenance and regeneration: stem cell nature or niche, Rochester, NY.

April 2017: Columbia University, Mailman School of Public Health, Arsenic and mitochondria in epigenetic regulation of skeletal muscle stem cells and regeneration. New York, NY

September 2017: North Carolina State University, Arsenic impact on mitochondria corrupts epigenetic memory, stem cell fate, and muscle regenerative capacity. Raleigh, NC.

October 2017: University of Pittsburgh, Pitt Public Health, Epidemiology, Plausible pathways for hidden poison promoting cardiovascular and metabolic disease risk: markers for environmentally-derived disease. Pittsburgh, PA.

December 2017: University of Pittsburgh, Bioinformatics, Why does an environmental health scientist need bioinformatics to improve public health? Pittsburgh, PA.

March 2018: Society of Toxicology symposium on The Role of the Epigenome in the Etiology of Metal-Induced Disease. Mitochondria direct arsenic-induced epigenetic regulation of stem cell fate. San Antonio, TX.

March 2019: Department of Environmental and Occupational Health, PittPublicHealth, Memories of arsenic promote "idiopathic" disease. Pittsburgh, PA.

March 2019: Co-Chair Society of Toxicology symposium: Stem cells and metals toxicity: from tissue regeneration and repair to carcinogenesis. Co-author: Arsenic-induced alterations in muscle extracellular matrix drive stem cell dysfunction and impaired regeneration. Baltimore, MD.

## **PUBLICATIONS**

### **1. Refereed Articles**

1. Cheikhi A, **A Barchowsky**, A Sahu, SN Shinde, A Pius, ZJ Clemens, H Li, CA Kennedy, JD Hoeck, M Franti, F Ambrosio. Klotho: An elephant in aging research. *J Gerontol A Biol Sci Med Sci*. 2019 doi: 10.1093/gerona/glz061 PMID: 30843026.
2. Gibb HJ, **A Barchowsky**, D Bellinger, PM Bolger, C Carrington, AH Havelaar, S Oberoi, Y Zang, K O'Leary, B Devleesschauwer. Estimates of the 2015 global and regional disease burden from four foodborne metals - arsenic, cadmium, lead and methylmercury. *Environ Res*. 2018. doi:10.1016/j.envres.2018.12.062. PMID: 30981404.
3. Oberoi S, B Devleesschauwer, HJ Gibb, **A Barchowsky**. Global burden of cancer and coronary heart disease resulting from dietary exposure to arsenic, 2015. *Environ Res* 171:185-192, 2019. PMID: 30665120.
4. Cheiki A, C Wallace, C St Croix, C Cohen, WY Tang, P Wipf, PV Benos, F Ambrosio, **A Barchowsky**. Mitochondria are a substrate of cellular memory. *Free Radic Biol Med*. 130:528-541, 2019 PMID: 30472365.
5. Sahu A, H Mamiya, S Shinde, A Cheikhi, L Winter, N Vo, D Stolz, V Roginskayya, WY Tang, C St. Croix, M Franti, L Sanders, B Van Houten, T Rando, **A Barchowsky** and

- Ambrosio F. Age-related declines in a-Klotho drive progenitor cell mitochondrial dysfunction and impaired muscle regeneration. *Nat Commun.* 9:4859, 2018. PMID: 30451844.
6. Moon KA, S Oberoi, **A Barchowsky**, Y Chen, E Guallar, KE Nachman, M Rahman, N Sohel, D D'Ippoliti, TJ Wade, KA James, SF Farzan, MR Karagas, H Ahsan, A Navas-Acien. A dose-response meta-analysis of chronic arsenic exposure and incident cardiovascular disease. *Int J Epidemiol* 46:1924-1939, 2017 PMID: 29040626
  7. Stearns-Reider K; D'Amore A; Beezhold K; Rothrauff BB; Cavalli L; Wagner W; Vorp DA; Tsamis A; Shinde, S; Zhang C; **Barchowsky A**; Rando TA; Tuan RS; Ambrosio F. Aging of the skeletal muscle extracellular matrix drives a stem cell fibrogenic conversion. *Aging Cell* 16:518-528, 2017. PMID: 28371268
  8. Beezhold K, LR Klei, **A Barchowsky**. Regulation of cyclin D1 by arsenic and microRNA inhibits adipogenesis. *Tox Lett* 265:147-155, 2017. PMID: 27932253
  9. Zhang C\*, R Ferrari\*, K Beezhold, K Stearns-Reider, A D'Amore, M Haschak, DB Stolz, PD. Robbins, **A Barchowsky**, F Ambrosio. Arsenic promotes NF- $\kappa$ B-mediated fibroblast dysfunction and matrix remodeling to impair muscle stem cell function. *Stem Cells* 34:732-42, 2016. PMID: 26537186
  10. Dheer R, J Patterson, M Dudash, EN Stachler, KJ Bibby, DB Stolz, S Shiva, Z Wang, SL Hazen, **A Barchowsky**, JF Stolz. Arsenic induces structural and compositional colonic microbiome change and promotes host nitrogen and amino acid metabolism. *Toxicol Appl Pharmacol.* 289:397-408, 2015. PMID: 26529668
  11. Malek AM, **A Barchowsky**, R Bowser, T Heiman-Patterson, D Lacomis, S Rana, A Youk, EO Talbott. Exposure to hazardous air pollutants and the risk of amyotrophic lateral sclerosis. *Environ Pollution* 197: 181-186, 2015. PMID: 25544309
  12. Yoshizawa S, A Brown, **A Barchowsky**, C Sfeir. Role of magnesium ions on osteogenic response in bone marrow stromal cells. *Connect Tissue Res.* 55(S1):155-159, 2014 PMID: 25158202.
  13. Ambrosio, F, E Brown, DB Stolz, RJ Ferrari, B Goodpaster, BM Deasy, G Distefano, A Roperti; A Cheikhi; Y Garciafigueroa; **A Barchowsky**. Arsenic induces sustained impairment of skeletal muscle and muscle progenitor cell ultrastructure and bioenergetics. *Free Rad Biol Med* 74C:64-73, 2014. PMID: 24960579
  14. Oberoi, S., **A Barchowsky**, F Wu. The global burden of disease for skin, lung and bladder cancer caused by arsenic in food. *Cancer Epidemiol Biomarkers Prev.* 23:1187-94, 2014. PMID: 24793955.
  15. Yoshizawa, S., A Brown, **A Barchowsky**, C Sfeir, Magnesium ion stimulation of bone marrow stromal cells enhances osteogenic activity simulating the effect of magnesium alloy degradation. *Acta Biomaterialia* 10:2834-42, 2014. PMID: 24512978
  16. Malek AM, **A Barchowsky**, R Bowser, T Heiman-Patterson, D Lacomis, S Rana, A Youk, D Stickler, DT Lackland, EO Talbott. Environmental and Occupational Risk Factors for Amyotrophic Lateral Sclerosis: A Case-Control Study. *Neurodegener Dis. In Press* 2013. PMID: 24246552
  17. Garciafigueroa DY, LR Klei, F Ambrosio, **A Barchowsky**. Arsenic-stimulated lipolysis and adipose remodeling is mediated by G-protein coupled receptors. *Toxicol Sci.* 134:335-344, 2013 PMID: 23650128.
  18. Cronican AA, NF Fitz, A Carter, M Saleem, S Shiva, **A Barchowsky**, R Koldamova, J Schug, and I Lefterov. Genome-wide alteration of histone H3K9 acetylation pattern in mouse offspring prenatally exposed to arsenic. *PLOS ONE* 8(2):e53478, 2013 PMID: 23405071.
  19. Klei LR, DY Garciafigueroa, and **A Barchowsky**. Arsenic activates endothelin-1 Gi protein-coupled receptor signaling to inhibit stem cell differentiation in adipogenesis. *Toxicol Sci.* 131:512-20, 2013 PMID: 23152186.

20. Malek AM, **A Barchowsky**, R Bowser, A Youk, EO Talbott. Pesticide exposure as a risk factor for amyotrophic lateral sclerosis: A meta-analysis of epidemiological studies. *Environ. Res.* 117:112-119, 2012 PMID: 22819005.
21. Jang AS, VJ Concel, K Bein, KA Brant, S Liu, H Pope-Varsalona, RA Dopico Jr, YP Di, DL Knoell, **A Barchowsky**, and GD Leikauf. Endothelial Dysfunction and Claudin 5 Regulation during Acrolein-induced Lung Injury. *Am J Respir Cell Mol Biol.* 44:483-90, 2011 PMID: 20525806.
22. Gao F, B KA Brant, RM Ward, RT Cattley, **A Barchowsky**, JP Fabisiak. Multiple protein kinase pathways mediate amplified IL-6 release by human lung fibroblasts co-exposed to nickel and TLR-2 agonist, MALP-2. *Toxicol Appl Pharmacol.* 247:146-57, 2010 PMID: 20600219
23. Liu F, **A Barchowsky**, and PL Opresko. The Werner Syndrome protein suppresses telomeric instability caused by chromium (VI) induced DNA replication stress. *PLoS ONE* 5(6):e111152, 2010 PMID: 20585393.
24. Nemec AA, LM Zubritsky and **A Barchowsky**. Chromium(VI) stimulates Fyn to initiate innate immune gene induction in human airway epithelial cells. *Chem Res Toxicol* 23(2):396-404, 2010 PMID: 19994902.
25. Liu F, **A Barchowsky**, and PL Opresko. The Werner syndrome protein functions in repair of Cr (VI)-induced replication associated DNA damage. *Toxicol. Sci.* 110:307-318, 2009 PMID:19487340.
26. Nemec AA and **A Barchowsky**. Signal transducer and activator of transcription 1 (STAT1) is essential for chromium silencing of gene induction in human airway epithelial cells. *Toxicol. Sci.* 110:212-223, 2009.
27. Straub AC, LR Klei, DB Stolz, **A Barchowsky**. Arsenic requires sphingosine-1-phosphate type 1 receptors to induce angiogenic genes and endothelial cell remodeling. *Am J Pathol* 174:1949-1958, 2009.
28. Bein K, SC Wesselkamper, X Liu, M Dietsch, N Majumder, VJ Concel, Medvedovic M, Sartor M, Henning LN, Venditto C, Borchers MT, **Barchowsky A**, Weaver TE, Tichelaar JW, Prows DR, Korfhagen TR, Hardie WD, Bachurski CJ, Leikauf GD. Surfactant Associated Protein B is Critical to Survival in Nickel-induced Injury in Mice. *Am J Resp Cell Mol Biol* 41:226-36, 2009.
29. Nemec AA, GD Leikauf, BR Pitt, KJ Wasserloos, and **A Barchowsky**. Nickel mobilizes intracellular zinc to induce metallothionein in human airway epithelial cells. *Am J Resp Cell Mol Biol* 41(1):69-75, 2009.
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### 3. Reviews/Proceedings

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7. **Barchowsky, A** and KA O'Hara. Metal-induced cell signaling and gene activation in lung diseases. *Free Radic Biol Med*. 34:1130-5, 2003.

### 8. Book Chapters

1. **Barchowsky A** Metals and Cardiovascular Disease. In: Comprehensive Toxicology 2<sup>nd</sup> edition. CA McQueen, ed. volume 6, pp. 447–463 Oxford: Elsevier. 2010
2. **Barchowsky A** Metals in Environmental Cardiovascular Disease. In: Issues in Toxicology 8: Environmental Cardiology, Pollution and Heart Disease. A Bhatnagar ed. pp 272-300 The Royal Society of Chemistry Cambridge, UK 2011.
3. **Barchowsky A** and JC States. Arsenic-induced cardiovascular disease. In: Arsenic, Exposure Sources, Health Risks, and Mechanisms of Toxicity. JC States ed. Pp 453-468 John Wiley & Sons, Inc, Hoboken, USA. 2015.
4. **Barchowsky, A.**, & Ufelle, A. C. Metals and Cardiovascular Disease. In: Comprehensive Toxicology, Third Edition. McQueen, C. A., ed , Vol. 13, pp. 469–479. Oxford: Elsevier Ltd. 2018
5. Ufelle, A.C. and **Barchowsky A**. Toxic Effects of Metals. In: Casarett and Doull's Toxicology, Ninth Edition. Klaassen, C, ed, Chapter 23: McGraw Hill, New York. 2018

### 5. Published Abstracts (past 5 years)

1. Beezhold K, L R Klei, R T Cattley and **A Barchowsky**. Maladaptive Signaling from Arsenic Exposure Impairs Cardiac Bioenergetics and Enhances Autophagy. Abstract 1302 *The Toxicologist* 138: 347, 2014.
2. Zhang C, R Ferrari, E Brown, K Stearns, **A Barchowsky** and F. Ambrosio. Arsenic Exposure Affects Muscle Extracellular Matrix Composition and Inhibits Muscle Regeneration after Injury. Abstract 919 *The Toxicologist* 144: 194-195, 2015.
3. Beezhold, K and **A Barchowsky** Regulation of Cyclin D1 by Arsenic and miRNA Inhibits Adipogenesis. Abstract 1105 *The Toxicologist* 144: 235, 2015.

4. Cheikhi A, F Ambrosio and **A Barchowsky**. Remodeling of Mitochondrial Network Topology Defines Myogenesis Progression: Insights from Low-Dose Arsenite Exposure. Abstract 1976 *The Toxicologist* 144: 423, 2015.
5. Cheikhi A, F Ambrosio and **A Barchowsky**. Low Level Arsenic Exposure Reveals Mitochondrial Dynamics Regulation of Self-Renewal. Abstract 1250 *The Toxicologist* 150: 58, 2016.
6. Anguiano T, A Sahu, F Ambrosio, and **A Barchowsky**. Arsenic Disrupts Muscle Stem Cell Determination through Fibroblast Mitochondrial Maladaptation that Directs a Dysfunctional Extracellular Matrix Memory. Abstract 2172 *The Toxicologist* 162: 285, 2018.
7. **Barchowsky, A**. Mitochondria Direct Arsenic-Induced Epigenetic Regulation of Stem Cell Fate. Abstract 3243 *The Toxicologist* 162: 542, 2018.
8. Ambrosio F and **A Barchowsky**. Arsenic-Induced Alterations in the Muscle Extracellular Matrix Drive Stem Cell Dysfunction and Impaired Regeneration. Abstract 1677 *The Toxicologist* 168: 160, 2019.
9. Cao S, K. Bein, **A. Barchowsky**, and G. Leikauf. Arsenic Induces Surfactant Protein B Dysregulation through Hypermethylation. Abstract 2970 *The Toxicologist* 168: 441, 2019.

### **3. Service (Professionally Related)**

#### **a. University/Institute of Higher Learning**

##### **University of Pittsburgh**

<b>Years</b>	<b>Committee</b>	<b>Position</b>
2018-2019	EOH Faculty Search Committee	appointed
2018	IDM Search Committee for Professor	appointed
2017	EPIDEM Search Committee for Assistant Professor (OTS)	appointed
2016-2017	EOH Search Committee for Department Chair	appointed
2016-2019	GSPH Faculty Appointments, Promotions and Tenure Committee, Chair	appointed
2016	IDM Search Committee for Assistant Professor (OTS)	appointed
2016-2019	GSPH Faculty Appointments, Promotions and Tenure Committee	appointed
2015-	GSPH MPH/Core Curriculum Committee	appointed
2015	EOH Search Committee for Research Assistant Professor	appointed
2014	HUGEN Search Committee for Open Rank Professor, outside of tenure stream	appointed
2014	IDM Search Committee for Assistant Professor	appointed
2016-	Chair, GSPH Faculty Appointments, Promotions and Tenure Committee	appointed
2013-	GSPH Faculty Appointments, Promotions and Tenure Committee	appointed
2012	EOH Search Committee for Research Instructor	appointed
2009	EOH Search Committee for tenure stream Assistant/Associate Professors.	appointed
2007-	Director, Environmental Health Sciences Training Program	appointed
2004-2014	GSPH Core Curriculum Committee	appointed
2003-	EOH Promotions and Appointments Committee	appointed
2004-2006	GSPH Reaccreditation Committee	appointed
2005-	EOH Search Committee for Research Faculty	appointed

<b>Years</b>	<b>Committee</b>	<b>Position</b>
2004	GSPH Molecular Biology Retreat Planning Group	Appointed

**Other**

<b>Years</b>	<b>Committee</b>	<b>Position</b>
2002-2008	External Advisory Committee, University of Montana Center for Environmental Health	appointed
2005-2008	Chair, External Advisory Committee, University of Montana Center for Environmental Health	elected
2012-2018	Scientific Advisory Board, University of Arizona Superfund Basic Research program.	appointed

**b. Editorial Boards, Editorships**

<b>Date</b>	<b>Position</b>	<b>Organization</b>
2014-	Section Editor	Current Environmental Health Reports
2013-	Editorial Board	Environmental Health Perspectives
2007-	Associate Managing Editor	Toxicological Sciences
2003-2010	Associate Editor	Cardiovascular Toxicology
2003-	Associate Editor	Journal of Cellular Physiology

**c. Manuscript and Other Document/Publication Review**

<b>Dates</b>	<b>Journal Title</b>
Continual since 1988	American Journal of Physiology, Lung Cellular and Molecular Physiology American Journal of Pathology Arteriosclerosis, Thrombosis and Vascular Biology Cancer Research Cardiovascular Toxicology Chemical Research in Toxicology Environmental Health Perspectives (Editorial Board) Environmental Science and Technology Free Radical Biology and Medicine Molecular and Cellular Biochemistry Journal of Cellular Physiology (Associate Editor) Journal of Experimental Pharmacology and Therapeutics PlosOne Toxicology and Applied Pharmacology. Toxicological Sciences (Associate Editor)

**d. Study Sections, Review Panels, and Related Advisory Boards (selected and past 10 years)**

<b>Date</b>	<b>Position</b>	<b>Organization and Nature of Activity</b>
2019	Chair	NIH Member Conflict: Topics in Toxicology and Pharmacology Study Section. ZRG1 DKUS-T 06 M.

<b>Date</b>	<b>Position</b>	<b>Organization and Nature of Activity</b>
2019	member	NIEHS R13 Support for Conferences and Scientific Meetings Study Section. ZES1 VSM-S (R3) 1.
2018	Ad-hoc	NIH Systemic Injury from Environmental Exposures Study Section
2016-2019	Member	Department of Veterans Affairs Joint Biomedical Laboratory Research and Development and Clinical Science Research and Development Services Scientific Review Board: Subcommittee on Gulf War Veterans' Illnesses.
2016	Member	NIH CSR Special Emphasis Panel ZRG1 DKUS-L 04 M
2013	Ad-hoc	NIH Board of Scientific Councilors review of the Laboratory of Toxicology and Pharmacology.
2011-2015	Member	NIH Xenobiotic and Nutrient Disposition and Action Study Section
2010-2016	Member	College of CSR Reviewers
2009	member	NIH Superfund Basic Research Program review panel
2009	member	Nanosafety Review special emphasis panel, NIEHS
2009	member	Outstanding New Environmental Scientists special emphasis panel, NIEHS
2009-2010	member	NIEHS Outstanding New Environmental Scientists special emphasis panel
2008-2009	member	NIH special emphasis panel: Systemic Injury from Environmental Exposures.

**e. Leadership in Professional Organizations and Honorary Societies.**

<b>Date</b>	<b>Position</b>	<b>Organization</b>
2018-2019	President	Allegheny-Erie Chapter Society of Toxicology (elected)
2017-2018	President-elect	Allegheny-Erie Chapter Society of Toxicology (elected)
2014-2017	Member	Council of the Society of Toxicology (elected)
2013-2014	Member	Society of Toxicology Communications Committee
2011	Chair	Educational Summit Organizing Team, Society of Toxicology.
2010-2011	President	Metals Specialty Section, Society of Toxicology
2009-2011	Chair	Society of Toxicology Education Committee
2009-2010	Vice President	Metals Specialty Section, Society of Toxicology
2008-2009	Vice President (elect)	Metals Specialty Section, Society of Toxicology
2007-2011	Member	Society of Toxicology Education Committee
2005-2015	Vice President	Allegheny-Erie Chapter Society of Toxicology

**f. Service to Governmental and Other Public Organizations**

<b>Date</b>	<b>Position</b>	<b>Organization and Nature of Activity</b>
2013-2019	Member and Chair	National Research Council, Committee on Inorganic Arsenic.
2012-2015	Member	World Health Organization, Chemicals and Toxins Task Force of FERG
2006-2011	Member	Advisory Board, University of Pittsburgh Academic Consortium for Excellence in Environmental Public Health Tracking (UPACE-EHPT)
2005-2009	Member	US Environmental Protection Agency Scientific Advisory Board Arsenic Special Emphasis Panel
2002	Member	National Academies of Science, Committee on the framework for evaluating the safety of dietary supplements; Chromium Picolinate I Working Group.
1996-2003	Member	American Heart Association, Northeast Affiliate, Research Committee

#### **g. Consultantships**

<b>Date</b>	<b>Name of Consultantship</b>
2017-2018	External Advisory Board, Michigan State University toxicology training program.
2005-2010	EPA special government employee, Arsenic Advisory Panel
1991-1994	Clinical Trial Design Consultant, Hoechst Marion Roussel (Marion Merrell Dow), Kansas City, MO
1988-1991	Clinical Trial Design Consultant, Merck Sharp and Dohme Research Laboratories, West Point, PA.

#### **4. Service (Community Related)**

##### **Service to Community-Based Organizations**

<b>Year</b>	<b>Position and Organization</b>	<b>Type of Service</b>
2011	Riverquest	Scientific program review
2005	Environmental Integrity Project	Consultant
2005	Clean Water Action	Consultant
2005	Clean Air Task Force	Consultant
2002	Montshire Museum of Science, Environmental Detectives Summer Teacher Institute	Consultant and lecturer in a course designed to educate middle school teachers

##### **Other Related Service and Volunteer Activities.**

<b>Year</b>	<b>Position and Organization</b>	<b>Type of Service</b>
2007	Pittsburgh Environmental Health Sciences Program	Created community outreach core to support a NIEHS Superfund Basic Research Program grant. Target communities surrounding the abandoned American Zinc and Chemical Company smelter, northern Washington County, PA.
2005	Informed resource for Forward Township residents coping with fly ash slide.	Attended town meetings to answer health concerns and connect residents to government agencies. Phone and email resource.
2001- 2003	Upper Valley Lightning Soccer Association	Youth soccer coach, board member
1996 - 2001	Hanover, NH Recreation Department,	Youth soccer coach,