

# CURRICULUM VITAE

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## EDUCATION AND TRAINING

### Undergraduate

1973-76	University of Essex UK	BSc (Hon) 1976	Biological Chemistry
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### Graduate

1976-79	University of Essex UK	PhD 1981	Chemistry (Michael T Wilson)
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### Post-Graduate

1980	University of Essex UK	Postdoctoral Fellow	Electrochemistry (Jack Silver)
1981-85	University of East Anglia UK	Senior Post- doctoral Fellow	Spectroscopy (Andrew J Thomson & Colin Greenwood)
1986-88	University of Minnesota MN	Postdoctoral Associate	Biophysics (Edmund P Day & Eckard Münck)

## APPOINTMENTS AND POSITIONS

### Academic

1979	Chemistry Teacher	The Gilberd School, Colchester UK
1980	Chemistry & Physics Teacher	Copford International College, Colchester UK
1988-96	Assistant Professor of Chemistry	The University of Alabama, Tuscaloosa AL
1996-2004	Special Faculty in Chemistry	Carnegie Mellon University, Pittsburgh PA
2004-	Associate Professor of Environmental & Occupational Health	University of Pittsburgh, Pittsburgh PA
2004-	Adjunct Associate Professor of Chemistry	Carnegie Mellon University, Pittsburgh PA

### Non-Academic

N/A	N/A	N/A
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## CERTIFICATION AND LICENSURE

### Specialty Certification

N/A	N/A	N/A
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### Medical or Other Professional Licensure

N/A	N/A	N/A
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## MEMBERSHIP IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

1980s (~5 years)	Royal Society of Chemistry
1980s (~5 years)	Biochemical Society
1990s (~5 years)	American Chemical Society
2006-12	Radiation Research Society
2011-	Biophysical Society
2011-	American Chemical Society

# HONORS

N/A

N/A

N/A

N/A

# PROFESSIONAL ACTIVITIES

## 1. Teaching

### a. Courses Taught

<b>Years Taught</b>	<b>Course Number: Title</b>	<b>Hours of Lecture, credits Average Enrollment</b>	<b>Primary Instructor?</b>
1988, 1995	101 General Chemistry (Alabama)	45 hrs, 4 credits, ~125 students	Yes
1989-96	424 Instrumental Analysis (Alabama)	120 hrs, 4 credits, ~10 students	Yes
1989-96	521 Analytical Chemistry Survey (Alabama)	30 hrs, 3 credits, ~5 students	Yes
1989-96	223 Quantitative Analysis (Alabama)	45 hrs, 3 credits, ~20 students	Yes
1990, 1992, 1994	524 Analytical Spectroscopy (Alabama)	45 hrs, 3 credits, ~10 students	Yes
1991, 1993	581 Physical Biochemistry (Alabama)	45 hrs, 3 credits, ~5 students	Yes
1994-95	102 General Chemistry (Alabama)	45 hrs, 4 credits, ~75 students	Yes
1996	09-348 Inorganic Chemistry (CMU)	45 hrs, 3 credits, ~45 students	Yes
2006, 2012-	EOH 2122 Transport & Fate of Environmental Agents	15 hrs, 3 credits, 15 students	Yes
2006-09	EOH 2309 Bioorganic Toxicology	45 hrs, 3 credits, ~30 students	Yes
2007, 2010	EOH 2313 Bioinorganic Toxicology	45 hrs, 3 credits, 5 students	Yes
2010-	EOH 2309 Environmental Health Chemistry	5 hrs, 3 credits, 15 students	No
2010-	EOH 2313 Special Topics in Bioinorganic Chemistry	30 hrs, 2 credits, 2 students	Yes

**b. Other Teaching** (lectures, tutorials and continuing education courses)

Date(s)	Type of Teaching	Title
N/A	N/A	N/A

**c. Major Advisor for Graduate Student Essays, Theses, and Dissertations**

Name of Student	Degree Awarded, Year	Type of Document and Title	Notes
Qinyun Peng	1994	Dissertation (PhD): "Near-Infrared Magnetic Circular Dichroism of Unusual Hemes."	Alabama
Karen E Rogers	1995	Dissertation (PhD): "Inclusion Studies of p-Sulfonatocalix[4]arene in Solution and in the Solid State."	Alabama
Angela D Carraway	1995	Dissertation (PhD): "N-Acetylated Heme Peptides - Models for Hemoproteins."	Alabama
Susamma Mathew	1995	Seminar/paper (MS): "Manganese and 'Pinnaglobin' in <i>Pinna nobilis</i> ."	Alabama, no thesis required
Roderick B Daniels	1996	Seminar/paper (MS): "The Electrochromic Behavior of Lanthanide Bisphthalocyanines."	Alabama, no thesis required
David E Holm	1996	Dissertation (PhD): "A Comparative Study of Shark and Beef Cytochrome c Oxidases."	Alabama
Pornsri ("Lek") Khlangwiset	2007	Essay (MPH): "The Renewed Threat to Public Health Posed by Ionizing Radiation."	
Brian K Blashich	2008	Essay (MPH): "Improving worker Health and Safety at Future Disaster Sites."	
Mai Otsuka	2008	Thesis (Accelerated MS): "Characterization of the Reactivity of Nitrihemoglobin."	Carnegie Mellon
Lara M Huyler	2008	Essay (MPH): "A Critique of Occupational Ionizing Radiation Regulations in the United States."	
Shannon E Raub	2009	Essay (MPH): "A Discussion on the Effect of Ionizing Radiation on Plants and	

		Subsequent Consequences to Public Health.”
Patrick P Kerr	2010	Essay (MPH): “Post-translational Modification of Complex I by X-ray Irradiation – A Possible Link to Oxidative Stress.”
Charles (“Chuck”) Tomljanovic	2011	Essay (MPH): “The Development of Improved Conceptual Site Models to Prevent Exposure to Chemical and Safety Hazards Caused by Conflict Related Unexploded Ordnance (UXO).”
Timothy M Knapp	2011	Essay (MPH): “Leading Indicators – a New Approach to Occupational Health and Safety Compliance.”
Dolores A Kirschner	2011	Essay (MPH): “Migraine is not just a Headache, It’s a Disabling Headache Disorder.”
Elisenda Lopez Manzano	2011	Dissertation (PhD): “Peroxynitrite and Mitochondrial Cytochromes”
Brett Tunno	2011	Essay (MPH): “Historical Perspective on Air Pollution and a Focus on Pittsburgh’s Past Versus Present.”
Xi Zheng	2011	Essay (MPH): “Radiation and Public Health.”
Oscar S Benz	2012	Dissertation (PhD): “CobaltIII Macrocycles as Possible Cyanide Antidotes”
Megan A. Allison	2013	Essay (MPH): “Occupational Hazards in Onshore Upstream Unconventional Natural Gas Extraction.”
Wen Yu (“Lulu”) Chen	2013	Essay (MPH): “Effects of Nitrite in Groundwater.”
Ben Guo	2014	Essay (MPH): “Cold Inducible RNA-binding Protein (CIRBP) Function in Acrolein Induced Acute Lung Injury.”
Ditian Yang	2014	Essay (MPH): “The Tobacco-specific Nitrosamines from Thirdhand Tobacco Smoke as a New Concern to Public Health.”

Qiao Lin	2014	Essay (MPH): “Suicide by Hydrogen Sulfide: How Can Emergency Services Respond?”
Yi Chen	2014	Essay (MPH): “Cadmium Exposure and Liver Disease.”

**d. Service on Masters or Doctoral Committees (Since 2004\*)**

<b>Dates Served</b>	<b>Name of Student</b>	<b>Degree Awarded</b>	<b>Title of Dissertation/Essay</b>
2004	Anup K Upadhyay	PhD (CMU, 2004)	“Spectroscopic Characterization of Multiheme Proteins from <i>Nitrosomonas europaea</i> .”
2005	Sebastian Stoian	PhD (CMU, 2006)	“Mössbauer and Quantum-chemical Studies of Fe(I) and Fe(II) Diketiminato Complexes and of a Short-lived Fe <sup>IV</sup> =O Intermediate.”
2009	Anya Zatsman	PhD (CMU, 2009)	“Mechanistic Studies of Multiheme Proteins Using EPR Spectroscopy”

\*Date of present appointment – dozens prior to this for which I no longer have records.

**e. Service on Comprehensive or Qualifying Examination Committees (OPTIONAL)**

<b>Dates Served</b>	<b>Student Population</b>	<b>Type of Exam/ Number of Questions</b>
No records	No records	No records

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

<b>Dates Supervised</b>	<b>Name of Student</b>	<b>Position of Student</b>
2004-2008	Daniel E Winnica	Post-doctoral Associate
2008-2011	Iris Kaminski	Post-doctoral Associate
2009-2011	Quan Yuan	Post-doctoral Associate

### **g. Mentoring of Graduate Students in Field Placements**

<b>Dates</b>	<b>Name of Student</b>	<b>Degree/Program Description</b>	<b>Field Site</b>
2006	Pornsri ('Lek') Khlangwiset	MPH Special Studies (research)	Parran/Crabtree Hall laboratories
2005 – 2011	Elisenda Lopez Manzano	PhD (research)	Parran/Crabtree Hall laboratories
2007 – 2008	Pornsri ('Lek') Khlangwiset	PhD (research)	Parran/Crabtree Hall laboratories
2007 – 2008	Mai Otsuka	CMU (Chemistry) Accelerated MS (research)	Parran/Crabtree Hall laboratories
2008 – 2012	Oscar S Benz	PhD (research)	Parran/Crabtree Hall laboratories
2008	Lara M Huyler	MPH Special Studies (research)	Parran/Crabtree Hall laboratories
2008	Shannon E Raub	MPH Special Studies (research)	Parran/Crabtree Hall laboratories
2009	Patrick P Kerr	MPH Special Studies (research)	Parran/Crabtree Hall laboratories
2009 – 2010	Sarah A Marks	CMU (Chemistry) BS (research)	Parran/Crabtree Hall & Bridgeside Point laboratories
2010 – 2011	Xi Zheng	MPH Special Studies (research)	Parran/Crabtree Hall & Bridgeside Point laboratories
2012 – 2013	Kristin Frawley	MPH Special Studies (research)	Bridgeside Point laboratories
2013	Andrew Helmy	MPH Special Studies (research)	Bridgeside Point laboratories
2013	Dina G Dunn	MPH Special Studies (research)	Bridgeside Point laboratories
2013	Qiao Lin	MPH Special Studies (research)	Bridgeside Point laboratories
2013	Yi Chen	MPH Special Studies	Bridgeside Point

		(research)	laboratories
2013	Ditian Yang	MPH Special Studies (research)	Bridgeside Point laboratories
2013	Rui Guo	MPH Special Studies (research)	Bridgeside Point laboratories

#### **h. Other Teaching and Training**

<b>Dates</b>	<b>Teaching Activity</b>	<b>Program/Description</b>
2004-2005	Supervising original research	Predoctoral Associate (Elisenda Lopez Manzano)
2005-2007	Supervising original research	CMU (Chemistry) Undergraduate (Mai Otsuka)
2006-2007	Supervising original research	Predoctoral Associate (Sandra Martinez-Bosch)
2006-2008	Supervising original research	CMU (Chemistry) Undergraduate (Elizabeth A Ungerman)
2007-2008	Supervising original research	Pittsburgh (Chemistry) Undergraduate (Patrick P Kerr)
2008-2009	Supervising original research	Pittsburgh (Engineering) Undergraduate (Rachel K Ungerman)
2009-2011	Supervising original research	Research Specialist II (Leah K Cambal)
2009-2010	Supervising original research	Predoctoral Associate (Megan R Swanson)
2009-2010	Supervising original research	Graduate Student (Biostatistics) PhD (Yang Zhang)
2010-2011	Supervising original research	Research Specialist I (Andrew C Weitz)
2010-2011	Supervising original research	Graduate Student (Biostatistics) PhD (Tianxiu Wang)

## **2. Research and Training**

a. Grants and Contracts Received (Since 2000#) [#Prior to 2000, ~8 smaller awards (\$5,000-70,000 each) of 1-year duration from AHA (Alabama Affiliate), NSF (Molecular & Cellular Biophysics), and local sources at The University of Alabama and CMU.]

**Principal Investigator/Project Leader\***

<b>Years Inclusive</b>	<b>Grant and/or Contract Number and Title</b>	<b>Source</b>	<b>Annual Direct Costs</b>	<b>% Effort</b>
2000-04	HL61411, "Mitochondria and Pulmonary Endothelial Cell Death."	NIH/NHLBI	\$150,000	75%
2004-08	HL61411, "Mitochondria and Pulmonary Endothelial Cell Death."	NIH/NHLBI	\$175,000	50%
2005-10	U19-AI068021, "Center for Molecular Countermeasures Against Radiation: Project 3: Development of New Small Molecule Targets for Radiation Protection Through Elaboration of the Mechanism of Irradiation Damage to the Mitochondrial Electron Transport Chain."	NIH/NIAID	\$191,982	20%/
2010-13	U19-AI068021, "Center for Molecular Countermeasures Against Radiation: Project 4: Development of New Small Molecule Targets for Radiation Protection Through Elaboration of the Mechanism of Irradiation Damage to the Mitochondrial Electron Transport Chain."	NIH/NIAID	\$56,790	5%
2008-12	U01 NS063732, "Acute Cyanide Toxicity, Complex IV, NO & Nitrite."	NIH/NINDS	\$322,911	30%
2012-13	SwRI Subcontract No. E9910MEC, "Spectroscopic Studies of Candidate Antidotes for Acute Cyanide Intoxication."	BARDA	\$28,739	5%
2013-	R21 NS084894, "Nitrites as Antidotes for Hydrogen Sulfide Poisoning."	NIH/NINDS	\$250,000	50%

**Co-Principal Investigator**

<b>Years Inclusive</b>	<b>Grant and/or Contract Number and Title</b>	<b>Source</b>	<b>Annual Direct Costs</b>	<b>% Effort</b>
N/A	N/A	N/A	N/A	N/A

**Other Role on Grants**

<b>Years Inclusive</b>	<b>Grant and/or Contract Number and Title</b>	<b>Source</b>	<b>Annual Direct Costs</b>	<b>% Effort</b>
N/A	N/A	N/A	N/A	N/A

**b. Invited Lectureships and Major Seminars Related to Your Research (Since 2000 – no existing records prior to this)**

“Magnetic Linear Dichroism Spectroscopy: A New Tool for the Study of Catalytic Sites in Metalloproteins.” Division of Inorganic Chemistry, University of Cambridge, UK, 2000.

“Magnetic Linear Dichroism Spectroscopy: A New Tool for the Study of Catalytic Sites in Metalloproteins.” Division of Inorganic Chemistry, University of Oxford, UK, 2000.

“Magnetic Linear Dichroism Spectroscopy: A New Tool for the Study of Catalytic Sites in Metalloproteins.” Division of Inorganic Chemistry, University of Edinburgh, UK, 2000.

“Magnetic Linear Dichroism Spectroscopy: A New Tool for the Study of Catalytic Sites in Metalloproteins.” Division of Inorganic Chemistry, King’s College London, UK, 2000.

“Mitochondrial Decomposition of Peroxynitrite.” Third International Conference on Peroxynitrite and Reactive Nitrogen Species in Biology and Medicine. Monterrey CA, 2001.

“MCD, MLD, Mitochondria, and the Vasculature: Is There a Connection?” Department of Environmental and Occupational Health, University of Pittsburgh PA, 2002.

“Addressing Physiologically-relevant Issues by Analytical Spectroscopy” Department of Environmental and Occupational Health, University of Pittsburgh PA, 2002.

“Physiologically-relevant Reactions of Mitochondrial Complex IV with the Auxiliary Substrate Nitric Oxide.” Radical-mediated Mechanisms in Biophysics Symposium, Biophysical Society Meeting, San Antonio TX, 2003.

Co-Chair: “The Function and Regulation of Mitochondrially-produced Nitric Oxide in Cardiomyocytes.” Experimental Biology 2003 Symposium, American Physiological Society Meeting, San Diego CA, 2003.

“Mitochondrial Consumption of Nitric Oxide and Peroxynitrite – Relief of Nitrosative Stress?” Department of Biochemical Sciences, University of Rome “*La Sapienza*,” Italy, 2004.

“Mitochondria Suppress Nitrosative Stress by Consumption of Nitric Oxide and Peroxynitrite.” Fourth International Conference on Peroxynitrite and Reactive Nitrogen Species in Biology and Medicine, Konstanz, Germany, 2004.

“Development of New Small Molecule Targets for Radiation Protection Through Elaboration of the Mechanism of Irradiation Damage to the Mitochondrial Electron Transport Chain.” NIAID CMCR Steering Committee Meeting, Arlington VA, 2005.

“Mitochondrial Targets for Radioprotection.” NIAID CMCR Annual Meeting, Gaithersburg MD, 2006.

“Mitochondrial Peroxynitrite – The Uncertain Magnitude of the Problem.” Mid-Atlantic Nitric Oxide Interest Group Meeting, Farmington PA, 2008.

“Acute Cyanide Toxicity, Complex IV, NO and Nitrite.” Third Annual CounterACT Network Research Symposium, Washington DC, 2009.

“Old Myths and New Uncertainties Regarding the Action of Sodium Nitrite in the Amelioration of Cyanide Intoxication.” 17<sup>th</sup> Biennial Medical Chemical Defense Bioscience Review, Hunt Valley MD, 2009.

“Acute Cyanide Toxicity, Complex IV, NO and Nitrite.” Fourth Annual CounterACT Network Research Symposium, San Francisco CA, 2010.

“Acute Cyanide Toxicity, Complex IV, NO and Nitrite.” Fifth Annual CounterACT Network Research Symposium, Washington DC, 2011.

Moderator: “Full Metal Jacket – The Roles of Metal Ions in Proteins.” Science2011 – Next Gen, University of Pittsburgh, Pittsburgh PA, 2011.

“Acute Cyanide Toxicity and Sodium Nitrite: An Example of Medicine Disguised as Quackery.” Center for Drug Design, University of Minnesota, Minneapolis MN, 2011.

“Acute Cyanide Toxicity and Sodium Nitrite: Modern Cyanide Exposures and Medical Good Fortune.” Institute of Mineral Resources, Chinese Academy of Geological Sciences, Beijing, China, 2012.

“Acute Cyanide Toxicity and Sodium Nitrite: Counterterrorism and a Remedy Disguised as Quackery.” School of Public Health, University of Indiana Bloomington, IN, 2013.

“Nitrites as Antidotes for Hydrogen Sulfide Poisoning.” Eighth Annual CounterACT Network Research Symposium, Denver CO, 2014.

### **c. Other Research and Training Activities**

<b>Date</b>	<b>Position</b>	<b>Description of Activity</b>
June 2006	Invited participant	NIAID/CMCR Workshop on the FDA Pre-market Regulatory Process.
March 2007	Invited participant	DAIT/NIAID/NIH Medical Countermeasures Against Radiation Combined Injury Meeting.
June 2007	Invited participant	NIAID Centers for Medical Countermeasures against Radiation Annual Meeting.
November 2008	Invited participant	NIAID Centers for Medical Countermeasures against Radiation Annual Meeting.
April 2009	Invited participant	NINDS 3 <sup>rd</sup> Annual CounterACT Meeting.
May 2010	Invited participant	USAMRMC 17 <sup>th</sup> Biennial Bioscience Review.
June 2010	Invited participant	NINDS 4 <sup>th</sup> Annual CounterACT Meeting.
June 2011	Invited participant	NINDS 5 <sup>th</sup> Annual CounterACT Meeting.
April 2012	Invited consultant	Institute of Mineral Resources, Chinese Academy of Geological Sciences, Colloquium on Heavy Metals, Mining & Public Health.
March 2013	Invited consultant	School of Public Health, University of Indiana Bloomington, Colloquium on Environmental Health in Public Health.

# PUBLICATIONS

## 1. Refereed Articles

1. Authors (same order as publication, Last name, first and middle initials). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

## As Student/Postdoctoral Investigator:

1. J. Peterson, J. Silver, M. T. Wilson and I. E. G. Morrison: "The Purification and Mössbauer Parameters of the Haem Undecapeptide of Cytochrome *c*"; *J. Inorg. Biochem.*, **13**, 75-82 (1980).
2. G. M. Clore, M. R. Hollaway, C. Orengo, J. Peterson and M. T. Wilson: "The Kinetics of the Reactions of Low Spin Ferric Haem Undecapeptide with Hydrogen Peroxide"; *Inorg. Chim. Acta*, **56**, 143-148. (1981).
3. K. Kimura, J. Peterson, M. Wilson, D. J. Cookson and R. J. P. Williams: "A Study of the Electron Transfer Properties of the Haem Undecapeptide from Cytochrome *c* by <sup>1</sup>H NMR Spectroscopy"; *J. Inorg. Biochem.*, **15**, 11-25 (1981).
4. M. T. Wilson, J. Peterson, E. Antonini, M. Brunori, A. Colosimo and J. Wyman: "A Plausible Two-state Model for Cytochrome *c* Oxidase"; *Proc. Natl. Acad. Sci. USA*, **78**, 7115-7118 (1981).
5. G. Sievers, P. M. A. Gadsby, J. Peterson and A. J. Thomson: "Magnetic Circular Dichroism Spectra of Soybean Leghaemoglobin *a* at Room Temperature and 4.2 K"; *Biochim. Biophys. Acta*, **742**, 637-647 (1983).
6. D. G. Eglinton, P. M. A. Gadsby, G. Sievers, J. Peterson and A. J. Thomson: "A Comparative Study of the Low-temperature Magnetic Circular Dichroism Spectra of Horse Heart Metmyoglobin and Bovine Liver Catalase Derivatives"; *Biochem. Biophys. Acta*, **742**, 648-658 (1983).
7. G. Sievers, P. M. A. Gadsby, J. Peterson and A. J. Thomson: "Assignment of the Axial Ligands of the Haem in Milk Lactoperoxidase using Magnetic Circular Dichroism Spectroscopy"; *Biochim. Biophys. Acta*, **742**, 659-668 (1983).
8. B. C. Hill, T. Brittain, D. G. Eglinton, P. M. A. Gadsby, C. Greenwood, P. Nicholls, J. Peterson, A. J. Thomson and T. C. Woon: "Low-spin Ferric Forms of Cytochrome *a*<sub>3</sub> in Mixed-ligand and Partially Reduced Cyanide-bound Derivatives of Cytochrome *c* Oxidase"; *Biochem. J.*, **215**, 57-66 (1983).
9. B. Lukas, J. Peterson, J. Silver and M. T. Wilson: "Conductometric Studies on Protoporphyrin IX-Iron (III) Alkali Metal Solutions: Evidence for the Alkali Metals Binding to the Protoporphyrin IX-Iron(III) Moiety"; *Inorg. Chim. Acta*, **80**, 245-250 (1983).
10. J. Peterson, M. M. M. Saleem, J. Silver, M. T. Wilson and I. E. G. Morrison: "On the Preparation and Mössbauer Properties of Some Haem Peptides of Cytochrome *c*"; *J. Inorg. Biochem.*, **19**, 165-178 (1983).
11. G. Sievers, J. Peterson, P. M. A. Gadsby and A. J. Thomson: "The Nitrosyl Compound of Ferrous Lactoperoxidase"; *Biochim. Biophys. Acta*, **785**, 7-13 (1984).
12. M. K. Johnson, A. J. Thomson, A. J. M. Richards, J. Peterson, A. E. Robinson, R. R. Ramsay and T. P. Singer: "Characterization of the Fe-S Cluster in Aconitase using Low-temperature Magnetic Circular Dichroism Spectroscopy"; *J. Biol. Chem.* **259**, 227-2282 (1984).
13. N. Foote, J. Peterson, P. M. A. Gadsby, C. Greenwood and A. J. Thomson: "A Study of the Oxidised Form of *Pseudomonas aeruginosa* Cytochrome *c*<sub>551</sub> Peroxidase with the use of Magnetic Circular Dichroism"; *Biochem. J.*, **223**, 369-378 (1984).
14. C. Greenwood, N. Foote, J. Peterson and A. J. Thomson: "The Nature of the Species Produced by Photolysis of the Half-reduced, Fully-reduced and Fully-reduced Carbonmonoxy-cytochrome *c*<sub>551</sub> Peroxidase from *Pseudomonas aeruginosa*"; *Biochem. J.*, **223**, 379-391 (1984).

15. B. C. Hill, T. C. Woon, P. Nicholls, J. Peterson, C. Greenwood and A. J. Thomson: "Interactions of Sulphide and other Ligands with Cytochrome *c* Oxidase: An Electron Paramagnetic Resonance Study"; *Biochem. J.*, **224**, 591-600 (1984).
16. C. Greenwood, N. Foote, J. Peterson and A. J. Thomson: "Photolytic Studies on Cytochrome *c*<sub>551</sub> Peroxidase from *Pseudomonas aeruginosa*"; *Biochem. Soc. Trans.*, **13**, 625-626 (1985).
17. A. J. Thomson, C. Greenwood, P. M. A. Gadsby, J. Peterson, D. G. Eglinton, B. C. Hill and P. Nicholls: "The Structure of the Cytochrome *a*<sub>3</sub>-Cu<sub>B</sub> Site of Mammalian Cytochrome *c* Oxidase as Probed by MCD and EPR Spectroscopy"; *J. Inorg. Biochem.*, **23**, 187-197 (1985).
18. G. R. Moore, R. J. P. Williams, J. Peterson, A. J. Thomson and F. S. Mathews: "A Spectroscopic Investigation of the Structure and Redox Properties of *Escherichia coli* Cytochrome *b*<sub>562</sub>"; *Biochim. Biophys. Acta*, **829**, 83-96 (1985).
19. N. Foote, J.; Peterson, P. M. A. Gadsby, C. Greenwood and A. J. Thomson: "Redox-linked Spin-state Changes in the Dihaem Cytochrome *c*<sub>551</sub> Peroxidase from *Pseudomonas aeruginosa*"; *Biochem. J.*, **230**, 227-237 (1985).
20. J. Sutherland, C. Greenwood, J. Peterson and A. J. Thomson: "An Investigation of the Ligand Binding Properties of *Pseudomonas aeruginosa* Nitrite Reductase"; *Biochem. J.*, **233**, 893-898 (1986).
21. J. Peterson, C. Godfrey, A. J. Thomson, G. N. George and R. C. Bray: "Detection by Low-temperature Magnetic Circular Dichroism Spectroscopy of Optical Absorption Bands due to Molybdenum (V) in the Form of Xanthine Oxidase giving the Desulpho Inhibited EPR Signal"; *Biochem. J.*, **223**, 107-110 (1986).
22. A. J. Thomson, C. P. Barrett, J. Peterson and C. Greenwood: "Optical Detection of Paramagnetic Resonance by Magnetic Circular Dichroism. Applications to Metalloproteins"; *Frontiers in Bioinorganic Chemistry* (lectures presented at the 2nd Internat. Conference on Bioinorg. Chemistry) A. V. Xavier (ed.) VCH (1986) pp. 594-603.
23. C. P. Barrett, J. Peterson, C. Greenwood and A. J. Thomson: "Optical Detection of Paramagnetic Resonance by Magnetic Circular Dichroism. Applications in Aqueous Solutions of Metalloproteins"; *J. Amer. Chem. Soc.*, **108**, 3170-3177 (1986).
24. A. J. Thomson, C. Greenwood, J. Peterson and C. P. Barrett: "Determination of the Optical Properties of Cu<sub>A</sub>(II) in *Bovine* Cytochrome *c* Oxidase using Magnetic Circular Dichroism as an Optical Detector of Paramagnetic Resonance"; *J. Inorg. Biochem.* **28**, 195-205 (1986).
25. J. Peterson and M. T. Wilson: "The Reduction of Haem Peptides by Dithionite: A Kinetic Investigation"; *Inorg. Chim. Acta*, **135**, 101-107 (1987).
26. P. M. A. Gadsby, J. Peterson, N. Foote, C. Greenwood and A. J. Thomson: "Identification of the Ligand-exchange Process in the Alkaline Transition of Horse Heart Cytochrome *c*"; *Biochem. J.*, **246**, 43-54 (1987).
27. E. P. Day, J. Peterson, J. J. Bonvoisin, L. J. Young, J. O. Wilkerson and L. M. Siegel: "Magnetization of the Sulfite and Nitrite Complexes of Oxidized Sulfite and Nitrite Reductases. EPR Silent Spin S = 1/2 States"; *Biochem.* **27**, 2126-2132 (1988).
28. E. P. Day, J. Peterson, J. J. Bonvoisin, I. Moura and J. J. G. Moura: "Magnetization of the Oxidized and Reduced Three-iron Cluster of *Desulfovibrio gigas* Ferredoxin II"; *J. Biol. Chem.*, **263**, 3684-3689 (1988).
29. E. P. Day, S. S. David, J. Peterson, W. R. Dunham, J. J. Bonvoisin, R. H. Sands and L. Que, Jr.: "Magnetization and Electron Paramagnetic Resonance Studies of Reduced Uteroferrin and Its 'EPR-Silent' Phosphate Complex"; *J. Biol. Chem.* **263** 15561-15567 (1988).
30. C. S. Frampton, J. M. O'Connor, J. Peterson and J. Silver: "Enhanced Colours and Properties in the Electrochromic Behaviour of Mixed Rare-earth Element Bisphthalocyanines"; *Displays*, **9**, 174-178 (1988).
31. C. Greenwood, A. J. Thomson, C. P. Barrett, J. Peterson, G. N. George, J. A. Fee, and J. Reichardt: "Some Spectroscopic Views of the Cu<sub>A</sub> Site in Cytochrome *c* Oxidase Preparations"; *Ann. N.Y. Acad. Sci.*, **550**, 47-52 (1988).

## As Independent Investigator (\* indicates submitting author):

32. J. Peterson,\* J. A. Fee and E. P. Day: "Magnetization of Manganese Superoxide Dismutase from *Thermus thermophilus*"; *Biochim. Biophys. Acta*, **1079**, 16-168 (1991).
33. Q. Peng, R. Timkovich, P. C. Loewen and J. Peterson\*: "Identification of Heme Macrocycle Type by Near-infrared Magnetic Circular Dichroism Spectroscopy at Cryogenic Temperatures"; *FEBS Lett.*, **309**, 157-160 (1992).
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91. L.L. Pearce\*, X. Zheng, D.S. Wilen, D.G. Dunn, A.A. Cronican, K.L. Frawley, L.K. Cambal, M.R. Swanson, Y.-H Huang, J. Peterson: “Oxidant-dependent Sensitizing, Protective and Mitigative Effects in X-ray Irradiated Pulmonary Endothelial Cells”; *Rad. Res.* (2014) in revision.

## 2. Book Chapters

1. Samantha L Malone, Linda L. Pearce, Jim Peterson. *Environmental Toxicology of Cyanide in Clinical and Experimental Toxicology of Cyanide*. John Wiley & Sons, Chichester UK (2014) in press.

## 3. Published Proceedings

1. Authors (same order as publication). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

N/A

## 4. Invited Articles

1. Authors (same order as publication). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

N/A

## 5. Review Articles

1. Authors (same order as publication). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

N/A

## 6. Published Abstracts (since 2006)

1. Authors (same order as publication). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

OXIDANT-LINKED MITOCHONDRIAL MECHANISMS OF CELL DEATH IN IRRADIATED TISSUE. J. Peterson, S. Martinez-Bosch, D.E. Winnica, L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Radiation Research Society, 53<sup>rd</sup> Annual Meeting, Philadelphia, 2006.*

EFFECTS OF L-ARGININE ON MITOCHONDRIAL RESPIRATORY FUNCTION IN IRRADIATED HEMATOPOIETIC PROGENITOR CELLS. S. Martinez-Bosch, M.W. Epperly, P. Khlangwiset, J. Peterson, L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 13<sup>th</sup> Annual Meeting, Denver, 2006.*

NITRIC OXIDE AND THE STANDARD THERAPY FOR ACUTE CYANIDE POISONING. J. Peterson, E. Lopez Manzano, S. Martinez-Bosch, L. L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Second International Meeting on the Role of Nitrite in Physiology, Pathophysiology, and Therapeutics, Bethesda MD, 2007.*

OXIDATION OF HYDROETHIDINE FLUORESCENT PROBES BY COMPONENTS OF THE MITOCHONDRIAL ELECTRON TRANSPORT CHAIN. E.A. Ungerman, O. Benz, P.P. Kerr, S. Martinez-Bosch, J. Peterson, L. L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 14<sup>th</sup> Annual Meeting, Washington DC, 2007.*

RESISTANCE OF ELECTRON TRANSPORT CHAIN IRON-SULFUR CENTERS TO OXIDATIVE DEGRADATION BY PEROXYNITRITE. J. Peterson, S. Martinez-Bosch, D.E. Winnica, M.W. Epperly, L. L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 14<sup>th</sup> Annual Meeting, Washington DC, 2007.*

DIRECT IRRADIATION AND RADIATION-INDUCED BYSTANDER RESPONSES BOTH RESULT IN MITOCHONDRIAL DYSFUNCTION IN HEMATOPOIETIC PROGENITOR CELLS. P. Khlangwiset, S. Martinez-Bosch, M.W. Epperly, J. Peterson, L. L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 14<sup>th</sup> Annual Meeting, Washington DC, 2007.*

FUNCTIONAL STUDIES OF NITRIHEMOGLOBIN. M. Otsuka, D.E. Winnica, L. L. Pearce, J. Peterson; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 14<sup>th</sup> Annual Meeting, Washington DC, 2007.*

NITRIC OXIDE, NITRITE AND THE STANDARD THERAPY FOR ACUTE CYANIDE INTOXICATION. J. Peterson, L.K. Cambal, M.R. Swanson, E. Lopez Manzano, L.L. Pearce & B.R. Pitt; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Third Annual CounterACT Meeting, Washington DC, 2009.*

NITRIC OXIDE, NITRITE AND THE STANDARD THERAPY FOR ACUTE CYANIDE INTOXICATION. J. Peterson, L.K. Cambal, M.R. Swanson, E. Lopez Manzano, B.R. Pitt & L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Third International Meeting on the Physiology, Pathophysiology and Therapeutics of Nitrite, Stockholm, Sweden, 2009.*

MANGANESE SUPEROXIDE DISMUTASE IS NOT RADIOPROTECTIVE IN BOVINE PULMONARY ARTERY ENDOTHELIAL CELLS AT SYSTEMIC OXYGEN. M.S. Stitt-Fischer, R.K. Ungerman, D.S. Wilen, L.M. Huyler, S.E. Raub, J. Peterson and L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 16<sup>th</sup> Annual Meeting, San Francisco, 2009.*

THE PUZZLING OXYGEN DEPENDENCE OF THE OXIDATION OF CYTOCHROME *c* BY PEROXYNITRITE. E. Lopez Manzano, J. Peterson and L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Society for Free Radicals in Biology and Medicine, 16<sup>th</sup> Annual Meeting, San Francisco, 2009.*

OLD MYTHS AND NEW UNCERTAINTIES REGARDING THE ACTION OF SODIUM NITRITE IN THE AMELIORATION OF CYANIDE INTOXICATION. J. Peterson; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *17<sup>th</sup> Biennial, Hunt Valley MD, 2010.*

ACUTE CYANIDE TOXICITY, COMPLEX IV, NO AND NITRITE. J. Peterson, L.L. Pearce & B.R. Pitt; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Fourth Annual CounterACT Meeting, San Francisco CA, 2010.*

MANGANESE SUPEROXIDE DISMUTASE IS NOT RADIOPROTECTIVE IN BOVINE PULMONARY ARTERY ENDOTHELIAL CELLS AT SYSTEMIC OXYGEN LEVELS. L.L. Pearce and J. Peterson; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Radiation Research Society 56<sup>th</sup> Annual Meeting, Maui HI 2010.*

ACUTE CYANIDE TOXICITY, METHEMOGLOBIN, NITRITE AND THIOSULFATE. J. Peterson, L.K. Cambal, Q. Yuan, A.C. Weitz, Xi Zheng, H.-H. Li, Bruce R. Pitt & L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Fifth Annual CounterACT Meeting, Washington DC, 2011.*

NITRITES AS ANTIDOTES FOR HYDROGEN SULFIDE POISONING. K.L. Frawley, A.A. Cronican, H. Ahmed, L.L. Pearce & J. Peterson; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. *Eighth Annual CounterACT Meeting, Denver CO, 2014.*

## 7. Presentations (since 2009)

1. (As applicable) Authors (same order as publication). Title of Abstract or Presentation. (*Journal Title*. Year and Date. Volume (Issue): pages. OR Title of Meeting/Conference/etc., Location, Date.)

J. Peterson, L.K. Cambal, M.R. Swanson, E. Lopez Manzano, L.L. Pearce & B.R. Pitt; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. NITRIC OXIDE, NITRITE AND THE STANDARD THERAPY FOR ACUTE CYANIDE INTOXICATION. *Third Annual CounterACT Meeting, Washington DC, 2009.*

J. Peterson; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. OLD MYTHS AND NEW UNCERTAINTIES REGARDING THE ACTION OF SODIUM NITRITE IN THE AMELIORATION OF CYANIDE INTOXICATION. *17<sup>th</sup> Biennial Bioscience Review, Hunt Valley MD, 2010.*

J. Peterson, L.L. Pearce & B.R. Pitt; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. ACUTE CYANIDE TOXICITY, COMPLEX IV, NO AND NITRITE. *Fourth Annual CounterACT Meeting, San Francisco CA, 2010.*

J. Peterson, L.L. Pearce & B.R. Pitt; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. ACUTE CYANIDE TOXICITY, COMPLEX IV, NO AND NITRITE. *Fifth Annual CounterACT Meeting, Washington DC, 2011.*

J. Peterson & L.L. Pearce; Department of Environmental and Occupational Health, University of Pittsburgh School of Public Health. NITRITES AS ANTIDOTES FOR HYDROGEN SULFIDE POISONING. *Eighth Annual CounterACT Meeting, Denver CO, 2014.*

## 8. Non-Print Media

1. (As applicable) Authors (same order as publication). Title of Article. *Title of Media* [Indication of Media]. Publishing Company. Year and Date. Volume (Issue): pages or path.

N/A

## 9. Other Publications

1. Authors (same order as publication). Title of Article. *Journal Title*. Year and Date. Volume (Issue): pages.

N/A

## 3. Service (Professionally Related)

### a. University/Institute of Higher Learning

Years

Committee

Position

<b>Years</b>	<b>Committee</b>	<b>Position</b>
2004-	Departmental (EOH) Promotion Advisory Committee	Appointed Member
2007-2010	School (GSPH) Faculty Appointment, Promotion and Tenure Committee	Elected Member
2007-	Departmental (EOH) MPH Program	Director
2008-	Departmental (EOH) DrPH Program	Director

### **b. Editorial Boards, Editorships**

<b>Date</b>	<b>Position</b>	<b>Organization</b>
N/A	N/A	N/A

### **c. Manuscript and Other Document/Publication Review (Since 2000)**

<b>Dates</b>	<b>Journal Title</b>
February 2000	Journal of Biological Inorganic Chemistry (Robert A. Scott, Ed.)
May 2000	Journal of Biological Inorganic Chemistry (Robert A. Scott, Ed.)
October 2000	Biochimica et Biophysica Acta (Laura Wallins, Ed.)
January 2001	Antioxidants & Redox Signaling (Valerian Kagan, Ed.)
February 2001	Journal of the American Chemical Society (F. Ann Walker, Ed.)
August 2001	Journal of the American Chemical Society (F. Ann Walker, Ed.)
October 2001	Journal of the American Chemical Society (F. Ann Walker, Ed.)
April 2002	Mechanisms of Ageing & Development (Jan Vijg, Ed.)
June 2002	Free Radical Biology & Medicine (William A. Pryor, Ed.)
September 2002	Mechanisms of Ageing & Development (Jan Vijg, Ed.)
February 2003	Antioxidants & Redox Signaling (Valerian Kagan, Ed.)
February 2003	Nitric Oxide: Biology & Chemistry (David Vargas, Ed.)
March 2003	Mechanisms of Ageing & Development (Jan Vijg, Ed.)
April 2003	Journal of Biological Chemistry (John H. Dawson, Ed.)
May 2003	Journal of Biological Chemistry (John H. Dawson, Ed.)
November 2003	Proceedings of the National Academy of Sciences USA (Louis J. Ignarro, Ed.)
January 2004	Journal of Porphyrins & Phthalocyanines (Kevin M. Smith, Ed.)
April 2004	Journal of Biological Chemistry (Toru Shimizu, Ed.)
April 2004	Federation of European Biochemical Societies Letters (Hans Ecklund, Ed.)
May 2004	Journal of Biological Inorganic Chemistry (Claudio Luchinat, Ed.)
September 2004	Antioxidants & Redox Signaling (Valerian Kagan, Exec. Ed.)
September 2004	Trends in Pharmacological Sciences (Tricia Ward, Ed.)
October 2005	Journal of the American Chemical Society (F. Ann Walker, Ed.)
December 2005	Journal of Chemical Education (John W. Moore, Ed.)

February 2007	Nitric Oxide: Biology & Chemistry (Jack Lancaster, Ed.)
April 2007	Antioxidants & Redox Signaling (Chandan Sen, Ed.)
May 2007	Biochimica et Biophysica Acta (Denise M. Wells, Ed.)
July 2007	Toxicological Sciences (Aaron Barchowsky, Assoc. Ed.)
July 2007	Biophysical Journal (Eduardo Perozo, Ed.)
August 2009	Chemical Research in Toxicology (Judy Bolton, Assoc. Ed.)
September 2009	Antioxidants & Redox Signaling (Valerian Kagan, Exec. Ed.)
November 2009	Journal of the American Chemical Society (F. Ann Walker, Ed.)
January 2010	Journal of Chemical Education (Alice Teeter, Assist. Ed.)
July 2010	Toxicological Sciences (Aaron Barchowsky, Assoc. Ed.)
June 2011	Biochemistry (Gary Brudvig, Assoc. Ed.)
September 2011	PLoS ONE (Marianne Koritzinsky, Acad. Ed.)
October 2011	PLoS ONE (Marianne Koritzinsky, Acad. Ed.)
August 2012	Neuroscience Letters (Joel Black, Deputy Editor)
November 2012	Journal of Medicinal Chemistry (Hualiang Jiang, Assoc. Ed.)
July 2013	Neurotoxicology (Marion Ehrich, Assoc. Ed.)
May 2014	Toxicological Sciences (Aaron Barchowsky, Assoc. Ed.)

#### **d. Study Sections, Review Panels, and Related Advisory Boards (Since 1996)**

<b>Date</b>	<b>Position</b>	<b>Organization and Nature of Activity</b>
March 1998	<i>Ad hoc</i> reviewer	NSF/CI, Joseph Reed (Program Director)
April 1998	<i>Ad hoc</i> reviewer	NSF/CI, Joseph Reed (Program Director)
June 2003	<i>Ad hoc</i> reviewer	NIH/GM, Donald Schneider (CSR)
May 2006	<i>Ad hoc</i> reviewer	NSF/MCB, Jermelina L Tupas (Program Director)
April 2007	<i>Ad hoc</i> reviewer	MRC/CDA, Vanessa Woo-Kai-Fong (Fellowships Team Administrator)
July 2008	Temporary member	NIH/EBT (Enabling Bioanalytical and Biophysical Technologies Study Section, BCMB IRG) Vonda Smith (SRA)
June 2009	Temporary member	NIH/EBT (Enabling Bioanalytical and Biophysical Technologies) Challenge Grant volunteer reviewer, Vonda Smith (SRA)
October 2009	<i>Ad hoc</i> reviewer	NSF (Physical Inorganic) Arden Bement (Program Director) Cora Marrett (Acting Deputy Director)
March 2013	<i>Ad hoc</i> reviewer	NSF (RUI Chemistry of Life Processes) Catalina Achim (Program Director)

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

<b>Date</b>	<b>Position</b>	<b>Organization</b>
N/A	N/A	N/A

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

<b>Date</b>	<b>Position</b>	<b>Type of Service and/or Agency</b>
January 2005	Panel Member	NIAID Blue Ribbon Expert Panel Workshop on Cyanide Research
June 2010	Panel Member	NIAID Blue Ribbon Expert Panel Workshop on Cyanide Research

**g. Consultantships (Since 2000)**

<b>Date</b>	<b>Name of Consultantship</b>
N/A	N/A

**4. Service (Community Related)**

**a. Service to Community-Based Organizations**

<b>Year(s)</b>	<b>Position and Organization</b>	<b>Type of Service</b>
N/A	N/A	N/A

**b. Service to Government Agencies**

<b>Year(s)</b>	<b>Position and Organization</b>	<b>Type of Service</b>
N/A	N/A	N/A

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

<b>Year(s)</b>	<b>Position and Organization</b>	<b>Type of Service</b>
2006- onwards	Scitech Spectacular, Pittsburgh Regional Science & Engineering Fair, Pittsburgh PA	Category Judge

**5. Clinical and Related Activities (OPTIONAL - if applicable): N/A**