



Alison C. P. Elder, Ph.D.

Associate Professor

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EDUCATION

PhD Environmental Toxicology | Univ of Cal Irvine | 1997

BS Chemistry | Chatham College | 1992

EDUCATION (NON-DEGREE)

Introduction to Medical Center Leadership, URMC | 2008 - 2009

Seventh IUTOX Summer School on Risk Assessment of Chemicals (RASS VII), Toftagarden, Sweden | 08/22/1998 - 08/30/1998

POST-DOCTORAL TRAINING AND RESIDENCY

Post-doctoral Fellow, Department of Environmental Medicine, University of Rochester | 1997 - 2000

FACULTY APPOINTMENTS

Associate Professor | Environmental Medicine | SMD | 2010 - Present

Assistant Professor | Environmental Medicine | SMD | 2008 - 2010

Assistant Professor (Part-Time) | Environmental Medicine | SMD | 2007 - 2008

Research Assistant Professor (Part-Time) | Environmental Medicine | SMD | 2002 - 2007

Research Assistant Professor | Environmental Medicine | SMD | 2000 - 2002

APPOINTMENTS

ACADEMIC - INTERNAL

Associate Professor, Department of Environmental Medicine, University of Rochester, Rochester, NY | 2010 - Present

Assistant Professor, Department of Environmental Medicine, University of Rochester, Rochester, NY | 2007 - 2010

Research Assistant Professor, Department of Environmental Medicine, University of Rochester, Rochester, NY | 2000 - 2007

OTHER

Graduate Research Assistant, Program in Environmental Toxicology, Department of Community and Environmental Medicine, University of California, Irvine, Irvine, CA | 1992 - 1996

MEMBERSHIPS

PROFESSIONAL

American Conference of Governmental Industrial Hygienists | 2008 - Present

Women in Toxicology | 2004 - Present

American Thoracic Society | 2001 - Present

Society of Toxicology | 1992 - Present

INTERNATIONAL

International Alliance for NanoEHS Harmonization (IANH) | 2008 - Present

AWARDS AND HONORS

Young Investigator Award, Inhalation and Respiratory Specialty Section, Society of Toxicology | 2009

Cornerstone Alumna Award in Environmental Medicine, Chatham University | 2007

Graduate Student Fellowship, U.S. Environmental Protection Agency | 1995 - 1996

College Chemistry Award, Society for Analytical Chemists of Pittsburgh | 1992

CONTRIBUTIONS

PROFESSIONAL

HEI Pilot Project Program, outside reviewer | *May 2010*

NIOSH Nanotechnology Research Center intramural program, outside reviewer | *June 2009*

University of Southern California Environmental Health Sciences Center, pilot project review panel | *January 2009*

University of Iowa, Center for Health and Effects of Environmental Contamination seed grant program, outside reviewer | *December 2008*

EPA, Nanotechnology--Health Effects of Manufactured Nanomaterials, Grant Reviewer | *May 2006*

NIOSH, Big NORA Nanomaterials Program, Grant Reviewer | *June 2005*

EPA, Airborne Particulate Matter Health Effects, Grant Reviewer | *April 2001*

American Journal of Physiology, Ad hoc reviewer

American Journal of Respiratory and Critical Care Medicine, Ad hoc reviewer

American Journal of Respiratory Cell and Molecular Biology, Ad hoc reviewer

Cardiovascular Toxicology, Editorial Board member

Chemical Research in Toxicology, Ad hoc reviewer

Critical Reviews in Toxicology, ad hoc reviewer

Environmental Health Perspectives, Editorial Board Member

Environmental Research, Ad hoc reviewer

Inhalation Toxicology, Editorial Board member

Journal of Aerosol Medicine, Ad hoc reviewer

Journal of Aerosol Science, Ad hoc reviewer

Journal of Hazardous Materials, ad hoc reviewer

Journal of Nanoparticle Research, ad hoc reviewer

Journal of Toxicology and Environmental Health, Ad hoc reviewer

Nanotoxicology, Editorial Board member, Acting Editor-in-Chief (Jan-Aug, 2010)

Nature Nanotechnology, ad hoc reviewer
Particle and Fibre Toxicology, Ad hoc reviewer
Toxicological Sciences, Ad hoc reviewer
Toxicology and Applied Pharmacology, Ad hoc reviewer
Toxicology Letters, Ad hoc reviewer

STUDENTS

POST-DOCTORAL TRAINEES AND FELLOWS

Morton Ehrenberg, PhD | *December 2008 - December 2010*

OTHER

Brittany Serke, graduate student, Toxicology Training Program | *September 2008 - Present*

COURSES

TAUGHT

Organ Systems Toxicology (TOX522), 3 inhalation toxicology lectures; pulmonary & cardiovascular toxicology section leader | *August 2009 - December 2009*

Organ Systems Toxicology (TOX522), 3 inhalation toxicology lectures | *August 2008 - December 2008*

OTHER

Organ Systems Toxicology (TOX522), 3 inhalation toxicology lectures; pulmonary & cardiovascular toxicology section leader; course director | *August 2010 - December 2010*

RESEARCH GRANTS

Title: "Acute and sub chronic health effects following inhalation exposure to engineered metal oxide nanoparticles in a rat model (phase III)." | Grant Type: non-NIH | Total Amount: \$150,000.00 | *January 2014 - December 2014*

Title: "Impact of Ambient Nanoparticulate Exposures on Alzheimer's Disease Progression" | Grant Type: NIH | Grant ID: R01 | Total Amount: \$1,710,000.00 | *September 2013 - May 2018*

PI: G. Oberdorster, A. Elder | Title: "NanoHealth & safety center 2013: Acute vs. Subchronic health effects of inhalation exposure to engineered metal oxide nanoparticles in a rat model." | Grant Type: non-NIH | Total Amount: \$150,000.00 | *January 2013 - April 2014*

PI: G. Oberdorster, A. Elder | Title: "Risk assessment of acute and chronic inhalation exposure to engineered metal oxide nanoparticles using realistic in vitro and in vivo models" | Sponsor: SUNY Albany/CNSE | Grant Type: non-NIH | Total Amount: \$150,000.00 | *January 2012 - April 2013*

PI: Alison Elder/Gunter Oberdorster | Title: Supplement, Hazard assessment and risk estimation of inhaled nanomaterials exposure | Grant Type: NIH | Total Amount: \$47,122.00 | *May 2010 - May 2011*

PI: Alison Elder/Gunter Oberdorster | Title: Hazard Assessment and Risk Estimation of Inhaled Nanomaterials Exposure | Grant Type: NIH | Total Amount: \$1,485,696.00 | *September 2009 - May 2011*

PI: Alison Elder | Title: Nanoparticle-induced Neuropathology and Motor Deficits in Genetic Models of Huntington Disease | Sponsor: EHS Center | Grant Type: non-NIH | Total Amount: \$20,000.00 | *February 2008 - June 2010*

PI: A. Elder | Title: "Fate and Effects of Nanoparticles: Relationship to Physicochemical Properties" | Sponsor: NCI | Grant Type: non-NIH | Grant ID: R01 | Awarded: September 2007 | Total Amount: \$1,329,547.00 | *September 2007 - November 2012*

PI: Alison Elder | Title: Fate and Effects of Nanoparticles: Relationship to Physicochemical Properties | Grant Type: NIH | NIH Grant ID: 1 R01-NIEHS | Total Amount: \$1,329,547.00 | *September 2007 - May 2011*

PI: G nter Oberdorster | Title: Source-Specific Health Effects of Ultrafine/Fine Particles | Sponsor: Environmental Protection Agency PM Center Grant | Grant Type: non-NIH | Awarded: October 2005 | Total Amount: \$8,000,000.00 | *October 2005 - September 2010*

PI: Alison C. P. Elder | Title: Iron Oxide Nanoparticle-Induced Oxidative Stress and Inflammation | Sponsor: Environmental Protection Agency | Grant Type: non-NIH | Awarded: August 2004 | Total Amount: \$214,744.00 | *August 2004 - July 2007*

PI: G nter Oberdorster | Title: Size Dependent Neuronal Translocation of Nanoparticles | Sponsor: National Science Foundation (SGER) | Grant Type: non-NIH | Awarded: July 2004 | Total Amount: \$200,000.00 | *July 2004 - July 2007*

PI: G nter Oberdorster | Title: Relationship Between Physicochemical Characteristics and Toxicological Properties of Nanomaterials | Sponsor: DoD (Air Force) MURI | Grant Type: non-NIH | Awarded: June 2004 | Total Amount: \$1.00 | *June 2004 - May 2010*

PI: Hong Yang | Title: Environmental and Health Relevant Issues of Ultrafine Monodisperse Nanoparticles | Sponsor: EHS Center | Grant Type: non-NIH | Total Amount: \$25,000.00 | *May 2004 - April 2005*

PI: A.C.P. Elder | Title: The Impact of World Trade Center Dusts on Lung Inflammation and Influenza Virus Reinfection | Grant Type: NIH | NIH Grant ID: 3 NIEHS | Awarded: July 2003 | Total Amount: \$138,174.00 | *July 2003 - June 2004*

PI: A.C.P. Elder | Title: Material-Dependent Ultrafine Particle Translocation to Extrapulmonary Tissues | Sponsor: Environmental Protection Agency (Pilot) | Grant Type: non-NIH | Awarded: June 2001 | Total Amount: \$13,333.00 | *June 2001 - June 2004*

PI: A.C.P. Elder | Title: Pulmonary and Systemic Effects of Inhaled Ultrafine Particles in Senescent Rats with Cardiovascular Disease | Sponsor: Environmental Protection Agency | Grant Type: non-NIH | Awarded: March 2000 | Total Amount: \$380,389.00 | *March 2000 - September 2003*

PI: G nter Oberdorster | Title: Ultrafine particles: Characterization, health effects, and pathophysiological mechanisms | Sponsor: Environmental Protection Agency | Grant Type: non-NIH | Awarded: July 1999 | Total Amount: \$8,300,063.00 | *July 1999 - June 2005*

PRESENTATIONS

Particle translocation as a mechanism of toxicity of inhaled particulates in the central nervous system. American Association for the Advancement of Science annual meeting symposium: Air pollution as a risk factor for central nervous system diseases and disorders, Chicago, IL | *February 2014*

Recent advances and challenges in nanotoxicology research. Russian Society of Toxicology Congress (via webinar) | *November 2013*

Do inhaled nanoparticulates adversely impact the central nervous system? Rochester Institute of Technology, Institute for Sustainability Seminar Series, Rochester, NY, 10/13 | *October 2013*

Nanoparticulate exposure and adverse outcomes in the central nervous system. NanoTracking Virtual Institute Meeting (Helmholtz Dresden), Heidelberg, Germany | *October 2013*

Particulate matter exposure and adverse outcomes in the central nervous system. West Virginia University, Department of Physiology and Pharmacology Seminar Series, Morgantown, WV, 4/13 | *April 2013*

Particle translocation as an explanation for the adverse effects of inhaled particulates in the CNS. Society of Toxicology meeting symposium: Role of air pollution as a risk factor for the central nervous system diseases and disorders, San Antonio, TX | *March 2013*

Effects of nano particles in the central nervous system following inhalation exposures in rodents. Invited keynote lecture, 2012 Nanotoxicology Conference, Beijing, China | *September 2012*

Nanotoxicology. Fulton-Montgomery Community College Nanoscience and Biology Conference, NY | *April 2012*

Health effects following environmental exposures to nano materials: Toxicological Principles. American Chemical Society Spring Meeting, Nanomaterials and the Environment: Chemistry and Materials Science Perspective, San Diego, CA | *March 2012*

Engineered nanomaterials and human health: Lessons from the past and questions for the future. University of Texas, Austin, Chemical Engineering Research Seminar Series, Austin, TX | *October 2011*

Assessing the hazards associated with nano particle exposure: Lessons from the past and questions for the future. Xerox EH&S Conference, Rochester, NY | *September 2011*

Health effects of carbon nanotubes: what do we know about determinants of response?; Distribution of carbon nanomaterials following inhalation or ingestion exposure. European Science Foundation Research Conference, Nanocarbons 2011, Acquafredda di Maratea, Italy | *September 2011*

Is there pathology associated with the accumulation of nano particles in the central nervous system? Xi'an International Neurotoxicology Conference, Xi'an, China, June 2011 | *June 2011*

Fate of inhaled metal and metal oxide nanoparticles. Engineered nanoparticles and airway: Therapeutic applications and health risks, Postgraduate Course 13, American Thoracic Society, Denver, CO, May 2011 | *May 2011*

Inhaled nanoparticles and the brain: Is there a link between exposure and pathology? Interdisciplinary Faculty of Toxicology seminar series, Texas A&M University, College Station, TX March 2011 | *March 2011*

Special considerations for delivery of nanomaterials to the respiratory tract: Implications for interpretations of results. Society of Toxicology meeting workshop: Meeting the Challenges of Respiratory Toxicology, Toxicology Testing- In Search of Best Practices, Washington, DC March 2011 | *March 2011*

Effects of inhaled ultrafine and engineer nanoparticles: Relationship to physicochemical properties. University of Iowa Environmental Health Sciences Center retreat, guest lecturer, Iowa City, IA January 2011 | *January 2011*

Nanoparticle toxicology: Lessons from the past and questions for the future. Rochester Bi Venture Center Advancement in Nanomedicine seminar series, Rochester, NY | *November 2010*

Exposure to engineered nanoparticles and their biological effects. International Union of Toxicology Conference XII, Barcelona Spain | *July 2010*

"Metal oxide nanoparticles: Lessons from the past and questions for the future". Nanotoxicology Conference, Edinburgh, Scotland | *June 2010*

Metal oxide nanoparticles: Lessons from the past and questions for the future. Nanotoxicology for Defense Conference, Edinburgh, Scotland 6/10 | *June 2010*

Toxicology principles for maximizing the safety of engineered nanomaterials. Nanotechnology for Defense Conference, Atlant, GA 5/10 | *May 2010*

"Translocation of nanoparticles to the CNS". Society of Toxicology round table: Inhaled Particles: From nose to Brain? Speaker and Co-Chair, Salt Lake City, UT | *March 2010*

"Can we maximize both the technological potential and safety of nanomaterials?" Clinical and Translational Research Curriculum Seminar Series, Clinical and Translational Sciences Institute, University of Rochester, Rochester, NY | *January 2010*

"Transport of nanosized particles to the brain". University of CA, Davis, Respiratory Biology & Medicine Seminar Series, Davis, CA | *January 2010*

"Real-world vignette: IANH". Nanomaterials and Human Health & Instrumentation, Metrology, and Analytical Methods, National Nanotechnology Initiative Workshop, Arlington, VA | *November 2009*

"Differences and similarities in ultrafine and engineered nanoparticles and their ability to affect organs beyond the lung". National Institute for Public Health and the Environment, Bilthoven, The Netherlands | *September 2009*

"Translocation of inhaled ultrafine manganese oxide particles to the central nervous system". Inhalation and Nasal Technology Focus Group Meeting, Schering-Plough Research Institute, Summit, NJ | *September 2009*

"Nanoparticle toxicity: Association between dose, translocation, and effects". 4th International Conference on Nanotechnology & Occupational and Environmental Health, Helsinki, Finland | *August 2009*

"Strategies for testing the safety of nanomaterials". University of Rochester Nanomaterials Symposium, Rochester, NY | *May 2009*

"Toxicological testing strategies for nanomaterials". NanoImpactNet Training Seminar, Lausanne, Switzerland | *March 2009*

"The central nervous system as a target for inhaled air pollutants". CONCAWE Workshop on Environment and Health: Evaluating European Air Quality Research and Translating Priorities into Actions, Brussels, Belgium | *January 2009*

"Physicochemical properties of nanoparticles that affect their toxicity". Brown University Pathology Research and Teaching Rounds, Providence, RI | *December 2008*

"Health effects due to solid ultrafine particles". Course on Ultrafine Diesel Particles and Retrofit Technologies for Diesel Engines, CA Air Resources Board/South Coast Air Quality Management District, Diamond Bar, CA | *November 2008*

"Translocation of ultrafine occupational and environmental particles to the brain". 25th International Neurotoxicology Conference and Rochester Conference, Rochester, NY | *October 2008*

"Principles of nanomaterials toxicology" and "Part 2: Focus on carbon nanotubes". Department of Energy Nanoscale Science Research Centers Symposium: Safe handling of engineered nanoscale materials, Argonne, IL | *July 2008*

"Physicochemical properties of nanosized particles and effects in pulmonary and extrapulmonary tissues". US Air Force workshop on biological interactions of engineered nanomaterials, Wright-Patterson AF Base, OH | *June 2008*

"Physicochemical properties of nanosized particles and effects on pulmonary and extrapulmonary tissues", AIHCE Spring conference, Minneapolis, MN | *June 2008*

"Tissue Distribution of Semiconductor Nanocrystals Following In Vivo Exposures in Rodents". American Thoracic Society symposium: New Therapeutic Interventions for Disease: Minimizing the Risks of Engineered Nanomaterials. Speaker and Co-Chair, Toronto, ON | *May 2008*

"Routes of Metal Nanoparticle Exposure and Distribution". Mid-Atlantic Society of Toxicology Fall meeting, Jersey City, NJ | *October 2007*

"Physicochemical Properties of Nanoparticles that Affect Cellular and Tissue Responses". Force Health Protection Conference, Louisville, KY | *August 2007*

"Physicochemical Properties of Nanoparticles that Affect Cellular and Tissue Responses". Materials Research Society symposium: Engineered Nanoscale Materials for the Diagnosis and Treatment of Disease, San Francisco, CA | *April 2007*

"The Toxicology of Nanomaterials". Navy Occupational Health & Preventive Medicine Conference, Hampton, VA | *March 2007*

"Mechanisms of low solubility particle-induced lung tumors". Society of Toxicology symposium: Mechanisms of low solubility particle-induced lung tumors. Speaker and Co-Chair, San Diego, CA | *March 2006*

"Vehicular emissions and ultrafine particles: Experimental evidence from model particles". American Thoracic Society/American Lung Association Conference symposium: Health Effects of Airborne Particulate Matter: Sources, Components, and Research Methods, San Diego, CA | *May 2005*

"Effects of fine/ultrafine particles combined with other pollutants". International Inhalation Symposium, Hannover, Germany | *June 2003*

EDITORIAL BOARDS

Cardiovascular Toxicology | *2009 - Present*

Environmental Health Perspectives | *2009 - Present*

Inhalation Toxicology | *2009 - Present*

Nanotoxicology (Interim Editor-in-Chief, 12/09-8/10) | *2009 - Present*

COMMITTEES

DEPARTMENTAL

Deputy Director, Toxicology Training Grant | *2014 - Present*

Admissions Committee | *2012 - Present*

Steering Committee | *2012 - Present*

Faculty Recruitment Committee | *2011 - Present*

Strategic Planning Committee | *2011 - 2011*

Pilot Project Advisory Committee | *2010 - Present*

HOSPITAL

Biostatistics Course Development Committee | *2013 - 2014*

Electron Microscopy Scientific Advisory Committee | *2013*

University Committee on Animal Research | *2010 - Present*

University of Rochester Medical Faculty Council | *2009 - Present*

NATIONAL

Past President, Nanotoxicology Specialty Section, Society of Toxicology | *2014 - 2015*

Specialty Section Collaboration and Communications Group, Society of Toxicology | *2013 - 2015*

President, Nanotoxicology Specialty Section, Society of Toxicology | *2013 - 2014*

Nominating Committee, Society of Toxicology | *2012 - 2015*

Vice President, Nanotoxicology Specialty Section, Society of Toxicology. | *2012 - 2013*

Vice President-Elect, Nanotoxicology Specialty Section, Society of Toxicology. | *2011 - 2012*

ACGIH Threshold Limit Value, Chemical Substances Committee | *2008 - Present*

ACGIH Threshold Limit Value, Chemical Substances Committee (Dusts and Inorganics Subcommittee Co-Chair) | *2008 - Present*

Secretary/Treasurer, Inhalation and Respiratory Specialty Section, Society of Toxicology | *2007 - 2009*

Secretary/Treasurer, Inhalation and Respiratory Specialty Section, Society of Toxicology | *2007 - 2009*

JOURNAL ARTICLES

1. Guttenberg M; Bezerra L; Neu-Baker NM; Del Pilar Sosa Idelchik M; Elder A; Oberdörster G; Brenner SA. "Biodistribution of inhaled metal oxide nanoparticles mimicking occupational exposure: a preliminary investigation using enhanced darkfield microscopy." *Journal of biophotonics*. 2016;9(10):987-993.
2. Lerner CA; Rutagarama P; Ahmad T; Sundar IK; Elder A; Rahman I. "Electronic cigarette aerosols and copper nanoparticles induce mitochondrial stress and promote DNA fragmentation in lung fibroblasts." *Biochemical and biophysical research communications*. 2016;477(4):620-5.
3. Lerner CA; Sundar IK; Watson RM; Elder A; Jones R; Done D; Kurtzman R; Ossip DJ; Robinson R; McIntosh S; Rahman I. "Environmental health hazards of e-cigarettes and their components: Oxidants and copper in e-cigarette aerosols." *Environmental pollution*. 2015;198():100-7.
4. Gordon SC; Butala JH; Carter JM; Elder A; Gordon T; Gray G; Sayre PG; Schulte PA; Tsai CS; West J. "Workshop report: strategies for setting occupational exposure limits for engineered nanomaterials." *Regulatory toxicology and pharmacology : RTP*. 2014;68(3):305-11.
5. Sotiriou GA; Watson C; Murdaugh KM; Darrah TH; Pyrgiotakis G; Elder A; Brain JD; Demokritou P. "Engineering safer-by-design, transparent, silica-coated ZnO nanorods with reduced DNA damage potential." *Environmental science. Nano*. 2014;1(2):144-153.
6. Baisch BL; Corson NM; Wade-Mercer P; Gelein R; Kennell AJ; Oberdörster G; Elder A. "Equivalent titanium dioxide nanoparticle deposition by intratracheal instillation and whole body inhalation: the effect of dose rate on acute respiratory tract inflammation." *Particle and fibre toxicology*. 2014;11():5.
7. Doudrick K; Corson N; Oberdörster G; Elder AC; Herckes P; Halden RU; Westerhoff P. "Extraction and quantification of carbon nanotubes in biological matrices with application to rat lung tissue." *ACS nano*. 2013;7(10):8849-56.
8. Baer DR; Engelhard MH; Johnson GE; Laskin J; Lai J; Mueller K; Munusamy P; Thevuthasan S; Wang H; Washton N; Elder A; Baisch BL; Karakoti A; Kuchibhatla SV; Moon D. "Surface characterization of nanomaterials and nanoparticles: Important needs and challenging opportunities." *Journal of vacuum science & technology. A, Vacuum, surfaces, and films : an official journal of the American Vacuum Society*. 2013;31(5):50820.
9. Bonner JC; Silva RM; Taylor AJ; Brown JM; Hilderbrand SC; Castranova V; Porter D; Elder A; Oberdörster G; Harkema JR; Bramble LA; Kavanagh TJ; Botta D; Nel A; Pinkerton KE. "Interlaboratory evaluation of rodent pulmonary responses to engineered nanomaterials: the NIEHS Nano GO Consortium." *Environmental health perspectives*. 2013;121(6):676-82.
10. Xia T; Hamilton RF; Bonner JC; Crandall ED; Elder A; Fazlollahi F; Girtsman TA; Kim K; Mitra S; Ntim SA; Orr G; Tagmount M; Taylor AJ; Telesca D; Tolic A; Vulpe CD; Walker AJ; Wang X; Witzmann FA; Wu N; Xie Y; Zink JI; Nel A; Holian A. "Interlaboratory evaluation of in vitro cytotoxicity and inflammatory responses to engineered nanomaterials: the NIEHS Nano GO Consortium." *Environmental health perspectives*. 2013;121(6):683-90.
11. Mortensen LJ; Jatana S; Gelein R; Debenedetto A; de Mesy Bentley KL; Beck L; Elder A; Delouise L. "Quantification of quantum dot murine skin penetration with UVR barrier impairment." *Nanotoxicology*. 2013;7(8):1386-98.
12. Block ML; Elder A; Auten RL; Bilbo SD; Chen H; Chen JC; Cory-Slechta DA; Costa D; Diaz-Sanchez D; Dorman DC; Gold DR; Gray K; Jeng HA; Kaufman JD; Kleinman MT; Kirshner A; Lawler C; Miller DS; Nadadur SS; Ritz B; Semmens EO; Tonelli LH; Veronesi B; Wright RO; Wright RJ. "The outdoor air pollution and brain health workshop." *Neurotoxicology*. 2012;33(5):972-84.

13. Lucchini RG; Dorman DC; Elder A; Veronesi B. "Neurological impacts from inhalation of pollutants and the nose-brain connection." *Neurotoxicology*. 2012;33(4):838-41.
14. Han X; Corson N; Wade-Mercer P; Gelein R; Jiang J; Sahu M; Biswas P; Finkelstein JN; Elder A; Oberdorster G. "Assessing the relevance of in vitro studies in nanotoxicology by examining correlations between in vitro and in vivo data." *Toxicology*. 2012;297(1-3):1-9.
15. Shi M; Kwon HS; Peng Z; Elder A; Yang H. "Effects of surface chemistry on the generation of reactive oxygen species by copper nanoparticles." *ACS nano*. 2012;6(3):2157-64.
16. Han X; Gelein R; Corson N; Wade-Mercer P; Jiang J; Biswas P; Finkelstein JN; Elder A; Oberdorster G. "Validation of an LDH assay for assessing nanoparticle toxicity." *Toxicology*. 2011;287(1-3):99-104.
17. Rivera Gil P; Oberdorster G; Elder A; Puentes V; Parak WJ. "Correlating physico-chemical with toxicological properties of nanoparticles: the present and the future." *ACS nano*. 2010;4(10):5527-31.
18. Gillespie PA; Kang GS; Elder A; Gelein R; Chen L; Moreira AL; Koberstein J; Tchou-Wong KM; Gordon T; Chen LC. "Pulmonary response after exposure to inhaled nickel hydroxide nanoparticles: short and long-term studies in mice." *Nanotoxicology*. 2010;4(1):106-119.
19. Kim SC; Chen DR; Qi C; Gelein RM; Finkelstein JN; Elder A; Bentley K; Oberdorster G; Pui DY. "A nanoparticle dispersion method for in vitro and in vivo nanotoxicity study." *Nanotoxicology*. 2010;4(1):42-51.
20. Kim, S.C.; Chen, D.; Qi, C.; Gelein, R.M.; Finkelstein, J.N.; Elder, A.; Bentley, K.; Oberdorster, G.; Pui, D.Y.H. "A nanoparticle dispersion method of in vitro and in vivo nanotoxicity study". *Nanotoxicology*. 2010; 4(1): 42-51.
21. Gillespie, P.A.; Kang, G.S.; Elder, A.; Gelein, R.; Chen, L.; Moreira, A.L.; Koberstein, J.; Tchou-Wang, K.M.; Gordon, T.; Chen, L.C. "Pulmonary response after exposure to inhaled nickel hydroxide nanoparticles: short and long-term studies in mice". *Nanotoxicology*. 2010; 4(1): 106-19.
22. Rushton EK; Jiang J; Leonard SS; Eberly S; Castranova V; Biswas P; Elder A; Han X; Gelein R; Finkelstein J; Oberdorster G. "Concept of assessing nanoparticle hazards considering nanoparticle dose-metric and chemical/biological response metrics." *Journal of toxicology and environmental health*. Part A. 2010;73(5):445-61.
23. Oberdorster G; Elder A; Rinderknecht A. "Nanoparticles and the brain: cause for concern?." *Journal of nanoscience and nanotechnology*. 2009;9(8):4996-5007.
24. Elder A. "Nanotoxicology: How do nanotubes suppress T cells?" *Nature nanotechnology*. 2009;4(7):409-10.
25. Linkov I; Steevens J; Adlakha-Hutcheon G; Bennett E; Chappell M; Colvin V; Davis JM; Davis T; Elder A; Foss Hansen S; Hakkinen PB; Hussain SM; Karkan D; Korenstein R; Lynch I; Metcalfe C; Ramadan AB; Satterstrom FK. "Emerging methods and tools for environmental risk assessment, decision-making, and policy for nanomaterials: summary of NATO Advanced Research Workshop." *Journal of nanoparticle research : an interdisciplinary forum for nanoscale science and technology*. 2009;11(3):513-527.
26. Vanwinkle BA; de Mesy Bentley KL; Malecki JM; Gunter KK; Evans IM; Elder A; Finkelstein JN; Oberdorster G; Gunter TE. "Nanoparticle (NP) uptake by type I alveolar epithelial cells and their oxidant stress response." *Nanotoxicology*. 2009;3(4):307-318.
27. Elder A; Vidyasagar S; DeLouise L. "Physicochemical factors that affect metal and metal oxide nanoparticle passage across epithelial barriers." *Wiley interdisciplinary reviews. Nanomedicine and nanobiotechnology*. 2009;1(4):434-50.

28. Jiang J; Oberdorster G; Elder A; Gelein R; Mercer P; Biswas P. "Does Nanoparticle Activity Depend upon Size and Crystal Phase?" *Nanotoxicology*. 2008;2(1):33-42.
29. Jiang, J.; Oberdorster, G.; Elder, A.; Gelein, R.; Mercer, P.; Biswas, P. "Does nanoparticles activity depend on size and crystal phase?". *Nanotoxicology*. 2008; 2(1): 33-42.
30. Elder A; Couderc JP; Gelein R; Eberly S; Cox C; Xia X; Zareba W; Hopke P; Watts W; Kittelson D; Frampton M; Utell M; Oberdorster G. "Effects of on-road highway aerosol exposures on autonomic responses in aged, spontaneously hypertensive rats." *Inhalation toxicology*. 2007;19(1):1-12.
31. Elder, A.; Yang, H.; Gwizada, R.; Teng, X.; Thurston, S.; He, H.; Oberdorster, G. "A Testing Strategy for Nanomaterials of Unknown Toxicity: An Example using Platinum Nanoparticles of Different Shapes." *Adv. Mater.* 2007; .
32. Santhanam, P.; J.G. Wagner; A. Elder; R. Gelein; J.M. Carter; K.E. Driscoll; G. Oberdorster; J.R. Harkema. "Nasal Toxicity in Laboratory Rats After Subchronic Inhalation Exposure to Carbon Black Nanoparticles". *Int'l. J. Nanotechnol.* 2007; .
33. Elder A; Gelein R; Silva V; Feikert T; Opanashuk L; Carter J; Potter R; Maynard A; Ito Y; Finkelstein J; Oberdorster G. "Translocation of inhaled ultrafine manganese oxide particles to the central nervous system." *Environmental health perspectives*. 2006;114(8):1172-8.
34. Elder A; Oberdorster G. "Translocation and effects of ultrafine particles outside of the lung." *Clinics in occupational and environmental medicine*. 2006;5(4):785-96.
35. Carter JM; Corson N; Driscoll KE; Elder A; Finkelstein JN; Harkema JN; Gelein R; Wade-Mercer P; Nguyen K; Oberdorster G. "A comparative dose-related response of several key pro- and antiinflammatory mediators in the lungs of rats, mice, and hamsters after subchronic inhalation of carbon black." *Journal of occupational and environmental medicine*. 2006;48(12):1265-78.
36. Elder A; Gelein R; Finkelstein JN; Driscoll KE; Harkema J; Oberdorster G. "Effects of subchronically inhaled carbon black in three species. I. Retention kinetics, lung inflammation, and histopathology." *Toxicological sciences : an official journal of the Society of Toxicology*. 2005;88(2):614-29.
37. Silva VM; Corson N; Elder A; Oberdorster G. "The rat ear vein model for investigating in vivo thrombogenicity of ultrafine particles (UFP)." *Toxicological sciences : an official journal of the Society of Toxicology*. 2005;85(2):983-9.
38. Elder A; Johnston C; Gelein R; Finkelstein J; Wang Z; Notter R; Oberdorster G. "Lung inflammation induced by endotoxin is enhanced in rats depleted of alveolar macrophages with aerosolized clodronate." *Experimental lung research*. 2005;31(6):527-46.
39. Oberdorster G; Sharp Z; Atudorei V; Elder A; Gelein R; Kreyling W; Cox C. "Translocation of inhaled ultrafine particles to the brain." *Inhalation toxicology*. 2004;16(6-7):437-45.
40. Elder AC; Gelein R; Azadiv M; Frampton M; Finkelstein J; Oberdorster G. "Systemic effects of inhaled ultrafine particles in two compromised, aged rat strains." *Inhalation toxicology*. 2004;16(6-7):461-71.
41. Elder AC; Gelein R; Oberdorster G; Finkelstein J; Notter R; Wang Z. "Efficient depletion of alveolar macrophages using intratracheally inhaled aerosols of liposome-encapsulated clodronate." *Experimental lung research*. 2004;30(2):105-20.
42. Kittelson DB; Watts WF; Johnson JP; Remerowki ML; Ische EE; Oberdorster G; Gelein RM; Elder A; Hopke PK; Kim E; Zhao W; Zhou L; Jeong CH. "On-road exposure to highway aerosols. 1. Aerosol and gas measurements." *Inhalation toxicology*. 2004;16 Suppl 1():31-9.
43. Elder A; Gelein R; Finkelstein J; Phipps R; Frampton M; Utell M; Kittelson DB; Watts WF; Hopke P; Jeong CH; Kim E; Liu W; Zhao W; Zhuo L; Vincent R; Kumarathasan P; Oberdorster G. "On-road

- exposure to highway aerosols. 2. Exposures of aged, compromised rats." *Inhalation toxicology*. 2004;16 Suppl 1():41-53.
44. Johnston CJ; Williams JP; Elder A; Hernady E; Finkelstein JN. "Inflammatory cell recruitment following thoracic irradiation." *Experimental lung research*. 2004;30(5):369-82.
45. Gallagher J; Sams R; Inmon J; Gelein R; Elder A; Oberdorster G; Prahalad AK. "Formation of 8-oxo-7,8-dihydro-2'-deoxyguanosine in rat lung DNA following subchronic inhalation of carbon black." *Toxicology and applied pharmacology*. 2003;190(3):224-31.
46. Oberdorster G; Sharp Z; Atudorei V; Elder A; Gelein R; Lunts A; Kreyling W; Cox C. "Extrapulmonary translocation of ultrafine carbon particles following whole-body inhalation exposure of rats." *Journal of toxicology and environmental health. Part A*. 2002;65(20):1531-43.
47. Elder, A.C.P.; Gelein, R.; Azadniv, M.; Frampton, M.; Oberdorster, G. "Systemic Interactions Between Inhaled Ultrafine Particles and Endotoxin". *Ann. Occup. Hyg.* 2002; 46(Suppl. 1): 231-234.
48. Couderc, J-P.; Elder, A.; Cox, C.; Zareba, W.; Oberdorster, G. "Limitations of Power Spectrum Analysis and Time-Domain Analysis of Heart Rate Variability in Short-Term ECGs Recorded using Telemetry in Unrestrained Rats". *Comp. Cardiol.* 2002; 29: 589-592.
49. Oberdorster G; Finkelstein JN; Johnston C; Gelein R; Cox C; Baggs R; Elder AC. "Acute pulmonary effects of ultrafine particles in rats and mice." *Research report (Health Effects Institute)*. 2000;
50. Elder AC; Finkelstein J; Johnston C; Gelein R; Oberdorster G. "Induction of adaptation to inhaled lipopolysaccharide in young and old rats and mice." *Inhalation toxicology*. 2000;12(3):225-43.
51. Elder, A.C.P.; Gelein, R.; Finkelstein, J.N.; Cox, C.; Oberdorster, G. "Endotoxin Priming Affects the Lung Response to Ultrafine Particles and Ozone in Young and Old Rats". *Inhal. Toxicol.* 2000; 12(Suppl. 1): 85-98.
52. Elder AC; Gelein R; Finkelstein JN; Cox C; Oberdorster G. "Pulmonary inflammatory response to inhaled ultrafine particles is modified by age, ozone exposure, and bacterial toxin." *Inhalation toxicology*. 2000;12 Suppl 4():227-46.
53. Pearson AC; Bhalla DK. "Effects of ozone on macrophage adhesion in vitro and epithelial and inflammatory responses in vivo: the role of cytokines." *Journal of toxicology and environmental health*. 1997;50(2):143-57.
54. Bhalla DK; Hoffman LA; Pearson AC. "Modification of macrophage adhesion by ozone: role of cytokines and cell adhesion molecules." *Annals of the New York Academy of Sciences*. 1996;796():38-46.

BOOKS AND CHAPTERS

Upadhyay S, Elder A, Cascio WE, Schulz H. "Particles and the autonomic nervous system". *Particles and Cardiovascular Disease Mechanisms*. F.R. Cassee, N.L. Mills, D.E. Newby. Hoboken, NJ: John Wiley & Sons, Inc., 2010.

Lynch I, Elder A. "Disposition of Nanoparticles as a Function of their Interactions with Biomolecules". *Nanotechnology: Risks and Benefits*. Linkov I, Steevens J. Dordrecht: Springer, 2009. 11.

Elder A, Lynch I, Grieger K, Chan-Remillard S, Gatti A, Gnewuch H, Kenawy E, Korenstein R, Kuhlbusch T, Linker F, Matias S, Monteiro-Riviere N, Pinto V, Rudnitsky R, Savoleinen K, Shvedova A. "Human Health Risks of Engineered Nanomaterials". *Nanotechnology: Risks and Benefits*. Linkov I, Steevens J. Dordrecht: Springer, 2009. 27.

DeLouise L, Mortensen L, Elder A. "Breaching Epithelial Barriers – Physicochemical Factors Impacting Nanomaterial Translocation and Toxicity". *Safety of Nanoparticles*. Webster TJ. Springer, 2008. 31.

Elder, A.C.P.; Gelein, R.; Finkelstein, J.; Frampton, M.; Utell, M.; Carter, J.; Driscoll, K.; Kittelson, D.; Watts, W.; Hopke, P.; Vincent, R.; Kumarathasan, P.; Oberdorster, G.. "Effects of inhaled fine/ultrafine particles combined with other air pollutants". Effects of Air Contaminants on the Respiratory Tract - Interpretations from Mole. Heinrich, U.. Stuttgart: Fraunhofer IRB Verlag, 2004.

LETTERS

Oberdorster, G., A. Elder. Metal Particles and Extrapulmonary Transport (response letter). Environ. Health Perspect. 115(2): A70-A71, 2007. | 2007

EDITORIALS

Rivera Gil, P., G. Oberdorster, A. Elder, V. Puentes, W.J. Parak. Correlating Physico-Chemical with Toxicological Properties of Nanoparticles: The Present and the Future. ACS Nano 4(10): 5527-5531, 2010. PMID 20973573 | 2010

Elder, A. How Do Nanotubes Suppress T Cells? Nat. Nanotechnol. 4(7): 409-410, 2009. PMID 19581890 | 2009

REVIEW ARTICLES

Linkov, I., J. Steevens, G. Adlakha-Hutcheon, E. Bennett, M. Chappell, V. Colvin, M. Davis, T. Davis, A. Elder, S. Foss Hansen, P. Hakkinen, S. Hussain, D. Karkan, R. Korenstein, I. Lynch, C. Metcalfe, A. Ramadan, F.K. Satterstrom. Emerging Methods and Tools for Environmental Risk Assessment, Decision-Making, and Policy for Nanomaterials: Summary of NATO Advanced Research Workshop (ARW). J. Nanopart. Res. 11: 513-527, 2009. PMID 19655050 | 2009

Oberdorster, G., A. Elder, A. Rinderknecht. Nanoparticles and the Brain: Cause for Concern? J. Nanosci. Nanotechnol. 9: 4996-5007, 2009. PMID 19928180 | 2009

Elder, A. and G. Oberdorster. Translocation and Effects of Ultrafine Particles Outside of the Lung. Clin. Occup. Environ. Med. 5(4): 785-796, 2006. PMID 17110292 | 2006

ABSTRACTS

Baisch, B., N. Corson, R. Gelein, P. Wade-Mercer, A.J. Walker, G. Oberdorster, A. Elder. Copper oxide nanoparticle-induced acute pulmonary inflammation: Role of dose rate and dissolution rate. Toxicologist 132(S-1): 2363, 2013; Graduate Student Society (GSS) Poster Session, *Second place GSS award winner | 2013

Baisch, B., N. Corson, R. Gelein, A. Walker, P. Wade-Mercer, G. Oberdorster, A. Elder. Rate of titanium dioxide nanoparticle desposition in the respiratory tract impacts the acute inflammatory response. Nanotoxicology Conference, Beijing, China, September, 2012 *Young Scholar Award for best student oral presentation. | 2012

Baisch, B.L., N.M. Corson, P. Wade-Mercer, R. Gelein, G. Oberdorster, A. Elder. Role of dose rate on nanoparticle-induced inflammatory responses in vivo. Toxicologist 126(S-1):331, 2012 | 2012

Shi, M., Z. Peng, R. Gelein, A. Elder, H. Yang. Effects of surface chemistry on the toxicity of copper nanoparticles. Toxicologist 126(S-1): 1294, 2012 | 2012

Serke, B.L., N. Corson, P. Mercer, G. Oberdorster, A. Elder. Investigating the dependence of TiO₂ nanoparticle-induced inflammation on dispersants and input energy. NanoGO Consortium Meeting, Bethesda, MD, March 2011 | 2011

Serke, B.L., N. Corson, P. Wade-Mercer, R. Gelein, M. Sahu, P. Biswas, G. Oberdorster, A. Elder. Effects of Cu doped TiO₂ nanoparticles in vivo, attributable to soluble Cu²⁺? Toxicologist 120(S-2): 2051, 2011 * Best graduate student poster award, Nanotoxicology Specialty Section | 2011

Shi, M., A.C.P. Elder, H.S. Kwon, Z Peng, H. Yang. Effects of surface chemistry on reactive oxygen species (ROS) of copper nanoparticles. Materials Research Society meeting, San Francisco, CA, April 2011 | 2011

Serke BL, Walker AJ, Bentley K, Freeburn WJ, Elder ACP. Cell type specificity in response to engineered nanoparticles following in vitro exposures. Nanotoxicology Conference, Edinburgh, Scotland, June, 2010. | 2010

Elder, A., N. Corson, R. Gelein, P. Mercer, J. Panza, M. Blair, K. Tieu, G. Oberdorster. Effects of Concentrated Ambient Ultrafine Particle-containing Aerosols in Mice with Neuronal Dysfunction. *Toxicologist* 108(S-1): 2190. | 2009

Serke, B.L., N.M. Corson, W.J. Freeburn, A.C.P. Elder. In vitro assay development to investigate nanoparticle-induced mitochondrial damage and cytotoxicity. University of Rochester Medical Center Lung Research Day. | 2009

Elder, A, N. Corson, R. Gelein, P. Mercer, A. Rinderknecht, W. Watts, D. Kittelson, M. Frampton, M. Utell, J. Finkelstein, G. Oberdorster. Effects of Freshly-Generated Low- and Ultralow-Sulfur Fuel Emission Aerosols in Insulin-Resistant, Obese Rats. *Toxicologist* 102(S-1): 745. | 2008

Elder, A., K. Bentley, N. Corson, M. Ehrenberg, J. Finkelstein, A. Friedman, R. Gelein, J. McGrath, G. Oberdorster, J. Panza, P. Wade-Mercer, H. Yang. Physicochemical Properties of Nanomaterials that Affect Their Toxicity. NIEHS Center Directors' Meeting, Philadelphia, PA. | 2008

Elder, A., N. Corson, R. Gelein, P. Mercer, A. Rinderknecht, J. Finkelstein, G. Oberdorster. Tissue Distribution in Rats of Surface-Modified Quantum Dots Following Lung or Intravenous Exposure. Talk in mini-symposium, "Nanoparticles: What Are Those Little Guys Doing Anyway?", American Thoracic Society conference, San Francisco, CA, 5/07. *Am. J. Respir. Crit. Care Med.* 175: A246. | 2007

Elder, A., N. Corson, R. Gelein, P. Mercer, A. Rinderknecht, J. Stewart, J. O'Callaghan, R. Chapman, P. Simeonova, M. Frampton, M. Utell, J. Finkelstein, G. Oberdorster. Effects of Concentrated Ambient Ultrafine/Fine Particles in Insulin-Resistant, Obese Rats. *Toxicologist* 92 (S-1): 511. | 2007

Elder, A., J. Finkelstein, R. Gelein, N. Corson, P. Mercer, S. Dimitrova, D. Topham, G. Oberdorster. Effects of World Trade Center Dusts in Old Mice Re-Infected with Influenza Virus. *Am. J. Respir. Crit. Care Med.* 171(7):A267. | 2005

Elder, A., N. Corson, P. Mercer, R. Gelein, J. Finkelstein, P. Hopke, W. Watts, D. Kittelson, G. Oberdorster. Effects of On-Road Aerosols in Aged Rats. *Toxicologist* 84(S-1): 443. | 2005

Elder, A., J. Finkelstein, B. Gelein, N. Corson, P. Mercer, C. Reed, D. Oakes, S. Eberly, D. Topham, G. Oberdorster. In Vitro and In Vivo Effects of World Trade Center Dusts: Studies in Human and Mouse Cell Lines and in Influenza-Compromised Young and Old Rats. *Toxicologist* 78(S-1): 1401. | 2004

Elder, A., N. Corson, R. Gelein, P. Mercer, C. Cox, J. Finkelstein, J. Carter, K. Driscoll, G. Oberdorster. Influenza Virus, Ozone Exposure, and Age Modify the Inflammatory Response to Ultrafine Particles in Mouse Lung. *Am. J. Respir. Crit. Care Med.* 167(7): A761. | 2003

Elder, A.C.P., J Carter, N Corson, R Gelein, K Nguyen, C Cox, J Finkelstein, K Driscoll, G. Oberdorster. Endotoxin Priming, Ozone Exposure, and Age Affect Ultrafine Particle Induced Inflammation and Antioxidant Gene Expression in Mouse Lung and Heart. *Am. J. Respir. Crit. Care Med.* 165(8): A537. | 2002