

CURRICULUM VITAE

Qunwei Zhang, MD, MPH, PhD

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Position: Professor with Tenure

EDUCATION

1984-1989 Medical Degree, School of Medicine, Fujian Medical University, P.R. of China
1989-1992 Master of Public Health, School of Public Health, Zhejiang University, P.R. of China
1995-1996 Research Student, School of Medicine, University of Fukui, Japan
1996-2000 PhD of Medical Science, Department of Environmental Health, School of Medicine, University of Fukui, Japan

ACADEMIC APPOINTMENTS

1992-1995 Research Assistant, Institute of Occupational Health, Zhejiang Academy of Medical Science, P.R. of China
1998-2000 Research Assistant, Department of Environmental Health, School of Medicine, University of Fukui, Japan
2000-2002 Research Associate Scientist, Department of Environmental Medicine, NYU School of Medicine, New York, NY
2003-2005 Research Associate, Institute for Environmental Medicine, School of Medicine, University of Pennsylvania, Philadelphia, PA
2005-2011 Assistant Professor (tenure track), Department of Environmental and Occupational Health Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY
2011-2016 Associate Professor (July 1, 2011) with tenure (July 1, 2012), Department of Environmental and Occupational Health Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY
2016-Present Professor with tenure, Department of Environmental and Occupational Health Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY
2005-Present Associate Scientist, James Graham Brown Cancer Center, University of Louisville, Louisville, KY
2006-Present Member, Center for Genetics and Molecular Medicine, University of Louisville, Louisville, KY
2007-Present Member, Center for Occupational Health Sciences at Zhejiang Province, Zhejiang, P.R. of China
2008-Present Adjunct Professor, Zhejiang Academy of Medical Sciences, P.R. of China
2008-Present Member, Center for Environmental Genomics and Integrative Biology, UofL
2009-Present Faculty Mentor, Environmental Health Sciences Training Grant (NIEHS T32-ES011564)
2010-Present Adjunct member, Institute for Cellular Therapeutics, University of Louisville
2014-Present Adjunct Professor, School of Public Health, Peking University
2014-Present Adjunct Professor, School of Public Health, Fujian Medical University
2016-Present Adjunct Professor, Beijing Municipal Institute of Labor Protection

TEACHING APPOINTMENTS

- 1998-2000 Teaching Assistant, Dept. of Environmental Health, School of Medicine, University of Fukui, Japan
- 2007-Present Dept. of Environmental and Occupational Health Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY
- Course director/instructor: PHEH 750, 752, 754 Seminars in Environmental Health
 - Instructor: PHEH 753 Independent Study in Environmental Health
 - Mentor: PHEH 679 MPH Practicum (EOHS)
- 2014-Present Dept. of Environmental and Occupational Health Sciences, School of Public Health and Information Sciences, University of Louisville, Louisville, KY
- Instructor: PHEH-651 Advanced Topics in Environmental Health

SERVICE

- 2007-2009 Faculty Search Committee, Departments of Environmental and Occupational Health Sciences, Epidemiology, and Population Health and Behavioral Sciences
- 2007-2012 Internal Advisory Board, Center for Environmental Genomics and Integrative Biology
- 2009-Present Chair, Research Collaboration and Strategic Plans, Department of Environmental and Occupational Health Sciences
- 2009-Present External Assessor, Professor level promotion at Zhejiang University, P.R of China
- 2010-Present Editor board member, Journal of Chinese Clinical Medicine
- 2009-2012 Judge, Meyzeek Middle School Science Fair, Louisville, Kentucky
- 2011-2012 Head Judge, Louisville Science Fair, Louisville, Kentucky
- 2012-2015 Judge, duPont Manual High School Science Fair, Louisville, Kentucky
- 2011-Present Editor Board member, ISRN Toxicology (until 2014), then journal renamed as International Scholarly Research Notices (Toxicology section)
- 2011-2013 Dissertation committee member for Ms. Sadiatu Musah, Ph.D candidate, Department of Environmental and Occupational Health Sciences
- 2012-Present Faculty Forum, School of Public Health and Information Sciences, UofL
- 2012- Editor Board Member, World Journal of Pharmacology
- 2012- Editor Board Member, World Journal of Translational Medicine
- 2013- Editor Board Member, Science Postprint
- 2015- Editor Board Member, SM Journal of Gastroenterology & Hepatology

STUDENT ADVISING & MENTORING

Current

- | | | |
|-------|------------------------|---------------------------|
| 2014- | Yiqun Mo, MD, PhD | Research Associate Senior |
| 2016- | Sivarchana Mareedu, BS | Rotation PhD student |

Prior

- | | | |
|-----------|-----------------------|--|
| 2016-2016 | Yue Ma, BS | Visiting Student |
| 2015-2015 | Youqiong Xu, MD, PhD | Visiting Scholar |
| 2007-2012 | Rong Wan, MD, PhD | Research Associate Senior |
| 2011-2012 | Lingfang Feng, MD, MS | Visiting Scholar |
| 2005-2011 | Yiqun Mo, MD, PhD | Research Associate Senior, T32 post-doctoral trainee |
| 2010-2010 | Mizu Jiang, MD, PhD | Senior Visiting Scholar |
| 2009-2010 | Lijin Zhu, MD, MS | Visiting Scholar |
| 2009-2009 | Kevin Baldrige | Summer Student |
| 2008-2009 | Min Yu, MD | Visiting Scholar |
| 2006-2007 | Qing Yang, PhD | Post-doctoral fellow |
| 2006-2007 | Weining Li, BS | Research technician |

Accomplishments of Post-Doctoral Fellows and Visiting Scientists Under Mentorship

Awards

- 2015 First Place: Basic Research in Public Health, Research! Louisville (Awardee: Dr. Yiqun Mo)
- 2010 The Post-Doc fellow award, Nanotoxicology Specialty Section, 49th Annual Meeting of Society of Toxicology at Salt Lake City, UT, March 7-11, 2010 (Awardee: Dr. Rong Wan)
- 2010 NIH/NIEHS T32 UofL Environmental Health Sciences Training Program for post-doctoral fellowship, July 1, 2010 (Awardee: Dr. Yiqun Mo)
- 2009 NIH/NIEHS T32 UofL Environmental Health Sciences Training Program for post-doctoral fellowship, July 1, 2009 (Awardee: Dr. Yiqun Mo)
- 2009 Travel Grant Awards, Wound Biotechnology Foundation, 19th Annual meeting of Wound Healing Society at Dallas, TX 2009 (Awardee: Dr. Yiqun Mo)
- 2009 Best Abstract by a Post-Doc, Inhalation and Respiratory Specialty Section, 48th Annual Meeting of Society of Toxicology at Baltimore, MD, March 15-19, 2009 (Awardee: Dr. Yiqun Mo)

Accomplishments of Middle School and High School Students Under Mentorship

Awards

- 2010 First Place, Meyzeek Middle School Science Fair, Cellular and Molecular Biology Division (Awardee: Yue Zhang)
- 2010 First Place, Ballard High School Science Fair, Team Section (Awardees: Yixin Li, Yihua Li)
- 2010 First Place, Louisville Regional Sciences Fair, Team Section (Awarded four-year full scholarship at UofL) (Awardees: Yixin Li, Yihua Li)
- 2010 In Vitro Science Certificate, Louisville Regional Science Fair (Awardees: Yixin Li, Yihua Li)
- 2010 First Place Award, Team Projects Intel ISEF 2010 (\$3,000 cash award) (Awardees: Yixin Li, Yihua Li)
- 2014 Fourth Place Award, Intel ISEF 2014 (Awardee: Yue Zhang)

AWARDS AND HONORS

- 2008 Faculty Award, Scientific Importance, Research! Louisville
- 2007-2010 Walter A. Rosenblith New Investigator Award, Health Effects Institute
- 2006 First Place, Scientific Importance, Research! Louisville
- 2004-2006 Independent Investigator Award, National American Lung Association research grant award
- 2002 Travel Grant, Mechanism of Toxicity Gordon Research Conference, Lewiston, ME
- 2000-2002 Post-doc fellowship for foreign researcher (about \$100,000), Japan Society for the Promotion of Science - returned fellowship due to accepting the research associate scientist position in New York University, USA.
- 1998 Travel Grant, Third British Epidemiology and Public Health Course, Hiroshima, Japan
- 1997 Travel Grant, 9th International Conference on Occupational Respiratory Diseases, Kyoto, Japan
- 1995-2000 Scholarship, Japanese Ministry of Education, Sciences and Culture (Japanese Government Scholarship)
- 1995 Travel Grant, 25th International Congress on Occupation Health, Stockholm, Sweden
- 1994 Excellent Paper, Third Place, Zhejiang Association of Science and Technology.
“Determination the platelet activating factor in silicotic patients and its effects on the fibroblast cells”
- 1994 Outstanding Scientific Researcher, Zhejiang Academy of Medical Sciences, Zhejiang Province, P.R. of China.
- 1992 First Place, Second Education, Culture and Art Festival of Universities and Colleges, Zhejiang Province, P.R. of China, title “The experimental studies on the therapeutic effects of bronchoalveolar lavage on silicotic rats.”

Qunwei Zhang, MD, MPH, PhD

MAJOR SCIENTIFIC INTERESTS

- Nanotoxicology
- Pulmonary toxicology
- Metal toxicology, genotoxicology and carcinogenesis
- Lung ischemia and ion channels
- Free radicals and pulmonary diseases
- Gene expression and function
- Ambient ultrafine particles and NADPH oxidase
- Signal transduction involved in tumor promotion, prevention and cellular function

PROFESSIONAL SOCIETY MEMBERSHIPS

1995-2000 Japanese Association of Occupational Health
1995-2000 Japanese Association of Hygiene
2001-2004 American Association for the Advancement of Science
2003-present Society of Toxicology
2006-present American Thoracic Society
2006-present Kentucky Public Health Association

REVIEWER FOR JOURNALS

2015 Toxicology Sciences
Toxicology
Journal of Nanoscience and Nanotechnology
International Journal of Nanomedicine
Life Sciences

2014 ISRN Toxicology
Toxicology
Particles and Fiber Toxicology

2013 Environmental Health Perspectives
Environmental Science & Technology
Journal of Molecular Signaling
Particles and Fiber Toxicology
ISRN Toxicology

2012 Materials
The Journal of Pediatrics
Journal of Functional Foods in Health and Diseases
Toxicology Sciences
BBA - General Subjects
Current Nanoscience
ISRN Toxicology
Journal of Biomedical Nanotechnology
Toxicology Letter
Toxicology
Chemical Research in Toxicology

2011 Toxicology Research
Toxicology Letter
The Journal of Toxicological Sciences
Toxicology Sciences
Nutrition and Metabolism
Life Sciences
Toxicology
PLoS ONE
Molecules

2010 Toxicology and Applied Pharmacology

Qunwei Zhang, MD, MPH, PhD

2009 Toxicology Letters
Chemical Engineer Journal
Nanotoxicology
Toxicology and Applied Pharmacology
Journal of Nanobiotechnology
Chemical Research in Toxicology
Nanotoxicology

2006-2007 Environmental Health Perspectives

2004 Antioxidant Redox Signal

2003-2006 American Journal of Physiology
Lung Cellular Molecular Physiology

1999 Environmental Health Perspectives
Journal of National Institute of Environmental Health

1998 Journal of Occupational Health

REVIEWER FOR PROPOSAL REGARDING THE POTENTIAL FOR PUBLICATION

2011 Elsevier, Inc, the potential publication of the 4th edition of *Handbook on the Toxicology of Metals*

2012 EPA External Peer Review of EPA's "Toxicological Review of Vanadium Pentoxide"

REVIEWER FOR ABSTRACT FOR CONFERENCE

2010 Society for Biomaterial 2011 Annual Meeting, April 13-16, 2011 in Orland, Florida

REVIEWER FOR GRANTS AND STUDY SECTIONS

2016- Members of the NIEHS P42 Superfund Research Program Review Committee

2015- Beijing Natural Science Foundation

2013- ad honor reviewer for NIH NANO study section

2013-current KSTC/KSEF SBIR/STTR Phase Zero grant proposal

2012 Special Emphasis Panel, NIH for Conference Grant Applications (R13), NIH

2011- current Environmental Exposure & Toxicology Study Section, California Tobacco-Related Disease Research Program (TRDRP)

2011-current Extramural Grant Review Panel, Medical Research Council (MRC), United Kingdom

2009 -current National Natural Science Foundation of China

2008-current Medical Research Council (MRC), United Kingdom

2006 Jeffress Memorial Trust

2003 NIESH/NIH

PUBLICATIONS

Book Chapters

1. Mo Y, Gu A, Tollerud DJ, **Zhang Q**. Nanoparticle toxicity and environmental impact. *Oxidative stress and biomaterial*. Editors: Thomas Dziubla and D. Allan Butterfield. Elsevier Ltd. (2016). ISBN: 978-0-12-803269-5, page 117-143.
2. Mo Y, Wan R, Tollerud DJ, **Zhang Q**. Nanomaterials. *Cancer and Inflammation Mechanisms: Chemical, Biological, and Clinical Aspect*. Editors: Yusuke Hiraku, Shosuke Kawanishi, Hiroshi Ohshima. John Wiley & Sons, Inc. (2014). ISBN: 978-1-118-16030-5, page 235-249.
3. Mo Y, Wan R, **Zhang Q**. Application of reverse transcription-PCR and real-time PCR in nanotoxicity research. *Nanotoxicity: Method and Protocols*. In the series: Methods in Molecular Biology (Vol. 926). Editor: Reineke, Joshua. Springer Protocols (www.SpringerProtocols.com). Humana Press (2012) Methods Mol. Biol. 2012; 926: 99-112. **PMID: 22975959**

4. Fisher AB, **Zhang Q**. NADPH and NADPH oxidase. *Encyclopedia of Respiratory Medicine*. Editors: Geoffrey J. Laurent and Steven D. Shapiro. C2006 Elsevier Ltd, ISBN: 0-12 438360-2, 2006; Vol 3: 77-83.
5. **Zhang Q**, Kusaka Y, Sato K, Donaldson K. Differences in the inflammogenicity of standard and ultrafine metals: the role of nitric oxide. *Advances in the Prevention of Occupational Respiratory Diseases*. Editors: Chiyotani K, Hosoda Y, Aizawa Y. Elsevier Sciences B.V. 1998: 866-872.
6. Zhang Z, **Zhang Q**, Yang D, Ding X, Luo J, He L, Zhong H, Chen F, Luo J, Hong C. The therapeutic effect of whole lung lavage with polyvinylpyridine-N-Oxide solution in pneumoconiosis patients. *Advances in the Prevention of Occupational Respiratory Diseases*. Editors: Chiyotani K, Hosoda Y, Aizawa Y. Elsevier Sciences B.V. 1998: 838-844.
7. Kusaka Y, **Zhang Q**, Sato K, Kyono H, Kohyama N. Which is more immunotoxic to the respiratory system, ionic or metallic cobalt? *Metal Ions in Biology Medicine*. Editors: Collery PH, Corbella J, Domingo JL, Etienne JC, Liobet JM. John Libbey Eurotext, Paris, 1996, Vol 4: 661-613.
8. Sato K, Kusaka Y, **Zhang Q**, Okada K, Nakakuki K, Muraoka R. Effect of cadmium on citrate uptake by isolated rats renal brush border membrane vesicles. *Metal Ions in Biology Medicine*. Editors: Collery PH, Corbella J, Domingo JL, Etienne JC, Liobet JM. John Libbey Eurotext, Paris, 1996, Vol 4: 238-240.

Peer-Reviewed Journals

1. Liu Q, Xu C, Ji G, Liu H, Mo Y, Tollerud DJ, Gu A, **Zhang Q**. Sublethal effects of zinc oxide nanoparticles on male reproductive cells. *Toxicology in Vitro*, 2016; 35: 131-138. **PMID: 27247145**
2. Zhang Y, Mo Y, Gu A, Wan R, **Zhang Q**, Tollerud DJ. Effects of urban particulate matter with high glucose on human monocytes U937. *Journal of Applied Toxicology*, 2016; 36: 586-595. **PMID: 26179980**
3. Xu Y, Zhang X, Chen Y, Ren N, Lin W, **Zhang Q**. Health effects of electromagnetic fields on reproductive-age female operators of plastic welding machines in Fuzhou, China. *Journal of Occupational and Environmental Medicine*, 2016; 58(2): 148-153. **PMID: 26849258**
4. Zou H, **Zhang Q**, Xing M, Gao X, Zhou Li, Tollerud DJ, Tang S, Zhang M. Evaluation of appropriate exposure metrics for nanoparticles in workplaces. *Environmental Science: Processes & Impacts*, 2015; 17(8):1470-1481. **PMID: 26166442**
5. Xu C, Liu Q, Liu H, **Zhang Q**, Héroux P, Jiang ZY, Gu A. Low serum testosterone levels are associated with elevated urinary mandelic acid, tungsten, and strontium levels in adult men according to the US 2011-2012 National Health and Nutrition Examination Survey. *PLoS One*, 2015 May 21; 10(5): e0127451. **PMID: 25996772**
6. Xu C, Liu Q, **Zhang Q**, Jiang Z, Gu A. Urinary enterolactone associated with liver enzyme levels in U.S. adults: NHANES survey. *British Journal of Nutrition*, 2015; 114:91-97. **PMID: 25990984**
7. Yang X, Shao H, Liu W, Gu W, Shu X, Mo Y, Chen X, **Zhang Q**, Jiang M. Endoplasmic reticulum stress and oxidative stress are involved in ZnO nanoparticle-induced hepatotoxicity. *Toxicology Letters*, 2015; 234: 40-49. **PMID: 25680694**
8. Xu C, Liu Q, **Zhang Q**, Jiang Z, Gu A. Urinary enterolactone is associated with obesity and metabolic alteration in men in the US National Health and Nutrition Examination Survey 2001-2010. *British Journal of Nutrition*, 2015; 113: 683-690. **PMID: 25634494**
9. Feng L, Zhang Y, Jiang M, Mo Y, Wan R, Jia Z, Tollerud DJ, Zhang X, **Zhang Q**. Up-regulation of Gadd45 α after exposure to metal nanoparticles: the role of hypoxia inducible factor 1 α . *Environmental Toxicology*, 2015; 30 (4): 490-499. **PMID: 24277352**
10. Skeete Z, Cheng H, Crew E, Shan S, Zhao W, Cronk H, Luo J, **Zhang Q**, Zhong CJ. Design of functional nanoparticles and assemblies for theranostic applications. *ACS Applied Materials & Interfaces*, 2014; 6 (24): 21752-21768. **PMID: 25111087**
11. Wan R, Mo Y, Feng L, Chien S, Tollerud DJ, **Zhang Q**. DNA damage caused by metal nanoparticles: the involvement of oxidative stress and activation of ATM. *Chemical Research in Toxicology*, 2012; 25: 1402-1411. **(Highlighting in this issue; 2012; 25(7):1283). PMID:22559321**
12. Mo Y, Wan R, Chien S, Tollerud DJ, **Zhang Q**. Combination effects of Cigarette smoke extract and ambient ultrafine particles on endothelial cells. *Toxicology in Vitro*, 2012; 26: 295-303. **PMID: 22178768**

13. Wan R, Mo Y, Chien S, Li Y, Li Y, Tollerud DJ, and **Zhang Q**. The role of hypoxia inducible factor-1 α in MMP-2 and MMP-9 production by human monocytes exposed to nickel nanoparticles. *Nanotoxicology*, 2011; 5(4): 568-582. **PMID: 21401309**
14. Pushpakumar SB, Perez-Abadia G, Soni C, Wan R, Todnem N, Patibandla P, Fenster T, **Zhang Q**, Barker JH, Maldonado C. Enhancing complement control on endothelial barrier reduced renal post-ischemia dysfunction. *Journal of Surgery Research*, 2011, 170: e263-e270. **PMID: 21816416**
15. Wang J, Wan R, Mo Y, **Zhang Q**, Sherwood L, Chien S. Creating a long-term diabetic rabbit model. *Experimental Diabetes Research*, 2010, Article ID 289614, 10 pages, doi: 10.1155/2010/289614 **PMID: 21234414**
16. Wang L, Zhang J, Zheng Y, Yang J, **Zhang Q**, Zhu X. Bioeffects of CdTe quantum dots on human umbilical vein endothelial cells. *Journal of Nanoscience Nanotechnology*, 2010; 10: 8591-8596. **PMID: 21121370**
17. Yu M, Mo Y, Wan R, Chien S, Zhang X, and **Zhang Q**. Regulation of plasminogen activator inhibitor-1 expression in endothelial cells with exposure to metal nanoparticles. *Toxicology Letters*, 2010; 195:82-89. **PMID: 20171267**
18. Wang J, Wan R, Mo Y, Li M, **Zhang Q**, Chien S. Intracellular delivery of ATP enhanced healing process in full thickness skin wounds in diabetic animals. *The American Journal of Surgery*, 2010; 199:823-832. **PMID: 20609726**
19. Wattamwar PP, Mo Y, Wan R, Palli R, **Zhang Q**, Dziubla TD. Antioxidant activity of degradable polymer poly(trolox) to suppress oxidative stress injury in cells. *Advanced Functional Materials*, 2010; 20:147-154.
20. Mo Y, Wan R, Wang J, Chien S, Tollerud DJ, **Zhang Q**. Diabetes is associated with increased sensitivity of alveolar macrophages to urban particulate matter exposure. *Toxicology*, 2009; 262:130-137. **PMID: 19505525**
21. Mo Y, Wan R, Chien S, Tollerud, DJ, **Zhang Q**. Activation of endothelial cells after exposure to ambient ultrafine particles: the role of NADPH oxidase. *Toxicology and Applied Pharmacology*, 2009; 236:183-193. **PMID: 19371610**
22. Wang J, **Zhang Q**, Wan R, Mo Y, Li M, Tseng M, Chien S. Intracellular ATP enhanced skin wound healing in rabbits. *Annals of Plastic Surgery*, 2009; 64(2):180-186. **PMID: 19158531**
23. Wan R, Mo Y, Zhang X, Chien S, Tollerud DJ, **Zhang Q**. Matrix metalloproteinase-2 and -9 are induced differently by metal nanoparticles in human monocytes: the role of oxidative stress and protein tyrosine kinase activation. *Toxicology and Applied Pharmacology*, 2008; 233:276-285. **PMID: 18835569**
24. Mo Y, Zhu X, Hu X, Tollerud DJ, **Zhang Q**. Cytokine and NO release from peripheral blood neutrophils after exposure to metal nanoparticles: *in vitro* and *ex vivo* studies. *Nanotoxicology*, 2008; 2(2):79-87.
25. **Zhang Q**, Chatterjee S, Wei Z, Liu W, Fisher AB. Rac and PI3 kinase mediate endothelial cell reactive oxygen species generation during normoxic lung ischemia. *Antioxid Redox Signalling*, 2008; 10(4):679-690 (**Journal cover**). **PMID: 18162054**
26. **Zhang Q**, Matsuzaki I, Chatterjee S, Fisher AB. Activation of endothelial NADPH oxidase during normoxic lung ischemia is K_{ATP} channel dependent. *American Journal Physiology Lung Cellular Molecular Physiology*, 2005; 289:L954-L961. **PMID: 16280460**
27. Matsuzaki I, Chatterjee S, Manevich Y, DeBolt K, **Zhang Q**, Fisher AB. Membrane depolarization and NADPH oxidase activation in aortic endothelium during ischemia reflect altered mechanotransduction. *American Journal Physiology Heart Circulatory Physiology*, 2005; 288:H336-343. **PMID: 15331375**
28. Zhao J, Chen H, Davison T, Kluz T, **Zhang Q**, Costa M. Nickel-induced 1,4-alpha-glucan branching enzyme 1 upregulation via the hypoxic signaling pathway. *Toxicology and Applied Pharmacology*, 2004; 196:404-409. **PMID: 15094311**
29. Davidson T, Kluz T, Burns F, Rossman T, **Zhang Q**, Uddin A, Nadas A, Costa M. Exposure to chromium (VI) in the drinking water increased susceptibility to UV-induced skin tumors in hairless mice. *Toxicology and Applied Pharmacology*, 2004; 196:431-437. **PMID: 15094314**
30. Mo Y, Feinstein SI, Manevich Y, **Zhang Q**, Lu L, Ho YS, Fisher AB. Mouse 1-Cys peroxiredoxin highly related intronless gene is an expressed pseudogene. *FEBS Letter*, 2003; 555(2):192-198. **PMID: 14644414**
31. **Zhang Q**, Salnikow K, Kluz T, Chen L, Su W, Costa M. Inhibition and reversal of nickel-induced transformation by histone deacetylase inhibitor trichostatin A. *Toxicology and Applied Pharmacology*, 2003; 192:201-211. **PMID: 14575637**

32. Salnikow K, Davision T, **Zhang Q**, Chen L, Su W, Costa M. The involvement of hypoxia-inducible transcription factor-1-dependent pathway in nickel carcinogenesis. *Cancer Research*, 2003; 63:3524-3530. **PMID: 12839937**
33. **Zhang Q**, Kusaka Y, Zhu X, Sato K, Mo Y, Kluz T, Donaldson K. Comparative toxicity of standard nickel and ultrafine nickel in lung after intratracheal instillation. *Journal of Occupational Health*, 2003, 45:20-32. **PMID: 14605425**
34. Costa M, Salnikow K, Sutherland JE, Broday L, Peng W, **Zhang Q**, Kluz T. The role of oxidative stress in nickel and chromate genotoxicity. *Molecular Cellular Biochemistry*, 2002, 234/235:265-275. **PMID: 12162442**
35. Cangul H, Broday L, Salnikow K, Sutherland J, Peng W, **Zhang Q**, Poltaratsky V, Zoroddu MA. Molecular mechanism of nickel carcinogenesis. *Toxicology Letter*, 2002, 127:69-75. **PMID: 12052643**
36. **Zhang Q**, Kluz T, Salnikow K, Costa M. Comparison of the cytotoxicity, cellular uptake and DNA-protein crosslinks induced by potassium chromate in lymphoblast cell line derived from three different individuals. *Biological Trace Element Research*, 2002, 86:11-22. **PMID: 12002656**
37. Sutherland JE, Peng W, **Zhang Q**, Costa M. The histone acetylase inhibitor trichostatin A reduce nickel-induced gene silencing in yeast and mamalian cells. *Mutation Research (Fundamental and Molecular mechanisms of Mutagenesis)*, 2001; 497:225-233. **PMID: 11470494**
38. Huang C, **Zhang Q**, Li J, Ding M, Shi X, Castranova V, Ji G, Costa M, Dong Z. Involvement of Erks activation in cadmium-induced AP-1 transactivation *in vivo* and *in vitro*. *Molecular Cellular Biochemistry*, 2001, 222:141-147. **PMID: 11678596**
39. **Zhang Q**, Mo Y, Lou J, Zhu X, He L, Zhong H. Determination the platelet activating factor in silicotic patients and its effect on the fibroblast cells. *Environmental Health and Preventive Medicine*, 2001, 5(4):134-137. **PMID: 21432401**
40. Sato K, Kusaka Y, **Zhang Q**, Zhu X, Okada K. Effect of platinum complex (PtCx) on citrate uptake by rat renal brush border membrane vesicles (BBMV): direct effects of cisplatin. *Industrial Health*, 2000; 38(3); 327-329. **PMID: 10943082**
41. **Zhang Q**, Kusaka Y, Donaldson K. Comparative rat pulmonary responses caused by exposure to standard cobalt and ultrafine cobalt. *Journal Occupational Health*, 2000; 42:179-184.
42. **Zhang Q**, Kusaka Y, Donaldson K. Comparative injurious and pro-inflammatory effects of three ultrafine metals in macrophages from young and old rats. *Inhalation Toxicology*, 2000; 12 (Suppl 3):267-273. **PMID: 26368625.**
43. Wang D, Kato N, Inaba Y, Tango T, Yoshida Y, Kusaka Y, Deguchi Y, Tomita F and **Zhang Q**. Physical and personality traits of preschool children in Fuzhou, China: only child vs. sibling. *Child: Care, Health and Development*, 2000; 26(1): 49-60. **PMID: 10696518**
44. Zhu X, Sato K, Kusaka Y, **Zhang Q**. The endocrine disruptive effects of mercury. *Environmental Health and Preventive Medicine*, 2000; 4: 174-183. **PMID: 21432482**
45. **Zhang Q**, Kusaka Y, Sato K, Wang D, Donaldson K. Tumor necrosis factor-alpha release from rat pulmonary leukocytes exposed to ultrafine cobalt: in vivo and in vitro studies. *Environmental Health and Preventive Medicine*, 1999; 4:87-91. **PMID: 21432178**
46. **Zhang Q**, Kusaka Y, Sato K, Mo Y, Fukuda M, Donaldson K. Toxicity of ultrafine nickel particle in lung after intratracheal instillation. *Journal of Occupational Health*, 1998; 40: 171-176.
47. **Zhang Q**, Kusaka Y, Sato K, Nakakuki K, Koyama N, Donaldson K. Differences in the extent of inflammation caused by intratracheal exposure to three ultrafine metals: role of free radical. *Journal of Toxicology and Environmental Health*, 1998; 53:423-438. **PMID: 9537280**
48. Sato K, Kusaka Y, **Zhang Q**, Deguchi Y, Li B, Okada K, Nakakuki K, Muraoka R. Direct effect of inorganic mercury on citrate uptake by isolated rat renal brush border membrane vesicles. *Industrial Health*, 1997; 35:456-460. **PMID: 9348716**
49. Sato K, Kusaka Y, **Zhang Q**, Yanagihara M, Ueda K. An epidemiological study on mercury sensitization. *Allergy International*, 1997; 46: 201-206.
50. Sato K, Kusaka Y, **Zhang Q**, Deguchi Y, Li B, Okada K, Nakakuki K, Muraoka R. Citrate uptake by isolated rat renal brush border membrane vesicles in cadmium-intoxicated rats. *Industrial Health*, 1997; 35: 388-393. **PMID: 9104787**
51. Kusaka Y, Sato K, **Zhang Q**, Morita A, Kasahara T, Yanagihara Y. Association of natural killer cell activity with serum Ig E. *International Arch Allergy and Immunology*, 1997; 112:331-335. **PMID: 9104787**

52. **Zhang Q**, Kusaka Y, Zhang QF, He L, Zhang Z, Sato K. Dynamic changes of constituents in bronchoalveolar fluid in experimental silicotic rats. *Industrial Health*, 1996; 34:379-388. (Correspondence author) **PMID: 8908848**
53. Sato K, Kusaka Y, **Zhang Q**, Yanagihara M, Ueda K, Morihiro H and Ishii Y. Investigation of the association between mercury sensitization and HLA-DR6. *Contact Dermatitis (Environmental and Occupational Dermatitis)*, 1996; 34:295. **PMID: 8730172**

Publication in Chinese

54. Ying X, ZhenyngYF, Zhu HJ, Jin J, Zeng QL, **Zhang Q**, Zhu XQ. Study of toxicity to rats induced by nanosized SiO₂ and Standard SiO₂. *Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi*; 2007;25(1):26-29
55. Zhu X, Zheng Y, **Zhang Q**, Jiang H, Huang X. Effects of endosulfan on the spermatogenesis and oxidative damage in rats. *Chinese Journal of Pharmacology and Toxicology*, 2002; 16(5):391-395.
56. Chen Z, Shao J, **Zhang Q**, Du Z. Effect of perforin-knockout on mouse influenza infection and related immunological functions. *Chinese Journal of Microbiology and Immunology*, 2002; 22(1):49-52 (in Chinese with English abstract).
57. Zhu X, Zhang HP, **Zhang Q**. Effects of mercuric chloride on the production of TNF- α and nitric oxide by leukocytes from different strains of rats. *Journal of Zhejiang University (Medical Sciences)*, 2001; 30(5):207-210.
58. Zhang QF, Zhang Z, Mao G, **Zhang Q**, Du Y. Data analysis and experimental study on pathogenic therapy of lung lavage for dust removal. *China Occupational Medicine*, 2000; 27(1):4-6 (in Chinese with English abstract).
59. Zhu X, Zheng Y, Chang Y, **Zhang Q**. The effects of mercuric chloride on the production of TNF-alpha and nitric oxide of the alveolar macrophage originated from different strains of rats. *Journal of Toxicology*, 2000; 14(4) (in Chinese with English abstract).
60. He L, **Zhang Q**, Lou J, and Zhong H. The study on the effect of platelet activating factor on fibroblast growth. *Occupational Health and Emergency Rescue*, 1997; 159(2):69-70 (in Chinese).
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Presentations and Abstracts

1. Mo Y, Wan R, Zhang Y, Gu A, Tollerud DJ, **Zhang Q**. Genotoxic Effects of Cobalt Nanoparticles In Vivo. 8th International Nanotoxicology Congress, June 1-4, 2016, Boston, MA
2. Mo Y, Wan R, Zhang Y, Gu A, Tollerud DJ, **Zhang Q**. Genotoxic Effects of Cobalt Nanoparticles *In Vivo*. 55th Annual Meeting of the Society of Toxicology, March 13-17, 2016, New Orleans, Louisiana
3. Chien S, Sarojini H, Wan R, **Zhang Q**. Mechanisms of a single phase tissue regeneration. Podium Presentations-Concurrent presentation at the 23rd Wound healing Society Annual Meeting. Denver, Colorado, May 1-5, 2013
4. Wan R, Sarojini H, Howard J, Mo Y, **Zhang Q**, Chien S. A new form of tissue regeneration. 2012 Research Louisville, Sep. 18-21, 2012
5. **Zhang Q**, Wan R, Mo Y, Chien S, Tollerud DJ. DNA Damage Caused by Metal Nanoparticles: Involvement of Oxidative Stress and Activation of ATM. 2012 Research Louisville, Louisville, Sep. 18-21, 2012
6. Feng L, Mo Y, Wan R, Jia Z, Zhang X, Tollerud DJ, **Zhang Q**. Up-regulation of Gadd45a in Mouse Embryo Fibroblasts with Exposure to Metal Nanoparticles: the Role of Hypoxia Inducible Factor-1 α . The 10th China-Japan International Symposium on Health Sciences. June 06-07, 2012, Hangzhou, China
7. Wan R, Sarojini H, **Zhang Q**, Chien S. Tissue regeneration by intracellular energy delivery. 17th Annual Kentucky EPSCoP Conference, Lexington Convention Center, Lexington, Kentucky, May 17, 2012, Page 48
8. **Zhang Q**, Mo Y, Wan R, Tollerud DJ. Activation of endothelial cells after exposure to ambient ultrafine particles. 2012 HEI Annual Conference, The Drake Hotel, Chicago, IL, April 15 - 17, 2012, Annual conference 2012, program and Abstract, page 64
9. Wan R, Sarojini H, **Zhang Q**, Chien S. A new form of tissue regeneration. The 22nd Annual Meeting of the Wound Healing Society, April 19-22, 2012; Georgia World Congress Center, Atlanta, Georgia, USA Wound Rep Reg (2012) 20 A44.
10. Mo Y, Wan R, Chien S, Tollerud DJ, **Zhang Q**. MMP-2 induction in endothelial cells with exposure to urban particulate matter. American Thoracic Society (ATS) International Conference; May 16-20, 2011; Denver, Colorado, USA
11. Mo Y, Wan R, Chien S, Tollerud DJ, **Zhang Q**. Cigarette smoke extract enhances the effect of ambient ultrafine particles on endothelial cells. *Platform presentation*, 50th Annual Meeting of the Society of Toxicology, March 6-10, 2011, Washington, DC
12. Wan R, Mo Y, Chien S, Tollerud DJ, **Zhang Q**. Combined effects of diesel exhaust particles and high glucose on MMP-2 expression in human monocytes. 50th Annual Meeting of the Society of Toxicology, March 6-10, 2011, Washington, DC
13. **Zhang Q**. The role of hypoxia inducible factor 1 α in MMP-2 and MMP-9 production by human monocytes exposed to nickel nanoparticles. Particles 2010, Regal Sun Resort, Lake Buena Vista (Orlando), FL, May 22-25, 2010
14. Mo Y, Wan R, Tollerud DJ, **Zhang Q**. Cigarette smoke extract enhances the effect of ambient ultrafine particles on endothelial cells. 6th Kentucky Innovation and Entrepreneurship Conference, April 6, 2010, Lexington, KY, P42

15. Wan R, Mo Y, Chien S, Tollerud DJ, **Zhang Q**. DAN damage caused by metal nanoparticles: the role of oxidative stress and activation of ATM. American Thoracic Society (ATS) International Conference; May 14-19, 2010; New Orleans, LA.
16. Wan R, Mo Y, Yu Min, Chien S, Tollerud, DJ, **Zhang Q**. Regulation of plasminogen activator inhibitor-1 expression in endothelial cells with exposure to metal nanoparticles. *Platform presentation*, 49th Annual Meeting of the Society of Toxicology, March 7-11, 2010, Salt Lake City, UT.
17. Mo Y, Wan R, Tollerud DJ, **Zhang Q**. The role of hypoxia-inducible factor in MMP-2 and MMP-9 production by human monocytes exposed to nickel nanoparticles. 49th Annual Meeting of the Society of Toxicology, March 7-11, 2010, Salt Lake City, UT.
18. Mo Y, Wan R, Wang J, Chien S, **Zhang Q**. Hyperglycemia time is a major factor in skin wound healing. 20th Annual Meeting of the Wound Healing Society with SAWC 2010, April 17-20, 2010, Orlando, FL.
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22. Mo Y, Wan R, Chien S, Tollerud DJ, **Zhang Q**. Activation of endothelial cells after exposure to ambient ultrafine particles: the role of NADPH oxidase. Program and abstract (P57), Health Effects Institute Annual Conference 2009, May 3-5, Portland, OR.
23. Mo Y, Wan R, Wang J, Chien S, **Zhang Q**. Intracellular ATP delivery accelerates skin wound healing through up-regulation cytokines and vascular endothelial growth factors expression. “*Young Investigator Awards*” presentation at 19th Annual Meeting of the Wound Healing Society with SAWC 2009, April 26-29, 2009, Dallas, TX.
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25. Wan R, Mo Y, Tollerud DJ, **Zhang Q**. Differential genotoxic effects of transition metal nanoparticles: the role of oxidative stress. *Platform presentation*, 48th Annual Meeting of the Society of Toxicology, March 15-19, 2009, Baltimore, MD.
26. Mo Y, Wan R, Tollerud DJ, **Zhang Q**. Activation of endothelial cells after exposure to ambient ultrafine particles: the role of NADPH oxidase. *Platform presentation*, 48th Annual Meeting of the Society of Toxicology, March 15-19, 2009, Baltimore, MD.
27. Wan R, Mo Y, Tollerud DJ, **Zhang Q**. Matrix metalloproteinase-2 and- 9 are induced differently by metal nanoparticler in human monocytes: the role of oxidative stress and protein tyrosine kinase activation. *Oral Presentation*, Nanotechnology Symposium 2008, October 3-4, 2008, Sullivan University, Louisville, KY.
28. **Zhang Q**, Mo Y, Wan R, Tollerud DJ. Pulmonary and systemic effects of transition nanoparticles. *Oral Presentation*, Nanotechnology Symposium 2008, October 3-4, 2008, Sullivan University, Louisville, KY.
29. **Zhang Q**, Mo Y, Wan R, Tollerud DJ. Activation of endothelial cells after exposure to ultrafine particles. 2008 ATS International Conference, May 16-21, 2008, Toronto, Canada. *American Journal of Respiratory and Critical Care Medicine* 2008; 177: A47.
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56. **Zhang Q**, Kusaka Y, Donaldson K. Increased inflammation and proliferation in lung of exposed to ultrafine metals compared to standard respirable metal particles. 26th International Congress on Occupational Health, Singapore, 2000, 9, 461.
57. Zhu X, **Zhang Q**, Sato K, Kusaka Y. Comparative pro-inflammatory effects of mercuric chloride on alveolar macrophages from different strains of rat *in vitro*. 26th International Congress on Occupational Health, Singapore, 2000, 9, 461.
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63. Zhu X, **Zhang Q**, Sato K, Kusaka Y. Comparative pro-inflammatory effects of mercuric chloride on alveolar macrophages from different strains of rats in vitro. Proceedings of the 6th Annual Meeting of the Japanese Society of Immunotoxicity, Sept 20-23, 1999, Sendai, Japan. P36.
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92. **Zhang Q**, Zhang QF, He L, Lu A. Experimental studies on the therapeutic effects of bronchoalveolar lavage on silicotic rats. 14th Asian Conference on Occupational Health, **Oral Presentation**, October 15-17, 1994, Beijing. *Book of Abstracts*.
93. He L, Hong H, **Zhang Q**, Zhang Z, Lou J, Zhong H. The epidemiological study of occupational hazards of workers exposed to silk dust. 14th Asian Conference on Occupational Health, Oral Speaker, October 15-17, 1994, Beijing. *Book of Abstracts*.
94. He L, Zhang Z, Hong C, **Zhang Q**, Lou J, Zhong H. Experimental studies on toxicity and the effect on the rat lung by silk dust. The 14th Asian Conference on Occupational Health, Oral Speaker, October 15-17, 1994, Beijing. *Book of Abstracts*.

INVITED TALKS/PRESENTATIONS

Grand Rounds, UofL Division of Pulmonary, Critical Care and Sleep Disorders Medicine, “Health Effects of Transition Metal Nanoparticles”, June 20, 2008.

Center for Environmental Research and Technology, University of California Riverside “Activation of endothelial cells after exposure to ambient ultrafine particles: the role of NADPH oxidase”, April 1, 2008.

Zhejiang Academy of Medical Sciences, P.R. of China, “Activation of endothelial cells after exposure to ambient ultrafine particles: the role of NADPH oxidase”, April 20, 2009.

Zhejiang Academy of Medical Sciences, P.R. of China, “Differential genotoxic effects of transition metal nanoparticles: the role of oxidative stress”, April 23, 2009.

Particles 2010 International conference, Regal Sun Resort, Lake Buena Vista (Orlando), FL, “The role of hypoxia inducible factor 1 α in MMP-2 and MMP-9 production by human monocytes exposed to nickel nanoparticles”, May 22-25, 2010.

Zhejiang Academy of Medical Sciences, P.R. of China, “Genotoxic effects of metal nanoparticles: *in vivo* and *in vitro*”, June 20, 2013.

Zhejiang Academy of Medical Sciences, P.R. of China, “Health effects of metal nanoparticles”, July 30, 2014.

Beijing Key Laboratory of Occupational Safety and Health, Beijing Municipal Institute of Labor Protection, “Toxicity of metal nanoparticles”, July 8, 2015.

Zhejiang Academy of Medical Science, P.R. of China, “The mechanisms involved in Nano-ZnO-induced hepatotoxicity”, July 15, 2015.

Fujian Medical University School of Public Health, P.R. of China, “Effect of particulate matter (PM) with high glucose on macrophages/monocytes”, July 26, 2015.

Beijing Key Laboratory of Occupational Safety and Health, Beijing Municipal Institute of Labor Protection, “PM, high glucose and monocytes”, April 15, 2016.

Fujian Medical University School of Public Health, P.R. of China, “Genotoxic effects of metal nanoparticles”, April 22, 2016.

RESEARCH GRANTS

Current

KSEF-148-502-16-381	Dr. Qunwei Zhang (PI)
Mechanisms underlying ambient particulate matter-induced DNA damage and cell transformation	
KSEF	\$30,000.00 Total cost 07/01/2016-06/30/2017
Role: PI	

The EVPRI Internal Research Grant	Dr. Qunwei Zhang (PI)
50992 (UofL Internal Research Grant)	\$3,000.00 Total cost 06/01/2016-05/31/2017
Activation of inflammasome in monocytes/macrophages exposure to fine particulate matter with high glucose	
Role: PI	

ES023693-01	Dr. Qunwei Zhang (PI)
The role of microRNA miR21 in nickel nanoparticles-induced MMPs production	
NIEHS/NIH	\$450,000.00 Total cost 09/17/2014-08/31/2017
Role: PI	

NIH/NCI R25-CA134283	Dr. David Hein (PI)
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Qunwei Zhang, MD, MPH, PhD

University of Louisville Cancer Education Program

NIH/NCI \$1,543,610.00 Total cost 09/14/2011-08/31/2016

The long-term object is to recruit, educate and motivate outstanding undergraduate and professional student to pursue further training and future careers in cancer research.

Role: Faculty Participant and Mentor

T32- ES011564

Dr. Arteel Gavin (PI)

NIEHS/NIH \$2,311,776.00 Total cost 04/01/2016–03/31/2021

UofL Environmental Health Sciences Training Program

Role: Faculty Participant and Mentor

81473009

Dr. Rong Wan (PI)

Natural Sciences Foundations of China ¥600,000.00 Total cost 01/01/2015-12/31/2018

The Role of SENP1, a SUMO-specific Protease Mediated Sp1-Desumoylation in the Nano-Co-induced cell Transformation

Role: Co-investigator

2014J01333

Dr. Rong Wan (PI)

Natural Sciences Foundation of Fujian Province, China ¥60,000.00 Total cost 01/01/2014-12/31/2016

Mechanisms underlying cobalt nanoparticles-induced genotoxic effect and cell malignant transformation in bronchial epithelial cells

Role: Co-investigator

Completed Grants:

P30-ES014443

Dr. Kenneth Ramos (PI)

NIEHS/NIH \$4,440,000 Total cost 06/04/2007-03/31/2012

Center for Environmental Genomics and Integrative Biology

Role: Internal Advisory Board (IAB) and Center Investigator

UofL Intramural Research Incentive Grant

Dr. Qunwei Zhang (PI)

\$5,000 Direct cost 01/01/2012-12/31/2012

Mechanisms underlying nickel nanoparticles-induced MMPs production

Role: PI

4751-RFA-05-2/06-12

Dr. Qunwei Zhang (PI)

Health Effects Institute \$300,000.00 Total cost 03/01/2007–12/31/2011

Walter A. Rosenblith New Investigator Award

Activation of endothelial cells and gene expression in lungs following exposure to ultrafine particles

Role: PI

CTSP-Basic

Dr. Qunwei Zhang (PI)

University of Louisville \$49,979.00 Total cost 06/01/2010-05/31/2011

Clinical & Translational Sciences Pilot Grant Program's Basic Award

Develop and Evaluate the Degradable Polymerpoly (troloxester) Nanoparticles for Medical Application

Role: PI

KSEF-1686-RED-11

Dr. Qunwei Zhang (PI)

Kentucky Sciences and Engineers Foundation \$100,000 Total cost 07/01/2008–6/30/2010

(no-cost extension until 06/30/11)

Oxidative stress and endothelial cell dysfunction in animal exposure to ultrafine particles and cigarette smoke.

Role: PI

AHA-0865476D

Dr. Qunwei Zhang (PI)

Qunwei Zhang, MD, MPH, PhD

American Heart Association \$121,000.00 Total cost 07/01/2008–06/30/2010
Great Rivers Affiliate (no-cost extension until 06/30/11)
Mechanism underlying the susceptibility of diabetics to ultrafine particles
Role: PI

2R44AR052984-02 Dr. Sufan Chien (PI)
NIH SBIR \$1,173,455 Total cost 09/01/2007–08/31/2010
Matching Fund from Commonwealth of KY \$800,000 Total cost
Partial-thickness wound healing via topical ATP delivery
Role: Co-Investigator

GB 061077P2 (1P30ES01443-01A1) Dr. Qunwei Zhang (PI)
\$30,000 Direct cost 04/01/2008–03/31/2009
UofL NIH/NIEHS Center for Environmental Genomics and Integrative Biology Pilot Project: Carcinogenesis
of nickel nanoparticles.
Role: PI

1P30ES01443-01A1 Dr. Qunwei Zhang (PI)
Career Development Program Award \$20,000 Direct cost 06/04/2007–03/31/2008
UofL NIH/NIESH Center for Environmental Genomics and Integrative Biology
Role: PI

UofL Intramural Research Incentive Grant Dr. Qunwei Zhang (PI)
\$5,000 Direct cost 06/01/2006–05/31/2007
Genotoxic effects of transition metal nanoparticles.
Role: PI

RG-872-N Dr. Qunwei Zhang (PI)
National American Lung Association \$70,000 Direct cost 07/01/2004–12/30/2006
Endothelial generation of reactive oxygen species in lung exposure to ultrafine particles.
Role: PI

Japanese Ministry of Education, Sport, and Culture 4/1/98–03/31/00
Study on the toxicity of ultrafine metals on the lungs and its mechanism.
Role: Co-investigator

National “Eighty-Five” Key Plan 7/1/92–6/30/97
Supported by China Committee of Science and Technology
Evaluation of the therapeutic effects of whole lung lavage in coal worker’s pneumoconiosis.
Role: Co-investigator

Japanese Ministry of Education, Sport, and Culture 4/1/96–3/31/97
Study on the effects of heavy metals on renal brush border membrane.
Role: Co-investigator

Japanese Ministry of Education, Sport, and Culture 4/1/95–3/31/97
Study of immunotoxicity induced by nickel and cobalt.
Role: Co-investigator

Department of Public Health, Zhejiang Province, P.R. of China 1/1/95–12/31/96
Effects of some Chinese traditional anti-aging medicine on the SOD mRNA expression in the brain.
Role: PI

Department of Public Health, Zhejiang Province, P.R. of China 1/1/94–12/30/95

Qunwei Zhang, MD, MPH, PhD

The study of Gynostemma Pentaphyllum Makino (Chinese tradition medicine) on silicotic fibrosis.
Role: PI

Department of Public Health, Zhejiang Province, P.R. of China 5/1/94–4/30/96
The role of platelet activating factors in the pulmonary fibrosis induced by silica.
Role: PI

Department of Public Health, Zhejiang Province, P.R. of China 8/1/92–7/31/94
Determination the histamine in silicotic patients and its clinic significance.
Role: Co-investigator