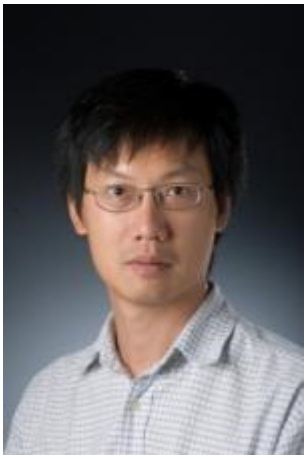
Bio--Wen-Hsing Cheng



Dr. Wen-Hsing Cheng is an associate professor in the Department of Food, Health and Health Promotion in the Mississippi State University (MSU). His research focuses on selenium and age-related degeneration. Prior to joining MSU in 2013, Dr. Cheng was an assistant professor in the University of Maryland at College Park (2007-2013) and a research fellow at the National Institute on Aging, National Institutes of Health (NIH) in the US. Dr. Cheng received his M.S. and Ph.D. degrees from Cornell University majoring in nutritional biochemistry (2001). Dr. Cheng has received significant research awards from Cornell University, NIH, and the University of Maryland, and Mississippi State University, and has published more than 72 papers in peer-reviewed research articles, reviews, and book chapters.

CURRICULUM VITAE

Wen-Hsing Cheng

April 18, 2016

1. Personal Information

Wen-Hsing Cheng, Ph.D.
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Education

2001	Ph.D. Molecular Nutrition, Cornell University, Ithaca, New York
1997	M.S. Animal Nutrition, Cornell University, Ithaca, New York
1993	B.S. Animal Science, National Taiwan University, Taipei, Taiwan

Brief Chronology of Employment

2013-present	Associate Professor of Nutrition Department of Food, Nutrition and Health Promotion Mississippi State University
2007-2013	Assistant Professor of Nutrigenomics Department of Nutrition and Food Science University of Maryland, College Park
2005-2007	Research Fellow Laboratory of Molecular Gerontology National Institute on Aging, Baltimore, Maryland
2001-2005	Postdoctoral Fellow Laboratory of Molecular Gerontology National Institute on Aging, Baltimore, Maryland
1996-2001	Graduate Research Assistant Cornell University, Ithaca, New York

2. Research, Scholarly, and Creative Activities (**Underline**, corresponding author; *, undergraduate, graduate or postdoctoral fellow from the Cheng Lab)

Summary:

- 75 accepted articles in book chapters, research articles and research comments.
- 56 seminar/symposium oral presentations

- 53 poster presentations

a. **Chapters in Books**.

1. **Cheng, W.-H**. and Lei, X. Chapter 40: Selenium: Basic Nutrition Aspects. James Collins (Ed). In: *Molecular, Genetic, and Nutritional Aspects of Major and Trace Minerals*, Elsevier, 2016, in press.
2. **Cheng, W.-H.,** Muftuoglu, M and Wu, R.T.Y*. Chapter 10. Selenium and epigenetic effects on histone marks and chromatin. Frederick E Dormann and Emily Ho (Eds). In: *Role of Nutrition and Metabolism on Epigenetic regulation*, Taylor and Francis Group, 2015, pages 273-297, ISBN: 978-1-4822-0381-3.
3. Wu, R.T.Y*, and **Cheng, W.-H.** Chapter 21: Selenium and Senescence: Centering on Genome Maintenance. R. Watson (Ed). In: *Foods and Dietary Supplements in the Prevention and Treatment of Disease on Older Adults*, Elsevier, 2015, pages 211-229. *ISBN: 978-0-1241-8680-4*.
4. Porres, J.M. and **Cheng, W.-H**. Legumes in preventive dermatology. Ronald R. Watson and Sherma Zibadi (Eds). In: *Bioactive Dietary Factors and Plant Extracts in Preventative Dermatology*, Oxford, London, Elsevier. 2013, pages 421-432, ISBN: 978-1-62703-167-7.
5. Wu, M.*, Porres, J.M. and **Cheng, W.-H.** Chapter 18: Selenium, selenoprotein and age-related disorders. Ronald R. Watson and Victor R. Preedy (Eds). In: *Bioactive Foods as Dietary Intervention for the Aging Population*, Oxford, London, Elsevier. 2013, pages 227-239, ISBN: 978-0-12-397155-5.
6. Porres, J.M., Wu, M.*, and **Cheng, W.-H.** Chapter 24: Legumes, genome maintenance and optimal health. Ronald R. Watson and Victor R. Preedy (Eds). In: *Bioactive Foods as Dietary Intervention for the Aging Population*, Oxford, London, Elsevier. 2013, pages 321-334. ISBN: 978-0-12-397155-5.
7. Rocourt, C*. Yu, Y*. and **Cheng, W.-H**. Epilepsy: selenium and aging. Zaid Afawi (Eds). In: *Clinical and genetic aspects of Epilepsy,* InTech, Open Access Publisher. 2011, pages75-92. ISBN: 978-953-307-700-0.
8. **Cheng, W.-H.,** Ahn, B. and Bohr, V.A. Linking human RecQ helicases to DNA damage response and aging. K.K. Khanna, Y. Shiloh (Eds.). In: *The DNA Damage Response: Implications on Cancer Formation and Treatment*, DOI 10.1007/978-90-481-2561-6_15. Springer B.V. pp. 331-347, 2009.
9. Lei, X. and **Cheng, W.-H**. New roles of glutathione peroxidase-1 in oxidative stress and diabetes. Dolph L. Hatfield (Eds). In: *Selenium, its molecular biology and role in human health,* New York, NY, Springer-Verlag. pp. 173-182, 2006.
10. Opresko, P.L., Harrigan, J.A., **Cheng, W.-H.,** Brosh, Jr., R.M. and Bohr, V.A. Proposed biological functions for the Werner syndrome protein in DNA metabolism. Michel Lebel (Eds) In: *Molecular Mechanisms of Werner's Syndrome,* Georgetown, TX, *Landes Biosciences.* pp. 1-10, 2004.

b. **Articles in Refereed Journals.**

i. Research articles.

1. Zhang, X., Wang, Y.N., Zhu, J.J., Liu, X.X., You, H., Gong, M.Y., Zou, M., **Cheng, W.-H.**, and Zhu, J.H. N-acetylcysteine negatively regulates Notch3 and its malignant signaling. *Oncotarget*. (Accepted March 29, 2016).
2. Marioli, C., Balzarini, M., Aguate, F., Grosso, N., Soldini, D., Zeng, H., **Cheng, W.-H**., Martinez, M.J. Climatic thresholds for concentrations of minerals and heavy metals in Argentinean soybeans. *Agronomy J.*, doi: 10.2134/agronj2015.0445. 108:532-539, 2016.
3. Wu, R.T.Y.*, Cao, L.*, Chen, B.P.C., **Cheng, W.-H.** Selenoprotein H suppresses cellular senescence through genome maintenance and redox regulation. *J. Biol. Chem.* 289: 34378-34388, 2014.
4. Zeng, T.*, Cao, L.*, Fu, Y., Zeng, H., **Cheng, W.-H.** Methylseleninic acid sensitizes Notch3-activated OVCA429 ovarian cancer cells to carboplatin. *PLoS One*, 9(7):e101664. 2014.
5. Xia, K., He, X., Dai, Q., **Cheng, W.-H**., Qi, X., Guo, M., Luo, Y., Huang, K., Zhao, C., and Xu W. Discovery of systematic responses and potential biomarkers induced by ochratoxin A using metabolomics. *Food Addit Contam Part A: Chem Anal Control Expo Risk Assess.* 2014 (in press, PMID:25255040).
6. Guo, M., Huang, K., Chen, S., Qi, X., He, X., **Cheng, W.-H.**, Luo, Y., Xia, K., and Xu, W. Combination of metagenomics and culture-based methods to study the interaction between ochratoxin A and gut microbiota. *Toxicol Sci*. 141: 314-323, 2014.
7. Qi, X., Yang, X., Chen, S., He, X., Dweep, H., Guo, M., **Cheng, W.-H**., Xu, W., Luo, Y., Gretz, N., Dai, Q., Huang, K. Ochratoxin A induced early hepatotoxicity: new mechanistic insights from microRNA, mRNA and proteomic profiling studies. *Scientific Reports,* doi:10.1038/srep05163, 2014.
8. Dai, Q., Zhao, J., Qi, X., Xu, W., He, X., Guo, M., Dweep, H., **Cheng, W.-H**., Luo, Y., Xia K., Gretz, N., and Huang, K. MicroRNA profiling of rats with ochratoxin A nephrotoxicity. *BMC Genomics*, 15:333, 2014.
9. Shen, X.L., Zhang, B., Liang, R., **Cheng, W,-H**., Xu, W., Luo, Y., Zhao, C., and Huang, K. Central role of Nix in the autophagic response to orchratoxin A. *Food Chem Toxicol,* 69: 202-209, 2014.
10. Ludlow, A.T., Spangenburg, E.E., Chin, E.R., **Cheng, W.-H**., and Roth, S.M. Telomeres shorten in response to oxidative stress in mouse skeletal muscle fibers. *Journal of Gerontology series A: Biol Sci Med Sci,* 69: 821-830, 2014.
11. Li, Y., Zhang, B., He, X., **Cheng, W.-H**., Xu, W., Luo, Y., Liang, R., Luo, H, and Huang, K. Analysis of individual and combined effects of ochratoxin A and zearalenone on HepG2 and KK-1 cells with mathematical models. *Toxins*, 6: 1177-1192, 2014.
12. Rocourt, C.*, Wu, M.*, Chen, B.P.C. and **Cheng, W.-H.** The catalytic subunit of DNA-dependent protein kinase is downstream of ATM and feeds forward oxidative stress in selenium-induced senescence response. *Journal of Nutritional Biochemistry,* 24: 781-787, 2013.
13. Huawei Zeng, **Wen-Hsing Cheng**, and LuAnn K. Jackson. Methylselenol, a selenium metabolite, modulates p53 pathway and inhibits the growth of colon cancer xenografts in Balb/c mice. *Journal of Nutritional Biochemistry.* 24: 776-780, 2013.
14. Holmstrom**,** A.***,** Wu, R.T.Y.*, Zeng, H., Lei, K.Y. and **Cheng, W.-H**. Nutritional and supranutritional levels of selenate differentially suppress prostate tumor growth in adult but not young nude mice. *Journal of Nutritional Biochemistry.* 23:1086-1091, 2012.
15. Yu, Y*, Soma, P.K., Lo, Y.M., Wei, C.-I., and **Cheng, W.-H.** Effect of nicotine-free

tobacco extract on DNA damage responses in cancerous and non-cancerous cells. *Journal of Carcinogenesis & Mutagenesis* S3:002, 2012 (doi:10.4172/2157-2518.S3-002).

16. **Cheng, W.-H.**, Wu, R.T.Y.*, Wu, M.*, Rocourt, C.*, Carrillo, J. A., Song, J., Bohr, C.T.*, and Tzeng, T*. Werner syndrome protein ablation sensitizes U-2 OS osteosarcoma cells to selenium-induced DNA damage response and necrotic death. *Biochem. Biophy. Res. Commun.* 420:24-28, 2012.

17. **Cheng, W.-H.**, Holmstrom**,** A.***,** Li, X., Wu, R.T.Y.*, Zeng, H., and Xiao, Z. Effect of dietary selenium and cancer cell xenograft on peripheral T and B lymphocyte in nude mice. *Biological Trace Element Research.* 146:230-235, 2012.

18. Wu, M.*, Wu, R.T.Y.*, Wang, T.T.Y., and **Cheng, W.-H.** Role for p53 in selenium-induced senescence. *Journal of Agriculture and Food Chemistry.* 59:11882-11887, 2011.

19. Zhang, S*., Luo, Y., Zeng, H., Wang, Q., Tian, F., Song, J., and **Cheng, W.-H.** Encapsulation of selenium in chitosan nanoparticles improves selenium availability and protects cells from selenium-induced DNA damage response. *Journal of Nutritional Biochemistry.* 22:1137-1142, 2011.

20. Zeng, H., Lin. Y., **Cheng, W.-H**. and Uthus, E.O. Dietary selenomethionine intake increases exon-specific DNA methylation of p53 gene in rat liver and colon mucosa. *Journal of Nutrition.* 141:1464-1468, 2011.

21. Zeng, H., Jackson, M.I., **Cheng, W.-H**., and Combs, G.F., Jr. Chemical form of selenium affects its uptake, transport and glutathione peroxidase activity in the human intestinal Caco-2 cell model. *Biological Trace Element Research.* 143:1209-1218, 2011.

22. Qi, Y.*, Schoene, N.W., Lartey, F.*, and **Cheng, W.-H.** Selenium compounds activate ATM-dependent DNA damage response via the mismatch repair protein hMLH1 in colorectal cancer cells. *Journal of Biological Chemistry.*285: 33010-33017, 2010.

23. Luo, Y., Zhang, B., **Cheng, W.-H**., and Wang, Q. Preparation, characterization and evaluation of selenite-loaded chitosan/TPP nanoparticles with or without zein coating Carbohydrate Polymers. *Carbohydrate Polymers*, 82: 942-951, 2010.

24. Wu, M.*, Kang, M.*, Schoene, N.W., and **Cheng, W.-H.** Selenium compounds activate early barriers of tumorigenesis. *Journal of Biological Chemistry.* 285:12055-12062, 2010.

25. Zhang, J.J., Wu, M.*, Schoene, N.W., **Cheng, W.-H.**, Wang, T.T.Y., Alshatwi, A.A., Alsaif, M. and Lei, K.Y. The effect of resveratrol and Zinc on intracellular Zinc status in normal human prostate epithelial (NHPrE) cells. *Am. J. Physiology* 297:C632-C644, 2009.

26. **Cheng, W.-H.,** Muftic, D., Muftuoglu, M., Dawut, L., Morris, C., Helleday, T., Shiloh, Y. and Bohr, V.A. WRN is required for ATM activation and the S-phase checkpoint in response to interstrand crosslink-induced DNA double strand breaks. *Mol. Biol. Cell.* 19:3923-3933, 2008.

27. Muftuoglu, M., Kusumoto, R., Speina, E., Beck, G., **Cheng, W.-H**. and Bohr, V.A. Acetylation regulates WRN catalytic activities and affects base excision DNA repair. *PLOS ONE* , 3:e1918, 2008.

28. Imam, S.Z., Indig, F., **Cheng, W.-H**., Saxena, S.P., Thorslund, T., Kufe, D. and Bohr, V.A. Cockayne syndrome protein B interacts with and is phosphorylated by c-Abl tyrosine kinase. *Nucleic Acids Res.* 35:4941-4951, 2007.

29. Agrelo, R., **Cheng, W.-H**., Setien, F., Espada, J., Fraga, M.F., Herranz, M., Paz, M.F., Sanchez-Cespedes, M., Artiga, M.J., Guerrero, D., Castells, A., von Kobbe, C., Bohr, V.A. and Esteller, M. Epigenetic inactivation of the premature aging Werner syndrome gene in human cancer, *Proc. Natl. Acad. Sci.* 103:8822-8827, 2006.

30. **Cheng, W.-H.,** Kusumoto, R., Opresko, P.L., Sui, X., Huang, S., Nicolette, M.L., Paull, T.T., Campisi, J., Seidman, M.M. and Bohr, V.A. Collaboration of Werner syndrome protein and BRCA1 in cellular responses to DNA interstrand cross-links, *Nucleic Acids Research.* 34::2751-2760, 2006.

31. Lee, J.W., Kusumoto, R., Doherty, K.M., Lin, G.-X., Zeng, W., **Cheng, W.-H**., von Kobbe, C., Brosh, R.M. Jr., Hu, J.-S. and Bohr, V.A. Modulation of Werner syndrome protein function by a single mutation in the conserved RQC domain. *J. Biol. Chem.* 280:39627-39636, 2005.

32. **Cheng, W.-H.,** Sakamoto, S., Fox, J.T., Komatsu, K., Carney, J.P. and Bohr, V.A. Werner syndrome protein associates with γH2AX in a manner that depends upon Nbs1. *FEBS Letters* 579:1350-1356, 2005.

33. **Cheng, W.-H.,** von Kobbe, C., Opresko, P.L., Arthur, L.M., Seidman, M.M., Carney, J.P., Komatsu, K. and Bohr, V.A. Linkage between Werner syndrome protein and the Mre11 complex via Nbs1. *J. Biol. Chem.,* 279:1169-21176, 2004.

34. von Kobbe, C., Harrigan, J.A., May, A., Dawut, L., Opresko, P.L., **Cheng, W.-H**. and Bohr, V.A. Central role for the WRN/PARP-1 complex in the poly(ADP-ribosyl)ation pathway after DNA damage. *Mol. Cell. Biol.* 23:8601-8613, 2003.

35. **Cheng, W.-H.,** von Kobbe, C., Opresko, P.L., Ren, J., Kufe, D. and Bohr, V.A. Werner syndrome protein phosphorylation by Abl tyrosine kinase regulates its activity and distribution. *Mol. Cell. Biol.* 23:6385-6395, 2003.

36. Kyng, K.J., May, A., Brosh, R.M., Jr., **Cheng, W.-H**., Chen, C., Becker, K.G. and Bohr, V.A. The transcriptional response after oxidative stress is defective in Cockayne syndrome group B cells. *Oncogene*, 22:1135-1149, 2003.

37. **Cheng, W.-H.,** Quimby, F.R. and Lei, X. Impacts of glutathione peroxidase-1 knockout on the protection by injected selenium against the pro-oxidant-induced liver aponecrosis and signaling in selenium-deficient mice. *Free Radical Biology & Medicine*. 34:918-927, 2003.

38. **Cheng, W.-H.,** Zheng, X., Quimby, F.R., Roneker, C.A. and Lei, X. Low levels of glutathione peroxidase 1 activity in selenium-deficient mouse liver affect c-Jun N-terminal kinase activation and p53 phosphorylation on Ser-15 in pro-oxidant-induced aponecrosis. *Biochem. J.* 370:927-934, 2003.

39. Karmakar, P., Piotroweki, J., Brosh, R.M. Jr., Sommers, J.A., Lees Miller, S.P**., Cheng, W.-H**., Snowden, C.M., Ramsden, D.A. and Bohr, V.A. Werner protein is a target of DNA-dependent protein kinase *in vivo* and *in vitro*, and its catalytic activities are regulated by phosphorylation. *J. Biol. Chem.* 277:18291-18302, 2002.

40. Fu, Y., **Cheng, W.-H**., Porres, J.M., Ross, D.A. and Lei, X. Knockout of cellular glutathione peroxidase gene renders mice susceptible to diquat-induced oxidative stress. *Free Radical Biology and Medicine***,** 27:605-611, 1999.

41. **Cheng, W.-H.,** Valentine, B.A. and Lei, X. High levels of dietary vitamin E do not replace cellular glutathione peroxidase in protecting mice from acute oxidative stress. *J.*

Nutr., 129:1951-1957, 1999.

42. **Cheng, W.-H.,** Fu, Y., Porres, J.M., Ross, D.A. and Lei, X. Selenium-dependent cellular glutathione peroxidase protects mice against a pro-oxidant-induced oxidation of NADPH, NADH, lipids, and protein. *FASEB J.,* 13:1467-1475, 1999.
43. Porres, J.M., Stahl, C.H., **Cheng, W.-H**., Fu, Y., Roneker, K.R., Pond, W.G. and Lei, X. Dietary intrinsic phytate protects colon from lipid peroxidation in pigs with a moderately high dietary iron intake. *Proceedings of the Society for Experimental Biology and Medicine,* 221:80-86, 1999.
44. Fu, Y., **Cheng, W.-H**., Ross, D.A. and Lei, X. Cellular glutathione peroxidase protects mice against lethal oxidative stress induced by various doses of diquat. *Proceedings of the Society for Experimental Biology and Medicine,* 222:164-169, 1999.
45. **Cheng, W.-H.,** Combs, Jr. G.F. and Lei, X. Knockout of cellular glutathione peroxidase affects selenium-dependent parameters similarly in mice fed adequate and excessive dietary selenium. *BioFactors,* 7:311-321, 1998.
46. **Cheng, W.-H.,** Ho, Y.-S., Valentine, B.A., Ross, D.A., Combs, Jr., G.F. and Lei, X. Cellular glutathione peroxidase is the mediator of body selenium to protect against paraquat lethality in transgenic mice. *J. Nutr.,* 128:1070-1076, 1998.
47. Lei, X., Dann, H.M., Ross, D.A., **Cheng, W.-H**., Combs, Jr., G.F. and Roneker, K.R. Dietary selenium supplementation is required to support full expression to three selenium-dependent glutathione peroxidases in various tissues of weanling pigs. *J. Nutr.,* 128:130-135, 1998.
48. **Cheng, W.-H.,** Ho, Y.-S., Ross, D.A., Valentine, B.A., Combs, Jr., G.F. and Lei, X. Cellular glutathione peroxidase knockout mice express normal levels of selenium-dependent plasma and phospholipid hydroperoxide glutathione peroxidase in various tissues. *J. Nutr.,* 127:1445-1450, 1997.
49. **Cheng, W.-H.,** Ho, Y.-S., Ross, D.A., Han, Y., Combs, Jr., G.F. and Lei, X. Overexpression of cellular glutathione peroxidase does not affect expression of plasma glutathione peroxidase or phospholipid hydroperoxide glutathione peroxidase in mice offered diets adequate or deficient in selenium. *J. Nutr.,* 127:475-480, 1997.

ii. Invited or peer-reviewed reviews.

50. Xiong Zhang, Li Zhang*, Jian-Hong Zhu, and **Wen-Hsing Cheng.** Nuclear selenoprotein and genome maintenance. IUBMB Life. 68:5-12, 2016.
51. Xin Gen Lei, Jian-Hong Zhu, **Wen-Hsing Cheng**, Yongping Bao, Ye-Shih Ho, Amit Reddi, Arne Holmgren, and Elias Arnér. Paradoxical roles of antioxidant enzymes: basic mechanisms and health implications. *Physiological Reviews*. 96:307-364, 2016.
52. Rocourt, C*, **Cheng, W.-H.** Are the potential benefits of chemoprevention outweighed by the promotion of diabetes and insulin resistance? *Nutrients*. 5:1349-1365, 2013.
53. Zhang, S.*, Rocourt, C.*, **Cheng, W.-H**. Selenoproteins and the aging brain. *Mechanisms of Ageing and Development.* 131:253-260, 2010.
54. **Cheng, W.-H.** Impact of inorganic nutrients on genomic stability and maintenance. *Environmental and Molecular Mutagenesis* 50:349-360, 2009.
55. Muftuoglu, M., Oshima, J., von Kobbe, C., **Cheng, W.-H.,** Leistritz, D.F. and Bohr, V.A.

The clinical characteristics of Werner syndrome: molecular and biochemical diagnosis. *Human Genetics* 124:369-377, 2008.

56. **Cheng, W.-H.,** Muftuoglu, M. and Bohr, V.A. Werner syndrome protein: functions in the response to DNA damage and replication stress in S-phase. *Experimental Gerontology,* 42:871-878, 2007.
57. Lei, X., **Cheng, W.-H**. and McClung, J. Metabolic regulation and function of glutathione peroxidase-1, *Annu. Rev. Nutr.* 27:41-61, 2007.
58. Lei, X. and **Cheng, W.-H**. New Roles for an Old Selenoenzyme: Evidence from Glutathione Peroxidase-1 Null and Overexpressing Mice. *J. Nutr.* 135:2295-2298, 2005.
59. Opresko, P.L. **Cheng, W.-H**. and Bohr, V.A. At the junction of RecQ helicase biochemistry and human disease. *J. Biol. Chem., 279:*18099-18102, 2004.
60. Opresko, P.L., **Cheng, W.-H**., von Kobbe, C., Harrigan, J.A. and Bohr, V.A. Werner syndrome and the function of the Werner protein: What they can teach about the molecular aging process. *Carcinogenesis.* 24:791-802, 2003.
61. **Cheng, W.-H.,** Opresko, P.L., von Kobbe, C., Harrigan, J.A. and Bohr, V.A. The human Werner syndrome as a model for aging. *Topics in Current Genetics.* 3:239-268, 2003.
62. Lei, X. and **Cheng, W.-H**. Analysis of phospholipid hydroperoxide glutathione peroxidase mRNA. *Methods in Molecular Biology*. 196:183-193, 2002.

c. Book Reviews, Other Articles, and Notes.

63. Wu, R.T.Y.* and **Cheng, W.-H.** New Insight into telomere maintenance. Aging. 2, 255-256, 2010.
64. **Cheng, W.-H.,** Bohr, V.A. and de Cabo, R. Preface: special issue on nutrition and aging. *Mechanisms of Ageing and Development.* 131: 223-224, 2010.
65. **Cheng, W.-H.** and Bohr, V.A.. The Diverse Dealings of the Werner Helicase/Nuclease. *Science SAGE KE* (6 August 2003), http://sageke.sciencemag.org/cgi/content/full/sageke;2003/31/pe22

d. Talks, Abstracts, and Other Professional Papers Presented.

i. Invited talks (56).

Regional:

1. The Role of Nutrition in Healthy Aging. Mississippi State University Student Dietetic Association monthly meeting. Mississippi State, MS. November 2013.
2. Towards understanding of dietary supplements. *CAPA* annual conference. Gaithersburg, MD. October 2013.
3. Genome maintenance by selenium in aging and cancer prevention. *The Johns Hopkins University.* Baltimore, MD. September 2012.
4. Selenium, genome maintenance, and tumorigenesis. *National Institute on Aging, NIH,* Baltimore, Maryland. June 2010.
5. Selenium compounds activate earlier barriers of tumorigenesis. *UMD-NCI Workshop*. Bethesda, Maryland. June 2010.
6. Distinct roles of selenium in the protection against cancer and aging. *University of*

Maryland, College Park, Maryland. November 2010.

7. Premature aging syndrome, cancer, and antioxidant nutrients. Department of Chemistry and Biochemistry, *University of Maryland, College Park*, Maryland. March 2009.

National:

8. Selenium nutrigenomics and age-related degeneration. *University of Delaware,* Newark, DE, December 2015
9. Selenium functions in cellular and mouse aging. *National Institute on Aging*, Baltimore, September 2015.
10. Linking selenium to genome maintenance and aging. *Oklahoma State University*. Stillwater, OK, March 2013.
11. Linking selenium to genome maintenance and age-related loss of function. *Mississippi State University*. Mississippi State, MS, February 2013.
12. Selenium and selenoproteins in the maintenance of genome stability. International Conference on Nutritional Science and Therapy. August 2012. Philadelphia, PA.
13. Linking Selenium to Genome Maintenance and Age-related Degeneration. *Clemson University*, Clemson, South Carolina. June 2012.
14. Antioxidant nutrients linked to DNA repair and mammalian aging. *University of Maryland, College Park*, Maryland. October 2006.
15. Antioxidant nutrients linked to DNA repair and mammalian aging. *University of California, Davis*, California. May 2006.
16. Integral role for WRN in early DNA double strand break response. *DNA repair Interest group videoconference*. http://www.nih.gov:80/sigs/dna-rep/. May 2006.
17. Cancer and aging: how antioxidant nutrients and DNA repair challenge the demons. USDA Grand Forks Human Nutrition Research Center Grand Forks, North Dakota. May 2003.
18. Innovative tools to assess body antioxidant status and selenium/vitamin E nutrition. *Cornell Nutrition Conference,* 2001, Rochester, New York. November 2001.

Selected International presentation (a total of 38):

1. Selenium and the aging brain. 2nd Yuying International Conference on Translational Medicine. Wenzhou, China, October 31, 2015.
3. Selenium and Cancer. Department of Animal Science. National Pingtong University of Science and Technology, Pingtong, Taiwan. May 8, 2015.
4. Selenium and Aging. Department of Food Science. National Pingtong University of Science and Technology, Pingtong, Taiwan. May 8, 2015.
7. Protection of nutritional selenium against mouse aging. *15th International Conference on Trace Element in Man and Animals*, 2014, Orlando, U.S.A. June 24, 2014.
8. Selenium, genome maintenance and age-related disorders. National Pingtong University of Science and Technology, Pingtong, Taiwan. June 10, 2014.
9. A role of selenium at nutritional levels of intake in mouse aging. *10th International Symposium on Selenium in Biology and Medicine*. Berlin, Germany. September 15, 2013.
10. Selenium, genome maintenance and aging. *11th China Nutrition Society Congress & International DRI Summit.* Hangzhou, China. May 17, 2013.
14. Genome maintenance by selenium in aging and cancer prevention. *The University of Ulsan.* Ulsan, South Korea. October 2012.
15. The role of ATM and DNA-PK in selenium-induced oxidative stress and senescence response. *14th International Workshop on Ataxia-Telangiectasia and ATM,* 2012, New Delhi, India. February 2012.

16. Roles of ATM and DNA-PKcs in selenium-induced senescence response. *Koc University,* Istanbul, Turkey. October 2011.
17. Selenium-induced senescence by oxidative DNA damage as an early barrier of tumorigenesis. *IX ISTERH (International Society for Trace Element Research in Humans) Conference.* Antalya, Turkey. October 2011.
18. Selenium-induced senescence as an early barrier of tumorigenesis. *14th International Conference on Trace Element in Man and Animals*, 2011, Enshi, China. September 2011.
19. Selenium mitigates precancerous lesions and aging through DNA damage responses. *South China Agriculture University,* Guangzhou, China. September 2011.
21. Selenium compounds activate earlier barriers of tumorigenesis in non-cancerous cells. *9th International Symposium on Selenium in Biology and Medicine*. Kyoto, Japan. June 2010.
22. Selenium, genome maintenance, and longevity. Department of Genome Repair Dynamics, Radiation Biology Center, Kyoto University, Kyoto, Japan. June 2010.
23. Linking Selenium to Genome Maintenance and Longevity. *36th Annual Conference of Nutrition Society of Taiwan: Challenge in Nutrition Research and Services in an Aged Society*. Taipei, Taiwan. May 2010.
24. Linking selenium to genome maintenance and longevity. Institute of Cellular and Organismic Biology, Academia Sinica, Taipei, Taiwan. August 2010.
25. Linking selenium to genome maintenance and longevity. Department of Animal Science and Technologies, National Taiwan University, Taipei Taiwan. May 2010.
26. Linking selenium to genome maintenance and longevity. Department of Human Development and Family Studies, National Taiwan Normal University, Taipei Taiwan. May 2010.
28. Selenium chemoprevention, induction of DNA damage Response, and nanoparticles. *1st World Congress of the International Academy of nanomedicine*. Sanya, China. June 2009.
29. Linking cancer prone premature aging syndrome to antioxidant nutrients. *The 1st international conference in biotechnology*, Riyadh, Saudi Arabia. February 2009.
32. Replication stress-induced S-phase checkpoint is mediated by WRN-dependent ATM activation. *11th International Workshop on Ataxia-Telangiectasia and ATM,* 2006, Banff, Alberta, Canada. September 2006.
33. WRN functions in the cellular response to DNA cross-links. Genome Instability and Repair, Keystone Symposia, Taos, New Mexico. April 2005.
34. Altered DNA break response in the human Werner premature aging syndrome. *The 4th Geneva Aging Workshop: Aging and Cancer at the Crossroads,* Geneva, Switzerland. October 2004.
35. Functional interaction between Werner syndrome protein and Nbs1 in the DNA damage response. *Workshop on "Molecular Cross talk among Chromosome Fragility Syndromes"* at Instituto Juan March, Madrid, Spain. February 2004.
36. Altered DNA break response in the Werner premature aging syndrome. Department of Biological Sciences, Brock University, St. Catherine, Ontario, Canada. February 2004.
37. The c-Abl/WRN/Nbs1 pathway in the DNA damage response. *International Workshop on Werner Syndrome,* 2003, Lansdowne, Virginia, USA. May 2003.

ii. Refereed conference posters (**6**).

- 2013 10th ISSBM
- 2010 *13th A-T workshop*
- 2008 *12th A-T workshop*
- 2007 *Gordon conference (Biology of Aging)*
- 2005 *3R (Replication, Recombination and Repair) conference*
- 2003 *FASEB Summer Research Conference (helicase)*

iii. Unrefereed conference posters (**47**).

- 2016 *EB 2016 (3)*
- 2015 *EB 2015* (3), AGE
- 2013 *EB 2013 (3)*
- 2012 *EB 2012* (4), *AACR 2012* (1), APNC 2012 (1)
- 2011 *EB 2011* (8), *AACR 2011* (1).
- 2010 *EB 2010* (4).
- 2009 *EB 2009* (1).
- 2008 *EB 2008* (2).
- 1997-2006 *EB* (8), *GRC conference*, regional (5), *AACR* (2).

e. Contracts and Grants awarded. **Total: $328,239.**

- 04.2014-03.2016, $45,000, USDA ARS Agreement 58-6402-2-729. "Detection and characterization of chemical residues". PI
- 01.2015-12.2015, $4,000. "Nutritional genomics and diabetes", International Institute, Mississippi State University. PI (co-PIs: T. Wu, C. Wang; Cheng's portion, $2,000).
- 01.2015-10.2015, $2,000. "Spatial analysis on the relationship between diabetes prevalence and selenium deficiency". Mississippi State University. Co-PI (PI. T. Wu; Cheng's portion, $1,000)
- 01.2014-12.2015, $100,000, MAFES Strategic Research Initiative, Mississippi State University. Evaluating the impact of bean fermentation by intestinal microbiome and bean polyphenols on adipogenesis". PI
- 07.2012, $50,000, TIER 1 Grant, Vice President for Research, University of Maryland. "Senescence as a target of selenium chemoprevention in precancerous colon". PI.
- 07. 2011-06.2012, $30,000, MAES Competitive Grants Program, Maryland Agricultural Experimental Station. "Methyl selenium compounds target senescence in precancerous colon". PI.
- 2010, $3,000, USDA-UMCP, "Pilot study-- alternative use of Tobacco: leaf protein extracts on tumorigenesis". PI.
- 2009, $3,950, American Gene Tech. "Visualization of multi-gene therapeutic viral vectors for cancer treatment". PI.
- 2009-2010, $11,470, General Research Board, University of Maryland. "Antioxidant nutrients linked to DNA damage and mammalian aging". PI.
- 02. 2008, UMCP-AGNR, Competitive seed grant. Title: Molecular and nutritional characterization of food-derived, bioactive compounds in carcinogenesis. $102,374. PI (six co-PIs; Cheng's portion: 81,819).

f. Fellowships, Prizes, and Awards.

- 2015 **Outstanding Scientific Publication Award.** MAFES, Mississippi State University.
- 2010 **Gamma Sigma Delta Award-Excellence in Research 2010.** University of Maryland-National Area Chapter.
- 2009 **GRB summer award,** Graduate School, University of Maryland, College Park.
- 2006 **Young Investigator Award,** 11th International Workshop on Ataxia-Telangiectasia and ATM, Banff, Canada.

- 2005 **Young Investigator Award**, Keystone Symposia: the Genome Instability and Repair, Taos, New Mexico.
- 2004 **Nathan W. Shock Award**, National Institute on Aging, NIH.
- 2003 **FARE** (The Fellows Awards for Research Excellence) **winner**, NIH.
- 2000 **Wu/Liu Award** (in recognition of excellence in research), Cornell University.

g. Editorships, Editorial Boards, and Reviewing Activities for Journals.

i. Editorships:

2009 Guest Editor. *Mechanisms of Ageing and Development*, Special Issue: "Nutrition and Aging".

ii. Editorial Board:

2013-present ***Journal of Nutrition***
2011-present *Journal of Nutritional Disorders & Therapy*

iii. Manuscript referee (86):

- *Journal of Nutrition* (33)
- *British Journal of Nutrition* (7)
- *Journal of Nutritional Biochemistry* (6)
- *Cancer Research* (1)
- *Oncogene* (1)
- *Nucleic Acid Research* (1)
- *Mechanisms of Ageing and Development* (14)
- *Clinical and Experimental Pharmacology and Physiology* (1)
- *Plant Foods for Human Nutrition (1)*
- *PLoS One (2)*
- *Journal of Medicinal Food (1)*
- *Journal of Inorganic Biochemistry (1)*
- *Journal of Animal Science (1)*
- *Journal of Food Science (1)*
- *Journal of Radiation Research (1)*
- *Cancer Prevention Research, IF: 6.0, (1).*
- *Molecular Nutrition and Food Research, IF: 4.36, (2).*
- *Molecules (1).*
- *ACS Applied Materials & Interfaces (1).*
- *Nutrients (1)*
- *Nutrition and Cancer (1).*
- *Food Science and Nutrition (4).*
- *BBA (1).*
- *Gene (1)*
- *Biochemical Pharmacology (1)*
- *Molecular Oncology (1)*

iv. Grant referee:

- USDA internal grant, 2010

- Telethon --Cure for Genetic Disease, Italy (2). 2011, 2012
- The US-Israel Agricultural Research & Development Fund, Nov 2012
- University of Maryland at College Park internal competitive grant, 2013.

3. Teaching, Mentoring, and Advising

a. Courses taught

Lecture courses:
University of Maryland:

- NFSC 610, Molecular Gerontology, 3 credits (Fall 08, 10 students; Fall 09, 5 students, Fall 11, 6 students)
- NFSC 410/678C, Nutritional Genomics, 3 credits (Spring 09, 10 students; Fall 10, 5 students; Fall 12, 17)
- NFSC 688/888, Seminar in Nutrition and Food Science, 1 credit (Fall 09, 10 students; Fall 10, 9 students, Spring 11, 29 students)
- NFSC 611, Molecular Nutrition, 2 credits (Spring 10, 4 students; Spring 11, 4 students; Spring 12, 6 students)
- *NFSC100, Element of Nutrition, 3 credit (Fall 10, 467 students, teach 33% lectures; Winter 11, 17 students; Fall 11, 455 students; Winter 12, 18 students; Spring 12, 443 students; Fall 12, 472). *, course coordinator, sharing 20% of the lectures.
- Contributed lectures—NFSC678 (Nutraceutics), 04.11.2007, 3h; NFSC690 (Nutrition and Aging), 10.18.2007, 3 h; NFSC112 (Food: science and technology), 10.22.2007, 1 h; NFSC660 (Research methods), 3.14.2008, 2 h.

Mississippi State University:

- FNH 4123/6123, Nutrition and Chronic Diseases, 3 credits (Fall 13, 19 students; Fall 14, 24 students; Spring 15, 33 students; Spring 16, 34 students)
- FNH 8253, Research Methods, 3 credits (Spring 14, 8 students; Fall 15, 7 students)
- FNH 8990, Nutritional Genomics, 3 credits (Fall 14, 6 students; Fall 15, 6 students)
- FNH 8990/8293, Molecular Nutrition: genomic, metabolic and health aspects, 3 credits (Spring 14, 6 students; Spring 15, 4 students; Spring 16, 4 students)

b. Course or Curriculum Development.

- NFSC 610, Molecular Gerontology
- NFSC 410/678C, Nutritional Genomics
- NFSC 611, Molecular Nutrition

c. Advising: other than research direction.

i. Undergraduate.

- Spring 09-Spring 11, 15-20 students per semester.
- Since Fall 11-Spring 13, ~30 students per semester.

d. Advising: Research Direction.

i. Undergraduate (**10** students).

University of Maryland

- Melissa Khare (Summer 2012)
- Chris Maino (Fall 2012)
- Nosheen Hayat (Fall 2012)
- Elliot Mattson (Summer 10; Summer and Fall 11)
- Louis Spear (Summer 11-Spring 12)
- Christina Bohr (Fall 07 – Spring 10). ***Howard Hughes Medical Institute Undergraduate Fellowship.***
- Jennifer Brown (Fall 09)
- Mandy Kang (Summer 07 – Spring 08). ***McNair Scholar.***
- Ana Valencia (Spring 09)
- Ankita Saxina (Fall 07)

ii. Master's, ***graduated (6**).

University of Maryland

- *Caroline Rocourt, **Fall 09**
- *Shu Zhang, **Fall 09**
- *Junhao Ma, **Summer 09**
- *Alexandra Holmstrom, **Fall 10**
- *Tiffany Tzeng, **Fall 12**
- *Jallah Rouse, **Fall 13**

Mississippi State University

- Angie Tsao

iii. Doctoral, ***graduated (3.5)**.

University of Maryland

- *Yongmei Qi, Spring 10. (co-advisor, **China Scholarship Council Fellowship**)
- *Min Wu, **Spring 11.** ***Ann G. Wylie Dissertation Fellowship (2010)***
- *Ryan T.Y, Wu, **Fall 2013.** ***Ann G. Wylie Dissertation Fellowship (2012)***
- *Caroline Rocourt, **Spring 2014**

Mississippi State University

- Lei Cao
- Cindy Lu
- Li Zhang
- Hasan Md. Shamimul (co-advisor)

iv. Postdoctoral/visiting scholars

- Dr. Fredrick Lartey, 01.2008-10.2008.
- Dr. Yongmei Qi, 07.2008-06.2010. ***China Scholarship Council Fellowship.***
- Ying Yu, 09.2010-09.2011. ***China Scholarship Council Fellowship.***
- Prof. Junfang Lin, 10.2011-09.2012. ***China Scholarship Council Fellowship.***
- Prof Wentai Xu, 04.2013-08.2013. ***China Scholarship Council Fellowship.***
- Prof Xin Geng, 06.2013-08.2013**.**

v. High school students

- Dora Lin, summer 2009
- Trisha Lal, summer 2012
- Erica Lee, summer 2013

4. Service

a. Professional.

i. Offices and committee memberships held in professional organizations.

- Co-chair, Selenium mini-symposium, Experimental Biology 2010, Anaheim, California.
- Chair, Poster Competition Selection Committee, 14th International Conference on Trace Element in Man and Animals, 2011, Enshi, China.
- Co-chair, Symposium 3C: Trace elements on cell death, tumor and cancer. 14th International Conference on Trace Element in Man and Animals, 2011, Enshi, China.
- Speak on an education symposium: Scientific career advancement for early stage investigators. EB 2012, San Diego, April 24, 2012. Title: "New Professor from Research University".
- Organizing committee member and scientific advisor: International Conference and Exhibition on Nutritional Science & Therapy. Philadelphia, PA, August 2012.

b. Campus.

i. Departmental.

University of Maryland (*, graduated)*:*

- PhD Degree Committee:
    1. *Edra London (Chair: Dr. Castonguay). Fall 09.
    2. *Junjun Zhang (Chair: Dr. Lei). Fall 08.
    3. *Steven Trasino (Chair: Dr. Lei). Spring 11.
    4. *Andy Ludlow (Chair: Dr. Roth, Dept of Kinesiology). Fall 11.
    5. *Yuting Zhou (Chair: Dr. Lo). Spring 14
- Master's Degree Committee:
    1. *Reem Al-Ahamshi (Chair: Dr. Jackson). Spring 09.
    2. *Omayra Rodriguez (Chair: Dr. Song, Dept. of Animal Science). Spring 10.
    3. Ruth Clark (Chair: Dr. Lee). Spring 2013.
- TA committee (2009-2012)
- Nutrition Graduate Program Admission Committee (2007-2013)
- NFSC Research Day Committee, chair (2009, 2011)
- *Ad hoc* NFSC Future Plan Committee (2008)
- *Ad hoc* AGNR Holiday Party Committee, chair (2008)
- Scholarship Committee (2007-2010)
- Recruitment Committee:
    1. Coordinator (2007)

2. NFSC Chair (2011)
3. Nutrition faculty (2011)

Mississippi State University (*, graduated)*:*

- PhD Degree Committee*:*
    1. Shi Meng (Chair: Sam Chang)
    2. Yuqing Tan (Chair: Sam Chang)
    3. Xiaoxi Meng (Chair: Dr. Peng)
    4. Ahmed Saddam (Chair: Dr. Tidwell/Dr. Mosby)
    5. Soma Mukherjee (Chair: Dr. Haque)

- Master's Degree Committee
    1. *Mike Shao (Chair: Dr. Haque)
    2. *Jingyi Yan (Chair: Dr. Haque)
    3. *Shi Meng (Chair: Sam Chang), Summer 2015
    4. *Yuqing Tan (Chair: Sam Chang), Summer 2015
- Nutrition Graduate Program Admission Committee (2013-present)
- Website Committee (2013-present)

ii. College.

University of Maryland:

- NFSC PCC representative (Spring 2008-present)
- Shorb committee (2007-2011; chair 2011)

Mississippi State University:

- Promotion and Tenure Committee (Fall 2014)

iii. University.

University of Maryland:

- A delegate of a 6-faculty team led by Dean Cheng-I Wei to Taiwan, June 10-June 14, 2009, to execute a MOU on academic collaborations.
- University Senate. AGNR At-Large, 2012-2013.

Mississippi State University:

- The Gerontology Committee (2013-present).