

# Xianquan Zhan, MD, PhD

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## EDUCATION EXPERIENCE:

1989—1994 M.D. West China University of Medical Sciences, Chengdu, Sichuan, P.R. China.  
1994—1999 Ph.D. West China University of Medical Sciences, Chengdu, Sichuan, P.R. China.  
1999—2001 Post-Doctor Xiangya Medical School Cancer Research Institute, Central South University, Changsha, Hunan, P.R. China.

## WORK EXPERIENCE:

999 — 2001 Research Assistant Professor, Xiangya Medical School, Central South University, Changsha, P.R. China  
2001— 2005 Post-doctoral Researcher, Department of Neurology, University of Tennessee Health Science Center, Memphis, Tennessee, U.S.A.  
2005 — 2006 Assistant Professor, Department of Neurology, University of Tennessee Health Science Center, Memphis, Tennessee, U.S.A.  
2006 — 2007 Project Scientist, Department of Ophthalmic Research, The Cole Eye Institute, The Cleveland Clinic, Cleveland, Ohio, U.S.A.  
2007 — 2010 Assistant Professor, Department of Neurology, University of Tennessee Health Science Center, Memphis, Tennessee, U.S.A.  
2010 — Associate Professor, Department of Neurology, University of Tennessee Health Science Center, Memphis, Tennessee, U.S.A.  
2012 — Present Full Professor, Distinguished Professor, Deputy Director, State Local Joint Engineering Laboratory for Anticancer Drugs, Hunan Engineering Laboratory for Structural Biology and Drug Design, and Key Laboratory of Cancer Proteomics of Chinese Ministry of Health, Xiangya Hospital, Central South University, Changsha, Hunan, P.R. China.

2013 — Present Full Professor, Principal Investigator, State Key Laboratory of Medical Genetics, Central South University, Changsha, Hunan, P. R. China.

**EDITORIAL BOARD MEMBER:**

BMC Medical Genomics: Associate Editor

BMC Genomics: Associate Editor

EPMA Journal: Member

Genomics Discovery: Member

**SOCIETY MEMBERS:**

State Local Joint Engineering Laboratory for Anticancer Drugs: Academic Committee Member and Academic Leader

European Association for Predictive, Preventive, and Personalized Medicine (EPMA)

American Association for Cancer Research (AACR)

Association for Research in Vision and Ophthalmology (ARVO)

Human Proteome Organization (HUPO)

The Society of Neuroscience (SfN)

Chinese American Society of Mass Spectrometry (CASMS)

American Society for Mass Spectrometry (ASMS)

**HONORS/AWARDS:**

12/2014 Hunan “Hundred Talent Program” Member

12/2013 Central South University “531” Talent Engineering (the third class)

10/2013 Hunan “225” Talent Engineering Expert in the field of Medicine

9/2013 Excellent Poster Award. CNHUPO 8<sup>th</sup> Congress, Chongqing, September 7-10, 2013.

7/2012 Excellent Poster Award. AOHUPO 6<sup>th</sup> Congress, Beijing, May 5-7, 2012.

1/2011 The EPMA-Journal Award-2010, the 1<sup>st</sup> place award ([http://www.epmanet.eu/images/stories/pdfs/award\\_cancer\\_3\\_2010.pdf](http://www.epmanet.eu/images/stories/pdfs/award_cancer_3_2010.pdf))

4/2010 Young Neuroscientist Award funded by the Webster Endowment ([http://www.uthsc.edu/research/research\\_newsletter/docs/2010-04-April.pdf](http://www.uthsc.edu/research/research_newsletter/docs/2010-04-April.pdf))

2/2007 The National Eye Institute Travel Grant Award for the 2007 ARVO (Association for Research in Vision and Ophthalmology) Annual meeting (Fort Lauderdale, Florida, USA, May 6-10, 2007)([http://www.arvo.org/eweb/DynamicPage.aspx?site=AM\\_2007&WebCode=TravelGrantInfo](http://www.arvo.org/eweb/DynamicPage.aspx?site=AM_2007&WebCode=TravelGrantInfo))

11/2005 Hunan Province Scientific Technological Achievement Award, 1<sup>st</sup> place (No. 4 2005-230-064). Xiang Zheng Han [2005] No.190.

3/2005 Hunan Province Medical Scientific Technological Achievement Award, 1<sup>st</sup> place (No. 200409). Xiang Yi Xue Hui Zi [2005] No.15.

1/2003 Sichuan University Outstanding Doctoral Thesis Recognition Medal.

7/2000 Chinese Postdoctoral Scientific Research Fund Prize (No.: Zhongboji[2000]23)

1997-1998 The First Hongkong Union Medicine Education Medal

1996-1997 Excellent graduate student cadre title of West China University of Medical Sciences

1996-1997 Excellent graduate student scholarship of West China University of Medical Sciences

1994-1995 Excellent graduate student scholarship of West China University of Medical Sciences

#### **SciTopics PAGES (INVITED):**

1. **Zhan X**, Desiderio DM. Human Pituitary Tumor Proteomics  
[http://www.scitopics.com/Human\\_Pituitary\\_Tumor\\_Proteomics.html](http://www.scitopics.com/Human_Pituitary_Tumor_Proteomics.html)
2. **Zhan X**, Desiderio DM .Detection and Identification of Endogenous Nitrotyrosine-containing Proteins  
[http://www.scitopics.com/Detection\\_and\\_Identification\\_of\\_Endogenous\\_Nitrotyrosine\\_containing\\_Proteins.html](http://www.scitopics.com/Detection_and_Identification_of_Endogenous_Nitrotyrosine_containing_Proteins.html)

#### **PATENT:**

Desiderio DM, **Zhan X**. Nitroprotein biomarkers for COPD. No.20100183578.

#### **BOOKS AND BOOK CHAPTERS:**

1. **Zhan X** . Two dimensional electrophoresis. In: Experimental Protocols for Medical Biology in Chinese and English. Wei Zhen (ed.). Xie He Medical University Press of China. March, 2005. ISBN 7-81072-618/R.611.
2. **Zhan X**, Desiderio DM, Sacks H. The human pituitary proteome: clinical applications. In: Medical Applications of Mass Spectrometry. Vekey K, Telekes A, Vertes A (eds.). Elsevier Science Publisher. ISBN-10: 0444519807; ISBN-13: 978-0444519801. (2007).
3. **Zhan X** , Desiderio DM. Detection of nitrotyrosine-containing proteins. In: The Protein Protocols Handbook Third Edition. John M. Walker (ed.). Humana Press Inc. ISBN: 978-1- 60327-474-6 (2009).
4. **Zhan X**, Desiderio DM. Mass spectrometric identification of in vivo nitrotyrosine sites in the human pituitary tumor proteome. In the book: Neuroproteomics – Methods and Protocols. Andrew K. Ottens and Kevin K.W. Wang (eds.). Humana Press Inc. ISBN: 978-1-934115-84-8 (2009)
5. **Zhan X**, Chen Z, Peng F, Li M. Analyses of Mouse Liver Microsomal Proteome. Protein Purification and Analysis II – Methods and Applications (Edited by: i. Press). iConcept Press. ISBN: 978-14775550-5-7 (2013)

#### **PEER-REVIEWED JOURNAL ARTICLES:**

1. Wang M, Wang Z, Luo J, Wang X, **Zhan X**, Zhu R. 5-year before- and after comparison of lung function in asbestos workers. Journal of West China University of Medical Sciences, 27: 94-96 (1996)
2. Wang MZ, Wang ZM, **Zhan XQ**. Study on relationship between mental function and work ability among aging workers. J Occup Health & Damage, 12: 4-6 (1997).
3. Wang MZ, **Zhan XQ**, Zhan CL. Study on health assessmental index and method of aged people. J Occup Health & Damage, 12: 68-71 (1997).
4. **Zhan X**, Wang Z, Wang M, Lan Y, Shen N. The relationship between pulmonary function and work ability of aging workers. Journal of West China University of Medical Sciences, 28: 320-324 (1997).
5. **Zhan XQ**, Wang ZM, Wang MZ. The relationship between the maximal expiratory flow and work ability among aging worker. Chin J Ind Hyg Occup Dis, 16: 92-95 (1998).

6. **Zhan XQ**, Wang MZ, Wang ZM. Nitric oxide radical and its role in asbestos-induced pulmonary fibrosis study. *J Occup Health & Damage*, 14: 178-180 (1999).
7. **Zhan XQ**, Wang ZM. The roles of cytokines in asbestos-induced pulmonary fibrosis. *Foreign Medical Sciences-Hygiene section*, 26: 129-137 (1999).
8. **Zhan XQ**, Yang Q, Wang ZM. Comparison study on changes of glutathione peroxidase activity in quartz and chrysotile-treated rabbit alveolar macrophage. *J Occup Health & Damage*, 14: 129-132 (1999).
9. **Zhan X**, Wang Z, Yang Q, Wang M, Liu Z. Effects of chrysotile on nitric oxide production and anti-oxidasic activity in rabbit alveolar macrophages. *Journal of West China University of Medical Sciences*, 31: 58-61 (2000).
10. **Zhan XQ**, Yang Q, Wang ZM. Quartz and chrysotile up-regulate nitric oxide and nitric oxide synthase activity in rabbit alveolar macrophages. *China Public Health*, 16: 684-686 (2000).
11. **Zhan XQ**, Wang ZM, Yang Q, Wang MZ. Role of Supernatants-treated by Crocidolite on Human Embryonic Pulmonary Fibroblasts. *China Public Health*, 16: 794-796 (2000).
12. **Zhan XQ**, Yang Q, Wang ZM, Wang MZ. The Effect of Protein Kinase Inhibitor On The Changes Of Cell Cycle-Regulating Protein statement Of Human Embryonic Pulmonary Fibroblasts Induced By Crocidolite. *Chin J Ind Med*, 13: 257-261 (2000).
13. **Zhan XQ**, Yang Q, Wang ZM. Cell proliferative signal transduction pathway and pulmonary fibrosis induced by asbestos. *Chin J Ind Hyg Occup Dis (Zhonghua Lao Dong Wei Sheng Zhi Ye Bing Za Zhi)*, 18: 61-64 (2000).
14. **Zhan XQ**, Yang Q, Wang ZM, Wang MZ. Effect of Protein Kinase Inhibitor On The Changes of Cell Cycle And Apoptosis of Human Embryonic Pulmonary Fibroblast Induced By Crocidolite. *Chin J Prev Med (Zhonghua Yu Fang Yi Xue Za Zhi)*, 34: 375-376 (2000).
15. **Zhan XQ**, Yang Q, Wang ZM, Wang MZ. Effect of PKC Inhibitor on The Proliferation of Human Embryonic Pulmonary Fibroblasts Caused by Alveolar Macrophage-derived Factors Induced by Chrysotile. *Chin J Ind Hyg Occup Dis*, 18: 346-349 (2000).
16. **Zhan XQ**, Yang Q, Wang ZM, Wang MZ. The Role of PKC Signal Transduction Pathways In the Changes of Both Cell Cycle And Apoptosis of Human Embryonic Pulmonary Fibroblast Induced By Chrysotile. *Chin J Ind Hyg Occup Dis*, 19: 34-36 (2001).
17. **Zhan XQ**, Yang Q, Wang ZM. Influence Of PKC Signal Pathways On The statement Changes Of Cell Cycle-Regulating Protein In The Proliferation Process Of Human Embryonic Pulmonary Fibroblasts Induced By Chrysotile. *Chin J Ind Hyg Occup Dis*, 19: 37-39 (2001).
18. **Zhan X**, Yang Q, Wang Z, Wang M. The role of protein kinase in the proliferation of human embryonic pulmonary fibroblasts stimulated by the supernatants of crocidolite-exposed alveolar macrophages. *J Hyg Res*, 30: 10-13 (2001).
19. Li C, **Zhan XQ**, Chen ZC. Bio-sensor chip mass spectrometry and its application in proteomics. *Chemistry of Life*, 10: 157-160 (2001).
20. **Zhan XQ**, Chen ZC. A new strategy of cancer research: proteomic study. *Foreign Medical Sciences-Oncology Section*, 28(suppl): 1-4 (2001).

21. Zhan XQ, Chen ZC. The current status and prospect of proteomic separating techniques. *Foreign Medical Sciences-Molecular Biology Section*, 23: 343-348 (2001).
22. **Zhan XQ**, Chen ZC, Li C, Guan YJ, Xie JY, Cheng P, Liang SP. Analysis of human lung squamous carcinoma cell line NCI-H520 proteome by two-dimensional polyacrylamide gel electrophoresis and MALDI-TOF-mass spectrometry. *Chinese Journal of Cancer*, 20: 575-582 (2001).
23. **Zhan XQ**, Chen ZC. The current status of protein identification techniques in proteomics. *Foreign Medical Sciences-Molecular Biology Section*, 24: 129-133 (2002).
24. **Zhan XQ**, Guan YJ, Li C, Chen ZC, Xie JY, Chen P, Liang SP. Differential proteomic analysis of human lung adenocarcinoma cell line A-549 and of normal cell line HBE. *Acta Biochemica et Biophysica Sinica*, 34: 50-56 (2002).
25. Li C, **Zhan X**, Li M, Wu X, Li F, Li J, Xiao Z, Chen Z, Feng X, Chen P, Xie J, Liang S. Proteomic comparison of two-dimension gel electrophoresis profiles from human lung squamous carcinoma and normal bronchial tissues. *Genomics Proteomics Bioinformatics*, 1: 58-67 (2003).
26. Li C, Chen Z, Xiao Z, Wu X, **Zhan X**, Zhang X, Li M, Li J, Feng X, Liang S, Chen P, Xie J. Comparative proteomics analysis of human lung squamous carcinoma. *Biochemical and Biophysical Research Communications*, 309: 253-260 (2003).
27. **Zhan X**, Desiderio DM. Differences in the spatial and quantitative reproducibility between two second-dimensional gel electrophoresis systems. *Electrophoresis*, 24: 1834-1846 (2003).
28. **Zhan X**, Desiderio DM. Spot volume vs. amount of protein loaded onto a gel. A detailed, statistical comparison of two gel electrophoresis systems. *Electrophoresis*, 24: 1818-1833 (2003).
29. Desiderio DM, **Zhan X**. A study of the human pituitary proteome: The characterization of differentially expressed proteins in an adenoma compared to a control. *Cellular & Molecular biology*, 49: 689-712 (2003).
30. **Zhan X**, Desiderio DM. A reference map of a pituitary adenoma proteome. *Proteomics*, 3: 699-713 (2003).
31. **Zhan X**, Desiderio DM. Heterogeneity analysis of the human pituitary proteome. *Clinical Chemistry*, 49: 1740-1751 (2003).
32. **Zhan X**, Evans CO, Oyesiku NM, Desiderio DM. Proteomics and transcriptomics analyses of secretagogin down-regulation in human non-functional pituitary adenomas. *Pituitary*, 6: 189-202 (2003).
33. Yang F, He ZM, **Zhan XQ**, Chen ZC, Yan B, Huang HK, Li TB. Construction and identification of directional cDNA library from Chinese giant salamander *Andrias davidianus* liver. *Acta Zoologica Sinica*, 50: 475-478 (2004).
34. Li C, Chen ZC, Xiao ZQ, Wu XY, **Zhan XQ**, Li MY, Feng XP, Zhang XP, Li JL, Chen P, Liang SP. Differential analysis of two-dimension gel electrophoresis profiles of human lung squamous carcinoma and tumor-adjacent tissue. *Chinese Journal of Cancer (Ai Zheng)*, 23: 28-35 (2004).
35. **Zhan X**, Desiderio DM. The human pituitary nitroproteome: detection of nitrotyrosyl-proteins with two-dimensional Western blotting, and amino acid sequence determination with mass spectrometry. *Biochem Biophys Res Commun* 325: 1180-1186 (2004).
36. **Zhan X**, Desiderio DM. Comparative proteomics analysis of human pituitary adenomas: Current status and future perspectives. *Mass Spectrom Reviews*, 24: 783-813 (2005).

37. **Zhan X**, Giorgianni F, Desiderio DM. Proteomics analysis of growth hormone isoforms in the human pituitary. *Proteomics*, 5:1228-1241 (2005).
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39. **Zhan X** (*corresponding author*), Desiderio DM. Nitroproteins from a human pituitary adenoma tissue discovered with a nitrotyrosine affinity column and tandem mass spectrometry. *Analytical Biochemistry*, 354(2): 279-289 (2006).
40. **Zhan X**, Desiderio DM. Linear ion-trap mass spectrometric characterization of human pituitary nitrotyrosine-containing proteins. *International Journal of Mass Spectrometry*, 259: 96-104 (2007).
41. Gu J, **Zhan X**, Crabb JS, Bala E, Renganathan K, Hagstrom SA, Lewis H, Salomon RG, Crabb JW, Cleveland AMD Study Group. Oxidative modifications as biomarkers for AMD. *Invest Ophthalmol Vis Sci*, 48: E-abstract 34 (2007).
42. **Zhan X**, Du Y, Crabb JS, Kern TS, Crabb JW. Identification of nitrated proteins in diabetic rat retina. *Invest Ophthalmol Vis Sci*, 48: E-abstract 4962 (2007).
43. Justilien V, Pang JJ, Renganathan K, **Zhan X**, Crabb JW, Kim SR, Sparrow JR, Hauswirth WW, Lewin AS. SOD2 knockdown mouse model of early AMD. *Invest Ophthalmol Vis Sci*, 48: 4407-4420 (2007).
44. Evans CO, Moreno CS, **Zhan X**, McCabe MT, Vertino PM, Desiderio DM, Oyesiku NM. Molecular pathogenesis of human prolactinomas identified by gene expression profiling, RT-qPCR, and proteomic analyses. *Pituitary*, 11: 231-245 (2008).
45. **Zhan X**, Gu J, Gu X, Crabb JS, Nerone P, Bamba S, Yue X, Salomon RG, Crabb JW, and the Cleveland AMD Study Group. Identification of Carboxyethylpyrrole-Modified Proteins in AMD Plasma. *Invest. Ophthalmol. Vis. Sci.* 49: E-Abstract 1365 (2008).
46. **Zhan X** (*corresponding author*), Desiderio DM. Mass spectrometric identification of in vivo nitrotyrosine sites in the human pituitary tumor proteome. *Methods Mol Biol.* 566:137-163 (2009).
47. **Zhan X** (*corresponding author*), Desiderio DM. MALDI-induced Fragmentation of Leucine enkephalin, Nitro-Tyr Leucine Enkephalin, and d5-Phe Nitro-Tyr Leucine Enkephalin. *International Journal of Mass Spectrometry*, 287: 77-86 (2009).
48. **Zhan X** (*corresponding author*), Desiderio DM. Signal pathway networks mined from human pituitary adenoma proteomics data. *BMC Medical Genomics*, 3: 13 (2010).
49. **Zhan X** (*corresponding author*), Desiderio DM. The use of variations in proteomes to predict, prevent, personalize treatment for clinically non-functional pituitary adenomas. *The EPMA Journal*, 1: 439-459 (2010).
50. **Zhan X** (*corresponding author*), Desiderio DM. Nitroproteins identified in human ex-smoker bronchoalveolar lavage fluid. *Aging and Disease*, 2: 100-115 (2011).
51. Peng F, **Zhan X** (*corresponding author*), Li MY, Fang F, Li G, Li C, Zhang PF, Chen Z. Proteomic and bioinformatics analyses of mouse liver microsomes. *Int J Proteomics.* 2012;2012:832569 (2012)
52. Zou W, **Zhan X**, Li M, Song Z, Liu C, Peng F, Guo Q. Identification of differentially expressed proteins in the spinal cord of neuropathic pain models with PKC $\gamma$  silence by proteomic analysis. *Brain Research*, 1440: 34-46 (2012).

53. **Zhan X** (*Corresponding author*), Liu J, Chen Z. Identification of mitochondrial proteins related to nasopharyngeal carcinoma metastasis. *J Proteomics Bioinformatics* 5: 6-32 E-abstract (2012).
54. Liu J, **Zhan X** (*corresponding author*), Li M, Li G, Zhang P, Xiao Z, Shao M, Peng F, Hu R, Chen Z. Mitochondrial proteomics of nasopharyngeal carcinoma metastasis. *BMC Medical Genomics*, 5: 62 (2012).
55. Golubnjitschaja O, Costigliola V and **EPMA** (*Zhan X is a member of EPMA*). General report & recommendations in predictive, preventive and personalized medicine 2012: White Paper of the European Association for Predictive, Preventive and Personalised Medicine. *EPMA Journal*, 3: 14 (2012).
56. Hu R, Wang X, **Zhan X** (*Corresponding author*). Multi-parameter systematic strategy for predictive, preventive, and personalized medicine in cancer. *EPMA-Journal*, 4: 2 (2013).
57. Wei WL, Tang C, **Zhan X**, Yi H, Li C. Effect of DJ-1 siRNA on biological behavior of human lung squamous carcinoma SK-MES-1 cells. *Journal of Central South University Medical Sciences*, 38 (1): 7-13 (2013).
58. Mu Y, Chen Y, Zhang G, **Zhan X** (*corresponding author*), Li Y, Liu T, Li G, Li M, Xiao Z, Gong X, Chen Z. Identification of stromal differentially expressed proteins in the colon carcinoma by quantitative proteomics. *Electrophoresis*, 34: 1679-1692 (2013).
59. **Zhan X** (*Corresponding author*), Wang X, Desiderio DM. Pituitary adenoma nitroproteomics: current status and perspectives. *Oxidative Medicine and Cellular Longevity*, 2013: 580710 (2013).
60. Wang X, Hu R, Zhan X (*Corresponding author*). Multi-parameter systematic strategy opinion that predicts, prevents, and personalized treats a cancer. *Journal of Chinese Physician*, 15 (7): 993-999 (2013).
61. **Zhan X** (*Corresponding author*), Wang X, Desiderio DM. Mass spectrometry analysis of nitrotyrosine-containing proteins. *Mass Spectrometry Reviews*, DOI 10.1002/mas.21413, published online open (December 8, 2013).
62. Gu H, **Zhan X** (*corresponding author*), Zhang G, Yan L, Cho WCS, Li M, Liu T, Chen Z. Mapping the interactome of overexpressed Raf kinase inhibitor protein in a gastric cancer cell. *BMC Cancer*, 13: 536 (2013).
63. Wei WL, Li C, **Zhan X** (*Corresponding author*). Research progress of DJ-1 gene. *Journal of Chinese Physician*, 15 (11): 1579-1581 (2013).
64. Wang X, Zhan XH, Guo T, Li M, Peng F, Chen X, Zhang P, Chen Z, Desiderio DM, **Zhan X** (*Corresponding author*). Identification of the proteomic variations of invasive relative to noninvasive nonfunctional pituitary adenomas. *Electrophoresis* (submitted, November 28, 2013).