

B. Jonathan Xu, Ph.D.

Assistant Professor of Neurological Surgery
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FACULTY APPOINTMENTS

2008 - Present **Assistant Professor (Tenure-track)**
Department of Neurological Surgery
Department of Cancer Biology
Vanderbilt University School of Medicine
Nashville, Tennessee

2005-2008 **Research Assistant Professor,**
Department of Cancer Biology,
Vanderbilt University School of Medicine
Nashville, Tennessee

EDUCATION

1999-2005 **Vanderbilt University,** Nashville, Tennessee
Doctor of Philosophy in Chemistry

1997-1999 **Lee University,** Cleveland, Tennessee
Bachelor of Science in Chemistry, Summa Cum Laude,

1995-1997 **Zhengzhou University,** Henan, People's Republic of China
Major: Applied Chemistry

AWARDS & MEMBERSHIPS

2005 Career Development Award in Specialized Program of Research Excellence
(SPORE) in Breast Cancer

2003 - Present Member of the American Association for Cancer Research

2004 - Present Member of the American Society for Mass Spectrometry

PEER-REVIEWED RESEARCH SUPPORT

Active:

1R21CA128695-01 8/01/07-7/31/09

NIH/NCI

"Identification of Breast Tumor Secretome Changes Throughout Tumor Progression"

Role: Principal Investigator

American Brain Tumor Association 07/01/08 – 06/30/2009

Translational Grant

"Identification of Plasma Protein Markers for Early Detection of Glioblastoma Multiforme and Recurrence"

Role: Principal Investigator

2P50CA090949-06A1 08/01/07-07/31/08

NIH/NCI

SPORE in LUNG cancer Pilot project

"Identification of Putative Lung Cancer Serological Markers by Secretome Characterization"

Role: Principal Investigator

1U54 CA126505-01 9/25/06-8/31/11

NIH/NCI

"Paracrine TGF-Beta Signaling in Tumor Initiation and Progression"

Role: Co-Investigator

2P50 DK044757-16 12/01/05 – 11/30/09

NIH/NIDDK

"Fibrotic Sequelae of Childhood Renal Diseases"

Role: Co-Investigator

5R01 NS051557-03 12/01/05 – 11/30/09

NIH/NINDS

"Neural Precursor Cell Therapy for Disseminated Glioma"

Role: Co-Investigator

Completed:

5P50 CA098131-04

NIH/NCI

Breast Cancer SPORE Career Development Award

"Proteomic Discovery of Novel Signaling Networks Promoting Mammary Carcinoma Growth and Invasion by Fibroblasts with Loss of the TGF- β type II Receptor"

Role: Principal Investigator

IRG-58-009-48

American Cancer Society Institutional Research Grant

“Combining Microdialysis and Proteomic Techniques to Analyze Mammary Tumor Microenvironment in vivo”

Role: Principal Investigator

INVITED SPEAKER

- Identification of Protein Markers for Non-Small Cell Lung Cancer. Presented at the Winter Lung Cancer SPORE Meeting, St. Petersburg, Florida, February 13-14, **2004**.
- From Tissues to Cells: Combining Laser Capture Microdissection and MALDI MS for Protein Biomarker Discovery. Presented at the 21st Asilomar Conference on Mass Spectrometry Biomarkers Discovery and Validation: From Bench to Bedside, Pacific Grove, California, October 14-18, **2005**.
- Validation of Prognostic Lung Cancer Protein Marker Identified Using MALDI MS. Presented at the 14th SPORE Investigators' Workshop, Baltimore, Maryland, July 16-19, **2006**.

POSTER PRESENTATIONS

- **Xu, B.J.**; Sanders, M. E.; Chaurand, P.; Jensen, R.A.; Whitehead, R.; Caprioli, R.M. Direct Analysis of Laser Capture Microdissected Cells by MALDI Mass Spectrometry. Presented at the 50th ASMS Conference on Mass Spectrometry and Allied Topics, Orlando, Florida, June 2-6, **2002**.
- **Xu, B.J.**; Coffey, R.J.; Whitehead, R.H.; Caprioli, R.M. Combining Laser Capture Microdissection for Disease Profiling. Presented at the 51st ASMS Conference on Mass Spectrometry and Allied Topics, Montreal, Canada, June 8-12, **2003**.
- Sanders, M.E.; **Xu, B.J.**; Jensen, R.A.; Page, D.L.; Caprioli, R.M. Optimized sample preparation facilitates comparison of invasive mammary carcinoma and ductal carcinoma in situ by laser capture microdissection combined with MALDI-MS. *Laboratory Investigation* 83:327A, 2002; Presented at the United States and Canadian Academy of Pathology Conference, Washington DC, March 22-28, **2003**.
- **Xu, B.J.**; Shyr, Y.; Ma, L.; Donnert, E.; Caprioli, R.M.; Fogo, A.B. Proteomic Patterns As Predictors of Glomerulosclerosis. Presented at the United States and Canadian Academy of Pathology Conference, Vancouver, British Columbia, Canada, March 6-12, **2004**.
- **Xu, B.J.**; Sanders, M.E.; Shyr, Y.; Chakravarthy, B.; Pietenpol, J.; Jensen, R.A.; Caprioli, R.M. Laser Capture Microdissection and Mass Spectrometry Facilitate Protein Marker Identification in Invasive and in Situ Breast Cancer. Presented at the 52nd ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN, May 23-27, **2004**.
- Xie, L.; **Xu, B.J.**; Shyr, Y.; Schwartz, S.A.; Gorska, A.E.; Moore, J.H.; Moses, H.L.; Caprioli, R.M. Proteomic profiling of transgenic mouse mammary tumors by direct tissue MALDI MS analysis. Presented at the American Association for Cancer Research 95th Annual Meeting, Orlando, Florida, March 27-31, **2004**.
- Caldwell, R.L.; Aerni, H.; Carbone, D.P.; Floyd, J.R.; Massion, P.P.; Schwartz, R.A.; Thompson, R.; **Xu, B.J.**; Yildiz, P.; Zimmerman, L.J.; Caprioli, R.M. Discovery of High Quality Biomarkers in Serum Through Correlation of Proteins from the Primary Tumor.

Presented at the 52nd ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN, May 23-27, **2004**.

- **Xu, B.J.**; Shyr, Y.; Ma, L.; Donnert, E.; Roberts, J.; Caprioli, R.M.; Fogo, A.B. Proteomic Patterns and Prediction of Glomerulosclerosis and Its Mechanisms. Presented at the American Society of Nephrology Annual Conference, ST. Louis, MO, October 27 - November 1, **2004**.
- **Xu, B.J.**; Shyr, Y.; Liang, X.; Donnert, E.; Roberts, J.; Ma, L.; Caprioli, R.M.; Fogo, A.B. Proteomic Patterns for Classification, Prediction and Understanding the Mechanisms of Glomerulosclerosis. Presented at the 53rd ASMS Conference on Mass Spectrometry and Allied Topics, San Antonio, TX, June 5-9, **2005**.
- **Xu, B.J.**; Kikuchi, T.; Yanagisawa, K.; Wu, H.; Olson, S.; Mason, S.E.; Gonzalez, A.L.; Massion, P.P.; Shyr, Y.; Carbone, D.P.; Caprioli, R.M. Validation of MALDI Proteomic Predictors of Survival by Tissue Microarray. Presented at the 2006 American Association of Cancer Research Annual Meeting. Washington, DC, April 1-5, **2006**.
- **Xu, B.J.**; Jovanovic, B.; Jennings, J.L.; Aakre, M.E.; Link, A.J.; Harold, M, L. Quantitative Proteomics to Decipher Secretome Changes of Breast Fibroblasts with Loss of TGF- β Type II Receptor. Presented at the 55th ASMS Conference on Mass Spectrometry and Allied Topics, Indianapolis, IN, June 3-7, **2007**.
- **Xu, B.J.**; Jovanovic, B.; Chytil, A.; Link, A.J.; Moses, H.L. Combining *in vivo* Microdialysis and Proteomics to explore Breast Tumor Microenvironment. Presented at the Tumor Microenvironment Network meeting. Palo Alto, CA, July 10-12, **2007**.
- **Xu, B.J.**; Jovanovic, B.; Link, A.J.; Moses, H.L. Characterization of Breast Tumor Interstitial Fluid using *in vivo* Microdialysis and Proteomics. Presented at the Biomarker Discovery Summit, Philadelphia, PA. September 17-19, **2007**

PEER-REVIEWED SCIENTIFIC PUBLICATIONS

1. **Xu, B.J.**; Caprioli, R.M.; Sanders, M.E.; Jensen, R.A. Direct analysis of laser capture microdissected cells by MALDI mass spectrometry. *Journal of the American Society for Mass Spectrometry*, **2002**, 13 (11), 1292-1297.
2. Yanagisawa, K., **Xu, B.J.**, Carbone, D.P., Caprioli, R.M. Molecular fingerprinting in human lung cancer. *Clinical Lung Cancer*, **2003**, 5(2), 113-118.
3. Yanagisawa, K.; Shyr, Y.; **Xu, B.J.**; Massion, P.P.; Larsen, P.H.; White, B.C.; Roberts, J.R.; Edgerton, M.; Gonzalez, A.; Nadaf, S.; Moore J.H.; Caprioli, R.M.; Carbone, D.P. Proteomic patterns of tumour subsets in non-small-cell lung cancer. *The Lancet*, **2003**, 362:433-439.
4. Chaurand, P.; Fouhecour, S.; DaGue, B.; **Xu, B.J.**; Reyzer, M.L.; Orgebin-Crist, M.; Caprioli, R.M. Profiling and Imaging Proteins in the Mouse Epididymis by Imaging Mass Spectrometry, *Proteomics*, **2003**, 3(11), 2221-2239.
5. Chaurand, P.; Schwartz, S.A.; Billheimer, D.; **Xu, B.J.**; Crecelius, A.; Caprioli, R.M. Integrating histology and imaging mass spectrometry, *Analytical Chemistry*, **2004**, 76(4), 1145-1155.

6. **Xu, B.J.**; Shyr, Y.; Ma, L.; Donnert, E.; Roberts, J.; Caprioli, R.M.; Fogo, A.B. Proteomic Patterns and Prediction of Glomerulosclerosis and Its Mechanisms. *Journal of the American Society of Nephrology*. **2005**, 16(10):2967-2975.
7. Lu X.; **Xu, B.J.**; Gorska A.E.; Shyr Y.; Schwartz S.A.; Cheng N.; Levy S.; Caprioli R.M.; Moses H.L. Microarray and MALDI-TOF Analysis of Mammary Tumors Arising from Transgenic Mice. *Journal of the Proteome Research*, **2005**, 4(6):2088-98.
8. *Li, J.Q., ***Xu, B.J.**, Deane, N., Merchant, N., Heslin, M.J., Washington, K., Coffey, R. J., Beauchamp, R.D., Shyr, Y., Billheimer, D. Variability of In Situ Proteomic Profiling and Implications for Study Design in Colorectal Tumors. *International Journal of Oncology*, **2007**, 31(1):103-11. (*equal contribution).
9. Sanders, M.E.; Dias, E.C.; **Xu, B.J.**; Mobley J.A.; Billheimer, D.; Roder, H.; Grigorieva, J.; Dowsett, M.; Arteaga, C.L.; Caprioli, R.M. Differentiating Proteomic Biomarkers in Breast Cancer by Laser Capture Microdissection and MALDI MS. **2008**, 7(4):1500-7.
10. **Xu, B.J.**; Li, J.; Beauchamp, R.D.; Shyr, Y.; Li, M.; Washington, M.K.; Yeatman, T.J.; Whitehead, R.H.; Coffey, R.J.; Caprioli, R.M; Identification of Early Intestinal Neoplasia Protein Biomarkers using Laser Capture Microdissection and MALDI MS. *Submitted*.
11. **Xu, B.J.**; Gonzalez, A.L.; Kikuchi, T.; Yanagisawa, K.; Wu, H.; Olson, S.; Mason, S.E.; Massion, P.P.; Shyr, Y.; Carbone, D.P.; Caprioli, R.M. MALDI-MS Derived Prognostic Protein Markers for Resected Non-Small-Cell Lung Cancer. *Submitted*.