

CURRICULUM VITAE

Ming Li

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Contact Information

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Education

B.A. in Mathematical Statistics, Nankai University, Tianjin, China 1995

M.S. in Statistics, University of Michigan, Ann Arbor, Michigan 1999

Ph.D. in Business Administration, with concentration on Statistics and Management Science,
University of Michigan Business School, Ann Arbor, Michigan 2002

Academic Appointments

Research Assistant, University of Michigan Business School, Ann Arbor, Michigan 1997-2001

Visiting Scholar, Biostatistics Shared Resources, Vanderbilt-Ingram Cancer Center 2003-2004

Research Assistant Professor, Department of Biostatistics, Vanderbilt University 2004-2011

Research Associate Professor, Department of Biostatistics, Vanderbilt University 2011-Present

Awards

Guanghua Scholarship, Nankai University, China 1993-1995

Charles H. Gessner Doctoral Scholarship for Outstanding Student from Developing Countries,
University of Michigan Business School 1999

University of Michigan Business School Fellowship 1997-2001

Career Development Award, SPORE in Gastrointestinal Cancer, Vanderbilt-Ingram Cancer Center
2004-2006

Professional Organizations

International Biometric Society
 American Statistical Association

Professional Activities

Project Manager, High Dimensional Data Analysis Core, Cancer Biostatistics Division 2005-Present

Manuscript review for:

Bioinformatics
 Clinical Cancer Research
 Clinical Pharmacology and Therapeutics
 Journal of Cellular and Molecular Medicine
 Journal of Thoracic Oncology
 Molecular and Cellular Proteomics
 Proteomics Clinical Application

Teaching Activities

Teaching Assistant, MBA Core Statistics course, University of Michigan Business School 2001
 Instructor, BBA Core Statistics course, University of Michigan Business School 2002

Students

Member, Master Thesis Committee for Yaoyi Chen (advisor David Tabb) 2011-2012
 Member, Ph.D. Dissertation Committee for Yaoyi Chen (advisor David Tabb) 2012-Present

Major Research Interest

Mass spectrometry data pre-processing and analysis
 Genomic and proteomic data analysis
 Statistical methods for high dimensional data
 Statistical consulting

Research Program**Current projects**

R21 CA155946 (Lovvorn) Molecular Analysis of Ethnic Variations in Wilms' Tumor Project dates: 09/20/11-08/31/13	NCI Current annual direct costs: \$114,284 Effort dates: 09/20/11-present, 3% effort
U24 CA159988 (Liebler) Vanderbilt Proteome Characterization Center Project dates: 08/26/11-03/31/16	NCI Current annual direct costs: \$1,900,947 Effort dates:08/26/11-present, 15% effort
U01 CA152662 (Massion) Validation of biomarkers or risk for the early detection of lung cancer Project dates: 08/16/10-06/30/15	NCI Current annual direct costs: \$461,044 Effort dates: 09/01/10-present, 10% effort
U01 CA152647 (Liebler) Vanderbilt Biomarker Developmental Laboratory	NCI Current annual direct costs: \$406,887

Project dates: 08/20/10-06/30/15	Effort dates: 08/01/10-present, 8% effort
R01 CA138923 (Dikov) Adenosine in tumor-host interaction Project dates: 07/07/10-12/31/15	NCI Current annual direct costs: \$226,435 Effort dates: 07/01/10-present, 2% effort
R01 CA102353 (Massion) Molecular approaches to early detection of lung cancer Project dates: 07/01/03-01/31/15	NCI Current annual direct costs; \$186,650 Effort dates: 4/1/10-present, 8% effort
P01 CA116087 (Peek) H. pylori-induced inflammation and gastric cancer Project dates: 01/01/09-12/31/13	NCI Current annual direct costs: \$895,131 Effort dates: 01/01/09-present, 15% effort
P30 CA068485 (Pietenpol) Cancer center support grant (CCSG) Project dates: 09/17/97-08/31/15	NCI Current annual direct costs: \$3,829,008 Effort dates: 05/01/06-present, 15% effort
P50 CA095103 (Coffey) SPORE in GI cancer Project dates: 09/24/02-06/30/17	NCI Current annual direct costs: \$1,475,700 Effort dates: 05/01/04-present, 6% effort

Completed projects

DOD NCE (Sriram) Maldi/Mass Spectrometry of "normal appearing" and Dystrophic axons in spinal cord of multiple sclerosis (MS) Project dates: 11/01/12-01/31/13	DOD Current annual direct costs: \$75,000 Effort dates: 11/01/12-01/31/13, 8% effort
RC1 DE020332 (Yarbrough) Development and profiling of human-in-mouse models of salivary carcinomas Project dates: 09/22/09-08/31/11	NIDCR Annual direct costs: \$200,815 Effort dates: 02/01/10-09/30/11, 5% effort
RC1 CA145010 (Yarbrough) Human-in-mouse modeling of HNSCC to predict response to therapy Project dates: 09/30/09-08/31/11	NCI Annual direct costs: \$243,054 Effort dates: 02/01/10-09/30/11, 5% effort
RC1 CA146260 (Carbone) Polymorphism and mutation spectrum in minorities with non-small cell lung cancer Project dates: 09/30/09-08/31/11	NCI Annual direct costs: \$351,436 Effort dates: 01/01/10-08/31/12, 10% effort
R21 CA123881 (Lockhart/Goff) Pharmacogenomically selected treatment for gastric and gastroesophageal junction cancers Project dates: 07/01/08-05/31/11	NCI Annual direct costs: ~\$200,000 Effort dates: 12/01/09-01/31/10, 10% effort
R01 CA114471 (Mahadevan-Jansen) Development of a handheld probe for confocal microscopy and Raman spectroscopy	NCI Annual direct costs: \$220,211

Project dates: 07/20/06-05/31/11	Effort dates: 05/01/09-05/31/11, 5% effort
R21 LM009747 (Aronsky) An informatics-based guideline implementation framework for asthma care Project dates: 09/30/09-09/29/11	National Library of Medicine Annual direct costs: ~\$110,000 Effort dates: 10/01/08-04/30/09, 5% effort
Ayers Foundation for Pre-cancer Detection Project dates: n/a	Annual direct costs: n/a Effort dates: 02/01/08-06/30/10, ~20% average effort over inclusive dates
P50 CA090949 (Carbone) SPORE in lung cancer Project dates: 06/28/01-03/31/12	NCI Annual direct costs: \$1,462,958 Effort dates: 05/01/07-03/31/12, 10% effort
U24 CA126479 (Liebler) Clinical proteomic technology assessment for cancer Project dates: 09/28/09-08/31/11	NCI Annual direct costs: \$827,848 Effort dates: 02/01/07-08/31/11, ~20% average effort over inclusive dates
R21CA116573 (Peterson) Identifying receipt of colorectal cancer screening Project dates: 01/12/07-12/31/09	NCI Annual direct costs: ~\$80,000 Effort dates: 01/01/07-12/31/08, 5% effort
R01CA097386 (Zheng) Tumor markers and recurrent adenomas: a follow-up study Project dates: 09/30/02-08/31/08	NCI Annual direct costs: \$516,642 Effort dates: 05/01/06-01/31/08, 15% effort

Publications

Peer Reviewed

1. Shinohara ET, Gonzalez A, Massion PP, Chen H, **Li M**, Freyer AS, Olson SJ, Andersen JJ, Shyr Y, Carbone DP, Johnson DH, Hallahan DE, Lu B (2005) Nuclear survivin predicts recurrence and poor survival in patients with resected nonsmall cell lung carcinoma. *Cancer* 103:1685-92 (PMID 15742356)
2. Slebos RJ, **Li M**, Evjen AN, Coffa J, Shyr Y, Yarbrough WG (2006) Mutagenic effect of cadmium on tetranucleotide repeats in human cells. *Mutation Research* 602:92-9 (PMID 16989872)
3. Dai Q, Shrubsole MJ, Ness RM, Schlundt D, Cai Q, Smalley WE, **Li M**, Shyr Y, Zheng W (2007) The relation of magnesium and calcium intakes and a genetic polymorphism in the magnesium transporter to colorectal neoplasia risk. *American Journal of Clinical Nutrition* 86:743-51 (PMID 17823441; PMC2082111)
4. Yildiz PB, Shyr Y, Rahman JS, Wardwell NR, Zimmerman LJ, Shakhtour B, Gray WH, Chen S, **Li M**, Roder H, Liebler DC, Bigbee WL, Siegfried JM, Weissfeld JL, Gonzalez AL, Ninan M, Johnson DH, Carbone DP, Caprioli RM, Massion PP (2007) Diagnostic accuracy of MALDI mass

spectrometric analysis of unfractionated serum in lung cancer. *Journal of Thoracic Oncology* 2:893-901 (PMID 17909350)

5. Slebos RJ, **Li M**, Vadivelu S, Burkey BB, Netterville JL, Sinard R, Gilbert J, Murphy B, Chung CH, Shyr Y, Yarbrough WG (2008) Microsatellite mutations in buccal cells are associated with aging and head and neck carcinoma. *British Journal of Cancer* 98:619-26 (PMID 18212747; PMC2243146)
6. Luo W, Slebos RJ, Hill S, **Li M**, Brábek J, Amanchy R, Chaerkady R, Pandey A, Ham AJ, Hanks SK (2008) Global impact of oncogenic Src on a phosphotyrosine proteome. *Journal of Proteome Research* 7:3447-60 (PMID 18563927; PMC2579752)
7. Slebos RJ, Brock JW, Winters NF, Stuart SR, Martinez MA, **Li M**, Chambers MC, Zimmerman LJ, Ham AJ, Tabb DL, Liebler DC (2008) Evaluation of strong cation exchange versus isoelectric focusing of peptides for multidimensional liquid chromatography-tandem mass spectrometry. *Journal of Proteome Research* 7:5286-94 (PMID 18939861; PMC2669493)
8. Wu H, Dai Q, Shrubsole MJ, Ness RM, Schlundt D, Smalley WE, Chen H, **Li M**, Shyr Y, Zheng W (2009) Fruit and vegetable intakes are associated with lower risk of colorectal adenomas. *Journal of Nutrition* 139:340-4 (PMID 19091801; PMC2646202)
9. Chen S*, **Li M***, Hong D, Billheimer D, Li H, Xu BJ, Shyr Y (2009) A novel comprehensive wave-form MS data processing method. *Bioinformatics* 25:808-14 (PMID 19176559; PMC2732299) (*co-first author)
10. Xu BJ, Li J, Beauchamp RD, Shyr Y, **Li M**, Washington MK, Yeatman TJ, Whitehead RH, Coffey RJ, Caprioli RM (2009) Identification of early intestinal neoplasia protein biomarkers using laser capture microdissection and MALDI MS. *Molecular and Cellular Proteomics* 8:936-45 (PMID 19164278; PMC2689774)
11. Wujcik D, Shyr Y, **Li M**, Clayton MF, Ellington L, Menon U, Mooney K (2009) Delay in diagnostic testing after abnormal mammography in low-income women. *Oncology Nursing Forum* 36:709-15 (PMID 19887359; PMC3479661)
12. Sprung RW Jr, Brock JW, Tanksley JP, **Li M**, Washington MK, Slebos RJ, Liebler DC (2009) Equivalence of protein inventories obtained from formalin-fixed paraffin-embedded and frozen tissue in multidimensional liquid chromatography-tandem mass spectrometry shotgun proteomic analysis. *Molecular and Cellular Proteomics* 8:1988-98 (PMID 19467989; PMC2722776)
13. **Li M**, Gray W, Zhang H, Chung CH, Billheimer D, Yarbrough WG, Liebler DC, Shyr Y, Slebos RJ (2010) Comparative shotgun proteomics using spectral count data and quasi-likelihood modeling. *Journal of Proteome Research* 9:4295-305 (PMID 20586475; PMC2920032)
14. **Li M**, Chen S, Zhang J, Chen H, Shyr Y (2011) Wave-spec: a preprocessing package for mass spectrometry data. *Bioinformatics* 27:739-40 (PMID 21208983; PMC3105479)
15. Rahman SM, Gonzalez AL, **Li M**, Seeley, EH, Zimmerman LJ, Zhang XJ, Manier ML, Olson SJ, Shah RN, Miller AN, Putnam JB, Miller YE, Franklin WA, Blot WJ, Carbone DP, Shyr Y, Caprioli RM, Massion PP (2011) Lung cancer diagnosis from proteomic analysis of preinvasive lesions. *Cancer Research* 71:3009-17 (PMID 21487035; PMC3110721)

16. Denny JC, Choma NN, Peterson JF, Miller RA, Bastarache L, **Li M**, Peterson NB (2012) Natural language processing improves identification of colorectal cancer testing in the electronic medical record. *Medical Decision Making* 32:188-97 (PMID 21393557)
17. Baumann JL, **Li M**, Poulsen A, Chadwick NS, Cai Q, Chung CH, Shyr Y, Olsen JH, Zheng W, Slebos RJ (2012) Analysis of microsatellite mutations in buccal cells from a case-control study for lung cancer. *Cancer Epidemiology* 36:e33-9 (PMID 22056752; PMC3259162)
18. Zimmerman LJ, **Li M**, Yarbrough WG, Slebos RJ, Liebler DC (2012) Global stability of plasma proteomes for mass spectrometry-based analyses. *Molecular and Cellular Proteomics* 11:M111.014340 (PMID 22301387; PMC3433892)
19. Pecot CV, **Li M**, Zhang XJ, Rajanbabu R, Calitri C, Bungum A, Jett JR, Putnam JB, Callaway-Lane C, Deppen S, Grogan EL, Carbone DP, Worrell JA, Moons KG, Shyr Y, Massion PP (2012) Added value of a serum proteomic signature in the diagnostic evaluation of lung nodules. *Cancer Epidemiology, Biomarkers and Prevention* 21:786-92 (PMID 22374995)
20. Chen YY, Dasari S, Ma ZQ, Vega-Montoto LJ, **Li M**, Tabb DL (2012) Refining comparative proteomics by spectral counting to account for shared peptides and multiple search engines. *Analytical and Bioanalytical Chemistry* 404:1115-25 (PMID 22552787)
21. Sherrod SD, Myers MV, **Li M**, Myer JS, Carpenter KL, Maclean B, Maccoss MJ, Liebler DC, Ham AJ (2012) Label-free quantitation of protein modifications by pseudo selected reaction monitoring with internal reference peptides. *Journal of Proteome Research* (PMID 22559222; PMC3368409)
22. Sousa JF, Ham AJ, Whitwell C, Nam KT, Lee HJ, Yang HK, Kim WH, Zhang B, **Li M**, LaFleur B, Liebler DC, Goldenring JR (2012) Proteomic profiling of paraffin-embedded samples identifies metaplasia-specific and early-stage gastric cancer biomarkers. *Journal of Pathology* 181:1560-72 (PMID 22944598; PMC3483808)
23. Kikuchi T, Hassanein M, Amann JM, Liu Q, Slebos RJ, Rahman SM, Kaufman JM, Zhang X, Hoeksema MD, Harris BK, **Li M**, Shyr Y, Gonzalez AL, Zimmerman LJ, Liebler DC, Massion PP, Carbone DP (2012) In-depth proteomic analysis of nonsmall cell lung cancer to discover molecular targets and candidate biomarkers. *Molecular and Cellular Proteomics* 11:916-32 (PMID 22761400; PMC3494148)
24. Demory Beckler M, Higginbotham JN, Franklin JL, Ham AJ, Halvey PJ, Imasuen IE, Whitwell C, **Li M**, Liebler DC, Coffey RJ (2013) Proteomic analysis of exosomes from mutant KRAS colon cancer cells identifies intercellular transfer of mutant KRAS. *Molecular and Cellular Proteomics* 12:343-55 (PMID 23161513; PMC3567858)
25. Pedchenko T, Mernaugh R, Parekh D, **Li M**, Massion PP (2013) Early detection of NSCLC with scFv selected against IgM autoantibody. *PLoS One* 8(4):e60934 (PMID 23585862; PMCID PMC3621672)
26. Axt J, Abdallah F, Axt M, Githanga J, Hansen E, Lessan J, **Li M**, Musimbi J, Mwachiro M, Newton M, Ndungu J, Njuguna F, Nzioka A, Oruko O, Patel K, Tenge R, Ukoli F, White R, O'Neil JA, Hovvorn HN (2013) Wilms tumor survival analysis in Kenya. *Journal of Pediatric Surgery* (in press)

Submitted

27. **Li M**, Shyr Y (2013) An efficient dilution strategy for optimal estimation on sample DNA concentration.
28. Udyavar AR, Clark J, Zou Y, **Li M**, Chen H, Statnikov A, Shyr Y, Liebler DC, Field J, Eisenberg R, Estrada L, Quaranta V, Massion PP (2013) Subtypes of small-cell cancer distinguished by expression of oxidative stress and DNA damage response networks.
29. Smith GT, **Li M**, Moore B, Walker RC, Massion PP (2013) Reproducibility of volumetric computed tomography (vCT) of stable calcified pulmonary nodules: Implication on sensitivity of vCT in detection of lung cancer.
30. Olmsted IR, Hassanein M, Hoeksema M, Kussrow A, **Li M**, Massion Pierre, Bornhop DJ (2013) Non-small cell lung cancer biomarker validation and quantification using backscattering interferometry.
31. Yao YC, Chambers MC, **Li M**, Ham AL, Turner JL, Tabb DL (2013) IDPQuantify: combing precursor intensity with spectral counts for protein and peptide quantification

Book chapter

32. Hong D, Li H, **Li M**, Shyr Y (2007) Some recent progress on proteomic data analysis. In *Quantitative Medical Data Analysis Using Mathematical Tools and Statistical Techniques*. Edited by Hong D and Shyr Y. World Scientific Publisher, LLC.

Presentations

- Li M**, Lenk PJ, Andrews RW. A hierarchical Bayes model of international interest and inflation rates. ISF2000, Lisbon, Portugal. June 22, 2000.
- Lenk PJ, **Li M**, Andrews RW. International inflation and interest rates. International Bayesian Nonparametric Conference, Ann Arbor, Michigan. July 2001.
- Li M**, Shyr Y. Adjustable Bayesian two-stage design for phase II clinical trials. ENAR Meeting, Pittsburgh, Pennsylvania. March 2004.
- Li M**, Li H, Hong D, Shyr Y. Wavelets and evolution algorithms for mass spectrometry data processing. ENAR Meeting, Austin, Texas. March 2005.
- Matthews C, **Li M**, Shrubsole J, Ness R, Dai Q, Smalley W, Shyr Y, Coffey R, Zheng W. Energy balance and risk for adenomatous colorectal polyps. AACR Frontiers in Cancer Prevention Research, Oct 30-Nov 2, 2005.
- Li M**. Statistical analysis strategies for shotgun proteomics data. Shanghai Institutes for Biological Science Chinese Academy of Sciences. Shanghai, China. April 15, 2008.

Li M. Statistical analysis strategies for shotgun proteomics data. Biostatistics and Bioinformatics Workshop for High-Dimensional Data Analysis. Tamkang University, Tamsui, Taiwan. Oct 3-5, 2008.

Bi X, Rexer B, Arteaga CL, Guo M, **Li M**, Mahadevan-Jansen A. Determination of HER2 amplification status in breast cancer cells using Raman spectroscopy, 2010, -- in: Biomedical Vibrational Spectroscopy VI: Advances in Research and Industry, Bios 2010, San Francisco, CA.

Li M. Quasi-likelihood method for shotgun proteomics data. JSM 2010, Vancouver, Canada. August 2010.

Li M. Quasi-likelihood method for shotgun proteomics data. Inter-SPORE, Vancouver, Canada. August 2010.

Workshops and Seminars

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| Wavelets and Evolution Algorithms for Mass Spectrometry Data Processing.
VICC-UAB Biostatistics/Bioinformatics Workshop | April 2005 |
| Frequentist and Bayesian Two-Stage Designs in Phase II Clinical Trials.
Department of Biostatistics Seminar | Feb 2006 |
| Statistical Analysis Strategies for MALDI-TOF and Shotgun Proteomics Data.
Cancer Biostatistics Center Workshop | Nov 2008 |
| QuasiTel and Beyond.
Ayers Institute Bioinformatics Meeting | Oct 2010 |
| Beyond QuasiTel: Introduction to Generalized Linear Mixed Model.
Ayers Institute Bioinformatics Meeting | Apr 2011 |
| High Dimensional Data Analysis: A Comprehensive Case Study on MALDI-TOF MS Data.
Cancer Biostatistics Workshop | June 2011 |
| Extend QuasiTel: Generalized Linear Mixed Model.
Ayers Institute Bioinformatics Meeting | Oct 2011 |
| LC-MRM-MS Data Analysis Strategy.
Ayers Institute Bioinformatics Meeting | July 2012 |
| Prediction Models for Colon Cancer Protein Biomarkers.
Ayers Institute Bioinformatics Meeting | Dec 2012 |