

# CURRICULUM VITAE

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## Business Address

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## Education

- Ph.D. in Biomathematics with minor in Statistics, December 1995, North Carolina State University, Raleigh, North Carolina, U.S.A  
Thesis: New developments in change-in-ratio estimation of population size  
Advisor: Kenneth H. Pollock, Ph.D.
- M.S. in Biometry, June 1984, National Taiwan University, Taiwan, R.O.C.  
Thesis: On the estimation and hypothesis testing in the negative binomial distribution with application in the analysis of the spatial distribution of brown plant hopper in Taiwan  
Advisor: Tsang-Long Lin, Ph.D.
- B.S. in Plant Pathology, June 1982, National Taiwan University, Taiwan, R.O.C.

## Professional Experience

- November 2007 – Present Associate in Biostatistics, Dept. of Biostatistics, Vanderbilt Univ., Nashville, Tennessee.
- May 2004 – October 2007 Assistant in Biostatistics, Dept. of Biostatistics, Vanderbilt Univ., Nashville, Tennessee.
- November 2003 – April 2004 Biostatistician II, Dept. of Biostatistics, Vanderbilt Univ., Nashville, Tennessee.

## Statistical Methodology Research

- Develop an alternative approach for the permutation method to calculate p-value of risk score (derived from a linear combination of the intensities of pre-specified biomarkers) without inflating the type 1 error (manuscript in preparation)
- Evaluate the permutation test on the p-value of risk score for the potential biomarkers selected from FDR cutoff
- Make improvement on WaveSpec to handle the preprocessing of lipidomic data
- Compared internal validation methods on the procedure of constructing a survival prediction model
- Involve in the methodology research on the proper inference from Simon's two-stage design

- Perform simulation studies for the researches related to normalization method of microarray data
- Identify bugs in WFCCM (a software to calculate weighted flexible compound covariate) and WaveSpec (preprocessing package of MALDI) developed by Dr. Yu Shyr's group

### **Presentations**

- Assessment of the P-value for Survival Risk Score Derived from the High Dimensional Data. Biostatistics Seminar. Department of Biostatistics, Vanderbilt University School of Medicine. October 26, 2011
- Development and Validation of Prediction Model with Survival Outcome for Lung Cancer Patients. 2011 International Conference on Applied Statistics. Tamkang University, Tamsui, Taiwan, March 12, 2011
- Analysis of MALDI-TOF Data: from data preprocessing to model validation for survival outcome. 2009 Cancer Biostatistics Workshop. Vanderbilt-Ingram Cancer Center, Nashville, TN, March 20, 2009
- Analysis and Proteomic Data: A Case Study for the Prediction of Treatment Outcome in Non-Small-Cell Lung Cancer Patients with EGFR/VEGFR Target Therapy. 2008 Biostatistics and Bioinformatics Workshop for High-Dimensional Data Analysis. Tamkang University, Tamsui, Taiwan, October 4, 2008
- Comparison of internal validation methods on the procedure of constructing a survival prediction model for proteomic studies. ENAR Spring Meeting. Arlington, VA, March 18, 2008
- Comparison of internal validation methods on the procedure of constructing a survival prediction model for proteomic studies. Biostatistics Seminar. Department of Biostatistics, Vanderbilt University School of Medicine. March 12, 2008.
- Tips for Survival Analysis: Competing Risk and Time Dependent Covariates (Department of Biostatistics, Continuing Education for MS Biostatistician, 2006)
- Fitting Linear-Mixed Effect Model with lme (Department of Biostatistics, Continuing Education for MS Biostatistician, 2005)

### **Posters**

- Internal validation on prediction models of high-dimensional data. 2009 Epidemiology, Biostatistics and Bioinformatics Retreat. Vanderbilt-Ingram Cancer Center, Nashville, TN, December 4, 2009

### **Membership in Professional Society**

- International Biometric Society, Eastern North America Region (ENAR)

### **Journal Reviewer**

- Journal of Clinical Oncology: 2007 (1 manuscript), 2009 (4), 2010 (1), 2011 (2)
- Transactions of the American Fisheries Society: 2006 (1)

### **Continuing Education**

- Regression modeling strategies (by Frank Harrell at Vanderbilt University, 2006, 2010)

- Scientific writing workshop (2010)
- ggplot2 workshop (2010)
- A gentle introduction to Bayesian Biostatistics (Vanderbilt Kennedy Center, 2010)
- Measurement error in nonlinear models (ENAR, 2008)
- Competing risks software and its use (ENAR, 2008)
- Applied longitudinal analysis (ENAR, 2007)
- Intermediate Bayesian data analysis using WinBugs and Brugs (ENAR, 2007)
- Conference on analysis of complex data sets (Vanderbilt Kennedy Center, 2006)
- Clinical trials (by Dr. Yu Shyr at Vanderbilt University, 2006)
- Inter-SPORE biostatistics/bioinformatics workshop (Vanderbilt Ingram Cancer Center, 2005)
- Bayesian approaches for clinical trial design and analysis (ENAR, 2005)
- Up and down Design (ENAR, 2005)
- Weekly departmental seminar and R clinic
- Biostatistics clinic
- Self-education: drug synergy, data preprocessing for MALDI, Lasso method, model validation for prediction of survival outcome

#### **Institutional Services:**

- Serve on the Master level biostatistician search committee
- Lead the weekly puzzle discussion in the high dimensional data analysis core
- Provide continuing education for the Master level biostatistician
- Involve Cancer Biostatistics Workshop for Vanderbilt investigators
- Provide guidance to junior statisticians

#### **Publications**

1. Lin TL, Liu TS, **Chen CL**. Fitting forecasting methods to the data of rice insects. *Plant Prot. Bull.* (Taiwan, R.O.C.). 1986; 28:289-311.
2. Tai JJ, **Chen CL**. Asymptotic distribution of the lod score for familial data. *Proceedings of the National Science Council.* (Taiwan, R.O.C.). 1989; 13:38-41.
3. Pollock KH, **Chen CL**, Brownie C, Kendall W. 1991. Age-dependent tag recovery analyses of Pacific Halibut data. Unpublished report to the International Pacific Halibut Commission.
4. Bunck CM, **Chen CL**, Pollock KH. Robustness of survival estimates from radio-tagging studies to uncertain relocation. *J. Wild. Manage.* 1995; 59:790-794.
5. Pollock, KH, Bunck CM, Winterstein SR, **Chen CL**. A capture-recapture survival analysis model for radio-tagged animals. *J. Applied Statistics.* 1995; 22:661-672.
6. **Chen CL**, Hoenig JM, Dawe EG, Brownie C, Pollock KH. New developments in change-in-ratio and index-removal methods, with application to snow crab. *Can. Spec. Pub. Fish. Aquat. Sci.* 1998; 49-61.

7. **Chen CL**, Pollock KH, Hoenig JM. Combining change-in-ratio, index-removal, and removal models for estimating population size. *Biometrics*. 1998; 54:815-827.
8. Maas K, **Chen H**, Shyr Y, Olsen NJ, Aune T. Shared gene expression profiles in individuals with autoimmune disease and unaffected first-degree relatives of individuals with autoimmune disease. *Human Molecular Genetics*. 2005 May 15; 14(10):1305-14.
9. 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. Nuclear Survivin Predicts Relapse and Poor Survival of Resected Non-Small-Cell Lung Cancer. *Cancer*, 2005 Apr 15; 103(8):1685-92.
10. Kim DW, Shyr Y, **Chen H**, Akerley W, Johnson DH, Choy H. Response to Combined Modality Therapy Correlates with Survival in Locally Advanced Non-Small Cell Lung Cancer. *International Journal of Radiation Oncology, Biology, Physics*. 2005 Nov 15; 63(4):1029-36.
11. Jagasia MH, Greer JP, Morgan DS, Mineishi S, Kassim AA, Ruffner KL, **Chen H**, Schuening FG. Pegfilgrastim after High Dose Chemotherapy and Autologous Peripheral Blood Stem Cell Transplant: Phase II Study. *Bone Marrow Transplant*. 2005 Jun; 35(12):1165-9.
12. Bui CM, **Chen H**, Shyr Y, Joos KM. Discontinuing Nasal Steroids May Lower Intraocular Pressure in Glaucoma. *The Journal of Allergy and Clinical Immunology*. 2005 Nov; 116(5):1042-7.
13. Shinohara ET, Geng L, Tan J, **Chen H**, Shyr Y, Edwards E, Halbrook J, Kesicki EA, Kashishian A, Hallahan DE. DNA-dependent protein kinase is a molecular target for the development of noncytotoxic radiation-sensitizing drugs. *Cancer Research*. 2005 Jun 15; 65(12):4987-92.
14. Browning RE, Li H, Shinohara ET, Cai Q, **Chen H**, Courtney R, Cao C, Zheng W, Lu B. ATM polymorphism IVS62+60G>A is not associated with disease aggressiveness in prostate cancer. *Urology*, 2006 Jun; 67(6): 1320-1323.
15. Li H, Shinohara ET, Cai Q, **Chen H**, Courtney R, Cao C, Wang Z, Teng M, Zheng W, Lu B. Plasminogen Activator Inhibitor-1 Promoter Polymorphism is Not Associated with the Aggressiveness of Disease in Prostate Cancer. *Clinical Oncology*. 2006; 18: 333-337.

16. Agulnik M, da Cunha Santos G, Hedley D, Nicklee T, Dos Reis PP, Ho J, Pond GR, **Chen H**, Chen S, Shyr Y, Winquist E, Soulieres D, Chen EX, Squire JA, Marrano P, Kamel-Reid S, Dancey J, Siu LL, Tsao MS. Predictive and Pharmacodynamic Biomarker Studies in Tumor and Skin Tissue Samples of Patients with Recurrent or Metastatic Squamous Cell Carcinoma of the Head and Neck treated by Erlotinib. *Journal of Clinical Oncology*. 2007 Jun 1; 25(16):2184-90.
17. Jagasia M, Giglia J, Chinratanalab W, Dixon S, **Chen H**, Frangoul H, Engelhardt B, Goodman S, Greer J, Kassim A, Morgan D, Ruffner K, Schuening F. Incidence and Outcome of Chronic Graft-versus-Host Disease Using National Institutes of Health Consensus Criteria. *Biology of Blood and Marrow Transplant*. 2007 Oct;13(10):1207-15.
18. Albert JM, Gonzalez A, Diaz R, Massion PP, **Chen H**, Olson SJ, Shyr Y, Lambright ES, Sandler A, Carbone DP, Putnam JB, Johnson DH, Lu B. Cytoplasmic Clusterin Expression Is Associated with Longer Survival in Patients with Resected Non-small Cell Lung Cancer. *Cancer Epidemiology, Biomarkers and Prevention*. 2007 Sep; 16(9):1845-51.
19. Sinsakul M, Sika M, Rodby R, Middleton J, Shyr Y, **Chen H**, Han E, Lehrich R, Clyne S, Schulman G, Harris R, Lewis J. A randomized trial of a 6-week course of celecoxib on proteinuria in diabetic kidney disease. *Am J Kidney Dis*. 2007 Dec;50(6):946-51.
20. Koyama T, **Chen H**. Proper Inference from Simon's Two-Stage Design. *Stat Med*. 2008 Jul 20;27(16):3145-54.
21. Massion PP, Zou Y, **Chen H**, Jiang A, Coulson P, Amos CI, Wu X, Wistuba I, Wei Q, Shyr Y, Spitz MR. Smoking-related genomic signatures in non-small cell lung cancer. *Am J Respir Crit Care Med*. 2008 Dec 1;178(11):1164-72.
22. Peng D, Razvi MH, **Chen H**, Washington K, Roessner A, Schneider-Stock R, El-Rifai W. DNA hypermethylation regulates the expression of members of the Mu-class Glutathione-S-Transferases and Glutathione Peroxidases in Barrett's-related adenocarcinomas. *Gut*. Jan 2009; 58: 5-15.
23. Wu H, Dai Q, Shrubsole MJ, Ness RM, Schlundt D, Smalley WE, **Chen H**, Li M, Shyr Y, Zheng W. Fruit and vegetable intakes are associated with lower risk of colorectal adenomas. *J Nutr*. 2009 Feb;139(2):340-4.
24. Spottswood SE, Liaw K, Hernanz-Schulman M, Hilmes MA, Moore PE, Patterson B, **Chen H**, Kan JH. The clinical impact of the radiology report in wheezing and

nonwheezing febrile children: a survey of clinicians. *Pediatr Radiol*. 2009 Feb; 39:348-353.

25. Salmon S, **Chen H**, Chen S, Herbst R, Tsao A, Tran H, Sandler A, Billheimer D, Shyr Y, Lee JW, Massion P, Brahmer J, Schiller J, Carbone D, Dang TP. Classification by mass spectrometry can accurately and reliably predict outcome in patients with non-small cell lung cancer treated with erlotinib-containing regimen. *J Thorac Oncol*. 2009 Jun;4(6):689-96.
26. Jagasia MH, Savani BN, Stricklin G, Engelhardt B, Kassim A, Dixon S, **Chen H**, Chinratanalab W, Goodman S, Greer JP, Schuening F. Classic and overlap chronic graft-versus-host disease (cGVHD) is associated with superior outcome after extracorporeal photopheresis (ECP). *Biol Blood Marrow Transplant*. 2009 Oct;15(10):1288-95.
27. Moretti L, Yu DS, **Chen H**, Carbone DP, Johnson DH, Keedy VL, Putnam JB Jr, Sandler AB, Shyr Y, Lu B. Prognostic factors for resected non-small cell lung cancer with pN2 status: implications for use of postoperative radiotherapy. *Oncologist*. 2009 Nov;14(11):1106-15.
28. Carbone DP, Salmon JS, Billheimer D, **Chen H**, Sandler A, Roder H, Roder J, Tsy-pin M, Herbst RS, Tsao AS, Tran HT, Dang TP. VeriStrat classifier for survival and time to progression in non-small cell lung cancer (NSCLC) patients treated with erlotinib and bevacizumab. *Lung Cancer*. 2010 Sep;69(3):337-40.
29. Vilgelm AE, Washington MK, Wei J, **Chen H**, Prassolov VS, Zaika AI. Interactions of the p53 protein family in cellular stress response in gastrointestinal tumors. *Mol Cancer Ther*. 2010 Mar;9(3):693-705.
30. Perez CA, **Chen H**, Shyr Y, Courtney R, Zheng W, Cai Q, Hwang M, Jaboin J, Schleicher S, Moretti L, Wills M, Smith JA, Lu B. The EGFR polymorphism rs884419 is associated with freedom from recurrence in patients with resected prostate cancer. *J Urol*. 2010 May;183(5):2062-9.
31. Moretti L, Li B, Kim KW, **Chen H**, Lu B. AT-101, a Pan-Bcl-2 Inhibitor, Leads to Radiosensitization of Non-small Cell Lung Cancer. *J Thorac Oncol*. 2010 May;5(5):680-7.
32. Miller TW, Hennessy BT, González-Angulo AM, Fox EM, Mills GB, **Chen H**, Higham C, García-Echeverría C, Shyr Y, Arteaga CL. Hyperactivation of phosphatidylinositol-3 kinase promotes escape from hormone dependence in

estrogen receptor-positive human breast cancer. *J Clin Invest*. 2010 Jul 1;120(7):2406-13.

33. Tatsas AD, Jagasia MH, **Chen H**, McCurley TL. Monitoring residual myeloma: high-resolution serum/urine electrophoresis or marrow biopsy with immunohistochemical analysis? *Am J Clin Pathol*. 2010 Jul;134(1):139-44.
34. Griffith ML, Jagasia MH, Misfeldt AA, **Chen H**, Engelhardt BG, Kassim A, Savani BN, Survant M, Jagasia SM. Pretransplantation C-Peptide level predicts early posttransplantation diabetes mellitus and has an impact on survival after allogeneic stem cell transplantation. *Biol Blood Marrow Transplant*. 2011 Jan;17(1):86-92.
35. Li M, Chen S, Zhang X, **Chen H**, Shyr Y. Wave-spec: a preprocessing package for mass spectrometry data. *Bioinformatics*. 2011 Mar 1;27(5):739-40.
36. Jaboin JJ, Hwang M, Lopater Z, **Chen H**, Ray GL, Perez C, Cai Q, Wills ML, Lu B. The Matrix Metalloproteinase-7 Polymorphism Rs10895304 Is Associated with Increased Recurrence Risk in Patients with Clinically Localized Prostate Cancer. *Int J Radiat Oncol Biol Phys*. 2011 Apr 1;79(5):1330-5.
37. Ocak S, **Chen H**, Callison CJ, Gonzalez AL, Massion PP. Expression of focal adhesion Kinase in small-cell lung cancer. *Cancer* 2011 Jul 28. [Epub ahead of print].
38. Clark WB, Brown-Gentry KD, Crawford DC, Snavely J, Fan KH, **Chen H**, Savani BN, Kassim A, Greer JP, Schuening1 FG, Engelhardt1 BG, Jagasia MH. Genetic variation in recipient B-cell activating factor modulates phenotype of graft-versus-host disease. *Blood*. 2011 May31. [Epub ahead of print]
39. Lovely CM, Heuckmann JM, de Stanchina E, **Chen H**, Thomas RK, Liang C, Pao W. Insights into ALK-Driven Cancers Revealed through Development of Novel ALK Tyrosine Kinase Inhibitors. *Cancer Res*. 2011 Jul 5. [Epub ahead of print]
40. Li B, Torossian A, Li W, Schleicher S, Niu K, Giacalone NJ, Kim SJ, **Chen H**, Gonzalez A, Moretti L, Lu B. A Novel Bioluminescence Orthotopic Mouse Model for Advanced Lung Cancer. *Radiat Res*. 2011 Jun 10. [Epub ahead of print]
41. Murff HJ, Shrubsole MJ, Chen Z, Smalley WE, **Chen H**, Shyr Y, Ness RM, Zheng W. Nonsteroidal Anti-inflammatory Drug Use and Risk of Adenomatous and Hyperplastic Polyps. *Cancer Prev Res (Phila)*. 2011 Nov;4(11):1799-807. Epub 2011 Jul 15.

**Research Support**

**Ongoing Research Support**

2P30 CA068485-14 (Pietenpol)

09/10/10-08/31/15

NIH/NCI

Cancer Center Support Grant

The major goal of this project is to conduct, coordinate, and integrate cancer-related activities at Vanderbilt University.

Role: Co-investigator

5P01 ES013125-06 (Porter)

09/15/08-06/30/13

NIEHS

Lipid peroxidation and antioxidant mechanisms

The major goal of this project is to provide important insights into the role that oxidation and antioxidants play in human pathophysiology.

Role: Biostatistician

5P50 CA095103-10 (Coffey)

07/25/07-04/30/12

NIH/NCI

SPORE in GI cancer

The major goal of this project is to investigate the molecular features of gastrointestinal tumors.

Role: Biostatistician

5U54 CA126505-05 (Matrisian)

09/25/06-08/31/11

NIH/NCI

Paracrine TGF-beta signaling in tumor initiation and progression

The major goal of this project is to establish the Vanderbilt University Tumor Microenvironment Network (VUTMEN) to contribute to a comprehensive understanding of the role of the tumor stroma in cancer initiation, progression, and metastasis.

Role: Co-investigator

2R01 CA084360-12 (Matrisian)

12/01/09-11/30/14

NIH/NCI

Tumor and stromal metalloproteinases in breast cancer

The major goals of this project are to: 1) test the hypothesis that matrilysin acts as a tumor promoter for breast cancer in vivo; 2) test the hypothesis that matrilysin effects on tumor progression are mediated by cleavage of E-cadherin and FasL; and 3) determine the signal transduction pathways that modulate matrilysin levels in response to changes in cellular architecture.

Role: Biostatistician

5P50 CA090949-10 (Carbone)

09/26/07-03/31/12

NCI

SPORE in lung cancer



This major goal of this project is to investigate the molecular features of tumors or tumor-host interactions that determine their clinical behavior and represent potential molecular targets for intervention.

Role: Co-investigator

1R01 HL095931-02 (Zhang)

03/15/10-01/31/14

NHLBI

Phytoestrogen and endogenous estrogen exposure and risk of stroke

The major goal of this study is to verify incident stroke cases identified by the Shanghai Women's Health Study (SWHS) during follow-up through medical record review.

Role: Co-investigator

1R01 CA138833-02 (Zaika)

08/01/10-01/31/15

NIH

p53 family in gastric cancer development

The major goal of this project is to delineate the role of the p53 protein family in the development of gastric tumor using mouse models and other *in vitro* and *in vivo* approaches.

Role: Biostatistician

5P30 DK058404-10 (Peek)

08/30/07-05/31/12

NIDDK

Molecular and cellular basis of digestive diseases

The major goal of this project is to study the molecular and cellular mechanisms responsible for digestive diseases.

Role: Co-investigator

### **Selected Completed Research Support**

5R01 CA108956-06 (Zaika)

04/28/06-03/31/11

NCI

The role of p73 in upper gastrointestinal carcinomas

The major goals of this project are to characterize the prognostic significance of p73 isoforms, characterize the biological functions of p73 isoforms, and investigate the regulation of p73 gene expression in upper gastrointestinal carcinomas.

Role: Biostatistician

5R01 CA093999-06 El-Rifai (PI)

03/08/06-7/31/07

NCI

Gene amplification and overexpression in gastric cancer

The major goal of this project is to investigate the prevalence of 17q alterations in gastric cancer and identify critical changes at this chromosomal region.

Role: Biostatistician

5R21 CA099269-02 Berlin (PI) 09/18/2003-08/31/07  
NCI  
PS-341 in hepatocellular carcinoma: a phase II trial  
The major goals of this project are to: 1) evaluate the antitumor effect of PS 341 in hepatocellular carcinoma patients; 2) evaluate the effect of PS-341 on 26S proteasome activity in peripheral white blood cells and patient serum; and 3) evaluate the effect of PS-341 on intratumoral NF-kB activation, tumor apoptosis, and 26S proteasome activity.  
Role: Biostatistician

5R21 CA111541-02 El-Rifai (PI) 09/30/05-08/31/08  
NCI  
Early detection biomarkers in gastric tumorigenesis  
The major goal of this project is to discover novel diagnostic and/or prognostic molecular markers for precancerous lesions in gastric cancer using the TFF1 knockout mouse model.  
Role: Biostatistician

5R01 CA106176-06 El-Rifai (PI) 03/20/06-06/30/08  
NCI  
Biomarkers in Barrett's tumorigenesis  
The major goal of this project is to discover novel diagnostic and/or prognostic molecular markers for Barrett's carcinomas.  
Role: Biostatistician

1R21 CA123881-02 Lockhart (PI) 05/01/07-04/30/09  
NCI  
Pharmacogenomically selected treatment for gastric and gastroesophageal junction cancers  
The major goal of this project is to develop a clinical trial to incorporate pharmacogenomics into the treatment of gastric and GEJ cancers.  
Role: Biostatistician