

CURRICULUM VITAE

MIN SHI

PERSONAL DATA

Name: Min Shi

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Current position: Staff Scientist

National Institute of
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EDUCATION

9/1993 - 7/1999	M.D. /B.S. Clinical Medicine	China Medical University	Shenyang, China
8/1999 - 5/2002	M.S. Biology	University of Iowa	Iowa City, IA
8/2002 - 5/2004	M.C.S. Computer Sciences	University of Iowa	Iowa City, IA
5/2004 - 12/2004	M.S. Biostatistics	University of Iowa	Iowa City, IA
5/2002 - 5/2005	Ph. D. Biology (genetics)	University of Iowa	Iowa City, IA

HONORS AND AWARDS

2007 C. W. Cotterman Award, for best publication in the American Journal of Human Genetics during September 2006 – August 2007 by a trainee member of the American Society of Human Genetics American Society of Human Genetics

PROFESSIONAL ORGANIZATIONS AND ACTIVITIES

Member, American Society of Human Genetics

Member, American Statistical Association

Member, Society for Epidemiologic Research

Reviewer for: American Journal of Epidemiology, American Journal of Human Genetics, Annals of Human Genetics, Biostatistics, Biometrics, Birth Defect Research, Cleft Palate-Craniofacial Journal, Epidemiology, Heredity, Human Genetics, Human Reproduction, Journal of Medical Genetics, The Pharmacogenomics Journal, PLoS ONE, Statistics in Medicine

TEACHING EXPERIENCE

2001 spring	Teaching Assistant, The University of Iowa
2003 fall	Teaching Assistant, The University of Iowa
2011 spring	Guest Lecturer, North Carolina Central University
2012 spring	Guest Lecturer, North Carolina Central University

RESEARCH EXPERIENCE

08/1999 – 05/2005	Research assistant, Pediatrics Dept., The University of Iowa
05/2005 – 09/2005	Postdoctoral fellow, Pediatrics Dept., The University of Iowa
09/2005 – 11/2009	Research fellow, Biostatistics Branch, National Institute of Environmental Health Science
11/2009 – current	Staff Scientist, Biostatistics Branch, National Institute of Environmental Health Science

RESEARCH INTERESTS

Method development in statistical genetics with interests in :

- * Family-based and population-based studies
- * Methods for different study designs, such as case-mother/control-mother and tetrad designs
- * Genome-wide association studies
- * Gene-environment, gene-gene interaction and pathway-based analysis
- * Maternally-mediated genetic effects and imprinting effects

Applications of statistical methods to:

- * Epidemiologic and genetic studies, especially studies of complex traits, such as breast cancer, birth defects, asthma.

RESEARCH SUPPORT

Susan G. Komen for the Cure (FAS 0703856) 2008-2013

Role: Co-investigator

Two Sister Study, a family-based study to identify genetic and environmental factors on young-onset breast cancer (PI: Clarice R. Weinberg)

PUBLICATIONS IN PEER REVIEWED JOURNALS

1. **Shi M**, Caprau D, Romitti P, Christensen K, Murray JC (2003). "Genotype Frequencies And Linkage Disequilibrium In The CEPH Human Diversity Panel For Variants In Folate Pathway Genes MTHFR, MTHFD, MTRR, RFC1, And GCP2." *Birth Defects Res Part A Clin Mol Teratol* 67(8): 545-9. PMID:14632302
2. **Shi M**, D. Caprau D, Dagle J, Christiansen L, Christensen K, Murray JC (2004). "Application Of Kinetic Polymerase Chain Reaction And Molecular Beacon Assays To Pooled Analyses And High-Throughput Genotyping For Candidate Genes." *Birth Defects Res Part A Clin Mol Teratol* 70(2): 65-74. PMID:14991913
3. Schultz RE, Cooper ME, Daack-Hirsch S, **Shi M**, Nepomucena B, Graf KA, O'Brien EK, O'Brien SE, Marazita M, Murray JC, (2004) "A Targeted Scan Of Fifteen Regions For Nonsyndromic Cleft Lip And Palate In Filipino Families", *Am J Med Genet* 125A(1): 17-22.
4. Suzuki Y, Jezewski P, Machida J, Watanabe Y, **Shi M**, Cooper M, Viet L, Tin N, Hai H, Natsume N, Shimozato K, Marazita M, Murray JC, (2004) "In A Vietnamese Population MSX1 Variants Contribute To Cleft Lip And Palate", *Genetics in Medicine* 6(3):117-25
5. Zucchero T, Cooper M, Maher B, Daack-Hirsch S, Nepomuceno B, Ribeiro L, Caprau D, Christensen K, Suzuki Y, Machida J, Natsume N, Yoshiura K, Vieira A, Orioli I, Castilla E, Moreno L, Arcos-Burgos M, Lidral A, Field L, Liu Y, Ray A, Goldstein T, Schultz R, **Shi M**, Kondo S, Schutte B, Marazita M, Murray J (2004) "Interferon Regulatory Factor 6 (*IRF6*) is a

Modifier for Isolated Cleft Lip and Palate” *N Engl J Med* 351(8):769-80

6. **Shi M**, Christensen K, Weinberg CR, Romitti P, Bathum L, Lozada A, Morris RW, Lovett M, Murray JC (2007) “Orofacial cleft risk is increased with maternal smoking and specific detoxification-gene variants” *Am J Hum Genet* 80(1): 76-90
7. **Shi M**, Umbach DM, Weinberg CR (2007) “Identification of Risk-related Haplotypes Using Multiple Linked SNPs from Nuclear Families” *Am J Hum Genet* 81(1): 53-66
8. Ehn N, Cooper M, Orr K, **Shi M**, Johnson M, Caprau D, Dagle J, Johnson K, Marazita M, Merrill D, Murray JC (2007) “Evaluation of Fetal and Maternal Genetic Variation in the Progesterone Receptor Gene for Contributions to Preterm Birth” *Pediatr Res* 62(5): 630-634
9. Steffen KM, Cooper ME, **Shi M**, Caprau D, Simhan HC, Dagle J, Marazita ML, Murray JC (2007) “Maternal and fetal variation in genes of cholesterol metabolism is associated with preterm delivery” *J Perinatol* 27 (11): 672-680
10. Kimani J, **Shi M**, Daack-Hirsch S, Christensen K, Moretti-Ferreira D, Marazita M, Field L, Canady J, Murray JC (2007) “X-chromosome inactivation patterns in monozygotic twins and sib pairs discordant for non-syndromic cleft lip and/or palate”. *Am J Med Genet* 143A: 3267-72
11. **Shi M**, Wehby GL, Murray JC. 2008. Review on genetic variants and maternal smoking in the etiology of oral clefts and other birth defects. *Birth Defects Res C* 84(1):16-29.
12. **Shi M**, Umbach DM, Vermeulen SH, Weinberg CR (2008) “Making the most of case-mother/control-mother studies” *Am J Epidemiol* 168: 541-47
13. Vermeulen SH, **Shi M**, Weinberg CR, Umbach DM (2008) “A hybrid design: case-parent triads supplemented by control-mother dyads” *Genet Epidemiol* 33(2): 136-44
14. **Shi M***, Mostowska A*, Jugessur A, Johnson MK, Mansilla A, Christensen K, Lie RT, Wilcox A, Murray JC (2009) “Identification of Microdeletions in Candidate Genes for Cleft Lip and/or Palate” *Birth Defects Res Part A Clin Mol Teratol* 85:42-51 (*These authors contributed equally to this work)
15. Boyles AL, Wilcox AJ, Taylor JA, **Shi M**, Weinberg CR, Meyer K, Fredriksen A, Ueland PM, Johansen AMW, Drevon CA, Jugessur A, Trung TN, Gjessing HK, Vollset SE, Murray JC, Christensen K, Lie RT (2009) “Oral facial clefts and gene polymorphisms in metabolism of folate/one-carbon and vitamin A: a pathway-wide association study” *Genet Epidemiol* 33: 247-255
16. **Shi M**, Umbach DM, Weinberg CR (2009), “Using Case-parent Triads to Estimate Relative Risk Associated with a Candidate Haplotype” *Annals of Hum Genet* 73(pt3): 346-59
17. Kistner E, **Shi M**, Weinberg CR (2009) “Using Cases and parents to Study Multiplicative Gene-by-Environment Interaction” *Am J Epidemiol* 170:393-400
18. Jugessur A*, **Shi M***, Gjessing HK, Lie RT, Wilcox AJ, Weinberg CR, Christensen K, Boyles A, Daack-Hirsch S, Trung T, Lidral A, Murray JC(2009) “Genetic Determinants of Orofacial Clefts: Exploring 334 Cleft Candidate Genes in Two Population-based Cleft Cohorts from Scandinavia” *PLoS ONE* 4(4):e5385 (*These authors contributed equally to this work)

19. Weinberg CR, **Shi M** (2009) “The genetics of preterm birth: Using what we know to design better association studies” *Am J Epidemiol* 170:1373-1381
20. Kimani J, Yoshiura K, **Shi M**, Jugessur A, Moretti-Ferreira J, Christensen K, Murray JC, (2009) “Search For Genomic Alterations In Monozygotic Twins Discordant For Cleft Lip And/OR Palate” *Twin Research and Human Genetics* 12(5): 462–468
21. Hancock DB, Romieu I, **Shi M**, Sienra-Monge J-J, Wu H, Chiu GY, Li H, del Rio-Navarro BE, Willis-Owens SAG, Weiss ST, Raby BA, Gao H, Eng C, Chapela R, Burchard EG, Tang H, Sullivan PF, London SJ (2009) “Genome-Wide Association Study Implicates Chromosome 9q21.31 as a Susceptibility Locus for Asthma in Mexican Children” *PLoS Genet* 5(8): e1000623.
22. Wu H, Romieu I, **Shi M**, Hancock DB, Li H, Sienra-Monge JJ, Chiu GY, Xu H, Estela del Rio-Navarro B, London SJ, *J Allergy Clin Immun* (2010) “Evaluation of candidate genes in a genome-wide association study of childhood asthma in Mexicans” *The Journal of Allergy and Clinical Immunology* 125(2): 321-327.e13
23. **Shi M**, Umbach DM, Weinberg CR (2010) “Testing Haplotype-Environment Interactions Using Case-parent Triads” *Human Heredity*70: 23-33
24. Jugessur A*, **Shi M***, Gjessing HK, Lie RT, Wilcox AJ, Weinberg CR , Christensen K, Boyles AL, Daack-Hirsch S, Nguyen TT, Christiansen L, Lidral AC and Murray JC, (2010) “Maternal genes and facial clefts in offspring: A comprehensive search for genetic associations in two population-based cleft studies from Scandinavia” *PLoS One* 5(7): e11493 (*These authors contributed equally to this work)
25. Jugessur A, **Shi M**, Gjessing HK, Lie RT, Wilcox AJ, Weinberg CR , Christensen K, Boyles AL, Daack-Hirsch S, Nguyen TT, Christiansen L, Lidral AC and Murray JC (2011) “Fetal genetic risk of isolated cleft lip only versus isolated cleft lip and palate: A subphenotype analysis using two population-based studies of orofacial clefts in scandinavia.” *Birth Defects Res Part A Clin Mol Teratol* 91(2): 85-92
26. **Shi M**, London SJ, Chiu GY, Hancock DB, Zaykin D, Weinberg CR (2011) “Using imputed genotypes for relative risk estimation in case-parent studies” *Am J of Epidem* 173(5): 553-9
27. **Shi M**, Umbach DM, Weinberg CR (2011) “Family based Gene-by-Environment Interaction Studies: Revelations and Remedies” *Epidemiology* 22(3): 400-407
28. Torgerson DG, Ampleford EJ, Chiu GY, Gauderman WJ, Gignoux CR, Graves PE, Himes BF, ..., **Shi M**, ... Ober C, Nicolae DL(76 authors in total) (2011) “Meta-analysis of genome-wide association studies of asthma in ethnically diverse north American populations” *Nature Genetics* 43: 887-892
29. Weinberg CR, **Shi M**, Umbach DM (2011) “A sibling-augmented case-only approach for assessing multiplicative GxE interaction” *Am J of Epidem* 174(10):1183-9
30. **Shi M**, Weinberg CR (2011) “How much are we missing in SNP-by-SNP analyses of GWAS” *Epidemiology* 22(6):845-7
31. Wu T, Fallin MD, **Shi M**, Ruczinski I, Liang KY, Hetmanski JB, Wang H, Ingersoll RG, Huang S, Ye X, Wu-Chou Y, Chen PK, Jabs EW, Shi B, Redett R, Scott AF, Beaty TH (2012) “Evidence of gene–environment interaction for the *RUNX2* gene and environmental tobacco

smoke in controlling the risk of cleft lip with/without cleft palate” *Birth Defects Res A Clin Mol Teratol* 94(2):76-83.

32. **Shi M**, Murray JC, Marazita ML, Lie RT, Munger RG, Ruczinski I, ..., Beaty TH (24 authors in total) (2012 in print) “Genome wide study of maternal and imprinting effects on the etiology of orofacial clefts” *Am J Med Genet, Part A*
33. Gao J, Nalls MA, **Shi M**, Hernandez DG, Park Y, Huang X, Hollenbeck A, Singleton AB, Chen H (accepted) “An exploratory analysis on gene-environment interactions for Parkinson disease” *Neurobiology of Aging*
34. van der Zanden L, Galesloot T, Feitz W, Brouwers M, **Shi M**, Knoers N, Franke B, Roeleveld N, van Rooij I, (accepted) “Exploration of gene-environment interactions, maternal effects and parent-of-origin effects in the etiology of hypospadias” *The Journal of Urology*

MANUSCRIPTS SUBMITTED OR IN PREPARATION

1. Kim J, Stirling KJ, Cooper ME, Ascoli M, Momany AM, McDonald EL, Schaa KL, Ryckman K, Cosentino V, Gadow E, Saleme C, **Shi M**, Hallman M, Plunkett J, Teramo KA, Muglia LJ, Feenstra B, Geller F, Boyd HA, Melbye M, Marazita ML, Dagle JM, Murray JC (submitted) “Sequence variants in oxytocin pathway genes and preterm birth”
2. Shi M, Umbach DM, Weinberg CR (in preparation) “Making Improving case-sibling studies in genetic epidemiology by acknowledging the unstudied parents”

LETTERS

1. Weinberg CR, **Shi M**, Umbach DM (2011) Re: "Genetic association and gene-environment interaction: A new method for overcoming lack of exposure information in controls." *Am J of Epidem*

INVITED TALK

“A Nonparametric Method for Finding Risk-Haplotype Tagging Alleles Using Cases and Their Parents” at Advanced Methodology Student Workshop at the 20th annual meeting of Society for Pediatric and Perinatal Epidemiologic Research (Boston MA, June 2007)

“Haplotype-Based Association Methods: Cleft Lip/Palate As An Example” at Wright State University, Boonshoft School of Medicine, Lifespan Health Research Center (Dayton OH, Dec 2008)

“Haplotype-Based Association Methods: Cleft Lip/Palate As An Example” at University of Iowa, Environmental Health Sciences Research Center (Iowa City IA, Dec 2008)

“Method for Haplotype-Based Association Using Case-Parent Triads” at State University of New York, Downstate Medical Center, School of Public Health (Brooklyn NY, Jan 2009)

“Methods for Family-Based Association Studies with Applications to Orofacial Clefts” Keynote Speaker at the 2nd international conference of “Project New Life” (HaiKou, China 2011)

CONFERENCE TALK

“Application of Kinetic PCR and Molecular Beacon Technology to Pooled Sample and High-Sensitivity Analysis of the MTHFR Gene” **Shi M**, Dagle J, Caprau D, Murray JC, The American Society of Human Genetics 51th Annual meeting (San Diego CA, Oct 2001)

“Gene-by-Environment Interaction in Studies Based on Nuclear Families” Shi M, Umbach DM, Weinberg CR, 2010 Joint Statistical Meetings (Vancouver, BC Canada 2010)

SELECTED POSTER PRESENTATIONS AND PUBLISHED ABSTRACTS

1. **Shi M**, Christensen K, Lozada A, Romitti R, Murray JC, “Maternal cigarette smoking and variants in GSTP1 and GSTT1 contribute to the etiology of orofacial clefting”, The American Society of Human Genetics 53rd Annual meeting (Los Angeles, CA 2003)
2. **Shi M**, Christensen C, Weinberg C, Lozada A, Romitti P, Murray JC, “Analysis of maternal smoking and sixteen detoxification genes in the etiology of orofacial clefts”, The American Society of Human Genetics 54th Annual meeting (Toronto, Canada 2004)
3. **Shi M**, Umbach DM, Weinberg CR, “A method for finding risk haplotypes using cases and their parents”, The American Society of Human Genetics 56th Annual meeting (New Orleans, LA 2006)
4. **Shi M**, Mostowska A, Christensen K, Lie, RT, Jugessur A, Wilcox A, Weinberg CR, Murray JC, “Detecting deletion regions in candidate genes of cleft lip and palate”, The American Society of Human Genetics 57th Annual meeting (San Diego, CA 2007)
5. **Shi M**, Umbach DM, Vermeulen SH, Weinberg CR, “Studying genetic contributions by mother and child to susceptibility: efficient design and analysis for diseases of early life”, The American Society of Human Genetics 58th Annual meeting (Philadelphia, PA 2008)
6. **Shi M**, Umbach DM, Weinberg CR, “Gene-by-Environment Interaction in Studies Based on Nuclear Families”, The American Society of Human Genetics 60th Annual meeting (Washington, DC 2010)
7. **Shi M**, Umbach DM, Weinberg CR, “Making the Most of Case-Sibling Studies”, The American Society of Human Genetics 61th Annual meeting (Montreal, Canada 2011)