

BIOGRAPHICAL SKETCH

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NAME Chen, Xiangning		POSITION TITLE Associate Professor	
eRA COMMONS USER NAME SAMCHEN			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
Houston Univ. Dept. of Biochem & Biophys.	Ph.D.	1989-1994	Genomics/Mol. Biol.
Institute of Genetics, Academia Sinica	M.S.	1983-1986	Genetics/Biochemistry
Guangxi Agricultural Institute, China	B.A.	1977-1982	Agronomy

A. POSITION AND HONOR

May 1994 - June 1997. Post doctoral fellow, Washington University School of Medicine, St. Louis, Missouri. High throughput genotyping technologies developing, automated DNA sequencing and analysis.

April 1996-March 1998. National research service awards (NRSA) from National Institute of Health (1-F32-HG00156-01), SNP genotyping technology development.

July 1997 – June 1999. Research Instructor, Washington University School of Medicine, St. Louis, Missouri. SNP markers discovery and high throughput genotyping technologies development.

July 1999-July 2000. Scientist, project leader, Cereon Genomics, LLC, Cambridge, Massachusetts. Development of single nucleotide polymorphism (SNP) markers for *Arabidopsis* and Maize, and implementation of large scale, high throughput genotyping technologies for genetic mapping and positional cloning of QTL gene.

July 2000-Feb. 2001. Senior Scientist, project leader, CuraGen Corporation, New Haven, Connecticut. Development of SNP genotyping technologies that use capillary DNA sequencers.

Feb. 2001-2008. Assistant professor, Virginia Institute for Psychiatric and Behavioral Genetics, Virginia Commonwealth University, Richmond, Virginia. SNP marker and genotyping technology development, high throughput genotyping for complex traits and candidate genes. Linkage and association studies of schizophrenia, nicotine dependence and anxiety.

Feb. 2008-present. Associated professor, Virginia Institute for Psychiatric and Behavioral Genetics, Virginia Commonwealth University, Richmond, Virginia. Genetic studies of schizophrenia, nicotine dependence, anxiety and depression.

B. SELECTED PEER-REVIEWED PUBLICATION

1. TL Edwards, X Wang, Q Chen, B Wormly, B Riley, FA O'Neill, D Walsh, MD Ritchie, KS Kendler, and **X Chen**. 2008. Interaction between Interleukin 3 and Dystrobrevin-Binding Protein 1 in Schizophrenia. *Schizophrenia Res.* In press.
2. Q Chen, X Wang, FA O'Neill, D Walsh, KS Kendler and **X Chen**. 2008. Is the Histidine Triad Nucleotide-binding Protein 1 (HINT1) Gene a Candidate for Schizophrenia? *Schizophrenia Res.* In press.
3. AH Fanous, **X Chen**, X Wang, R Amdur, FA O'Neill, D Walsh, KS Kendler. 2008. Genetic variation in the serotonin 2A receptor and suicidal ideation in a sample of 270 Irish high-density schizophrenia families. *Am J Med Genet B Neuropsychiatr Genet.* In press.

4. JM Hettema, SS An, J Bukszar, EJ van den Oord, MC Neale, KS Kendler and **X Chen**. 2008. COMT Contributes to Genetic Susceptibility Shared Among Anxiety Spectrum Phenotypes. *Biol Psychiatry*. In press.
5. **X Chen**, X Wang, C Sun, Q Chen, FA O'Neill, D Walsh, AH Fanous and KS Kendler. 2008. FBXL21 association with schizophrenia in Irish family and case control samples. *Am J Med Genet B Neuropsychiatr Genet*. In press.
6. **X Chen**, VS Williams, SS An, JM Hettema, SH Aggen, MC Neale and KS Kendler. 2008. The cannabinoid receptor 1 (CNR1) gene association with nicotine dependence. *Arch Gen Psychiatry*. 65(7):816-24.
7. JM Hettema, SS An, MC Neale, EJ van den Oord, KS Kendler, and **X Chen**. Lack of association between the amiloride-sensitive cation channel 2 (ACCN2) gene and anxiety spectrum disorders. *Psychiatr Genet*. 2008, 18(2):73-9.
8. S Shifman, M Johannesson, M Bronstein, **X Chen**, DA Collier, NJ Craddock, KS Kendler, T Li, M O'Donovan, FA O'Neill, MJ Owen, D Walsh, DR Weinberger, C Sun, J Flint and A Darvasi. 2008. Genome-Wide Association Identifies a Common Variant in the Reelin Gene That Increases the Risk of Schizophrenia Only in Women. *PLoS Genet*. 4(2):e28.
9. **X Chen**, X Wang, Q Chen, V Williamson, E van den Oord, BS Maher, FA O'Neill, D Walsh and KS Kendler. 2008. MEGF10 association with schizophrenia. *Biol Psychiatry*. 63(5):441-8.
10. **X Chen** and KS Kendler. 2008. Interleukin 3 and schizophrenia. *Am J Psychiatry*. 165(1):13-4.
11. JM Hettema, SS An, EJ van den Oord, MC Neale, KS Kendler and **X Chen**. 2008. Association study between the serotonin 1A receptor (HTR1A) gene and neuroticism, major depression, and anxiety disorders. *Am J Med Genet B Neuropsychiatr Genet*. In press.
12. S Shifman, A Bhomra, S Smiley, NR Wray, MR James, NG Martin, JM Hettema, SS An, Neale MC, EJ van den Oord, KS Kendler, **X Chen**, DI Boomsma, CM. Middeldorp, JJ Hottenga, PE Slagboom and J Flint. 2008. A whole genome association study of neuroticism using DNA pooling. *Mol Psychiatry*. 13:302-312.
13. Q Chen, X Wang, FA O'Neill, D Walsh, A Fanous, KS Kendler and **X Chen**. 2008. Association study of CSF2RB with schizophrenia in Irish family and case control samples. *Mol Psychiatry*. 13:930-938.
14. **X Chen**. 2007. Multiple sequencible and ligatable structures for genomic analysis. [US patent 7262030](#).
15. **X Chen**, Y Che, L Zhang, A Putman, I Damaj, B Martin, KS Kendler and MF Miles. 2007. RHOA, encoding a Rho GTPase, is associated with smoking initiation. *Genes Brain Behav*. 6(8):689-97.
16. **X Chen**, X Wang, S Hossain, FA O'Neill, D Walsh, EJ van den Oord, A Fanous and KS Kendler. 2007. Interleukin 3 and schizophrenia: The impact of sex and family history. *Mol Psychiatry*. 12(3):273-82.
17. **X Chen**, X Wang, S Hossain, FA O'Neill, D Walsh, L Pless, KV Chowdari, VL Nimgaonkar, SG Schwab, DB Wildenauer, PF Sullivan, EJ van den Oord and KS Kendler. 2006. Haplotypes spanning SPEC2, PDZ-G EF2 and ACSL6 genes are associated with schizophrenia. *Hum Mol Genet*. 15:3329.
18. JL McClay, A Fanous, EJ van den Oord, BT Webb, D Walsh, FA O'Neill, KS Kendler and **X Chen**. 2007. Catechol-O-methyltransferase and the clinical features of psychosis. *Am J Med Genet B Neuropsychiatr Genet*. 141(8):935-8.
19. AH Fanous, **X Chen**, X Wang, RL Amdur, FA O'Neill, D Walsh and KS Kendler. 2007. Association between the 5q31.1 gene neurogenin1 and schizophrenia. *Am J Med Genet B Neuropsychiatr Genet*. 144(2):207-14.
20. L Zhang, KS Kendler and **X Chen**. 2006. The mu-opioid receptor gene and smoking initiation and nicotine dependence. *Behav Brain Funct*. 2:28.

21. JM Hettaema, SS An, MC Neale, J Bukszar, EJ van den Oord, KS Kendler and **X Chen**. 2006. Association between glutamic acid decarboxylase genes and anxiety disorders, major depression, and neuroticism. *Mol Psych*, 11:752-762.
22. ME Talkowski, H Seltman, AS Bassett, LM Brzustowicz, **X Chen**, KV Chowdari, DA Collier, Q Cordeiro, AP Corvin, SN Deshpande, MF Egan, M Gill, KS Kendler, G Kirov, LL Heston, P Levitt, Lewis DA, Li T, Mirnics K, Morris DW, Norton N, O'Donovan MC, Owen MJ, Richard C, Semwal P, JL Sobell, D St Clair, RE Straub, BK Thelma, H Vallada, DR Weinberger, NM Williams, J Wood, F Zhang, B Devlin and VL Nimgaonkar. 2006. Evaluation of a susceptibility gene for schizophrenia: Genotype based meta-analyses of RGS4 polymorphisms from thirteen independent samples. *Biol Psychiatry*. 60:153-162.
23. L Zhang, KS Kendler and **X Chen**. 2006. Association of the phosphatase and tensin homolog gene (PTEN) with smoking initiation and Nicotine dependence. *Am J Med Genet*. 141(1):10-14.
24. **X Chen**, C Dunham, S Kendler, X Wang, AF Oneill, D Walsh and KS Kendler. 2004. The regulator of G-protein signaling 4 (RGS4) gene is associated with schizophrenia in Irish high density families. *Am J Med Genet*. 129B:23-26.
25. **X Chen**, X Wang, AF O'neill, D Walsh and KS Kendler. 2004. Variants in the chatecol-o-methyltransferase (COMT) gene are associated with schizophrenia in Irish high density families. *Mol Psychiatry*. 9:962-967.
26. Y Chen and **X Chen**. 2004. A multiplexing SNP typing method based on restriction enzyme mediated single base extension (REM-SBE) and capillary electrophoresis. *Analytical Biochem*, 329: 220-229.
27. **X Chen**, B. Wu and K.S. Kendler. 2004. Association study of the Epac gene and tobacco smoking and nicotine dependence. *Am J Med Genet*. 129B: 116-119.
28. P-Y Kwok and **X Chen**. 2003. Detection of single nucleotide polymorphisms. *Curr Issues Mol Biol*. 5:43-60.
29. **X Chen** and PF Sullivan. 2003. Single nucleotide polymorphism genotyping: Biochemistry, protocol, cost and throughput. *Pharmacogenomics J*, 3:77-96.
30. **X Chen**. 2003. Fluorescence polarization for single nucleotide polymorphism genotyping. *Comb Chem & High Throughput Screening*. 6:213-223.
31. EJ van den Oord, Y Jiang, BP Riley, KS Kendler and **X Chen**. 2003. FP-TDI SNP scoring by manual and statistical procedures: A study of error rates and types. *BioTechniques*, 34:610-623.
32. TM Hsu, **X Chen**, S. Duan, RD Miller and P-Y Kwok. 2001. Universal SNP genotyping assay with fluorescence polarization detection. *BioTechniques* 31: 560-570.
33. P-Y Kwok, **X Chen** and L Levine. 2001. Fluorescence polarization in nucleic acid analysis. [US patent 6180408](#)
34. P-Y Kwok and **X Chen**. 2001. Methods for nucleic acid analysis using fluorescence resonance energy transfer. [US Patent 6177249](#).
35. P-Y Kwok and **X Chen**. 1999. Methods and kits for nucleic acid analysis using fluorescence resonance energy transfer. [US Patent 5945283](#).
36. **X Chen**, L Levine and P-Y Kwok. 1999. Fluorescence polarization in homogeneous nucleic acid analysis. *Genome Res*. 9: 492-498.
37. **X Chen** and P-Y Kwok. 1999. Homogeneous Genotyping Assays for Single Nucleotide Polymorphisms with Fluorescence Resonance Energy Transfer Detection. *Genetic Analysis (Biomolecular Engineering)*. 14:157-163.
38. **X Chen**, KJ. Livak and P-Y Kwok. 1998. A homogeneous, ligase-mediated DNA diagnostic test. *Genome Res*. 8: 549-556.
39. P-Y Kwok and **X Chen**. 1998. Detection of single nucleotide variations. In *Genetic Engineering: Principles and methods*. Ed. Setlow, J. K. Plenum Press New York. **20**: 125-134.

40. **X Chen**, B Zehnauer, A Gnirke and P-Y Kwok.1997. Fluorescence energy transfer detection as a homogeneous DNA diagnostic method. *Proc. Natl. Acad. Sci. USA.* 94:10756-10761.
41. **X Chen** and P-Y Kwok. 1997. Template-directed dye-terminator incorporation (TDI) assay: a homogeneous DNA diagnostic method based on fluorescence resonance energy transfer. *Nucleic Acids Res.* 25: 347-353.
42. WR Widger, **X Chen** and H Samartzidou. 1997. The physical Genome map of *Synechococcus* PCC 7002. In *Bacterial Genomes: Physical Structure and Analysis* Eds. deBruijn, F.J., Lupski, J.R., and Weinstock, G. Chapman & Hall New York, New York. pp. 763-770.
43. **X Chen** and WR. Widger. 1993. Physical genome map of the unicellular cyanobacterium *Synechococcus* sp. strain PCC 7002. *J. Bacteriol.* 175: 5106-5116.

C. RESEARCH SUPPORT

1. FINISHED

Young Investigator Award (Chen) 05/02-04/05

NARSAD

Using biological haplotypes to identify susceptible genes for schizophrenia

We proposed to use haploid cell lines to construct haplotypes for a few high density schizophrenia families over a large range on chromosome 5 that was indicated by whole genome scan. The goal was to compare the haplotype structures between the affected and controls and associate them to the disease condition.

2. ACTIVE

Independent Investigator Award (Chen) 11/08-10/10

NARSAD

A comparative study of transcriptome of schizophrenia patients and controls by Solexa sequencing

This project proposes to conduct high-throughput, deep-coverage sequencing of brain transcriptomes of schizophrenia patients and controls.

Stanley Medical Research Institute (Chen) 01/08-12/09

Association studies of T helper cell interleukins and schizophrenia

This project proposes to study interleukins involved in T helper cell differentiation for their roles in schizophrenia.

K01DA019498-01A2 (Chen) 09/06-08/11

NIDA

Genetics of nicotine and other abused substances

This application proposes to study the genetics of nicotine and other abused substances.

Tobacco settlement foundation, Contract# 5100004ST (Martin) 07/06-06/09

The genetics of smoking and nicotine dependence

This research grant is from the Tobacco settlement foundation of Virginia Commonwealth, and we proposed to conduct genetic studies to identify susceptibility genes to tobacco smoking and nicotine dependence.

R01MH41953 (Kendler) 4/1/99-2/28/09

NIMH

The Genetic Epidemiology of Schizophrenia in Ireland

This is a competitive renewal that seeks support to critically extend the Irish Study of High Density Schizophrenia Families by collecting 500 proband-parent triads for family-based association studies.