

Curriculum Vitae

Name: Zhengchang Su,

Institution: Institute of Bioinformatics and Department of Biochemistry and Molecular Biology,
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Education:

September 1995 – July 2000: **Ph.D.**, Department of Physiology and Biophysics, University of Alabama at Birmingham.

September 1998-December 2001: **MS**, Department of Computer and Information Sciences, University of Alabama at Birmingham.

September 1987 - July 1990: **MS**, Neuroscience Program, Department of Animal Physiology, Jilin University (formerly Changchung Veterinary School), China.

September 1980 - July 1984: **BS**, Yunnan Agricultural University. Major: Animal sciences.

Academic Appointments:

August, 2004-present: **Research assistant professor and group leader**, Institute of Bioinformatics and Department of Biochemistry and Molecular Biology, University of Georgia in Athens.

December 2002 –July 2004: **Postdoctoral fellow**, Computational Biology Institute, Oak Ridge National Laboratories and Department of Biochemistry and Molecular Biology, University of Georgia

May 2002 – November 2002: **Postdoctoral fellow**, Department of Biochemistry and Molecular Genetics, University of Alabama at Birmingham.

July 2000 – April 2002: **Postdoctoral fellow**, Department of Physiology of Biophysics, University of Alabama at Birmingham.

November 1994 - August 1995: **Visiting scholar**, Department of Physiology of Biophysics, University of Alabama at Birmingham.

August 1990-November 1994: **Instructor**, Department of Animal Physiology, Yunnan Agricultural University.

August 1984 - August 1987: **Technician**, Department of Animal Sciences of Dali, Yunnan, China.

Teaching:

Fall 2005: Computational methods in bioinformatics (co-teaching), Department of Biochemistry and Molecular Biology, the University of Georgia in Athens.

Fall 2004: Computational methods in bioinformatics (co-teaching), Department of Biochemistry and Molecular Biology, the University of Georgia in Athens.

2004 - : supervisor of graduate student George Wu

1993-1994: Mentor of two undergraduate students' research projects.

Fall 1990 - 1994: Instructor of Animal Physiology course, Department of Veterinary Medicine, Yunnan Agricultural University.

Peer Reviewer for Journals and Conferences:

- Bioinformatics
- Journal of Computational Biology and Bioinformatics
- 2003 IEEE Computational Systems Bioinformatics Conference, 2003, Stanford, CA.
- 2005 IEEE Computational Systems Bioinformatics Conference, 2003, Stanford, CA.
- 14th International Workshop on Genome informatics, 2004, Japan
- 15th International Workshop on Genome informatics, 2005, Japan

Areas of Research Interest

- **November 2002-present:** Comparative genomics analysis; computational inference of signal transduction pathways in bacterial and eukaryotic cells using high throughput data, such as genomic sequences, microarray gene expression data, and yeast two-hybrid data.
- **May 2002-November 2002:** Computational modeling of the structure and functions of the human high density lipoproteins.
- **November 1995-April 2002:** Functions and regulations of ion channels in human and rat lymphocytes and neurons.
- **1990-1995:** Regulation of immune responses by the central nervous system and endocrine system using whole animal models.

Expertise:

Bioinformatics:

- Algorithms in computational biology
- Statistical methods for solving bioinformatics problems
- Comparative genomics analysis
- Computational regulatory pathway inference and modeling
- Protein structure prediction using threading and homology modeling techniques
- Molecular dynamics simulation on protein-membrane complexes.

Computer Programming:

- Programming in C/C++, Java, Perl, SQL, and XML on Windows and Unix/Linux Systems
- Parallel programming using MPI and PVM.

Experimental expertise:

- Patch clamp/voltage clamp recordings on isolated cells or brain slices.
- Cell/neuron/tissue culture
- Molecular biology techniques
- Whole animal physiology

Publication:

Meeting Abstracts:

1. **Zhengchang Su**, Victor Oman, Felglou Mao and Ying Xu. Prediction of cis-regulatory binding site with high accuracy. **Annual Meeting of International Society of Computational Biology**, 2005, Detroit, MI.
2. **Zhenchang Su**, Phuongan Dam, Xin Chen, Victor Olman, Tao Jiang, Brian Plaenik and Ying Xu. Computational reconstruction of nitrogen assimilation pathway in Cyanobacterium *Synechococcus* sp. WH8102. **Proceeding of 2004 IEEE Computational Systems Bioinformatics Conference**, 2004, p 640-41, Stanford, CA.
3. **Zhenchang Su**, Phuongan Dam, Xin Chen, Victor Olman, Tao Jiang, Brian Plaenik and Ying Xu. Computational inference of regulatory pathway in microbes. **Proceeding of 2003 IEEE Computational Systems Bioinformatics Conference**, 2003, p 631, Stanford, CA.
4. **Zhenchang Su**, Phuongan Dam, Victor Olman, and Ying Xu. Prediction of protein-protein interactions in *Synechococcus* sp. WH 8102. **Fourth International Conference of Bioinformatics**, Atlanta, GA, 2003.
5. M. K. Manion, **Z. C. Su**, M. Villian, and J. E. Blalock. A new type of Ca²⁺ channel blocker that prevents apoptosis. **FASEB Journal**, 1999. Abstract 106.9.
6. **Z.C. Su**, R.L Sheomaker R. B. Marchase and J.E. Blalock. Ca²⁺ release activated Ca²⁺ channels are activated by removal of a inhibitory factor(s). **FASEB Journal**, 1999. Abstract 916.8.
7. M. Villian, **Z. C. Su**, M. K. Manion, and J. E. Blalock. Ca regulation by novel EF hand-binding peptide. **FASEB Journal**, 1996. Abstract 2272.
8. M. K. Manion, **Z. C. Su**, M. Villian, and J. E. Blalock. A novel peptide which binds EF hand motif and inhibits A Ca²⁺ channel involved in HIV gp120-mediated apoptosis. **FASEB Journal**, 1996. Abstract 1842.

9. **Z. C. Su** Y. W. Miao, M. K. Wang, L. X. Zheng X, Y, Qin and D. Y. Zheng. Interleukin-2 acts within the brain to induce fever and stimulate ACTC release by an indirect way in free-moving rats. **FASEB Journal**, 1995.
10. **Z. C. Su** Y.W. Miao, W. Z. M. K. Wang, L. X. Zheng X, Y, Qin and D. Y. Zheng. Fever and ACTH release induced by central injection of IL-1b are mediated by Prostaglandin and M-cholinergic and α -adrenergic receptors but not by Opioid and β -adrenergic receptors. **Third Congress of Federation of Asian and Oceanian Physiological Societies, S19-7(o)**, Shanghai, China. 1994.
11. **Z. C. Su** Y.W. Miao, W. Z. M. K. Wang, L. X. Zheng X, Y, Qin and D. Y. Zheng. Central administration of recombinant Rat g-interferon elicits Adrenocorticotropin release in free-moving rats: Involvement of Opioid and α -adrenergic receptors. **Novel Facts in Neuroendocrinology, Satellite Symposium of the Third congress of FAOPS: 28-29: Xi'an, China. 1994.**

Full Papers:

1. **Zhengchang Su**, Victor Olman and Ying Xu. Genome scale *cis*-regulatory binding site predictions in prokaryotes. **In preparation.**
2. **Zhengchang Su**, Victor Olman and Ying Xu. Co-evolution of a transcription factor and its *cis*-regulatory binding sites: a lesson learned from the *phoB* and its binding sites in bacteria. **In preparation**
3. **Zhenchang Su**, Phuongan Dam, Xin Chen, Victor Olman, Tao Jiang, Brian Plaenik and Ying Xu. Computational inference and experimental validation of nitrogen assimilation regulatory network in cyanobacterium *Synechococcus sp.* WH8102. **Nucleic Acids Research, (submitted).**
4. Andrea Catte, James Patterson; Gilbert Weinstein; **Zhengchang Su**; Ling Li; Jianguo Chen; Martin Jones; Marcela Aliste; Stephen Harvey; Jere Segrest. Novel Minimal Surface Conformations of Nascent High Density Lipoproteins through Molecular Dynamics. **Biophysical Journal, (submitted)**
5. H. Wu, F. Mao, **Z. Su**, V Olman, Ying Xu, Prediction of functional modules based on gene distributions in microbial genomes, **Genome Informatics**, 2005, **(in press)**.
6. Fenglou Mao, **Zhengchang Su**, Victor Olman, Phuongan Dam, Zhijie Liu, Ying Xu. Mapping of Orthologous Genes in the Context of Biological Pathways: an Application of Integer Programming. **Proceedings of National Academy of Sciences U S A (in press).**
7. **Zhengchang Su**, Xiaochuan Guo, Richard L. Shoemaker, Richard B. Marchase, and J. Edwin Blalock. A Store-operated Nonselective Cation Channel in Human Lymphocytes. **Cellular and Molecular Neurobiology**, 2005, 25(3-4):625-47.
8. Hongwei Wu, **Zhengchang Su**, Victor Olman and Ying Xu. Prediction of functional gene modules based on comparative genome analysis and gene otology application, **Nucleic Acids Research**, 2005, 18; 33(9):2822-37.
9. Jinling Huang, **Zhengchang Su** and Ying Xu, The evolution of Microbial phosphonate Degradation Pathways. 2005, **Journal of Molecular Evolution**, 2005, 61:1-11.
10. **Zhengchang Su**, Victor Olman, Fenglou Mao, and Ying Xu. Comparative genomics analysis of NtcA regulons in cyanobacteria: regulation of nitrogen assimilation and its coupling to photosynthesis. **Nucleic Acids Research**, 2005, 33(16): 5156-5171.
11. Xin Chen, **Zhengchang Su**, Ying Xu, Tao Jiang. Computational prediction of operons in *Synechococcus sp.* WH8102. **Genome Informatics** 2004, 15(2):211-222.
12. Phuongan Dam and **Zhengchang Su** and Victor Olman Ying Xu. In silico reconstruction of the carbon fixation pathway in *Synechococcus sp.* WH8102. **Journal of Biological Systems**, 2004 12:97-125.

13. X. Chen, **Z. Su**, P. Dam, B. Palenik, Y. Xu and T. Jiang. Operon prediction by comparative genomics. **Nucleic Acid Research**, 2004, 19; 32(7):2147-57.
14. Victor Olman, Hanchun Peng, **Zhengchang Su**, Ying Xu. Mapping of Microbial Pathways through Constrained Mapping of Orthologous Genes. **Proceedings of IEEE Computational Systems Biology Conference**, 2004, p363-370.
15. **Zhengchang Su**, Richard L. Shoemaker Richard B. Marchase and J. Edwin Blalock. Ca^{2+} dependent inactivation of monovalent cation current through Ca^{2+} release activated Ca channels. **Biophysical Journal**, 2004 Feb;86(2):805-14.
16. **Zhenchang Su** , Phuongan Dam, Xin Chen Vicor Olman, Tao Jiang, Brian Plaenik and Ying Xu. Computational inference of regulatory pathway in microbes. An application to phosphorus assimilation pathway. **Genome Informatics**, 2003, 14:1-10.
17. **Zhengchang Su**, Douglas S. Barker, Peter Csutora, Theresa Chang, Richard L. Shoemaker, Richard B. Marchase and J. Edwin Blalock. Regulation of Ca^{2+} release activated Ca^{2+} channel by INAD and Calcium influx factors. **American Journal Physiology**, 2003 Feb; 284(2):C497-505.
18. **Zhengchang Su**, Peter Csutora, Dacia Hunton, Richard L. Shoemaker, Richard B. Marchase, and J. Edwin Blalock A Store-operated Non-selective Cation Channel in Lymphocytes is Activated Directly by Ca^{2+} Influx Factor (CIF) and Diacylglycerol. **American Journal of Physiology**, 2001 MAY;280(5):C1284-92.
19. Villain M, Jackson PL, Manion MK, Dong WJ, **Su Z**, Fassina G, Johnson TM, Sakai TT, Krishna NR, Blalock JE. De novo design of peptides targeted to the EF hands of calmodulin. **Journal of Biological Chemistry**, 2000 Jan 28;275(4):2676-85.
20. Manion MK, **Su Z**, Villain M, Blalock JE. A new type of $Ca(2+)$ channel blocker that targets $Ca(2+)$ sensors and prevents $Ca(2+)$ -mediated apoptosis. **FASEB Journal**, 2000 Jul;14(10):1297-306.
21. Csutora P, **Su Z**, Kim HY, Bugrim A, Cunningham KW, Nuccitelli R, Keizer JE, Hanley MR, Blalock JE, Marchase RB. Calcium influx factor is synthesized by yeast and mammalian cells depleted of organellar calcium stores. **Proceedings of National Academy of Sciences U S A**, 1999 Jan 5;96(1):121-6.
22. **Z. C. Su**, D. Y. Zheng and R. Q. Zhang. Effects of the products of immune response on the functions of the nervous and endocrine systems. **Progress in Physiological Sciences**, 1992, 23: 327-331.
23. **Z. C. Su** and Y. S. Zhang. The role of nucleus ambiguus in modulation of cellular immunity of periaqueductal gray (PAG) in rabbits. **Journal of Immunology**, 1992, 8:18-22.

Patents:

1. Richard B. Marchase, Peter Csutora, J. Edwin Blalock, **Zhengchang Su**, and Dacia Hunton. Production of Calcium influx factor from *pmr1* yeast mutant. .
2. J. Edwin Blalock and **Zhengchang Su**. An electrical noise-free recording chamber.

Grants:

- 1991-1994: The mechanisms of the effects of immune response products on the neuroendocrine system. National Natural Sciences Foundation of China.
- 1992-1994: The action of cytokines on the central nervous system. Education Committee of Yunnan Province.
- 1991-1994: The action of interferon on the neuroendocrine system. Department of Science and Technology of Yunnan Province, China.
- 1994-1995: C. C. Wu Culture and Education Foundation, Hong Kong, China.

Scientific Memberships:

- American Association for the Advancement of Science
- The American Physiological Society
- International Society of Computational Biology

Scientific Talks:

1. October, 2005: Northwest Pacific National Laboratories.
2. September, 2005: Department of Biochemistry of Molecular Biology, University of Georgia.
3. September, 2004: Computational Biology Institute, Oak Ridge National Laboratories.
4. December, 2004: Department of Biochemistry of Molecular Biology, University of Georgia.
5. August, 2004: Stanford University. CSB 2004 Bioinformatics Conference.
6. May, 2004: Georgia State University. The second symposium of southeast consortium of computational biology.
7. December 2002, Institute of Computational Biology, Oak Ridge National Laboratories.
8. July, 2000: Department of Physiology and Biophysics, The University of Alabama at Birmingham
9. September, 1994: Third Congress of Federation of Asian and Oceanian Physiological Societies, Shanghai, China.
10. September, 1994: Novel Facts in Neuroendocrinology, Satellite Symposium of the Third Conference of FAOPS: 28-29: Xi'an, China. 1994

Awards:

2004: Best Paper Award of the 15th International Conference on Genomics Informatics, Pacifico Yokohama, Japan.

1994: Excellent Youth Teaching Award, Yunnan Agricultural University.

1984: First place: Undergraduate Mathematics Competition, Yunnan Agricultural University

1978: First place, High School Mathematics Competition, Jianchun County, Yunnan Province.

1979: Second place, High School Chemistry Competition, Jianchun County, Yunnan Province.

1980: First Place, High School Physics Competition, Jianchun County, Yunnan Province.

References:

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Dr. Stephen C. Harvey, Professor, School of Biology, Georgia Institute of Technology. Email: steve.harvey@biology.gatech.edu Phone: 404-385-4498. Fax: 404-894-0519.

Dr. Ying Xu, Professor, Department of Biochemistry and Molecular Biology, and Director, Institute of Bioinformatics, University of Georgia; Institute of Computational Biology, Oak Ridge National Laboratories. email: xyn@bmb.uga.edu. Phone: 706-542-9779/9747; Fax: 706-542-9751

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