CURRICULUM VITAE

YIXIN SHI

CONTACT INFORMATION

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EDUCATION

1979-1984	B. S., Biochemistry, Jilin University, China
1986-1989	M. S., Plant Virology, Inner Mongolia University, China Mentor: Heling Zhang
1996-2000	Ph.D., Molecular Genetics of Bacteria, Kyushu University, Japan Mentor: Hiroaki Nakayama
2000-2005	Postdoctoral Fellow, Washington University, St. Louis, Advisor: Eduardo Groisman

AREAS OF SPECIALIZATION

Genetic analysis of Gram-negative bacteria: Mg^{2+}-dependent gene regulation in the pathogenic bacterium *Salmonella typhimurium*; biochemical approaches to mechanisms of bacterial resistance to antimicrobial peptides and modification of lipopolysaccharide.

Biosensors: surface plasmon resonance (SPR) based technology. Biacore application in the protein-protein and DNA-protein interactions.

POSITIONS HELD

1984-1986:	Research Assistant, Suzhou Medical College, China
1987-1988:	Visiting Researcher, Institute of Biochemistry, Academia Sinica.
1989-1990:	Teaching Assistant, Inner Mongolia, China.
1990-1996:	Lecturer, Inner Mongolia University, China.
2005 Nov.-present:	Assistant Professor, School of Life Sciences and Center for Infectious Diseases and Vaccinology, The Biodesign Institute, ASU.

TEACHING ACTIVITIES IN ASU

Courses

2006-2007	Fall/Spring	Enrollment
MIC 360	Bacterial Physiology	31

MIC 441	Bacterial Genetics	18

2007-2008	Fall/Spring	Enrollment
MCB 591	Gene Regulation of Pathogenic Bacteria	4
MIC441	Bacterial Genetics	35

Seminar		
Jan. 30, 2006	guest speaker	MCB Seminar
Oct. 22, 2007	guest speaker	MCB Seminar
Feb. 08, 2008	guest speaker	MCB 556

PREVIOUS TEACHING EXPERIENCE

Undergraduate Instructor
Biochemical Analysis of Thrombosis and Hemostasis - Suzhou Medical College (credit hours: 2) (50%)
Biochemistry Lab - Inner Mongolia University (credit hours: 3) (33%)
General Biochemistry - Inner Mongolia University (credit hour: 6) (100%)

Graduate Instructor
Seminar in Advanced Biochemistry - Inner Mongolia University (Credit hours: 4) (50%)

HONORS AND AWARDS

1993	Award - Guanhua Outstanding Teacher
1994	Award - Inner Mongolia University Outstanding Lecturer
1996-2000	Ph.D. Scholarship - Ministry of Education, Science, Sports & Culture of Japan

MEMBERSHIPS IN SCIENTIFIC SOCIETY

American Society for Microbiology

PROFESSIONAL MEETINGS AND CONFERENCES (LAST 4 YEARS)

2004 Gordon Research Conferences, Bacterial Cell Surfaces, New London, NH
2005 The 105th General Meeting for American Society for Microbiology, Atlanta GA

ORAL PRESENTATIONS (LAST 4 YEARS)

2005 Seminar Speaker - Department of Molecular Microbiology, Washington University School of Medicine, "A riboswitch senses intracellular Mg^{2+} levels in S*almonella*"
2006 Seminar Speaker - School of Life Sciences, Arizona State University, "SlyA-mediated gene regulation in *Salmonella typhimurium*"

2007 Speaker, Research Group on Infectious Diseases, ASU "Gene regulation in *Salmonella typhimurium* mediated by SlyA".
2007 Speaker, Pfizer Discussion Meeting, ASU "Molecular Regulation of Gene Regulation in *Salmonella*".
2007 Seminar Speaker, Molecular and Cellular Biosciences Colloquium, School of Life Sceinces, ASU, "Fine-tuning of Bacterial Two-component Systems by a Transcriptional Regulator."

MENTORING

Mentoring Undergraduate Students

Student	**Year**	**Period**
Brandon Testa	Senior	Jan. 2006-May 2006
Leigh Northridge	Senior	Aug. 2006-Jul. 2007
Qing Liu		Jan. 2007-Dec. 2007
Anca Mateut Delgado	Senior	Aug. 2007-present
Nobuko Fukushima	Senior	Jan. 2008-present

Postdoctoral Fellows

Guang Zhao	Sep. 2007-present

GRADUATE STUDENT DISSERTATION COMMITTEES

Student	**Supervisor**
Henri Gerken	Rajeev Misra
Robin Treuer	Rajeev Misra

Chairman of Comprehensive Exams for Graduate Student

Henri Gerkin (PhD)	Rajeev Misra	Dec. 14, 2007

FACULTY SERVICE

Representative of Graduate Program Committee in SoLS.
"Ask a Biologist" in Arizona State University.

GRANT APPLICATION

1. Shared Instrumentation Grant (SIG), a NIH grant for a Biacore Surface Plasmon Resonance instrument in ASU. Co-PI (funded on Mar. 1st, 2007, Grant # 1S10RR23652-01).
2. "Dissection of SlyA regulatory network". PI: Yixin Shi. Requested: $825,000 for 4 years (submitted Mar. 2007; declined), I plan to resubmit a revised version March, 2008).

3. “Riboswitches sense Mg^{2+} and other metal divalent ions”. PI: Yixin Shi. Requested: $625,000 for 4 years (submitted June, 2006; declined), I plan to submit a new version on June, 2008).

PUBLICATIONS

A. PEER-REVIEWED RESEARCH PAPERS:

1. Hasi Agu-la, Yixin Shi and Heling Zhang. 1992. The Molecular cloning and nucleotide sequence analysis of potato leaf-roll virus coat protein gene. VIROLOGICA Chinese 7:432-435.

2. Yixin Shi, Dinath B. Ratnayake, Kuniaki Okamoto, Naoko Abe, Kenji Yamamoto, and Koji Nakayama. 1999. Genetic analyses of proteolysis, hemoglobin binding, and hemagglutination of *Porphyromonas gingivalis*. Construction of mutants with a combination of *rgpA, rgpB, kgp,* and *hagA.* The Journal of Biological Chemistry 274:17955-17960.

3. Dinath B. Ratnayake, Sun Nyunt Wai, Yixin Shi, Kazunobu Amako, Hiroaki Nakayama, and Koji Nakayama. 2000. Ferritin from the obligate anaerobe *Porphyromonas gingivalis*: purification, gene cloning and mutant studies. Microbiology 146:1119-1127.12.

4. Yixin Shi, Wei Kong, and Koji Nakayama. 2000. Human lactoferrin binds and removes the hemoglobin receptor protein of the periodontopathogen *Porphyromonas gingivalis*. The Journal of Biological Chemistry 275:30002-30008.

5. Wei Kong, Susumu Shiota, Yixin Shi, Hiroaki Nakayama, and Koji Nakayama. 2000. A novel peroxiredoxin of the plant *Sedum lineare* is a homologue of *Escherichia coli* bacterioferritin co-migratory protein (Bcp). Biochemical Journal 351:107-114.

6. Mikio Shoji, Dinath B. Ratnayake, Yixin Shi, Tomoko Kadowaki, Kenji Yamamoto, Fuminobu Yoshimura, Akifumi Akamine, Michael A. Curtis, and Koji Nakayama. 2002. Construction and characterization of a nonpigmented mutant of *Porphyromonas gingivalis*: cell surface polysaccharide as an anchorage for gingipains. Microbiology 148:1183-1191

7. Fong-Fu Hsu, John Turk, Yixin Shi, and Eduardo A. Groisman. 2004. Characterization of acylphosphatidylglycerols from *Salmonella typhimurium* by tandem mass spectrometry with electrospray ionization. Journal of the American Society for Mass Spectrometry 15:1-11.

8. Yixin Shi, Tammy Latifi, Michael J. Cromie, and Eduardo A. Groisman. 2004. Transcriptional control of the antimicrobial peptide resistance *ugtL* gene by the *salmonella* PhoP and SlyA regulatory proteins. The Journal of Biological Chemistry 279:38618-38625.

9. Yixin Shi, Michael J. Cromie, Fong-Fu Hsu, John Turk and Eduardo A. Groisman. 2004. PhoP-regulated *Salmonella* resistance to the antimicrobial peptides magainin 2 and polymyxin B. Molecular Microbiology. 53:229-241.

10. Fong-Fu Hsu, John Turk, Elizabeth R. Rhoades, David G. Russell, Yixin Shi, and Eduardo A. Groisman. 2005. Structural Characterization of Cardiolipin by Tandem Quadrupole and Multiple-stage Quadrupole Ion-Trap Mass Spectrometry with Electrospray Ionization. Journal of the American Society for Mass Spectrometry 16:491-504.

11. Mariko Naito, Eiko Sakai, Yixin Shi, Hiroshi Ideguchi, Mikio Shoji, Naoya Ohara, Kenji Yamamoto and Koji Nakayama. 2006. *Porphyromonas gingivalis*-induced platelet aggregation in plasma depends on Hgp44 adhesin but not Rgp proteinase. Molecular Microbiology 59:152-67.

12. Michael J. Cromie, Yixin Shi (the first author), Tammy Latifi, and Eduardo A. Groisman. 2006. An RNA sensor for intracellular Mg^{2+}. Cell 125:71-84.

13. Wei Kong, Natasha Weatherspoon, and Yixin Shi. 2008. Molecular Mechanism for Establishment of Signal-dependent Regulation in the PhoP/PhoQ System. The Journal of Biological Chemistry 283:16612-16621

B. MANUSCRIPTS

Haowei Song, Wei Kong, William Tyler, Guozheng Qin, Natasha Weatherspoon, John Turk, Roy Curtiss III and Yixin Shi. 2008. Fine-tuning of Bacterial Two-component Regulatory Systems by SlyA. Original research submitted for peer-review to the Journal of Biological Chemistry.

REVIEW PAPERS

1. Tomoko Kadowaki, Koji Nakayama, Kuniaki Okamoto, Naoko Abe, Atsuyo Baba, Yixin Shi, Dinath B. Ratnayake, and Kenji Yamamoto. 2000. *Porphyromonas gingivalis* proteinases as virulence determinants in progression of periodontal diseases. Journal of Biochemistry (Tokyo) 128:153-159.

C. POSTER ABSTRACTS

1. Yixin Shi, Wei Kong, and Yongqi Lin. 1984. The function of Mo-Fe-Co in Nitrogenase. Beijing Biotechnology Conference, Beijing

2. Yixin Shi and Koji Nakayama. 1999. The Assay of real-time binding of host iron-containing proteins to hemoglobin receptor of the periodontopathogen *Porphyromonas gingivalis*. The 71st General Meeting for the Japanese Society for Bacteriology, Tokyo

3. Yixin Shi and Eduardo A. Groisman. 2003. The PhoP-dependent resistance to antimicrobial peptide magainin 2 in *Salmonella*. The 103rd General Meeting of the American Society for Microbiology, Washington DC

4. Yixin Shi, Michael J. Cromie, and Eduardo A. Groisman. 2005. Activating extracytoplasmic stress responses confers *Salmonella* resistance to antimicrobial peptides. The 105th General Meeting of the American Society for Microbiology, Atlanta GA