CURRICULUM VITAE

For Assessment of Journals, please see the Primary Committee letter in Section 02.

Please note that the current P&T Guidelines state that the journal rankings must be in the CV section and NOT in one of the letters.

CURRICULUM VITAE

NAME: Bae (Last) Taeok (First) (Initial)

EDUCATION

UNDERGRADUATE:	Seoul National University, S. Korea.	B. S.	1988
GRADUATE:	University of Minnesota, MN (Mentor: Dr. Gary M. Dunny)	Ph.D.	2001
POST DOCTORAL:	The University of Chicago, IL Department of Microbiology (Mentor: Dr. Olaf Schneewind)		2001-2006

INDUSTRY EXPERIENCE

1988 – 1995 Research Scientist (1988 – 1993), Senior Scientist (1994 – 1995)
LG Chemical Ltd / Research Park, Science Town, Daejeon, S. Korea

ACADEMIC APPOINTMENTS

04/01/2006 – Present Assistant Professor
Department of Microbiology and Immunology, Indiana University School of Medicine –Northwest (IUSM-NW), Gary, IN.

PROFESSIONAL ORGANIZATIONS

Member, American Society for Microbiology
Member, Korean-American Scientists and Engineers Association

HONORS AND AWARDS

1997	Dennis W. Watson Fellowship
2010	Outstanding Basic Science Professor at Indiana University School of Medicine-Northwest, presented by the by Medical Class of 2010
2011	Hooder for Indiana University School of Medicine Class of 2011

TEACHING ASSIGNMENTS

P650 Invasion and Defense (Microbiology, Immunology and General Pathology for 2nd year medical students, 11 credit hour course), 18 -24 medical students

Lecture- 10 hr (2006), 18 hr (2007), 22 hr (2008), 20 hr (2009), 20 hr (2010)
Problem Based Learning Session- 60 hr (2006), 60 hr (2007), 54 hr (2008), 56 hr (2009), 56 hr (2010)
Review Session- 4 hr (2007), 4 hr (2008), 4 hr (2009), 4 hr (2010)
Testing- 4 hr (2006), 4 hr (2007), 4 hr (2008), 9 hr (2009), 13 hr (2010)

P645 Medication and Disease (Pharmacology for 1st year medical students), 18 - 24 medical students
Lecture- 1 hr (2008), 2 hr (2009), 2 hr (2010)

RESEARCH TRAINING

Mentor and research supervision for postdoctoral fellows:

Dr. Do-won Jeong 2010 - present
Dr. Hoonsik Cho 2010 - present

Mentored and trained undergraduate students during the Indiana University School of Medicine-Northwest summer research intern program:

2 students (2007): Sara Farooq, Thanzeela K. Mohideen
3 students (2008): Sara Farooq, Thanzeela K. Mohideen, Islam Baghdady
2 students (2009): Melinda C. Fried, Joshua Garza
1 student (2010): Christopher Goyne
2 students (2011): Meagan King, Tarek Ajam

Host visiting scholars

Dr. Seungbum Kim 2010 - 2011

PROFESSIONAL SERVICE

2010 Member of Editorial Board for Journal of Bacteriology and Parasitology
2010 Vice President for Korean Scientist and Engineer Association-Midwest

Grant review committee

2011 Reviewer, F13 Infectious disease and Microbiology Fellowship Review Panel (NIH)

Ad hoc Journal manuscript reviewer

PNAS
Microbiology
Biochemistry
Antonie van Leeuwenhoek
PloS One
BMC Microbiology

Invited graduate (Ph.D) committee

2010 Chosun Medical University, S. Korea,

Collaborations with other scientists

Dr. Olaf Schneewind, Department of Microbiology, the University of Chicago. Research collaboration on 1) the role of PVL phages on staphylococcal virulence and 2) protein localization on the cell surface in *Staphylococcus aureus.*

Dr. Alexander Mankin, Center for Pharmaceutical Biotechnology, University of Illinois at Chicago. Research collaboration on rRNA methylation in *Staphylococcus aureus.*

Dr. Chuan He, Department of Chemistry, the University of Chicago. Research collaboration on the global gene regulator *mgrA*, *saeRS* and *yhcRS* systems in *Staphylococcus aureus.*

Dr. Hyunwoo Lee, Center for Pharmaceutical Biotechnology, University of Illinois at Chicago. Research collaboration on "Genome-wide screens for *Staphylococcus aureus* virulence genes using functional genomics technology"

Dr. Scott Peterson, J. Craig Venter Institute. Research collaboration on "The role of prophages in virulence of *S. aureus*."

Dr. Seungbum Kim, Department of Microbiology. Chung Nam University, S. Korea, Research collaboration on "Identification of novel antimicrobials from acidophilic soil bacteria".

Dr. Elena A. Rozhkova, Argonne National Laboratory. Research collaboration on "Application of nanoparticle technology to the development of antibacterial agents".

Dr. Qizhuang Ye Department of Biochemistry and Molecular Biology, Indiana University. Research collaboration on "Antibacterial methionine aminopeptidase inhibitors".

UNIVERSITY SERVICE

IUSM-Northwest Institutional Animal Care and Use Committee (2007 - present)
- Biannual inspection of animal facility and report to chairperson
- Review animal protocols

IUSM-Northwest Radiation Safety Committee (2007 - present)

COMMUNITY SERVICE

Judge for Whitney H. Young High School Science Fair (2008)

OTHER PROFESSIONAL ACTIVITIES

- **INVITED PRESENTATIONS**

Local, State, and Regional

Center for Pharmaceutical Biotechnology, University of Illinois at Chicago, July 13th, 2006. "Construction of a transposon mutant library and study of prophages as virulence factors in *Staphylococcus aureus*"

Department of Microbiology and Immunology, Indiana University, Indianapolis. Mar. 8th, 2007 "Staphylococcal prophages: Enemy's friends or enemy's enemies?"

Midwest Monthly Microbiology Seminar, Loyola University, Chicago. Mar. 2nd, 2010 "Identification of the DNA binding site of SaeR, the response regulator of *sae*, a virulence two component system of *Staphylococcus aureus*"

Midwest Monthly Microbiology Seminar, Loyola University, Chicago. Nov. 9th, 2010 "Characterization of the molecular mechanism of *sae*, a virulence two component system of *Staphylococcus aureus*"

National and International

Department of Microbiology, Chung Nam University, S. Korea, June 25th, 2008 "Prophage-mediated global gene expression alteration in Staphylococcus aureus"

Department of Microbiology, Chosun University, S. Korea, June 25th, 2010 "Staphylococcal two component system: A path to drug discovery?"

Park City Conference on Microbial physiology and pathogenesis, Utah, March 18th, 2011 "Mechanism of transcription activation by SaeR, the response regulator of the SaeRS two component system in *Staphylococcus aureus*"

GRANTS AND FELLOWSHIPS

Current Grant Support

NIH RO1 Grant (AI077564) $1,529,200 7/2009 – 6/2014
Prophage contribution to the virulence of *Staphylococcus aureus*.
Role: Principal Investigator (30% effort)
The goal of this project is to identify the role of ϕNM3 phage in staphylococcal virulence

American Heart Association National Scientist Development Grant $308,000 7/2008-6/2012
Prophage contribution to the virulence of *Staphylococcus aureus.*
Role: Principal Investigator (10% effort)
The goal of this project is to identify the role of PVL (Panton Valentine Leukocidin) phages in staphylococcal virulence

NIH RO1 Grant (AI73290) $1,510,000 7/2008 – 6/2012
Mechanism of antimicrobial activity of peptidoglycan recognition proteins.
Role: Co-investigator (5% effort, 14% intellectual credit, PI: Dr. Roman Dziarski)

Previous Grant Support

Indiana University, Research Enhancement Grant $40,000 11/2006-10/2007

Identification and characterization of staphylococcal genes involved in resistance to human PGRP-3 and 4.
Role: Principal Investigator.

PRINT AND ELECTRONIC PUBLICATIONS

I. Teaching

Case writing for Problem-Based Learning

1. **Bae, T**. "Sara Goodwin's Back Pain" (2007)
   This case was adapted from an article by Risson DC et al. *A fatal case of necrotizing pneumonia due to community-associated methicillin-resistant Staphylococcus aureus (MRSA). Medical Journal of Australia, 2007,* 186 (9): 479-480. By using the article and additional clinical images acquired from the authors, I wrote a clinical case about MRSA infection and its progression. This case is currently being used in the course "P650 Invasion and Defense" at IUSM-NW.

II. Research

Peer Reviewed Research Articles since 04/2006
(The articles with underlined authors were published by my lab)

1. Chen PR, **Bae T**, Williams WA, Duguid EM, Rice PA, Schneewind O, He C. An oxidation-sensing mechanism is used by the global regulator MrgA in *Staphylococcus aureus*. *Nat. Chem. Biol.* 2006; 2: 591-595, PMID: 16980961
2. Stranger-Jones YK, **Bae T,** Schneewind O. Vaccine assembly from surface proteins of *Staphylococcus aureus. Proc. Natl. Acad. Sci.* 2006; 103: 16942-16947, PMID: 17075065
3. **Bae T**, Baba T, Hiramatsu K, Schneewind O, Prophages of *Staphylococcus aureus* Newman and their contribution to virulence. *Mol. Microbiol.* 2006; 62: 1035-1047, PMID: 17075065
4. Wardenburg JB, **Bae T**, Otto M, DeLeo FR, Schneewind O. Poring over pores: alpha-hemolysin and Panton-Valentine leukocidin in *Staphylococcus aureus* pneumonia. *Nat. Med.* 2007; 13: 1405 – 1406, PMID: 18064027
5. Toh SM, Xiong L, **Bae T**, Mankin AS. The methyltransferase YfgB/RlmN is responsible for modification of adenosine 2503 in 23S rRNA. *RNA*. 2008; 14: 98 – 106, PMID: 18025251
6. Dedent A, **Bae T,** Missiakas DM, Schneewind O. Signal peptides direct surface proteins to two distinct envelope locations of *Staphylococcus aureus*. *EMBO J.* 2008; 17(20): 2656 – 2668, PMID: 18800056
7. Chen PR, Nishida S, Poor CB, Cheng A, **Bae T**, Kuechenmeister L, Dunman PM, Missiakas D, He C. A new oxidative sensing and regulation pathway mediated by the MgrA homologue SarZ in *Staphylococcus aureus. Mol Microbiol.* 2009; 71(1): 198-211, PMID: 19007410
8. Sun F, Li, C, Jeong D, Sohn C, He C, **Bae T.** In the *Staphylococcus aureus* two-component system *sae*, the response regulator SaeR binds to a direct repeat sequence and DNA binding requires phosphorylation by the sensor kinase SaeS. *J. Bacteriol.* 2010; 192(8): 2111-27, PMID: 20172998
9. Li C, Sun F, Cho H, Yelavarthi V, Sohn C, He C, Schneewind O, **Bae T**. CcpA mediates proline auxotrophy and is required for the pathogenesis of *Staphylococcus aureus* infections. *J Bacteriol.* 2010; 192(15): 3883-3892, PMID: 20525824
10. Cheng AG, McAdow M, Kim HK, **Bae T**, Missiakas DM, Schneewind O. Contribution of coagulase towards *Staphylococcus aureus* disease and protective immunity. *PLoS Pathog.* 2010; 6(8). pii: e1001036, PMID: 20700445
11. Sun F, Cho H, Jeong D, Li C, He C, **Bae T**. Areusimines in *Staphylococcus aureus* are not involved in virulence. *PLoS One*, 2010, 5(12):e15703, PMID: 21209955
12. Jeong D, Cho H, Lee H, Li C, Garza J, Fried M, **Bae T**. Identification of P3 promoter and distinct roles of the two promoters of the SaeRS two-component system in *Staphylococcus aureus*. *J Bacteriol.* 2011; in press, PMID: 21764914

Peer Reviewed Research Articles before 04/2006

1. **Bae T**, Chang H, Park SJ. Purification and characterization of recombinant human interferon alpha 2a produced from *Saccharomyces cerevisiae*. *J. Biochem. Mol. Biol.* 1995; 28: 477-483.
2. **Bae T**, Clerc-Bardin S, Dunny GM. Analysis of expression of *prgX*, a key negative regulator of the transfer of the *Enterococcus faecalis* pheromone-inducible plasmid pCF10. *J. Mol. Biol.* 2000; 297: 861-875, PMID: 10736223
3. Bryan EM, **Bae T**, Kleerebezem M, Dunny GM. Improved vectors for nisin controlled expression in Gram-positive bacteria. *Plasmid* 2000; 44: 183-190, PMID: 10964628
4. **Bae T**, Dunny GM. Dominant negative mutants of PrgX: Evidence for a role of PrgX dimerization in negative regulation of pheromone-inducible conjugation. *Mol. Microbiol.* 2001; 39: 1307-1320, PMID: 11251846
5. **Bae T**, Kozlowicz BK, Dunny GM. Two targets in pCF10 DNA for PrgX binding: their role in processing of Qa/PrgX mRNA and in regulation of pheromone inducible conjugation. *J. Mol. Biol.* 2002; 315: 995-1007, PMID: 11827471
6. **Bae T**, Schneewind O. The YSIRK-G/S motif of staphylococcal protein is required for efficient signal peptide processing. *J. Bacteriol.* 2003; 185: 2910-2919, PMID: 12700270
7. **Bae T**, Kozlowicz BK, Dunny GM. Characterization of *cis*-acting *prgQ* mutants: Evidence for two distinct repression mechanisms by Qa RNA and PrgX protein in pheromone-inducible enterococcal plasmid pCF10. *Mol. Microbiol.* 2004; 51: 271-281, PMID: 14651627
8. **Bae T**, Banger AK, Wallace A, Glass EM, Aslund F, Schneewind O, Missiakas DM. *Staphylococcus aureus* virulence genes identified by bursa aurealis mutagenesis and nematode killing. *Proc. Natl. Acad. Sci.* 2004; 101: 12312-12317, PMID: 15304642
9. Kozlowicz BK, **Bae T**, Dunny GM. *Enterococcus faecalis* pheromone-responsive protein PrgX: genetic separation of positive autoregulatory functions from those involved in negative regulation of conjugative plasmid transfer. *Mol. Microbiol.* 2004; 54: 520-532, PMID: 15469521
10. Skaar EP, Humayun M, **Bae T**, DeBord KL, Schneewind O. Iron source preference of *Staphylococcus aureus* infections. *Science* 2004; 305: 1626-1628, PMID: 15361626
11. **Bae T**, Schneewind O. Allelic replacement in *Staphylococcus aureus* with inducible counter-selection. *Plasmid* 2005; 55: 58-63, PMID: 16051359

Review Articles since 04/2006

1. **Bae T**, Glass EM, Schneewind O, Missiakas D. Generating a collection of insertion mutations in the *Staphylococcus aureus* Genome using bursa aurealis. *Methods Mol. Biol.* 2007; 416:103-116, PMID: 18392963

Abstracts/Poster presentations since 04/2006

1. **Bae, T**, Baba T, Hiramatsu K, Schneewind O. Prophages of *Staphylococcus aureus* Newman and their contribution to virulence. Molecular Genetics of Bacteria and Phages Meeting, August 22-26, 2006, Cold Spring Harbor, NY
2. **Bae T**, Li C, Yelavarthi V, Schneewind O. Identification of the Negative Regulatory System Responsible for the Proline Auxotrophy in *Staphylococcus aureus*. Molecular Genetics of Bacteria and Phages Meeting, August 7 – 12, 2007, University of Wisconsin-Madison, WI

3. Li C, Dunman P, **Bae T**. Prophage-Mediated Global Gene Expression Alteration in *Staphylococcus aureus.* Molecular Genetics of Bacteria and Phages Meeting, August 20-24, 2008, Cold Spring Harbor, NY
4. Jeong D, Cho H, Li C, and **Bae T**. Distinct roles of the P1 and P3 promoters in signaling of the *saeRS* two component system in *Staphylococcus aureus*. American Society for Microbiology 2011, May 21 – 24, 2011, New Orleans, LA
5. Cho H, Jeong D, Li C, and **Bae T**. Molecular mechanism of SaeR-mediated transcription activation at the P1 promoter of *saePQRS* operon encoding the virulence two component system in *Staphylococcus aureus.* Molecular Genetics of Bacteria and Phages Meeting, August 2-7, 2011, University of Wisconsin-Madison, WI

07-25-11 (Date)

(Signature of Candidate)