CURRICULUM VITAE: **Xingmin Sun, Ph.D.**

Assistant Professor
Department of Molecular Medicine
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EDUCATION

Postdoctoral Fellow in Molecular Microbiology and Biochemistry: Brown University, USA, 2003-2007

Ph.D. in Nature Sciences (**magna cum laude**): University of Kiel, Germany, 2002

M.S. in Veterinary Microbiology & Immunology: Nanjing Agricultural University, China, 1994

B.S. in Food Science and Microbiology: Nanjing Agricultural University, China, 1991

PROFESSIONAL EXPERIENCE

Dec 2015 – present: Assistant Professor (secondary appointment), Department of Internal Medicine, Morsani College of Medicine, USF

Aug 2015 – present: Assistant Professor, Department of Molecular Medicine, Morsani College of Medicine, USF

2014 – Aug 2015: Assistant Professor (secondary appointment), Clinical and Translational Science Institute, Tufts University

April 2012 – Aug 2015: Research Assistant Professor, Department of Infectious Disease and Global Health, Tufts University, Cummings School of Veterinary Medicine, MA

Aug 2007 – Mar 2012: Research Associate, Tufts University, Cummings School of Veterinary Medicine

April 2003 – Aug 2007**:** Postdoctoral Fellow**,** Brown University, Department of Molecular Biology, Cell Biology, and Biochemistry, Providence, RI

May 2002 – Mar 2003: Visiting Scholar, University of Konstanz, Department of Biology, Germany

May 1998 – April 2002**:** PhD candidate**,** University of Kiel, Germany

Aug 1994 –April 1998: Lecturer in Microbiology**,** Shanghai Ocean University, Shanghai, China

AWARDS and HONORS

2018 Invitation for a media interview on my research at the American Society of Microbiology Meeting 2018 (*USF Health microbiologist shares team's progress on vaccine for C. difficile infection*). Web link (https://hscweb3.hsc.usf.edu/blog/2018/06/13/usf-health-microbiologist-shares-teams-progress-on-vaccine-for-c-diff-infection/)

2018 Nomination by the Chair and the Dean for "**2018 Excellence in Innovation Award**" at USF

2018 "**2018 Faculty Outstanding Research Achievement Award**" at USF

2014 Tufts Institute for Innovation Inaugural Award **($250K**) (This institute is a **major initiative of the Tufts's strategic plan** for next 10 years)

2012 NIH/NIDDK K01 Mentored Research Scientist Development Award (2012-2017)

2010 Nominee for Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) Young Investigator Award

2009 ESCMID (European Society of Clinical Microbiology and Infectious Diseases) Award for the "6th ClostPath International Conference", Rome, Italy 19-23 October

2008 Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) Infectious Diseases

Fellows Grant, 48th Annual ICAAC/46th IDSA Annual Meeting in Washington, DC, awarded by the American Society for Microbiology and the Infectious Diseases Society of America

2007 Postdoctoral Travel Award, American Society for Biochemistry and Molecular Biology

2002 Young Scientist Award, Federation of European Microbiological Societies for the 7th Symposium on Lactic Acid Bacteria

1993 "Excellent Graduate Student Award", Nanjing Agricultural University, China

1992 "Excellent Graduate Student Award", Nanjing Agricultural University. China

RESEARCH SUPPORT

Current:

1. NIH R01AI132711 (**PI – X. Sun**, awarded in **first submission**) 06-20-2017 to 05-31-2022
   a. Title: Multivalent vaccines against *Clostridium difficile* infection
2. NIH R03 DK112004 (**PI – X. Sun**, awarded in **first submission)** 04-14-2017 to 03-31-2019
   a. Title: The role of tumor progression locus 2 (TPL2) in the pathogenesis of *C. difficile* infection
3. Sub-contract with HEPCO LLC Medical (**PI –** My Lien Dao/**X. Sun)** 07-01-2017 to 08-31-2018
   a. Title: Antimicrobial activity of GEMS sole mate
4. Private Foundation (**PI – X. Sun)** 08-30-2018 to open date
   a. Title: Support for Clostridium difficile infection related research
5. USF College of Public Health Interdisciplinary Award (PI- Rays Jiang) 03-01-2019 to 03-01-2020
   a. Title: Decoding gut microbiome-host interactions at single-cell resolution during *Clostridium difficile* infection
   b. **Role:** Co-investigator (X. Sun)

Completed:

1. NIH – K01DK092352 (**PI** – **X. Sun,** awarded with **a score of 15**) 04-01-2012 to 03-31-2018
   Title: Signaling pathway of TNF-α production and *C. difficile* infection
2. NIH R21 AI113470 (**PI – X. Sun**) 05-01-2015 to 04-30-2018
   Title: Multivalent bacillus mucosal vaccines against *C. difficile* infection
3. USF Interdisciplinary Seed Grant Award (**PI – X. Sun** & B. Baker**)** 02-15-2017 to 02-15-2018
   Title: Bioprospecting antibiotics in the fungal metabolome to combat *C. difficile* infection
4. Tufts Technology Access Award (**PI – X. Sun)** 09-30-2013 to 08-31-2014
   Title**:** Imaging of the dynamic distribution of *C. difficile* toxins and dendritic cells in live mice using *in vivo* imaging system
5. Tufts Collaborates Award (**PI – X. Sun**) 07-01-2013 to 06-30-2015
   Title: A novel chimeric vaccine against *C. difficile* infection
6. Contract with Jaguar Animal Health (**PI – X. Sun)** 04-01-2014 to 06-30-2015
   Title: Evaluation of SP303 for treatment of *C. difficile* infection in hamsters
7. Tufts Collaborates (**PI – X. Sun**) 07-01-2014 to 07-31-2015
   Title: The role of colonic progenitor cells in the pathogenesis of *C. difficile* infection
8. Tufts Institute for Innovation Award **($250,000)** (**PI – X. Sun**) 10-01-2014 to 08-31-2015
   Title: Novel multivalent mucosal/oral vaccines against *C. difficile* infection

ACADEMIC SERVICE ACTIVITIES

- **NIH Study Section Panel** (Topics in Bacterial Pathogenesis study section) (Mar 20, 2019)
- Grant Review panel for **Cancer Research UK**, Jan 16, 2019
- **NIH Study Section Panel** (IDM-B 81) (Nov 6, 2018)
- **NIH Study Section Panel** (Innate Immunity and Inflammation III) (Feb 15-16, 2018)
- **NIH Study Section Panel** (IDM-B 81) (March 23, 2018)

- **Grant Review for FINOVI** (France) (Oct 15, 2018)
- **NIH Study Section Panel** (IDM-B 81) (Bethesda, NIH, Nov 13, 2017)
- **NIH Study Section Panel** (IDM-B 80s) (Bethesda, NIH, July 11, 2016)
- **Discovery Awards Gastrointestinal Diseases (DIS-GID) Panel** of the Peer Reviewed Medical Research Program (PRMRP) of the Department of Defense Congressionally Directed Medical Research Programs (CDMRP), 2017
- Review panel for Medical Research Council (MRC), UK (March 2016; October 2013)
- **Editorial Board** for "**Infection and Immunity**" (2016-present, IF 3.94)
- **Editorial Board for** "**Applied and Environmental Microbiology**" (2019-2022, IF 4.31)
- **Review Editor** for "Frontiers in Microbiology" (2016- present, IF 4.165)
- Ad hoc reviewer for *Infection and Immunity, Applied and Environmental Microbiology, Journal of Bacteriology, Journal of Clinical Microbiology, Antimicrobial Agents and Chemotherapy, New England Journal of Medicine, Proteomics, Plos One, Beneficial Microbes, Pathogens and Disease*
- **Organizing Committee Member** for "International Conference and Exhibition on Immunology" 2018, San Diego, USA
- **Chair** of Bacterial Pathogenesis Session, ASM Southeastern Branch, 2017
- **Institutional Biosafety Committee (IBC)** of the University of South Florida (USF) (since 2017)
- Departmental Representative of Faculty Council for the College of Medicine at USF (since 2017)
- **Bylaws Committee** of College of Medicine at USF
- **Research Committee** of College of Medicine at USF
- **Chair** of the 3rd Annual Symposia of Bacteriology and Infection, Wuhan, China July 30–Aug 1, 2013
- Outstanding Service as an Online Mentor of the ASM Minority Mentoring Program 2011
- Search Committees for faculty positions in the Department of Molecular Medicine, USF
- Judger for USF Health Research Day in 2016, 2017, 2019
- **Mentoring committee for an Assistant Professor** (Dr. Tina Ho) in the College of Nursing, USF Health since 2018.
- **Media interview** at the American Society for Microbiology (ASM) 2018 Conference to provide community education and knowledge on epidemiology, prevention and treatment of Clostridium difficile infection (Atlanta, Ga; June 7-11, 2018)
- **Invited Speaker** on the "5th Annual Anthony Galiardi Memorial Foundation Fundraising Event" to provide community education and knowledge on epidemiology, prevention and treatment of *Clostridium difficile* infection (Clearwater, FL; Dec 22, 2018)

TEACHING

- **Course director** for "Vaccines and Applied Immunology" (GMS6114), 2018 at USF
- **Co-course director** for "Vaccines and Applied Immunology" (GMS6114), 2017 at USF
- "Foundations in Biomedical Sciences" (GMS 6001), 2015, 2016, 2017 at USF
- "Foundations in Medical Microbiology and Immunology" (GMS 6103), 2016 and 2017 at USF
- "Introduction to Biotechnology" (BSC6436) with a focus on Microbiome, 2017 at USF
- "Molecular Basis of Disease" (BCH6627) with a focus on Infectious Disease, 2018 at USF
- "Drug Discovery" (PHC7935), 2018 at USF
- **Course director** for "Microbiology", 1994-1998, Shanghai Ocean University, Shanghai, China
- **Course director** for "Experimental Microbiology", 1994-1998, Shanghai Ocean University, China

PROFESSIONAL MEMBERSHIP

- American Society for Microbiology
- Anaerobe Society of the Americas
- Society for Mucosal Immunology

PUBLICATION

1. Peng Z., S. Wang, M. Gide, D. Zhu, C. Li, N. Trang, J. Cai, **X. Sun*** (2019). A novel bacteriophage lysin-human defensin fusion protein is effective in treatment of *Clostridioides difficile* infection in

mice. *Frontiers in Microbiology*.

2. Li C., X. Meng, D. Zhu, J. Duan, S. Liu, R. Liu, P. Zhou, A., Wu, **X. Sun*** (2019). A non-027 and non-078 binary toxin-positive *C. difficile* exhibits notable pathogenicity. *Emerging Microbes & Infections*.
3. Wang S., Y. Wang, Y. Cai, C.P. Kelly, **X. Sun*** (2018). Chimeric protein vaccines containing immunodominant domains of *C. difficile* toxins and *Salmonella enterica serovar typhimurium* flagellin. *Frontiers in Immunology.*
4. Wang Y., K. Zhang, X. Ju, S. Wang, H. Feng, A. Greenberg, **X. Sun*** (2018). TPL-2 is a key regulator of inflammation in *Clostridium difficile* infection. *Infect Immun. 2018 Jul 23;86(8).*
5. Wang Y., L. Bouillaut, C. Li, S. Wang, X. Ju, A. L. Sonenshein, **X. Sun*** (2018). Oral immunization with non-toxic *C. difficile* strains expressing chimeric fragments of TcdA and TcdB elicit protective immunity against *C. difficile* infection in both mice and hamsters. *Infect Immun. 2018 Aug 28.*
6. Li C., P. Teng, Z. Peng, P. Sang, **X. Sun*,** J. Cai*(2018). Bis-Cyclic-Guanidine as a novel class of compound potent against *Clostridium difficile. ChemMedChem. 2018 May 16.*
7. Teng P.,C. Li, Z. Peng, A. Nimmagadda, M. Su, Y. Li, E. Mulry, **X. Sun***, and J. Cai**** (2018). Facial Accessible Quinoline Derivatives as Potent Antibacterial Agents. *Bioorg Med Chem. 2018 Jul 23;26(12):3573-3579.*
8. Zhu D., J. A. Sorg, **X. Sun*** (2018). *Clostridioides difficile* biology: sporulation, germination and corresponding therapies for *C. difficile* infection*. Front Cell Infect Microbiol. 2018 Feb 8;8:29.*
9. Xu D., L. Han , C. Li, Q. Cao, D. Harmody, J. Reeds, P. McCarthy*****, **X. Sun***, G. Wang***** (2018). Bioprospecting deep-sea actinomycetes for novel anti-infectious natural products*. Front Microbiol. 2018 Apr 30;9:787.*
10. Peng Z, Jin D, Kim HB, Stratton CW, Wu B, Tang YW*****, **X. Sun*** (2017). An Update on Antimicrobial Resistance in *Clostridium difficile*: Resistance Mechanisms and Antimicrobial Susceptibility Testing. J *Clin Microbiol. 2017 Jul;55(7):1998-2008.*
11. Peng Z., A. Sally, **X. Sun*** (2017). Antibiotic resistance and toxin production of *Clostridium difficile* isolates from the hospitalized patients in a large hospital in Florida*. Front Microbiol. 2017 Dec 22;8:2584.*
12. Kim HB, Wang Y, **X. Sun*** (2016). A detrimental role of immunosuppressive drug, dexamethasone, during *Clostridium difficile* infection in association with a gastrointestinal microbial shift. *J Microbiol Biotechnol. 2016 Mar;26(3):567-71*
13. Chandrabali G., I. Eugenis, A. N. Edwards , **X. Sun**, S. M. McBride, and D. D. Ho (2016). Immunogenicity and Protective Efficacy of *Clostridium difficile* Spore Proteins. *Anaerobe. 2016 Feb;37:85-95.*
14. Daou N., Y. Wang, V. M. Levdikov, M. Nandakumar, J. Livny, L. Bouillaut, K. Zhang, E. Blagova, K. Rhee, A. J. Wilkinson, **X. Sun**, and A. L. Sonenshein (2018). Impact of CodY protein on metabolism, sporulation and virulence in *Clostridium difficile* ribotype 027. *Plos One*
15. Schmidt DJ, Beamer G, Tremblay JM, Steele JA, Kim HB, Wang Y, Debatis M, **X. Sun**, Curiel DT, Shoemaker CB, Tzipori S (2016). A Tetraspecific VHH-Based neutralizing antibody modifies disease outcome in three animal models of *Clostridium difficile* Infection. *Clin Vaccine Immunol. 2016 Sep 6; (9):774-84.*
16. Chandrabali G., I. Eugenis, Y. Huang, **X. Sun**, A. N. Edwards, S. M. McBride, D. T. Pride, C. P. Kelly, and D. D. Ho (2016). Immunogenicity and Protective Efficacy of Recombinant *Clostridium difficile* Flagellar protein FliC in animal models of *Clostridium difficile* infection. *Emerg Microbes Infect. 2016 Feb 3;5.*
17. Wang Y., Y. Yan. H. Kim, K. Zhang, S. Tzipori & **X. Sun*** (2015). A chimeric protein comprising the glucosyltransferase and cysteine proteinase domains of toxin B and the receptor binding domain of toxin A induces protective immunity against *Clostridium difficile* infection in mice and hamsters. *Hum Vaccin Immunother. 2015; Sep 2; 11(9):2215-2222.*
18. **Sun, X*.** & S. A. Hirota (2015). The roles of host and pathogen factors and the innate immune response in the pathogenesis of *Clostridium difficile* infection. *Mol Immunol. 2015; Feb; 63(2):193-202.*
19. Huang, T., G. Perez-cordon, L. Shi. G. Li, **X. Sun,** X. Wang, J, Wang, H. Feng (2015). *Clostridium difficile* toxin B intoxicated intestinal epithelial cells stimulate the activation of dendritic cells. *Pathog Dis. 2015 Apr; 73(3).*
20. Zhang, K., S. Zhao, Y. Wang, **X. Sun*** (2015). The non-toxigenic *Clostridium difficile* CD37 protects mice against infection with a BI/NAP1/027 type of *C. difficile* strain. *Anaerobe. 2015 Dec; 36:49-52.*
21. Yong Y, S. Liu, G. Hua, R. Jia, Y. Zhao, **X. Sun**, M. Liao, X. Ju (2015). Identification and functional characterization of Toll-like receptor 2-1 in geese. *BMC Vet Res. 2015 May 14;11:108.*

22. Wang Y.K., Q. Zou, J.H. Sun, H. A. Wang, **X. Sun**, Z. F. Chen, Y. X. Yan (2015). *Screening of ssDNA aptamers against a zearalenone monoclonal antibody and development of a ssDNA-based enzyme- linked oligonucleotide assay for determination of zearalenone in corn. J Agric Food Chem. 2015 Jan 14;63(1):136-41.*
23. Z hao, S., C. Ghose-Paul, K. Zhang, S. Tzipori, & **X. Sun*** (2014). Immune-based treatment and prevention of *Clostridium difficile* infection. *Hum Vaccin Immunother. 2014; 10(12):3522-30.* Sponseller, JK., J. Steele, D. Schmidt, H. Kim, G. Beamer, **X. Sun** & S Tzipori (2014). Hyperimmune Bovine Colostrum as a Novel Therapy for *Clostridium difficile* Infection. *J Infect Dis. 2015 Apr 15;211(8):1334-41.*
24. Kim, H.B., Q. Zhang, **X. Sun**, G. Beamer, D. Schmidt, Y. Wang & S. Tzipori (2014). Effect of oral tigecycline treatment on *Clostridium difficile* and human gut microflora. *Antimicrob Agents Chemother. 2014 Dec;58(12):7560-4.*
25. Ali Y, S. Koberg, S. Heβner, **X. Sun**, B. Rabe, A. Back, H. Neve, K.J. Heller (2014). Temperate *Streptococcus thermophilus* phages expressing superinfection exclusion proteins of the Ltp type. *Front Microbiol. 2014 Mar 13;5:98.*
26. Zhang, J. X. Rui, L. Wang, Y. Guan, **X. Sun**, M. Dong (2014). Polyphenolic extract from Rosa rugosa tea inhibits bacterial quorum sensing and biofilm formation. *Food Control. 42:125-131.*
27. Chen X., M. Dong and **X. Sun*** (2013). Mechanisms of action and applications of probiotics for the treatment of *Clostridium difficile* infection. (a chapter in *"Microbial pathogens and strategies for combating them: science, technology and education"*, Formatex Research Center, Zurbaran, Spain).
28. Zhang H., W. Li, X. Rui, **X. Sun,** M. Dong (2013). *Lactobacillus plantarum* 70810 from Chinese paocai as a potential source of β-galactosidase for prebiotic galactooligosaccharides synthesis. *Eur Food Res Technol 236:817-826.*
29. Wang H., **X. Sun**, Y. Zhang, S. Li, K. Chen, L. Shi, W. Nie, R. Kumar, S. Tzipori, J. Wang, T. Savidge & H. Feng (2012). A chimeric toxin vaccine protects against primary and recurrent *Clostridium difficile* infection. *Infect. Immun. 80(8):2678-88*.
30. Steele J., K. Chen, **X. Sun**, Y. Zhang, H. Wang, S. Tzipori & H. Feng (2012). Toxemia is the cause of systemic disease in the piglet and mouse models of *Clostridium difficile* infection. *J. Infect. Dis. 205(3):384-91.*
31. **Sun X.,** H. Wang, B. Davis & H. Feng (2011). A mouse relapse model of *Clostrridium difficile* infection. *Infect. Immun. 79(7):2856-64.*
32. Wu, J., Z. Lu, M. Nie, H. Zhou, **X. Sun**, X. Xue, J. Bi, G. Fang (2012). Optimization of Cryopreservation Procedures for Porcine Endothelial Progenitor Cells. *J. Biosci. Bioeng. 113(1):117-23*.
33. **Sun X.**, T. Savidge & H. Feng (2010). The enterotoxicity of *Clostridium difficile* toxins. *Toxins, 2(7), 1848-1880.* (*Invited review*).
34. **Sun X.**, X. He, S. Tzipori, R. Gerhard & H. Feng (2009). Essential role of the glucosyltransferase activity in *Clostridium difficile* toxin-induced secretion of TNF-α by macrophages. *Microb. Pathog. 46(6):298-305*.
35. He X., **X. Sun**, S. Tzipori, H. Feng (2009). Antibody-enhanced, Fc gamma Receptor-mediated endocytosis of *Clostridium difficile* toxin A. *Infect. Immun. 77(6):2294-303*.
36. He X., J. Steele, **X. Sun**, S. Tzipori & H. Feng (2009). An ultrasensitive and rapid immunocytotoxicity method for detecting *Clostridium difficile* toxins. *J. Microbiol.l Methods 78(1):97-100*.
37. **Sun X.**, D. van Sinderen, S. Moineau & K. J. Heller (2009). Impact of lysogeny on bacteria with a focus on lactic acid bacteria. (**a chapter** in "*Contemporary Trend in Bacteriophage Research*", Nova Science Publisher, New York, ISBN: 978-1-6-692-181-4). **Book Chapter**
38. **Sun X.,** H. Neve, & K. J. Heller (2009**).** Fighting fire by fire- applying temperate phage for preventing phage infection in food fermentations. (**a chapter** in "*Contemporary Trend in Bacteriophage Research*", Nova Science Publisher, New York, ISBN: 978-1-6-692-181-4). **Book Chapter**
39. Yang, G., B. Zhou, J. Wang, X. He, **X. Sun,** W. Nie, S. Tzipori & H. Feng (2008). Expression of recombinant toxin A and B in *Bacillus megaterium*. *BMC Microbiol. Nov 6; 8:192.*
40. **Sun X.,** A. Göhler, K. J. Heller & H. Neve (2006). The *ltp* gene of temperate *Streptococcus thermophilus* phage TP-J34 confers superinfection exclusion to *Streptococcus thermophilus* and *Lactococcus lactis*. *Virology 350 (1): 146-157.*
41. **Sun X.,** D. F. Mierke, T. Biswas, S. Y. Lee, A. Landy & M. Radman-Livaja (2006). Architecture of the 99 bp DNA – Six Protein Regulatory Complex of the λ *att* Site. ***Molecular Cell.*** *24(4):569-80.*

(**highlighted on the cover of the journal**) **(IF 13.958)**

42. **Sun X.,** (2002). Molecular and functional characterization of a temperate *Streptococcus thermophilus* phage TP-J34 gene (*ltp*) encoding a membrane-bound lipoprotein, Shaker Verlag, 2002, ISBN 3-8322- 0190-4. **Book**

INVITED / ORAL PRESENTATIONS

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1. **2019.** "*Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection" (Infectious Disease Symposium, Jan 14, 2019)
2. **2018**. "Chimeric protein vaccines against *Clostridium difficile* infection in mice" (International Conference on Gram-positive Pathogens: 14-17 October 2018, Omaha, USA).
3. **2018**. Speaker on the "5th Annual Anthony Galiardi Memorial Foundation Fundraising Event" to provide community education and knowledge on epidemiology, prevention and treatment of Clostridium difficile infection (Clearwater, FL; Dec 22, 2018)
4. **2018.** *"Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection" (USF-Irish Marine Biodiscovery Consortium, Nov 20, 2018)
5. **2018**."Cwp22, a novel peptidoglycan cross-linking enzyme, plays pleiotropic roles in Clostridium difficile pathogenesis" (2nd International Congress and Expo Bacteriology, Nov 15-16, 2018, Dallas, USA).
6. **2018**. "Intestinal inflammation in *C. difficile* infection is regulated by Tpl2" (International Conference and Exhibition on Immunology 2018, Nov 26-28, San Diego, USA).
7. **2018. "**Emerging hypervirulent epidemic *Clostridium difficile* strains of St37 type (toxin A-B+) pose a potential threat in China" (by my lab member at ASM meeting, July 7-11, Atlanta, USA).
8. **2018**. "Innate immune response to *Clostridium difficile* infection (CDI) and vaccine development against CDI" (Colorado State University, USA, April 4).
9. **2018** "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection (Georgia State University, USA, March 1).
10. **2017. "**Multivalent mucosal vaccines against *Clostridium difficile* infection" (ASM Southeastern Branch meeting, Nov 2017).
11. **2017**. "TPL2 is a key regulator of inflammation in *C. difficile* infection" (Selected flash talk from my lab during 10th International Conference on the Molecular Biology and Pathogenesis of the Clostridia, Ann Arbor, Michigan, Aug 2017).
12. **2016**. "Vaccine development against *Clostridium difficile* infection" (Dankook University, South Korea, Sept 8, 2016).
13. **2016**. "The signaling events of TNF-alpha production in *Clostridium difficile* infection" (Dankook University, South Korea, Sept 7, 2016).
14. **2016**. "The host cell response to *Clostridium difficile* infection" (Shanghai Jiao Tong University, China, Sept 9, 2016).
15. **2016**. "The role of TNF-alpha in the pathogenies of *Clostridium difficile* infection" (Chinese Academy of Agricultural Sciences, Lanzhou Veterinary Research Institute, China, Sept 14, 2016).
16. **2016. "**Oral immunization with non-toxigenic *C. difficile* strains expressing chimeric toxin fragments elicits protective immunity against *C. difficile* infection in both mice and hamsters" (Anaerobe 2016, July 11-14, Nashville, TN).
17. **2016. "**The critical role of RhoA in *Clostridium difficile* toxin-induced TNF-alpha production" (Department of Cell Biology, Microbiology & Molecular Biology, University of South Florida, Tampa, April 15, 2016).
18. 2016. "Clostridium difficile infection: Understanding the host cell response and developing novel vaccines to prevent infection" (Bacteriologist Group Meeting, USD, May 4, 2016).
19. **2016. "***Clostridium difficile* infection: Understanding the host cell response and developing novel vaccines to prevent infection" (College of Medicine, University of South Florida, Tampa, Mar 9, 2016).

20. **2016. "***Clostridium difficile* infection: progress in vaccine development" (Signature Interdisciplinary Program in Allergy, Immunology and Infectious Disease program, University of South Florida, Tampa, Jan 21, 2016).
21. **2015.** "Novel chimeric vaccines against *Clostridium difficile* infection" (Immunology Summit 2015, Sept 28-30, 2015 Houston, Texas).
22. **2015. "**Novel multivalent mucosal/oral vaccines against *Clostridium difficile* infection" (Tufts University, Institute of Innovation, July 21, 2015, Boston).
23. **2015.** "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection" (University of South Florida, Tampa, Feb 26, 2015).
24. **2015.** "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection" (Sino-Micro Symposium 2015, June 2, 2015, New Orleans, USA).
25. **2015. "**Development of novel vaccines against *Clostridium difficile* infection" (Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts. Jan 26, 2015).
26. **2014. "**A recombinant fusion protein (mTcd138) comprising the N-terminus of *Clostridium difficile* toxin B (TcdB) and the receptor binding domain of *C. difficile* toxin A (TcdA) provides full protection against *C. difficile* infection" (2nd International Congress on Bacteriology and Infectious Diseases. Nov 17-19, 2014, Chicago, USA).
27. **2014.** "Development of novel vaccines against *Clostridium difficile* infection" (Tufts University, Launching ceremony for Tufts Institute for Innovation. Aug 20, 2014).
28. **2014. "**Involvement of MAP kinases and RhoA in Clostridium difficile toxin A-induced TNF-alpha production by Macrophages" (Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts. Jan 13, 2014).
29. **2013. "***Clostridium difficile* infection: pathogenesis and development of immune-based prevention and therapy" (BIT's 3rd Annual World Congress of Microbes- 2013, Wuhan, China).
30. **2012.** "TNF-alpha and *Clostridium difficile* infection" (Campus-Wide Work-in- Progress. Tufts University Cummings School of Veterinary medicine. Feb 14, 2012).
31. **2011,** "A mouse relapse model of *C. difficile* infection and its application in evaluating immunotherapies against disease" (*7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia-Clospath 2011*, Ames, IA, USA).
32. **2011,** "A chimeric vaccine prevents primary and recurrent *Clostridium difficile* infection" (*Fourteenth Annual Conference on Vaccine Research,* Baltimore, USA).
33. **2008,** "High-efficiency delivery of *Clostridium difficile* Toxin A via FcgRI- mediated endocytosis" (*48th Annual Interscience Conference on Antimicrobial and Chemotherapy (ICAAC) and the Infectious Disease Society of America (ISDA) 46th Annual Meeting,* Washington, DC. USA).
34. **2007, "**Architecture of the 99 bp DNA – Six Protein Regulatory Complex of the λ *att* Site" (*American Society for Biochemistry and Molecular Biology Annual Conference***,** Washington, DC. USA).
35. **2006,** "Accessory DNA-bending proteins confer a complex contour on the 99 bp regulatory DNA of bacteriophage lambda *att* site as determined by triangulation of FRET distances" (*Nucleic Acids Conference*, Salve Regina University, RI, USA.).

MENTORSHIP

Postdoctoral Researcher

- Yuanguo Wang (Nov 2014 – Mar 2017)
- Ying Cai (Mar 2015 – Mar 2017)
- Shaohui Wang (March 2017 –)
- Duolong Zhu (July 2017 –)
- Zhen Wu (April 2018-)

MD Resident

- Aimen Ben Ayad (July 2016 – July 2017)

Junior Faculty

- **Mentoring committee for an Assistant Professor** (Dr. Tina Ho) in the College of Nursing, USF Health since 2018.

PhD Student

- Zhong Peng (Mar 2016 – Mar 2018)
- Yuankai Wang (Feb 2013 - Feb 2014)
- Ishani Wickramage (Aug 2017–)

Master Student

- Thuy Nguyen (August 2018-)
- Holly Branthoover (Sept 2018-)
- Trang Nguyen (Aug 2016 – July 2017)

Visiting Scholar

- Keshan Zhang (PhD, Lanzhou Veterinary Research Institute, Academy of Agricultural Science; Nov 2013 - Nov 2014). Currently, he is an Associate Professor.
- Song Zhao (MD, Department of Gastroenterology, Jiangsu Province Hospital of Traditional Chinese Medicine, China; June 2014-June 2015). Currently, he is Associate Professor.
- Xianghong Ju (PhD, Associate Professor, Guangdong Ocean University, Guangdong, China; Nov 2014 - Nov 2015). Currently, he is a full Professor.
- Yang Wang (PhD, Associate Professor, College of Animal Science and Technology, Henan University of Science and Technology; May 2015 - May 2016)
- Zhibian Duan (PhD, Professor, College of Animal Science, Shanxi Agricultural University, Sept - Dec 2016)
- Chunhui Li (MD, PhD, Healthcare-associated Infection Control Center of Xiangya Hospital Central South University, China; Nov 2016 -present). Currently, he is an Associate Professor.

Thesis Committees for PhD Students at USF

- Afroza Akhtar (2015 –)
- Udoka Okaro (2015 –)
- Brooke Nemec (2016 –)
- Rohini Nimbalkar (2017–)
- Andrew Mcgill (2017–)
- Lulu Wei (2016–)
- Ma Su (2016 –)
- Sylvia Singh (2016 –)
- Michael Kemp (2016 –)
- Stephanie Marroquim (2018-)

Rotation PhD Students at USF

- Chao Zhang (2015)
- Christopher Hinojo (2015)
- Afroza Akhtar (2015)
- Michael Kemp (2016)
- Caroline Simmons (2017)
- Ishani Wickramage (2017)
- Justin Nicholas (2017)
- Garrett Enten (2018)

Undergraduate Students at USF

- Jessica Bullock (Sept 2016 –)
- Angela Zhu (Sep 2016 – July 2017)
- Anisha Paulson (Sept 2016 –)
- Admir Krivdic (Sept 2016 – July 2017)
- Logan Suits (August 2018 –)

- Firras Khan (August 2018 –)
- Manushi Shan (August 2018 –)
- Ruhan Gagnani (August 2018 –)

AWARDS RECEIVED BY LAB MEMBERS

- ICAAC Program Committee Award 2016 (Yuanguo Wang)
- Anaerobe 2016 Travel Award (Yuanguo Wang)
- ASM Infectious Disease Fellow Travel Award 2017 (Chunhui Li)
- ASM Infectious Disease Fellow Program 2018 (Chunhui Li)

MEDIA REPORT

- Media interview at the American Society of Microbiology Meeting 2018 (*USF Health microbiologist shares team's progress on vaccine for C. difficile infection*). (https://hscweb3.hsc.usf.edu/blog/2018/06/13/usf-health-microbiologist-shares-teams-progress-on-vaccine-for-c-diff-infection/)
- A vaccine for *Clostridium difficile*? Dr. Sun shares what to consider. (http://www.contagionlive.com/videos/vaccine-for-clostridium-difficile-what-to-consider)
- Dr. Sun shares current progress on developing vaccine for *Clostridium difficile* infection at the ASM 2018 Conference. (http://www.contagionlive.com/videos/vaccine-for-clostridium-difficile-current-progress)
- Anthony Gagliardi Foundation donates $15,000 to Clostridium difficile research at USF Health. (https://hscweb3.hsc.usf.edu/giving/2018/10/26/anthony-gagliardi-foundation-donates-15000-to-c-diff-research-at-usf-health/)
- Tufts Institute for Innovation has great expectations for tackling some of the world's formidable public health problems (http://now.tufts.edu/articles/discovery-impact?utm_source)
- Scientists map structure of DNA-doctoring protein complex (Science Daily, Dec 29, 2006). (http://www.sciencedaily.com/releases/2006/12/061207160154.htm)
- Brown scientists map structure of DNA-doctoring protein complex (Biology News Net, Dec 06, 2006). (http://www.biologynews.net/archives/2006/12/06/)

ADDENDUM

Meeting/Conference Posters

Meeting /Conference posters during Assistant Professorship

1. Chunhui Li, Xiujuan Meng, Juping Duan, Sidi Liu, Ruisi Liu,Pengcheng Zhou, Anhua Wu*, **Xingmin Sun***. "Emerging hypervirulent epidemic Clostridium difficile strain of ST37 type (Toxin A-B+) pose a potential threaten in China". American Society of Microbiology Annual Meeting 2018, June 7-11, Atlanta, USA.
2. Chunhui Li, Xiujuan Meng, Duolong Zhu, Juping Duan, Sidi Liu, Ruisi Liu, Pengcheng Zhou, Anhua Wu, Shifang Peng*, **Xingmin Sun***. "A non-027 and non-078 binary toxin positive *Clostridium difficile* play a notable pathogenicity". American Society of Microbiology Annual Meeting 2018, June 7-11, Atlanta, USA.
3. Shaohui Wang, Yuanguo Wang, Ying Cai, **Xingmin Sun***. "Chimeric protein vaccines against *Clostridium difficile* infection in mice'. International Conference on Gram-positive Pathogens, 14-17 October 2018, Omaha, USA.
4. Zhen Wu, Yuankai Wang, Hyeun Bum Kim, Ronhhua Zhuge, **Xingmin Sun***. "The role of dendritic cells in *Clostridium difficile* infection". International Conference on Gram-positive Pathogens, 14-17 October 2018, Omaha, USA.

5. Zhen Wu, Shaohui Wang, Chunhui Li, Trang Nguyen, Hanping Feng, **Xingmin Sun***. "Calcium signaling regulates the TcdA-induced activation of TNF-alpha release in MAPK pathway during Clostridium difficile infection". International Conference on Gram-positive Pathogens, 14-17 October 2018, Omaha, USA.
6. Trang Nguyen, Jessica Bullock, **Xingmin Sun***. "The Effects of Cytokines IL-β, IL-6, TNF-α and *Clostridium difficile* Toxins A & B on Tight Junction Barrier". University of South Florida Research Day 2018, Feb 23, 2018. Tampa, USA.
7. Shaohui Wang, Yuanguo Wang, Hanping Feng, Andrew Greenberg, **Xingmin Sun***. "TPL2 and *Clostridium difficile*-caused inflammation". Single Cell Genomics Symposium. University of South Florida, March 16, 2018, Tampa, USA.
8. Yuanguo Wang, Laurent Bouillaut, Ying Cai, Chunhui Li, Shaohui Wang, Abraham L. Sonenshein, **Xingmin Sun***. "Vaccines against *Clostridium difficile* infection". Single Cell Genomics Symposium. University of South Florida. March 16, 2018, Tampa, USA.
9. Yuanguo Wang, Laurent Bouillaut, Ying Cai, Chunhui Li, Shaohui Wang, Abraham L. Sonenshein, **Xingmin Sun***. "Mucosal vaccines against *Clostridium difficile* infection". University of South Florida Research Day, Feb 24, 2017.
10. Yuanguo Wang, Laurent Bouillaut, Ying Cai, Chunhui Li, Shaohui Wang, Shifeng Wang, Roy Curtiss III, Abraham L. Sonenshein, **Xingmin Sun***. "Multivalent mucosal vaccines against *Clostridium difficile* infection". 10th International Conference on the Molecular Biology and Pathogenesis of the Clostridia, August 7-10, 2017. Ann Arbor, Michigan, USA.
11. Yuanguo Wang, Hanping Feng, Andrew Greenberg, **Xingmin Sun***. "The key role of TPL2 in regulating *C. difficile* infection-mediated inflammation". "International Congress of Mucosal Immunology 2017", July 19-22, 2017, Washington DC, USA.
12. Zhong Peng, Yuanguo Wang, Shaohui Wang, Hanping Feng, Andrew Greenberg, **Xingmin Sun*** "The critical of TPL2 in *Clostridium difficile*-caused inflammation". 10th International Conference on the Molecular Biology and Pathogenesis of the Clostridia, August 7-10, 2017. Ann Arbor, Michigan, USA.
13. Zhong Peng, Alrabaa Sally*, **Xingmin Sun***. "Antibiotic resistance and toxin production of *Clostridium difficile* isolates from the hospitalized patients in a large hospital in Florida". 10th International Conference on the Molecular Biology and Pathogenesis of the Clostridia, August 7-10, 2017. Ann Arbor, Michigan, USA.
14. Zhong Peng, Alrabaa Sally*, **Xingmin Sun***. "Antibiotic resistance and toxin production of *Clostridium difficile* isolates from the hospitalized patients in a large hospital in Florida". Keystone symposium; Antimicrobials and Resistance: Opportunities and Challenges (T4). Oct 29-Nov 1, 2017, Santa Fe, USA.
15. Chunhui Li, Zhong Peng, Juping Duan, Sidi Liu, Xiujuan Meng, **Xingmin Sun***, Anhua Wu* "Epidemiology of *Clostridium Difficile* Infection from the Hospitalized Patients in ICU in A Large Teaching Hospital of Central China, 2013-2014". 10th International Conference on the Molecular Biology and Pathogenesis of the Clostridia, August 7-10, 2017. Ann Arbor, Michigan, USA.
16. Shaohui Wang, Yuanguo Wang, Hanping Feng, Andrew Greenberg, **Xingmin Sun***. "The critical of TPL2 in *Clostridium difficile*-caused inflammation". ASM Southeastern Branch Annual Meeting, Nov 2017, Saint Petersburg, FL, USA.
17. Zhong Peng, Alrabaa Sally*, **Xingmin Sun***. "Antibiotic resistance and toxin production of *Clostridium difficile* isolates from the hospitalized patients in a large hospital in Florida". ASM Southeastern Branch Annual Meeting, Nov 2017, Saint Petersburg, FL, USA.
18. Yuanguo Wang, Laurent Bouillaut, Xianghong Ju, Yang Wang, Abraham L. Sonenshein, **Xingmin Sun***. "Oral immunization with non-toxic *C. difficile* strains expressing chimeric fragments of TcdA and TcdB elicit protective immunity against *C. difficile* infection in both mice and hamsters". American Society of Microbiology Annual Meeting 2016, June 16-20, 2016, Boston, USA.
19. Yuanguo Wang, Xianghong Ju, Saul Tzipori, Hanping Feng, Andrew Greenberg, **Xingmin Sun*.** "TPL-2 is a key regulator of inflammation in *C. difficile* infection". American Society of Microbiology Annual Meeting 2016, June 16-20, 2016, Boston, USA.
20. Yuanguo Wang, Laurent Bouillaut, Xianghong Ju, Yang Wang, Abraham L. Sonenshein, **Xingmin Sun***. "Non-toxic *C. difficile* strains expressing chimeric fragments of TcdA and TcdB protect protective immunity against *C. difficile* infection in both mice and hamsters". Anaerobe 2016, July 11-14, 2016, Nashville, USA.
21. Yuanguo Wang, Xianghong Ju, Saul Tzipori, Hanping Feng, Andrew Greenberg, **Xingmin Sun***.

"Regulation of intestinal inflammation in *Clostridium difficile* infection by TPL2". Anaerobe 2016, July 11-14, 2016, Nashville, USA.

22. Wang Y., Y. Yan. H. Kim, D., Schmidt, W. Nie, S. Tzipori & **X. Sun***. "A chimeric protein (mTcd138) comprising the glucosyltransferase and domains of toxin B and the receptor binding domain of toxin A provides full protection against *Clostridium difficile* infection in mice". 2nd International Congress on Bacteriology and Infectious Diseases. Nov 17-19, 2014, Chicago, USA.
23. **Xingmin Sun***, Yuankai Wang, Weijia Nie, Hyeun Bum Kim, Diane Schmidt, Saul Tzipori. "A novel chimeric vaccine against *Clostridium difficile* infection". Tufts Research Day, Tufts University, Sept 20, 2013, Boston, USA.

Meeting / Conference Poster as Research Associate, Postdoc and Graduate student

24. **Sun X.,** H. Wang, B. Davis & H. Feng. A mouse relapse model of *C. difficile* infection and its application in evaluating immunotherapies against disease. *7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia-Clospath 2011*, (October 2011, Ames, IA, USA).
25. Wang, H., **X. Sun*,** Y. Zhang, S. Tzipori & H. Feng. Novel Vaccines. *7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia-Clospath 2011*, (October 2011, Ames, IA, USA). **Co-first author.**
26. Steele J., K. Chen, **X. Sun**, Y. Zhang, H. Wang, S. Tzipori & H. Feng. Systemic dissemination of *C. difficile* toxins A and B is associated with severe fatal disease in the piglet and mouse models. *7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia-Clospath 2011*, (October 2011, Ames, IA, USA).
27. Li S., L. Shi, **X. Sun,** H. Feng. A neutralizing intrabody to study autocleavage of *Clostridium difficile* toxin B. *7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia-Clospath 2011*, (October 2011, Ames, IA, USA).
28. **Sun X.,** H. Wang, B. Davis & H. Feng. A mouse relapse model of *Clostrridium difficile* infection. *Digestive Disease Week 2011.* (May 2011, Chicago, IL, USA).
29. Wang H., **X. Sun***, Y. Zhang, S. Tzipori & H. Feng. Development of vaccines against *Clostridium difficile* infection. *Digestive Disease Week 2011.* (May 2011, Chicago, IL, USA). **Co-first author.**
30. Steele J., K. Chen, **X. Sun**, Y. Zhang, H. Wang, S. Tzipori & H. Feng. Toxemia is the cause of systemic disease in the piglet and mouse models of *Clostridium difficile* infection. *Digestive Disease Week 2011.* (May 2011, Chicago, IL, USA).
31. Wang H., **X. Sun**, Y. Zhang, S. Tzipori, H. Feng. Development of vaccines against *Clostridium difficile* infection. *110th ASM Annual Meeting*. (May 2010, San Diego, CA, USA).
32. Wang H., **X. Sun**, Y. Zhang, L. Shi, S. Tzipori, H. Feng. The Glucosyltransferase determines the major biological activities of *Clostridium difficile* toxins. *110th ASM Annual Meeting*. (May 2010, San Diego, CA, USA).
33. Wang H., **X. Sun**, Y. Zhang, S. Tzipori, H. Feng. Evaluation of a glucosyltransferase-deficient holotoxin B of *Clostridium difficile* as a novel vaccine candidate. *Second Greater Boston Symposium on Vaccine Science*. (April 2010, Cambridge, MA, USA).
34. Zhang Y., L. Shi, **X. Sun**, H. Wang, S. Tzipori, X. Wang & H. Feng. A fragment of 97-amino-acids (D97) within the transmembrane domain is essential for the cellular activity of *Clostridium difficile* toxin B. *110th ASM Annual Meeting*. (May 2010, San Diego, CA, USA).
35. **Sun X.**, S. Tzipori & H. Feng. Involvement of MAP kinases in *Clostridium difficile* toxin A-mediated TNF-alpha production by macrophages. *6th ClostPath International Conference: Clostridia: The impact of Genomics on Disease Control.* (October 2009, Italy).
36. **Sun X.**, S. Tzipori & H. Feng. Combined activation of the ERK and p38 pathways by *Clostridium difficile* toxin A mediates TNF-α production by macrophages. (September 2009, San Francisco, USA).
37. He X., **X. Sun**, J. Wang, Q. Zhang, S. Tzipori & H. Feng. Antibody-mediated enhanced cytotoxcitiy of *Clostridium difficile* toxin: Application in Diagnosis. *6th ClostPath International Conference: Clostridia: The impact of Genomics on Disease Control.* (October 2009, Italy).
38. Wang J., M. Chen, T. Huang, **X. Sun**, S. Li, S. Tzipori, X. Wang & H. Feng. Anti-tumor activity of *Clostridium difficile* toxin B. *6th ClostPath International Conference: Clostridia: The impact of Genomics on Disease Control.* (October 2009, Italy).

39. **Sun X.**, S. Tzipori & H. Feng. Combined activation of the ERK and p38 pathways by *Clostridium difficile* toxin A mediates TNF-α production by macrophages. *Food & Waterborne Diseases Integrated Research Network Meeting*. (April 2009, Washington, DC. USA).
40. **Sun X.,** X. He, S. Tzipori, R. Gerhard & H. Feng. Mechanisms of the *Clostridium difficile* toxins-induced secretion of TNF-α by macrophages. *Food & Waterborne Diseases Integrated Research Network Meeting*. (April 2008, Atalanta, USA).
41. **Sun X.**, X. He, S. Tzipori, R. Gerhard & H. Feng. Mechanisms of the *Clostridium difficile* toxins-induced secretion of TNF-α by macrophages. *48th Annual Interscience Conference on Antimicrobial and Chemotherapy and the Infectious Disease Society of America 46th Annual Meeting*. (October 2008, Washington, DC. USA).
42. **Sun X.,** D. F. Mierke, T. Biswas, S. Y. Lee & A. Landy & M. Radman-Livaja. Architecture of the 99 bp DNA – Six Protein Regulatory Complex of the λ *att* Site. *Oxford Workshop on Site-specific recombination, transposition and DNA dynamics*. (September 2006, Oxford, UK).
43. **Sun X.,** D. F. Mierke, T. Biswas, S. Y. Lee, A. Landy & M. Radman-Livaja. Accessory DNA-bending proteins confer a complex contour on the 99 bp regulatory DNA of bacteriophage lambda *att* site as determined by triangulation of FRET distances. *Nucleic Acids Conference*, (June 2006, Salve Regina University, U.S.A.).
44. Neve, H., **X. Sun**, K. J. Heller. Phage TP-J34 gene products involved in altering the cell surface of lysogenic *Streptococcus thermophilus* strain J34. *Workshop "Bacterial Cell Surfaces".* (March 2004, University of Tübingen, Germany).
45. **Sun X.**, H. Neve & K. J. Heller. Characterization of a lipoprotein encoded by the temperate *Streptococcus thermophilus* phage TP-J34 and its impact on phage resistance and lysogeny. *XIIth International Congress of Virology*. (July 27-Aug. 1, 2002, Paris, France).
46. **Sun X.,** K. J. Heller & H. Neve. Characterization of a lipoprotein encoded by the temperate *Streptococcus thermophilus* phage TP-J34 and its impact on phage resistance and lysogeny. Conference book: *Seventh Symposium on Lactic Acid Bacteria.* (September 2002, the Netherlands).
47. Neve H., **X. Sun** & K. J. Heller. Impact of a lipoprotein encoded by the temperate *Streptococcus thermophilus* phage TP-J34 on phage resistance and lysogeny. Conference book: *Seventh Symposium on Lactic Acid Bacteria.* (September 2002, the Netherlands).
48. Neve H., **X. Sun** & K. J. Keller. Molecular and functional characterization of a temperate *Streptococcus thermophilus* phage TP-J34 gene (*ltp*) encoding a membrane-bound lipoprotein. *XIIth International Congress of Virolog.* (July 27-Aug. 1, 2002, Paris, France).
49. Neve H., **X. Sun** & K. J. Heller. Analysis of the temperate *Streptococcus thermophilus* bacteriophage TP-J34 coding for a unique lipoprotein and its phage/host relationship. Conference book: *Microbiology 2000*. (March 2000, Munich, Germany).
50. Neve H., **X. Sun** & K. J. Heller. Analysis of the lysogeny module and the flanking regions of the temperate *Streptococcus thermophilus* bacteriophage TP-J34. Conference book: *FEMS 6# Symposium on lactic acid bacteria - genetics, metabolism and application.* (1999, Netherlands).
51. **Sun X.,** H. Neve & K. J. Heller. The lipoprotein determinant of the temperate *Streptococcus thermophilus* phage TP-J34: Expression in *E. coli* and subcloning in *S. thermophilus*. Conference book: *EU BIOTECH STARLAB Phage Meeting*. (June 1999, Kiel, Germany).
52. **Sun X.,** H. Neve, A. Geis & K. J. Heller. Cloning and overexpression of the lipoprotein gene of *Streptococcus thermophilus* phage TP-J34 in *E. coli. Annual report* of 1998. Federal Research Centre for Nutrition and Food, Kiel, Germany.