

CURRICULUM VITAE: Xingmin Sun, Ph.D.

ADDRESS

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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

APPOINTMENTS

Jun 2024 – Present:	<u>Professor with tenure</u> , Department of Molecular Medicine, Morsani College of Medicine, University of South Florida (USF)
Jun 2019 – May 2024:	<u>Associate Professor with tenure</u> , Department of Molecular Medicine, Morsani College of Medicine, USF
Aug 2015 – May 2019:	<u>Assistant Professor</u> (tenure track), Department of Molecular Medicine, Morsani College of Medicine, USF
Aug 2016 – Present:	<u>Courtesy / affiliated faculty appointments</u> in the Department of Internal Medicine, Department of Molecular Biosciences, and Department of Chemistry, USF
Apr 2012 – Aug 2015:	<u>Research Assistant Professor</u> , Department of Infectious Disease and Global Health, Tufts University, Cummings School of Veterinary Medicine, MA
Aug 2007 – Mar 2012:	<u>Research Associate</u> , Tufts University, Cummings School of Veterinary Medicine
Apr 2003 – Aug 2007:	<u>Postdoctoral Fellow</u> , Brown University, Department of Molecular Biology, Cell Biology, and Biochemistry, Providence, RI
May 2002 – Mar 2003:	<u>Visiting Scholar</u> , University of Konstanz, Department of Biology, Germany
May 1998 – Apr 2002:	<u>PhD candidate</u> , University of Kiel, Germany
Aug 1994 – Apr 1998:	<u>Lecturer in Microbiology</u> , Shanghai Ocean University, Shanghai, China

AWARDS and HONORS

- 2025 "Senior Member of National Academy of Inventors"
- 2024 "Florida High Tech Corridor Early-Stage Innovation Fund", USF
- 2020 "Excellence in Innovation Award", USF
- 2018 "Faculty Outstanding Research Achievement Award", USF
- 2014 "Inaugural Award from Tufts Institute for Innovation", Tufts University, USA
- 2012 "NIH/NIDDK K01 Mentored Research Scientist Development Award" (2012-2017)
- 2009 "ESCMID (European Society of Clinical Microbiology and Infectious Diseases) Award" for the "6th ClostPath International Conference", Rome, Italy
- 2008 "Fellows Award for Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) Infectious Diseases", 48th Annual ICAAC/46th IDSA Annual Meeting in Washington, DC
- 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, Netherland
- 1993 "Outstanding Graduate Student Award", Nanjing Agricultural University, China

- 1992 “Outstanding Graduate Student Award”, Nanjing Agricultural University, China

TEACHING, LECTURE

- **Course Director** for “Molecular Basis of Disease” (BCH6627), USF, since 2025
- **Course Director** for “Vaccines and Applied Immunology” (GMS6114), USF, since 2019
- “Foundations in Biomedical Sciences” (GMS 6001), USF, since 2015
- “Foundations in Medical Microbiology and Immunology” (GMS 6103), USF, since 2016
- “Introduction to Biotechnology” (BSC6436) with a focus on Microbiome, USF, since 2017
- Infectious Disease Unit Director for “Molecular Basis of Disease” (BCH6627), USF, since 2018
- “Drug Discovery” (PHC7935), USF, 2018 & 2022
- “MD Course 5”, USF, 2021
- **Course Director** for “Microbiology”, Shanghai Ocean University, Shanghai, China, 1994-1998
- **Course Director** for “Experimental Microbiology”, Shanghai Ocean University, China, 1994-1998
- **Course Director** for “Principles and Technologies of Industrial Fermentation”, Shanghai Ocean University, China, 1994-1998

TEACHING, SUPERVISORY

Junior Faculty:

- Shaohui Wang (PhD, Research Assistant Professor) (Aug 2022 – present)
- Mentoring committee for Dr. Tina Ho (Assistant Professor) in the College of Nursing, USF Health 2018.

Postdoctoral Researchers:

- Junling Qin (June 2024 – present)
- Anastasia Tomatsidou (Mar 2022 – Feb 2024)
- Soumyadeep Chakraborty (Apr 2021 – present)
- Shaohui Wang (Mar 2017 – Jul 2022)
- Duolong Zhu (July 2017 – Nov 2019)
- Yuanguo Wang (Nov 2014 – Mar 2017)
- Ying Cai (Mar 2015 – Mar 2017)
- Zhen Wu (Apr 2018 – Apr 2019)

MD Resident:

- Aimen Ben Ayad (July 2016 – July 2017)

PhD Students:

- Lubem Nathaniel Agbendeh (Dec 2021 – present)
- Ishani Wickramage (Aug 2017 – Feb 2020)
- Zhong Peng (PhD exchange program) (Mar 2016 – Mar 2018)
- Yuankai Wang (PhD exchange program) (Feb 2013 – Feb 2014)

Thesis Committees for PhD Students at USF:

- Afroza Akhtar (2015 – 2020)
- Udoka Okaro (2015 – 2020)
- Brooke Nemec (2016 – 2021)
- Rohini Nimbalkar (2017 – 2022)
- Andrew McGill (2017 – 2019)
- Lulu Wei (2016 – 2020)
- Ma Su (2016 – 2021)
- Sylvia Singh (2016 – 2019)
- Michael Kemp (2016 – 2022)
- Stephanie Marroquim (2018 – 2021)
- Melissa Bikowitz (2019 – 2022)
- Mary-Elizabeth Jobson (2021 – present)

- Yerman Munoz (2021 – 2022)
- Emilee Mustor (2022 – present)
- Rachel Washburn (2023 – present)
- Alexis Rickman (2023 – present)
- Alisa Anderson (2023 – present)
- Patrick Consol (2023 – present)
- Erika Valdespino (2023 - present)
- Caroline Miller (2024 - present)
- Adewale James (2023 - present)
- Nichol John-Lewis Edwards (2023 - present)

Thesis Committee Chair for PhD students at USF:

- Brooke Nemec (June 14, 2021)
- Lulu Wei (Nov 4, 2020)
- Sylvia Singh (Nov 12, 2019)
- Anne-Claire D. Limon (Nov 7, 2019)

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)
- Oluwasei Oluwatola (2021)
- Abiral Hasib Shourav (2022)
- Clem Marsilia (2023)
- Marvelous Adebawale (2023)
- Md. Abu Rahat (2024)
- Ken Chen (2024)
- Georgina Agyekum (2024)

Master Students:

- Brianna Mumford (Oct 2024 – present)
- Veronica Gosnell (Sept 2023 – present)
- Ramya Yada (May 2024- Aug 2024)
- Rajath Talpady (Sept 2023 – May 2024)
- Jonathon Bland (Oct 2022 – July 2023)
- Hassan Haidar (Oct 2021 – May 2023)
- Irene Arias (Oct 2021 – Aug 2022)
- Brittney Owens (Oct 2021 – May 2022)
- Zil iang Lim (Oct 2021 – May 2022)
- Nashwa El Hadidy (Oct 2020 – July 2021)
- Lauren Lapeter (Aug 2020 – Aug 2021)
- Syed Hussain (Aug 2020 – Aug 2021)
- Kristina Valladares (Aug 2019 – Aug 2020)
- Thuy Nguyen (Aug 2018 – July 2019)
- Holly Branthoover (Sept 2018 – June 2019)
- Trang Nguyen (Aug 2016 – July 2017)

Research Assistant:

- Maryam Yusuph (Aug 2024 – present)
- Hiran Malinda (Oct 2017 – June 2021)

Visiting Scholars:

- Keshan Zhang (PhD, Associate Professor, Lanzhou Veterinary Research Institute, Academy of Agricultural Science; Nov 2013 – Nov 2014).
- Song Zhao (MD, Associate Professor, Department of Gastroenterology, Jiangsu Province Hospital of Traditional Chinese Medicine, China; June 2014 – June 2015).
- Xianghong Ju (PhD, Professor, Guangdong Ocean University, Guangdong, China; Nov 2014 – Nov 2015).
- 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, Associate Professor, Healthcare-associated Infection Control Center of Xiangya Hospital Central South University, China; Nov 2016 – Nov 2017).

Undergraduate Students:

- Marco Hanna (May 2023 – present)
- Justin Boumalhab (July 2023 – present)
- Adrit Roy (May 2023 – present)
- Bharath Subramanian (June 2022 – May 2023)
- Amreen Naveen (June 2022 – Dec 2022)
- Alexandra Rodier (Aug 2021 – May 2022)
- Joshua Heuler (June 2019 – May 2020)
- Ann Mathew (June 2019 – May 2020)
- Amy Amoah (June 2020 – May 2021)
- Domenica Flores (Aug 2019 – Aug 2020)
- Logan Suits (Aug 2018 – May 2019)
- Firras Khan (Aug 2018 – May 2019)
- Manushi Shan (Aug 2018 – May 2019)
- Ruhan Gagnani (Aug 2018 – May 2019)
- Jessica Bullock (Sept 2016 – May 2017)
- Angela Zhu (Sep 2016 – July 2017)
- Anisha Paulson (Sept 2016 – May 2017)
- Admir Krivdic (Sept 2016 – July 2017)

High School Students:

- Leahy Wan (2024 summer)
- Anastasia Achziger (2022 summer)

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)
- ASM 2019 Travel Award (Ishani Wickramage)
- USF Health “Clinical & Translational Science Award” (2024, Agbendeh Lubem Nathaniel)

CONFERENCE / INVITED TALKS

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1. 2024. “A novel peptidoglycan hydrolase plays pleiotropic roles in *C. difficile*”. Speaker at 22nd International Conference on Bacilli and Gram-positive Bacteria” (Jun 18-21, 2024. Indiana University, USA).
 2. 2024. “A novel peptidoglycan hydrolase plays pleiotropic roles in *C. difficile*”. Speaker at the “Florida Branch of the American Society for Microbiology 2024” (Oct 25-27, 2024. St. Petersburg, FL, USA)
 3. 2024. “A novel peptidoglycan hydrolase plays pleiotropic roles in *C. difficile*”. Speaker at “International Conference on Gram-positive Pathogens” (Oct 13-16, 2024. Omaha, Nebraska, USA)
 4. 2024. “Cwp2 as a vaccine candidate protects mice against *Clostridioides difficile* infection”. **Invited**

Speaker at “Vaccines Research & Development” (Nov 11-13, 2024. Boston, MA)

5. 2024. “Receptor binding domain 2 (RBD2) as an effective vaccine antigen against *Clostridioides difficile* binary toxin (CDT)”. **Invited Speaker** at “Vaccines Summit 2024” (Nov 13-15, 2024. Boston, MA)
6. 2023. “Mucosal Vaccine Strategies against *Clostridioides difficile* infection”. **Invited Speaker** at 8th International Conference on Vaccines Research & Development (Nov 6-8, 2023. Boston, MA)
7. 2023. “Novel multivalent vaccines against *Clostridioides difficile* infection. **Keynote Speaker** at International Summit on Vaccines research and Development (Sept 11-13, 2023. San Francisco, USA).
8. 2023. “Development of an effective nontoxigenic *Clostridioides difficile*-based oral vaccine against *C. difficile* Infection”. **Invited Speaker** at Vaccines Summit 2023 (Nov 13-15, 2023. Boston, MA).
9. 2023. “Recombinant fusion protein vaccine containing *Clostridioides difficile* FliC and FliD protects mice against *C. difficile* Infection”. **Invited Speaker** at Immunoforum 2023 (August 21-23, 2023. Vancouver, Canada)
10. 2023. “The challenges and status of vaccine development against *Clostridioides difficile* infection”. **Lead Speaker** at Exploring New Horizons in Biotechnology (ENB-2023), Banaras Hindu University (Feb 10-12, 2023. Virtual attending. Varanasi, India).
11. 2023. “*Clostridioides difficile* infection: Understanding its pathogenesis and designing novel approaches to blocking infection”. Speaker at “PhD program recruitment visit” (Feb 10 and Mar 17, 2023. USF).
12. 2022. “Development of effective vaccines against *Clostridioides difficile* infection”. **Convener and speaker** at American Society of Microbiology (ASM) 2022 meeting (June 9-13, 2022. Washington DC).
13. 2022. “The challenges and status of vaccine development against *Clostridioides difficile* infection” **Keynote Speaker** at International Conference and Expo on Applied Microbiology (Virtual Conference June 17-18, 2022).
14. 2022. “Multivalent vaccines against *Clostridioides difficile* infection”. **Invited speaker** at 7th International Conference on Vaccines Research & Development (November 7-9, 2022. Boston, USA).
15. 2022. “FliW and CsrA govern flagellin (FliC) synthesis and play pleiotropic roles in virulence and physiology of *Clostridioides difficile* R20291”. Speaker at Anaerobe 2022 (July 28-31, 2022. Seattle, USA)
16. 2022. “*Clostridioides difficile* infection: pathogenesis and designing novel approaches to blocking infection”. **Invited Speaker** in the course “Drug Discovery” (April 6, 2022, USF)
17. 2021. “Bacterial Pathogenesis” (Nov 24, 2021. **Invited Speaker** at Dankook University, South Korea.)
18. 2021. “The nontoxigenic *Clostridioides difficile* CCUG33785 protects mice against infection with an epidemic *C. difficile* strain”. **Convener and speaker** at World Microbe Forum, ASM and FEMS (June 20-24, 2021. Virtual Conference)
19. 2021. “*Clostridioides difficile* infection: understanding the host immune response and designing novel approaches to blocking infection”. (**Invited Speaker** in the Department of Chemistry, University of South Florida. Mar 31, 2021)
20. 2021. “Vaccine development against *Clostridioides difficile* infection”. (**Invited Speaker** at Vaccines Conference-2021, Virtual Conference, Aug 26-28, 2021, Paris, France)
21. 2020. “Innate immunity”. (December 9, 2020. **Invited Speaker** at Dankook University, South Korea.)
22. 2020. “Adaptive immunity”. (December 10, 2020. **Invited Speaker** at Dankook University, South Korea.)
23. 2020. “*Clostridioides difficile* infection: Understanding the host cell response”. (January 28, 2020. **Invited Speaker** at University of Florida)
24. 2019. “The role of Dendritic Cells in *Clostridium difficile* infection”. Speaker at Clostpath 11. (August 19-22, 2019. Leiden, The Netherlands)
25. 2019. “A Novel Bacteriophage Lysin-human Defensin Fusion Protein is Effective in Treatment of *Clostridioides difficile* Infection in Mice”. Speaker at Bacterial Infection & Host Defense. (April 4-7, 2019. Suzhou, China)
26. 2019. “*Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection”. (**Invited Speaker** at Nanjing University of Traditional Chinese Medicine. April 17, 2019. Nanjing, China)
27. 2019. “*Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection”. (**Invited Speaker** at Hangzhou Medical College. April 19, 2019. Hangzhou, China)
28. 2019. “*Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection”. **Invited Speaker** in the Infectious Disease Symposium. (January 14, 2019, USF)
29. 2018. “Chimeric protein vaccines against *Clostridium difficile* infection in mice”. Speaker at International Conference on Gram-positive Pathogens. (October 14-17, 2018. Omaha, USA).

30. 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. (December 22, 2018. Clearwater, FL)
31. 2018. "*Clostridium difficile* infection: Understanding the host cell response, antibiotic resistance and designing novel approaches to blocking infection". Speaker at USF-Irish Marine Biodiscovery Consortium. November 20, 2018. USF)
32. 2018. "Cwp22, a novel peptidoglycan cross-linking enzyme, plays pleiotropic roles in *Clostridium difficile* pathogenesis". **Invited Speaker** at 2nd International Congress and Expo Bacteriology. (November 15-16, 2018. Dallas, USA).
33. 2018. "Intestinal inflammation in *C. difficile* infection is regulated by Tpl2". **Invited Speaker** at International Conference and Exhibition on Immunology. (Nov 26-28, 2018. San Diego, USA).
34. 2018. "Emerging hypervirulent epidemic *Clostridium difficile* strains of St37 type (toxin A-B+) pose a potential threat in China". ASM meeting. (July 7-11, 2018. Atlanta, USA).
35. 2018. "Innate immune response to *Clostridium difficile* infection (CDI) and vaccine development against CDI" (April 4, 2018. **Invited Speaker** at Colorado State University, USA).
36. 2018. "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection". **Invited Speaker** in the course "Drug Discovery" (March 21, 2018. USF)
37. 2018. "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection". (March 1, 2018. **Invited Speaker** at Georgia State University, USA).
38. 2017. "Multivalent mucosal vaccines against *Clostridium difficile* infection". **Invited Speaker** at ASM Southeastern Branch meeting. (November 10-12, 2017. Saint Petersburg, FL, USA).
39. 2017. "TPL2 is a key regulator of inflammation in *C. difficile* infection". 10th International Conference on Molecular Biology and Pathogenesis of Clostridia. (August 7-10, 2017. Ann Arbor, Michigan, USA).
40. 2016. "Vaccine development against *Clostridium difficile* infection". (September 8, 2016. **Invited Speaker** at Dankook University, South Korea).
41. 2016. "The signaling events of TNF-alpha production in *Clostridium difficile* infection". (September 7, 2016. **Invited Speaker** at Dankook University, South Korea).
42. 2016. "The host cell response to *Clostridium difficile* infection". (September 9, 2016. **Invited Speaker** at Shanghai Jiao Tong University, China).
43. 2016. "The role of TNF-alpha in the pathogenesis of *Clostridium difficile* infection". (September 14, 2016. **Invited Speaker** at Chinese Academy of Agricultural Sciences, Lanzhou Veterinary Research Institute, China).
44. 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". Speaker at Anaerobe 2016. (July 11-14, Nashville, TN).
45. 2016. "The critical role of RhoA in *Clostridium difficile* toxin-induced TNF-alpha production". (April 15, 2016. **Invited Speaker** in the Department of Cell Biology, Microbiology & Molecular Biology, University of South Florida).
46. 2016. "*Clostridium difficile* infection: Understanding the host cell response and developing novel vaccines to prevent infection". **Invited Speaker** in the Bacteriologist Group Meeting. (May 4, 2016. University of South Florida).
47. 2016. "*Clostridium difficile* infection: Understanding the host cell response and developing novel vaccines to prevent infection". (March 9, 2016. **Invited Speaker** in the College of Medicine, University of South Florida).
48. 2016. "*Clostridium difficile* infection: progress in vaccine development". **Invited Speaker** in the Signature Interdisciplinary Program in Allergy, Immunology, and Infectious Disease program. (January 21, 2016. University of South Florida).
49. 2015. "Novel chimeric vaccines against *Clostridium difficile* infection". **Invited Speaker** at the Immunology Summit 2015. (September 28-30, 2015. Houston, Texas).
50. 2015. "Novel multivalent mucosal/oral vaccines against *Clostridium difficile* infection". (July 21, 2015. **Invited Speaker** at Tufts University, Institute of Innovation, Boston).
51. 2015. "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection". (February 26, 2015. **Invited Speaker** at the University of South Florida).
52. 2015. "*Clostridium difficile* infection: Understanding the host cell response and designing novel approaches to blocking infection". Speaker at Sino-Micro Symposium 2015. (June 2, 2015. New Orleans, USA).

53. 2015. "Development of novel vaccines against *Clostridium difficile* infection". (January 26, 2015. **Invited Speaker** in the Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts).
54. 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". Speaker at 2nd International Congress on Bacteriology and Infectious Diseases. (November 17-19, 2014. Chicago, USA).
55. 2014. "Development of novel vaccines against *Clostridium difficile* infection". (August 20, 2014. **Invited Speaker** at Tufts University, Tufts Institute for Innovation).
56. 2014. "Involvement of MAP kinases and RhoA in *Clostridium difficile* toxin A-induced TNF-alpha production by Macrophages". (January 13, 2014. **Invited Speaker** in the Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts).
57. 2013. "*Clostridium difficile* infection: pathogenesis and development of immune-based prevention and therapy". **Invited Speaker** at the BIT's 3rd Annual World Congress of Microbes. (2013, Wuhan, China).
58. 2012. "TNF-alpha and *Clostridium difficile* infection". Speaker at Campus-Wide Work-in-Progress. (February 14, 2012. Tufts University Cummings School of Veterinary Medicine.)
59. 2011, "A mouse relapse model of *C. difficile* infection and its application in evaluating immunotherapies against disease". Speaker at the 7th International Conference on the Molecular Biology and Pathogenesis of the Clostridia. (October 25-29, 2011. Ames, IA, USA).
60. 2011, "A chimeric vaccine prevents primary and recurrent *Clostridium difficile* infection". Speaker at the Fourteenth Annual Conference on Vaccine Research. (May 16-18, 2011. Baltimore, USA).
61. 2007, "Architecture of the 99 bp DNA – Six Protein Regulatory Complex of the λ *att* Site". Speaker at the American Society for Biochemistry and Molecular Biology Annual Conference. (April 28-May 2, 2007. Washington, DC. USA).
62. 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". Speaker at the Nucleic Acids Conference. (June 4-9, 2006. Salve Regina University, RI, USA.).

SCHOLARLY ACTIVITY (grant history)

Current:

1. NIH 2R01 AI132711 (**PI: X. Sun**; funded at **6** percentile): 04/01/2024 – 03/31/2029
 Title: Multivalent vaccines against *Clostridioides difficile* infection.
 Total costs for project period: \$3,702,781
2. NIH R01AI149852 (**PI: J. Cai / X. Sun**; funded at **4** percentile): 09/23/2019 – 08/31/2025
 Title: Novel polymer biomaterials combating *C. difficile* infection
 Total costs for project period: \$1,868,250
3. NIH R21 AI168781 (**PI: X. Sun / Y. Zhang**): 04/01/2024 – 03/31/ 2026
 Title: Development of probiotic-based and *Clostridioides difficile*-targeted therapeutics.
 Total costs for project period: \$356,251
4. USF CREATE (PI: R. Jiang): 06/01/2024 – 05/31/ 2027
 Title: Pushing the frontiers of precision medicine with interdisciplinary high-resolution research.
 My role: **Co-PI**
 Total costs for project period: \$500,000
5. USF CREATE (PI: L. Shaw / K. Kim / J. Adams): 06/01/2024 – 05/31/ 2027
 Title: USF Center for Antimicrobial Resistance.
 My role: **Co-Investigator**
 Total costs for project period: \$500,000
6. NIH S10OD030346 (PI: G. Thinakaran): 02/01/2021 – current
 Title: High-plex protein and gene expression digital spatial profiler for core facility
 My role: **Co-Investigator**
 Total costs for project period: \$450,500

7. Contract with Pan Theryx, Inc (**PI: X. Sun**): 06/01/2019 – current
Title: mRNA therapeutics against *Clostridioides difficile* infection
Total costs for project period: \$42,000
8. Anthony Gagliardi Foundation (**PI: X. Sun**): 08/30/2018 – current
Title: Support for research on *C. difficile*
Total costs for project period till 2023: \$47,500 NOTE: Yearly continuation for funding

Completed:

1. NIH R01 AI132711 (**PI: X. Sun**; funded at 7 percentile): 06/20/2017 – 05/31/2023
Title: Multivalent vaccines against *Clostridium difficile* infection
Total costs for project period: \$1,923,721
2. NIH R21 AI159745 (**PI: J. Lin / X. Sun**): 09/24/2021 – 08/31/2024
Title: Bile acid salt inhibitors and *Clostridioides difficile* infection
Total costs for project period: \$485,866
3. RVAC, Inc contract (**PI: X. Sun**): 06/15/2022 – 06/30/2024
Title: Assessment of efficacies of mRNAs in mouse and hamster models of *Clostridioides difficile* infection
Total costs for project period: \$436,906
4. USF Microbiome Research Award (**PI: R. Jiang / X. Sun**): 06/30/2023 – 6/30/2024
Title: Unleashing the power of the gut: a new approach to combat *Clostridioides difficile* infection
Total costs for project period: \$40,000
5. Florida High Tech Corridor Early-Stage Innovation Fund (**PI: X. Sun**) 03/01/2024 – 08/31/2024
Title: Development of Probiotic-Based Vaccines Delivery System Against *Clostridioides Difficile* Infection
Total costs for project period: \$25,000
6. NIH R03 DK112004 (**PI: X. Sun**): 04/14/2017 – 03/31/2019
Title: The role of tumor progression locus 2 (TPL2) in the pathogenesis of *C. difficile* infection
Total costs for project period: \$155,598
7. USF Internal grant (PI: R. Jiang): 03/01/2019 – 03/01/2020
Title: Decoding gut microbiome-host interactions at single-cell resolution during *C. difficile* infection
My role: **Co-Investigator**
Total costs for project period: \$100,000
8. NIH – K01DK092352 (**PI: X. Sun**): 04/01/2012 – 03/31/2018
Title: Signaling pathway of TNF- α production and *C. difficile* infection
Total costs for project period: \$469,625
9. NIH R21 AI113470 (**PI: X. Sun**): 05/01/2015 – 04/30/2018
Title: Multivalent bacillus mucosal vaccines against *C. difficile* infection
Total costs for project period: \$453,750
10. USF Interdisciplinary Seed Grant Award (**PI: X. Sun & B. Baker**): 02/15/2017 – 02/15/2018
Title: Bioprospecting antibiotics in the fungal metabolome to combat *C. difficile* infection
Total costs for project period: \$50,000
11. Sub-contract with HEPCO LLC Medical (**PI: My Lien Dao/X. Sun**): 07/01/2017 – 08/31/2018
Title: Antimicrobial activity of GEMS sole mate
Total costs for project period: \$10,000
12. Tufts Institute for Innovation Award (**PI: X. Sun**): 10/01/2014 – 08/31/2015
Title: Novel multivalent mucosal/oral vaccines against *C. difficile* infection
Total costs for project period: \$250,000
13. Tufts Technology Access Award (**PI: X. Sun**): 09/30/2013 – 08/31/2014
Title: Imaging of the dynamic distribution of *C. difficile* toxins and dendritic cells in live mice using *in vivo* imaging system
Total costs for project period: \$2000

14. Tufts Collaborates Award (PI: **X. Sun**): 07/01/2013 – 06/30/2015
 Title: A novel chimeric vaccine against *C. difficile* infection
 Total costs for project period: \$50,000
15. Contract with Jaguar Animal Health (PI: **X. Sun**): 04/01/2014 – 06/30/2015
 Title: Evaluation of SP303 for treatment of *C. difficile* infection in hamsters
 Total costs for project period: \$65,210
16. Tufts Collaborates (PI: **X. Sun**): 07/01/2014 – 07/31/2015
 Title: The role of colonic progenitor cells in the pathogenesis of *C. difficile* infection
 Total costs for project period: \$34,139

PUBLISHED BIBLIOGRAPHY

Peer Reviewed Journal Articles:

1. Zhu D, Wozniak K J, Midani F, Wang S, **Sun X**, Britton R A. (2024). Control of Clostridioides difficile virulence and physiology by the flagellin homeostasis checkpoint FliC-FliW-CsrA in the absence of motility. *mBio. Accepted*. (IF=6.4)
2. Wang S, Heuler J, Bullock J, Qin J, Chakraborty S, Nathaniel AL, Wang S, **Sun X***. Cell Wall Protein 2 as a Vaccine Candidate Protects Mice Against *Clostridioides difficile* Infection. *Vaccines*. Published on Dec 30, 2024. **Corresponding author**. (IF=5.2)
3. Zhang, F.; Wang, S.; Yang, J.; Fraser, K.; Gibson, J. M.; Wang, C.; Dordick, J. S.; Tomatsidou, A.; Linhardt, R. J.; Wang, L.; **Sun, X***, Characterization of heparin interactions with Clostridioides difficile toxins and its potential as anti-CDI therapeutics. *Carbohydr Polym*. Published in Dec 12, 2024. **Corresponding author**. (IF=10.7)
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Book and Book Chapter:

1. **Sun X**, Sinderen D V, Moineau S, & Heller K J. 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, 2009, ISBN: 978-1-6-692-181-4).
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ACADEMIC SERVICES

Services for National and International Grant Review Panels

- NIH Drug Discovery and Molecular Pharmacology A Study Section Panel (DMPA) (Nov 5-6, 2024)
- NIH Immunity and Host Defense Study Section Panel (IHD) (Feb 27-28, 2025)
- Grant Review panel for UK Research and Innovation (Nov 2024)
- Grant Review panel for Canada Foundation for Innovation (March 2024)
- Grant Review panel for Swiss National Science Foundation (Feb 2024)
- Grant Review panel for German Research Foundation (Jan 2024)
- NIH Drug Discovery and Molecular Pharmacology A Study Section Panel (Nov 5-6, 2024)
- **Co-Chair** for NIH Center for Scientific Review Special Emphasis Panel (ZRG1 IIDA-V (02) (Jul 17, 2024)
- NIH Vaccines Against Infectious Diseases (VID) Study Section Panel (Feb 29 -Mar 1, 2024)
- NIH Bacterial-Host Interactions (BHI) Study Section Panel (Nov 2-3, 2023)
- NIH Digestive System Host Defense, Microbial Interactions and Immune and Inflammatory Diseases (DHMI) Study Section Panel (June 29-30, 2023)
- NIH Topics in Bacterial Pathogenesis ZRG1 IIDB-k (90) Study Section Panel (Mar 29, 2023)
- Ad hoc Reviewer for French National Research Agency (May 2023)
- NIH Small Business: Anti-infective Therapeutics Study Section Panel (ZRG1 DCAI) (Dec 7-8, 2022)
- NIH Host Interactions with Bacterial Pathogens (HIBP) Study Section Panel (June 29-30, 2022)
- NIH Digestive System Host Defense, Microbial Interactions and Immune and Inflammatory Diseases (DHMI) Study Section Panel (Feb 24-25, 2022)
- NIH Director's New Innovator Award (DP2) Review Panel ZRG1 CVRS-A70 (Oct 12 – Dec 10, 2021)
- Ad hoc grant reviewer for Oak Ridge Associated Universities (08/15/2022 – 10/01/2022)
- NIH Innate Immunity and Inflammation Study Section Panel (June 23-25, 2021)
- Ad hoc grant review for Hong Kong Research Grants Council (RGC) (Mar 2021)
- NIH Director's New Innovator Award (DP2) Review Panel ZRG1 CVRS-A70 (Mar 16-17, 2021)
- **Chair** for NIH Study Section Panel (NIAID R34 and U01) (July 16, 2020)
- NIH Study Section Panel (IDM-B 81) (June 30, 2020)
- NIH Study Section Panel (Gastrointestinal Mucosal Pathobiology Study Section) (Feb 27-28, 2020)
- Ad hoc grant review for Medical Research Council, UK (Sept 2020)
- NIH Study Section Panel (Topics in Bacterial Pathogenesis study section) (July 18, 2019)
- NIH Study Section Panel (Topics in Bacterial Pathogenesis study section) (Mar 20, 2019)
- Ad hoc grant review panel for Cancer Research UK, Jan 16, 2019
- Ad hoc grant reviewer for Oak Ridge Associated Universities 07/31/2019 – 08/22/2019.
- 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) (Mar 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)

Services for Scientific Journals and Conferences

- **Special Issue Editor** for “Vaccines” (2024 -present, IF 5.2)
- **Associate Editor** for “Microbiological Research” (2024-present, IF 6.1)
- **Associate Editor** for “Molecular Medicine” (2019-present, IF 6.38)
- **Associate and Topic Editor** for “Frontiers in Microbiology” (2019-present, IF 5.08)
- **Associate Editor** for “Frontiers in Immunology” (2023-present, IF 7.3)
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- **Editorial Board** for “Applied and Environmental Microbiology” (2019-present, IF 5.00)
- **Editorial Board** for “Chinese Journal of Infection Control” (2023 -present)
- **Editorial Board** for “Animal Diseases” (2024-present)
- Ad hoc reviewer for **70 journals**: *Science, Nature Communication, Lancet, Proceedings of the National Academy of Sciences of the United States of America (PNAS), Cell Reports, Gut Pathogen, Infection and Immunity, Applied and Environmental Microbiology, Journal of Bacteriology, Molecular Microbiology, Journal of Clinical Microbiology, Antimicrobial Agents and Chemotherapy, New England Journal of Medicine, Proteomics, Plos One, Beneficial Microbes, Pathogens and Disease, Frontiers in Immunology, Scientific Reports, Microbiol. Spectr, mSystems, npj Vaccines, Vaccines, Journal of Functional Biomaterials, Trends in Pharmacological Sciences, Journal of Inflammation, International Journal of Biological Macromolecules, Emerging Microbes and Infections, Probiotics and Antimicrobial Proteins, iScience, Engineering, Communications Biology, Anaerobe, Infection, Genetics and Evolution, Expert Review in Drug Discovery, Nanomaterials, Informatics in Medicine Unlocked, Cell Reports, Genes, BMC Microbiology, Toxins, European Journal of Inflammation, Cells, Gene Therapy, Digestive Diseases and Sciences, Molecular Medicine, Acta Biochimica et Biophysica Sinica, Plos Pathogens, Bioorganic Chemistry, Life Sciences, Biomedical Journal, Annals of Translational Medicine, Infection and Drug Resistance, Journal of Clinical Medicine, Expert Opinion on Biological Therapy, Infection and Microbe, Clinical Microbiology and Infections, Human Vaccines and Immunotherapeutics, Stem Cells International, Current Medicinal Chemistry, mSphereDirect, Pediatric Research, Kuwait Journal of Science, Genes and Genomics, Future Microbiology, Current Medical Research and Opinion, JOVE, Beneficial Microbes, Microbiome, Pathogens and Disease, eBioMedicine, Proteomics,*
- Session chair for Vaccines Summit 2024 (Nov 13-15, Boston, USA)
- Judge for ASM Southeast Branch meeting (Sept 6-8, 2024)
- Judge for USF Health Research Day (2023)
- **Convener** and speaker at American Society of Microbiology (ASM) 2022 meeting (June 9-13, 2022)
- **Organizing Committee** for the Global Experts Meeting on Toxicology (July 14-16, 2022)
- Judge for USF Health Research Day (2022)
- **Convener** and speaker at ASM 2021 meeting (June 20-24, 2021)
- Judge for iPosters at ASM 2021 meeting (June 20-24, 2021)
- Moderator for 12th International Conference on the Molecular Biology & Pathogenesis of the Clostridia (Sept 13-16, 2021)
- Judge for Florida and Southeastern Branches ASM, Virtual Meeting (Mar 26, 2021)
- Judge for USF Health Research Day (2021)
- Judge for USF Health Research Day 2020
- **Organizing Committee** for “International Conference and Exhibition on Immunology” 2018, San Diego, USA
- **Chair** of Bacterial Pathogenesis Session, ASM Southeastern Branch Meeting (2017)
- **Chair** of the 3rd Annual Symposia of Bacteriology and Infection, Wuhan, China (July 30–Aug 1, 2013)

- Judge for USF Health Research Day in 2016, 2017, 2019

Services for University of South Florida (USF), Academic Societies and Community

- Mentor for “Global Academic Inventors Network” for NAI (National Academy of Inventors) since 2025
- Mentor for “ASM future Leaders Mentorship Fellowship (FLMF), May1, 2025 – April 30, 2027
- Judge for Invention Convention Florida Competition (April 12, 2025)
- Judge for high-school student debate tournament, Florida Gulf Coast Catholic Forensics league (FGCCFL) (Jan 16, 2025)
- Judge for high-school student debate tournament, Florida Gulf Coast Catholic Forensics league (FGCCFL) (Nov 9, 2024)
- Volunteer as a speaker for “Great American Teach-In” program at Young Middle Magnet School, Tampa, FL (Nov 25, 2024)
- USF Faculty Senate (Since Sept 2024)
- Faculty Recruitment Committee for Microbiome Faculty Search (2024)
- Faculty Recruitment Committee for Microbe and Infection Faculty Search (2024)
- Faculty Recruitment Committee for Microbiome Faculty Search (2023)
- **President** for USF Chapter of National Academy of Inventors, since 2023
- Review and Recruitment Committee for PhD program in the Morsani College of Medicine, USF (2023)
- Volunteer as a speaker for “Great American Teach-In” program, Leto High School, Tampa, FL. Dec 8, 2023
- **Vice President** for USF Chapter of National Academy of Inventors (2022)
- Review and Recruitment Committee for PhD program in the Morsani College of Medicine, USF (2022)
- **Volunteer as a Speaker** at 9th Annual Anthony Gagliardi Memorial Foundation Fundraising to support research on *Clostridioides difficile* (Dec 17, 2022. Clearwater, FL)
- **Secretary** for USF Chapter, National Academy of Inventors (2021)
- The Nominating Committee of the Morsani College of Medicine Faculty Council (Since 2021)
- Council Committee on Faculty Issues at USF, since 2020
- Member of the Research Committee, College of Medicine at USF (2017-2021)
- **Chair** of Research Committee of College of Medicine at USF (2019-2020)
- **IACUC Committee Member** of the University of South Florida (USF) (since 2020)
- Review and Recruitment Committee for PhD program in the Morsani College of Medicine, USF (2020)
- Review and recruitment Committee for PhD program in the Morsani College of Medicine, USF (2019)
- Review and recruitment Committee for PhD program in the Morsani College of Medicine, USF (2018)
- Review and recruitment Committee for PhD program in the Morsani College of Medicine, USF (2017)
- **Institutional Biosafety Committee (IBC) Member** of the University of South Florida (USF) (since 2017)
- Departmental Representative of Faculty Council for the College of Medicine at USF (2017-2019)
- 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 (2017 and 2018)

PROFESSIONAL MEMBERSHIP

- American Society for Microbiology
- Anaerobe Society of the Americas
- Society for Mucosal Immunology
- The American Association of Immunologists
- American Association for the Advancement of Science (AAAS)
- American Society for Microbiology Southeast Branch
- National Academy of Inventors (NAI)
- International Society for Vaccines (ISV)

MEDIA REPORT

- Nine USF faculty named senior members of National Academy of Inventors.

(<https://www.usf.edu/research-innovation/news/2025/nine-usf-faculty-named-senior-members-of-national-academy-of-inventors.aspx>)

- USF Tech Tour featuring Dr. Xingmin Sun. (<https://www.youtube.com/watch?v=vt0eclTxv90>)
- USF, Corridor collaboration supports infrastructure innovation, vaccine development and infection fighting strategies. (<https://www.usf.edu/research-innovation/news/2024/usf-corridor-collaboration-supports-infrastructure-innovation-vaccine.aspx>)
- Antibiotics intended to heal can actually encourage resistance of life-threatening C. difficile infection. (<https://hscweb3.hsc.usf.edu/blog/2022/10/12/antibiotics-intended-to-heal-can-actually-encourage-resistance-of-life-threatening-c-difficile-infection/>)
- Five USF Faculty Members Recognized with Excellence in Innovation Awards (<https://www.usf.edu/news/2020/five-faculty-members-recognized-with-excellence-in-innovation-awards.aspx>)
- 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. (<https://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. (<https://www.contagionlive.com/view/vaccine-for-clostridium-difficile-current-progress>)
- 14 USF Faculty Recognized in 2018 Outstanding Research Achievement Awards. (<https://www.research.usf.edu/absolute-news/templates/usfri-template.aspx?articleid=7255&zoneid=1>)
- 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>)