

Jennifer K. Herman

Texas A&M University
Department of Biochemistry and Biophysics
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EDUCATION

- Doctor of Philosophy**, Microbiology May 2005
Indiana University, Bloomington, IN
- Bachelor of Science**, Biochemistry May 2000
University of North Texas, Denton, TX
- Bachelor of Science**, Biology May 2000
University of North Texas, Denton, TX

EXPERIENCE

- Associate Professor** 2017-present
Texas A&M University, Department of Biochemistry and Biophysics
and the Center for Phage Technology
- Assistant Professor** 2011-2017
Texas A&M University, Department of Biochemistry and Biophysics
and the Center for Phage Technology
- Postdoctoral Fellow** 2007-2011
Harvard Medical School, Department of Microbiology and Molecular Genetics
Advisor: Dr. David Rudner
Regulation of DNA replication and cell division during *Bacillus* sporulation
- Postdoctoral Fellow** 2005-2007
Harvard Medical School, Microbiology and Molecular Genetics
Massachusetts General Hospital, Division of Infectious Diseases
Advisor: Dr. Marcia Goldberg
Secretion and folding of the *Shigella flexneri* autotransporter IcsA
- Graduate Research Assistant** 2000-2005
Indiana University, Department of Biology
Advisor: Dr. Yves Brun
Structure and function of the *Caulobacter crescentus* stalk

TEACHING

- Co-Instructor** 2018-present
BICH689 (Graduate Student Seminar)
Texas A&M, Department of Biochemistry and Biophysics
- Instructor** 2017-present
BICH689 (Application of Scientific Values in Daily Research Practice)
Texas A&M, Department of Biochemistry and Biophysics

Instructor

BICH689 (Methods of Biochemical Analysis) 2013-2016
Texas A&M, Department of Biochemistry and Biophysics

Instructor

BICH/GENE431 (Molecular Genetics) 2012-present
Texas A&M, Department of Biochemistry and Biophysics

Associate Instructor

Genetics 360 (Genetics Bootcamp) 2009-2011
Harvard Medical School, Microbiology and Molecular Genetics

Associate Instructor

M360 Bacterial Biochemistry and Physiology Laboratory 2004
Indiana University, Department of Biology

Associate Instructor

L323 Molecular Biology Laboratory 2003
Indiana University, Department of Biology

PUBLICATIONS

1. Sperber, A.M. and **J.K. Herman**. (2017). Metabolism shapes the cell. *J. Bacteriol.* 199(11): e00039-17. PMID: 28320879. Minireview.
2. Duan, Y., J.D. Huey, and **J.K. Herman**. (2016). The DnaA inhibitor SirA acts in the same pathway as Soj (ParA) to facilitate *oriC* segregation during *Bacillus subtilis* sporulation. *Mol Microbiol.* 102(3): 530-544. PMID: 27489185.
3. Duan, Y., A.M. Sperber, and **J.K. Herman**. (2016). YodL and YisK possess shape-modifying activities that are suppressed by mutations in *Bacillus subtilis mreB* and *mbi*. *J. Bacteriol.* 198(15): 2074-2088. PMID: 27215790.
4. Miller, A.K., E.E. Brown, B.T. Mercado, and **J.K. Herman**. (2016). A DNA-binding protein defines the precise region of chromosome capture during *Bacillus* sporulation. *Mol Microbiol.* 99(1): 111-122. PMID: 26360512.
5. Ababneh, Q.A. and **J.K. Herman**. (2015). "A secreted factor coordinate environmental quality with *Bacillus* development. *PLoS One.* 10(12): e0144168. PMID: 26657919.
6. Ababneh, Q.A. and **J.K. Herman**. (2015). "CodY regulates SigD levels and activity by binding to three sites in the *fla/che* operon." 197(18). *J. Bacteriol.* 197(1): 128-37. PMID: 26170408.
7. Ababneh, Q.A. and **J.K. Herman**. (2015). RelA Inhibits *Bacillus subtilis* motility and chaining. *J. Bacteriol.* 197(1): 128-137. PMID: 25331430.
8. **Wagner-Herman, J.K.**, R. Bernard, R. Dunne, A.W. Bisson-Filho, K. Kumar, T. Nyguen, L. Mulcahy, J. Koullias, F.J. Gueiros-Filho, and D.Z. Rudner. (2012). "RefZ facilitates the switch from medial to polar division during spore formation in *Bacillus subtilis*." *J. Bacteriol.* 169(17): 4608-4618. PMID: 22730127.

9. **Wagner, J.K.**, K. A. Marquis, and D. Z. Rudner. (2009). SirA enforces diploidy by inhibiting the replication initiator DnaA during spore formation in *Bacillus subtilis*. *Mol Microbiol.* 73(5): 963-974. PMID: 19682252.
10. **Wagner, J.K.**, J.E. Heindl, A.N. Gray, S. Jain, and M.B. Goldberg. (2009). Contribution of the periplasmic chaperone Skp to efficient presentation of the autotransporter IcsA on the surface of *Shigella flexneri*. *J Bacteriol.* 191(3): 815-21. PMID: 19047350.
11. **Wagner, J.K.** and Y.V. Brun. (2007). Out on a limb: how the *Caulobacter* stalk can boost the study of bacterial cell shape. *Mol Microbiol.* 64: 28–33. PMID: 17376069.
12. **Wagner, J.K.**, S. Setayeshgar, L. Sharon, J. Reilly, and Y.V. Brun. (2006). A nutrient uptake role for bacterial cell envelope extensions. *PNAS.* 103(31): 11772-11777. PMID: 16861302.
13. **Featured article:** See comment by H.H. McAdams, *PNAS.* 103(31): 11435-6.
14. **Wagner, J.K.**, C.D. Galvani, and Y.V. Brun. (2005). *Caulobacter crescentus* requires RodA and MreB for stalk synthesis and prevention of ectopic pole formation. *J. Bacteriol.* 187(2): 544-553. PMID: 15629926
15. **Wagner, J.K.** and Y.V. Brun. 2004. Regulation of cell division in differentiating bacteria. *Molecules in time and space: bacterial shape, division, and phylogeny.* M. Vicente, A. Valencia, J. Tamames, and J. Mingorance (eds). Kluwer Academic/Plenum Publishers.
16. He, X., W. Chang, D. L. Pierce, L. Seib, **J. Wagner**, and C. Fuqua. 2003. Quorum-sensing in *Rhizobium* sp. NGR234 regulates conjugal transfer (*tra*) gene expression and influences growth rate. *J. Bacteriol.* 185: 809-822. PMID: 12533456
17. Danhorn, T., W. Ng, A. Richardson, J. Santos, J. Stumpf, M. Trimble, **J. Wagner**, and C. Kao. 2003. "All's well that ends well: Creative solutions viruses use to ensure proper ends of linear genomes." *Rec. Res. Dev. Virol.* 5: 45-66.

INVITED ORAL PRESENTATIONS

1. **J.K. Herman.** Mbl-dependent localization of a stationary phase enzyme. July 2018. Gordon Research Conference (Bacterial Stress Response), Mt. Holyoke, MA.
2. **J.K. Herman.** Regulation in the 3D landscape of a cell. November 2017. Baylor University, Department of Chemistry and Biochemistry, Waco, TX.
3. **J.K. Herman.** Regulation of essential cell processes during *Bacillus* development. October 2017. University of Arkansas for the Medical Sciences, Department of Microbiology and Immunology, Little Rock, AR.
4. **J.K. Herman.** Keynote Address. Regulation of essential cell processes during *Bacillus* development. October 2017. Indiana University Section of Microbiology Retreat, Klawns, IN.
5. **J.K. Herman.** Regulation of essential cell processes during *Bacillus* development. March 2017. Department of Molecular Virology and Microbiology, Baylor College of Medicine, Houston.
6. **J.K. Herman.** Regulation of essential cell processes during *Bacillus* development. February 2017. Department of Molecular Biology, University of Wyoming, Laramie.

7. **J.K. Herman.** Regulation of essential cell processes during *Bacillus* development. September 2016. Texas. Bayou Science and Mathematics Colloquium. College of Science and Engineering at the University of Houston-Clear Lake.
8. **J.K. Herman.** Subcellular Organization in Bacteria. August 2015. Texas A&M Biochemistry and Genetics Society monthly meeting. Texas A&M University.
9. **J.K. Herman, P. Straight, and J. Gill.** Navigating a career in academic research. June 2016. Biochemistry Graduate Student Association, Career Development Series. Texas A&M University.
10. **J.K. Herman.** Protein-based regulators of MreB and Mbl activity. August 2015. Molecular Biology of Bacteria and Phages Meeting, Madison, WI.
11. **J.K. Herman.** DNA motifs define the precise region of chromosome capture during *Bacillus* sporulation. June 2015. American Society of Microbiology, Prokaryotic Cell Biology and Development, Washington, D.C.
12. **J.K. Herman.** Identification and characterization of RefZ, a new regulator of FtsZ assembly. April 2013. Texas A&M, Department of Biology.
13. **J.K. Herman.** Identification and characterization of RefZ, a new regulator of FtsZ assembly. March 2013. Texas A&M University Health Science Center, Institute of Bioscience and Technology.
14. **J.K. Herman.** Characterization of RefZ, a new regulator of FtsZ assembly during *Bacillus subtilis* sporulation. Lost Pines Conference, November 2012. University of Texas, MD Anderson Cancer Center.

SERVICE

Biochemistry Graduate Student Association Mentor Department of Biochemistry and Biophysics	2012-2014
Graduate Recruitment Committee Department of Biochemistry and Biophysics	2012- 2014
Graduate Program Committee Department of Biochemistry and Biophysics	2012-present
Website Committee Department of Biochemistry and Biophysics	2013-present
Department Head Search Committee Department of Biochemistry and Biophysics	2017-2018
Molecular Genetics of Bacteria and Phages Meeting Poster Judge	2014
Ad Hoc Reviewer, Peer-reviewed Journals	
• Journal of Bacteriology	2013-present
• Molecular Microbiology	2015-present
• PLoS Genetics	2015-present
• PLoS One	2015-present
• Developmental Cell	2016-present
• Microbiology	2016-present

Ad Hoc Reviewer, Grant Funding Agencies

- NSF (Molecular and Cellular Biosciences) 2017
- NIH (NIGMS-PCMB) 2017
- Science Foundation of Ireland (Spokes Programme) 2017

PROFESSIONAL ORGANIZATIONS

American Society of Microbiology 2000-present
Texas Branch ASM 2014-present

FELLOWSHIPS

Harold G. Ernst Fellowship in Bacteriology and Immunology 2008-2009
Harvard Medical School

NIH T32 AI07061 Postdoctoral Training Grant 2005-2007
Infectious Disease and Basic Microbiological Mechanisms
Harvard Medical School

Floyd Fellowship in Microbiology 2002-2005
Indiana University, Department of Biology

American Society for Microbiology Student Travel Grant 2002
Indiana University, Department of Biology

NIH T32 GM007757 Predoctoral Training Grant 2000-2003
Genetics and Molecular Sciences
Indiana University, Department of Biology

AWARDS

Floyd Outstanding Publication in Microbiology 2007
Indiana University, Department of Biology

Outstanding Associate Instructor in Biology 2003-2004
Indiana University, Department of Biology

Walter Konetzka Fellowship for Teaching and Research in Microbiology 2003
Indiana University, Department of Biology

NSF Graduate Research Fellowship Honorable Mention 2002
Indiana University, Department of Biology

NSF Graduate Research Fellowship Honorable Mention 2001
Indiana University, Department of Biology

Outstanding Senior in Biology 2000
University of North Texas, Department of Biology

GRANTS AND CONTRACTS

National Science Foundation
06-505129 (PI: Dr. Jennifer K. Herman)
8/01/2015-07/31/2018

\$467,654 Direct Costs for Entire Project Period (\$159,001/yr 1; \$152,680 yr 2; \$155,973/yr 3)

\$650,466 Total Costs for Entire Project Period (including Indirect Costs)

Positional Regulation of Cell Division

The premise of this research is that the bacterial nucleoid encodes a largely overlooked reservoir of topological information, and the aim is to elucidate the mechanisms by which the nucleoid functions as a primary positional determinant in the 3D landscape of a bacterial cell. Biochemical, structural, genetic, and cell biological approaches will be employed to elucidate the role of the DNA-binding protein, RefZ, in the regulation cell division during *Bacillus subtilis* sporulation.

Bill and Melinda Gates Foundation

06-505129 (Co-PI: Dr. Ryland Young and Dr. Jennifer K. Herman) 5/01/2016-10/31/2017

\$100,000 Direct Costs for Entire Project Period (\$50,000/yr 1; \$50,000 yr 2)

Phagocins: Precision Tools for the Remodeling the Microbiota

In this collaborative grant with Dr. Ryland Young, we are engineering the *Bacillus subtilis* phagocin PBSX, to target an expanded host range by altering the phagocin tails. The ultimate goal is to utilize the phagocins as low-cost, species specific tools to remodel the human microbiota.