

**Joseph A. Sorg, Ph.D**

Professor & Associate Dept. Head  
 Texas A&M University  
 Department of Biology  
 3258 TAMU  
 College Station, TX 77843

Office Phone: (979) 845-6299  
 Lab Phone: (979) 845-6233  
 Fax: (979) 845-2891  
 Email: [jsorg@bio.tamu.edu](mailto:jsorg@bio.tamu.edu)  
 Website: <http://www.thesorglab.com>

**EDUCATION AND POSITIONS**

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**TEXAS A&M UNIVERSITY, College Station, TX**

Professor:	Department of Biology	09/20 – present
Associate Dept Head For Faculty Affairs	Department of Biology	08/21 – present
Associate Professor:	Department of Biology	09/16 – 09/20
Assistant Professor:	Department of Biology	11/10 – 09/16
Courtesy Appointment:	Department of Microbial Pathogenesis and Immunology (courtesy appointment)	2/16-present

**TUFTS UNIVERSITY SCHOOL OF MEDICINE, Boston, MA**

Postdoctoral Fellow:	Department of Molecular Biology and Microbiology	2006-2010
Fellowship Topic:	Germination and pathogenesis of <i>Clostridium difficile</i>	
Advisor:	Dr. Abraham L. Sonenshein	

**THE UNIVERSITY OF CHICAGO, Chicago, IL**

Doctor of Philosophy:	Microbiology	2001 - 2006
Dissertation Topic:	Type III secretion blockades in <i>Yersinia</i> spp.	
Advisor:	Dr. Olaf Schneewind	

**PURDUE UNIVERSITY, West Lafayette, IN**

Bachelor of Science:	Biochemistry	1997 - 2001
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**PUBLICATIONS**

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Key: (**Bolded** – Sorg, JA., Underline – Graduate Students, *Italics* – Postdocs, *Italic + Underline* – Technicians, ***Italic + Bold*** – Undergraduates)

**Original, Peer-Reviewed, Research Articles:****Graduate and Postdoctoral Publications**

- 1) Cambronne, ED., **Sorg, JA.**, Schneewind O. (2004). Binding of SycH chaperone to YscM1 and YscM2 activates effector *yop* expression in *Yersinia enterocolitica*. J. Bacteriol. 186(3):829-41. PMC321491.
- 2) Goss, JW.,\* **Sorg, JA.**,\* Ramamurthi, KS., Ton-That, H., Schneewind O. (2004). The secretion signal of YopN, a regulatory protein of the *Yersinia enterocolitica* type III secretion pathway. J Bacteriol. 2004 Sep;186(18):6320-4. PMC515147.  
\*These authors contributed equally to this work
- 3) **Sorg, JA.**, Miller, NC., Schneewind, O. (2005). Substrate recognition of type III secretion machines- testing the RNA signal hypothesis. Cellular Microbiology. 2005 Sep;7(9):1217-25. (PMC In progress)
- 4) **Sorg, JA.**, Miller, NC., Marketon, MM., Schneewind, O. (2005). Rejection of Impassible Substrates by *Yersinia* Type III Secretion Machines. J. Bacteriol. 2005 Oct; 187(20): 7090-102. PMC1251613.

- 5) **Sorg, JA.**, Blaylock, B., Schneewind, O. (2006). Signal Peptide Recognition by YscN, the *Yersinia* Type III Secretion ATPase. PNAS. 2006 Oct; 103(44): 16490-16495. PMC1637609.
- 6) **Sorg, JA.** and Sonenshein, AL. (2008). Bile salts and glycine as co-germinants for *Clostridium difficile* spores. J. Bacteriol. 2008 April; 190(7): 2505-12. PMC2293200.
- 7) Riordan, KE., **Sorg, JA.**, Berube, BJ., Schneewind, O. (2008). Impassable YscP substrates and their impact on the *Yersinia enterocolitica* type III pathway. J. Bacteriol. 2008 Sep; 190(18): 6204-16. PMC2546781.
- 8) Blaylock B., **Sorg, JA.**, Schneewind, O. (2008). *Yersinia enterocolitica* type III secretion of YopR requires a structure in its mRNA. Mol. Microbiol. 2008. Dec; 70(5): 1210-22. PMC2990915.
- 9) **Sorg, JA.** and Sonenshein, AL. (2009). Chenodeoxycholate is an inhibitor of *Clostridium difficile* spore germination. J. Bacteriol. 2009. Feb;191(3): 1115-1117. PMC2632082.
- 10) **Sorg, JA.** \* and Dineen, SS. (2009). Laboratory Maintenance of *Clostridium difficile*. Curr Protoc Microbiol. 2009. Feb; Chapter 9: Unit 9A.1. (PMC In progress)  
\*Corresponding author
- 11) Giel, JL., **Sorg, JA.**, Sonenshein, AL., Zhu, J. (2010). Metabolism of bile salts in mice influences spore germination in *Clostridium difficile*. PLoS One. 2010. Jan 15;5(1):e8740. PMC2806926.
- 12) **Sorg, JA.** and Sonenshein, AL. (2010). Inhibiting the initiation of *Clostridium difficile* spore germination using analogs of chenodeoxycholic acid, a bile acid. J. Bacteriol. 2010. Oct;192(190): 4983-90. PMC2944524.

#### Publications at Texas A&M University

- 13) Bouillaut, L., McBride, SM., **Sorg, JA.** (2011). Genetic Manipulation of *Clostridium difficile*. Curr Protoc Microbiol. 2011. Feb; Chapter 9:Unit 9A.2. (PMC In progress)
- 14) Allen, CA., Babakhani, F., Sears, P., Nguyen, L., **Sorg, JA.** (2013). Both Fidaxomicin and Vancomycin Inhibit Outgrowth of *Clostridium difficile* spores. Antimicrob. Agents Chemother. 2013. Jan. 57(1):664. PMC3535933
- 15) Richter, SG., Elli, D., Kim, HK., Hendrickx, APA., **Sorg, JA.**, Schneewind, O., Missiakas, D. (2013). Small molecule inhibitor of lipoteichoic acid synthesis is an antibiotic for Gram-positive bacteria. PNAS. 2013 Feb 26; 110(9): 3531-6. PMC3587227
- 16) Chen, S., Wilson-Stanford, S., Cromwell, W., Hillman, JD., Guerrero, A., Allen, CA., **Sorg, JA.**, Smith, L. (2013) Characterization of Site Directed Mutations in the Lanthipeptide Mutacin 1140. Appl Environ Microbiol. 2013 Jul; 79(13): 4015-23. PMC3697549.
- 17) Francis, MB., Allen, CA., Shrestha, R., **Sorg, JA.** (2013) Bile Acid Recognition by the *Clostridium difficile* Germinant Receptor, CspC, Is Important for Establishing Infection. PLoS Pathog. 2013. 9(5): e1003356. doi:10.1371/journal.ppat.1003356. PMC3649964.
- 18) Francis, MB., Allen, CA., **Sorg, JA.** (2013) Muricholic acids inhibit *Clostridium difficile* spore germination and growth. PLoS ONE. 2013. Sep 9;8(9):e73653. doi: 10.1371/journal.pone.0073653. PMC3767737.
- 19) Paredes-Sabja, D., Shen, A., **Sorg, JA.** (2014) *Clostridium difficile* spore biology: sporulation, germination and spore structural proteins. Trends Microbiol. pii: S0966-842X(14)00074-2. doi: 10.1016/j.tim.2014.04.003. (PMC In progress)
- 20) Francis, MB., Allen, CA., **Sorg, JA.** (2015) Spore cortex hydrolysis precedes DPA release during *Clostridium difficile* spore germination. J Bacteriol. 2015 Jul;197(14):2276-83. doi: 10.1128/JB.02575-14 (PMC4524186)
- 21) Bouillaut, L., McBride, S., **Sorg, JA.**, Schmidt, DJ., Suarez, JM., Tzipori, S., Mascio, C., Chesnel, L., Sonenshein, AL. (2015). Effects of Surotomycin on *Clostridium difficile* Viability and Toxin Production In Vitro. Antimicrob Agents Chemother. 2015 Jul;59(7):4199-205. doi: 10.1128/AAC.00275-15 (PMC4468702)
- 22) Fimlaid, KA., Jensen, O., Donnelly, ML., Francis, MB., **Sorg, JA.**, Shen, A. (2015) Identification of a novel lipoprotein regulator of *Clostridium difficile* spore germination. PLoS Pathog. 2015 Oct 23;11(10):e1005239. doi: 10.1371/journal.ppat.1005239. (PMC4619724)

- 23) Bhattacharjee, D., Francis, MB., Ding, X., McAllister, KN., Shrestha, R., **Sorg, JA.**, (2015) Re-examining the germination phenotypes of several *Clostridium difficile* strains suggests another role for the CspC germinant receptor. *J Bacteriol.* 2016 March; 198(5): 777-786 (PMC4810609)
- 24) Bhattacharjee, D., McAllister, KN., **Sorg, JA.** (2016) Germinants and their receptors in clostridia. *J. Bacteriol.* In press. 18 July 2016 , doi:10.1128/JB.00405-16
- 25) Francis, MB., **Sorg, JA.** (2016) Detecting cortex fragments during bacterial spore germination. *J Vis Exp.* 2016 Jun 25;(112). doi: 10.3791/54146.
- 26) Francis, MB., **Sorg, JA.** (2016) Dipicolinic acid release by germinating *Clostridium difficile* spores occurs through a mechanosensing mechanism. *mSphere.* 2016 Dec 14;1(6). pii: e00306-16
- 27) Girinathan, BP., Monot, M., Boyle, D., McAllister, KN., **Sorg, JA.**, Dupuy, B., Govind, R. (2017) Effect of *tcdR* Mutation on Sporulation in the Epidemic *Clostridium difficile* Strain R20291. *mSphere.* 2017 Feb 15;2(1) pii: e00383-16. doi: 10.1128/mSphere.00383-16
- 28) Shrestha, R., Lockless, SW., **Sorg, JA.** (2017) A *Clostridium difficile* alanine racemase affects spore germination and accommodates serine as a substrate. *J Biol Chem.* 2017 Jun 23;292(25):10735-10742. doi: 10.1074/jbc.M117.791749. Epub 2017 May 9.
- 29) McAllister, KN., Bouillaut, L., **Kahn, JN.**, Self, WT., **Sorg, JA.** Using CRISPR-Cas9-mediated genome editing to generate *C. difficile* mutants defective in selenoproteins synthesis. *Sci Rep.* 2017 Nov 7;7(1):14672. doi: 10.1038/s41598-017-15236-5.
- 30) Shrestha, R., **Sorg, JA.** Hierarchical recognition of amino acid co-germinants during *Clostridioides difficile* spore germination. *Anaerobe.* 2017 Dec 6;49:41-47. doi: 10.1016/j.anaerobe.2017.12.001.
- 31) Zhu, D., **Sorg, JA.**, Sun, X. (2018) *Clostridioides difficile* biology: sporulation, germination, and corresponding therapies for *C. difficile* infection. *Front Cell Infect Microbiol.* 2018 Feb 8;8:29. doi: 10.3389/fcimb.2018.00029. (PMC5809512)
- 32) Bhattacharjee, D., **Sorg, JA.** Conservation of the "outside – in" germination pathway in *Paraclostridium bifermentans*. 2018. *Front. Microbiol.* 9:2487. doi: 10.3389/fmicb.2018.02487 (PMC In progress)
- 33) Bouillaut, L., Dubois, T., Francis, MB., Daou, N., Monot, M., **Sorg, JA.**, Sonenshein, AL., Dupuy, B. (2019) Role of the global regulator Rex in control of NAD<sup>+</sup>-regeneration in *Clostridioides (Clostridium) difficile*. *Mol Microbiol.* 2019 Mar 18. doi: 10.1111/mmi.14245
- 34) Shrestha, R., **Sorg, JA.** (2019) Terbium chloride influences *Clostridium difficile* spore germination. *Anaerobe.* 2019 Mar 26. pii: S1075-9964(19)30063-0. doi: 10.1016/j.anaerobe.2019.03.016.
- 35) Shrestha, R., Cochran, AM., **Sorg, JA.** The requirement for co-germinants during *Clostridium difficile* spore germination is influenced by mutations in *yabG* and *cspA*. *PLoS Pathog.* 2019 Apr 3; 15(4):e1007681. doi: 10.1371/journal.ppat.1007681.
- 36) McAllister, KN., **Sorg, JA.** CRISPR genome editing systems in the genus *Clostridium*: a timely advancement. *J. Bacteriol.* 2019 May 13. pii: JB.00219-19. doi: 10.1128/JB.00219-19.
- 37) Bhattacharjee, D., **Sorg, JA.** Factors and conditions that impact electroporation of *Clostridioides difficile* strains. *mSphere.* 2020 Mar 4;5(2):e00941-19. doi: 10.1128/mSphere.00941-19.
- 38) Engevik, MA., Danhof, HA., Shrestha, R., Chang-Graham, AL., Hyser, JM., Haag, AM., Mohammad, MA., Britton, RA., Versalovic, J., **Sorg, JA.**, Spinler, JK. Reuterin disrupts *Clostridioides difficile* metabolism and pathogenicity through reactive oxygen species generation. *Gut Microbes.* 2020 Nov 9;12(1):1788898. doi: 10.1080/19490976.2020.1795388. PMID: 32804011
- 39) Simeon, RA., Zeng, Y., Chonira, V., Aguirre, AM., Lasagna, M., Baloh, B., **Sorg, JA.**, Tommos, C., Chen, Z. Protease-stable DARPins as promising oral therapeutics. *Protein Eng Des Sel.* 2021 Feb 15;34:gzab028. doi: 10.1093/protein/gzab028. PMID: 34882774

- 40) McAllister, KN., Martinez Aguirre, A., **Sorg, JA.** The selenophosphate synthetase, *selD*, is important for *Clostridioides difficile* physiology. *J Bacteriol.* 2021 May 20;203(12):e0000821. doi: 10.1128/JB.00008-21. Epub 2021 Apr 5. PMID: 33820795
- 41) Nerber, HN., **Sorg, JA.** The small acid-soluble proteins of *Clostridioides difficile* are important for UV resistance and serve as a check point for sporulation. *PLoS Pathog.* 2021 Sep 8;17(9):e1009516. doi: 10.1371/journal.ppat.1009516. eCollection 2021 Sep. PMID: 34496003
- 42) Baloh, B., **Sorg, JA.** *Clostridioides difficile* SpoVAD and SpoVAE interact and are required for dipicolinic acid uptake into spores. *J Bacteriol.* 2021 Oct 12;203(21):e0039421. doi: 10.1128/JB.00394-21. Epub 2021 Aug 23. PMID: 34424035
- 43) Aguirre, AM., Yalcinkaya, N., Wu, Q., Swennes, A., Tessier, ME., Roberts, P., Miyajima, F., Savidge, T., **Sorg, JA.** Bile acid-independent protection against *Clostridioides difficile* infection. *PLoS Pathog.* 2021 Oct 19;17(10):e1010015. doi: 10.1371/journal.ppat.1010015. eCollection 2021 Oct. PMID: 34665847
- 44) Baloh, M., **Sorg, JA.** *Clostridioides difficile* spore germination: initiation to DPA release. *Curr Opin Microbiol.* 2021 Nov 19;65:101-107. doi: 10.1016/j.mib.2021.11.001. Online ahead of print. PMID: 34808546
- 45) Chandra, H., **Sorg, JA.**, Hassett, DJ., Sun, X. Regulatory transcription factors of *Clostridioides difficile* pathogenesis with a focus on toxin regulation. *Crit Rev Microbiol.* 2022 Apr 7:1-16. doi: 10.1080/1040841X.2022.2054307. PMID: 35389761
- 46) Baloh, M., Nerber, HN., **Sorg, JA.** Imaging *Clostridioides difficile* spore germination and germination proteins. *J Bacteriol.* 2022 Jul 19;204(7):e0021022. doi: 10.1128/jb.00210-22. Epub 2022 Jun 28. PMID: 35762766
- 47) Aguirre, AM., **Sorg, JA.** Gut associated metabolites and the roles in *Clostridioides difficile* pathogenesis. *Gut Microbes.* 2022 Jan-Dec;14(1):2094672. doi: 10.1080/19490976.2022.2094672. PMID: 35793402
- 48) Auirre, AM., Adegbite, A., **Sorg, JA.** *Clostridioides difficile* bile salt hydrolase activity has substrate specificity and affects biofilm formation. *NPJ Biofilms Microbiomes.* 2022 Nov 30;8(1):94. doi: 10.1038/s41522-022-00358-0
- 49) Marini, E., Olivenca, C., Ramalhete, S., Aguirre, AM., Ingle, P., Melo, MN., Antunes, W., Minton, NP., Hernandez, G., Cordeiro, TN., **Sorg, JA.**, Serrano, M., Henriques, AO. A sporulation signature protease is required for assembly of the spore surface layers, germination and host colonization in *Clostridioides difficile*. *PLoS Pathog.* 2023;19(11):e1011741. doi: 10.1371/journal.ppat.1011741. PubMed PMID:37956166 PubMed Central PMC10681294.
- 50) Nerber, HN., **Sorg, JA.** The small acid-soluble proteins of spore-forming organisms: Similarities and differences in function. *Anaerobe.* 2024 Apr 4;87:102844. doi: 10.1016/j.anaerobe.2024.102844.
- 51) Brehm, JN., **Sorg, JA.** Theophylline-based control of *repA* on a *Clostridioides difficile* plasmid for use in allelic exchange. *Anaerobe.* 2024 Apr 29;88:102858. doi: 10.1016/j.anaerobe.2024.102858.
- 52) Martins, D., Nerber, HN., Roughton, CB, Fasquelle, A., Barwinska-Sendra, A., Vollmer, D., Gray, J., Vollmer, W., **Sorg, JA.**, Salgado, PS., Henriques, AO., Serrano, M. Cleavage of an engulfment peptidoglycan hydrolase by a sporulation signature protease in *Clostridioides difficile*. *Mol Microbiol.* 2024 Jun 22. doi: 10.1111/mmi.15291
- 53) Nerber, HN., Baloh, M., Brehm, JN., **Sorg JA.** The small acid soluble proteins of *Clostridioides difficile* regulate sporulation in a SpoIVB2 dependent manner. *PLoS Pathog.* 2024 Aug 30;20(8):e1012507. doi: 10.1371/journal.ppat.1012507. eCollection 2024 Aug
- 54) Osborne, MR., Brehm, JN., Olivenca, C., Cochran, AM., Serrano, M., Henriques, AO., **Sorg, JA.** The impact of YabG mutations on *Clostridioides difficile* spore germination and processing of spore substrates. *Mol Microbiol.* 2024 Sep 11. doi: 10.1111/mmi.15316.
- 55) Huang, X., Johnson, AE., Brehm, JN., Do, TVT., Auchtung, TA., McCullough, HC., Lerma, AI., Haidacher, SJ., Hoch, KM., Horvath, TD., **Sorg, JA.**, Haag, AM., Auchtung, JM. *Clostridioides difficile* colonization is not mediated by bile salts and utilizes Stickland

- fermentation of proline in an *in vitro* model. *mSphere*. 2025 Jan 16:e0104924. doi: 10.1128/msphere.01049-24.
- 56) Beebe, BA., Paredes-Sabja, D., Kociolek, LK., Rodriguez, C., **Sorg, JA.** Phenotypic analysis of various *Clostridioides difficile* ribotypes reveals consistency among core phenotypes. *Appl Environ Microbiol*. 2025 Jul 23;91(7):e0096425. doi: 10.1128/aem.00964-25. Epub 2025 Jun 24.
- 57) Osborne, MR., **Sorg, JA.** Cysteine proteases and how the sporulation signature protease, YabG, fits into clan CD. *J. Bacteriol.* *in press*.

**Non-peer-reviewed:**

- 58) Janvilisry, T., **Sorg, JA.**, Sadowsky, MJ. Editorial: Alternative therapeutic approaches for multidrug resistant *Clostridium difficile*. *Front Microbiol*. 2019 May 31;10:1216. doi: 10.3389/fmicb.2019.01216. eCollection 2019.
- 59) **Sorg, JA.** (2011). "Clostridium." *World Book Advanced*. World Book, 2011. Web. 7 Nov. 2011.
- 60) Francis, MB., **Sorg, JA.** (2013) EMS Mutagenesis of *Clostridium difficile* to Identify Strains with Germination-null Phenotypes. *Bio-protocols.org* (ISN: 2331-8325).
- 61) Francis, MB., **Sorg, JA.** (2013) Virulence Studies of *Clostridium difficile*. *Bio-protocols.org* (ISSN: 2331-8325).
- 62) **Sorg, JA.** (2014). Microbial Bile Acid Metabolic Clusters: The Bouncers at the Bar. *Cell Host & Microbe*. Invited preview. Nov 12;16(5):551-2.
- 63) Savidge, T., **Sorg, JA.** (2019) Role of bile in infectious disease: the Gall of 7 $\alpha$ -dehydroxylating bacteria. *Cell Chem Biol*. 2019 Jan 17;26(1):1-3. doi: 10.1016/j.chembiol.2018.12.010.
- 64) Paredes-Sabja, D., Pizarro-Guajardo, M., **Sorg, JA.** Editorial: Pathogenic clostridia. *Anaerobe*. 2024 Sep 14;90:102911. doi: 10.1016/j.anaerobe.2024.102911
- 65) Beebe, MA., Paredes-Sabja, D., Kociolek, LK., Rodriguez, C., **Sorg, JA.** Phenotypic analysis of various *Clostridioides difficile* ribotypes reveals consistency among core processes. *bioRxiv*. 2025 Jan 10:2025.01.10.632434. doi: 10.1101/2025.01.10.632434.

**Complete List of Published Work in MyBibliography:**

<http://www.ncbi.nlm.nih.gov/sites/myncbi/joseph.sorg.1/bibliography/40274040/public/?sort=date&direction=ascending>

**FUNDING**

**In Progress:**

**NIH / NIAID: R01** – Engineering Biologics for treatment of enteric diseases (11/30/2023 – 10/31/2028; Role: Co-I)

**NIH / NIAID: R01** – Impact of the *C. difficile* small acid soluble proteins on spore physiology (08/02/2022 – 07/31/2027 (1R01AI172043; Role: PI)

**NIH / NIAID: R01** – Mechanisms of *Clostridium difficile* spore germination. 04/01/15 – 03/31/25. (1R01AI116895-01; Role: PI) In NCE.

**TAMU** – Chancellor EDGES Fellowship. 10/01/20 – present

**Completed:**

**NIH / NIAID: R13** – 13<sup>th</sup> International Conference on the Molecular Biology & Pathogenesis of Clostridia (08/11/2023 – 07/31/2024; Role: PI)

**NIH/ NIAID: R56** - Oral Protein Therapeutics Against *C. difficile* Associated Colitis. 09/01/21 – 08/31/22

**NIH/ NIAID: R21** – Role of circadian rhythms in the susceptibility to *Clostridium difficile* infection. 01/31/20 – 12/31/21 (1R21AI144454-01A1; Role: PI)

**NIH / NIAID: U01** – Decoding Antibiotic-induced Susceptibility to *Clostridium difficile* infection. 08/20/2016 – 7/31/2021. (1U01AI124290-01; Role: Co-PI)

**NIH / NIAID: R15** – Alternate roles of *C. difficile* TcdR. 01/01/2016 – 12/31/2018 (1R15AI122173-01; Role: Collaborator)

**NIH / NIAID: R43** – Novel anti-infectives for *C. difficile* infection 08/03/2017 – 04/30/2018 (1R43AI132058-01; Role: Collaborator).

**Texas A&M College of Science: STRP** – Role of circadian rhythms in the susceptibility to *C. difficile* infection (Role: PI)

**Texas A&M University CST\*R Pilot Study Program** – Non-Antibiotic Based Therapeutics for *Clostridium difficile* infection. 12/2015 – 11/2016. (Role: Co-PI)

**NIH / NIAID: R21** - Role of Bile Acids in Human Susceptibility to *Clostridium difficile* Infection. 07/01/13 – 11/15/15 (1R21AI107640-01 Role: Co-PI)

**NIH / NIAID: R56** – Characterization of *Clostridium difficile* spore germination. 08/01/14 – 07/31/15 (1R56AI108987-01 Role: PI)

**American Heart Association National Scientist Development Grant** 07/01/11 – 06/31/15 *Analysis of Clostridium difficile spore germination* (11SDG7160013; Role: PI)

**Sponsored Research – Optimer Pharmaceuticals** 05/11 – 09/11

**Sponsored Research – Cubist Pharmaceuticals** 06/12 – 03/13

## INVITED SPEAKER

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**Sorg, JA.** (2025) Nutritional requirements during *C. difficile* spore outgrowth to a vegetative cell. Penn State University.

**Sorg, JA.** (2025) Regulation of *C. difficile* sporulation by the small acid-soluble proteins. UT Southwestern.

**Sorg, JA.** (2025) Mechanisms of *C. difficile* sporulation and germination. Purdue University.

**Sorg, JA.** (2024) Regulation of *C. difficile* sporulation by the small acid-soluble proteins. Instituto de Tecnologia Quimica Biologica Antonio Xavier. Lisbon, Portugal

**Sorg, JA.** (2024) The impact of *yabG* mutations on *C. difficile* spore germination and processing of spore substrates. 8<sup>th</sup> International *C. difficile* symposium. Bled, Slovenia

**Sorg, JA.** (2024) The impact of *yabG* mutations on *C. difficile* spore germination and processing of spore substrates. 22<sup>nd</sup> International Conference on Bacilli and Gram Positive Bacteria. Indiana University, Bloomington, IN.

**Sorg, JA.** (2024) *C. difficile* biology. Rockefeller University.

**Sorg, JA.** (2023) Regulation of *C. difficile* sporulation by the small acid-soluble proteins. 10<sup>th</sup> European Spores Conference. Cambridge, UK.

**Sorg, JA.** (2022) Regulation of *C. difficile* sporulation by proteins thought to be non-specific DNA binding proteins. Vanderbilt University.

**Sorg, JA.** (2022) The impact of bile acids on *C. difficile* physiology and pathogenesis. University of Nevada, Las Vegas.

**Sorg, JA.** (2022) The impact of bile acids on *C. difficile* physiology and pathogenesis. Iowa State University.

**Sorg, JA.** (2022) Impact of the *C. difficile* small acid-soluble proteins on spore physiology. The 16th biennial congress of the Anaerobe Society of the Americas

- Sorg, JA.** (2022) Bile acid-independent protection against *Clostridioides difficile* infection. ASM Microbe, Washington, DC.
- Sorg, JA.** (2022) The impact of bile acids on *C. difficile* physiology and pathogenesis. University of Chicago
- Sorg, JA.** (2022) *C. difficile* biology. Rockefeller University.
- Sorg, JA.** (2021) The influence of bile acids on *C. difficile* spore germination and disease. Texas A&M University Department of Veterinary Pathobiology (Virtual Presentation)
- Sorg, JA.** (2021) The influence of bile acids on *C. difficile* spore germination and disease. Systems Biology of Infectious Disease – Annual U01 National Meeting (Virtual Presentation)
- Sorg, JA.** (2020) Pseudoprotease regulation of *C. difficile* spore germination. The University of Pittsburgh.
- Sorg, JA.** (2019) Pseudoprotease regulation of *C. difficile* spore germination. The University of Connecticut Health Science Center.
- Sorg, JA.** (2018) The requirement for the amino acid co-germinant during *C. difficile* spore germination is influenced by mutations in *yabG* and *cspA*. International conference on Gram Positive Pathogens. Omaha, NE.
- Sorg, JA.** (2018) Pseudoprotease regulation of *Clostridium difficile* spore germination. Vanderbilt University
- Sorg, JA.** (2018) CRISPR-Cas9 mutagenesis in *C. difficile*. 6<sup>th</sup> International *Clostridium difficile* Symposium. Bled, Slovenia.
- Sorg, JA.** (2018). *C. difficile* biology. The Rockefeller University.
- Sorg, JA.** (2017) Dissecting the mechanism of *Clostridium difficile* spore germination. University of Iowa.
- Sorg, JA.** (2017) Investigating the mechanisms of *Clostridium difficile* spore germination. University of Southern Illinois.
- Sorg, JA.** (2017) Conservation of a novel spore germination pathway outside of *Clostridioides difficile*. ClostPath 2017. Ann Arbor, MI.
- Sorg, JA.** (2017) Mechanisms of *Clostridium difficile* spore germination. Texas A&M Health Science Center. College Station, TX.
- Sorg, JA.** (2016) Dissecting the early stages of *Clostridium difficile* spore germination. Burnett School of Biomedical Sciences, University of Central Florida, Orlando, FL.
- Sorg, JA.** (2016) Dissecting the mechanism of DPA release during *Clostridium difficile* spore germination. International Conference on Gram-positive Pathogens, Omaha, NE.
- Sorg, JA.** (2016) Dissecting the early stages of *Clostridium difficile* spore germination. Department of Molecular Medicine. University of South Florida, Tampa, FL.
- Sorg, JA.** (2016) Dissecting the early stages of *Clostridium difficile* spore germination. Department of Microbiology & Immunology. Montana State University, Bozeman, MT.
- Sorg, JA.** (2016) Re-examining the germination phenotypes of several *C. difficile* strains. *C. difficile* Anaerobe. Nashville, TN.
- Sorg JA.** (2016) Sporulation and germination in Gram-positive bacteria. Janssen (Johnson & Johnson), Horsham, PA.
- Sorg, JA.** (2015) Re-examining the germination phenotypes of several *C. difficile* strains. *C. difficile* Gulf Coast Collaborative, Houston TX.
- Sorg, JA.** (2015) Re-establishing the importance of bile acids for *Clostridium difficile* spore germination. Texas A&M Health Science Center. Department of Microbial Pathogenesis & Immunology.

**Sorg, JA.** (2015) Targeting *Clostridium difficile* spore germination as a strategy to prevent infection. Loyola University Chicago. Department of Microbiology / Immunology.

**Sorg, JA.** (2015) Targeting *Clostridium difficile* spore germination as a strategy to prevent infection. Merck.

**Sorg, JA.** (2015) Spore cortex hydrolysis precedes DPA release during *C. difficile* spore germination. 5<sup>th</sup> International *Clostridium difficile* Symposium. Bled, Slovenia

**Sorg, JA.** (2015) Identification of the *Clostridium difficile* bile acid germinant receptor reveals a novel pathway for spore germination. The University of VT. Department of Microbiology & Molecular Genetics.

**Sorg, JA.** (2014) Targeting spore germination in CDI. *C. difficile* Gulf Coast Collaborative, Houston, TX

**Sorg, JA.** (2014) Novel Mechanisms of *Clostridium difficile* spore germination. The American Society for Microbiology – Texas Branch Meeting.

**Sorg, JA.** (2014) Identification of the *Clostridium difficile* bile acid germinant receptor reveals a novel pathway for spore germination. The University of Texas Health Science Center at Houston. Department of Microbiology & Molecular Genetics.

**Sorg, JA.** (2014) Defining the early stages of *Clostridium difficile* spore germination. The 11<sup>th</sup> Biennial Congress of the Anaerobe Society of the Americas. Chicago, IL.

**Sorg, JA.** (2013) Spore germination and bile acid resistance in *Clostridium difficile*. *C. difficile* Gulf Coast Collaborative. Houston, TX.

**Sorg, JA.** (2013). Defining the interactions between bile acids and the *C. difficile* germinant receptor, CspC. 2013 ClostPath. Cairns, Australia.

**Sorg, JA.** (2012). Identifying factors that influence *Clostridium difficile* spore germination. 4<sup>th</sup> International Gram-Positive Pathogens Meeting. Omaha, NE.

**Sorg, JA.** (2012). Identifying factors that influence *Clostridium difficile* spore germination. 4<sup>th</sup> International *Clostridium difficile* Symposium. Bled, Slovenia

**Sorg, JA.** (2011). Characterizing the interaction of *Clostridium difficile* with bile acids during spore germination and pathogenesis. Texas A&M University, Department of Biochemistry & Biophysics.

**Sorg, JA.** (2011). Inhibiting the initiation of *Clostridium difficile* spore germination using bile acid analogs. 111<sup>th</sup> American Society for Microbiology General Meeting. New Orleans, LA.

**Sorg, JA.** (2009). Activation and Inhibition of *Clostridium difficile* spore germination. 2009 Boston Bacterial Meeting, Boston, MA.

**Sorg, JA.** (2003). Sticky *Yersinia*: The Role of Adhesins in *Yersinia* Pathogenesis. Wind River Conference on Prokaryotic Biology. Estes Park, CO.

## MEETING PRESENTATIONS

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**Sorg, JA.** (2017) Testing the requirements of *C. difficile* infection in the Cyp8b1 mouse. University of Michigan U01 consortium meeting.

Ding, X., Francis, MB., **Sorg, JA.** Characterizing the impact of germinant receptor levels on *Clostridium difficile* spore germination. 2014. International Conference of Gram-positive Pathogens. Omaha, NE.

Francis, MB., Allen, CA., Shrestha, R., **Sorg, JA.** Bile acid recognition by the *Clostridium difficile* germinant receptor, CspC, is important for establishing infection. Int. Conference on Gram-positive microorganisms. 2013. Monte-Catini, Italy.

Allen, CA., Chesnel, L., **Sorg, JA.** Analyzing the effects of surotomycin on *Clostridium difficile* spore germination and outgrowth. 2013 ICCAC. Denver, CO.

Sorg, JA., Nguyen, L., Sonenshein, AL., Sears, P., **Babakhani, F.** Effect of fidaxomicin on *C. difficile* spore germination and outgrowth. 2012. ECCMID. London, UK.

Allen, CA., **Sorg, JA.**, Effects of increased fecal chenodeoxycholic acid levels on *Clostridium difficile* virulence. 2011 ClostPath Meeting. Ames, IA.

**Sorg, JA.**, Sonenshein, AL. Inhibition of *Clostridium difficile* spore germination by chemical analogs of chenodeoxycholate. The 10<sup>th</sup> Biennial Congress of the Anaerobe Society of the Americas. Philadelphia, PA.

**Sorg, JA.**, Sonenshein, AL. (2009). Activation and Inhibition of *Clostridium difficile* spore germination. 2009 ClostPath Meeting. Rome, Italy.

**Sorg, JA.**, Sonenshein, AL. (2009). Inhibiting germination by spores of the 'superbug' *Clostridium difficile*. 2009 IRACDA Conference. San Francisco, CA.

**Sorg, JA.**, Sonenshein, AL. (2008). Chenodeoxycholate is an inhibitor of *Clostridium difficile* spore germination. 2008. NIH Workshop on Diagnoses and Treatment of *Clostridium difficile* Infection. Bethesda, MD.

**Sorg, JA.**, Sonenshein, AL. (2008). Bile salts and glycine as co-germinants for *Clostridium difficile* spores. The 9<sup>th</sup> Biennial Congress of the Anaerobe Society of the Americas. Long Beach, CA.

**Sorg, JA.**, Sonenshein, AL. (2008). Bile salts and glycine as co-germinants for *Clostridium difficile* spores. 2008 IRACDA Conference. Chapel Hill, NC.

**Sorg, JA.**, Sonenshein, AL. (2007). Characterization of Sporulation in *Clostridium difficile*. Second International *Clostridium difficile* Symposium. Maribor, Slovenia.

## TEACHING EXPERIENCE

### TEXAS A&M UNIVERSITY, College Station, TX

<b>Faculty,</b>	Biology 351 (Microbiology; ~200 students)	Spring Semester 2011 - Present
	Biology/Gene 406 (Bacterial Genetics; ~25 students)	Spring Semester 2013 - Present
		Fall Semester 2019
	Biology 606 (Grad Level Bacterial Genetics; ~10 students)	Spring Semester 2013 - 2020
	Biology 681 (Micro Genetics Journal Club; ~20 students)	Fall Semester 2015 - Present

### BUNKER HILL COMMUNITY COLLEGE, Charlestown, MA

<b>Adjunct Faculty,</b>	Biology 205 (Microbiology)	
	(Teaching Mentor: Dr. Nicole Guilmette)	Fall 2008

### THE UNIVERSITY OF CHICAGO, Chicago, IL

<b>Teaching Assistant,</b>	Bacterial Physiology Laboratory Course	
	(Instructor: Dr. Tom Christianson)	Winter 2003

### THE UNIVERSITY OF CHICAGO, Chicago, IL

<b>Teaching Assistant,</b>	Molecular Basis of Bacterial Pathogenesis	
	(Instructor: Dr. Olaf Schneewind)	Spring 2003

## **GRADUATE STUDENTS IN TRAINING**

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Merilyn Beebe (PHD; Jan '20 – Present)  
 Joshua Brehm (MS; Aug '19 – May '21; PHD  
 Jan '22 - present)  
 Adegoke Adegbite (PHD Jan '22 – present)

Gitartha Sarma (PHD Jan '23 – Present)  
 Theresa Ariri (PHD Jan '23 – Present)  
 Michael Kyere (PHD Jan '23 – Present)  
 Carolyn Herrera (PHD Jan '25 – Present)

## **GRADUATE STUDENTS DEFENDED**

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Dr. Michael Francis – 2017  
 Dr. Ritu Shrestha – 2018  
 Dr. Kathleen McAllister – 2019  
 Dr. Disha Bhattacharjee - 2019

Dr. Marko Baloh – 2022  
 Dr. Andrea Martinez Aguirre – 2022  
 Dr. Hailee Nerber – 2023  
 Dr. Morgan Osborne - 2025

## **UNDERGRADUATE STUDENTS (Past & Present)**

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James Reedy (Spring '11 – Spring '12;  
Honors Thesis)  
 Kevin Slaughter (Fall '11 – Spring '12)  
 Nathan Oehring (Fall '11 – Spring '12)  
 Margaret Woodley (Spring '12 – Fall '12)  
 Amir Anvari (Fall '12 – Spring '13)  
 Ashely Jodray (Spring '13 – Spring '15)  
 Sarah Schmidt (Spring '13 – Spring '14;  
Honors Thesis)  
 Candice Laljer (Fall '13 – Spring '14)  
 Caitlin Huber (Fall '13)  
 Margarita Olich (Fall '13)  
 Christina Tompkins (Fall '14)  
 Farhan Sherali (Fall '14 – Spring '15)  
 Lillian Loucks (Fall '15)  
 Ryan Millunzi (Fall '15)  
 Natalie Satterfield (Fall '15 – Fall '16;  
Honors Thesis)  
 Avery Young (Fall '16 – Spring '19; Honors  
 Thesis; Distinguished Biology  
 Undergraduate Award)

Jennifer Kahn (Fall '16 – Fall '17)  
 Diana Mai (Fall '16 – Spring '17; Honors  
 Thesis)  
 Christopher Boucher (Fall '16)  
 Angelica Carroll (Fall '18)  
 William Meyers (Spring '19 – Spring '22;  
Honors Thesis)  
 Natalie Bartay (Fall '20 – Spring '21)  
 Rushi Abdas (Fall '22 – Spring '23)  
 Katelyn Roberts (Fall '22)  
 Carolyn Hererra (Spring '22 – Spring '23)  
 Andrea Vazquez (Summer '23 – Spring '24)  
 Ethan Livingston (Fall '23 – Spring '24)  
 Allison Grossman (Fall '23 – Spring '24)  
 Lauren Smith (Spring '24 – Spring '25)  
 Somya Mehrotra (Fall '24 – Spring '25)  
 Sonrisa Jones (Spring '25 – Present)  
 Kenneth Jones (Fall '25 – Present)  
 Tanmayee Chandupatla (Fall '25 – Present)

## **HONORS / AWARDS / FELLOWSHIPS**

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- Texas A&M University Chancellor EDGES Fellow, 2020
- Texas A&M University Montague – CTE Scholar, 2013 – 2014
- NIH Institutional Research and Academic Career Development Award (K12) – Postdoctoral Fellowship (TEACRS), 2007 – 2010
- Molecular and Cell Biology Training Grant, 2002-2005
- Respiratory Biology Research Training Grant, 2001-2002

## **INTELLECTUAL PROPERTY**

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- Methods and Compositions for Inhibiting *Clostridium difficile* Spore Germination and Outgrowth. USP 13/126,687. 11/2/2009.
- Identification of clostridium difficile cspc as a bile acid germinant receptor. PCT/US2013/032464. 9/18/2014.
- Muricholic Acid-Based Compounds as Inhibitors of *Clostridium difficile* Spore Germination. PCT/US2013/070800. 5/28/2015

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**SERVICE ACTIVITIES**

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- *PLoS Pathogens* – Academic Editor (2023 – Present)
- *Anaerobe* – Guest Editor for Special Issue: Pathogenic Clostridia (2023 – Present)
- Lead Conference Organizer: 13<sup>th</sup> International Conference on the Molecular Biology and Pathogenesis of Clostridia (ClostPath). Banff, Canada
- NIAID BACP (BV) Study Section Member: 2019 – 2023
- NIAID BACP Study Section 7/18; 10/18 (ad hoc)
- NIAID Special Emphasis Panel (ZRG IDMB 81) 6/18
- College of Science Strategic Planning Committee, 2017 – 2018
- Department of Biology Executive Committee, 2021 - Present
- Department of Biology Building Planning Committee, 2024 - Present
- Department of Biology Graduate Program Committee, 2017 - 2019
- Department of Biology Seminar Committee, 2015 - 2019
- Department of Biology Graduate Recruiting and Admissions Committee, 2012 – 2018
- Department of Biology Student / Postdoc Research Conference Committee, 2012 – 2014
  
- Ad hoc reviewer for: *Anaerobe*, *Applied and Environmental Microbiology*, *Archives of Microbiology*, *BMC Research Notes*, *Clinical and Vaccine Immunology*, *Food Microbiology*, *Frontiers in Microbiology*, *Future Microbiology*, *iConcept*, *Infection & Immunity*, *International Journal of Medical Microbiology*, *Journal of Bacteriology*, *Journal of Clinical Microbiology*, *Journal of Medicinal Chemistry*, *mBio*, *mSphere*, *Pediatric Reports*, *PLoS ONE*, *PLoS Pathogens*, *PNAS*, *Scientific Reports*, *Trends in Microbiology*, *Virulence*.
- *Frontiers in Microbiology – Microbial Pathogenesis*; Associate Editor: 2018 - 2021

**MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

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ASM – American Society for Microbiology  
ASA – Anaerobe Society of the Americas  
AAAS – American Association for the Advancement of Science