

# Joshua J. Hamilton

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## Employment History

- Federation Bio, Inc.** South San Francisco, CA  
*Scientist I, Scientist II, Sr Scientist* 2019-2023
- University of Wisconsin-Madison (UW-Madison)** Madison, WI  
*Postdoctoral Associate, Department of Biochemistry* 2018-2019
- UW-Madison** Madison, WI  
*Postdoctoral Associate, Department of Bacteriology* 2014-2017

## Education

- UW-Madison** Madison, WI  
*Ph.D., Chemical Engineering* 2009-2014
- Case Western Reserve University (CWRU)** Cleveland, OH  
*B.S., Chemical Engineering* 2005-2009

## Patent Applications

- Swem LR, Kumar P, Bhalla A, Tripathi SA, Parmar A, **Hamilton JJ**, Brumbaugh AR, Ricci DP, Layman HRW, Ciglar AM, Berleman J, Walters Z, Jacoby K, Youngblut ND, Grauer A, Drabant Conley E, Romasko H (2023) *Microbial consortia*. US Patent Application No. 18/060,831.
- Fischbach MA, Brumbaugh AR, Cheng AG, Dodd D, Aranda-Diaz AJ, Wang M, Yu FB, Sonnenburg JL, Huang KC, Higginbottom S, Jain SS, Meng X, Swem L, Ricci D, **Hamilton JJ**. (2023) *High-Complexity Synthetic Gut Bacterial Communities*. US Patent Application No. 17/999,516.
- Swem L, Ricci D, Brumbaugh AR, Cremin J, **Hamilton JJ**, Tripathi S, Wong L, Romasko H, Bracken R, Drabant Conley E. (2023) *Microbial consortia for the treatment of disease*. US Patent Application No. 17/906,060.

## Publications

- Ricci D, **Hamilton JJ**, Tripathi S, Brumbaugh A, Cremin J, Ou N, Layman H, and L Swem. (2022) *Creation of Rationally Designed and Metabolically Active Microbiome Consortia for Treatment of Enteric Hyperoxaluria*. *Kidney International Reports*. 7(2): S204-S205. doi:10.1016/j.ekir.2022.01.490.
- Feng J, Qian Y, Zhou Z, Ertmer S, Vivas EI, Lan F, **Hamilton JJ**, Rey FE, Anantharaman K, OS Venturelli. (2022) *Polysaccharide utilization loci in Bacteroides determine population fitness and community-level interactions*. 30(2) P200-215.E12. *Cell Host & Microbe*. doi:10.1016/j.chom.2021.12.006.

14. Clark RL, Connors B, Stevenson DM, Hromada SE, **Hamilton JJ**, Amador-Noguez D, and OS Venturelli. (2021) *Design of synthetic human gut microbiome assembly and function*. Nature Communications. 12: 3254. doi:10.1038/s41467-021-22938-y.
13. Scarborough MJ, **Hamilton JJ**, Erb EA, Donohue TJ, and DR Noguera. (2020) *Diagnosing and Predicting Mixed-Culture Fermentations with Unicellular and Guild-Based Metabolic Models*. mSystems. 5(5):e00755-20. doi:10.1128/mSystems.00755-20.
12. Cao X\*, **Hamilton JJ\***, and OS Venturelli. (2019) *Understanding and Engineering Distributed Biochemical Pathways in Microbial Communities*. Biochemistry. 58(2): 94-107. doi:10.1021/acs.biochem.8b01006.
11. Dwulit-Smith JR, **Hamilton JJ**, Stevenson DM, He S, Oyserman BO, Moya-Flores F, Amador-Noguez D, McMahon KD, and KT Forest. (2018) *acI Actinobacteria Assemble a Functional Actinorhodopsin with Natively-synthesized Retinal*. Applied and Environmental Microbiology. 84(24): e01678-18. doi:10.1128/AEM.01678-18.
10. Scarborough MJ, Lawson CE, **Hamilton JJ**, Donohue TJ, and DR Noguera. (2018) *Metatranscriptomic and Thermodynamic Insights into Medium-Chain Fatty Acid Production Using an Anaerobic Microbiome*. mSystems. 3(6): e00221-18. doi:10.1128/mSystems.00221-18.
9. Rohwer RR, **Hamilton JJ**, Newton, RJ, and KD McMahon. (2018) *TaxAss: Leveraging a Custom Freshwater Database Achieves Fine-Scale Taxonomic Resolution*. mSphere. 3(5): e00327-18. doi:10.1128/mSphere.00327-18.
8. Garcia SL, Buck M, **Hamilton JJ**, Wurzbacher C, Grossart HP, McMahon KD, and A Eiler. (2018) *Model Communities Hint at Promiscuous Metabolic Linkages between Ubiquitous Free-Living Freshwater Bacteria*. mSphere. 3(3): e00202-18. doi:10.1128/mSphere.00202-18.
7. **Hamilton JJ**, Garcia SL, Brown BS<sup>†</sup>, Oyserman BO, Moya F, Bertilsson S, Malmstrom RR, Forest KT, and KD McMahon. (2017) *Metabolic Network Analysis and Metatranscriptomics Reveals Auxotrophies and Nutrient Sources of the Cosmopolitan Freshwater Microbial Lineage acI*. mSystems. 2(4): e00091-17. doi:10.1128/mSystems.00091-17.
6. Lawson CE, Wu S, Bhattacharjee AS, **Hamilton JJ**, McMahon KD, Goel R, and DR Noguera. (2017) *Metabolic network analysis reveals microbial community interactions in anammox granules*. Nature Communications. 8: 15416. doi:10.1038/ncomms15416.
5. **Hamilton JJ**, Calixto Contreras M<sup>†</sup>, and JL Reed. (2015) *Thermodynamics and H<sub>2</sub> Transfer in a Methanogenic, Syntrophic Community*. PLoS Computational Biology. 11(7): e1004364. doi:10.1371/journal.pcbi.1004364.
4. Vinay-Lara E, **Hamilton JJ**, Stahl B, Broadbent JR, Reed JL, and JL Steele. (2014) *Genome-Scale Reconstruction of Metabolic Networks of Lactobacillus casei ATCC 334 and 12A*. PLoS ONE. 9(11): e110785. doi:10.1371/journal.pone.0110785.
3. **Hamilton JJ** and JL Reed. (2014) *Software platforms to facilitate reconstructing genome-scale metabolic networks*. Environmental Microbiology. 16(1): 49-59. doi:10.1111/1462-2920.12312.
2. **Hamilton JJ**, Dwivedi V<sup>†</sup>, and JL Reed. (2013) *Quantitative Assessment of Thermodynamic Constraints on the Solution Space of Genome-Scale Metabolic Models*. Biophysical Journal. 105(2): 512-522. doi:10.1016/j.bpj.2013.06.011.

1. **Hamilton JJ** and JL Reed. (2012) *Identification of Functional Differences in Metabolic Networks Using Comparative Genomics and Constraint-Based Models*. PLoS ONE. 7(4): e34670. doi:10.1371/journal.pone.0034670.

\* indicates equal contribution

† indicates an undergraduate student author