

## Colin J. Brislawn

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### Education

#### **B.S. Biology, Juniata College, May 2014**

*cum laude*, 3.68 GPA out of 4.0

#### **Diploma, A.G. West Black Hills High School, May 2010**

3.97 GPA out of 4.0

### Research and Work Experience

#### **Director of Computational Informatics, HIPAA Security Officer, Reporting Personnel, System Administrator (2019-2022), Contaminant Source Identification**

Key collaborators: Gina Lamendella, Justin Wright, Truc Ly, Vasily Tokarev

- Commercialize metatranscriptomics pipelines for clinical diagnostics
- Implement CLSI methods for Clinical Validation & Verification of our test system
- Securely deploy to the Microsoft Azure hybrid cloud as a system administrator
- Implement security best practices as the HIPAA Security Officer

#### **Computational Biologist (2018-present), Technician II (2016 - 2018), Postbaccaratte Research Associate (2014 - 2016), Pacific Northwest National Labs**

Key collaborators: Janet Jansson, Jason McDermott,

- Analyze high-throughput multi-omics data and produce compelling visualizations
- Apply domain knowledge of microbiology to human cohorts and animal models
- Deliver reproducible results using modern computational methods. #openscience

#### **Bioinformatics Research Associate (2013 - 2014), Juniata College**

PI: Dr. Regina Lamendella

- Developing user-friendly bioinformatics approaches to analyze microbial communities in environmental and human-health-related projects
- Bioinformatics Teaching Assistant for 399, Environmental Genomics

#### **Bioinformatics Workshop Leader**

HHMI Genomics Workshop, Lycoming College, June 2014

Urban Microbial Metagenomics, CUNY Brooklyn, June 2014

#### **Front-End Web Developer, Juniata College, September 2010 - May 2014**

Development in HTML5, CSS, and Javascript. Design in Adobe Photoshop and Illustrator.

## Peer-Reviewed Publications

Google Scholar profile: <https://scholar.google.com/citations?user=fyhedCwAAAAJ>

1. Trexler, Ryan, Caroline Solomon, **Colin J. Brislawn**, Justin R. Wright, Abigail Rosenberger, Erin E. McClure, Alyssa M. Grube et al. "Assessing impacts of unconventional natural gas extraction on microbial communities in headwater stream ecosystems in Northwestern Pennsylvania." *Frontiers in microbiology* 5 (2014).
2. Lipson, David A., Theodore K. Raab, Melanie Parker, Scott T. Kelley, **Colin J. Brislawn**, and Janet Jansson. "Changes in microbial communities along redox gradients in polygonized Arctic wet tundra soils." *Environmental microbiology reports* 7, no. 4 (2015): 649-657.
3. Ulrich, Nikea, Abigail Rosenberger, **Colin Brislawn**, Justin Wright, Collin Kessler, David Toole, Caroline Solomon, Steven Strutt, Erin McClure, and Regina Lamendella. "Aquatic bacterial community is restructured by hydric dynamics associated with Superstorm Sandy." *Applied and Environmental Microbiology* (2016): AEM-00520.
4. White, Richard Allen, Eric M. Bottos, Taniya Roy Chowdhury, Jeremy D. Zucker, **Colin J. Brislawn**, Carrie D. Nicora, Sarah J. Fansler, Kurt R. Glaesemann, Kevin Glass, and Janet K. Jansson. "Molecule long-read sequencing facilitates assembly and genomic binning from complex soil metagenomes." *mSystems* 1, no. 3 (2016): e00045-16.
5. Nakamura, Yukiko K., Christina Metea, Lisa Karstens, Mark Asquith, Henry Gruner, Cathleen Moscibrocki, Iris Lee, **Colin J Brislawn**, Janet K Jansson, et al. "Gut Microbial Alterations Associated With Protection From Autoimmune Uveitis Gut Microbiota Contribution to Uveitis Pathogenesis." *Investigative Ophthalmology & Visual Science* 57, no. 8 (2016): 3747-3758.
6. Bernstein, Hans C., **Colin Brislawn**, Ryan S. Renslow, Karl Dana, Beau Morton, Stephen R. Lindemann, Hyun-Seob Song et al. "Trade-offs between microbiome diversity and productivity in a stratified microbial mat." *The ISME journal* 11, no. 2 (2017): 405.
7. Snijders, Antoine M., Sasha A. Langley, Young-Mo Kim, **Colin J. Brislawn**, Cecilia Noecker, Erika M. Zink, Sarah J. Fansler et al. "Influence of early life exposure, host genetics and diet on the mouse gut microbiome and metabolome." *Nature microbiology* 2, no. 2 (2017): 16221.
8. Halfvarson, Jonas, **Colin J. Brislawn**, Regina Lamendella, Yoshiki Vázquez-Baeza, William A. Walters, Lisa M. Bramer, Mauro D'Amato et al. "Dynamics of the human gut microbiome in inflammatory bowel disease." *Nature microbiology* 2 (2017): 17004.
9. Dohnalkova, Alice C., Malak M. Tfaily, A. Peyton Smith, Rosalie K. Chu, Alex R. Crump, **Colin J. Brislawn**, Tamas Varga et al. "Molecular and Microscopic Insights into the Formation of Soil Organic Matter in a Red Pine Rhizosphere." *Soils* 1, no. 1 (2017): 4.
10. Bernstein, Hans C., **Colin J. Brislawn**, Karl Dana, Tobias Flores-Wentz, Alexandra B. Cory, Sarah J. Fansler, James K. Fredrickson, and James J. Moran. "Primary and heterotrophic productivity relate to multi-kingdom diversity in a hypersaline mat." *FEMS Microbiology Ecology*.
11. Clauset, Aaron, Aaron R. Jex, Alexandra H. Campbell, Alexandra M. Linz, Allison Berry, Allison E. Williams, Alyssa Cochran, **Colin J. Brislawn**, et al. "A communal

catalogue reveals Earth's multiscale microbial diversity." *Nature* 551, no. 7681 (2017): 457.

12. Maier, Tanja V., Marianna Lucio, Lang Ho Lee, Nathan C. VerBerkmoes, **Colin J. Brislawn**, Jörg Bernhardt, Regina Lamendella et al. "Impact of Dietary Resistant Starch on the Human Gut Microbiome, Metaproteome, and Metabolome." *mBio* 8, no. 5 (2017): e01343-17.
13. Espínola, Fernando, Hebe M. Dionisi, Sharon Borglin, **Colin J. Brislawn**, Janet K. Jansson, Walter P. Mac Cormack, JoLynn Carroll, Sara Sjöling, and Mariana Lozada. "Metagenomic Analysis of Subtidal Sediments from Polar and Subpolar Coastal Environments Highlights the Relevance of Anaerobic Hydrocarbon Degradation Processes." *Microbial ecology* 75, no. 1 (2018): 123-139.
14. Dautel, Sydney, Nymul Khan, Kristoffer R. Brandvold, **Colin J. Brislawn**, Janine Hutchison, Karl W. Weitz, Heino M. Heyman et al. "Lactobacillus acidophilus disrupts collaborative multispecies bile acid metabolism." *bioRxiv* (2018): 296020.
15. Khan, Nymul, Yukari Maezato, Ryan S. McClure, **Colin J. Brislawn**, Jennifer M. Mobberley, Nancy Isern, William B. Chrisler et al. "Phenotypic responses to interspecies competition and commensalism in a naturally-derived microbial co-culture." *Scientific reports* 8, no. 1 (2018): 297.
16. Toole, David R., Gabrielle H. Cannon, **Colin J. Brislawn**, Jennifer M. Graves, Regina Lamendella, Theodore R. Muth, and Norris Z. Muth. "Differences in soil fungal assemblages associated with native and non-native tree species of varying weediness." *Biological invasions* 20, no. 4 (2018): 891-904.
17. Braun, Jonathan, **Colin Brislawn**, David Casero, Samuel Purvine, Johanna J. Scott, Richard A. White, Cesar Arze et al. "1100-Dynamics of the Microbial Metaproteome in Inflammatory Bowel Disease." *Gastroenterology* 154, no. 6 (2018): S-217.
18. Noguti, Juliana, Alfred A. Chan, Bradley Bandera, **Colin J. Brislawn**, Mladjan Protic, Myung S. Sim, Janet K. Jansson, Anton J. Bilchik, and Delphine J. Lee. "Both the intratumoral immune and microbial microenvironment are linked to recurrence in human colon cancer: results from a prospective, multicenter nodal ultrastaging trial." *Oncotarget* 9, no. 34 (2018): 23564.
19. Gonzalez, Antonio, Jose A. Navas-Molina, Tomasz Kosciolk, Daniel McDonald, Yoshiki Vázquez-Baeza, Gail Ackermann, Jeff DeReus, **Colin J. Brislawn**, et al. "Qiita: rapid, web-enabled microbiome meta-analysis." *Nature methods* 15, no. 10 (2018): 796-798.
20. Brown J, Zavoshy N, **Brislawn CJ**, McCue LA. 2018. Hundo: a Snakemake workflow for microbial community sequence data. *PeerJ Preprints* 6:e27272v1
21. **Brislawn, Colin J.**, Emily B. Graham, Karl Dana, Peter Ihardt, Sarah J. Fansler, William B. Chirlser, John B. Cliff, James C. Stegen, James J. Moran, and Hans C. Bernstein. "Forfeiting the priority effect: turnover defines biofilm community succession." *ISME J* (2019)
22. Graham, Emily B., David Paez-Espino, **Colin Brislawn**, Russell Y. Neches, Kirsten S. Hofmockel, Ruonan Wu, Nikos C. Kyrpides, Janet K. Jansson, and Jason E. McDermott. "Untapped viral diversity in global soil metagenomes." *bioRxiv* (2019): 583997.
23. Kim, Young-Mo, Antoine M. Snijders, **Colin J. Brislawn**, Kelly G. Stratton, Erika M. Zink, Sarah J. Fansler, Thomas O. Metz, Jian-Hua Mao, and Janet Jansson. "Light-stress influences the composition of the murine gut microbiome, memory function, and

- plasma metabolome." *Frontiers in Molecular Biosciences* 6 (2019): 108.
24. Wang, Pin, Yunshan Wang, Sasha A. Langley, Yan-Xia Zhou, Kuang-Yu Jen, Qi Sun, **Colin Brislawn** et al. "Diverse tumour susceptibility in Collaborative Cross mice: identification of a new mouse model for human gastric tumourigenesis." *Gut* (2019): gutjnl-2018.
  25. Lloyd-Price, Jason, Cesar Arze, Ashwin N. Ananthakrishnan, Melanie Schirmer, Julian Avila-Pacheco, Tiffany W. Poon, Elizabeth Andrews, **Colin J. Brislawn** et al. "Multi-omics of the gut microbial ecosystem in inflammatory bowel diseases." *Nature* 569, no. 7758 (2019): 655.
  26. Björkqvist, Olle, Dirk Repsilber, Maike Seifert, **Colin Brislawn**, Janet Jansson, Lars Engstrand, Ignacio Rangel, and Jonas Halfvarson. "Alterations in the relative abundance of *Faecalibacterium prausnitzii* correlate with changes in fecal calprotectin in patients with ileal Crohn's disease: a longitudinal study." *Scandinavian journal of gastroenterology* (2019): 1-9.
  27. Bolyen, Evan, Jai Ram Rideout, Matthew R. Dillon, Nicholas A. Bokulich, Christian C. Abnet, Gabriel A. Al-Ghalith, Harriet Alexander, **Colin J. Brislawn** et al. "Reproducible, interactive, scalable and extensible microbiome data science using QIIME 2." *Nature biotechnology* 37, no. 8 (2019): 852-857.
  28. Zegeye, Elias K., **Colin J. Brislawn**, Yuliya Farris, Sarah J. Fansler, Kirsten S. Hofmockel, Janet K. Jansson, Aaron T. Wright et al. "Selection, Succession, and Stabilization of Soil Microbial Consortia." *MSystems* 4, no. 4 (2019): e00055-19.
  29. Chowdhury, Taniya Roy, Joon-Yong Lee, Eric M. Bottos, **Colin J. Brislawn**, Richard Allen White, Lisa M. Bramer, Joseph Brown et al. "Metaphenomic Responses of a Native Prairie Soil Microbiome to Moisture Perturbations." *mSystems* 4, no. 4 (2019): e00061-19.
  30. Cammarata, Kirk, **Colin Brislawn**, Whitney Roberson, Carissa Pinon, Chi Huang, Ernest Everett, and Shawn Hare. "Seagrass epiphyte microbiome responses to pulsed and long-term nutrient exposures." In 2019 CERF Biennial Conference. CERF, 2019.
  31. Mao, Jian-Hua, Young-Mo Kim, Yan-Xia Zhou, Dehong Hu, Chenhan Zhong, Hang Chang, **Colin Brislawn** et al. "Linking the microbiome to memory." (2020).
  32. Naylor, Dan, Sarah Fansler, **Colin Brislawn**, William C. Nelson, Kirsten S. Hofmockel, Janet K. Jansson, and Ryan McClure. "Deconstructing the soil microbiome into reduced-complexity functional modules." *MBio* 11, no. 4 (2020).
  33. Mao, Jian-Hua, Young-Mo Kim, Yan-Xia Zhou, Dehong Hu, Chenhan Zhong, Hang Chang, **Colin J. Brislawn** et al. "Genetic and metabolic links between the murine microbiome and memory." *Microbiome* 8 (2020): 1-14.
  34. Bhattacharjee, Arunima, Allison M. Thompson, Kaitlynn C. Schwarz, Meagan C. Burnet, Young-Mo Kim, Jamie R. Nunez, Sarah J. Fansler, **Colin J Brislawn**, et al. "Soil microbial EPS resiliency is influenced by carbon source accessibility." *Soil Biology and Biochemistry* 151 (2020): 108037.
  35. Plymale, Andrew E., Jacqueline R. Wells, Carolyn I. Pearce, **Colin J. Brislawn**, Emily B. Graham, Tanya E. Cheeke, Jessica L. Allen et al. "Niche Partitioning of Microbial Communities at an Ancient Vitrified Hillfort: Implications for Vitrified Radioactive Waste Disposal." *Geomicrobiology Journal* 38, no. 1 (2021): 36-56.
  36. Chen See, Jeremy, Truc Ly, Alexander Shope, Jess Bess, Art Wall, Saketram

Komanduri, John Goldman, **Colin J. Brislawn** et al. "A Metatranscriptomics Survey of Microbial Diversity on Surfaces Post-Intervention of cleanSURFACES® Technology in an Intensive Care Unit." *Frontiers in cellular and infection microbiology* (2021): 673.

37. Brycki, Joshua D., Jeremy R. Chen See, Gillian R. Letson, Cade S. Emlet, Lavinia V. Unverdorben, Nathan S. Heibeck, **Colin J. Brislawn**, Vincent P. Buonaccorsi, Jason P. Chan, and Regina Lamendella. "Temporal Transcriptomics of Gut Escherichia coli in Caenorhabditis elegans Models of Aging." *Microbiology Spectrum* 9, no. 2 (2021): e00498-21.
38. White, Richard Allen, Joshua Rosnow, Paul D. Piehowski, **Colin J. Brislawn**, and James J. Moran. "In Situ Non-Destructive Temporal Measurements of the Rhizosphere Microbiome 'Hot-Spots' Using Metaproteomics." *Agronomy* 11, no. 11 (2021): 2248.

### Posters Presentations

1. **Brislawn, C.** "A High Quality Pipeline for Microbial Community Analysis: Easy, Flexible, Replicable." Landmark Summer Research Symposium. Huntingdon, Pennsylvania, July 24rd, 2014.
2. Trexler, R., Solomon, C., **Brislawn, C.**, McClure, E., Grube, A., Hazen, T., Keddache, M., Grant, C., Lamendella, R. "The response of freshwater aquatic microbial communities to Marcellus shale natural gas extraction." American Society for Microbiology General Meeting. Boston, Massachusetts, May 17-20, 2014.
3. Rosenberger, A., Decker, M., Trexler, R., Solomon, C., McClure, E., **Brislawn, C.**, Perow, E., Grant, C., and Lamendella, R. "The Relationships between Salvelinus fontinalis gut microbial communities and mercury concentrations in organs, muscle tissue, and stream water." American Society for Microbiology General Meeting. Boston, Massachusetts, May 17-20, 2014.
4. Thomas O. Metz, Young-Mo Kim, **Colin J. Brislawn**, Erika M. Zink, Sarah J. Fansler, Janet K. Jansson, Antoine M. Snijders Sasha A. Langley, Yurong Huang, and Jian-Hua Mao, Sarah E. Cates, Nashiya Robinson, Ginger D. Shaw, and Darla R. Miller. "Differences in Susceptibility to Perturbation in the Gut Microbiota and Metabolome in a Genetically Divergent Mouse Population." Multi-omics for Microbiomes Conference. Richland, Washington, September 14-16, 2015.
5. Eric M. Bottos, Taniya Roy-Chowdhury, Richard A. White III, **Colin Brislawn**, Young-Mo Kim, Thomas O. Metz, Lee Ann McCue, and Janet K. Jansson. "Multi-omic Responses to Glycine Addition in Complex Soil Communities." Multi-omics for Microbiomes Conference. Richland, Washington, September 14-16, 2015.
6. Tanja V. Maier, Marianna Lucio, Lang Ho Lee, Nathan VerBerkmoes, Regina Lamendella, **Colin Brislawn**, Jörg Bernhardt, Jason McDermott, Nathalie Bergeron, Alesia Walker, Silke S. Heinzmann, Rob Knight, Katharina Riedel, Ronald Krauss, Philippe Schmitt-Kopplin, Janet K. Jansson. "Multi-Omics approach studying the effect of resistant starch on the gut microbiome." Multi-omics for Microbiomes Conference. Richland, Washington, September 14-16, 2015.
7. Young-Mo Kim, Antoine M. Snijders, **Colin J. Brislawn**, Erika M. Zink, Sarah F. Fansler, Dehong Hu, Galya Orr, Thomas O. Metz, Janet K. Jansson, Jian-Hua Mao.

“Characterization of fecal metabolome changes under three distinct microbiome states across in C57BL/6 mice.” Multi-omics for Microbiomes Conference. Richland, Washington, August 1-3, 2017.

8. **Colin J. Brislawn**, Young-Mo Kim, Antoine M. Snijders, Erika M. Zink, Sarah F. Fansler, Thomas O. Metz, Jian-Hua Mao, Janet K. Jansson. “Disrupted circadian rhythm changes fecal microbiome and host metabolome in Collaborative Cross mice.” Multi-omics for Microbiomes Conference. Richland, Washington, August 1-3, 2017.
9. **Colin J. Brislawn**, Tanja V. Maier, Marianna Lucio, Lang Ho Lee, Nathan VerBerkmoes, Jörg Bernhardt, Regina Lamendella, Jason E. McDermott, Nathalie Bergeron, Silke S. Heinzmann, James T. Morton, Antonio González Peña, Gail Ackermann, Rob Knight, Katharina Riedel, Ronald M. Krauss, Philippe Schmitt-Kopplin, Janet K. Jansson. “Impact of dietary resistant starch on the human gut microbiome, metaproteome, and metabolome.” The Human Microbiome: Emerging Themes at the Horizon of the 21st Century. NIH, Bethesda, Maryland. August 16-18, 2017
10. Justin R. Wright, Regina Lamendella, **Colin J. Brislawn**, Gary J. Shope. “Redefining the Gold Standard of Infectious Disease Diagnostics.” TechConnect, October 18-21, 2021 Washington D.C.

#### Oral Presentations

1. Waksmunski, A., **Brislawn, C.**, and Lamendella, R. HUMAnN gut metabolic pathways associated with Crohn’s disease,” Landmark Summer Research Symposium, Susquehanna University, Pennsylvania, July 2013.
2. **Brislawn, C.** “An Accessible, High Quality pipeline for Analyzing Microbial Communities.” Liberal Arts Symposium. Huntingdon, Pennsylvania, April 16, 2014.
3. **Brislawn, C.**, Trexler, R., Graham, E. “Returning to the Grand Challenge”, MGM workshop 26, Joint Genome Institute, Walnut Creek, California, March 2, 2018

## Collaborations and Consortium Membership

- Contributor to open source software, including the following GitHub organizations: [conda-forge](#), [bioconda](#), [biocore](#), and [Qiime2](#).
- Member of Earth Microbiome Project <https://github.com/biocore/emp>
- Member of Integrated Human Microbiome Project <http://hmp2.org/>
- Community Moderator of the QIIME 2 Forums: <https://forum.qiime2.org/>
- Invited reviewer for the following publications:
  - Nature Scientific Reports
  - Frontiers in Microbiology
  - Ecology Letters

## Honors and Awards

- Dean's List (all semesters at Juniata college)
- Juniata College Quinter Scholarship
- Juniata College Will (H.C & E.S.) Biology Scholarship
- BHHS top 10 and top 10%, AP award, Washington State Principal's Scholar,

## Community Involvement

- Webmaster for [CamerataMusica.com](#). Redesigned the website of this local chamber music group with emphasis on accessibility.
- Former Secretary of the Board for '[The Rude Mechanicals: Kick Ass Shakespeare!](#)'
- IT Chair of the Executive Board for Juniata College Student Government. Worked with the Executive Board and committees to conduct secure voting and coordinate student government events.
- Computational mentor for Molecular Techniques, teaching undergraduate students to use R and Linux for the first time.
- Juniata Associate for marketing department, mentoring incoming students in web development and project management.