Evan R. Rees

2837 NW 41st Ave Gainesville, FL 32605 • 937.638.7785 • evanroyrees@gmail.com • wiscevan.github.io

EDUCATION

PhD Candidate, Pharmaceutical Sciences   Ongoing
Advisor: Jason C. Kwan; University of Wisconsin–Madison   *Madison, WI*
BSc, Chemistry   2016
Advisor: Nicholas H. Oberlies; University of North Carolina–Greensboro   *Greensboro, NC*

TECHNICAL SKILLS

Language: Python, R, Bash, Docker, Git, Nextflow, HTCondor, Slurm   **Cloud:** AWS (S3, EC2, ECR/ECS, Batch)
Software Suite: Microsoft Office Suite, Adobe Illustrator   **Wet lab:** HPLC, NMR

EXPERIENCE

Graduate Student   Aug 2016 – Present
UW-Madison Pharmaceutical Sciences Department - Madison, WI   *Jason C. Kwan Lab*
- Elucidated conditional biosynthetic pathways from marine metagenomes using comparative genomics
- Developed robust, high-performance computational methods for automated extraction of bacterial genomes from metagenomes using Python, Bash, Nextflow and R

Consultant   Nov 2019 – May 2021
Empress Therapeutics - Computational Drug Discovery – Cambridge, MA
- Optimized in-house discovery engine workflow by conversion to scalable and robust cloud compute infrastructure
- Generalized aforementioned workflow so that it could be applied across disparate therapeutic areas
- Streamlined curation of a proprietary chemical library for chemistry and biology teams by providing critical insights

Bioinformatician   July 2019 – Sept 2019
VL55 – Computational Drug Discovery - Cambridge, MA
- Developed proprietary databases, tools and interfaces for generation of a disease-agnostic chemical library
- Optimized proprietary in-house chemical library for hit identification efficiency

Student Researcher   May 2013 – May 2016
UNCG Department of Chemistry - Greensboro, NC   *Nicholas H. Oberlies Lab*
- Isolated and elucidated several antifungal compounds from bacteria similar to *Bacillus amyloliquefaciens* strains
- Isolated four peptaibols with a rare threonine residue from *Nectriopsis* Maire strain MSX53554
- Isolated and identified griseofulvin from *Xylaria cubensis* for downstream spatial and temporal profiling

IN PREP

*Waterworth, S.C., ***Rees, E.R.**, Carlson, S., Thacker R.W., Kwan J.C. *In prep.* "Two HMA sponges *Hippospongia Lachne* and *Ircinia Felix* with similar bacterial communities display differences in antibiofilm and antibiotic phenotypes"

Rees, E.R., Chanana, S., Waterworth S.C., Kwan J.C. *In prep.* "Automappa: an interactive interface for exploration of highly-complex metagenomes"

Rees, E.R., Lim-Fong G., Waterworth S.C., Kwan J.C. *In prep.* "Comparative Analysis of the Relatives of the Bryostatin-producing Endosymbiont *'Candidatus* Endobugula *sertula'*, in the group of host species *'Bugula sensu lato'.*"

Rees, E.R., Uppal S., Clark C., Lail, A.J, Waterworth, S.C., Chanana, S., Kwan J.C. *In prep.* "Autometa 2.0: A versatile tool for binning genomes from highly-complex metagenomic communities."

Robinson, S., Terlouw, B., Meijer D., Duncan K., Van der Hooft, J., Garg, N., Elsayed, S., …, **Rees, E.R.**, et. al. *In prep.* "Advancing AI technologies in Natural Product Drug Discovery."

Lew, C.I., **Rees E.R.**, Rose W., *In prep.* "Comprehensive activity profiles and genetic analyses of a set of isogenic, clinically-derived daptomycin susceptible/resistant MRSA strain pairs"

PUBLICATIONS

Meyer, F., A. Fritz, Z-L Deng, D. Koslicki, A. Gurevich, G. Robertson, M. Alser, …, **Rees, E.R.**, et al. 2021. "Critical Assessment of Metagenome Interpretation - the Second Round of Challenges." *bioRxiv*. DOI: 10.1101/2021.07.12.451567.

Waterworth, S. C., Isemonger, E.W., **Rees E.R.**, Dorrington, R.A. and Kwan. J.C. 2021. "Conserved Bacterial Genomes from Two Geographically Isolated Peritidal Stromatolite Formations Shed Light on Potential Functional Guilds." *Environmental Microbiology Reports* 13 (2): 126–37. DOI: 10.1111/1758-2229.12916.

Waterworth, S. C., Flórez L.V., **Rees E.R.**, Hertweck C., Kaltenpoth M., and Kwan. J.C. 2020. "Horizontal Gene Transfer to a Defensive Symbiont with a Reduced Genome in a Multipartite Beetle Microbiome." *mBio* 11 (1). DOI: 10.1128/mBio.02430-19.

*Miller, Ian J., ***Evan R. Rees**, Jennifer Ross, Izaak Miller, Jared Baxa, Juan Lopera, Robert L. Kerby, Federico E. Rey, and Jason C. Kwan. 2019. "Autometa: Automated Extraction of Microbial Genomes from Individual Shotgun Metagenomes." *Nucleic Acids Research* 47 (10): e57. DOI: 10.1093/nar/gkz148.

Sica, V.P., **Rees E.R.**, Raja H.A., Rivera-Chávez J., Burdette J.E., Pearce C.J. and Oberlies, N.H. 2017. "In Situ Mass Spectrometry Monitoring of Fungal Cultures Led to the Identification of Four Peptaibols with a Rare Threonine Residue." *Phytochemistry* 143 (November): 45–53. DOI: 10.1016/j.phytochem.2017.07.004.

Abiodun A., **Rees E.R.**, McCarley S., Sica V.P. and Oberlies N.H. 2017. "Characterization and Isolation of Peptide Metabolites of an Antifungal Bacterial Isolate Identified as Bacillus Amyloliquefaciens Subspecies Plantarum Strain fzb42." *The Journal of Microbiology, Biotechnology and Food Sciences* 6 (6): 1309–13. DOI: 10.15414/jmbfs.2017.6.6.1309-1313.

Sica, V.P., **Rees E.R.**, Tchegnon E., Bardsley R.H., Raja H.A. and Nicholas H. Oberlies. 2016. "Spatial and Temporal Profiling of Griseofulvin Production in Xylaria Cubensis Using Mass Spectrometry Mapping." *Frontiers in Microbiology* 7 (April): 544. DOI: 10.3389/fmicb.2016.00544.

* denotes the authors contributed equally

ORAL & POSTER PRESENTATIONS

Rees, E. R.; A Brief History of Metagenomics: Triumphs, Advances, Limitations and What's Ahead. *Pharmaceutical Sciences Seminar*. September 17th, 2021. Madison, WI

Rees, E. R. et al.; A Million Puzzle Pieces: Bryozoans, BGCs and building the tools to study them. Chicago Land Specialized Metabolite Community Seminar Series. June 11th, 2020. Chicago, IL

Rees, E. R., et al.; Resolving the Evolutionary Paths of Bacterial Endosymbionts in Bryozoan Sibling Species. Gordon Research Conference on Marine Natural Products (GRC). February 2020. Ventura, CA

Rees, E. R., et al.; Identification of the Putative Bryostatin-like Biosynthetic Gene Cluster from the Bacterial Endosymbiont *"Candidatus* Endobugula *glebosa"* of *Bugulina simplex*. *Keystone Symposia. Microbiome: Chemical Mechanisms and Biological Consequences (C3).* March 2019. Montreal, QC, Canada

Rees, E. R.; Identification of the bryostatin-like Biosynthetic Gene Cluster in *"Candidatus* Endobugula *glebosa"*. *Pharmaceutical Sciences Seminar*. February 2019. Madison, WI

Rees, E. R.; Investigating Biosynthetic Diversity in Convoluted Microbial Communities. *Biotechnology Training Program Seminar*. October 2018. Madison, WI

Miller, I. J.*, **Rees, E. R.***, et al.; Autometa: Automated extraction of bacterial genomes from shotgun-metagenomes. *Pharmaceutical Sciences Graduate Student Retreat.* May 2018. Madison, WI

Rees, E. R.; A Study into the Evolution of the Bryostatins. *Pharmaceutical Sciences Seminar*. April 2018. Madison, WI

Rees, E.R.; Extraction and Isolation of Secondary Metabolites from Fungi. *Celebration of Undergraduate Research.* April 2016. Greensboro, NC

Rees, E. R.; Development of New Iminophosphorane-based Catalysts for the Ring-opening Polymerization of Renewable Lactones. *Memphis section of the ACS: 71st and 67th Combined Southwestern and Southeastern Regional Meeting of the American Chemical Society.* November 2015. Memphis, TN

Rees, E. R.; Identification of Antifungal Agents in Bacteria similar to *Bacillus amyloliquefaciens* FZB42. *Triangle Chromatography Discussion Group: Triangle Chromatography Symposium and Instrument Exhibit.* May 2015. Raleigh, NC

Rees, E. R.; Identification of Antifungal Agents in Bacteria similar to *Bacillus amyloliquefaciens* FZB42. *Syngenta and Central North Carolina Section of ACS: The 15th Annual Poster & Vendor Night.* April 2015. Greensboro, NC

OUTREACH & INVOLVEMENT

Lorentz Center Workshop "Artificial Intelligence for Natural Product Drug Discovery"   Sep. 27th, 2021 –
Invited Participant   Oct. 1st, 2021
- Participated in discussions surrounding topics in advances in AI technology, data standardization and activity/target prediction (74 participants)

Computational Biology, Ecology and Evolution (ComBEE)   Jan. 2019 – May 2019
Python study group leader (PSG)
- Arranged topical overviews using Jupyter notebooks to discuss current bioinformatic tools and libraries

Pharmaceutics Graduate Student Research Meeting   June 2019
Committee member
- Constructed and maintained website for attendees
- Organized Workshop: *"A brief introduction and analysis of mass spectrometry data in the pharmaceutical industry"*

Pharmaceutical Sciences Student Recruitment Committee   Feb. 2018, Feb. 2019
Committee member
- Assisted in planning and executing prospective student recruitment weekends
- Conducted prospective graduate student interviews

WiSolve Consulting Group   Oct. 2017
Consultant
- Utilized the Lean methodology to discover potential clients; targeted mid-size biotech companies (50-200 people)

Morgridge Entrepreneurial Bootcamp (MEB)   June 2017
MEB Student
- First place in negotiation competition of 66 students
- Placed first in pivoting/strategy competition of 11 teams

COLLEGIATE HONORS

- Trainee, NIGMS Biotechnology Program (2017 – Present)
- University Marshal (2013 – 2016)
- NSF International REU Recipient (2015)
- Lachman Graduate Fellowship Recipient (2016)