Applicant: Daniel Thomas

Bibliography

1.....Rosenberg, E. & Zilber-Rosenberg, I. Microbes drive evolution of animals and plants: the hologenome concept. *mBio* **7**, e01395-15 (2016).

2.. .Lemanceau, P., Blouin, M., Muller, D. & Moënne-Loccoz, Y. Let the core microbiota be functional. *Trends in plant science* **22**, 583–595 (2017).

3.....Douglas, A. E. & Werren, J. H. Holes in the Hologenome: Why Host-Microbe Symbioses Are Not Holobionts. *mBio* **7**, (2016).

4.....Moran, N. A. & Sloan, D. B. The Hologenome Concept: Helpful or Hollow? *PLOS Biology* **13**, e1002311 (2015).

5.....Theis, K. R. *et al.* Getting the Hologenome Concept Right: an Eco-Evolutionary Framework for Hosts and Their Microbiomes. *mSystems* **1**, (2016).

6..…Laforest-Lapointe, I., Paquette, A., Messier, C. & Kembel, S. W. Leaf bacterial diversity mediates plant diversity and ecosystem function relationships. *Nature* **546**, 145–147 (2017).

7.....Gazis, R. & Chaverri, P. Wild trees in the Amazon basin harbor a great diversity of beneficial endosymbiotic fungi: is this evidence of protective mutualism? *Fungal Ecology* **17**, 18–29 (2015).

8..Mejía, L. C. *et al.* Endophytic fungi as biocontrol agents of *Theobroma cacao* pathogens. *Biological Control* **46**, 4–14 (2008).

9.....Rodriguez, R. J. *et al.* Stress tolerance in plants via habitat-adapted symbiosis. *ISME J* **2**, 404–416 (2008).

10..…Müller, D. B., Vogel, C., Bai, Y. & Vorholt, J. A. The plant microbiota: systems-level insights and perspectives. *Annual review of genetics* **50**, 211–234 (2016).

11..Theobald, S. *et al.* Uncovering secondary metabolite evolution and biosynthesis using gene cluster networks and genetic dereplication. *Scientific Reports* **8**, 17957 (2018).

12.....Keller, N. P. Translating biosynthetic gene clusters into fungal armor and weaponry. *Nature Chemical Biology* **11**, 671–677 (2015).

13.....Cragg, G. M. & Newman, D. J. Natural products: A continuing source of novel drug leads. *Biochimica et Biophysica Acta (BBA) - General Subjects* **1830**, 3670–3695 (2013).

14.....Slot, J. C. & Gluck-Thaler, E. Metabolic gene clusters, fungal diversity, and the generation of accessory functions. *Current Opinion in Genetics & Development* **58–59**, 17–24 (2019).

15.Charlop-Powers, Z. *et al.* Global biogeographic sampling of bacterial secondary metabolism. *eLife* **4**, e05048 (2015).

16..Nielsen, J. C. *et al.* Global analysis of biosynthetic gene clusters reveals vast potential of secondary metabolite production in Penicillium species. *Nature Microbiology* **2**, 1–9 (2017).

17..…Rokas, A., Mead, M. E., Steenwyk, J. L., Raja, H. A. & Oberlies, N. H. Biosynthetic gene clusters and the evolution of fungal chemodiversity. *Nat. Prod. Rep.* **37**, 868–878 (2020).

18. Bills, G. F. & Gloer, J. B. Biologically Active Secondary Metabolites from the Fungi. *Microbiology Spectrum* **4**, (2016).

19.....Charlop-Powers, Z., Owen, J. G., Reddy, B. V. B., Ternei, M. A. & Brady, S. F. Chemical-biogeographic survey of secondary metabolism in soil. *Proc Natl Acad Sci USA* **111**, 3757 (2014).

20.....Mangan, S. A. *et al.* Negative plant–soil feedback predicts tree-species relative abundance in a tropical forest. *Nature* **466**, 752–755 (2010).

21.....Marden, J. H. *et al.* Ecological genomics of tropical trees: how local population size and allelic diversity of resistance genes relate to immune responses, cosusceptibility to pathogens, and negative density dependence. *Molecular Ecology* **26**, 2498–2513 (2017).

22.....Guzman, F., Kulcheski, F. R., Turchetto-Zolet, A. C. & Margis, R. De novo assembly of Eugenia uniflora L. transcriptome and identification of genes from the terpenoid biosynthesis pathway. *Plant Science* **229**, 238–246 (2014).
23.....Eugenia uniflora (ID 504673) - BioProject - NCBI. https://www.ncbi.nlm.nih.gov/bioproject/PRJNA504673.
24.....Thomas, D., Vandegrift, R., Roy, B. A., Hsieh, H.-M. & Ju, Y.-M. Spatial patterns of fungal endophytes in a subtropical montane rainforest of northern Taiwan. *Fungal Ecology* **39**, 316–327 (2019).
25....Ubbens, J. R. & Stavness, I. Deep Plant Phenomics: A Deep Learning Platform for Complex Plant Phenotyping Tasks. *Front. Plant Sci.* **8**, (2017).
26.....Bills, G. *et al.* New insights into the echinocandins and other fungal non-ribosomal peptides and peptaibiotics. *Nat. Prod. Rep.* **31**, 1348–1375 (2014).
27. Schläpfer, P. *et al.* Genome-Wide Prediction of Metabolic Enzymes, Pathways, and Gene Clusters in Plants. *Plant Physiology* **173**, 2041–2059 (2017).
28.. .Vestheim, H., Deagle, B. E. & Jarman, S. N. Application of Blocking Oligonucleotides to Improve Signal-to-Noise Ratio in a PCR. in *PCR Protocols* (ed. Park, D. J.) 265–274 (Humana Press, 2011). doi:10.1007/978-1-60761-944-4_19.
29.. .Haarmann, T. *et al.* The ergot alkaloid gene cluster in Claviceps purpurea: Extension of the cluster sequence and intra species evolution. *Phytochemistry* **66**, 1312–1320 (2005).
30.....Lorenz, N., Wilson, E. V., Machado, C., Schardl, C. L. & Tudzynski, P. Comparison of Ergot Alkaloid Biosynthesis Gene Clusters in Claviceps Species Indicates Loss of Late Pathway Steps in Evolution of C. fusiformis. *Appl. Environ. Microbiol.* **73**, 7185–7191 (2007).
31..Lorenz, N., Wilson, E. V., Machado, C., Schardl, C. L. & Tudzynski, P. Claviceps fusiformis strain PRL 1980 ergot alkaloid synthesis (EAS) gene cluster, complete sequence. *NCBI* http://www.ncbi.nlm.nih.gov/nuccore/EU006773.1 (2016).
32.....Hüttel, W., Youssar, L., Grüning, B. A., Günther, S. & Hugentobler, K. G. Echinocandin B biosynthesis: a biosynthetic cluster from Aspergillus nidulans NRRL 8112 and reassembly of the subclusters Ecd and Hty from Aspergillus pachycristatus NRRL 11440 reveals a single coherent gene cluster. *BMC Genomics* **17**, 570 (2016).
33.…Yao, T. *et al.* Characterization of the biosynthetic gene cluster of the polyene macrolide antibiotic reedsmycins from a marine-derived Streptomyces strain. *Microbial Cell Factories* **17**, 98 (2018).
34.....Morishita, Y., Zhang, H., Taniguchi, T., Mori, K. & Asai, T. The Discovery of Fungal Polyene Macrolides via a Postgenomic Approach Reveals a Polyketide Macrocyclization by trans-Acting Thioesterase in Fungi. *Org. Lett.* **21**, 4788–4792 (2019).
35.....Ge, B., Liu, B. & Zhang, K. Streptomyces albulus nystatin gene cluster, complete sequence; and hypothetical protein genes, complete cds. http://www.ncbi.nlm.nih.gov/nuccore/MG742725.1 (2018).
36.. Nofiani, R. *et al.* Strobilurin biosynthesis in Basidiomycete fungi. *Nature Communications* **9**, 3940 (2018).
37. Nofiani, R., Willis, C. L., Simpson, T. J. & Cox, R. J. Strobilurus tenacellus strobilurin gene cluster, partial sequence. *NCBI* http://www.ncbi.nlm.nih.gov/nuccore/KY070339.1 (2020).
38.....Edgar, R. C. UPARSE: highly accurate OTU sequences from microbial amplicon reads. *Nature Methods* **10**, 996–998 (2013).
39. Reddy, B. V. B., Milshteyn, A., Charlop-Powers, Z. & Brady, S. F. eSNaPD: A Versatile, Web-Based Bioinformatics Platform for Surveying and Mining Natural Product Biosynthetic Diversity from Metagenomes. *Chemistry & Biology* **21**, 1023–1033 (2014).
40. Dray, S. *et al.* Community ecology in the age of multivariate multiscale spatial analysis. *Ecological Monographs* **82**, 257–275 (2012).
41.....Bauman, D., Drouet, T., Dray, S. & Vleminckx, J. Disentangling good from bad practices in the selection of spatial or phylogenetic eigenvectors. *Ecography* **41**, 1638–1649 (2018).

42. Borcard, D., Gillet, F. & Legendre, P. Spatial analysis of ecological data. in *Numerical ecology with R* 227–292 (Springer, 2011).
43.....Legendre, P. & Legendre, L. *Numerical Ecology*. vol. 24 (Elsevier, 2012).
44.. Baddeley, A., Rubak, E. & Turner, R. *Spatial point patterns: methodology and applications with R*. (Chapman and Hall/CRC, 2015).
45.....Janzen, D. H. Herbivores and the number of tree species in tropical forests. *The American Naturalist* **104**, 501–528 (1970).
46..Connell, J. H., Den Boer, P. J. & Gradwell, G. R. Dynamics of populations. *Centre for Agricultural Publishing and Documentation, Wageningen, The Netherlands. chapter On the role of natural enemies in preventing competitive exclusion in some marine animals and in rain forest trees* 298–313 (1971).
47...Johnson, D. J., Beaulieu, W. T., Bever, J. D. & Clay, K. Conspecific Negative Density Dependence and Forest Diversity. *Science* **336**, 904–907 (2012).
48.....Harms, K. E., Wright, S. J., Calderón, O., Hernández, A. & Herre, E. A. Pervasive density-dependent recruitment enhances seedling diversity in a tropical forest. *Nature* **404**, 493–495 (2000).
49. Christian, N., Herre, E. A., Mejia, L. C. & Clay, K. Exposure to the leaf litter microbiome of healthy adults protects seedlings from pathogen damage. *Proceedings of the Royal Society B: Biological Sciences* **284**, 20170641 (2017).
50.....Rock-Blake, R., McCormick, M. K., Brooks, H. E. A., Jones, C. S. & Whigham, D. F. Symbiont abundance can affect host plant population dynamics. *American Journal of Botany* **104**, 72–82 (2017).
51..…Griffin, E. A., Harrison, J. G., McCormick, M. K., Burghardt, K. T. & Parker, J. D. Tree Diversity Reduces Fungal Endophyte Richness and Diversity in a Large-Scale Temperate Forest Experiment. *Diversity* **11**, 234 (2019).