Geoffrey Daniel Hannigan

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Summary

Solutions-oriented leader and scientist in biotech and pharma. Passionate about empowering drug discovery, development, and healthcare using science and technology. Strong ability to bring groups together by leveraging both scientific and business acumen. Demonstrated background in data science, bioinformatics, machine learning, and deep learning.

Education

University of Pennsylvania – PhD, Cell & Molecular Biology, 2015

University of Minnesota Duluth – BS, Cell & Molecular Biology, 2011

Relevant Experience

EXECUTIVE DIRECTOR & CO-FOUNDER, MERCK DIGITAL SCIENCES STUDIO – 2022 - PRESENT

Executive lead and co-founder of Merck Digital Sciences Studio, a startup accelerator program focused on digital enablement of drug discovery & development. Leverage scientific and business acumen to accelerate startups toward success, including fostering engagements between Merck and startups.

PRINCIPAL SCIENTIST, MERCK RESEARCH LABS – 2020 - PRESENT

Computational biologist leading and contributing to discovery research which blends computational, machine learning, and molecular approaches. Led external partnership to establish a large observational clinical study for drug discovery. Led internal design and development of a GxP platform to improve manufacturing and commercialization.

ASSOCIATE PRINCIPAL SCIENTIST, MERCK RESEARCH LABS – 2017 - 2020

Computational biologist and founding team member that co-developed the DeepBGC algorithm for using deep learning to identify biosynthetic gene clusters from microbial genomes and metagenomes. Established a flexible and scalable microbiome analysis platform for use on-prem as well as on cloud compute resources.

SCIENTIFIC ADVISOR, SMARTPHAGE – 2015 - 2017

Scientific advisory board member for SmartPhage, a biotech focused on the development of effective, precise therapies based on modern disease models. Contributed to facilitating academic collaborations, exploring grant and other funding opportunities, and providing insight into future scientific directions of the company.

Skills

Scientific Skills: R, Python, Julia, MySQL, Neo4j/Cypher, GNU Make, Nextflow, AWS, Unix/Linux, Machine Learning, Microbiome Processing, Genomic Processing, RNA-seq Processing & Analysis, Cell Culture, Illumina Next Generation Sequencing, PCR, Western Blot, In vivo models.

Business/Admin Skills: Team Management, Organizational Management, Organizational Strategy, Business Development, Budgeting, Contracting, Program Administration, Negotiations, Stakeholder & Alliance Management

Select Publications

Total of 16 publications: 2 senior author publications and 10 first author publications.

Gokul Swaminathan, et al, **Geoffrey D Hannigan**. 2021. Vaccine Hyporesponse Induced by Individual Antibiotic Treatment in Mice and Non-Human Primates Is Diminished upon Recovery of the Gut Microbiome. *Vaccines*. doi: 10.3390/vaccines9111340

David Prihoda, et al, **Geoffrey D Hannigan**. 2021. The application potential of machine learning and genomics for understanding natural product diversity, chemistry, and therapeutic translatability. *Natural Product Reports*. doi: 10.1039/D0NP00055H

Geoffrey D Hannigan, et al. 2019. A Deep Learning Genome-Mining Strategy For Biosynthetic Gene Cluster Prediction. *Nucleic Acids Research*. doi: 10.1093/nar/gkz654

Geoffrey D Hannigan, et al. 2018. Biogeography and Environmental Conditions Shape Bacteriophage-Bacteria Networks Across the Human Microbiome. *PLOS Computational Biology*. doi: 10.1371/journal.pcbi.1006099

Geoffrey D Hannigan, et al. 2018. Diagnostic Potential & the Interactive Dynamics of the Colorectal Cancer Virome. *mBio*. doi: 10.1128/mBio.02248-18

Geoffrey D Hannigan, et al. 2015. The human skin dsDNA virome: Topographical and temporal diversity, genetic enrichment, and its dynamic associations with the host microbiome. *mBio*. 6(5):e01578-15. doi: 10.1128/mBio.01578-15

Patents

Geoffrey D Hannigan, Prihoda D, Soukup J, Woelk CH, Bitton DA. 2018. Identifying Biosynthetic Gene Clusters. 62/779.697

Software Publications

Geoffrey D Hannigan, Loesche MA, Hodkinson BP, Mehta S and Grice EA. **Creator** (cre), **Author** (aut). patPRO: Visualizing Temporal Microbiome Data. http://CRAN.R-project.org/package=patPRO

Oksanen J, et al. **Contributor** (ctb). Vegan: R Package for Community Ecologists. http://CRAN.R-project.org/package=vegan

References

Available up request