Dean Sanders

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LinkedIn: Dean's LinkedIn Profile
ResearchGate: Dean's Research Gate Profile

Education:

University of Wisconsin-Madison — Madison, WI
Ph.D. Genetics — Fall 2013 - Fall 2018

University of Wisconsin-Madison — Madison, WI
M.S. Bacteriology — Fall 2011 - Spring 2013

University of Wisconsin-Oshkosh — Oshkosh, WI
B.S. Microbiology — Fall 2008 - Spring 2011

Skills:

Computational experience:

- **Designed** bioinformatic pipelines for:
  - Structural Variant Analysis
  - Genotype By Sequencing
  - *de novo* genome Assembly
  - ChIP-Seq and Cut & Run analysis
- **Python, Julia and R** for program design and plotting
  - Pandas, Numpy, Multiprocessing, and Cython
  - dplyr, ggplot2
  - Jupyter notebook (Python 3 and R)
- **4 years experience** with distributed & cloud computing
  - AWS
  - Slurm
  - SGE
  - Condor
- **7 years experience** with software dev & reproducibility practices:
  - Versioning control (git)
  - Containerized environments (singularity,docker,conda)
- **10 years experience** in unix command line & file systems
  - Awk and GNU Parallel for scripting, data preprocessing and pipeline automation
  - Regex

Analytical techniques: Personal experience with ESI-MS/MS orbi-trap mass spectrometry and HPLC, sample prep and MS/MS data analysis

General molecular biology: Site directed mutagenesis, plasmid Isolation, molecular cloning, PCR, Sanger sequencing

Microscopy: Performed Epifluorescence and Confocal Microscopy

Experience:

Data Scientist II at the University of Wisconsin Bioinformatics Resource Center with Dr. Derek Pavelec and Dr. Mark Berres, University of Wisconsin, Madison. December 2018 - Present.

- Independent project leader on all assigned work
- Project Experience:
  - *de novo* genome assembly
  - Structural and SNP variant analysis
  - ChIP-Seq & Cut & Run analysis
  - Genotype by sequencing

- GWAS and QTL analysis

Graduate research assistant investigating histone lysine to methionine mutations and loss of DNA methylation during plant development and stress in Arabidopsis thaliana with Dr. Xuehua Zhong, University of Wisconsin, Madison. December 2013 - November 2018.

- ❖ Bioinformatic analysis of mRNA, ChIP, SNP and Bisulfite sequencing data
- ❖ Mass spectrometry sample preparation, injection and customized MS/MS data analysis
- ❖ General molecular cloning, transgenic plant production

Graduate research assistant examining bacterial biofilm disruption and production of antimicrobial secondary metabolites by the social amoeba Dictyostelium with Dr. Marcin Filutowicz and Dr. Kalin Vetsigian. University of Wisconsin, September 2011- May 2013.

- ❖ Epifluorescence and confocal microscopy
- ❖ C-18 solid phase extraction, HPLC and LC/MS-TOF

Communication:

Mentoring experience:

- Personally mentored two graduate and four undergraduate students (4/6 now pursuing higher education)

Teaching assistantship:

- 3 semesters TA experience (>20 hours lecture time)

Python study group leader:

- Member of combee python study group since Fall 2016, leader in Fall 2017

Scientific meeting presentations:

- 6 conference presentations, 9 public outreach in the Wisconsin Institute for Discovery

Selected Publications:

Islam A, **Sanders D**, Mishra A, Joshi V (2021) Genetic Diversity and Population Structure Analysis of the USDA Olive Germplasm Using Genotyping-By-Sequencing (GBS) Genes 12, 1-15

Jiang J, Lui J, **Sanders D**, Wang B, Zhong X (2021) UVR8 interacts with de novo DNA methyltransferase and suppresses DNA methylation in Arabidopsis. *Nature Plants*. 7, 184–197

Sanders D, Fieweger R, Lu L, Qian S, Dowell J, Denu JM, Zhong X (2017) Histone lysine-to-methionine mutations reduce histone methylation and cause developmental pleiotropy. *Plant Physiology*.173, 2243-2252.

Patent:

Marcin Filutowicz, Katarzyna Dorota Borys, **Dean Sanders** (2014). Dictyostelid amoeba and biocontrol uses thereof. US20140056850 A1. Amoebagone, LLC