STEPHANIE SAGE

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SKILLS

Molecular and Sterile Techniques: Tapestation, PCR, qPCR, MN NucleoSpin Plant II DNA extraction kit, Nanodrop 8000 spectrophotometer, Qubit, Illumina library kit, Computational biology, Genomic alignment, F.I.S.H., Genotyping/Phenotyping, Gel electrophoresis, RNA extraction, Electron microscopy, Compact light microscopy, Autoclave, Produce primary and secondary bacterial cultures, Miniprep Extraction, Single cell RNA Extraction

Software: Microsoft Access, Excel, Word, PowerPoint, ImageJ, Bash, R, KU FITC, Tapestation, Photoshop, Spectrophotometer OD,

EDUCATION

Bachelor of Science in Agriculture, Minor in Environmental Science and Conservation, May 2021
The University of Missouri, Columbia, MO

Associate of Arts, December 2016
St. Charles Community College, Cottleville, MO

RESEARCH EXPERIENCE

Research Technician II, March 2024 – Present
Plant-Microbe Interaction, Stowers Institute for Medical Research, Kansas City, Missouri
PI: Siva Sankari, Plant Microbe symbiosis
Molecular Biology:

- Created complete and accurate records of stocks and protocols performed in Outlook and Excel, locating bacteria genotypes for inoculating cultures, and documentation of Bacteroide extractions
- Utilized the spectrophotometer for optical density after creating primary and secondary culture from various bacterial varieties for quality control, supported graduate research related to peptide expression

Plant Maintenance and Care:

- Developed and trained students on the standardized procedures for Medicago germination, inoculation, and Bacteroide isolation
- Planned, designed, and implemented a light-controlled plant growth room for bulk seed production

Lab Management:

- Designated as the lab representative for Emergency, EHS, and Safety coordinator
- Planned, designed, and implemented a light-controlled plant growth room for bulk seed production

Research Technician, February 2023 – February 2024
Ecology and Evolutionary Biology, The University of Kansas, Lawrence, KS
PI: Jae Young Choi, Plant Evolutionary Geonomics
Molecular Biology:

- Maintained complete and accurate records of samples and projects performed in Outlook and Excel, tracking plant genotypes for DNA isolation, and documentation of pollen spore microscopy
- Utilized the Nanodrop 8000 spectrophotometer after DNA isolation from various Mimulus varieties for quality control, supported post doctorate research related to TR expression
- Standardized PCR protocols by analyzing temperature optimization of primers by utilizing temperature gradients for telomere length variation analysis in maize RIL
- Preformed gel electrophoresis with finished PCR products, recorded success with UV imager photo; Documented experiments and data in a lab notebook for future utilization
- Isolated and stained B73 maize chromosomes utilizing F.I.S.H. procedure to visualize telomeres, trained and collaborated with the Birchler Lab at the University of Missouri-Columbia

- Transformed floral bud tissue in Mimulus with agrobacterium, assisting the post-doctorate research

Greenhouse and Lab Management:

- Developed and trained students on the standardized procedures for genomic libraries, DNA concentration, and DNA extraction
- Managed inventory for the lab by placing orders in the financial management system and contacted local sales representatives for scientific supplies; Maintained inventory storage of chemicals, supplies, RNA and DNA samples; following specific storage requirements
- Grew plants, collected tissue, performed controlled pollinations in maize, harvested maize in the greenhouse for genetic isolation and qPCR data for telomere
- Autoclaved lab equipment as needed; restocked and sterilized bulk pipette tips for extracting plant DNA

Genomics:

- Studied and managed endangered Hawaiian plant data to understand speciation through genetic recombination with gel electrophoresis, library sequencing, TapeStation and PCR; worked in conjunction with KU Genomic Core and Ecology and Evolutionary Biology's shared resource environment
- Performed transcriptomics via genomic alignments of floral bud tissue in mimulus varieties; used BASH software for computational analysis of genomic libraries; Executed sratoolkit, fastQ, trimmomatic, and bwa alignment
- Coordinated with PI for daily assignments, organized, and reported on the progress of genomic projects related to library preparation and DNA isolation of Hawaiian Metrosideros
- Maintained a sterile and orderly workstation when isolating Metrosideros DNA for library sequencing

Undergraduate Research Assistant, May 2019 – July 2021
McSteen Maize Development Lab, University of Missouri, Columbia, MO
PI: Paula McSteen, Mentor: Norman Best

- Analysis of auxin and brassinosteroid interdependent regulation of stomatal development, analyzed the double mutant via stomatal impressions on WT, *vt2*, *brd1*, and double mutants of *vt2* and *brd1*; determined the cellular effects of BR reduction on IAA polar transport, and the effects of lowered IAA on BR signaling in developing stomata with microscopy
- The lateral suppressor1 (las1) mutant inhibits axillary meristem initiation and shows a complex genetic interaction with the meristem maintenance mutant compact plant2 (ct2) in maize: conducted research on the compact tasel2 and the lateral supressor1 mutants to decipher connections between meristem initiation and maintenance in maize
- Performed DNA extraction to understand the genetic interactions between mutants and wild type maize via genotypic or phenotypic analysis
- Planted and maintained crops for genetic analysis projects to assist graduate and undergraduate researchers during the three planting seasons
- Maintained complete and accurate records of assisted field projects performed in Excel, tracking maize genotypes used for DNA isolation projects
- Coordinated with mentors for daily assignments, reported on the progress of specific projects related to mutant analysis in maize

ADDITIONAL EXPERIENCE

Vineyard technician, August 2021- December 2021
Aubrey Vineyard, Overland Park, Kansas

- Calculated sugar concentration and pH of seven grape varieties; Tended grapevines for proper growth and development until harvested; Diligently assisted fermentation with properly incubation; Bottled and boxed wine after fermentation process completed

Shadowing:

- Mycorrhizal Applications- viewed microscopy of plant-fungi interaction and root inoculation with various fungal spore colonies; toured the laboratory, research plots, and manufacturing facility

COMMUNITY INVOLVEMENT

ASPB member, IPG member, MU Soil Science and Conservation Club, MU Meteorology Club, Columbia community food bank volunteer at Food Not Bombs, Becky David Elementary teaching assistant and afterschool caretaker

AWARDS

Won the College of Agriculture, Food, and Natural Resources Fellowship, 2020-2021
Earned the A+ Program Scholarship for a Full-ride Assocaite's degree, May 2014