

Company Organization Description



The Mission Statement of the U.S.D.A – ARS, SPARC is as follows:

“The mission of the Southern Plains Agricultural Research Center is to conduct research to improve the productivity of important southern crops, and to enhance the safety to the consumer of meat products derived from livestock and poultry. Specific projects at the Center are diverse and include plant biotechnology; improved control methodologies for pathogens and nematodes attacking cotton; improved aerial application of agricultural chemicals; **germplasm enhancement of cotton**, sorghum, forage grasses, and pecans . . . Center scientists have a strong commitment to the solution of significant agricultural problems and to the timely and effective transfer to appropriate users of technology developed through their research.”

I worked in a cotton genomics lab under Dr. John Yu and Dr. Carla Jo Logan Young. We centered our focus on the genes responsible for flowering time in cotton. The research objective was to correlate discrete SNPs with phenotypic responses (early flowering mutant) in a segregating population, and testing to determine if any of these SNPs were linked to this segregating trait. The results of the first experiment were flawed, so the primers were redesigned for a next-gen sequencing experiment on the Illumina.

Internship Objectives

The goal of this internship was to gain experience working in a research laboratory. This was intended not only to provide me with valuable experience, but also to allow me to decide if a career in a research laboratory is something I would like to pursue upon graduation.

Internship Goals:

- Learn Basic Laboratory Maintenance
- Gain Basic Laboratory Skills
- Learn Various Laboratory Techniques
- Understand What Is Involved in a Research Laboratory



Gossypium barbadense cotton plant (left) & *Gossypium hirsutum* cotton plant (right)



Watering the cotton plants

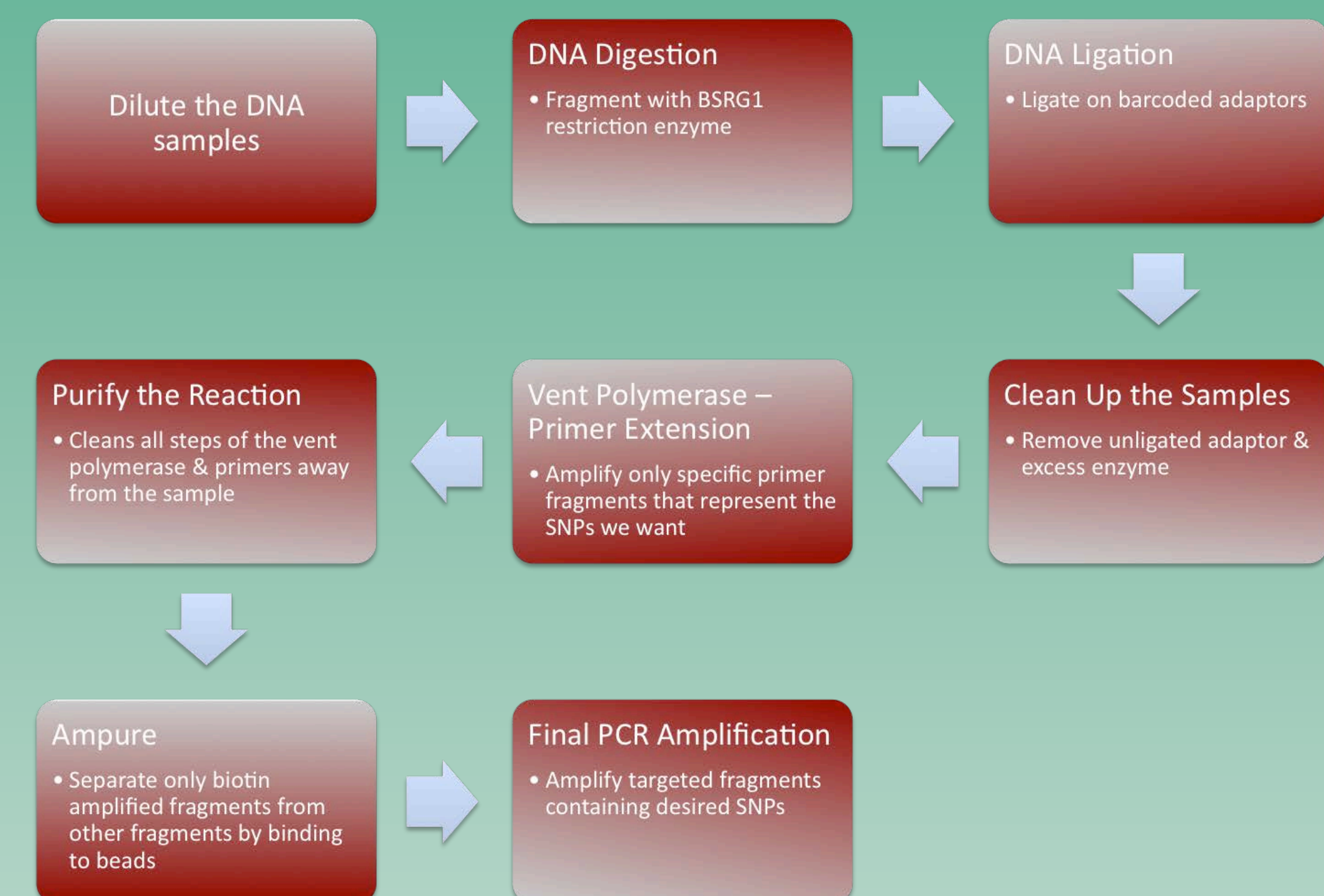


Preparing DNA samples for a mupid gel

Description of Experience

I learned many valuable skills by working in the lab, including:

- How to operate an autoclave
- How to perform a maintenance run on the genetic analyzer
- How to prepare a mupid gel, load the gel with DNA, & run it
- How to operate a PCR (Polymerase Chain Reaction) Machine
- How to perform a nanodrop
- How to perform a TGBS (Targeted Genotyping-By-Sequencing)



Process of performing a TGBS

Through my time at the USDA, I also became aware of various activities and necessities involved in lab work I had not considered before. This includes the importance of writing grants and proposals, the importance of communication between labs, and the amount of data that will need to be sorted through after the completion of an experiment.

Relationship to Career Goals

I am still considering many options for my career upon graduation. Working in a lab this summer has given me experience I can use to determine if I would enjoy a lab-based career. Should I choose to pursue this option, I now have very valuable techniques and information under my belt, especially for next-generation sequencing, that may give me an edge over my competition.

References

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- USDA-ARS, SPARC Mission Statement:
<http://www.ars.usda.gov/pandp/locations/locations.htm?modecode=62-02-00-00>

Acknowledgements

I would like to thank Dr. Carla Jo Logan Young for all her help and support throughout my internship. I would also like to thank Dr. John Yu and Dr. Mike Kolomiets for their support and guidance, Dr. Richard Percy for giving me this opportunity, and Dr. Alan Pepper for allowing us use of his laboratory. I also want to extend my gratitude to Dr. Gino Medrano who helped make this a pleasant experience, and Marissa Forray, who also made this a very pleasant experience and helped guide me. **Sponsors for high impact experiences for BESC and the BESC poster symposium include the Department of Plant Pathology and Microbiology, the College of Agriculture and Life Sciences, the Office of the Provost and Executive Vice President for Academic Affairs.**