

Education

BS Botany, Brigham Young University, 2002
PhD Botany (Biotechnology minor), North Carolina State University, 2002-present

Relevant graduate coursework

- Plant Molecular Biology
- Fungal Genetics and Physiology
- Plant-Microbe Interactions
- Plant Form, Function and Development
- Protein Purification
- Confocal Microscopy
- Computational Biology

Honors and Awards

- Honorable Mention, NSF Graduate Fellowship Competition
- NIH/NCSU Biotechnology Traineeship (2003, 2004)
- 3rd Place Botany Graduate Student Symposium (2006)

Research Experience

Current projects

1. Identification of aflatoxin inhibitory compounds in maize seeds using liquid chromatography, metabolic profiling and fungal bioassays.
2. Analysis of gene expression changes in *Aspergillus flavus* following treatment with aflatoxin inhibitors using real-time RT-PCR and microarray.
3. Investigation of novel secondary metabolism gene functions in *Aspergillus flavus*.

Techniques

Protein purification, fungal culture and bioassays, Western blotting, fluorescence microscopy, real-time RT-PCR.

Teaching Experience

Teaching assistant for undergraduate Plant Physiology lab, 2 sections (2002)

Presentations and Publications

Publications

- Patrick F. Dowd, **Robert A. Holmes**, T. Scott Pinkerton, Eric T. Johnson, Mark Lagrimini and Rebecca S. Boston (2006) Relative Activity of a Tobacco Hybrid Expressing High Levels of a Tobacco Anionic Peroxidase and Maize Ribosome-Inactivating Protein against

Helicoverpa zea and *Lasioderma serricorne*. *Journal of Agricultural and Food Chemistry* 54(7): 2629–2634.

- Bruce N. Smith, Thomas A. Monaco, Clayton Jones, **Robert A. Holmes**, Lee D. Hansen, E. Durant McArthur and D. Carl Freeman (2002) Stress-induced metabolic differences between populations and subspecies of *Artemisia tridentata* (sagebrush) from a single hillside. *Thermochimica Acta* 394(1-2): 205-210.

Poster presentations

- Aflatoxin Elimination Workshop, Raleigh, NC; October 2005
- American Phytopathological Society Annual Meeting, Austin, TX; August 2005
- Aflatoxin Elimination Workshop, Savannah, GA; October 2004
- Maize Genetics Conference, Mexico City, Mexico; March 2004
- Aflatoxin Elimination Workshop, Sacramento, CA; October 2003

Other Activities

Member of organizing committee for first NCSU Biotechnology Symposium (2003)

Organized poster sessions for departmental recruiting weekend (2003, 2004)

Community outreach: State Science Fair Judge (NC), 2005; Fuller Elementary School Science Day, 2005.

References

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