

**BENJAMIN P. DERIDDER**  
Curriculum Vitae (2019)

Department of Biology, Grinnell College, Grinnell, IA, USA. Tel: (641) 269-4483; Fax: (641) 269-4285;  
Email: [deridder@grinnell.edu](mailto:deridder@grinnell.edu); Web: <https://www.grinnell.edu/users/deridder>

**EDUCATION**

- 2003 Purdue University, Ph.D., (Plant Molecular Biology), Advisor: Peter B. Goldsbrough  
“Glutathione S-transferases in Arabidopsis and Their Regulation by Herbicide Safeners”  
1998 Calvin College, B.S. (Biology)

**PROFESSIONAL APPOINTMENTS**

- 2014-Present Associate Professor of Biology, Grinnell College, Grinnell, IA  
2016-2019 Biology Department Chair, Grinnell College, Grinnell, IA  
2007-2014 Assistant Professor of Biology, Grinnell College, Grinnell, IA.  
2006-2007 Adjunct Professor, Chandler-Gilbert Community College, Gilbert, AZ  
2004-2006 Research Molecular Biologist, USDA-ARS, Maricopa, AZ  
2003-2004 Postdoctoral Research Associate, USDA-ARS, Phoenix, AZ

**RESEARCH INTERESTS**

Molecular biology and Physiology of plant stress responses; heat stress, chilling stress, oxidative stress.  
Mechanisms of gene regulation in plants. Acclimation of photosynthesis to heat stress and chilling stress.

**PUBLICATIONS** (\* indicates co-first authorship, † denotes undergraduate authors)

**DeRidder BP**, †Shybut ME, †Dyle MC, †Kremling KAG, †Shapiro MB. Changes at the 3'-untranslated Region Stabilize Rubisco Activase Transcript Levels During Heat Stress in Arabidopsis. *Planta* 236: 463-476. 2012

\*Ruthig GR and \***DeRidder BP**, Fast Quantitative PCR, Locked Nucleic Acid Probes, and Reduced Volume Reactions are Effective Tools for Detecting *Batrachomyces dendrobatidis* DNA. *Dis Aquat Organ* 97: 249-253. 2012

Ristic Z, Momčilović I, Bukovnik U, Vara Prasad PV, Fu J, **DeRidder BP**, Elthon TE, Mladenov N. Rubisco Activase and Wheat Productivity under Heat-Stress Conditions. *J Exp Bot* 60: 4003 - 4014. 2009

**DeRidder BP**, Crafts-Brandner SJ. Chilling Stress Response of Post-Emergent Cotton Seedlings. *Physiol Plantarum* 134: 430-439. 2008

**DeRidder BP**, Salvucci ME. Modulation of Rubisco Activase Gene Expression During Heat Stress in Cotton (*Gossypium hirsutum* L.) Involves Post-transcriptional Mechanisms. *Plant Sci* 172 (2): 246-254. 2007

Ristic Z, Momčilović I, Fu J, Callegari E, **DeRidder BP**. Chloroplast Protein Synthesis Elongation Factor, EF-Tu, Reduces Thermal Aggregation of Rubisco Activase. *J. Plant Physiol* 164: 1564-1571. 2007

Salvucci ME, **DeRidder BP**, Portis AR. Effect of Activase Level and Isoform on the Thermotolerance of Photosynthesis in *Arabidopsis*. J Exp Bot 57 (14): 3793-3799. 2006

**DeRidder BP**, Goldsbrough PB. Organ-Specific Expression of Glutathione S-Transferases and the Efficacy of Herbicide Safeners in Arabidopsis. Plant Physiol 140 (1): 167-175. 2006

\*Smith AP, \***DeRidder BP**, Guo WJ, Seeley EH, Regnier F, Goldsbrough PB. Proteomic Analysis of Arabidopsis Glutathione S-transferases from Benoxcor- and Copper-treated Seedlings. J Biol Chem 279 (5): 26098-26104. 2004

**DeRidder BP**, Dixon DP, Beussman DJ, Edwards R, Goldsbrough PB. Induction of Glutathione S-transferases in *Arabidopsis thaliana* by Herbicide Safeners. Plant Physiol 130: 1497-1505. 2002

### GRANTS, FELLOWSHIPS AND AWARDS

- 2017-2020 NSF MRI: Acquisition of an Integrated Gas Exchange and Fluorescence Instrument for Multidisciplinary Physiological Research. National Science Foundation 1726941. (PI) \$77,371 (funded)
- 2014-2017 NSF MRI: Acquisition of an Infrared (IR) Fluorescence Imager. National Science Foundation DBI1428384. (Co-PI) \$61,815 (funded)
- 2012-2015 NSF TUES: Leveraging Laboratory Activities to Achieve Educational Reform. National Science Foundation 1140767. (Collaborator) \$199,990 (funded)
- 2010-2011 Harris Faculty Fellowship: Role of Rubisco Activase Gene Regulation in Acclimation of Photosynthesis to Heat Stress. Grinnell College. \$6,000 USD plus full year salaried leave).
- 2009-2012 NSF MRI: Acquisition of Mass Spectrometry Instrumentation for Chemistry and Biology Research. National Science Foundation 0923422. (Co-PI) \$428,295 (funded)
- 2008-2012 NSF RUI: Role of Rubisco Activase Gene Regulation in Acclimation of Photosynthesis to Heat Stress. National Science Foundation 0820877. (PI) \$148,469 (funded)
- 2008-2011 NSF MRI: Acquisition of a Quantitative Real-Time PCR system for Biological Science Research. National Science Foundation 0820756. (PI) \$51,716 (funded)
- 2003 Teaching Assistantship, Pre-doctoral. Purdue University, Department of Horticulture and Landscape Architecture.
- 2002 USDA National Needs Fellowship International Study Supplemental Grant. University of Durham, Durham, UK. \$4,550
- 1999-2002 USDA National Needs Pre-doctoral Fellowship. Purdue University, Department of Horticulture and Landscape Architecture.
- 1998 Research Assistantship, Pre-doctoral. Purdue University, Department of Horticulture and Landscape Architecture.

**PROFESSIONAL MEETING ABSTRACTS** (student presenters are underlined)

- Lee GH, **DeRidder BP**. Role of *AtXRN4* in stability of Rubisco activase mRNA in heat stressed Arabidopsis. At the American Society of Plant Biologists National Conference, San Jose, CA. 2019
- Sun X, Ellery S, **DeRidder BP**. Transcriptional control of Rubisco activase gene expression by heat stress in Arabidopsis. At the American Society of Plant Biologists National Conference, San Jose, CA. 2019
- DeRidder BP**. Stabilization of Rubisco activase gene expression in heat-stressed plants. At the American Society of Plant Biologists National Conference, Honolulu, HI. 2017
- DeRidder BP**. Post-transcriptional stabilization of Rubisco activase gene expression in heat-stressed plants. At the ASPB Satellite conference on Post-transcriptional Gene Regulation in Plants, Providence, RI. 2013
- DeRidder BP**. Post-transcriptional stabilization of Rubisco activase gene expression in heat-stressed plants. At the American Society of Plant Biologists National Conference, Providence, RI. 2013
- DeRidder BP**, Shybut ME, Kremling KAG, Dyle MC, Shapiro MA. Post-transcriptional regulation of Rubisco activase gene expression in response to heat stress in Cotton and Arabidopsis. At the American Society of Plant Biologists National Conference, Minneapolis, MN. 2011
- Shybut ME, **DeRidder BP**. Effect of heat stress on Rubisco activase gene expression in *Arabidopsis thaliana*. At the American Society of Plant Biologists National Conference, Montreal, CAN. 2010
- Kremling KA, **DeRidder BP**, Dyle MC. Post-transcriptional regulation of Rubisco activase in *Arabidopsis thaliana*. At the American Society of Plant Biologists National Conference, Montreal, CAN. 2010
- DeRidder BP**, Post-transcriptional Regulation of Rubisco Activase Gene Expression in Response to Heat Stress in Cotton and Arabidopsis. At the American Society of Plant Biologists National Conference, Honolulu, HI. 2009
- DeRidder BP**, Salvucci ME. Role of Rubisco Activase Gene Regulation in Acclimation of Photosynthesis to Heat Stress. At the American Society of Plant Biologists National Conference, Mérida, Mexico. 2008
- DeRidder BP**, Crafts-Brandner SJ, Salvucci ME. Warm Root Temperature Mitigates the Effect of Chilling in the Dark on Photosynthesis in Cotton (*Gossypium hirsutum*) Seedlings. At the American Society of Plant Biologists National Conference, Boston, MA. 2006
- DeRidder BP**, Salvucci ME, Crafts-Brandner SJ. Examining the Role of Rubisco Activase Regulation in Cotton Plant Photosynthesis in Response to Temperature Stress. At the Gordon Research Conference on Temperature Stress in Plants, Ventura, CA. 2005
- DeRidder BP**, Crafts-Brandner SJ. Examining the Role of Rubisco Activase Regulation in Cotton Plant Photosynthesis in Response to Temperature Stress. Proc Nat Cotton Council Beltwide Cotton Conference, New Orleans, LA. 2005
- DeRidder BP**, Salvucci ME, Crafts-Brandner SJ. Examining the Role of Rubisco Activase Regulation in Cotton Plant Photosynthesis in Response to Temperature Stress. At the American Society of Plant Biologists National Conference, Orlando, FL. 2004
- DeRidder BP**, Smith AP, Seeley, EH, Regnier, FE, Goldsbrough PB. Analysis of the structure, diversity and expression of the glutathione S-transferase gene family in *Arabidopsis thaliana*. At the American Society of Plant Biologists National Conference, Denver, CO. 2002

**DeRidder BP**, Goldsbrough PB. Using Arabidopsis as a Model to Study the Induction of Herbicide Detoxification Systems by Safeners. At the American Society of Plant Biologists National Conference. 2002

**DeRidder BP**, Dixon DP, Beussman DJ, Edwards R, Goldsbrough PB. Using Arabidopsis as a model to study the induction of herbicide detoxification systems by safeners. At 12<sup>th</sup> International Conference on Arabidopsis Research, Madison, WI. 2001

#### INVITED TALKS

2017 USDA-ARS, University of Illinois, Champaign-Urbana, IL  
2015 Grinnell Adult Community Exploration Series, Grinnell, IA  
2012 Grinnell College Biology Department, Grinnell, IA  
2011 Calvin College Biology Department, Grand Rapids, MI  
2004 USDA-ARS Water Conservation Laboratory, Phoenix, AZ  
2003 Purdue University, Department of Horticulture and Landscape Architecture, West Lafayette, IN  
2002 Calvin College Biology Department, Grand Rapids, MI  
2001 North Central Weed Science Society Meeting, Milwaukee, WI  
2001 Monsanto Corporation, St. Louis, MO

#### PROFESSIONAL CONSULTATION

2014 External Reviewer for Allegheny College Biology Department. October 22-24, 2014.

#### MANUSCRIPT AND PROPOSAL REVIEWING

- Plant Physiology
- Plant Signaling and Behavior
- Plant Molecular Biology
- Plant Molecular Biology Reporter
- Louisiana Board of Regents Support Fund

TEACHING EXPERIENCE (Grinnell College)	<u>Semester and Year</u>	<u>Times Taught</u>
BIO 150: Introduction to Biological Inquiry	F2007,8,12,13,19 and S2012	6
BIO 251: Molecules, Cells, and Organisms	F2008,9,11-14,16-19	10
BCM 262L: Biochemistry Lab	F2016 and S2014,16-20	7
BIO 380: Molecular Biology	F2019,20 and S2009,13,19	5
BIO334: Plant Physiology	F2009 and S2008,12,14-18,20	9
BIO 395: Molecular Biology of Plant Stress	F2007	1
TUT 100: First Year Tutorial	F2011, F2014	2

#### UNDERGRADUATE RESEARCH MENTORING (semester or summer-long projects in my lab)

2020	Anne Steensma	Biochemical effect of chill and safeners on cotton photosynthesis
2019	Xiaobo Sun	Construction of RCA promoter deletions for transient assays
	Fitsum Getahun	Physiological effect of chill and safeners on cotton photosynthesis
	Anne Steensma	Physiological effect of chill and safeners on cotton photosynthesis
2018	Raghu Inturi	Genetic Selection of <i>rca/xrn4</i> /RCA+ triple crosses
	Michelle Lee	Effect of Heat and XRN4 mutation on activase degradation rate
	Xiaobo Sun	<i>In silico</i> analysis of the Arabidopsis activase promoter
2017	Shannon Ellery	Effect of Heat stress on activase transcription rate
	Michelle Lee	Effect of Heat and XRN4 mutation on activase degradation rate
2015	Joey Lederman	Fate of rubisco activase mRNA in <i>xrn4</i> mutants
	Chloe Briney	Fate of rubisco activase mRNA in <i>xrn4</i> mutants

	Shanaz Daneshdoost	COX gene expression at the Lizard Neuromuscular Junction
	Emily Stuchiner	Effect of Safeners on response of cotton to chilling stress
	Oahn Vu	Genetic analysis of activase-luciferase transgenic plants
	Jason Chien	Expression of activase in luciferase reporter gene lines
	Gabby Mercado	Expression of activase in luciferase reporter gene lines
2014	Collin Kramer	Cloning and expression of activase proteins from Arabidopsis
	Elliot Czarnecki	Cloning and expression analysis of activase mRNAs from cotton
	Kaya Matson	qPCR analysis of COX gene expression in mouse NMJ tissue
2013	Collin Kramer	Cloning and expression of activase proteins from Arabidopsis
	Elliot Czarnecki	Cloning and expression analysis of activase mRNAs from cotton
2012	Annie Klodd	Antioxidant response of cotton to herbicide safener treatment
	Kaya Matson	Cloning and expression analysis of activase genes from Pima Cotton
2011	Iris Young	Genetic analysis of transgenic Arabidopsis expressing Rubisco activase
	Kelly Bruce	Real-time PCR assay development for COX genes from lizard
2010	Benjamin Spears	Analysis of activase expression in Arabidopsis luciferase reporter lines
	Nathan Pavlovic	Cloning and sequence analysis of COX genes from lizard
	Mariya Shapiro	Rubisco activase protein expression in response to heat stress
	Karl Kremling	Real-time PCR analysis of activase expression in transgenic arabidopsis
2009	Mikel Shybut	Real-time PCR analysis of activase expression in wild-type arabidopsis
	Michael Dyle	Immunoblot analysis of activase expression in heat-stressed plants
	Vijay Tandukar	Rubisco activase mRNA stability assays utilizing real-time PCR
2008	Carolyn Townsend	Genetic analysis of Rubisco activase expression in transgenic arabidopsis
	Anthony Oliveri	Transformation of Arabidopsis with engineered Rubisco activase
	Katherine Johnson	Cloning of Arabidopsis activase genes with inducible promoters
	Marie Brault	Cloning of Arabidopsis activase genes with constitutive promoters

#### COLLEGE SERVICE

- Biology Department Chair (2016-19, 2020-21)
- Institutional Biosafety Committee (Founding Member 2010-present, Chair 2011- 2016, 2019-present)
- Science Teaching and Learning Group (Co-leader 2009 – 2014)
- Tutorial and Advising Committee (Member 2008-2010)
- Center for Prairie Studies Advisory Board (Member 2012)
- Biological Chemistry Major Committee (2008 – present)
- General Science Major Departmental Representative (2013-2014)
- Health Professions Advisory Committee (2013-2014, 2016-2017, 2019)
- Departmental Seminar Coordinator (2009-2010, 2011-2012)
- Undergraduate Academic Advisor, 12 to 30 students per year
- Noyce Visiting Professorship Committee (2007-2016)
- Major Research Instrumentation Coordinator: Real-time PCR Instrument (2008 – present)

#### FACULTY DEVELOPMENT WORKSHOPS

- |      |  |
|------|--|
| 2019 | ▪ Biology Winter Retreat: Title IX/Diversity, and Designing Inclusive Syllabi ( <b>Co-Organizer</b> )  |
| 2018 | ▪ Biology Winter Retreat: Assessing and Reworking the Biology Senior Survey ( <b>Organizer</b> )   |
| 2017 | ▪ Biology Winter Retreat: Student Learning across Scales of Biological Organization ( <b>Organizer</b> )   |
| 2016 | ▪ HHMI Project: Revitalizing and Realigning the Bio251 Laboratory Exercises to our Current Pedagogy ( <b>Organizer</b> )   |
| 2014 | ▪ HHMI Workshop: Collaborative Group Work and Assessment Workshop  |
|      | ▪ Grinnell College Tutorial and Advising Workshop  |
| 2013 | ▪ HHMI Workshop: Research-based Undergraduate Introductory Biology ( <b>Co-organizer</b> )<br>(multi-institutional 3-day conference on Vision and Change in Intro Biology) |
|      | ▪ Concept Integration Module Development for Cell Biology and Organic Chemistry ( <b>Organizer</b> )   |

- (HHMI-sponsored through a capstone grant to Grinnell College)
- 2012   ▪ HHMI Workshop: Bridging Intermediate Biology and Chemistry Courses
  - 2011   ▪ Tutorial Faculty Workshop
  - 2010   ▪ Grinnell College Advising and Mentoring Workshop
  - 2009   ▪ Grinnell College Tutorial and Advising Workshop
  - 2009   ▪ Grinnell College Biological Chemistry Workshop

#### **SYNERGISTIC ACTIVITIES**

- Faculty Liaison for University Summer Undergraduate Research Programs (2009 – present)
- Faculty Panel Member – *Preparing Future Faculty* program, Iowa State University (2009, 2010, 2014)
- Faculty Participant for the Grinnell Science Project (2011, 2012)
- Recommendation Letter Writer for undergraduate students (hundreds of letters, 2009 – present)
- Faculty Panel Member for the Iowa Private Colleges Workshop (2013, 2014)
- Adult Community Exploration Series Instructor: *Genetically Engineered, Organically Grown* (2015)

#### **COLLABORATORS (Current)**

Candace Haigler (North Carolina State University, Raleigh, NC)  
Elizabeth Carmo-Silva (University of Lancaster, Lancaster UK)  
Iris Finkemeier (University of Münster, Münster Germany)  
Pamela Green (Delaware Biotechnology Institute, University of Delaware)

#### **MEMBERSHIPS**

American Society of Plant Biologists (2002-present)  
North Central Weed Science Society (2001-2003)