

# David Anthony Baltrus

## Curriculum Vitae February 2010

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### EMPLOYMENT HISTORY

2006-Present                      Postdoctoral Fellow, advised by Jeff Dangl  
Department of Biology University of North Carolina at Chapel Hill

### EDUCATION

2001-2006                      Ph.D.  
University of Oregon  
Advisors: Dr. Karen Guillemin, Dr. Patrick Phillips  
Research: The Effect of Genetic Exchange on Genome Evolution and  
Adaptation in the Human Gastric Pathogen, *Helicobacter pylori*

1997-2001                      B.A. in Biology, *magna cum laude*  
Minor in Chemistry  
University of Delaware  
Advisor: Dr. Douglas Tallamy  
Research: Mating Strategy and Offspring Care in the Common Earwig,  
*Forficula auricularia*

### FUNDING AND AWARDS

2006-present                      NIH (NRSA) 3-year Postdoctoral Award  
“Evolutionary conservation of interacting effector complexes in *P. syringae*”

2006                                  William K. Siström Memorial Scholar 2006, \$4000

2005-2006                      NSF Dissertation Improvement Grant 2005-2006, \$12,000  
“Direct tests of the adaptive benefits of bacterial gene exchange”

2002-2004, 2006                      NSF IGERT Fellowship “Evolution, Development, and Genomics”

2002                                  NSF Graduate Fellowship 2002 (Honorable Mention)

### PUBLICATIONS

#### *Peer Reviewed*

- [8]       Reinhardt JR, **Baltrus DA (co-first author)**, Nishimura MT, Jeck WR, Jones CD, Dangl JL 2009  
“De novo assembly using low coverage short read sequence data from the rice pathogen  
*Pseudomonas syringae* pv. *oryzae*” *Genome Research* 19(2):294-305  
**Rated 3.0 by Faculty of 1000**
- [7]       **Baltrus DA**, Blaser M, Guillemin K. 2009 “*Helicobacter pylori* Genome Plasticity” *Genome  
Dynamics* 6:75-90 Invited review for the book series

- [6] **Baltrus DA**, Amieva MR, Covacci A, Lowe TM, Merrell DS, Ottemann KM, Stein M, Salama NR, Guillemin K 2009 “The complete genome sequence of *Helicobacter pylori* strain G27” *Journal of Bacteriology* 191(1):447-48
- [5] **Baltrus DA**, Guillemin K, Phillips PC 2008 “Natural transformation increases the rate of adaptation in the human pathogen *Helicobacter pylori*” *Evolution* 62(1):39-49
- [4] Jeck WR, Reinhardt JA, **Baltrus DA**, Hickenbotham MT, Magrini V, Mardis ER, Dangl JL, Jones CD 2007 “Extending assembly of short DNA sequences to handle error” *Bioinformatics* 23(21):2942-4
- [3] Mole BM, **Baltrus DA**, Dangl JL, Grant SR. 2007 “Global virulence regulation networks in phytopathogenic bacteria” *Trends in Microbiology* 15(8):363-71
- [2] **Baltrus DA**, Guillemin K. 2005 “Multiple phases of competence during the *Helicobacter pylori* growth cycle” *FEMS Microbiology Letters* 255:148-155
- [1] Cresko WA, Yan YL, **Baltrus DA**, Amores A, Singer A, Rodriguez-Mari A, Postlethwait, JH. 2003. “Genome duplication, subfunction partitioning, and lineage divergence: Sox9 in stickleback and zebrafish. *Developmental Dynamics* 228:480-9

#### *In Preparation*

**Baltrus DA**, Nishimura TM, Reinhardt JA, Romanchuk A, Jones CD, Dangl JL “The Evolution of Type III Effector Repertoires Across the Phylogeny of *Pseudomonas syringae*” to be submitted to *PLoS Biology*

**Baltrus DA**, Phillips PC. “A theoretical model to investigate the evolutionary dynamics of natural transformation” to be submitted to *Genetics*

### PROFESSIONAL DUTIES

#### *Reviewer*

PloS Biology, PloS Pathogens, PloS Genetics, Evolution

#### *Oral Presentations*

- Baltrus, DA 2009 “Using Low Cost Genome Sequences to Understand Microbial Adaptation” Cold Spring Harbor 74<sup>th</sup> Symposium: Evolution – The Molecular Landscape, Cold Spring Harbor NY
- Baltrus, DA 2008 “The Genomics of Host Range Evolution in the Plant Pathogen *Pseudomonas syringae*” Society for the Study of Evolution Annual Meeting, Minneapolis MN
- Baltrus, DA 2007 “Genome Analysis and Host Range Evolution in *Pseudomonas syringae*” NIH PI Meeting Evolution Ecology of Infectious Disease, Albuquerque NM
- Baltrus DA 2006 “Genetic Exchange Accelerates Adaptation in the Human Pathogen *Helicobacter pylori*” Society for the Study of Evolution Annual Meeting, Stony Brook NY
- Baltrus DA 2006 “Genetic Exchange Accelerates Adaptation in the Human Pathogen *Helicobacter pylori*” Evo-WIBO (Evolutionary Biology in the Pacific Northwest), Port Townsend, WA

#### *Poster Presentations*

- Baltrus, DA 2009 “Using Low Cost Draft Genome Sequences to Explore the Adaptive Landscape of the Plant Pathogen *Pseudomonas syringae*” Gordon Conference on Microbial Populations, Andover, NH
- Baltrus, DA 2007 “Genomic Investigation of Host Range Evolution in *Pseudomonas syringae*” Cold Spring Harbor Meeting on Microbial Pathogenesis and Host Response, Cold Spring Harbor NY

- Baltrus DA 2005 "An Experimental Test of the Evolutionary Consequences of Genetic Exchange: Laboratory Adaptation in the Human Gastric Pathogen *Helicobacter pylori*" Gordon Conference on Microbial Populations, Andover NH
- Baltrus DA 2004 "Characterization and Evolutionary Role of Gene Exchange in a Human Pathogen, *Helicobacter pylori*" NSF IGERT Symposium on Evolution, Development, and Genomics, Eugene OR
- Baltrus DA 2002 "The Influence of Genomic Fluidity on Adaptation in a Human Pathogen" NSF IGERT Symposium on Evolution, Development, and Genomics, Bloomington IN

## TEACHING EXPERIENCE

2008-Present      UNC Chapel Hill, Supervised 2 undergraduate researchers

### *Teacher's Assistant*

Winter 2003      University of Oregon, Evolution, Instructor: Dr. William Bradshaw  
Spring 2002      University of Oregon, Populations, Instructor: Dr. Peter Weatherwax  
Winter 2002      University of Oregon, Introduction to Evolution, Instructor: Dr. Bitty Roy  
Spring 2001      University of Delaware, General Biology, Instructor: Dr. Robert Ketcham

### *Guest Lecturer*

January 9, 2003    University of Oregon, Biology 375 Biodiversity, Course Instructor: Dr. Julie Tolman-Thompson, "Bacterial-Host Interactions"  
March 3, 2003    University of Oregon, Biology 380 Evolution, Course Instructor: Dr. William Bradshaw, "Life History Evolution"  
April 21, 2005    University of Oregon, Biology 330 Microbiology, Course Instructor: Dr. Karen Guillemin "Microbial Evolution and Genetic Exchange"

## REFERENCES

Dr. Jeffery Dangel  
John N. Couch Professor  
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