

Chandra N. Jack

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EDUCATION

PhD	Department of Ecology and Evolutionary Biology, Rice University Advisors: Joan Strassmann, David Queller	2011
MS	Department of Ecology and Evolutionary Biology, Rice University Advisors: Joan Strassmann, David Queller	2010
BA	Biology, Rice University	2005

CURRENT APPOINTMENT

Research Associate, Department of Plant Pathology, Washington State University; PI: Maren Friesen

PREVIOUS APPOINTMENTS

BEACON Distinguished Postdoctoral Fellow, Department of Plant Biology, Michigan State University; PI: Maren Friesen (August 2014- July 2017)

Postdoctoral Researcher, Department of Bioengineering, Rice University, PI: Jeff Tabor (July 2011- March 2013)

GRANTS & FELLOWSHIPS

2020	USDA-NIFA Foundational Knowledge of Agricultural Production Systems. “Linking functional and taxonomic diversity of diazotrophs under contrasting management regimes for enhanced crop productivity” Jan 2021- Dec 2024 PI: C. Jack coPIs: ML Friesen, T. Paulitz	\$500,000
2016	BEACON Seed Grant (collaborative proposal) Teaching Evolution through Game Based Simulation	\$99,328
2016	BEACON Postdoctoral Fellowship Extension	\$60,000
2014	BEACON Distinguished Postdoctoral Fellowship. The Role of PMI interactions in driving rapid evolution using <i>Medicago polymorpha</i> as an experimental system.	\$120,000

AWARDS

2017	Evolution 2017 Travel Award	\$500
2016	CIC-AGEP Travel Award	\$500
2015	BEACON Travel Award	\$1000
2009	The Gordon Research Conference’s Carl Storm Underrepresented Minority Fellowship	\$750

PENDING SUPPORT

USDA NIFA AFRI Foundational Program “Harnessing the Rhizosphere Microbiome for Sustainable Wheat Production” (PI: M.L. Friesen, coPI: **C. Jack**, T. Paulitz, D. Huggins, T. Sullivan, S. Hulbert)

\$749,950.00 [PENDING]

PUBLICATIONS

12. O'Brien AE, **Jack CN**, Friesen, ML, Frederickson, ME. Whose trait is it anyways?: Coevolution of joint phenotypes and genetic architecture in mutualisms. **Accepted**; *Proceedings of the Royal Society B: Biological Sciences* Special Issue: Wild Quantitative Genetics
11. **Jack CN**, Petipas RH, Cheeke TE, Rowland JL, Friesen ML. Microbial Inoculants: Silver Bullet or Microbial Jurassic Park? **Accepted at Trends in Micro**
10. Petipas RH, Bowsher A, Bekkerring C, **Jack CN**, McLachlan E, White RA, Younginger BS, Tiemann LK, Evans SE, Friesen ML. 2020. Interactive effects of microbes and nitrogen on *panicum virgatum* root functional traits and patterns of phenotypic selection. *International Journal of Plant Sciences* 181(1)
9. **Jack CN** & Friesen ML. 2019. Rapid evolution of *Medicago polymorpha* during invasion shifts interactions with the Soybean looper. *Ecology & Evolution*
8. **Jack CN**, Rowe S, Porter SS, Friesen ML. 2019. High-throughput method of analyzing plant defensive compound production in minimized sample mass. *Applications in Plant Science* 7(1) e01210
7. **Jack CN**, Wozniak K, Porter S, Friesen ML. 2019. Rhizobia provide *Medicago polymorpha* with phytoprotection against complex soil microbes. *Rhizosphere* 9:47-55
6. **Jack CN**, Sheheman L, Friesen ML, Hintze A. 2017. Third-party mutualists have contrasting effects on host invasion under the enemy-release and biotic-resistance hypotheses. *Evolutionary Ecology* 1-17
5. **Jack CN**, BATTERY NJ, Adu-Oppong B, Powers M, Thompson CRL, Queller DC, Strassmann JE. 2015 Migration in the social stage of *Dictyostelium discoideum* amoebae impacts competition. *PeerJ* 3:e1352 <https://doi.org/10.7717/peerj.1352>
4. BATTERY NJ, **Jack CN**, Adu-Oppong B, Powers M, Queller DC, Strassmann JE. 2012. Structured growth and genetic drift raise relatedness in the social amoeba *Dictyostelium discoideum*. *Biology Letters* 8(4): 794-797
3. **Jack CN**, Adu-Oppong B, Powers M, Queller DC, Strassmann JE. 2011. Cost of movement in the multicellular stage of the social amoebae *Dictyostelium discoideum* and *D. purpureum*. *Ethology, Ecology and Evolution* 23(4): 358-367.
2. **Jack CN**, Ridgeway JG, Mehdiabadi NJ, Jones EI, Edwards TA, Queller DC, and Strassmann JE. 2008. Segregate or cooperate- a study of the interaction between two species of *Dictyostelium*. *BMC Evolutionary Biology* 8:293
1. Mehdiabadi NJ, **Jack CN**, Farnham TT, Platt TG, Kalla SE, Shaulsky G, Queller DC, and Strassmann JE. 2006. Kin preference in a social microbe. *Nature* 442: 881-882

INVITED TALKS

- 2019 Herbivore and microbe-mediated effects on plant traits and fitness. Washington State University, School of Biological Sciences
- 2019 Herbivore and microbe-mediated effects on plant traits and fitness. Washington State University, Dept. of Plant Pathology
- 2016 Biological Invasions: Rapid Evolution and Novel Associations. National Science Foundation, Washington, DC
- 2014 Cooperation, conflict, and migration in *Dictyostelium*. Michigan State University, East Lansing, MI

PRESENTATIONS: ORAL

- 2018 Rhizobia provide *Medicago polymorpha* with phytoprotection against complex soil microbes. BEACON Congress. Michigan State University.
- 2017 The *Medicago polymorpha*-rhizobia mutualism affects herbivores interactions. Evolution Meeting. Portland, OR

- 2017 The *Medicago polymorpha*-rhizobia mutualism changes outcomes of herbivore interactions. BEACON Congress. Michigan State University
- 2016 Coevolution and plant-microbe-herbivore interactions mediate establishment of invasive plants. Evolution Meeting. Austin, TX
- 2016 Coevolutionary history, Tripartite interactions and Plant invasions. BEACON seminar. Michigan State University
- 2015 Candy or Cucumbers? Herbivore Preference for Naïve vs. Co-evolved *Medicago polymorpha*. BEACON Congress. Michigan State University
- 2015 Herbivore Preference: Native vs. Invasive Plants. Evolution Meeting. Guarujá, São Paulo, Brazil
- 2014 Structured Growth and Genetic Drift in *Dictyostelium discoideum*. Douches Lab Meeting. Michigan State University
- 2010 Selection and Characterization of Stable Wild Clones of *Dictyostelium discoideum*. Grad Student Science Day. Rice University
- 2009 The Cost of Dispersal. Grad Student Science Day. Rice University
- 2009 The Cost of Dispersal. Evolution Meeting. University of Idaho
- 2009 Networking During Grad School. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEF) Program. Rice University
- 2008 A Preliminary Study of the Cost of Dispersal in *Dictyostelium*. Grad Student Science Day. Rice University
- 2008 Being a Mentor or Mentee. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEF) Program. Rice University

PRESENTATIONS: POSTERS

- 2020 Fitness outcomes of competitive interactions of *Azotobacter vinelandii* depend on nitrogen fixation ability and frequency. WSU Academic Showcase
- 2017 Educational Gaming As A Tool To Teach Evolution. Evolution Meeting. Portland, OR
- 2015 Tripartite Interactions and rapid evolution in invasive plants. NSF Site visit. Michigan State University
- 2015 Comparison of herbivore response to native and co-evolved *Medicago polymorpha*. European Society for Evolutionary Biology. Lausanne, Switzerland.
- 2011 Synthetic Gene Networks in *Dictyostelium discoideum*. **Chandra N. Jack**, Michael Powers, Kevin Ung, Jeffrey Tabor. Computational And Theoretical Biosciences Symposium. Rice University
- 2011 Exploring the social evolution and interactions of the social amoebae *Dictyostelium*. **Chandra N. Jack**, David C. Queller, Joan E. Strassmann. Empowering Leadership Alliance. Rice University
- 2010 Cost of Migration in Chimeras: *Dictyostelium discoideum*. Boahemaa Adu-Oppong, **Chandra N. Jack**, Neil Buttery, Michael Powers, Joan Strassmann and David C. Queller. Mellon Mays Undergraduate Fellowship Southeastern Regional Conference
- 2010 The Cost of Dispersal in *Dictyostelium*. **Chandra N. Jack**, Boahemaa Adu-Oppong, Michael Powers, David C Queller, Joan E Strassmann. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEF) Program.
- 2010 The cost of migration in *Dictyostelium purpureum* and *D. discoideum*. Boahemaa Adu-Oppong, Michael Powers, **Chandra N. Jack**, David C. Queller and Joan Strassmann. Rice Undergraduate Research Symposium.
- 2009 The Cost of Dispersal in *Dictyostelium discoideum*. **Chandra N. Jack**, Dave C Queller, Joan E. Strassmann. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEF) Program.
- 2009 The Cost of Dispersal in *Dictyostelium discoideum*. **Chandra N. Jack**, Dave C Queller, Joan E. Strassmann. Gordon Research Conference- Microbial Population Biology. Andover, NH
- 2009 Boahemaa Adu-Oppong, **Chandra N. Jack**, Joan Strassmann and David C. Queller. The Cost of Migration in *Dictyostelium purpureum*. Rice Institute of Biosciences and Bioengineering Symposium

- 2008 Optimizing Pyrosequencing as a Technique to Distinguish Different Species of Dictyostelids. **Chandra N. Jack**, Gerda Saxer. David C. Queller, Joan E. Strassmann. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEP) Program.
- 2008 Optimizing Pyrosequencing as a Technique to Distinguish Different Species of Dictyostelids. **Chandra N. Jack**, David C. Queller, Joan E. Strassmann. Rice University Institute of Biosciences and Bioengineering Symposium
- 2007 Cooperation between two species of the social amoeba *Dictyostelium*. **Chandra N. Jack**, Dave C Queller, Joan E Strassmann. Rice-Houston Alliances for Graduate Education and the Professoriate (Rice-Houston AGEP) Program.
- 2007 Interspecific Chimerism and Relatedness in *Dictyostelium*. Julia G. Ridgeway, **Chandra N. Jack**, Tracy Edwards, Natasha J Mehdiabadi, David C. Queller, Joan E. Strassmann. Rice Undergraduate Research Symposium.
- 2006 Interspecific Chimerism in *Dictyostelium*: Social Competition and Cooperation. Julia G. Ridgeway, **Chandra N. Jack**, Michelle E. Afkhami, David C. Queller, Joan E. Strassmann. Rice Undergraduate Research Symposium.
- 2005 Kin Recognition in the social amoeba *Dictyostelium purpureum*. **Chandra N. Jack**, Natasha J. Mehdiabadi, Tiffany Talley-Farnham, Thomas G. Platt, Gad Shaulsky, David C. Queller, & Joan E. Strassmann. Evolution Meeting. University of Alaska, Fairbanks.
- 2005 Kin Recognition in the social amoeba *Dictyostelium purpureum* Natasha J. Mehdiabadi, Tiffany Talley-Farnham, **Chandra N. Jack**, Thomas G. Platt, Gad Shaulsky, David C. Queller, & Joan E. Strassmann. Gordon Research Conference- Microbial Population Biology

TEACHING EXPERIENCE

- Sumer 2018, R Data Camp, Friesen Lab REU, Washington State University
- Summer 2019
- Fall 2018 Guest lecturer, PLP514: Phytobacteriology, Washington State University
- Spring 2013 Four guest lectures on the Evolution of Altruism and Cooperation, EBIO 321: Animal Behavior, Rice University
- Spring 2010, *Instructor*, EBIO 116: Freshman Seminar on Local Biology Research, Rice University
- Fall 2010
- Spring 2008 *Teaching Assistant*, EBIO 202: Introductory Biology II, Rice University
- Fall 2008 *Teaching Assistant*, EBIO 202: Animal Behavior, Rice University

STUDENT MENTORING

Graduate Students:

- Shawna Rowe (Michigan State University; 2016-Current)
- Emily McLachlan (Washington State University; Spring 2017- Fall 2019)

Undergraduates (26):

- Nicole Montgomery (Rice University; 2005)
- Joanna Bagniewska (Rice University; 2005)
- Julia Ridgeway-Diaz (Rice University; 2005-2008)
- Tracy Douglas (Rice University; 2006)
- Stephen Rodriguez (Rice University; 2006)
- William Massie (Rice University; Summer 2006)
- Radhika Chhabra (Rice University; 2008)
- Morgan Black (Rice University; Summer 2010)
- Boahemaa Adu-Oppong (Rice University; 2008- 2011)
- Erica Harris (Rice University; 2010- 2011)
- Michael Powers (Rice University; 2008-2012)

- Demetrius Montcrief (Michigan State University; Spring 2015)
- Carla Jones (North Carolina A&T SROP student: Summer 2015)
- Katherine Wozniak (Michigan State University; 2015)
- Thilani Jayakodi (Michigan State University; Fall 2015- Spring 2016)
- Evan Kurtz (Michigan State University; Fall 2015- Spring 2016)
- Melanie Arevalo (Michigan State University; Fall 2015- Fall 2016)
- Brianna Dalrymple Benjamin (North Carolina A&T SROP student: Summer 2016)
- Lauren Smythe (Pacific University SROP student: Summer 2016)
- Haley Gmutza (Michigan State University; Fall 2016- Spring 2017)
- Cassidy Peru (Washington State University; Spring 2018- Current)
- Amanda Antoch (Washington State University; Spring 2018- Current)
- Natalie Sanchez (Washington State University; Summer 2019- Current)
- Gabreil Santana (Western Washington University; Summer 2019)
- Beatriz Jimenez (Heritage University; Summer 2019)
- Demarcus Turner (Norfolk State University; Summer 2019)

High school:

- Anna Li (Summer 2008)
- Jing Jin (Summer 2008)
- Amy Li (Summer 2015, MSU High School Honors Science/Mathematics/Engineering Program)
- Henry Rose (Summer 2016, MSU High School Honors Science/Mathematics/Engineering Program)

PROFESSIONAL DEVELOPMENT

2018 Invited Participant Sloan Network Bootcamp

2015 Invited Participant University of Michigan NextProf Workshop

2016 NSF STC PrePARE (Paths - Afforded by the Research Enterprise)

PROFESSIONAL SERVICE

REVIEWER NSF, Evolution, Axios Review, FEMS Microbiology Ecology, International Journal of Biochemistry and Cell Biology, Scientific Reports, BEACON Budget Proposals, PeerJ

SOCIETIES Society for the Study of Evolution, European Society for Evolutionary Biology, American Society for Microbiology

WSU Showcase for Undergraduate Research and Creative Activities Judge (2018, 2019)
Undergraduate Research Scholarship Reviewer (2019)

PUBLIC OUTREACH & BROADER IMPACTS

2017, 2018 Lead "Power Hour" Inclusion Sandbox at BEACON Congress, Michigan State University

2015 Volunteer for Pinecrest Elementary Big Zoo Week

2012-2103 Postdoctoral liaison for Rice University's Council on Diversity and Inclusion's (CODI's) Graduate Life Committee

2013 Postdoctoral panel for Morehouse University Prospective Student Visit, Rice University

2007-2011 Rice University Alliance for Graduate Education and the Professoriate

2007, 2008, 2011 Rice Undergraduate Research Symposium Judge