THE SCHOOL OF ANIMAL AND COMPARATIVE BIOMEDICAL SCIENCES

2013-2014 GRADUATE PROGRAM REPORT

Published July 2014

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The School of Animal and Comparative Biomedical Sciences offers graduate degrees in two areas:

Microbiology & Animal Sciences

PROGRAM ADMINISTRATION:

Microbiology

Program Director:	V.K Viswanathan, Ph.D.
Program coordinator:	Kathryn Johansen, M.S.
Graduate Program Committee:	Michael Riggs, DVM, Ph.D.
	Sadhana Ravishankar, Ph.D.

Animal Sciences

Program Director:	Sean Limesand, Ph.D.
Program Coordinator:	Christina Garcia, M.S.
Graduate Program Committee:	Doug Reid, M.B.A.
	Benjamin Renquist, Ph.D.

School of Animal & Comparative Biomedical Sciences Faculty

Faculty	Field of Study	Office	Phone	E-mail
•Mark Arns, PhD	Animal Sciences	Shantz 227	626-9538	marns@ag.arizona.edu
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•Vince Guerriero, PhD	Animal Sciences	Shantz 232	621-7764	guerrier@email.arizona.edu
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•Don Lightner, PhD	Vet.Sciences	VSM 102	621-8414	dvl@u.arizona.edu
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•Fiona McCarthy, PhD	Vet.Sciences		621-7321	fionamcc@email.arizona.edu
•Sadhana Ravishankar, PhD	Microbiology	VSM 218	626-1499	sadhravi@email.arizona.edu
•Doug Reed, MBA	Animal Sciences	Marshall 370	621-5660	dreed@ag.arizona.edu
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•Mike Riggs, DVM, PhD	Vet.Sciences	VSM	621-8445	mriggs@u.arizona.edu
Dave Schafer, PhD	Animal Sciences	V-Bar-V: 928-567-6954		dschafer@ag.arizona.edu
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•Charles R. Sterling, PhD	Vet.Sciences		621-4580	csterlin@u.arizona.edu
•Gayatri Vedantam, PhD	Microbiology	VSM 303	626-6839	gayatri@email.arizona.edu
•V.K. Viswanathan, PhD	Microbiology	VSM 227	626-7687	vkv@email.arizona.edu
Laura Walker	Animal Sciences		318-7023	llwalker@cals.arizona.edu
JOINT FACULTY				
•Patricia Stock, Ph.D.	Entomology	Forbes 410	626-3854	spstock@ag.arizona.edu
•Jeong-Yeon Yoon	Ag/Biosystems	Shantz 403	621-3587	jyyoon@email.arizona.edu
Dave Besselson	UAC	Cent.An Fac	621-1564	besselsd@email.arizona.edu
Susan Wilson Sanders	UAC	Cent.An Fac	626-9612	Wilson-s@email.arizona.edu
Klearchos Papas	Surgery	MRB	626-4494	kkpapas@surgery.arizona.edu

• Supervises Graduate students

2014 Students & Faculty Advisors

Microbiology			
Name	**Admit Term**	**Email**	**Supervisor**
MS Degree			
Farhan Anwar	Fall 2012	fanwar@email.arizona.edu	Gayatri Vedantam
Shivanna Johnson	Fall 2012	ssj3@email.arizona.edu	Bibiana Law
Alix McCloskey	Fall 2012	alixm@email.arizona.edu	Bibiana Law
John McMullen	Fall 2013	jgm2@email.arizona.edu	Patricia Stock
Alexa Rossi	Spr 2015	rossia@email.arizona.edu	Patricia Stock
Arlette Schneider	Fall 2013	arlette8@email.arizona.edu	Sadhana Ravishankar
Shelby Wendel	Fall 2013	swendel1@email.arizona.edu	Michael Riggs
Xeeroy Rada	Fall 2012	xrada@email.arizona.edu	Sadhana Ravishankar
Kamini Joshi	Fall 2014	khjoshi@email.arizona.edu	Sadhana Ravishankar
Ph.D. Degree			
Andrew Clark	Spr 2011	aclark@email.arizona.edu	Gayatri Vedantam
Rebecca Mcquade	Fall 2011	rmcquade@email.arizona.edu	Gayatri Vedantam
Fernando Pinoargote	Fall 2013	gpinoargote@email.arizona.edu	Sadhana Ravishankar
Shylaja Ramamurthy	Fall 2013	shylaja@email.arizona.edu	VK Viswanathan
Aishwarya Rao	Fall 2014	aishwaryarao@email.arizona.edu	VK Viswanathan
Jennifer Roxas	Fall 2011	jlroxas@email.arizona.edu	VK Viswanathan
Animal Science			
MS Degree			
Caroline Foy	Fall 2014	foyce@email.arizona.edu	Benjamin Renquist
Zachary Macfarlane	Fall 2013	zdm1@email.arizona.edu	John Marchello
Emily Neidfeldt	Fall 2013	ean1@email.arizona.edu	John Marchello
Lindsay Rassmussen	Fall 2014	lrasmussen@email.arizona.edu	Zelieann Craig
Katrina Batroff	Fall 2014	kbatroff@email.arizona.edu	John Marchello
Ph.D. Degree			
Laun Hall	Fall 2009	lwhall@email.arizona.edu	Robert Collier
Amy Kelly	Fall 2013	amyk1@email.arizona.edu	Sean Limesand
Melissa Davis	Fall 2013	melissaad@email.arizona.edu	Sean Limesand
Dan Kiesling	Fall 2013	kiesling@email.arizona.edu	Dan Faulkner
Colt Knight	Fall 2013	coltwknight@email.arizona.edu	Dan Faulkner
Xavier Ortiz de Janon	Fall 2013	xortiz@email.arizona.edu	Robert Collier
Mohammed Pilevar	Fall 2014	mopilevar email.arizona.edu	Benjamin Renquist

ACCOMPLISHMENTS

Graduate Degrees Awarded

Microbiology		
MS degree		
STUDENT	**Semester & Year**	**Supervisor**
Alix McCloskey	Summer 2014	Bibiana Law
Shivanna Johnson	Summer 2014	Bibiana Law
Xeeroy Rada	Summer 2014	Sadhana Ravishankar

Animal Science		
MS degree		
STUDENT	**Semester & Year**	**Supervisor**
Melissa Davis	Spring 2014	Sean Limesand
Joseph Dougherty	Summer 2014	Doug Reed
Lorimay Melendez	Spring 2014	John Marchello
Emily Neidfeldt	Summer 2014	John Marchello
Moore, Christina	Spring 2013	Doug Reed
Ashley Wright	Spring 2014	Dan Faulkner
Whited, Bethany	Fall 2013	Mark Arns
Ph.D. degree		
Laun Hall	Summer 2014	Robert Collier

Publications

Microbiology

John G. McMullen

McMullen II JG, Lee M-M, and Stock SP. 2014. In vivo and in vitro rearing of entomopathogenic nematodes (Steinernematidae and Heterohabditidae). Journal of Visualized Experiments. In press.

Jennifer L. Roxas

Merrigan, Michelle M., Anilrudh Venugopal, **Jennifer L. Roxas,** Farhan Anwar, Michael J. Mallozzi, Bryan AP Roxas, Dale N. Gerding, V. K Viswanathan, and Gayatri

Vedantam. « Surface-Layer Protein A (SlpA) Is a Major Contributor to Host-Cell Adherence of *Clostridium difficile"*. PloS one 8, no. 11 (2013): e78404

Jennifer L. Roxas, Katheryn Ryan, Gayatri Vedantam and V.K Viswanathan. "Enteropathogenic *Escherichia Coli* dynamically regulates EGFR signaling in intestinal epithelial cells". Paper submitted to American Journal of Physiology-Gastrointestinal and Liver Physiology; *in press.*

Jennifer Todd

Todd, J. L., Friedman, M., Patel, J., Jaroni, D. and Ravishankar, S. (2013). The antimicrobial effects of cinnamon leaf oil against multi-drug resistant *Salmonella* Newport on organic leafy greens. Intl Journal of Food Microbiology. 166:193-199.

Cynthia Chen

Chen, C., Ravishankar, S., Marchello, J. and Friedman, M. (2013). Antimicrobial activity of plant compounds against *Salmonella* Typhimurium DT104 in ground pork and the influence of heat and storage on the antimicrobial activity. J Food Protect. 76:1264-1269.

Liliana Rounds

Rounds, L., Havens, C. M., Feinstein, Y., Friedman, M. and Ravishankar, S. (2013). Concentration-dependant inhibition of *Escherichia coli* O157:H7 and heterocyclic amines in heated ground beef patties by apple and olive extracts, onion powder and clove bud oil. Meat Science. 94:461-467.

Katherine Moore-Neibel

Moore-Niebel, K., Gerber, C., Patel, J., Friedman, M., Jaroni, D. and Ravishankar, S. (2013). Antimicrobial activity of oregano oil against antibiotic-resistant *Salmonella enterica* on organic leafy greens at varying exposure times and storage temperatures. Food Microbiology. 34:123-129

Xeeroy Rada

Rada, X. Effectiveness of Plant Antimicrobials on Leafy Greens: Influence of *Salmonella enterica* Newport Physiology and Leaf Interactions. Thesis Submitted 2014. School of Animal and Comparative Biomedical Sciences, University of Arizona, Tucson, Arizona

Seminars, presentations & Conferences

Farhan Anwar

Comparative Analysis of *Clostridium difficile* Infections – Talk; Regional ASM Conference 2014.

Identification and Characterization of *Clostridium difficile* in Southern Arizona – Poster; Digestive Disease Week 2012.

A Comparative Analysis of *Clostridium difficile* Infection Epidemiology – Poster; UBRP Conference 2014.

Clostridium difficile Infection: A Global Perspective – Dept. Seminar 2013.

Andrew Clark

A Sugar Coated Tail: Flagellar Glycosylation Influences Motility, Flagellar assembly, and Toxin Production in *Clostridium difficile*. 53rd annual meeting of the ASM Arizona/Nevada Branch, April 5th, 2014. Las Vegas, NV [invited talk]

Brussels, A.R., **Clark, A.E.,** Roxas, B.A.P., Viswanathan, V.K., and Vedantam, G. Glycosylation Influcences Flagellar Assembly and Function in *Clostridium difficile*. 25th annual UBRP conference, January 25th, 2014. Tucson, AZ.

Adamson, C.C., **Clark, A.E.,** Roxas, B.A.P., VK Viswanathan, and Vedantam, G. Characterization of the RpoN (sigma-54) regulon of *Clostridium difficile*. 25th annual UBRP conference, January 25th, 2014.

Clark A.E., Brussels, A.R., Costanza, J., Roxas B.A.P, Viswanathan, VK, and Vedantam, G. A sugar coated tail: Flagellar Glycosylation Influences Motility, Flagellar assembly, and Toxin Production in *Clostridium difficile*. 53rd annual meeting of the ASM Arizona/Nevada Branch, April 5th, 2014. Las Vegas, NV..

Clark, A.E., Adamson, C.C., Roxas, B.A.P., Viswanathan, V.K., and Vedantam, G. The alternative sigma factor RpoN (sigma-54) dynamically regulates toxin production in C. difficile. Frontiers in Immunobiology and Immunopathogenesis Symposium, March 7th, 2014.

Adamson, C.C., **Clark, A.E**., Roxas, B.A.P., VK Viswanathan, and Vedantam, G. Characterization of the RpoN (sigma-54) regulon of *Clostridium difficile*. UA Microbiology poster session, May 7th, 2014. Tucson, AZ.

Clark, A.E., Brussels, A.R., Roxas, B.A.P., Viswanathan, V.K., and Vedantam, G. Glycosylation Influcences Flagellar Assembly and Function in *Clostridium difficile*. UA Microbiology poster session, May 7th, 2014. Tucson, AZ.

John G. McMullen

Ogier J-C, Pages S, Bisch G, Gaudriault, and Stock SP. 2014. Insect pathogenic factors of *Xenorhabdus bovienii* (Enterobacteriaceae) revealed by a comparative genomic analysis and virulence assays. The 98th Annual Meeting of the Pacific Branch of the Entomological Society of American, Tucson, Az.

Castagnola A, Davis N, **McMullen II JG**, Molina B, Stock SP. 2014 Insect tissue specificity of the bacterium *Photorhabdus luminescens* and its nematode during the infect process. The 98th Annual Meeting of the Pacific Branch of the Entomological Society of America, Tucson, AZ.

Ogier J-C, Pages S, Bisch G, Gaudriault, and Stock SP. 2014. Comparative genomic analysis of the *Xenorhabdus-Steinernema* symbiosis: revealing novel regions in mutualism and pathogenicity. University of Arizona Undergraduate Biology Research Conference, Tucson, AZ.

McMullen II JG and Stock SP. 2013. Steinernema chemotaxis to congnate and non-cognate symbionts. Society of Invertabrate Pathology Conference, Pittsburgh, PA.

Rebecca Mcquade

ASM Arizona/Nevada Branch Meeting: Superoxide reductase of *C. difficile* is induced by host antimicrobial peptides and contributes to oxygen tolerance. April 5th, 2014. Las Vegas, NV

Microlunch inter-departmental seminar: Something in the air: *C. difficile* superoxide reductase is an ROS scavenger. May 7th, 2014. Tucson, AZ

Marshall Foundation Fellows luncheon: *Clostridium difficile* – clever pathogen, major problem. February 4th, 2014. Tucson, AZ

Keith Lammers, **Rebecca McQuade**, Gayatri Vedantam and V.K. Viswanathan. Constructing New Tools for Random Mutagenesis in the Bacterial Pathogen *C. difficile*. UBRP Poster Session, January 25th, 2014. Tucson, AZ

Rebecca McQuade, Bryan P. Roxas, VK Viswanathan and Gayatri Vedantam. Response of *Clostridium difficile* to the Human Antimicrobial Peptide Cathelicidin LL-37. SACBS Poster Session, May 7th, 2014. Tucson, AZ

Shylaja Ramamurthy

ACBS departmental Seminar: Role of EspZ in the pathogenesis of *Citrobacter rodentium,* 3/31/2014.

SACBS Poster : **Shylaja Ramamurthy**, John Scott Wilbur, Liliana Rounds, Gayatri Vedantam,VK Viswanathan. Enteropathogenic *Escherichia coli* knows when enough is

enough : Investigating the role of EspZ in inhibiting translocation of effectors. 5/7/2014. Tucson, AZ

MIC 528R poster project: **Shylaja Ramamurthy**. DNA sequence analysis of Pseudomonas species strain GAW0119. 4/10/2014, Tucson ,AZ.

Jennifer L. Roxas

Jennifer Roxas, Bryan Angelo P. Roxas, Gayatri Vedantam and V. K Viswanathan. Quantitative Global Phosphoproteomic Analysis of Enteropathogenic E. Coil-infected Human Colonic Epithelial Cells. Poster presented at the 2013 FASEB Science Research Conference: Gastrointestinal Tract XV, Steamboat Springs, Colorado, 2013.

Jennifer Roxas, Bryan Angelo P. Roxas, Gayatri Vedantam and V. K Viswanathan. Quantitative Global Phosphoproteomic Analysis of Enteropathogenic E. Coil-infected Human Colonic Epithelial Cells. Poster presented at the Frontiers in Immunobiology & Immunopathogenesis Symposium, Tucson, Arizona on March 7, 2014.

Jennifer Roxas, Katheryn Ryan, Gayatri Vedantam and V.K Viswanathan. "Enteropathogenic *Escherichia* Coli dynamically regulates EGFR signaling in intestinal epithelial cells" Poster presented at the 25th Annual UBRP Conference, Tucson, Arizona on January 25, 2014.

Jennifer Todd

The antimicrobial effects of cinnamon oil against multi-drug resistant *Salmonella* Newport on organic leafy greens. Institute of Food Technologists Annual Meeting. Chicago, IL, 2013.

Xeeroy Rada

Synergistic Effects of Essential Oils and a Plant Extract Against Multi-drug Resistant *Salmonella enterica* on Organic Leafy Greens. Food Safety Consortium, Tucson, Arizona, 2013.

Synergistic Effects of Essential Oils and a Plant Extract Against Multi-drug Resistant *Salmonella enterica* on Organic Leafy Greens. University of Arizona Graduate Student Research Showcase, Tucson, Arizona, 2013.

Emerging trends, opportunities, and research as it applies to Food Safety in the United States. Dedication of the School of Animal and Comparative Biomedical Sciences, Tucson, Arizona, 2013.

The prevention of cross contamination in the kitchen (Fight Bac! Campaign Demonstration). Tucson Festival of Books, Tucson, Arizona, 2013 and 2014.

Food Safety Demonstration and Career Opportunities in Food Safety. Biotechnology Career Expo. Tucson, Arizona, 2013.

Food Safety Demonstration: Prevention of Cross Contamination and Use of Natural Intervention Strategies for Leafy Greens. Lettuce Days, Yuma, Arizona, 2014.

Food Safety Demonstration and Career Opportunities in Food Safety. Southwest Agricultural Summit. Yuma, Arizona, 2014.

Apple, Carrot, and Hibiscus Edible Films Containing Plant Antimicrobials Inactivate *Salmonella* Newport in Packaged Organic Leafy Greens. SACBS Poster Session. Tucson, Arizona, 2014.

Synergistic Effects of Essential Oils and a Plant Extract Against Multi-drug Resistant *Salmonella enterica* on Organic Leafy Greens. International Association for Food Protection, Indianapolis Indiana, 2014.

Arlette Schneider

Use of plant antimicrobials to reduce the microbial burden in foods (Food safety Demonstration). Tucson Festival of Books, Tucson, Arizona, 2014.

Food Safety Demonstration: Prevention of Cross Contamination and Use of Natural Intervention Strategies for Leafy Greens. Lettuce Days, Yuma, Arizona, 2014.

Prizes, Awards, Grants

John G. McMullen

Honorable Mention in M.S Graduate Poster Competition at Pacific Branch of the Entomological Society of America Meeting – April, 2014

Student Travel Award ($750) – Nematode Division of the Society of Invertebrate Pathology- May, 2014

Chapman Graduate Student Prize for research in Insect Science ($300) – Center for Insect Science, University of Arizona- May, 2014.

Rebecca McQuade

Marshall Foundation Dissertation Fellowship 2014

Best Oral Presentation, ASM Arizona/Nevada Branch Meeting 2014

Shylaja Ramamurthy

Outstanding graduate student for research 2014 from the school of animal and comparative biomedical sciences (ACBS)

Xeeroy Rada

3rd place Award in Poster Competition. Synergistic Effects of Essential Oils and Plant Extract Against Mult- drug Resistant *Salmonella enterica* on Organic Leafy Greens. Food Safety Consortium, Tucson, Arizona, 2013.

Undergraduate Mentoring

Undergraduate student	Supported by/affiliation	Mentor (Grad. student)
Ross Monasky	Honors College	**Jennifer Roxas**
Katheryn Ryan	UROC	**Jennifer Roxas**
Chelsea Adamson	American Gastroenterological Association	**Andrew Clark**
Aaron Brussels	Honors College	**Andrew Clark**
Keith Lammers	UBRP	**Rebecca McQuade**
Luis Murillo	WAESO-NSF	**Rada Xeeroy**
Victoria Sotelo	WAESO-NSF	**Rada Xeeroy**
Joshua Albertson		**Arlette Schneider**
Gabrielle Bruggeman		**Arlette Schneider**
Akuovi Kouedjin		**Arlette Schneider**

ACCOMPLISHMENTS

Publications

Animal Sciences

Amy Kelly

Kelly AC, Steyn LV, Kitzmann JP, Anderson MJ, Mueller KR, Hart NJ, Lynch RM, Papas KK, Limesand SW. Function and expression of sulfonylurea, adrenergic, and glucagon-like peptide 1 receptors in isolated porcine islets. Xenotransplantation. 2014

Macko AR, Yates DT, Chen X, Green AS, **Kelly AC**, Brown LD, Limesand SW. Elevated plasma norepinephrine inhibits insulin secretion, but adrenergic blockade reveals enhanced β-cell responsiveness in an ovine model of placental insufficiency at 0.7 of gestation. J Dev Orig Health Dis. 2013 Oct;4(5):402-10.

Limesand S.W., Rozance P.J., Macko A.R., Anderson, M.J., **Kelly, A.C**., Hay W.W. Jr. (2013). Reductions in insulin concentrations and B-cell mass precede growth restriction in sheep fetuses with placental insufficiency. Am J Physiol Endocrinol Metab. 2013 Mar 1;304(5):E516-23.

Chen, X., Green, A. S., Macko, A.R., Yates D. T., **Kelly, A. C**., Limesand S.W(2014). Enhanced insulin secretion responsiveness and islet adrenergic desensitization after chronic norepinephrine suppression is discontinued in fetal sheep. Am J Physiol Endocrinol Metab. 2014 Jan 1;306(1):E58-64.

Daniel D. Kiesling

Kiesling, D.D., D.B. Faulker, and D.W Schafer. 2013. Early weaning calves and its effects on two- and three year old cows' reproductive performance and feedlot performance and carcass traits of the calf. Producers Update and Research Highlights. School of Animal and Comparative Biomedical Sciences, Univer of Arizona. Pgs. 59-60.

Seminars, presentations & Conferences

Colt W. Knight

Knight, C.W., C.B, Scott, and C.J Owens. 2013. Changes in Nutritional Quality and Saline Content of Salt Cedar. 66th Annual Society for Range Management Annual Meeting, Oklahoma City, Oklahoma.

Beard, A.D., **C.W. Knight**, D.W. Schafer and D.B Faulkner. 2013 Improving Range Cow Efficiency. Producer's Update and Research Highlights. School of Animal and Comparative Biomedical Sciences, The University of Arizona. Tucson, AZ. 1:57-58

Knight, C. W., D. B. Faulkner and D.B Schafer. 2014. Relative feed intake of mature range cows in Arizona. Proceedings, American Society of Animal Science. Vol. 65.

Amy Kelly

American Diabetes Association 72nd scientific Sessions, Philadelphia, PA June 2013. Presented an abstract: 2131-P – Epinephrine Acutely Suppresses Glucose Oxidation in Rat Islets and Min6 Cells.

International Pancreas and Islet Transplantation Association World Congress, Monterey, CA, September 2013. Presented 2 abstracts, 412 – Sulfonylurea receptor 1, glucagon-like peptide recptor 1, and adrenergic receptor alpha 2A are expressed and functional in adult porcine islets. 430- Epinephrine culture creates metabolic quiescence that leads to enhanced insulin secretion in isolated porcine islets and Min6.

Society for Gynecologic Investigation 2014 annual scientific meeting, Florence, Italy, March 2014. Presenting abstract as poster. 598 – Transcriptome Expression Profiles Identify Proliferation and Metabolic Dysfunction in Intrauterine Growth Restricted Fetal Sheep Islets.

Melissa Davis

Davis, M., A.R. Macko, M.J. Anderson and S.W. Limesand (2013). Elevated norepinephrine protects from greater loss of β-cell mass in intrauterine growth restricted ovine fetuses. Pediatric Research 74(4):480. Snowmass CO August 2013

Prizes, Awards, Grants

Daniel D. Kiesling

"Management Strategies to Improve Reproductive Efficiency" UA V-V Ranch Field Day

Zach McFarlane

Alfred P. Sloan Foundation Graduate Scholarship

Melissa Davis

Sanofi Industry Internship

Alumni Update

Name	Current Position
James Theoret, PhD	Post-doctoral Associate, University of Pittsburgh
Kerry Cooper, PhD	Assistant Professor, California State University, Northridge,
Margaret Cooper, PhD	Assistant Professor of Life Sciences, Pierce College, California.
Fernando Aranguren, PhD	Consultant, Biosecurity, Aquaculture industry,t Ministry of Agriculture, Kingdom of Saudi Arabia
Damian Gilling, PhD	Postdoctoral Scholar, Center for Bio. Defense Tampa, Florida
Sidrotun Naim, PhD	Research Scientist at Harvard Medical School
Alex Armstrong, Ph.D.	Lecturer, University of Arizona
Javier Granados, PhD	Research Professor at Instituto Tecnológico de Sonora
Mike Anderson, PhD	Microbiology Section Leader, VDL, Tucson.
Chris Morrison, PhD	Medical Student
Crystal Brillhart, PhD	Biological Science Laboratory Technician at USDA, Tucson, AZ
Rita Mild, PhD	Professor, Rose State College, Midwest City, Oklahoma
Erynn Lucas, PhD	Professor, Modesto Junior College, Modesto, California
Danielle Brands, MS	Scientist, Ventana Medical Systems Inc., Tucson, AZ
Katy Moore, MS	Lecturer, University of Hawaii at Manoa & at Leeward Community College, Pearl City, Hawaii
Liliana Rounds, MS	Manufacturing Associate, Ventana Medical Systems Inc, Tucson,AZ
Jennifer Todd, MS	PhD Candidate at Rutgers, The State University of New Jersey-New Brunswick, Piscataway Township, New Jersey
James Cherwa, PhD	Instructor, Central Alabama Community College, Birmingham, Alabama
Asako Uchiyama, PhD	Team Leader and Laboratory Head at Shin Nippon Biological Laboratories, Ltd., Tokyo, Japan
Kate Johansen, MS	Sr. Academic Advisor (Vet Science/Microbiology) & Graduate Program Coordinator (Microbiology), University of Arizona
Michéle Chu, MS	Research Technician, University of Arizona