
**DEPARTMENT OF BIOMEDICAL
SCIENCES
COLORADO STATE UNIVERSITY**

ANNUAL REPORT

**January 1, 2010-
August 15, 2011**

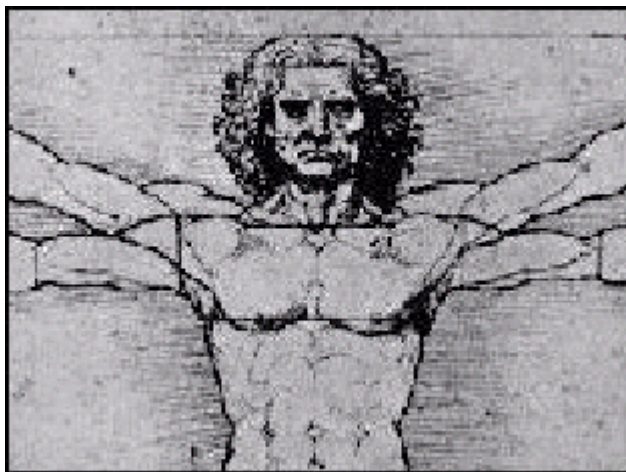


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I. Summary

The Department of Biomedical Sciences (BMS) makes major contributions to the academic and scientific environment in the College of Veterinary Medicine and Biomedical Sciences and Colorado State University. It maintains a reputation for skilled and innovative teaching at the professional veterinary, graduate and undergraduate levels. This report covers the Academic Year 2010-2011 (8/16/2010-8/15/2011) and, where applicable, the period from January 1 to August 15, 2010, as we transition from a calendar year report to an academic year report. During the period 1/1/10-8/15/11, BMS enrolled 35 PhD, 17 MS-A and 113 MS-B students and graduated 6 PhD, 11 MS-A and 91 MS-B students. The Department currently sponsors 1 DVM/PhD student. Departmental faculty members have visible, active research programs. Research expenditures (extramural and intramural) exceeded \$6,145,133 during the Fiscal Year 2011 (7/1/10-6/30/11). New or renewed extramural research grants awarded with BMS faculty as PI or Co-PI exceeded \$8,420,471 during FY2011. A number of faculty members received national and local awards for their activities in teaching and research during the year. Biomedical Sciences faculty also contributed significantly to service activities at the College, University, national and international levels.

II. Mission

The mission of the Department is to foster an environment conducive to the achievement of excellence in teaching and advising, research and scholarly activity, and service and outreach by its faculty, staff and students. This will be accomplished by discovery, dissemination and application of knowledge in the biomedical sciences, and by educating and training undergraduate, graduate, professional veterinary medical, and post-graduate students.

III. Departmental Organization

Department Head: Colin M. Clay

Neuroscience Division Director: Michael Tamkun

Physiology Division and ARBL/ERL Director: Thomas (Tod) Hansen

Associate Head for Undergraduate Education: C.W. Miller

Department Administrator/Business Officer: David Mornes

BMS Advisory Committee: Tod Hansen, Michael Tamkun, CW Miller, Noreen Reist, Jim Graham and John Walrond

Facilities housing faculty and laboratories: Anatomy/Zoology Building (West) and Physiology Building on the Main Campus; Animal Reproduction and Biotechnology Laboratory, Animal Disease Laboratory, Equine Reproduction Laboratory and the B.W. Pickett Equine Teaching & Research Center buildings on the Foothills Campus.

IV. Education

BMS Faculty Teaching Contribution Summary AY 2010-2011

	Student Credit Hours	Contact Hours
PVM	2,972	907
Graduate	2,541	2,071
Undergraduate	13,888	2,562
TOTAL	19,401	5,540

Graduate Education:

Graduate Coordinator/Advisor: Erin Bisenius

Ph.D. program: 35 enrolled, 6 graduated

MSA program: 17 enrolled, 11 graduated

MSB program: 113 enrolled, 91 graduated

Undergraduate Education:

Undergraduate Coordinator/Advisor: Kelly Swetich

Students enrolled in BMS Major (Fall 2010): 348

BS degrees conferred: 82

Students enrolled in BMS Minor: 296

Minors conferred: 84

General statistics of the 348 BMS Fall 2010 undergraduate students:

- 16% self-reported ethnically diverse background
- 25% non-residents
- 74% female
- 44% in the Honors Program
- 48 in the Hughes Undergraduate Research Scholars (HURS) Program
- 3.38 – average CSU cumulative GPA
- 32 BMS majors in BMS faculty laboratories
- 69 undergraduates (who are not BMS majors) in BMS faculty laboratories

Postgraduate Education:

9 Postdoctoral fellows

4 Research Scientists

12 Visiting faculty/clinicians

V. Departmental Activities

Biomedical Sciences Research Retreat

Frontiers in Biomedical Sciences Seminar Series (co-sponsor)

Brain Awareness Week (sponsored by MCIN, participation of faculty, graduates students, undergraduate students (Biomedical Sciences Association))

Participation in Front Range Neuroscience Group and Rocky Mountain Reproductive Sciences Symposium regional meetings, both hosted by Biomedical Sciences faculty

VI. Goals for Academic Year 2011-2012

- The Department will continue to evaluate its educational activities and course offerings, their effectiveness and their role in the educational mission.
- The Department will continue to sponsor activities that will enhance the research and academic programs of faculty and students and seek additional sources of support for scholarships and endowed lectureships.
- The Department will continue service and commercial activities and will encourage technology transfer.

TABLE 1: BMS COMMITTEE STRUCTURE 2010-11

Department Administration:

Department Head:	Colin Clay
Assistant Head for Educational Activities:	C.W. Miller
Division Directors:	Mike Tamkun and Tod Hansen
Advisory Committee:	Noreen Reist, John Walrond, C.W. Miller and James Graham
Department Administrator:	David Mornes

Department Committees:

PVM Studies Committee:	Ray Whalen & Richard Bowen, Co-Chairs
Graduate Education Committee:	Stu Tobet & Rao Veeramachaneni, Co-Chairs Anna Fails, Russ Anthony, Elaine Carnevale, Mark Frasier, Deborah Roess, Jozsef Vigh, Quint Winger
Curriculum Committee:	John Walrond & Connie Vader-Lindholm, Co-Chairs Greg Amberg, Russ Anthony, Richard Bowen, Mark Frasier, James Madl, C.W. Miller (Ad Hoc)

Department Committees (by Division):

	Neurosciences	Physiology
Space and Renovation Committee:	Michael Tamkun, Co-Chair Ray Whalen Shane Hentges Doug Ishii Susan Tsunoda	Tod Hansen, Co-Chair James Graham Jerry Bouma
Promotion and Tenure Committee:	John Rash, Co-Chair	C.W. Miller, Co-Chair

Department Committees (Other):

Frontiers in Biomedical Sciences Seminar Committee:

Scott Early, Chair
Stu Tobet
Greg Amberg
James Graham
Paul Laybourne
Juliano Silveira
Krystle Frahm
Eric Tauchman

Undergraduate Major Steering Committee:

C.W. Miller, Chair
Connie Vader-Lindholm
Mark Frasier
Rao Veeramachaneni
John Walrond
Kelly Swetich

Graduate Representative CVMBS Committee:

Brett Webb
Shannon Gallagher

Biomedical Sciences Student Organization:

Kelsey Miller, President
Ryan Ward, Vice President
Christina Neary, Secretary
Samantha Murray, Treasurer
Kyle Pickard, Community Volunteer Coord.
Emily Swanson-Parker, Community Volunteer Coord.
Danika Barbour, Public Relations
Stephanie Krick, CVMBS College Council Rep.
Gillian Ruderman, CVMBS College Council Rep.
Kelly Swetich, Advisor

Graduate Student Organization:

Juliano Silveira, President
Alissa Bishel, Vice President
Max Vallejos, Secretary
Ellie Cleys, Treasurer

Physiology Seminar Committee:

Jerry Bouma

MS-B Steering Committee:

Erin Bisenius
Anna Fails
Mark Frasier
Jim Graham
John Walrond
Tod Clapp

College Committees:

Biomedical Curriculum Committee: C.W. Miller and Mark Fraiser
College Research Council: Quint Winger and Jozsef Vigh
Conflict of Commitment/Conflict of Interest Review Committee: Doug Ishii
DVM/PhD Program Committee: Tod Hansen
Foothills Research Advisory Committee: George Seidel
Scholarship and Award Committee: Sandra Pitcaithley, Rao Veeramachaneni and C.W. Miller
Scholarship and Award Committee/Luncheon Subcommittee: Sandra Pitcaithley (Chair)
Scholastic Standards Committee: Anna Fails
Secretary of the Faculty: C.W. Miller
Special Faculty Advisory Committee: Cynthia Smeraski (Chair) and Natalia Smirnova
Undergraduate Management Team Committee: C.W. Miller and Kelly Swetich
Veterinary Admissions Committee: Doug Ishii and James Madl
Veterinary Curriculum Committee: James Madl and Melinda Frye

University Committees:

IACUC Committee: Jim Graham
Administrative Professional Council: David Mornes
Biosafety Committee: Dick Bowen
Committee on Scholastic Standards: Melinda Frye
Executive Committee: C.W. Miller
Faculty Council Representative: Scott Earley, C.W. Miller
Faculty Honors Council: Connie Vader-Lindholm
Library Committee: Noreen Reist
MLK Jr Scholarship Award Committee: Rao Veeramachaneni
Postdoc Task Force: Stu Tobet (2009-10)
Strategic and Financial Planning: C.W. Miller
University Committee on Faculty Governance: Russ Anthony

Other Committees:

Center for Bioinformatics Executive Committee: Tod Hansen
CMB Academic Committee: Stu Tobet
CMB Admissions Committee: Stu Tobet and Noreen Reist
CMB Steering Committee: Noreen Reist
FRNG: Stu Tobet (President), Shane Hentges and Susan Tsunoda (Chapter Steering Committee)
Management Oversight Committee for RCE: Dick Bowen
MCIN Executive Committee: Kathy Partin, Doug Ishii, Mike Tamkun
MCIN Academics & Admission: Mike Tamkun, Shane Hentges, Christina Dennison (student)
MCIN Research Committee: Jozsef Vigh, Doug Ishii, Matt Dicken (student)
MCIN Seminar Committee: Scott Earley, Susan Tsunoda
Rocky Mountain Reproductive Sciences Symposium: Jerry Bouma (Chair 2010)
School of Biomedical Engineering: Stu Tobet (Director)

TABLE 2: FACULTY—2010-11**Regular Faculty**

Gregory C. Amberg , PhD, PharmD	Assistant Professor
<i>Specialty:</i> Membrane biophysiology	
Russell V. Anthony , PhD	Hill Professor of Biotechnology
<i>Specialty:</i> Molecular endocrinology	
Gerrit J. Bouma , PhD	Assistant Professor
<i>Specialty:</i> Molecular and genetic regulation of fetal gonadal cell differentiation	
Richard A. Bowen , DVM, PhD	Professor
<i>Specialty:</i> Infectious disease and reproductive physiology	
Elaine M. Carnevale , DVM, PhD	Associate Professor
<i>Specialty:</i> Equine assisted reproduction	
Colin M. Clay , PhD	Professor and Head
<i>Specialty:</i> Molecular endocrinology	
Scott Earley , PhD	Associate Professor
<i>Specialty:</i> Cardiovascular physiology	
Melinda A. Frye , DVM, PhD	Assistant Professor
<i>Specialty:</i> Cardiovascular physiology	
James K. Graham , PhD	Professor
<i>Specialty:</i> Cryobiology and male reproductive physiology	
Thomas R. Hansen , PhD	Traubert Professor and Director, ARBL
<i>Specialty:</i> Establishment and maintenance of pregnancy; Effects of maternal undernutrition	
Shane T. Hentges , PhD	Assistant Professor
<i>Specialty:</i> Pharmacology	
Douglas N. Ishii , PhD	Professor
<i>Specialty:</i> Molecular neurobiology	
James E. Madl , DVM, PhD	Associate Professor
<i>Specialty:</i> Neurotransmitter release in central nervous system disease	
Charles W. Miller , PhD	Professor
<i>Specialty:</i> Cardiovascular physiology	
Kathryn M. Partin , PhD	Professor
<i>Specialty:</i> Structural and functional analysis of glutamate receptors	
John E. Rash , PhD	Professor
<i>Specialty:</i> Identifying and mapping connexins, aquaporins, and neurotransmitter receptors	
Noreen E. Reist , PhD	Associate Professor
<i>Specialty:</i> Molecular dissection of neurotransmitter release	
Deborah A. Roess , PhD	Professor
<i>Specialty:</i> Cellular endocrinology	
Michael M. Tamkun , PhD	Professor
<i>Specialty:</i> Molecular physiology; ion channels	
Barbara M. Sanborn , PhD	Professor
<i>Specialty:</i> Molecular signal transduction	
Stuart Tobet , PhD	Professor
<i>Specialty:</i> Developmental neurobiology	
Susan Tsunoda , PhD	Associate Professor
<i>Specialty:</i> Signal transduction; protein targeting; phototransduction; K ⁺ channel regulation	
D.N. Rao Veeramachaneni , BVSc, MscVet, PhD	Professor
<i>Specialty:</i> Andrology and reproductive toxicology	
Jozsef Vigh , PhD	Assistant Professor

Specialty: Neurobiology
John P. Walrond, PhD Associate Professor
Specialty: Structure and function of central and peripheral nicotinic cholinergic synapses
L. Ray Whalen, DVM, PhD University Distinguished Teaching Scholar
Specialty: Design, development, and evaluation of interactive multimedia educational programs
Quinton A. Winger, PhD Assistant Professor
Specialty: Genetic regulation of mammalian reproduction

Transitional Faculty

George E. Seidel, Jr., PhD University Distinguished Professor
Specialty: Reproductive physiology
Terry M. Nett, PhD Professor
Specialty: Reproductive endocrinology

Special Faculty

Jennifer Barfield, PhD Assistant Professor
Specialty: Reproductive Physiology
Tod R. Clapp, PhD Assistant Professor
Specialty: Teaching
Anna D. Fails, DVM, PhD Assistant Professor
Specialty: Teaching
Mark B. Frasier, MS Associate Professor
Specialty: Teaching
Sandra Pitcaithley, MA, DVM Assistant Professor
Specialty: Teaching
Cynthia Smeraski, PhD Assistant Professor
Specialty: Neurobiology, neuroimmunology and infectious diseases
Natalia Smirnova, PhD Assistant Professor
Specialty: Immunology and infectious diseases
Leslie M. Stone-Roy, PhD Assistant Professor
Specialty: Sense of taste
Connie Vader-Lindholm, PhD Assistant Professor
Specialty: Teaching

Joint Faculty

Jason Bruemmer, PhD Associate Professor, Animal Sciences
Specialty: Equine reproduction
Adam Chicco, PhD Assistant Professor, Health and Exercise Science
Specialty: Heart disease and intervention
Frank Dinunno, PhD Associate Professor, Health and Exercise Science
Specialty: Cardiovascular structure and function; Control of vascular tone
Matthew Hickey, PhD Associate Professor, Health and Exercise Science
Specialization: Cardiovascular, nutrition and exercise physiology
Patrick McCue, DVM, PhD Professor, Clinical Sciences
Specialization: Equine reproduction and assisted reproductive technologies
Christopher Orton, DVM, PhD Professor, Clinical Sciences
Specialization: Cardiopulmonary physiology / surgery
Narda Robinson, DO, DVM, MS, DABMA, FAAMA Assistant Professor, Clinical Sciences
Specialization: Complementary medicine

Bernard Rollin, PhD
Specialization: Animal ethics

University Distinguished Professor, Philosophy

Affiliate Faculty

Dan Baker, PhD
Colorado Division of Wildlife

James Barry, MD
The Children's Hospital, Denver, CO

Rayna Gonzales, PhD
University of Arizona, Phoenix, AZ

Robert J. Handa, PhD
University of Arizona, Tucson, AZ

Jason Herrick, PhD
National Foundation for Fertility Research, Lone Tree, CO

Naomi Kamasawa, PhD
Dept of Cerebral Research, Division of Cerebral Structure
National Institute for Physiological Sciences
Myodaiji, Okazaki, Japan

Rebecca Krisher, PhD
National Foundation for Fertility Research
Lone Tree, CO

Lowell Miller, PhD
National Wildlife Research Center, Fort Collins, CO

Amy Navratil, PhD
Department of Zoology and Physiology
University of Wyoming, WY

Gary Pickard, PhD
University of Nebraska, Lincoln, NE

Patty Sollars, PhD
University of Nebraska, Lincoln, NE

Edward L. Squires, PhD
Gluck Equine Research Center, University of Kentucky, Lexington, KY

Emeritus Faculty

Rupert P. Amann, PhD, tenure 1983–1995
Specialization: Male reproductive physiology

Sue C. Kinnamon, PhD, tenure 1994–2008
Specialization: Molecular mechanisms of taste transduction

Gordon D. Niswender, PhD, tenure 1975–2008
Specialization: Reproductive endocrinology

Howard O. Nornes, PhD, tenure 1972–2002
Specialization: Development and regeneration of the central nervous system

Robert Phillips, DVM, PhD, tenure 1964–1997
Specialization: General physiology

Bill W. Pickett, PhD, tenure 1967–2000
Specialization: Equine reproductive physiology; assisted reproductive technology

Barbara M. Sanborn, PhD, tenure 2003–2011
Specialty: Hormonal signal transduction

W. Lee Wilke, DVM, PhD, tenure 1978–2006
Specialization: Cardiovascular and renal physiology

Joint Faculty Appointments in Other Departments

Richard Bowen	Department of Microbiology, CSU
Douglas Ishii	Department of Biochemistry, CSU
Noreen Reist	Special Appointment Faculty, UCHSC
Michael Tamkun	Department of Biochemistry, CSU
Ray Whalen	Department of Clinical Sciences, CSU

Visiting Faculty / Scientists

Fernando Jordao Affonso, visiting PVM student, University of Sao Paulo, Brazil
Hosts: E. Carnevale

Alfredo Antoniazzi, visiting PhD student
Host: T. Hansen

Juhiano Baldan Rossini, DVM, visiting Postdoctoral student, Brazil
Host: E. Carnevale

Katja Barkhage, Denmark
Host: G. Seidel

Natalie Cleton, Denmark
Host: R. Bowen

Yulan Dong, China
Host: Q. Winger

Giselle Gamarra, Peru
Host: G. Seidel

Hermione Gabriella Finch, visiting PVM student, University of Edinburgh, Scotland
Host: E. Carnevale

Guadalupe Adelia García Paredes, Mexico
Host: G. Seidel

Naomi Kamasawa
Host: J. Rash

Lisa Maclellan, Australia
Host: E. Carnevale

Sean Marrieli
Host: S. Earley

Susan Morarie, South Dakota State University
Host: T. Hansen

John O'Brien, xx

Host:

Dr. Gillian Rickard, Visiting Veterinarian, Australia
Host: E. Carnevale

Imelda Ontoria Oviedo, Ph.D. student, Valencia, Spain
Host: S. Earley

Dr. Venancio Orozco Rogers, Mexico
Host: G. Seidel

Jacobo Rodriguez,
Host: E. Carnevale

Eduardo Rosa-Molinar, University of Puerto Rico
Host: J. Rash

Elena Ruggeri
Host: G. Seidel

Rebekah Hickerson, Veterinary student, Louisiana State University
Host: C. Smeraski

Mark Taylor
Host: S. Earley

Dr. Venkatraman Siddharthan
Host: C. Smeraski

Matthias Werner
Host: S. Earley

Mahdu Yashpal
Host: J. Rash

TABLE 3: POSTDOCTORAL FELLOWS — 2010-2011

	Advisor	Start Date	End Date
Abeer Al-Qatati	Roess	01/01/11	08/31/11
Alfredo Antoniazzi	Hansen	09/01/10	
Ryan Ashley	Hansen	12/01/06	8/1/10
Ann Baker	Roess	04/01/06	6/30/10
Jennifer Barfield ‡	Seidel	05/07/07	9/15/10
Angela Bosco-Lauth	Bowen	08/01/11	
Jayne Bramley	Vigh	11/15/10	
Albert Gonzales ‡	Earley	08/01/11	
Pankaj Kumar	Tobet	10/01/08	09/01/11
Christianne Magee	Clay	06/01/11	
Yong Ping	Tsunoda	03/15/10	
Julhiano Baldan Rossini	Carnevale	06/15/11	
Eva Rozsa	Vigh	10/01/08	9/1/10
Brian Searcy	Tobet	09/22/08	
Dawn Sessions	Carnevale	11/16/09	
Leah Stauber	Winger/Bouma	01/01/11	
Qifei Sun	Tsunoda	01/19/10	7/15/11
Qian Zhang	Tobet	11/01/08	7/1/11

‡ NRSA, training grant or individual fellowship

**TABLE 4: RESEARCH ASSOCIATES, STAFF AND
OTHER PERSONNEL — 2010-2011**

Research Associates / Technicians

Employee	Supervisor	Location
Matthew Allen	Nett	ARBL
Jennifer Barfield	Seidel	ARBL
Jillian Bishop	McCue	ERL
Richard Brandes	Hansen	ARBL
Zella Brink	Seidel	ARBL
Emily Bryan	Clay	ARBL
Jeremy Cantlon	Anthony/Clay	ARBL
Herschel Chadwick	Gallegos	ARBL/ERL
Krysta Chapin	Whalen	Anatomy
Chad Eitel	Tobet	Anatomy
Mike Gallegos	Hansen	ARBL
John Gieser	Partin	Anatomy
Jillian Delehoy	Reist	Anatomy
Greg Harding	Gallegos	ARBL/ERL
Ruth Hurst	Carnevale	ERL
Brooke Jarvie	Hentges	Anatomy
Kimberly Jeckel	Frye	Physiology
Scott Jefferson	Hansen	ARBL/ERL
Eleanore Jones	Murphy	ARBL/ERL
Connie King	Hentges	Anatomy
Andrea Latimer	Nett	ARBL
Andrea Linton	Whalen	Anatomy
Hans Mayan	Hansen	ARBL
Nau Mendoza Ruiz	Gallegos	ARBL/ERL
Judith Merriott	Carnevale	ERL
Carol Moeller	Veeramachaneni	ARBL
Paula Moffett	Bruemmer	ERL
Jennifer Murphy	Gallegos	ARBL/ERL
Jennifer Palmer	Veeramachaneni	ARBL
JoAnne Stokes	Carnevale	ERL
Airn Tolnay	Bowen	ARBL
Felipe Vazquez	Murphy	ARBL/ERL
Girma Waro	Tsunoda	Anatomy
Luis Yanez	Gallegos	ARBL/ERL

Senior Research Associates

Employee	Supervisor	Location
Kimberly Davidson	Rash	Anatomy
Paul Gordy	Bowen	ARBL
Thomas Yasumura	Rash	Anatomy

Research Scientists

Employee	Supervisor	Location
Jesus Arreguin-Arevalo	Nett	ARBL
Dilyara Murtazina	Clay	ARBL

Laboratory Coordinators

Employee	Supervisor	Location
Robert E. Lee	Whalen	Anatomy
Rob Loftus	Frasier/Clapp	Anatomy

Administrative Staff

Employee	Title	Location
Louise Ansell	Administrative Assistant II	B.W. Pickett Equine Center
Erin Bisenius	Graduate Education Coordinator/Advisor	134 Physiology
Karlie Braley	Accounting Technician III	W108B ARBL
Lisa Dell	Administrative Assistant II	Equine Reproduction Lab
Carol Dewbre	Administrative Assistant III	102 Physiology
Katie Ditter	Graduate Education Coordinator/Advisor	248 Physiology
Kay Gallatin	General Professional III	W108D ARBL Building
Sandra Hopper	Program Assistant I	B.W. Pickett Equine Center
Brenda Martin	Administrative Assistant III	W108 ARBL
David Mornes	Department Administrator	102 Physiology
Terrie Murphy	Administrative Assistant II	Equine Reproduction Lab
Karen Solomon	Administrative Assistant III	W103 Anatomy/Zoology
Lora Sondag	Accounting Technician III	W103 Anatomy/Zoology
Kelly Swetich	Undergraduate Coordinator/Advisor	110 Physiology
Kathy Thomas	Program Assistant I	W131 ARBL Building
Shazette Tucker	Administrative Assistant II	W103 Anatomy/Zoology
Sallie Varner	Program Assistant I	W127 ARBL Building

Student Office Staff

Employee	Location
Gillian Gwartz	103 Anatomy
Katelyn Houghton	102 Physiology
Tara Leibensperger	W108 ARBL
Lauren Migliaccio	102 Physiology
Shelbie Oaks	102 Physiology
Nicole Sahagun	103 Anatomy

TABLE 5: GRADUATE STUDENTS — 2010-2011**Ph.D. Students**

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Specialty</u>	<u>Start / Finish Dates</u>
Alqatati, Abeer	MS	Roess	Physio	SP 07 / SM 10
Chaplin, Nathan	BS/MCIN	Amberg	Neuro	SM 11
Cleys, Ellane*(NNF) ‡	MS	Anthony	Repro	FA 10
Dennison, Christina	MS	Hentges	Neuro	SM 10
Dicken, Matthew	BS	Hentges	Neuro	SM 10
Gallagher, Shannon	MS	Vigh	Neuro	FA 09
Gates, Katherine *	MS	Anthony	DVM/ PhD	FA 06
Gonzales, Albert ‡	MS / MCIN	Earley	Neuro	FA 07
Guttormsen, Jillian *	BS	Winger	Repro	FA 08 / SM 11
Harms, Jonathan	MS / MCIN	Partin	Neuro	FA 09
Kemp, Jeffrey	BS	Graham	Repro	FA 07
Kohler, Dennis	BS	Bowen	Physio	SP 04
Koste, Jessica	DVM/MS/BS	Whalen / Fails	Physio	FA 08
Kronic, Marija	MS	Earley	Neuro	FA 09
Magee, Christianne *	DVM, MS	Clay	Repro	FA 07 / SM 10
Meyers, Jacob	BS/MCIN	Partin	Neuro	SM 11
Osterlund, Kristen	BS/MCIN	Handa	Neuro	FA 08 / SM 11
Powers, Jenny	DVM	Nett	Repro	SP 05 / SM 11
Romero, Jared * (NNF) ‡	MS	Hansen	Repro	FA 10
Ruggeri, Elena	MS	Carnevale / Clay	Repro	SP 11
Seabrook, Jill * (NNF) ‡	MS	Winger	Repro	SM 10
Silveira, Juliano C. ‡	MS	Carnevale/Bouma	Repro	FA 09
Spizziri, Beth	MS	Graham	Repro	FA 07 / FA 10
Tooker, Ryan	BS/MCIN	Vigh	Neuro	SM 11
Urias, Christian	DVM, MS	Nett / Clay	Repro	SP 09
Vallejos, Max	MS	Tsunoda	Neuro	SM 10
Walker, David Josh	MS	Seidel	Repro	FA 04 / SP 10
Webb, Brett	DVM	Hansen	Repro	SM 09
Wolf-Ringwall, Amber *	BS	Roess	Physio	SM 05 / SM 10

* Training grant trainee

‡ National Research Service Award or other individual fellowship recipient

M.S.-A Students

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Specialty</u>	<u>Start / Finish Dates</u>
Anema, Jennifer	BS	Seidel	Repro	FA 08 / SM 10
Burroughs, Chelsie ‡	BS	Seidel	Repro	FA 09 / SM 11
Coville, Alyssa ‡	BS	Carnevale	Repro	FA 09
Cullingford, Erika	BS	Seidel	Repro	SM 08 / SP 10
Daigneault, Brad	BS	Carnevale	Repro	SP 08 / SP 10
Demooy, Bret	BS	Chicco	Physio	SP 11
Eaves-Egenes, Julialea	BS	Woods	Repro	FA 08
Frank, Bethany L.	BS	Carnevale	Repro	SP 09 / SP 10
Fromme, Brittany A.	BS	Winger / Bouma	Repro	FA 08 / FA 10
Gamble, Hannah ‡	BS	Carnevale	Repro	FA 10 / W/D
Garcia, Zarine ‡	BS	Earley	Physio	FA 10
Hartshorn, Cheryl ‡	BS	Tobet	Neuro	FA 07 / SM 10
Kruse, Shantille	BS	Seidel	Repro	FA 09 / SM 10
Mortell, Bridget	BS	Partin	Neuro	FA 03 / SP 10
Rasmussen, Sara	BS	Seidel	Repro	FA 07 / SP 11
Rodrigues, Bernardo	BS	Carnevale / Clay	Repro	FA 08 / SM 10
Schoeberl, Samantha	BS	Roess	Physio	FA 07 / SM 10
Skinker, Julian	BS	Carnevale	Repro	FA 09 / WD
Striegel, Amelia	MS	Reist	Neuro	FA06
Tarvis, Kimberly ‡	BS	Graham	Repro	FA 10

* Training grant trainee

‡ National Research Service Award or other individual fellowship recipient

M.S.-B Students

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Start / Finish Dates</u>
Alley, Katherine	BS	Frasier	FA 10 / SM 11
Almeyda, Audra Luz K.	BS	Frasier	FA 09 / SM 10
Anderson, Lauren	BS	Frasier	FA 10 / SM 11
Anderson, Richard	BS	Frasier	FA 10 / dismissed
Apted, Jessica	BS	Frasier	FA 10 / SM 11
Balzano, Felicia L.	BS	Frasier	FA 09 / SM 10
Bemski, Julienne	BS	Frasier	FA 09 / SM 10
Berdeaux, Merissa	BS	Frasier	FA 10 / SM 11
Bishel, Alissa D.	BS	Frasier	FA 09 / SP 11
Blakeley, Elizabeth	BS	Frasier	FA 10 / SM 11
Britt, Michael	BS	Frasier	FA 10
Brown, Cory J.	BS	Frasier	FA 09 / SM 10
Brown, Paul	BS	Frasier	FA 10
Brutlag, Lisel K.	BS	Frasier	FA 09 / SM 10
Campion, Craig L.	BS	Frasier	FA 09 / SM 10
Cervelli, Caroline M.	BS	Frasier	FA 09 / SM 10
Christy, Jason	BS	Frasier	FA 08 / SP 10
Clawson, Jennifer	BS	Frasier	FA 10/SM11
Cooney, Anne P.	BS	Frasier	FA 09 / withdrawn
Cooper, Casey	BS	Frasier	FA 08 / SP 11
Corman, Jake U.	BS	Frasier	FA 09 / SP 11
Cunz, Heidi	BS	Frasier	FA 07
Dailey, Sean	BS	Frasier	FA 10/SM11
Dameworth, Jonathan	BS	Frasier	FA 09 / FA10
Davidson, Ross	BS	Frasier	FA 10 / SP 11
Davis, Kaitlin	BS	Frasier	FA 10 / SP 11
Davis, Kevin	BS	Frasier	FA 10
Del Vecchio, Jeanna M.	BS	Frasier	FA 09 / FA 10
Diemer, Matthew	BS	Frasier	FA 10
Dowdy, Elyse	BS	Frasier	FA 10 / SM 11
Dunne, Catherine	BS	Frasier	FA08 / SP10
Eide, Chris	BS	Frasier	FA 09 / SM 10
Eitzer, Andrew	BS	Frasier	FA 10
English, Kizzy	BS	Frasier	FA 08 / SP 10
Ewing, Benjamin D.	BS	Frasier	FA 09 / SM 10
Fairbank, David M.	BS	Frasier	FA 09 / withdrawn
Fara, Tyler R.	BS	Frasier	FA 09 / SM10
Farrell, Tara	BS	Frasier	FA 10 / SM 11

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Start / Finish Dates</u>
Ferrara, Michael J.	BS	Frasier	FA 09
Fleischmann, Caren E.	BS	Frasier	FA 09 / SM 10
Flory, Kale M.	BS	Frasier	FA 09 / SM 10
Foster, Elizabeth K.	BS	Frasier	FA 09 / SM 10
Frank, Matthew R.	BS	Frasier	FA 09 / SM 10
Ganoe, Logan	BS	Frasier	FA 10 / SM 11
Garber, Sarah K.	BS	Frasier	FA 05 / SM 10
Garbino, Nina C.	BS	Frasier	FA 08 / SP 10
Goldstein, Russell D.	BS	Frasier	FA 09 / SP 11
Green, Chelsea	BS	Frasier	FA 10
Gronsten, Cody	BS	Frasier	FA 08 / SP 10
Harmon, Kristin E.	BS	Frasier	FA 09
Hay, Connor J.	BS	Frasier	FA 09 / SM 10
Hickey, Erin	BS	Frasier	FA 07 / SP 10
Hiller, Kimberly L.	BS	Frasier	FA 09 / SM 10
Hughes, Jordan W.	BS	Frasier	FA 09 / SM 10
Humes, Andrew	BS	Frasier	FA 10
Hutson, Emily	BS	Frasier	FA 10 / SM 11
Innes, Jenna	BS	Frasier	FA 08 / W/D
Ivins, Stephanie	BS	Frasier	FA 10
Johnson, Benjamin	BS	Frasier	FA 10 / SM 11
Jones, Sara	BS	Frasier	FA 10 / SM 11
Joseph, Ryan J.	BS	Frasier	FA 09 / FA 10
Joshee, Sampada	BS	Frasier	FA 10
Keyser, Andrew	BS	Frasier	FA 08 / SP 10
Kim, Peter	BS	Frasier	FA 10 / SM 11
Kloer, Timothy B.	BS	Frasier	FA 09 / SM 10
Krawzoff, Madeline H.	BS	Frasier	FA 09 / SM 10
Levin, Martha	BS	Frasier	FA 10 / SM 11
Licursi, Ashley M.	BS	Frasier	FA 09 / SM 10
Linney, Travis M.	BS	Frasier	FA 09 / SM 10
Loomis, Bernadette	BS	Frasier	FA 10 / SM 11
Luu, Amy Q.	BS	Frasier	FA 09 / SM 10
Marino, Maxwell	BS	Frasier	FA 10 / SM 11
Martinez, Diana	BS	Frasier	FA 10 / SM 11
Matoian, Brett J.	BS	Frasier	FA 09 / SM 11
Monaghan, Kaylie E.	BS	Frasier	FA 09 / FA 10
Monahan, Sara	BS	Frasier	FA 10 / SM 11
Mundhenke, Liesel	BS	Frasier	FA 10 / SM 11

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Start / Finish Dates</u>
Neudorf, Daniel S.	BS	Frasier	FA 09 / SM 10
Ninnemann, Stephanie	BS	Frasier	FA 10 / SM 11
Pauels, Sarah A.	BS	Frasier	FA 09 / W/D
Perres, Molly	BS	Frasier	FA 10
Petri, Michelina	BS	Frasier	FA 10 / SM 11
Piche, Dominique	BS	Frasier	FA 10 / SM 11
Quraini, Sarah	BS	Frasier	FA 10
Ratliff, Amanda	BS	Frasier	FA 10
Rattray, Kyle W.	BS	Frasier	FA 09 / SM 10
Reichert, William B.	BS	Frasier	FA 09 / SM 10
Reider, Bryan R.	BS	Frasier	FA 09 / SM 10
Rojas, David	BS	Frasier	FA 10 / SM 11
Roth, Mike	BS	Frasier	FA 10 / SM 11
Rowan, Brian	BS	Frasier	FA 10 / SM 11
Ryan, Sarah M.	BS	Frasier	FA 09 / SM 10
Salanoa, Monty	BS	Frasier	FA 10 / SM 11
Schlogel, Sara A.	BS	Frasier	FA 09 / SM 10
Schneider, Kelsey	BS	Frasier	FA 10 / SM 11
Shaddeau, Angela K.	BS	Frasier	FA 09 / SM 10
Spanier, Matthew	BS	Frasier	FA 10 / W/D
Spiegelman, Sarah	BS	Frasier	FA09 / W/D
Stearns, Jaime	BS	Frasier	FA 10 / SM 11
Stone, Adam	BS	Frasier	FA 10
Strom, Luanne M.	BS	Frasier	FA 09 / SM 10
Sullivan, Jessica L.	BS	Frasier	FA 09 / SM 10
Supon, Ryan J.	BS	Frasier	FA 09 / SM 10
Tai, Pei-Yi	BS	Frasier	FA 09
Tanguay, Jessica	BS	Frasier	FA 10 / SM 11
Thomas, Emma K.	BS	Frasier	FA 09 / SM 10
Thompson, John	BS	Frasier	FA 10 / SM 11
Towers, Joanne	BS	Frasier	FA 10 / SM 11
Tunney-Wasson, Ethan	BS	Frasier	FA 09 / SM 10
Viboolsittiseri, Sawannee	BS	Frasier	FA 08 / SM 10
Villanueva, Gabriela A.	BS	Frasier	FA 09 / SM 10
Vincent, Andrea	BS	Frasier	FA 10
Vonloh, Matthew A.	BS	Frasier	FA 09 / SM 10
Werth, Kristen R.	BS	Frasier	FA 09 / SM 10
Wethington, Natalie	BS	Frasier	FA 10 / SM 11

	<u>Prior Degrees</u>	<u>Advisor</u>	<u>Start / Finish Dates</u>
Williams, Benjamin	BS	Frasier	FA 08 / SP 10
Wood, Elizabeth L.	BS	Frasier	FA 09
Zia, Alicia	BS	Frasier	FA 10

Graduate Students in Other Departments Advised by Biomedical Sciences Faculty

<u>Name</u>	<u>Department</u>	<u>Advisor</u>	<u>Program</u>	<u>Status</u>
Abbate, Cheryl	PHIL	Rollin	MA	Active
Achenbach, Jenna	MIP	Bowen	PhD	Active
Akin, Liz	CMB	Tamkun/Amberg	PhD	Active
Andersen, Brady	HES	Chicco	MS	Active
Ashwish, Nadya	CMB	Roess	PhD	Active
Baeten, Laurie ‡	MIP	Bowen	PhD	Active
Barnes, Julie	HES	Hickey	MS	Active
Benson, Jeret	MIP	Bowen	MS	Graduated
Bosco-Lauth, Angela	MIP	Bowen	PhD	Graduated SM10
Coley, Christopher	PHIL	Rollin	MA	Active
Damle, Alpana	CMB	Roess	PhD	Inactive SM10
Deemer, Sarah	BNGR	Hickey	PhD	Active
Enriquez, Vanessa ‡	CMB	Bouma/Winger	PhD	Active
Ferris, Ryan	Clinical Sciences	McCue	MS	Graduated SM10
Field, Meghan	Animal Sciences	Anthony (co-advisor)	PhD	Active
Flygt, Adrian	PHIL	Rollin	MS	Active
Fox, Philip	CMB	Tamkun	PhD	Active
Frahm, Krystle	CMB	Tobet	PhD	Active
Funk, Janel	Biochemistry	Reist (co-advisor)	PhD	Active
Gonzalez, Julian	PHIL	Rollin	MA	Active
Hergenreder, Joanna	Animal Sciences	Bruemmer	MS	Active
Huang, Xin	CMB	Roess	PhD	Graduated SM10
Ishii, Toru	CMB	Earley	PhD	Active
Le, Catherine	CMB	Chicco	PhD	Active
Lindholm, Alicia	Clinical Sciences	McCue	MS	Active
Madla, Holly	Clinical Sciences	Orton	MS	Active
Miyashita, Theresa	Ed Human Res	Frye (co-advisor)	PhD	Active
Mulligan, Chris	Food Sci/Nutrition	Chicco	PhD	Active
Muth, Jack	MIP	Bowen	PhD	Inactive SM10
Ndaluka, Christina	MIP	Bowen	PhD	Active
Pabilonia, Kristy	MIP	Bowen	PhD	Active
Roan, Chelsea	CMB	Roess	MS	Inactive FA10
Routh, Melissa	CMB	Chicco	MS	Active
Schultz-Bergin, Marcus	PHIL	Rollin	MA	Active

<u>Name</u>	<u>Department</u>	<u>Advisor</u>	<u>Program</u>	<u>Status</u>
Scruggs, Saraha	Clinical Sciences	Orton	MS	Graduated FA10
Shnaishah, Hoda	CMB	Roess	MS	Active
Smith, Whitney	Food Sci/Nutrition	Hickey	MS	Active
Soffler, Carl ‡	MIP	Bowen	PhD	Active
Stratton, Matthew	CMB	Tobet	PhD	Graduated
Thomason, Andrew	ENGR	Tobet	MS	Active
Ulloa, Aida ‡	CMB	Sanborn	PhD	Graduated FA10
Varland, Dezaray	CMB	Vigh	MS	Graduated
Warro, Daniel	Food Sci/Nutrition	Hickey	MS	Active
Weiner, Christina	MIP	Hansen (co-advisor)	MS	Graduated SP10
Williams, Dustin	ENGR	Tobet	MS	Active
Winter, Peter	CMB	Roess (co-advisor)	PhD	Active

* Training grant trainee

‡ National Research Service Award or other individual fellowship recipient

TABLE 6: DEGREES AWARDED — 2010-2011**Ph.D. Degree**

<u>Student</u>	<u>Advisor</u>	<u>Thesis/Dissertation Title</u>
Abeer Al-Qatati	Roess	Insulin-Mimicking Compounds Cause Translocation and Confinement of Insulin Receptors Within Specialized Membrane Microdomains
Jillian Guttormsen	Winger	TCFAP2C Regulation of Primordial Germ Cell Development and Fetal Gonad Differentiation
Christianne Magee	Clay	An Evaluation of Kisspeptin in the Mare
Kristen Osterlund	Handa	Dihydrotestosterone Attenuates Endotoxin, Cytokine, Hypoxia, and Ischemia –induced Vascular Inflammation
Jenny Powers	Nett	Reproductive, Behavioral, and First Generational Effects of Gonadotropin Releasing Hormone Vaccination in Female Rocky Mountain Elk (Cervus Elaphus Nelsoni)
Beth Spizziri	Graham	In Vitro Capacitation of Stallion Spermatozoa
Josh Walker	Seidel	Luteinizing Hormone-Induced Oocyte Maturation Initiates mRNA Decay
Amber Wolf-Ringwall	Roess	Membrane Organization of Luteinizing Hormone Receptors during Signal Transduction

M.S.-A Degree

<u>Student</u>	<u>Advisor</u>	<u>Thesis/Dissertation Title</u>
Jennifer Anema	Seidel	Optimizing Storage of Bovine Sperm between Semen Collection and Sexing
Chelsie Burroughs	Seidel	Removing Seminal Plasma Improves Sex-Sorting of Bovine Sperm
Riki Cullingford	Seidel	Preimplantation Genetic Diagnosis of Equine Embryos
Brad Daigneault	Carnevale	Cryopreservation of Cooled Semen for Equine Intracytoplasmic Sperm Injection
Bethany Frank	Carnevale	Association of Oocyte Morphology to Age and the Establishment and Maintenance of Pregnancy after ICSI in Mares
Brittany Fromme	Winger/Bouma	Regulation of Trophoblast Stem Cell Maintenance and Differentiation by Lin28 and Ap-2γ

<u>Student</u>	<u>Advisor</u>	<u>Thesis/Dissertation Title</u>
Cheryl Hartshorn	Tobet	Estradiol Exposure Alters Gonadotropin-Releasing Hormone (GnRH) Induced Gonadotrope Plasticity
Bridget Mortell	Partin	Alternate Splicing of AMPA Receptors: Functional Consequences on Hippocampal Excitability
Sara Rasmussen	Seidel	X-sorted Sperm Applied to Embryo Production and Transfer for Dairy Cattle Reproduction
Bernardo Rodrigues	Carnevale/Clay	Characterization of Selected Gene Expression Patterns as Potential Markers of Oocyte Quality In Young and Old Mares
Samantha Schoeberl	Roess	Interaction of [VO ₂ (ma) ₂]- with Model Membranes: Relevance to Insulin Enhancing Effects of BMOV and its Oxidized Form

Degrees Awarded in Other Departments to Students Advised by BMS Faculty

<u>Student</u>	<u>Advisor</u>	<u>Degree</u>	<u>Department</u>
Jeret Benson	Bowen	MS-A	MIP
Angela Bosco-Lauth	Bowen	PhD	MIP
Christina Ndaluka	Bowen	PhD	MIP
Aida Ulloa	Sanborn	PhD	CMB
Dezaray Varland	Vigh	MS-A	CMB

TABLE 7: FELLOWSHIP AND SCHOLARSHIP RECIPIENTS — 2010-2011

Abney Foundation Scholarship

Ellane Cleys
Ashley Cameron
Joanna Hergenreder
Juliano da Silveira

Biomedical Sciences Undergraduate Award

Hilary Smith
Jenna Tarbett
Megan Taylor

E.J. Carroll Memorial Scholarship

Jennifer Anema
Chelsie Burroughs

Lisa Marie Craft Scholarship

Ben Ewing

James N. Dupree Scholarship

Joanna Hergenreder
Alicia Lindholm

Ed H. Honnen Award

Joanna Hergenreder
Juliano da Silveira

Myron Brown Ludlow Scholarship

Francis Del Rosario

Rowena Odell Scholarship

Kristen Horsley

Dr. Dean Pavillard Scholarship

Ryan Ferris
Alicia Lindholm

William K. Riddell Memorial Graduate Scholarship

Krystle Frahm

Delano F. Scott Scholarship

Jared Brethouwer
Justin Mower

France Stone Scholarship

Ryan Ferris
Juliano da Silveira
David Scofield

O.E. Thornburg Undergraduate Research Excellence Award

Melanie Schow
Kellie Woll

O.E. Thornburg Graduate Research Excellence Award

Juliano Silveira

Dr. Alan Tucker Memorial Scholarship

Shilo Bryan
Sarah Farmer

Yount Post-Graduate Veterinary Medicine Scholarship

Brett Webb
Alicia Lindholm

National Research Service Award or Individual Fellowship Recipients

Elizabeth Akin (NIH-NRSA Fellowship)
Chelsie Burroughs (PRSE Fellowship) *
Ellane Cleys (Colorado State Graduate Fellowship)
Alyssa Coville (PRSE Fellowship) *
Hannah Gamble (PRSE Fellowship)
Zarine Garcia (Colorado State Graduate Fellowship)
Albert Gonzalez (NIH-NRSA Fellowship)
Shantille Kruse (PRSE Fellowship) *
Jared Romero (PRSE Fellowship)
Elena Ruggeri (PRSE Fellowship)
Jill Seabrook (Colorado State Graduate Fellowship)
Juliano Silveira (PRSE Fellowship) *
Julian Skinker (PRSE Fellowship) *
Kimberly Tarvis (PRSE Fellowship)

NIH Training Grant Fellowship Recipients

Katherine Gates
Jillian Guttormsen
Christianne Magee
Amber Wolf-Ringwall

NIH Loan Repayment Program

Tiana Magee

USDA National Needs Fellows

Ellane Cleys
Jared Romero
Jill Seabrook

* Colorado State Graduate Fellowship

TABLE 8: COURSES TAUGHT — 2010-2011

Spring 2010		
<u>Course #</u>	<u>Title</u>	<u>Instructors</u>
PVM Courses		
VM 619	Veterinary Neurobiology	Fails, Pitcaithley, Whalen
VM 621	Exotic Animal Anatomy and Husbandry	Madl, Pitcaithley
VM 640	Biology of Disease I	Bowen
VM 744	Theriogenology	Bowen, Graham
VM 786A	Junior Practicum	Carnevale
VM 786B	Senior Practicum	Carnevale
VM 796F	Group Study – Problem Based Learning	Madl
VS 605	Comparative Anesthesiology	Fails
Graduate Courses		
ANEQ 550B	Basic Research Surgery – Rodent	Partin
BMS 501	Mammalian Physiology II	Anthony, Bowen, Vader, Winger
BMS 531	Domestic Animal Dissection	Frasier, Madl
BMS 545	Neuroanatomy	Fails, Clapp, Walrond
BMS 633	Domestic Animal Anatomy – Case Discussions	Fails, Frasier
BMS 642	Research Techniques – Gametes & Embryos	Carnevale, Graham, Seidel, Veeramachaneni, Winger
BMS 684	Supervised College Teaching	Frasier, Walrond
BMS 695C	Independent Study – Neuroanatomy	Madl, Tsunoda
BMS 695F	Independent Study – Gross Anatomy	Frasier
BMS 699	Thesis	Seidel
BMS 784	Supervised College Teaching	Anthony, Frasier, Walrond
BMS 792A	Seminar – Biomedical Sciences	Partin, Vigh
BMS 792C	Seminar – Reproductive Physiology	Bouma, Winger
BMS 795A	Independent Study – Endocrinology	Roess
BMS 795B	Independent Study – Neurophysiology	Partin, Vigh
BMS 795D	Independent Study – Cardiopulmonary Physiology	Earley
BMS 795E	Independent Study – Reproductive Physiology	Anthony, Bouma, Bowen, Carnevale, Graham, Nett, Roess, Seidel, Winger
BMS 796C	Group Study – Reproductive Physiology	Carnevale
CM 795	Independent Study	Bouma, Roess
NB 503	Developmental Neurobiology	Ishii, Tobet
NB 505	Neuronal Circuits – Systems, Behavior	Clapp, Hentges, Stone-Roy, Vigh
NB750	Physiology of Ion Channels	Amberg, Earley, Partin, Tamkun, Vigh
NB 795	Independent Study	Earley, Hentges, Tamkun, Tobet
NB 796A	Group Study -- Ion Channels	Reist, Tamkun

<u>Course #</u>	<u>Title</u>	<u>Instructors</u>
NB 796C	Group Study – Topics in Neuroscience	Reist, Tamkun
NB 796E	Group Study – Neuroendocrine Mechanisms	Tobet
Undergraduate Courses		
BMS 124	Sexuality and Health	Nett
BMS 200	Concepts in Human Anatomy and Physiology	Walrond
BMS 260	Biomedical Sciences	Clay, Miller, Winger
BMS 300	Principles of Human Physiology	Clay, Roess, Walrond
BMS 302	Laboratory in Principles of Physiology	Vader
BMS 305	Domestic Animal Gross Anatomy	Frasier, Madl
BMS 330	Microscopic Anatomy	Madl
BMS 345	Functional Neuroanatomy	Clapp, Reist, Stone-Roy
BMS 360	Fundamentals of Physiology	Bouma, Earley, Ishii, Miller
BMS 384	Supervised College Teaching	Clapp, Frasier, Reist, Walrond
BMS 405	Nerve & Muscle – Toxins, Trauma & Disease	Ishii, Rash, Whalen
BMS 450	Pharmacology	Amberg, Ishii, Nett
BMS 460	Essentials of Pathophysiology	Madl, Miller, Veeramachaneni
BMS 487	Internship	Miller
BMS 492	Seminar – Pathophysiology of Disease	Miller, Veeramachaneni
BMS 495	Independent Study	Earley, Miller, Roess, Tobet
BMS 496	Group Study	Frasier, Roess

Summer 2010

PVM Courses

VM 786B	Senior Practicum	Carnevale
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Graduate Courses

BMS 684	Supervised College Teaching	Clapp, Frasier
BMS 795B	Independent Study – Neurophysiology	Tsunoda
BMS 795E	Independent Study – Reproductive Physiology	Anthony, Winger
CM 795	Independent Study	Roess
MIP 699	Thesis	Bowen

Undergraduate Courses

BMS 300	Principles of Human Physiology	Graham, Roess, Walrond
BMS 301	Human Gross Anatomy	Clapp, Frasier
BMS 384	Supervised College Teaching	Clapp
BMS 495	Independent Study	Reist, Roess

Fall 2010

PVM Courses

VM 616	Functional Anatomy	Fails, Frye, Pitcaithley, Whalen
VM 618	Organ Systems – Anatomy and Physiology	Bowen, Fails, Frye, Pitcaithley, Walrond
VM 681A	Foundations of Veterinary Medicine (prototype)	Whalen
VM 722	Veterinary Pharmacology	Amberg, Frye

VM 749	Clinical Sciences III	Carnevale, Fails
VM 786A	Junior Practicum	Carnevale, Frye
VM 786B	Senior Practicum	Carnevale
Graduate Courses		
ANeq 510	Bovine Reproductive Management	Graham, Seidel
ANeq 550A	Basic Research Surgery – Farm Animals	Partin
BIOM 535	Molecular Tools for Engineers	Vigh
BMS 500	Mammalian Physiology I	Earley, Tamkun, Tsunoda
BMS 575	Human Anatomy Dissection	Clapp, Frasier
BMS 610A	Managing a Career in Science – Survival Skills for Coursework	Clapp, Frasier
BMS 610B	Managing a Career in Research – Survival Skills for Research	Partin
BMS 619	Advanced Human Gross Anatomy	Clapp, Frasier
BMS 640	Reproductive Physiology & Endocrinology	Bouma, Clay, Hansen, Sanborn, Seidel, Veeramachaneni, Winger
BMS 684	Supervised College Teaching	Clapp, Frasier, Walrond
BMS 695F	Independent Study – Gross Anatomy	Frasier
BMS 699	Thesis	Seidel
BMS 784	Supervised College Teaching	Frasier
BMS 792A	Seminar – Biomedical Sciences	Partin
BMS 792C	Seminar – Reproductive Physiology	Hansen
BMS 795B	Independent Study – Neurophysiology	Partin, Tsunoda, Vigh
BMS 795C	Independent Study – Cell Physiology	Hentges
BMS 795D	Independent Study – Cardiopulmonary Physiology	Earley
BMS 795E	Independent Study – Reproductive Physiology	Anthony, Bouma, Bowen, Carnevale, Graham, Nett, Seidel, Winger
BMS 796C	Group Study – Reproductive Physiology	Carnevale
CM 595	Independent Study	Roess
CM 699	Thesis	Vigh
CM 795	Independent Study	Earley, Roess, Tamkun
ERHS 502	Fundamentals of Toxicology	Bouma
GRAD 544A	Ethical Research – Arts/Humanities	Partin
GRAD 544B	Ethical Research – Life/Human Sciences	Partin
GRAD 544C	Ethical Research – Physical Science/Engineering	Partin
MIP 650	Immunobiology	Smeraski
NB 500	Readings in Cellular Neurobiology	Tamkun
NB 501	Cellular and Molecular Neurophysiology	Tamkun
NB 502	Techniques in Molecular & Cellular Biology	Bowen
NB 771	Writing, Submitting, and Reviewing Grants	Reist, Tobet
NB 793	Neuroscience Seminar	Partin
NB 795	Independent Study	Amberg, Hentges, Partin

NB 796A	Group Study – Ion Channels	Earley
NB 796C	Topics in Neuroscience	Reist
NB 796E	Group study – Neuroendocrine Mechanisms	Tobet
Undergraduate Courses		
ANeq 300	Beef Industry	Seidel
AN 440	Capstone Equine	Seidel
BMS 124	Sexuality and Health	Nett
BMS 192	First Year Seminar in Biomedical Sciences	Vader
BMS 200	Concepts in Human Anatomy & Physiology	Walrond
BMS 300	Principles of Human Physiology	Bouma, Magee
BMS 301	Human Gross Anatomy	Clapp, Frasier
BMS 302	Laboratory in Principles of Physiology	Vader
BMS 325	Cellular Neurobiology	Hentges, Stone-Roy, Vigh, Walrond, Whalen
BMS 384	Supervised College Teaching	Clapp, Frasier, Walrond
BMS 420	Cardiopulmonary Physiology	Frye, Miller
BMS 430	Endocrinology	Graham
BMS 487	Internship	Miller
BMS 495	Independent Study	Frasier, Miller, Seidel
BMS 496	Group Study	Clapp, Frasier
BMS 498	Independent Undergraduate Research	Vigh
LIFE 102	Attributes of Living Systems	Roess
MGT 450	Biomedical Entrepreneurship I	Tobet

Spring 2011

Course #

Title

Instructors

PVM Courses

VM 619	Veterinary Neurobiology	Fails, Pitcaithley, Whalen
VM 621	Exotic Animal Anatomy and Husbandry	Pitcaithley
VM 640	Biology of Disease I	Bowen
VM 744	Theriogenology	Bowen, Graham
VM 786A	Junior Practicum	Carnevale
VM 786B	Senior Practicum	Carnevale
VM 796F	Group Study – Problem Based Learning	Madl

Graduate Courses

ANeq 550B	Basic Research Surgery – Rodent	Partin
BIOM 592	Seminar	Tobet
BMS 501	Mammalian Physiology II	Anthony, Bowen, Vader, Winger
BMS 531	Domestic Animal Dissection	Frasier, Madl
BMS 545	Neuroanatomy	Fails, Walrond
BMS 633	Domestic Animal Anatomy – Case Discussions	Fails, Frasier
BMS 684	Supervised College Teaching	Clapp, Reist, Seidel, Vader Whalen
BMS 695B	Independent Study – Microscopic Anatomy	Madl

<u>Course #</u>	<u>Title</u>	<u>Instructors</u>
BMS 695C	Independent Study – Neuroanatomy	Madl, Tsunoda
BMS 695F	Independent Study – Gross Anatomy	Frasier
BMS 784	Supervised College Teaching	Frasier
BMS 792A	Seminar – Biomedical Sciences	Partin
BMS 792C	Seminar – Reproductive Physiology	Hansen
BMS 795B	Independent Study – Neurophysiology	Partin, Tsunoda, Vigh
BMS 795D	Independent Study – Cardiopulmonary Physiology	Earley
BMS 795E	Independent Study – Reproductive Physiology	Anthony, Bowen, Carnevale, Graham, Hansen, Seidel, Winger
CM 595	Independent Study	Roess
CM 795	Independent Study	Roess, Tamkun, Tobet
GRAD 544A	Ethical Research – Arts/Humanities	Partin
GRAD 544B	Ethical Research – Life/Human Sciences	Partin
GRAD 544C	Ethical Research – Physical Sciences/Engineering	Partin
MIP 540	Biosafety in Research Labs	Bowen
MIP 636	Mechanisms of Viral Infection & Disease	Bowen
NB 503	Developmental Neurobiology	Ishii, Tobet
NB 505	Neuronal Circuits – Systems, Behavior	Clapp, Hentges, Stone-Roy, Vigh
NB750	Physiology of Ion Channels	Amberg
NB 793	Neuroscience Seminar	Partin
NB 795	Independent Study	Amberg, Earley, Hentges, Partin, Tamkun, Vigh
NB 796A	Group Study -- Ion Channels	Earley
NB 796C	Group Study – Topics in Neuroscience	Reist
NB 796E	Group Study – Neuroendocrine Mechanisms	Tobet
Undergraduate Courses		
ANEQ 310	Animal Reproduction	Graham
BC 495	Independent Study	Tamkun
BMS 124	Sexuality and Health	Nett
BMS 200	Concepts in Human Anatomy and Physiology	Walrond
BMS 260	Biomedical Sciences	Anthony, Miller, Partin
BMS 300	Principles of Human Physiology	Walrond, Magee
BMS 302	Laboratory in Principles of Physiology	Vader
BMS 305	Domestic Animal Gross Anatomy	Frasier, Madl
BMS 330	Microscopic Anatomy	Madl
BMS 345	Functional Neuroanatomy	Clapp, Reist, Stone-Roy
BMS 360	Fundamentals of Physiology	Bouma, Earley, Ishii, Miller
BMS 384	Supervised College Teaching	Clapp, Fails, Reist, Walrond
BMS 405	Nerve & Muscle – Toxins, Trauma & Disease	Ishii, Rash, Tamkun, Whalen
BMS 450	Pharmacology	Amberg, Ishii, Nett
BMS 460	Essentials of Pathophysiology	Madl, Miller, Veeramachaneni
BMS 487	Internship	Miller

<u>Course #</u>	<u>Title</u>	<u>Instructors</u>
BMS 492	Seminar – Pathophysiology of Disease	Miller, Veeramachaneni
BMS 495	Independent Study	Anthony, Frasier, Miller, Reist, Roess, Tobet, Whalen
BMS 496	Group Study	Frasier, Roess
CO 301B	Composition	Miller

Summer 2011

PVM Courses

VM 786B	Senior Practicum	Carnevale
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Graduate Courses

BMS 684	Supervised College Teaching	Clapp, Frasier
BMS 784	Supervised College Teaching	Clapp
NB 795	Independent Study	Partin

Undergraduate Courses

BMS 300	Principles of Human Physiology	Graham, Walrond
BMS 301	Human Gross Anatomy	Clapp, Frasier
BMS 384	Supervised College Teaching	Clapp, Frasier, Walrond
BMS 487	Internship	Miller
BMS 495	Independent Study	Roess

TABLE 9: TRAINING GRANTS — 2010-2011

	<u>Sponsor</u>	<u>Grant Title</u>	<u>Dates</u>
Nett, T. PI	NIH	Training in Mammalian Reproductive Biology	1977-2011
Tobet, S. Co-PI	NSF	GK12 Training grant: 'A Multi-Disciplinary Research and Teaching Program in Biomedical Engineering for Discovery and Understanding of Cell Communication	2009-2014
Hansen, T., Anthony, R., Co-PI	USDA- CSREES	National Needs Graduate Fellowships Program	2010-2014

TABLE 10: AWARDS — 2010-2011

FACULTY AWARDS

Gregory Amberg

Kavli Fellow, Kavli Foundation, National Academy of Sciences
Pew Biomedical Scholar, Pew Charitable Trusts

Richard Bowen

Outstanding Academic Advising Award in Professional Veterinary Medicine Education (2011)

Colin Clay

CVMBS Outstanding Academic Advising Award in Undergraduate Education (2010)

Scott Earley

Pfizer Animal Health Award for Research Excellence (2010)

Anna Fails

CVMBS Outstanding Academic Advising Award in Professional Veterinary Medicine Education (2010)
Innovative Instructional Methodology Award in Graduate Education (2011)

Mark Frasier

CVMBS Outstanding Academic Advising Award in Graduate Education (2010)
Outstanding Academic Advising Award in Undergraduate Education (2011)

Shane Hentges

Pfizer Animal Health Award for Research Excellence (2011)

Terry Nett

Oliver P. Pennock Distinguished Service Award, Colorado State University (2011)

Michael Tamkun

Outstanding Academic Advising Award in Graduate Education (2011)

STAFF AWARDS

Erin Bisenius

CSU Administrative Professional “Star” Award (2011)
CVMBS Outstanding Employee Service Awards (2011)

STUDENT AWARDS -- POSTDOCTORAL

Jennifer Barfield, Ph.D.

USDA National Institute of Food and Agriculture NRI Merit Award,
Society for the Study of Reproduction

STUDENT AWARDS -- GRADUATE

Alfredo Antoniazzi

O.E. Thornburg Undergraduate Research Excellence Award
Department of Biomedical Sciences, CSU

Chelsie Burroughs

USDA National Institute of Food and Agriculture NRI Merit Award,
Society for the Study of Reproduction

Vanessa Enriquez

FASEB MARC Program Poster/Oral Presentation Travel Award,
Society for the Study of Reproduction

Jonathan Harms

O.E. Thornburg Undergraduate Research Excellence Award
Department of Biomedical Sciences, CSU

Jared Romero

Burroughs Wellcome Trainee Travel Award,
Society for the Study of Reproduction

Juliano Silveira

USDA National Institute of Food and Agriculture NRI Merit Award,
Society for the Study of Reproduction
Larry Ewing Travel Award, Society for the Study of Reproduction
O.E. Thornburg Undergraduate Research Excellence Award
Department of Biomedical Sciences, CSU

STUDENT AWARDS -- UNDERGRADUATE

Kyle Carter

Pi Kappa Phi Award
College of Veterinary Medicine and Biomedical Sciences, CSU

College Honors

Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Dawn Claggett

College Honors
Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Leslie Marchand

College Honors

Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Kourtney McCarthy

Biomedical Sciences Undergraduate Awards
Department of Biomedical Sciences, CSU

Sasha Mintz

Biomedical Sciences Undergraduate Awards
Department of Biomedical Sciences, CSU

Adam Phillips

Highest Honors (Colin Clay, Mentor)

Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Colton Pinto

Biomedical Sciences Undergraduate Awards
Department of Biomedical Sciences, CSU

Douglas Robinson

College Honors

Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Melanie Schow

O.E. Thornburg Undergraduate Research Excellence Award
Department of Biomedical Sciences, CSU

College Honors (Stuart Tobet, Mentor)

Celebrate Undergraduate Research and Creativity Presentation Awards
Colorado State University

Michelle Sullivan

David S. Bruce Outstanding Undergraduate Abstract Award
American Physiological Society

Adam Vaudreuil

NSF National Consortium for Measurement and Signature Intelligence Research (NCMR) Scholars
Program Scholarship

Kellie Woll

O.E. Thornburg Undergraduate Research Excellence Award
Department of Biomedical Sciences, CSU

TABLE 11: PUBLICATIONS — 2010-2011

Gregory Amberg

Refereed Journal Articles

Amberg GC, Earley S, Glapa SA. 2010. Local regulation of arterial L-type calcium channels by reactive oxygen species. *Circ Res* 107:1002-1010.

Crnich R, Amberg GC, Leo MD, Gonzales AL, Tamkun MM, Jaggar JH, Earley S. 2010. Dynamic membrane trafficking of TRPM4 in vascular smooth muscle cells mediates myogenic vasoconstriction. *Am J Physiol Cell Physiol* 299:C682-C694.

Gonzales AL, Amberg GC, Earley S. 2010. Ca²⁺ release from the sarcoplasmic reticulum is required for sustained TRPM4 activity in cerebral artery smooth muscle cells. *Am J Physiol Cell Physiol* 299:C279-288.

Gonzales AL, Garcia ZI, Amberg GC, Earley S. 2010. Pharmacological inhibition of TRPM4 hyperpolarizes vascular smooth muscle. *Am J Physiol Cell Physiol* 299:C1195-1202.

Russell Anthony

Refereed Journal Articles

Anthony RV, Cantlon JD, Gates KC, Purcell SH, Clay CM. 2010. Assessing gene function in the ruminant placenta. *Soc Reprod Fertil, Suppl* 67:119-131.

Arroyo JA, Anthony RV, Parker TA, Galan HL. 2010. eNOS, NO, and the activation of ERK and AKT signaling at mid-gestation and near-term in an ovine model of intrauterine growth restriction. *Syst Biol Reprod Med* 56:62-73.

Bott RC, Ashley RL, Henkes LE, Antoniazzi AQ, Bruemmer JE, Niswender GD, Bazer FW, Spencer TE, Smirnova NP, Anthony RV, Hansen TR. 2010. Uterine vein infusion of interferon tau (IFNT) extends luteal lifespan in ewes. *Biol Reprod* 82:725-735.

Bryant TC, Wagner JJ, Tatum JD, Galyean ML, Anthony RV, Engle TE. 2010. Effect of dietary supplemental vitamin A concentration on performance, carcass merit, serum metabolites, and lipogenic enzyme activity in yearling beef steers. *J Anim Sci* 88:1463-1478.

Bryant TC, Engle TE, Galyean ML, Wagner JJ, Tatum JD, Anthony RV, Laudert SB. 2010. Effects of ractopamine and trenbolone acetate implants with or without estradiol on growth performance, carcass characteristics, adipogenic enzyme activity, and blood metabolites in feedlot steers and heifers. *J Anim Sci* 88:4102-4119.

Torley KJ, da Silveira JC, Smith P, Anthony RV, Veeramachaneni DNR, Winger QA, Bouma GJ. 2011. Expression of miRNAs in ovine fetal gonads: potential role in gonadal differentiation. *Reprod Biol Endocrinol* 9:2.

Gerrit Bouma

Refereed Journal Articles

Ashley RL, Henkes LE, Bouma GJ, Pru JK, Hansen TR. 2010. Deletion of the Isg15 gene results in up-regulation of decidual cell survival genes and down-regulation of adhesion genes: implication for regulation by IL-1beta. *Endocrinology* 151:4527-4536.

Bouma GJ, Hudson QJ, Washburn LL, Eicher EM. 2010. New candidate genes identified for controlling mouse gonadal sex determination and the early stages of granulosa and Sertoli cell differentiation. *Biol Reprod* 82:380-389.

Cullingford EL, Stokes JE, Bouma GJ, Seidel GE Jr. 2010. Successful transfer of fresh and vitrified biopsied equine embryos. *Reprod Fertil Dev* 22:237-238.

Lupole RE, Bouma GJ, Clay CM, Seidel GE Jr, Carnevale EM. 2010. Effect of mare age on gene expression of equine zona pellucida proteins and sperm binding. *Anim Reprod Sci* 121S:S252-S253.

Torley KJ, da Silveira JC, Smith P, Anthony RV, Veeramachaneni DNR, Winger QA, Bouma GJ. 2011. Expression of miRNAs in ovine fetal gonads: potential role in gonadal differentiation. *Reprod Biol Endocrinol* 9:2.

Richard Bowen

Refereed Journal Articles

Achenbach JE, Bowen RA. 2011. Transmission of avian influenza A viruses among species in an artificial barnyard. *PLoS One* 6:e17643 (epub).

Basile F, Sibray T, Belisle JT, Bowen RA. 2011. Analysis of lipids from crude lung tissue extracts by desorption electrospray ionization mass spectrometry and pattern recognition. *Anal Biochem* 408:289-296.

Diaz LA, Nemeth NM, Bowen RA, Almiron WR, Contigiani MS. 2011. Comparison of Argentinean Saint Louis encephalitis virus non-epidemic and epidemic strain infections in an avian model. *PLoS Neglect Trop Dis* 5:e1177 (epub).

George DB, Webb CT, Farnsworth ML, O'Shea TJ, Bowen RA, Smith DL, Stanley TR, Ellison LE, Rupprecht CE. 2011. Host and viral ecology determine bat rabies seasonality and maintenance. *Proc Natl Acad Sci USA* 108:10208-10213.

Hunt AR, Bowen RA, Frederickson S, Maruyama T, Roehrig JT, Blair CT. 2011. Treatment of mice with human monoclonal antibody 24h after lethal aerosol challenge with virulent Venezuelan equine encephalitis virus prevents disease but not infection. *Virology* 414:146-152.

Jia Q, Lee BY, Bowen R, Dillon BJ, Som SM, Horwitz MA. 2010. A *Francisella tularensis* live vaccine strain mutant with a deletion in capB, encoding a putative capsular biosynthesis protein, is significantly more attenuated than LVS yet induces potent protective immunity in mice against *F. tularensis* challenge. *Infect Immun* 78:4341-4355.

Kingry LC, Troyer RM, Marlenee NL, Bielefeldt-Ohmann H, Bowen RA, Schenkel AR, Dow SW, Slayden RA. 2011. Genetic identification of unique immunological responses in mice infected with virulent and attenuated *Francisella tularensis*. *Microbes Infect* 13:261-275.

Ledermann JP, Lorono-Pino MA, Elis C, Saxton-Shaw KD, Blitvich BJ, Beaty BJ, Bowen RA, Powers AM. 2011. Evaluation of widely used diagnostic tests to detect West Nile virus infections in horses previously infected with St. Louis encephalitis virus or dengue virus type 2. *Clin Vaccine Immunol* 18:580-587.

Nemeth NM, Bosco-Lauth AM, Sciulli RH, Gose RB, Nagata MT, Bowen RA. 2010. Serosurveillance for Japanese encephalitis and West Nile viruses in resident birds in Hawaii. *J Wildlife Dis* 46:659-664.

O'Shea TJ, Ellison LE, Neubaum DJ, Neubaum MA, Reynolds CA, Bowen RA. 2010. Recruitment in a Colorado population of big brown bats: breeding probabilities, litter size, and first-year survival. *J Mammalogy* 91:418–428.

Osborne C, Cryan PM, O'Shea TJ, Oko LM, Ndaluka C, Calisher CH, Berglund AD, Klavetter ML, Bowen RA, Holmes KV, Dominguez SR. 2011. Alphacoronaviruses in New World bats: Prevalence, persistence, phylogeny, and potential for interaction with humans. *PLoS One* 6:e19156 (epub).

Oesterle, P, Nemeth N, Young G, Mooers N, Elmore S, Bowen R, Doherty P, Hall J, McLean R, Clark L. 2010. Cliff swallows, swallow bugs and West Nile virus: An unlikely transmission mechanism. *Vector Borne Zoonotic Dis* 10:507-513.

Slota KE, Hill AE, Keefe TJ, Bowen RA, Pabilonia KL. 2011. Biosecurity and bird movement practices in upland game bird facilities in the United States. *Avian Dis* 55:180-186.

Slota KE, Hill AE, Keefe TJ, Bowen RA, Pabilonia KL. 2011. Human-bird interactions in the United States upland gamebird industry and the potential for zoonotic disease transmission. *Vector Borne Zoonotic Dis* 11:1115-1123.

Wingfield WE, Rollin BE, Bowen RA. 2010. You have a disaster plan but are you really prepared? *ILAR J* 51:164-170.

Elaine Carnevale

Refereed Journal Articles

Lupole RE, Bouma GJ, Clay CM, Seidel GE Jr, Carnevale EM. 2010. Effect of mare age on gene expression of equine zona pellucida proteins and sperm binding. *Anim Reprod Sci* 121S:S252-S253.

Paccamonti DL, Carnevale EM. 2010. Early embryonic death in mares. *Clin Theriogenol* 2:99-110.

Seidel GE Jr, Cullingford EL, Stokes JE, Carnevale EM, McCue PM. 2010. Pregnancy rates following transfer of biopsied and/or vitrified equine embryos: Evaluation of two biopsy techniques. *Anim Reprod Sci* 121S:S297-S298.

Slough TL, Rispoli LA, Carnevale EM, Niswender GD, Bruemmer JE. 2010. Temporal gene expression in equine corpora lutea based on serial biopsies in vivo. *J Anim Sci* doi. 10.2527/jas.2010-3247.

Chapters and Textbooks

Carnevale EM. 2010. Horses: Commercial oocyte technologies. In: *Encyclopedia of Biotechnology in Agriculture and Food*, Heldman DR, Hoover DG, Wheeler MB (eds). CRC Press, Taylor and Francis Group, LLC, 1:1, pp 332-334.

Carnevale EM. 2010. Mature oocyte collection. In: *Equine Reproduction*, McKinnon AO, Squires EL, Vaala WE, Varner DD (eds). Blackwell Publishing, Ames, IA, pp 2936-2940.

Carnevale EM. 2010. Oocyte transfer. In: *Equine Reproduction*, McKinnon AO, Squires EL, Vaala WE, Varner DD (eds). Blackwell Publishing, Ames, IA, pp 2942-2944.

Carnevale EM, Coutinho da Silva MA. 2010. Assisted reproductive techniques. In: *Equine Internal Medicine*, 3rd Ed., Reed SM, Bayly WM, Sellon DC (eds). W.B. Saunders, St. Louis, MO, pp 1083-1087.

Olsen L, Carnevale EM. 2010. Normal anatomy. In: *Equine Reproduction*, McKinnon AO, Squires EL, Vaala WE, Varner DD (eds). Blackwell Publishing, Ames, IA, pp 2003-2008.

Colin Clay

Refereed Journal Articles

Anthony RV, Cantlon JD, Gates KC, Purcell SH, Clay CM. 2010. Assessing gene function in the ruminant placenta. *Soc Reprod Fertil, Suppl* 67:119-131.

Escudero JM, Haller JL, Clay CM, Escudero KW. 2010. Microarray analysis of Foxl2 mediated gene regulation in the mouse ovary derived KK1 granulosa cell line: Over-expression of Foxl2 leads to activation of the gonadotropin releasing hormone receptor gene promoter. *J Ovarian Res* 3:4.

Lupole RE, Bouma GJ, Clay CM, Seidel GE Jr, Carnevale EM. 2010. Effect of mare age on gene expression of equine zona pellucida proteins and sperm binding. *Anim Reprod Sci* 121S:S252-S253.

Scott Earley

Refereed Journal Articles

Amberg GC, Earley S, Glapa SA. 2010. Local regulation of arterial L-type calcium channels by reactive oxygen species. *Circ Res* 107:1002-1010.

Crnich R, Amberg GC, Leo MD, Gonzales AL, Tamkun MM, Jaggar JH, Earley S. 2010. Dynamic membrane trafficking of TRPM4 in vascular smooth muscle cells mediates myogenic vasoconstriction. *Am J Physiol Cell Physiol* 299:C682-C694.

Earley S. 2010. Vanilloid and melastatin transient receptor potential channels in vascular smooth muscle. *Microcirculation* 17:237-249.

Earley S, Brayden JE. 2010. Transient receptor potential channels and vascular function. *Clin Sci* 119:19-36.

Earley S, Gonzales AL. 2010. (Sub)family feud: Crosstalk between TRPC channels in vascular smooth muscle cells during vasoconstrictor agonist stimulation. *J Physiol* 588:3637-3638.

Earley S, Gonzales AL, Garcia ZI. 2010. A dietary agonist of transient potential cation channel V3 elicits endothelium-dependent vasodilation. *Mol Pharmacol* 77:612-620.

Garcia ZI, Bruhl A, Gonzales AL, Earley S. 2011. Basal protein kinase C δ activity is required for membrane localization and activity of TRPM4 channels in cerebral artery smooth muscle cells. *Channels* 5:210-214.

Gonzales AL, Amberg GC, Earley S. 2010. Ca²⁺ release from the sarcoplasmic reticulum is required for sustained TRPM4 activity in cerebral artery smooth muscle cells. *Am J Physiol Cell Physiol* 299:C279-288.

Gonzales AL, Garcia ZI, Amberg GC, Earley S. 2010. Pharmacological inhibition of TRPM4 hyperpolarizes vascular smooth muscle. *Am J Physiol Cell Physiol* 299:C1195-1202.

Melinda Frye

Refereed Journal Articles

Gentile CL, Frye MA, Pagliassotti MJ. 2010. Fatty acids and the endoplasmic reticulum in nonalcoholic fatty liver disease. *Biofactors* 37:8-16.

Gentile CL, Frye M, Pagliassotti MJ. 2011. Endoplasmic reticulum stress and the unfolded protein

response in nonalcoholic fatty liver disease. *Antioxid Redox Signal* 15:505-521.

Jeckel KM, Miller KE, Chicco AJ, Chapman PL, Mulligan CM, Falcone PH, Miller ML, Pagliassotti MJ, Frye MA. 2011. The role of dietary fatty acids in predicting myocardial structure in fat-fed rats. *Lipids Health Dis* 10:92.

James Graham

Refereed Journal Articles

Kaula N, Andrews A, Durso C, Dixon C, Graham JK. 2010. Classification of hyperactivated spermatozoa using a robust minimum bounding square ratio algorithm. *Conf Proc IEEE Eng Med Biol Sci* 2009:4941-4944.

Mocé E, Purdy PH, Graham JK. 2010. Treating ram sperm with cholesterol-loaded cyclodextrins improves cryosurvival. *Anim Reprod Sci* 118:236-247.

Mocé E, Blanch E, Tomás C, Graham JK. 2010. Use of cholesterol in sperm cryopreservation: Present moment and perspectives to future. *Reprod Dom Anim* 45 (Suppl 2):57-66.

Moraes EA, Graham JK, Torres CAA, Meyers M, Spizziri B. 2010. Delivering cholesterol or cholestanol to bull sperm membranes improves cryosurvival. *Anim Reprod Sci* 118:148-154.

Purdy PH, Mocé E, Stobart R, Murdoch WJ, Moss GE, Larson B, Ramsey S, Graham JK, Blackburn HD. 2010. The fertility of ram sperm held for 24 h at 5°C prior to cryopreservation. *Anim Reprod Sci* 118:231-235.

Spizziri BE, Fox MH, Bruemmer JE, Squires EL, Graham JK. 2010. Cholesterol-loaded-cyclodextrins and fertility potential of stallion spermatozoa. *Anim Reprod Sci* 118:255-264.

Thomas Hansen

Refereed Journal Articles

Arvisais E, Hou X, Wyatt TA, Shirasuna K, Bollwein H, Miyamoto A, Hansen TR, Rueda BR, Davis JS. 2010. Prostaglandin F_{2α} represses IGF-I-stimulated IRS1/ phosphatidylinositol-3-kinase/AKT signaling in the corpus luteum: Role of ERK and P70 ribosomal S6 kinase. *Molec Endocrinol* 24:632-643

Ashley RL, Henkes LE, Bouma GJ, Pru JK, Hansen TR. 2010. Deletion of the Isg15 gene results in up-regulation of decidual cell survival genes and down-regulation of adhesion genes: implication for regulation by IL-1beta. *Endocrinology* 151:4527-4536.

Bott RC, Ashley RL, Henkes LE, Antoniazzi AQ, Bruemmer JE, Niswender GD, Bazer FW, Spencer TE, Smirnova NP, Anthony RV, Hansen TR. 2010. Uterine vein infusion of interferon tau (IFNT) extends luteal lifespan in ewes. *Biol Reprod* 82:725-735.

Hansen TR, Henkes LK, Ashley RL, Bott RC, Antoniazzi AQ, Han H. 2010. Endocrine actions of interferon-tau in ruminants. *J Reprod Fertil* 1-22.

Hansen TR, Smirnova NP, Van Campen H, Shoemaker ML, Ptitsyn AA, Bielefeldt-Ohmann H. 2010. Maternal and fetal response to fetal persistent infection with Bovine Viral Diarrhea Virus. *Am J Reprod Immun* 64:295-306.

Shane Hentges

Refereed Journal Articles

Gallagher SK, Witkovsky P, Roux MJ, Low MJ, Otero-Corchon V, Hentges ST, Vigh J. beta-Endorphin expression in the mouse retina. *J Comp Neurol* 518:3130-3148.

Pennock RL, Hentges ST. 2011. Differential expression and sensitivity of pre- and postsynaptic opioid receptors regulating hypothalamic proopiomelanocortin neurons. *J Neurosci* 31:281-288.

Terry Nett

Refereed Journal Articles

Arreguin-Arevalo JA, Ashley RL, Wagenmaker ER, Oakley AE, Karsch FJ, Nett TM. 2010. Membrane-initiated actions of estradiol (E2) in the regulation of LH secretion in ovariectomized (OVX) ewes. *Reprod Biol Endocrinol* 8:40.

Tsutahara NM, Weems YS, Arreguin-Arevalo JA, Nett TM, Laporte ME, Uchida J, Pang J, McBride T, Randel RD, Weems CW. 2010. Effects of endocannabinoid 1 and 2 (CB1; CB2) receptor agonists on luteal weight, circulating progesterone, luteal mRNA for luteinizing hormone (LH) receptors, and luteal unoccupied and occupied receptors for LH in vivo in ewes. *Prost Other Lipid Mediat* 94:17-24.

Weems YS, Nett TM, Rispoli LA, Davis TL, Johnson DL, Uchima T, Raney A, Lennon E, Herbert T, Bowers G, Tsutahara N, Randel RD, Weems CW. 2010. Effects of prostaglandin E and F receptor agonists in vivo on luteal function in ewes. *Prost Other Lipid Mediat* 92:67-72.

Weems YS, Nett TM, Rispoli LA, Davis TL, Johnson DL, Uchima T, Raney A, Lennon E, Pang J, Herbert T, Bowers G, Goto K, Ong A, Tsutahara N, Randel RD, Weems CW. 2010. Prostaglandin E1 (PGE1), but not prostaglandin E2 (PGE2), alters luteal and endometrial luteinizing hormone (LH) occupied and unoccupied LH receptors and mRNA for LH receptors in ovine luteal tissue to prevent luteolysis. *Prost Other Lipid Mediat* 91:42-50.

Sandra Pitcaithley

Computer Programs

Pitcaithley S. 2010. The Virtual Veterinary Anatomy of the Snake. Interactive Computer Program.

John Rash

Refereed Journal Articles

Hoge GJ, Davidson KG, Yasumura T, Castillo PE, Rash JE, Pereda AE. 2011. The extent and strength of electrical coupling between inferior olivary neurons is heterogeneous. *J Neurophysiol* 105:1089-1101.

Nagy JJ, Lynn BD, Tress O, Willecke K, Rash JE. 2011. Connexin26 expression in brain parenchymal cells demonstrated by targeted connexin ablation in transgenic mice. *Eur J Neurosci* 34:263-271.

Rash JE. 2010. Molecular disruptions of the panglial syncytium block potassium siphoning and axonal saltatory conduction: Pertinence to neuromyelitis optica and other demyelinating diseases of the central nervous system. *Neuroscience* 168:982-1008.

Chapters and Textbooks

Dudek FE, Shao L-R, Rash JE. 2010. Possible roles of nonsynaptic mechanisms in synchronization of epileptic seizures: Potential antiepileptic targets? In: *Epilepsy: Mechanisms, Models, and Translational Perspectives*, Rho JM, Sankar R, Stafstrom CE (eds). Chapter 13:209-228.

Noreen Reist

Refereed Journal Articles

Paddock BE, Wang Z, Biela LM, Chen K, Getzy MD, Striegel A, Richmond JE, Chapman ER, Featherstone DE, Reist NE. 2011. Membrane penetration by synaptotagmin is required for coupling calcium binding to vesicle fusion in vivo. *J Neurosci* 31:2248-2257.

Chapters and Textbooks

Loewen CA, Reist NE. 2010. Synaptotagmin: Transducing Ca²⁺-binding to vesicle fusion. In: *Molecular Mechanisms of Neurotransmitter Release*, Wang Z-W (ed). Humana Press, NJ, pp 107-134.

Barbara Sanborn

Refereed Journal Articles

Chung D, Kim YS, Phillips JN, Ulloa A, Ku CY, Galan HL, Sanborn BM. 2010. Attenuation of TRPC6 expression specifically reduces the diacylglycerol-mediated increase in intracellular calcium in human myometrial cells. *Endocrinology* 151:406-416.

Ku CY, Murtazina DA, Kim YS, Garfield RE, Sanborn BM. 2010. Changes in rat myometrial plasma membrane protein kinase A are confined to parturition. *Reprod Sci* 17:696-704.

George Seidel

Refereed Journal Articles

Barcelo-Fimbres ML, Campos-Chillon F, Seidel GE Jr. 2010. In vitro fertilization using nonsexed and sexed bovine sperm: Sperm concentration, sorter pressure, and bull effects. *Reprod Dom Anim* 46:495-502.

Barcelo-Fimbres M, Seidel GE Jr. 2010. Cross-validation of techniques for measuring lipid content of bovine oocytes and embryos. *Theriogenology* 75:434-444.

Cullingford EL, Squires EL, McCue PM, Seidel GE Jr. 2010. Attempts at superovulation of mares with porcine follicle stimulating hormone and recombinant equine follicle stimulating hormone. *J Equine Vet Sci* 30:305-309.

Cullingford EL, Stokes JE, Bouma GJ, Seidel GE Jr. 2010. Successful transfer of fresh and vitrified biopsied equine embryos. *Reprod Fertil Dev* 22:237-238.

Lupole RE, Bouma GJ, Clay CM, Seidel GE Jr, Carnevale EM. 2010. Effect of mare age on gene expression of equine zona pellucida proteins and sperm binding. *Anim Reprod Sci* 121S:S252-S253.

Mahmoud KGM, Scholkamy TH, Ahmed YF, Seidel GE Jr, Nawito MF. 2010. Effect of different combinations of cryoprotectants on in vitro maturation of immature buffalo (*Bubalus bubalis*) oocytes vitrified by straw and open-pulled straw methods. *Reprod Dom Anim*. 45:565-571.

Peel RK, Whittier JC, Enns RM, Grove AV, Seidel GE Jr. 2010. Effect of 6- versus 12-hour interval between 2 prostaglandin F_{2α} injections administered with 5-day CO synch + controlled internal drug-release protocol on pregnancy rate in beef cows. *Prof Anim Sci* 26:307-312.

Seidel GE Jr. 2010. Brief introduction to whole genome selection in cattle using single nucleotide polymorphisms. *Reprod Fertil Dev* 22:138-144.

Seidel GE Jr, Cullingford EL, Stokes JE, Carnevale EM, McCue PM. 2010. Pregnancy rates following transfer of biopsied and/or vitrified equine embryos: Evaluation of two biopsy techniques. *Anim Reprod*

Cynthia Smeraski

Refereed Journal Articles

Smeraski CA, Siddharthan V, Morrey JD. 2011. Treatment of spatial memory impairment in hamsters infected with West Nile virus using a humanized monoclonal antibody MGAWN1. *Antiviral Res* 91:43-49.

Natalia Smirnova

Refereed Journal Articles

Bott RC, Ashley RL, Henkes LE, Antoniazzi AQ, Bruemmer JE, Niswender GD, Bazer FW, Spencer TE, Smirnova NP, Anthony RV, Hansen TR. 2010. Uterine vein infusion of interferon tau (IFNT) extends luteal lifespan in ewes. *Biol Reprod* 82:725-735.

Hansen TR, Smirnova NP, Van Campen H, Shoemaker ML, Ptitsyn AA, Bielefeldt-Ohmann H. 2010. Maternal and fetal response to fetal persistent infection with Bovine Viral Diarrhea Virus. *Am J Reprod Immun* 64:295-306.

Leslie Stone-Roy

Refereed Journal Articles

Huang Y.A., Stone L.M., Pereira E., Yang R., Kinnamon J.C., Dvorvanchikov G., Chaudhari N., Finger T.E., Kinnamon S.C. and Roper S.D. (2011) Knocking out P2X receptors reduces transmitter secretion in taste buds. *J. Neurosci.* 31(38):13654-61.

Mike Tamkun

Refereed Journal Articles

Crnich R, Amberg GC, Leo MD, Gonzales AL, Tamkun MM, Jaggar JH, Earley S. 2010. Dynamic membrane trafficking of TRPM4 in vascular smooth muscle cells mediates myogenic vasoconstriction. *Am J Physiol Cell Physiol* 299:C682-C694.

O'Connell KM, Loftus R, Tamkun MM. 2010. Localization-dependent activity of the Kv2.1 delayed-rectifier K⁺ channel. *Proc Natl Acad Sci.* 107:12351-12356.

Weigel AV, Tamkun MM, Krapf D. 2010. Anomalous diffusion of kv2.1 channels observed by single molecule tracking in live cells. *Conf Proc IEEE Eng Med Biol Soc* 1:3005-3008.

Weigel AV, Simon B, Tamkun MM, Krapf D. 2011. Ergodic and nonergodic processes coexist in the plasma membrane as observed by single-molecule tracking. *Proc Natl Acad Sci USA* 108:6438-6443.

Stuart Tobet

Refereed Journal Articles

Bonthuis PJ, Cox KH, Searcy BT, Kumar P, Tobet S, Rissman EF. 2010. Of mice and rats: Key species variations in the sexual differentiation of brain and behavior. *Front Neuroendocrinol* 31:341-358.

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Susan Tsunoda

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D.N. Rao Veeramachaneni

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Jozsef Vigh

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Quinton Winger

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**TABLE 12: RESEARCH GRANT EXPENDITURES (EXTRAMURAL and INTRAMURAL)
FISCAL YEAR 2011**

Principal Investigator	Sponsor	Project Title	Account(s)	Fiscal Year 2011 (7/1/10-6/30/11)			6 Months Ending 6/30/10		
				Direct	Indirect	Total	Direct	Indirect	Total
Amberg, Greg	American Heart Association	Calcium Sparklets During Hypertension	5350150	4,336	434	4,770	\$ 41,199	\$ 4,118	\$ 45,317
Amberg, Greg	Pew Foundation	Local Regulation of Calcium Sparklets	5353960	32,681	2,615	35,296	\$ -	\$ -	\$ -
Amberg, Greg Total				37,017	3,049	40,066	\$ 41,199	\$ 4,118	\$ 45,317
Anthony, Russ	College Research Council	Placental Fetal Hormonal Interactions	1544210, 1544240	28,000	-	28,000	\$ 15,492		\$ 15,492
Anthony, Russ	CSU Foundation Fund	Hill Professorship - Research Lab Support	6457810	85,660	-	85,660	\$ 21,878		\$ 21,878
Anthony, Russ	USDA-CSREES	Function and Regulation of PRR15 in Sheep	5314010	69,656	19,640	89,296	\$ 41,222	\$ 11,623	\$ 52,845
Anthony, Russ	USDA-NIFA (Hansen)	National Needs Graduate Fellowship Program	5320740	-	-	-			\$ -
Anthony, Russ	USDA-NRI (Han)	Maternal Undernutrition On Fetal & Postnatal GH/IGF System in Sheep	5315020	-	-	-			\$ -
Anthony, Russ Total				183,316	19,640	202,956	\$ 78,592	\$ 11,623	\$ 90,215
Ashley, Ryan	USDA (Hansen)	Pregnancy-Induced Chemokine Receptor	5315500	9,246	-	9,246	\$ 27,320	\$ -	\$ 27,320
Ashley, Ryan Total				9,246	-	9,246	\$ 27,320	\$ -	\$ 27,320
Bouma, Gerrit	College Research Council	Disruption of Reproductive Tract Development & Germ Cell Differentiation	1544010, 1544040	-	-	-	\$ 20,017		\$ 20,017
Bouma, Gerrit	College Research Council	MiRNAs in Normal & Abnormal Sheep Placental Function & Development	1491020	28,843	-	28,843			\$ -
Bouma, Gerrit	CSU Foundation Fund	Preservation Equine Genetics Grant	6457980	29,614	-	29,614	\$ 5,600		\$ 5,600
Bouma, Gerrit	NIH-CHHD	Regulation of Fetal Ovarian Development	5376810	27,881	13,107	40,988	\$ -	\$ -	\$ -
Bouma, Gerrit	University of Colorado-Denver	Exosomal MicroRNAs in Ovarian Cancer Stem Cells	5302410	12,671					
Bouma, Gerrit Total				99,009	13,107	99,445	\$ 25,617	\$ -	\$ 25,617
Bowen, Richard	CDC	Zoonotic Avian Influenza: The Human-Animal (includes subcontracts)	5344040	428,839	31,782	460,621	\$ 337,749	\$ 36,436	\$ 374,185
Bowen, Richard	DOE-NNSA-Lawrence Livermore	The Role of RNA Virus Quasispecies Dynamics	5339140	2,636	1,253	3,889			
Bowen, Richard	GlaxoSmithKline (Belisle)	Evaluation of GSK2145083 - Pharmacokinetics	5399560	-	-	-			\$ -
Bowen, Richard	Intervet	Duration of Immunity Testing in Horses	5363840	-	-	-	\$ 4,590	\$ 1,193	\$ 5,783
Bowen, Richard	Merial	Evaluation of Efficacy of a Multivalent West Nile	5382480	11,455	2,978	14,433	\$ 9,788	\$ 2,545	\$ 12,333
Bowen, Richard	Merial	Evaluation of the Immunogenicity	5369010	53,372	13,617	66,989			\$ -
Bowen, Richard	Merial	West Nile Virus Lineage 2 (WNV2) in Horses	5360500, 5362120	22	6	28	\$ 34,638	\$ 9,006	\$ 43,644
Bowen, Richard	NIH-NIAID (MIP)	CO-002 Core C: Animal Models Core and Program Income	5378140, 5399270, 5399280	-	-	-			\$ -
Bowen, Richard	Sumagen (Belisle)	Evaluation of Adventitious Agents in Test Article	5399550	-	-	-			\$ -
Bowen, Richard	U of California	Research Services Agreement 1560 P NA513	5343260	21,531	10,227	31,758			
Bowen, Richard	U of Texas	US Based Collaboration in Emerging Viral & Prion Diseases	5375100, 5375500	26,751	12,041	38,792	\$ 20,622	\$ 8,315	\$ 28,937
Bowen, Richard	U of Wyoming	Brucellosis: New Vaccines and Diagnostic	5313590	13,434	-	13,434			\$ -
Bowen, Richard	USDA-APHIS	Indonesian HPIA Testing Cooperative Agreement	5320790	23,476	2,347	25,823	\$ 1,301	\$ 130	\$ 1,431
Bowen, Richard	USDA-APHIS	Wild Animals in the US & Japanese Encephalitis	5320220, 5320770	76,771	7,679	84,450	\$ 80,298	\$ 8,030	\$ 88,328
Bowen, Richard	USDA-APHIS	Wildlife Surveillance in Southeast Asia	5320180, 5380010	3,384	339	3,723	\$ 25,446	\$ 2,545	\$ 27,991
Bowen, Richard	USDA-ARS	Development of Diagnostic for Rift Valley Fever	5321630	24,218	-	24,218	\$ 45,502		\$ 45,502
Bowen, Richard	USDA-ARS	Research on Arthropod-Borne Diseases of Livestock	5321640, 5321920	5,595	-	5,595	\$ 48,792		\$ 48,792
Bowen, Richard	USDA-ARS	RVF Vaccine Evaluation Using Small Animal Models	5320780	31,584	-	31,584	\$ 12,000		\$ 12,000
Bowen, Richard Total				723,068	82,269	805,337	\$ 620,726	\$ 68,200	\$ 688,926
Brummer, Jason	AQHA	The Role of Prostaglandin Transporter	5307540	26,675	-	26,675	\$ 18,039		\$ 18,039
Brummer, Jason	CSU Foundation Fund	Preservation Equine Genetics Grant	6457980, 2780600	18,340	-	18,340	\$ 15,959		\$ 15,959
Brummer, Jason Total				45,015	-	45,015	\$ 33,998	\$ -	\$ 33,998
Carnevale, Elaine	College Research Council	Effect of Aging and Oocyte Maturity on mRNA Content	1495510	-	-	-	\$ 17,228	\$ -	\$ 17,228
Carnevale, Elaine	Hylton Foundation	Development of Assisted Reproductive Techniques for Mares and Stallions	5354570	86,555	-	86,555	\$ 14,290		\$ 14,290
Carnevale, Elaine	Middle Tennessee State U	Direct Molecular Analysis of the Equine	5349220	8,499	1,869	10,368	\$ -		\$ -
Carnevale, Elaine Total				95,054	1,869	96,923	\$ 31,518	\$ -	\$ 31,518
Clay, Colin	Cancer Supercluster	Identification of Breast Cancer	1328524	20,960	-	20,960			\$ -
Clay, Colin	College Research Council	Acute Regulation of GnRH Signaling by Estradiol-17Beta	1544110, 1544140	19,998	-	19,998	\$ -		\$ -
Clay, Colin	College Research Council	Estrogen Regulation of the Ovine Hypothalamic & Pituitary Transcriptomes	1491110	-	-	-	\$ 6,238		\$ 6,238
Clay, Colin	CSU Foundation Fund	Preservation Equine Genetics Grant	6457980, 6458890, 6458880, 6466100	14,746	-	14,746	\$ 11,432		\$ 11,432
Clay, Colin	NIH-CHHD (Nett)	Physiological Mechanisms Underlying Heightened	5345520	93,710	44,052	137,762			\$ -
Clay, Colin Total				149,414	44,052	193,466	\$ 17,670	\$ -	\$ 17,670
Earley, Scott	GlaxoSmithKline	Effects of Novel TRPV4 Channel Blockers	5363820	-	-	-	\$ 1,222	\$ 122	\$ 1,344
Earley, Scott	NIH-NHLBI	TRP Channel-Dependent Regulation of Aterial Tone	5376440	298,047	99,810	397,857	\$ 237,127	\$ 33,469	\$ 270,596
Earley, Scott	NIH-NHLBI - ARRA	TRP Channel-Dependent Regulation of Aterial Tone - ARRA	5376020	19,355	9,104	28,459	\$ 54,991	\$ 24,660	\$ 79,651
Earley, Scott Total				317,402	108,914	426,316	\$ 293,340	\$ 58,251	\$ 351,591
Eby, Lindsey	Morris Animal Foundation (Nett)	Evaluation of GnRH Vaccine	5352530	1,166	-	1,166	\$ 2,832		\$ 2,832
Eby, Lindsey Total				1,166	-	1,166	\$ 2,832	\$ -	\$ 2,832
Frye, Melinda	College Research Council	The Visceral Adipose as a Link Between Western Diet & Cardomyopathy	1686120	-	-	-	\$ 17,065		\$ 17,065
Frye, Melinda	NIH-NCCR	A Rodent Model to Study Links Among Diet	5349190	114,287	9,145	123,432	\$ 7,005	\$ 560	\$ 7,565
Frye, Melinda Total				114,287	9,145	123,432	\$ 24,070	\$ 560	\$ 24,630
Gonzales, Albert	NIH-NHLBI (Earley)	Role of TRP Channels and Calcium Signaling w/ Institutional Allowance	5349020, 5337110	26,884	-	26,884	\$ 12,753		\$ 12,753
Gonzales, Albert Total				26,884	-	26,884	\$ 12,753	\$ -	\$ 12,753
Graham, James	College Research Council	Changing Sperm Membranes to Enhance Cryopreservation	1491120, 6467630, 1491220, 6457950	24,005	-	24,005	\$ 20,908		\$ 20,908

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				Direct	Indirect	Total	Direct	Indirect	Total
Graham, James	CSU Foundation Fund/Hylton	Preservation Equine Genetics Grant	6457980, 5354570	39,859	-	39,859	\$ 17,611		\$ 17,611
Graham, James Total				63,864	-	63,864	\$ 38,519	\$ -	\$ 38,519
Hansen, Thomas	College Research Council	Endocrine Mechanism of Maternal Recognition of Pregancy in Sheep	1541710, 1541720, 1541740	25,996	-	25,996	\$ 14,617		\$ 14,617
Hansen, Thomas	CSU Foundation Fund	ARBL Bridge Support	6466850	9,926	-	9,926	\$ -		\$ -
Hansen, Thomas	CSU Foundation Fund	Cancer Comparative Medicine	6466990	13,992	-	13,992	\$ 30,665		\$ 30,665
Hansen, Thomas	CSU Foundation Fund	Development Of Frozen Stallion Semen	6456190	2,922	-	2,922	\$ 10,314		\$ 10,314
Hansen, Thomas	CSU Foundation Fund	Equine Comparative Medicine	6467050	17,192	-	17,192	\$ 464		\$ 464
Hansen, Thomas	CSU Foundation Fund	Lucy G Whittier Equine Preservation Fund	6466100	11,088	-	11,088	\$ 8,351		\$ 8,351
Hansen, Thomas	CSU Foundation Fund	Maternal Aging and Reproductive Efficiency in Mares	6467060	10,135	-	10,135	\$ 5,570		\$ 5,570
Hansen, Thomas	CSU Foundation Fund	Traubert Professorship - Research Lab Support	6456200	46,995	-	46,995	\$ 12,734		\$ 12,734
Hansen, Thomas	USDA-CSREES	Maternal & Fetal Response	5314620	81,353	20,339	101,692	\$ 52,398	\$ 13,101	\$ 65,499
Hansen, Thomas	USDA-NIFA	Endocrine Action of Interferon-Tau	5314000	36,057	10,160	46,217	\$ -	\$ -	\$ -
Hansen, Thomas	USDA-NIFA	National Needs Graduate Fellowship Program	5320740	70,933	-	70,933	\$ 3,333		\$ 3,333
Hansen, Thomas Total				326,589	30,499	357,088	\$ 138,446	\$ 13,101	\$ 151,547
Hentges, Shane	NIH-DDK	Hypothalamic Circuits Regulating Energy	5376380	229,351	98,048	327,399	\$ 92,140	\$ 43,305	\$ 135,445
Hentges, Shane	NIH-DDK	Hypothalamic Circuits Regulating Energy - ARRA	5376560	94,708	-	94,708	\$ 4,891		\$ 4,891
Hentges, Shane Total				324,059	98,048	422,107	\$ 97,031	\$ 43,305	\$ 140,336
Ishii, Doug	CSU Foundation Fund	Alzheimer's Disease Research & Development	6454600	1,399	-	1,399	\$ -	\$ -	\$ -
Ishii, Doug	CSU Foundation Fund	Diabetic Neuropathy Research Development	6459920	69	-	69	\$ 69	\$ -	\$ 69
Ishii, Doug Total				1,468	-	1,468	\$ 69	\$ -	\$ 69
Magee, Christianne	AQHA (Clay)	Kisspeptin Mediated Regulation of the Equine	5307490	43,008	-	43,008	\$ 5,120		\$ 5,120
Magee, Christianne Total				43,008	-	43,008	\$ 5,120	\$ -	\$ 5,120
McCue, Patrick	CSU Foundation Fund	Equine Reproduction Laboratory	6466470	21,618	-	21,618	\$ 29,409		\$ 29,409
McCue, Patrick	CSU Foundation Fund	Equine Fertility Research	6459930	2,754	-	2,754	\$ -	\$ -	\$ -
McCue, Patrick	CSU Foundation Fund/Hylton (Hansen)	Preservation Equine Genetics Grant	6467050, 6456190	7,955	-	7,955	\$ 1,778		\$ 1,778
McCue, Patrick Total				32,327	-	32,327	\$ 31,187	\$ -	\$ 31,187
Nett, Torrance	College Research Council	Chemical Castration Induced by a Combination of Two Different Cytotoxins	1522010, 1522020	30,996	-	30,996	\$ -	\$ -	\$ -
Nett, Torrance	College Research Council	Transfection of the Gen for Diphtheria Toxin A Chain-Glycoprotein	1522010, 1544040	-	-	-	\$ 16,785		\$ 16,785
Nett, Torrance	Morris Animal Foundation	Development of New, More Efficacious Technology	5352590	-	-	-	\$ 41,323	\$ 3,300	\$ 44,623
Nett, Torrance	Morris Animal Foundation	Effects of Maternal GnRH Antibody Transfer	5354720	86	7	93	\$ 6,438	\$ 515	\$ 6,953
Nett, Torrance	Morris Animal Foundation	Field Evaluation of the Immunocontraceptive GnRH Vaccine	5352110	33,631	2,689	36,320	\$ -	\$ -	\$ -
Nett, Torrance	National Park Service	Evaluation of the Effects of Fertility Control on the Reproductive	5341760	8,319	1,456	9,775	\$ 34,952	\$ 6,119	\$ 41,071
Nett, Torrance	National Park Service	Technical Support to Evaluate Fertility Control	5310160	280	49	329	\$ 8,981	\$ 1,572	\$ 10,553
Nett, Torrance	NIH-CHHD	Training in Mammalian Reproductive Biology	5379070	66,483	4,185	70,668	\$ 54,049	\$ 3,311	\$ 57,360
Nett, Torrance	Pennatek	Evaluation of Serum Concentrations of LH in Rats	5369890	7,100	3,339	10,439	\$ 11,496	\$ 5,404	\$ 16,900
Nett, Torrance	Pfizer	Pfizer Inc Service Contract	5361160	11,701	5,503	17,204	\$ -	\$ -	\$ -
Nett, Torrance	PGX Health	Validation of Assays for and Measurement of TSH	5363790	84,216	39,580	123,796	\$ 19,821	\$ 9,321	\$ 29,142
Nett, Torrance	Thorn BioScience	Validation of Hormone Assays in Pig Serum	5362510	11,631	3,025	14,656	\$ 6,091	\$ 6,394	\$ 12,485
Nett, Torrance	USDA-CSREES	Use of Toxin Genes for Chemical Castration	5314150	74,082	20,893	94,975	\$ 22,681	\$ 6,394	\$ 29,075
Nett, Torrance Total				328,525	80,726	409,251	\$ 222,617	\$ 42,330	\$ 264,947
Partin, Kathy	NIH-NIMH	Glutamate Receptor Desensitization	5344990	278,242	120,318	398,560	\$ 101,740	\$ 46,297	\$ 148,037
Partin, Kathy Total				278,242	120,318	398,560	\$ 101,740	\$ 46,297	\$ 148,037
Rash, John	Einstein College of Medicine	Plasticity of Electrical Synapses	5327800	18,509	8,699	27,208	\$ 15,470	\$ 7,271	\$ 22,741
Rash, John	NIH-CSR	Connexins in Neuronal and Glial Gap Junction	5376320	321,296	104,440	425,736	\$ 180,101	\$ 52,809	\$ 232,910
Rash, John	NIH-NCCR	JEOL Model JEM-1400	5344260	-	-	-	\$ 719,350		\$ 719,350
Rash, John Total				339,805	113,139	452,944	\$ 914,921	\$ 60,080	\$ 975,001
Reist, Noreen	College Research Council	Role of Electrostatic Repulsion in Ca2+-Dependent	1686122	19,991	-	19,991	\$ -	\$ -	\$ -
Reist, Noreen	NIH-NDS	Mutational Analysis of Synaptotagmin	5377070	15,061	6,778	21,839	\$ 17,975	\$ 8,091	\$ 26,066
Reist, Noreen	NSF	Functional Analysis of Synaptotagmin Domain	5396350, 5396370	20,030	7,213	27,243	\$ -	\$ -	\$ -
Reist, Noreen Total				55,082	13,991	69,073	\$ 17,975	\$ 8,091	\$ 26,066
Roess, Deborah	College Research Council	Effects on Agin & Metabolic Status on Hormone Responsiveness	1495800	20,003	-	20,003	\$ -	\$ -	\$ -
Roess, Deborah	College Research Council	Redistributing Insulin Receptors on Membranes of Insulin-Resistant	1491100	-	-	-	\$ 8,984		\$ 8,984
Roess, Deborah Total				20,003	-	20,003	\$ 8,984	\$ -	\$ 8,984
Sanborn, Barbara	NIH-NICHD	The Role of Trp Proteins in Myometrial Calcium	5345000	40,355	18,160	58,515	\$ 22,531	\$ 10,076	\$ 32,607
Sanborn, Barbara	NIH-NICHD	Uterine Relaxing Factors: Molecular Aspects	5346380	8,133	3,665	11,798	\$ 12,553	\$ 5,650	\$ 18,203
Sanborn, Barbara	NIH-NICHD-ARRA	Uterine Relaxing Factors: Molecular Aspects - ARRA	5346390	358	167	525	\$ 418	\$ 196	\$ 614
Sanborn, Barbara Total				48,846	21,992	70,838	\$ 35,502	\$ 15,922	\$ 51,424
Seidel, George	College Research Council	Vitrification of In-Vitro-Produced Bovine Embryos	1543210, 1543240	21,997	-	21,997	\$ -	\$ -	\$ -
Seidel, George	CSU Foundation Fund	Bovine Research & Development	6456140	18,848	-	18,848	\$ -	\$ -	\$ -
Seidel, George	CSURF Royalty	Research Lab Support	1472020	115,945	-	115,945	\$ 115,951	\$ -	\$ 115,951
Seidel, George	Hylton Foundation	Preservation Equine Genetics Grant	5354570	30,451	-	30,451	\$ 11,436		\$ 11,436

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Seidel, George	USDA-CSREES	Integrating In-Vitro Embryo Technologies	5314940	12,690	-	12,690	\$ 11,710	\$ 199	\$ 11,909
Seidel, George Total				199,931	-	199,931	\$ 139,097	\$ 199	\$ 139,296
Smeraski, Cynthia	NIH-NDS	Neurological Sequelae in Survivors	5376300	-	-	-	\$ 17,442	\$ 8,198	\$ 25,640
Smeraski, Cynthia Total				-	-	-	\$ 17,442	\$ 8,198	\$ 25,640
Smirnova, Natalia	College Research Council	Persistent Infection with Bovine Diarrhea Virus Impairs Osteoclast	1544010, 1544020	24,998	-	24,998	\$ -	\$ -	\$ -
Smirnova, Natalia Total				24,998	-	24,998	\$ -	\$ -	\$ -
Stone-Roy, Leslie	U of Colorado-Denver	Transmission of Taste Signals in Taste	5327740	-	-	-	\$ 430	\$ 200	\$ 630
Stone-Roy, Leslie Total				-	-	-	\$ 430	\$ 200	\$ 630
Tamkun, Michael	Lundbeck Research USA	Melanopsin Antagonists	5369650	-	-	-	\$ 765	\$ 360	\$ 1,125
Tamkun, Michael	NIH-NIGM	Kv2.1 Membrane Corrals: Regulators of K+	5344970, 5344970	141,579	61,632	203,211	\$ 168,729	\$ 30,939	\$ 199,668
Tamkun, Michael	NIH-NIGM-ARRA	Kv2.1 Membrane Corrals: Regulators of K+ - ARRA	5345270	117,592	49,645	167,237	\$ 143,603	\$ 24,466	\$ 168,069
Tamkun, Michael Total				259,171	111,277	370,448	\$ 313,097	\$ 55,765	\$ 368,862
Tobet, Stu	Brigham & Women's Hospital	Animal Models of Sex-Specific HPA Axis	5343250	166,503	78,248	244,751	\$ 185,787	\$ 44,742	\$ 230,529
Tobet, Stu	NIH-NIMH	Cellular Differentiation in the Development	5345920	243,450	97,522	340,972	\$ 130,578	\$ 45,014	\$ 175,592
Tobet, Stu	U of Mass.	Migration of Early Olfactory Neuronal	5375270	-	-	-	\$ 22,337	\$ 10,496	\$ 32,833
Tobet, Stu Total				409,953	175,770	585,723	\$ 338,702	\$ 100,252	\$ 438,954
Tsunoda, Susuan	NIH-NIGMS	Localization and Regulation of Shal K+ Channels	5376530, 5376790	181,489	71,406	252,895	\$ 34,256	\$ 16,100	\$ 50,356
Tsunoda, Susuan Total				181,489	71,406	252,895	\$ 34,256	\$ 16,100	\$ 50,356
Veeramachaneni, D Rao	College Research Council	Are Seminomas in Dogs Mostly Spermatocytic?	1491130, 6466620	-	-	-	\$ 12,233		\$ 12,233
Veeramachaneni, D Rao	College Research Council	Characterization of Canine Testicular Tumors	1686021, 6457750, 6457780	10,000	-	10,000			\$ -
Veeramachaneni, D Rao Total				10,000	-	10,000	\$ 12,233	\$ -	\$ 12,233
Vigh, Jozsef	College Research Council	Establishing a Chemically Induced Photoreceptor Degenerations Model	1686121	20,000	-	20,000	\$ -	\$ -	\$ -
Vigh, Jozsef	NIH-CSR	Functional Analysis of Retinal Inhibitor	5377110	215,813	73,519	289,332	\$ 129,205	\$ 37,537	\$ 166,742
Vigh, Jozsef Total				235,813	73,519	309,332	\$ 129,205	\$ 37,537	\$ 166,742
Whalen, Ray	CSU Foundation Fund	Virtual Canine Anatomy	6466490	4,903	-	4,903	\$ -	\$ -	\$ -
Whalen, Ray Total				4,903	-	4,903	\$ -	\$ -	\$ -
Winger, Quint	College Research Council	Engineering Gene Specific Mutations in Bovine Embryos	1491210	27,000	-	27,000	\$ -	\$ -	\$ -
Winger, Quint	College Research Council	Investigating the Role of Pluripotency Factor in Sheep Trophoblast	1544110, 1544120	-	-	-	\$ 28,038		\$ 28,038
Winger, Quint	NIH-CHHD	Regulation of Trophoblast Proliferation	5376110	10,745	5,052	15,797	\$ -	\$ -	\$ -
Winger, Quint Total				37,745	5,052	42,797	\$ 28,038	\$ -	\$ 28,038
Grand Total				5,026,699	1,197,782	6,211,810	\$ 3,834,246	\$ 590,129	\$ 4,424,375

**TABLE 13: NEW and RENEWED GRANT AWARDS (EXTRAMURAL)
FISCAL YEAR 2011**

PI Last Name	Investigators	Sponsor	Title	Contract #	Award Date	Amount
Amberg	Gregory Amberg (Primary PI)-1680	PEW Charitable Trusts*	Local Regulation of Calcium Sparklets by Reactive Oxygen Species	2009-000359-019	8/9/2010	\$240,000
Amberg Total						\$240,000
Bouma	Gerrit J Bouma (Primary PI)-1680	University of Colorado Denver	Exosomal MicroRNAs in Ovarian Cancer Stem Cells	FY11.301.002 Proj # 2-5-27219	4/22/2011	\$30,000
Bouma	Gerrit J Bouma (Primary PI)-1680	HHS-NIH-Child Health and Human Develop	Regulation of Fetal Ovarian Development by GATA4	1 R03 HD058909-01A2	9/2/2010	\$73,500
Bouma Total						\$103,500
Bowen	Richard A Bowen (Primary PI)-1680	University of California, Los Angeles	Research Services Agreement 1560 P NA513	PO 1560 P NA513	1/18/2011	\$31,758
Bowen	Richard A Bowen (Primary PI)-1680	Meril, Ltd.	Evaluation of the Immunogenicity of an Experimental Sindbis Western Equine Encephalitis Chimeric Virus ...	10-148	3/22/2011	\$15,120
Bowen	Richard A Bowen (Primary PI)-1680	USDA-ARS-Agricultural Research Service	Research on Arthropod-borne Diseases of Livestock and Wildlife	58-5410-8-334	9/21/2010	\$24,688
Bowen	Richard A Bowen (Primary PI)-1680	Meril, Ltd.	Evaluation of the Immunogenicity of an Experimental Sindbis Western Equine Encephalitis Chimeric Virus ...	10-148	12/28/2010	\$56,219
Bowen	Richard A Bowen (Primary PI)-1680	USDA-APHIS-Animal Plant Health Insp Svc	Wild Animals in the US and Japanese Encephalitis and Chikungunya Viruses	10-7100-0306-CA	11/15/2010	\$84,923
Bowen	Richard A Bowen (Primary PI)-1680	USDA-APHIS-Animal Plant Health Insp Svc	Wildlife Disease Surveillance in Southeast Asia	10-7100-0319-CA	10/12/2010	\$70,000
Bowen	Richard A Bowen (Primary PI)-1680	DOE-NNSA-Lawrence Livermore National Lab	The Role of RNA Virus Quasispecies Dynamics and Host Immunocompetence in the Evolution of Viral Virulence during in...	B595091	5/12/2011	\$40,000
Bowen	Richard A Bowen (Primary PI)-1680; Kenneth E Olson (Co-PI)-1682; Harry Joel Hutcheson (Co-PI)-1177; Jonathan O Carlson (Co-PI)-1682; Charles H Calisher (Co-PI)-1682; Carol D Blair (Co-PI)-1682; William C Black IV (Co-PI)-1682; Barry J Beaty (Co-PI)-1682	Univ. of Texas Medical Branch/Galveston.	United States Based Collaboration in Emerging Viral & Prion Diseases	03-030 MOD #16	7/22/2010	\$26,100
Bowen Total						\$348,808
Carnevale	Elaine Carnevale (Primary PI)-1680; Edward L Squires (Co-PI)-1680	The Cecil & Irene Hylton Foundation	Development of Assisted Reproductive Techniques for Mares and Stallions	2011-1	6/9/2011	\$250,000
Carnevale Total						\$250,000
Clay	Colin Clay (Primary PI)-1680	HHS-NIH-Child Health and Human Develop	Physiological Mechanisms Underlying Heightened Responsiveness of Gonadotropes to GnRH	5R01HD065943-02	6/21/2011	\$290,404
Clay Total						\$290,404
Earley	Scott Earley (Primary PI)-1680; Michael Tamkun (Collaborator)-1680	HHS-NIH-NHLBI-Natl Heart, Lung, & Blood	TRP Channel-Dependent Regulation of Arterial Tone	5 R01 HL091905-03	12/30/2010	\$364,842
Earley Total						\$364,842
Frye	Melinda A Frye (Primary PI)-1680; Michael J Pagliassotti (Collaborator)-1571; E Christopher Orton (Collaborator)-1678	HHS-NIH-Nat. Ctr. for Research Resources	A Rodent Model to Study Links among Diet, Visceral Adipose and Cardiomyopathy	5K01RR028135-02	3/31/2011	\$123,498
Frye Total						\$123,498
Gonzales	Albert L Gonzales (Primary PI)-1680; Scott Earley (Co-PI)-1680	HHS-NIH-NHLBI-Natl Heart, Lung, & Blood	Role of TRP Channels and Calcium Signaling in Cerebral Arteries	5 F31 HL094145-03	8/18/2010	\$29,213
Gonzales Total						\$29,213
Hansen	Thomas Hansen (Primary PI)-1680	USDA-NIFA-National Institute of Food and	Endocrine Action of Interferon-Tau	2011-67015-20067	12/27/2010	\$499,937
Hansen Total						\$499,937

**TABLE 13: NEW and RENEWED GRANT AWARDS (EXTRAMURAL)
FISCAL YEAR 2011**

PI Last Name	Investigators	Sponsor	Title	Contract #	Award Date	Amount
Nett	Torrance M Nett (Primary PI)-1680	HHS-NIH-Child Health and Human Develop	Physiological Mechanisms Underlying Heightened Responsiveness of Gonadotropes to GnRH	1R01HD065943-01	8/4/2010	\$302,503
Nett	Torrance M Nett (Primary PI)-1680	DOI-NPS-National Park Service	Evaluation of the Effects of Fertility Control on the Reproductive Behaviors and Activity Budgets of Feral Horses	H2370094000 TO#J2340090032	7/8/2010	\$24,908
Nett	Torrance M Nett (Primary PI)-1680	Morris Animal Foundation	Field Evaluation of the Immunocontraceptive GnRH Vaccine, GonaCon, in Free-Ranging Horses at Theodore Roosevelt ...	D10ZO-034	10/1/2010	\$36,368
Nett	Torrance M Nett (Primary PI)-1680	Pfizer Inc - Animal Health	Pfizer Inc Service Contract	Study#13782-PO#185-N-2394896	12/28/2010	\$1,734
Nett Total						\$365,513
Partin	Kathryn M Partin (Primary PI)-2011	HHS-NIH-NIMH-Nat Inst of Mental Health	Glutamate Receptor Desensitization and its Modulation	5 R01MH064700-08	1/13/2011	\$297,675
Partin	Kathryn M Partin (Primary PI)-2011	HHS-NIH-NIMH-Nat Inst of Mental Health	Glutamate Receptor Desensitization and its Modulation	5 R01MH064700-08 Revised	6/2/2011	\$29,768
Partin Total						\$327,443
Rash	John E Rash (Primary PI)-1680	Albert Einstein College of Medicine	Plasticity of Electrical Synapses	9-526-4822	1/6/2011	\$31,238
Rash	John E Rash (Primary PI)-1680	HHS-NIH-Center for Scientific Review	Connexins in Neuronal and Glial Gap Junctions in the Central Nervous System	5 R01 NS044395-10	6/22/2011	\$355,799
Rash Total						\$387,037
Reist	Noreen E Reist (Primary PI)-1680	NSF - National Science Foundation	Functional Analysis of Synaptotagmin Domain Structure	IOS-1025966	8/31/2010	\$449,996
Reist	Noreen E Reist (Primary PI)-1680	NSF - National Science Foundation	Functional Analysis of Synaptotagmin Domain Structure	IOS-1025966 Amd #001	6/2/2011	\$6,000
Reist Total						\$455,996
Tamkun	Michael Tamkun (Primary PI)-1680; Scott Earley (Co-PI)-1680; James R Bamberg (Co-PI)-1870; Gregory Amberg (Co-PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Kv2.1 Membrane Corrals: Regulators of K+ Channel Function and Trafficking	5R01GM084136-03	12/9/2010	\$268,503
Tamkun	Michael Tamkun (Primary PI)-1680; Scott Earley (Co-PI)-1680; James R Bamberg (Co-PI)-1870; Gregory Amberg (Co-PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Kv2.1 Membrane Corrals: Regulators of K+ Channel Function and Trafficking	5R01GM084136-03 revised	6/21/2011	\$26,851
Tamkun Total						\$295,354
Tobet	Stuart A Tobet (Primary PI)-1680	Brigham and Womens Hospital	Animal Models of Sex-Specific HPA Axis Development Project 2		11/10/2010	\$247,817
Tobet	Stuart A Tobet (Primary PI)-1680	HHS-NIH-NIMH-Nat Inst of Mental Health	Cellular Differentiation in the Developing Preoptic Area	5R01MH061376-11	3/4/2011	\$266,220
Tobet Total						\$514,037
Tsunoda	Susan Lei Tsunoda (Primary PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Localization and Regulation of Shal (Kv4) Potassium Channels (R01 GM083335)	3 R01 GM083335-05S1	8/13/2010	\$45,061
Tsunoda	Susan Lei Tsunoda (Primary PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Localization and Regulation of Shal K+ Channels	5 R01 GM083335-05	7/21/2010	\$1,209
Tsunoda Total						\$46,270
Vigh	Jozsef Vigh (Primary PI)-1680	HHS-NIH-Center for Scientific Review	Functional Analysis of Retinal Inhibitory Processes	5 R01EY019051-02	8/18/2010	\$319,415
Vigh Total						\$319,415
Winger	Quinton Alexander Winger (Primary PI)-1680	HHS-NIH-Child Health and Human Develop	Regulation of Trophoblast Proliferation and Invasion by Pluripotency Factor LIN28	1 R03HD067431-01	12/30/2010	\$70,462
Winger Total						\$70,462
Grand Total						\$5,031,729

**TABLE 14: NEW and RENEWED GRANT AWARDS (EXTRAMURAL)
JANUARY 1 - JUNE 30, 2010**

PI Last Name	Investigators	Sponsor	Title	Contract #	Award Date	Amount
Bowen	Richard A Bowen (Primary PI)-1680	University of Wyoming	Brucellosis: New Vaccines and Diagnostics, Vaccination and Environmental Factors in Disease Incidence and ...	USDACSRE45232	4/8/2010	\$13,496
Bowen	Richard A Bowen (Primary PI)-1680	USDA-ARS-Agricultural Research Service	RVF Vaccine Evaluation using Small Animal Models	58-5430-0-307	2/24/2010	\$108,000
Bowen	Richard A Bowen (Primary PI)-1680	USDA-APHIS-Animal Plant Health Insp Srv	Indonesian HPIA Testing Cooperative Agreement	09-7100-0267-CA	3/9/2010	\$40,480
Bowen	Richard A Bowen (Primary PI)-1680	Meril, Ltd.	West Nile Virus Lineage 2 (WNV2) in horses (Meril 09-181)	Protocol 09-181	3/24/2010	\$1,928
Bowen Total						\$163,904
Carnevale	Elaine Carnevale (Primary PI)-1680	MTSU-Middle Tennessee State University	Direct Molecular Analysis of the Equine Cumulus-oocyte Complex using Imaging Mass Spectrometry	C10-0542	2/17/2010	\$10,370
Carnevale Total						\$10,370
Earley	Scott Earley (Primary PI)-1680; Michael Tamkun (Collaborator)-1680	HHS-NIH-NHLBI-Natl Heart, Lung, & Blood	TRP Channel-Dependent Regulation of Arterial Tone	5 R01 HL091905-02	1/13/2010	\$364,968
Earley Total						\$364,968
Eby	Lindsey Eby (Primary PI)-1678; Danny L Baker (Co-PI)-1680	Morris Animal Foundation	Evaluation of GnRH Vaccine as an Immunocontraceptive in Free-Ranging Horses at Theodore Roosevelt ...	D09EQ-601	6/21/2010	\$4,000
Eby Total						\$4,000
Frye	Melinda A Frye (Primary PI)-1680; Michael J Pagliassotti (Collaborator)-1571; E Christopher Orton (Collaborator)-1678	HHS-NIH-Nat. Ctr. for Research Resources	A Rodent Model to Study Links among Diet, Visceral Adipose and Cardiomyopathy	1K01RR028135-01	4/20/2010	\$122,364
Frye Total						\$122,364
Hentges	Shane Hentges (Primary PI)-1680	HHS-NIH-Diabetes, Digestive, & Kidney	Hypothalamic Circuits Regulating Energy Balance and Obesity: Synaptic Physiology	5R01 DK078749-03	6/1/2010	\$288,786
Hentges Total						\$288,786
Nett	Torrance M Nett (Primary PI)-1680	Pfizer Inc - Animal Health	Pfizer Inc Service Contract	Study # 13782	6/2/2010	\$27,342
Nett	Torrance M Nett (Primary PI)-1680	DOI-NPS-National Park Service	Evaluation of the Effects of Fertility Control on the Reproductive Behaviors and Activity Budgets of Feral Horses	H2370094000 TO#J2340090032	4/19/2010	\$15,952
Nett Total						\$43,294
Partin	Kathryn M Partin (Primary PI)-2011	HHS-NIH-NIMH-Nat Inst of Mental Health	Glutamate Receptor Desensitization and its Modulation	5 R01MH064700-07	1/31/2010	\$328,338
Partin Total						\$328,338
Rash	John E Rash (Primary PI)-1680	HHS-NIH-Center for Scientific Review	Connexins in Neuronal and Glial Gap Junctions in the Central Nervous System	5 R01 NS044395-09	6/24/2010	\$389,383
Rash Total						\$389,383
Tamkun	Michael Tamkun (Primary PI)-1680; Scott Earley (Co-PI)-1680; James R Bamberg (Co-PI)-1870; Gregory Amberg (Co-PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Kv2.1 Membrane Coralls: Regulators of K+ Channel Function and Trafficking	5R01GM084136-02 Revised	3/12/2010	\$27,122
Tamkun Total						\$27,122
Tobet	Stuart A Tobet (Primary PI)-1680	HHS-NIH-NIMH-Nat Inst of Mental Health	Cellular Differentiation in the Developing Preoptic Area	5R01MH061376-10	4/2/2010	\$295,800
Tobet Total						\$295,800
Tsunoda	Susan Lei Tsunoda (Primary PI)-1680	HHS-NIH-Nat Inst of General Medical Sci	Localization and Regulation of Shal K+ Channels	5 R01 GM083335-05	6/2/2010	\$268,503
Tsunoda Total						\$268,503
Grand Total						\$2,306,832

TABLE 15: CO-PI NEW and RENEWED AWARDS (EXTRMURAL)
JANUARY 1, 2010 - JUNE 30, 2011

PI Last Name	Investigators	Sponsor	Title	Contract #	Award Date	Amount
Bartels	Randy A Bartels (Primary PI)-1373; <u>Stuart A Tobet</u> (Co-PI)-1680	Keck Foundation (W.M.) *	Ultra-Sensitive Raman Microscopy for Unmasking Cellular Communications		3/17/2011	\$1,000,000
Bartels Total						\$1,000,000
Chen	Thomas Wei Chen (Primary PI)-1373; <u>Stuart A Tobet</u> (Co-PI)-1680; Omnia Elhakim (Co-PI)-1876; Michael Anthony De Miranda (Co-PI)-1588	NSF - National Science Foundation	New, GK-12: A Multi-Disciplinary Research and Teaching Program in Biomedical Engineering for Discovery and ...	0841259 Amend #3	3/17/2011	\$524,685
Chen Total						\$524,685
Eby	Lindsey Eby (Primary PI)-1678; <u>Danny L Baker</u> (Co-PI)-1680	Morris Animal Foundation	Evaluation of GnRH Vaccine as an Immunocontraceptive in Free-Ranging Horses at Theodore Roosevelt ...	D09EQ-601	6/21/2010	\$4,000
Eby Total						\$4,000
Gonzales	Albert L Gonzales (Primary PI)-1680; <u>Scott Earley</u> (Co-PI)-1680	HHS-NIH-NHLBI-Natl Heart, Lung, & Blood	Role of TRP Channels and Calcium Signaling in Cerebral Arteries	5 F31 HL094145-03	8/18/2010	\$29,213
Gonzales Total						\$29,213
Hamilton	Karyn L Hamilton (Primary PI)-1582; Eric Monnet (Co-PI)-1678; <u>Melinda A Frye</u> (Co-PI)-1680	University of Colorado Health Sci Ctr	Combinational Drug Screening to Identify Strategies Enhancing Ground Troops at Altitude	FY10.360.001	10/27/2010	\$1,387,603
Hamilton Total						\$1,387,603
Krapf	Diego Krapf (Primary PI)-1373; <u>Michael Tamkun</u> (Co-PI)-1680	NSF - National Science Foundation	Membrane Dynamics Underlying Kv2.1 Cluster Formation	PHY-0956714 Amd 1	5/9/2011	\$151,312
Krapf	Diego Krapf (Primary PI)-1373; <u>Michael Tamkun</u> (Co-PI)-1680	NSF - National Science Foundation	Membrane Dynamics Underlying Kv2.1 Cluster Formation	PHY-0956714	6/19/2010	\$157,388
Krapf Total						\$308,700
Olson	Kenneth E Olson (Primary PI)-1682; William C Black IV (Co-PI)-1682; Jonathan O Carlson (Co-PI)-1682; Charles H Callisher (Co-PI)-1682; <u>Richard A Bowen</u> (Co-PI)-1680; Carol D Blair (Co-PI)-1682; Harry Joel Hutcheson (Collaborator)-1177	Univ. of Texas Medical Branch/Galveston.	United States Based Collaboration in Emerging Viral & Prion Diseases	03-030 MOD #16	7/22/2010	\$295,929
Olson Total						\$295,929
Grand Total						\$3,550,130

Table 16: FY2011 BMS Funding Sources for Expenditures

Total = \$14,390,862

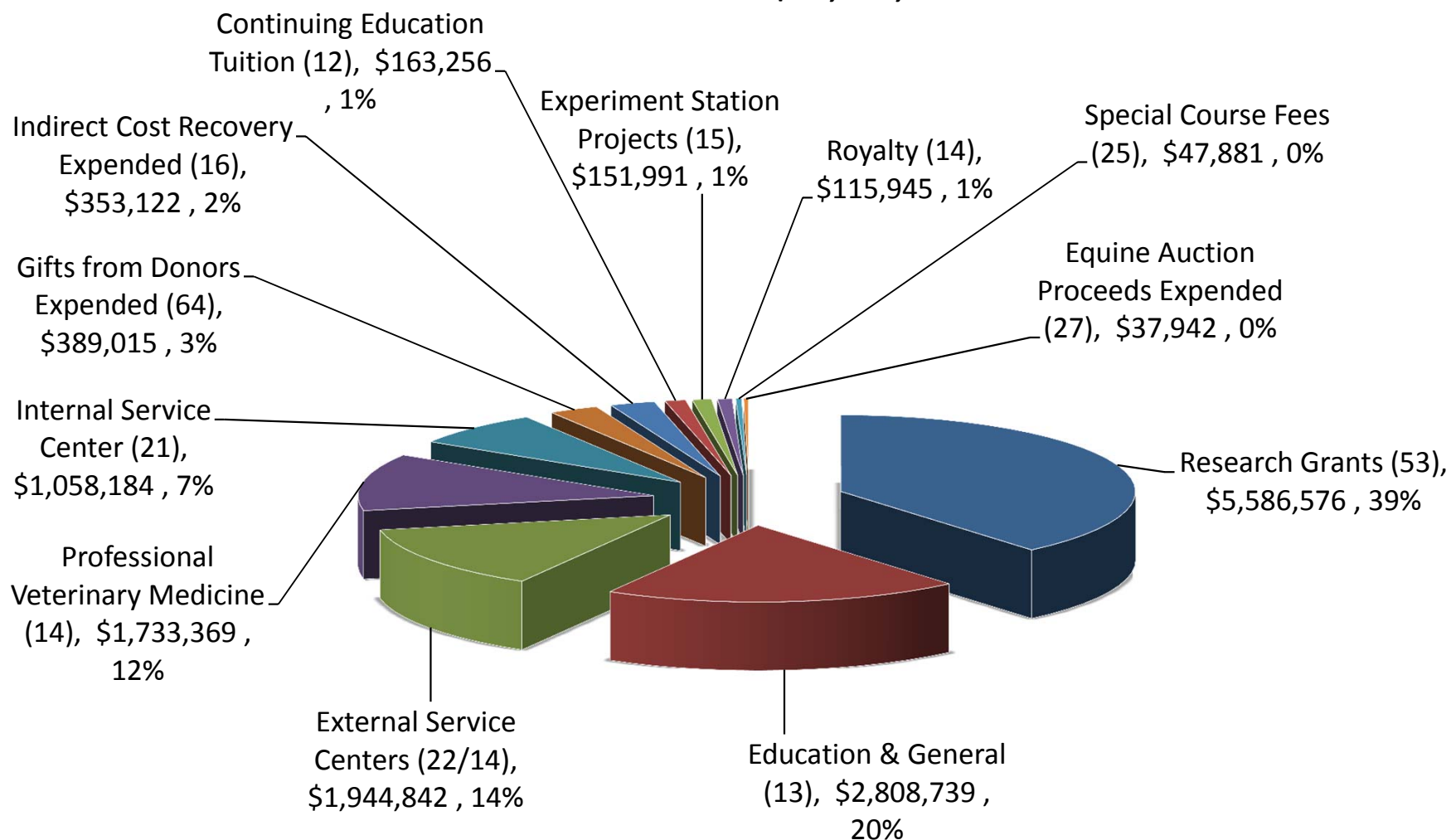


Table 17: FY2011 BMS Expenditures

Total = \$14,390,862

