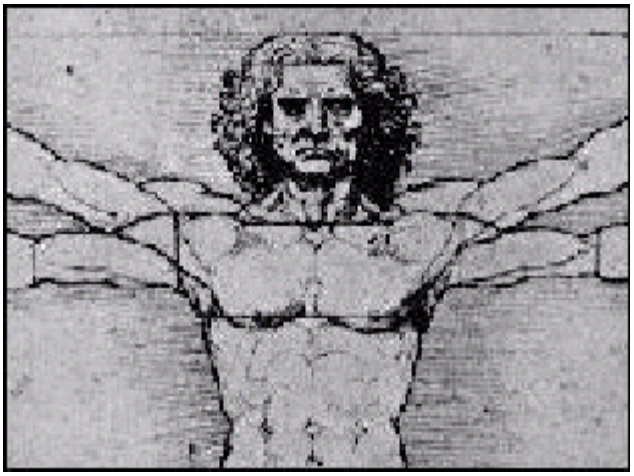
Department of Biomedical Sciences
Colorado State University

ANNUAL REPORT 2007



May 15, 2008

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DEPARTMENT OF BIOMEDICAL SCIENCES
ANNUAL REPORT 2007

I. Summary

The Department of Biomedical Sciences 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. The Department trained 26 PhD, 19 MS and 88 MS-B students and graduated 5 PhD, 2 MS and 32 MS-B students in 2007. The Department currently sponsors one DVM/PhD student. Departmental faculty members have visible, active research programs. Research expenditures exceeded $6,864,000 in 2007. A number of faculty members received national and local awards for their activities in teaching and research during the year (Table 10). Biomedical Science 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. Department Organization

The Department Head is Dr. Barbara Sanborn. The Department is organized into two divisions: the Neuroscience Division (Dr. Ray Whalen, Division Director) and the Physiology Division (Dr. Thomas Hansen, Division Director). Dr. C.W. Miller serves as Assistant to the Head for Educational Activities. Ms. Melissa Hein serves as the Department Administrator. The BMS Advisory Committee, comprised of the Division Directors and elected representatives from the Divisions, provides advice to the Head on departmental affairs.

The Department faculty comprised 30 regular, 7 special, 14 affiliate, 8 joint, 2 transitional, 1 temporary and 5 emeritus faculty members in 2007 (Table 1). Among the faculty, Dr. Richard Bowen, Dr. Anna Fails, Mr. Mark Frasier, Dr. James Graham, Dr. Edward Squires, Dr. Stuart Tobet and Dr. Ray Whalen received special recognition in the form of awards for teaching and research excellence.

Other Departmental members included 15 office staff, 23 postdoctoral fellows, 44 research associates and technicians, 2 administrative professional program coordinators and 4 research scientists (Tables 2 and 3). The Department hosted 18 visiting faculty/scientists in 2007 (Table 1).

Faculty members are housed in four facilities: the Anatomy/Zoology and Physiology buildings on the Main Campus and the Animal Reproductive Biotechnology Laboratory and Equine Reproduction Laboratory buildings on the Foothills Campus. Departmental faculty members

participate in and support three University Programs of Research and Scholarly Excellence: the Animal Reproduction and Biotechnology Laboratory, the Molecular, Cellular and Integrative Neurosciences Program, and the Cell and Molecular Biology Program.

IV. Strategic Plan

The Department Code was revised and adopted in 2005. In addition, a Departmental Five Year Strategic Plan was developed in 2005.

Vision Statement: As a department housed in a professional school, we envision creating an environment conducive to the conduct of high quality research that also enhances our ability to excel at other aspects of our mission, including providing state-of-the-art instruction, service and outreach. Therefore, our Strategic Plan emphasizes an investment in attracting and retaining high quality faculty working in research areas that complement our current strengths, link to the NIH Roadmap, and align with strategic University emphases. These include emphases on systems neurobiology (ion channel biophysics, neuroendocrine mechanisms, neurotransmission, taste) and systems physiology (developmental biology, gamete and embryo biology, reproductive endocrinology and mechanisms contributing to cardiovascular disease, diabetes, obesity, hypertension and stroke). In addition, the Strategic Plan emphasizes innovative approaches to creative teaching and service.

V. Education

The Department of Biomedical Sciences fulfills its educational mission in a number of important ways. The Department contributed a total of 16,173 student credit and 5,248 contact hours in 2007. All faculty are engaged in didactic teaching at one or more levels.

BMS Faculty Teaching Contribution Summary

	Student Credit Hours	**Contact Hours**
PVM	2,576	1,208
Graduate	1,980 (144)*	2,040
Undergraduate	11,617 (1,498)*	2,000
TOTAL	16,173 (1,642)	5,248

*Additional SCHs taught in Biomedical Science courses by faculty outside the department

Professional Veterinary Medicine:

In the Professional Veterinary Medicine curriculum, departmental faculty are responsible for general anatomy, neuroanatomy, theriogenology, image interpretation and significant portions of pharmacology and physiology (Table 7), contributing 2,576 student credit and 1,208 contact hours. In all of these areas, faculty are constantly upgrading lectures, modifying and developing new course material and evaluating effectiveness. The innovative computer-assisted anatomy programs and curricula developed by L. Ray Whalen and colleagues have gained national and international recognition and are used widely at other institutions.

Graduate Education:
At the graduate level, Biomedical Sciences faculty are active in teaching graduate courses, planning and implementing curriculum opportunities for training graduate students, and mentoring MS and PhD students in career development, research design and execution, and development of oral and written communication skills. Table 7 summarizes graduate level teaching activities (classes numbered 500 or higher). The Department contributed 1,980 student credit and 2,040 contact hours in didactic courses and laboratories. Faculty also sponsor a number of journal clubs, mentored research and independent study opportunities.

The Department sponsors a PhD degree in Biomedical Sciences that enrolled 26 and graduated 5 students this year (Tables 4 and 5). Students entered this program either by direct application to the department or by selection after rotation through the Molecular, Cellular and Integrative Neurosciences (MCIN) Program. Of the 26 PhD students enrolled in 2007, 4 (15%) were supported by training grants and 3 (11%) were supported by individual NRSAs or comparable fellowships (Tables 4 and 6). Biomedical Sciences faculty also sponsored 22 students through other graduate programs and departments. One DVM/PhD student is currently being mentored by a Departmental faculty member.

The Department sponsors two types of MS degrees. The research MS-A program enrolled 19 and graduated 2 students in 2007 (Tables 4 and 5). These students have formal course requirements, write a thesis and formally present and defend their research. Four MS-A students (21%) were supported by individual fellowships (Tables 4 and 6). The MS-B program is a one-year, coursework-only degree program aimed at providing students aspiring to enter professional veterinary or medical schools or the biomedical industry with specific biomedical training. The department enrolled 88 and graduated 32 students in 2007 (Table 4).

With guidance from Erin Bisenius, Coordinator of Graduate Activities, the Graduate Student Association and its representatives contributed substantially to several Departmental and College activities, included planning the Fall Research Retreat and contributing to the planning of the Frontiers in Biomedical Sciences seminar series and the CVMBS Research Day. A number of students were active in the Brain Awareness Week outreach program to K-12. The Department sponsored a number of other activities aimed at building cohesiveness, including a fall barbeque and a spring reception for graduates and their families, faculty and colleagues.

In addition to existing seminar programs attended by the graduate students, the Department co-sponsors the Frontiers in Biomedical Science seminar series (with the Cell and Molecular Biology and the Molecular, Cellular and Integrative Programs). This series brings exceptional speakers of general interest to the campus. Speakers in 2007 included Dr. Thomas Maniatis from Harvard University and Dr. Blanche Capel from Duke University. The Department also sponsored a number of career speakers for graduate students and contributed financial support for the Front Range Neuroscience Regional Meeting.

Undergraduate Education:
The Department contributed 11,617 student credit and 2,000 contract hours in teaching at the undergraduate level (Table 7). The new Biomedical Sciences Undergraduate Major has three admitted classes, for a total of 240 students enrolled by Fall 2007. The Department also has about 250 students declared in the BMS minor. In 2007, 112 students graduated with the BMS minor.

The Undergraduate Professional Advisor, Kelly Swetich, provided expert guidance for the BMS undergraduate students. The Undergraduate Major Steering Committee provided oversight for implementation and operations of the undergraduate major on issues such as recruitment criteria and activities, development of criteria for undergraduate scholarships, curriculum review and development, experiential learning opportunities, and preparation for graduation. New courses developed included the Capstone (BMS 460, Essentials of Pathophysiology) and related Senior Seminar course (BMS 492, Capstone Pathophysiology) and an introductory 200 level course (BMS 260, Introduction to Biomedical Sciences), all of which will be offered for the first time in Spring 2008. BMS 487 (Internship) and BMS 498 (Research) were also added to address the need for experiential learning experiences.

General statistics of the 240 currently enrolled BMS students:

- 16% indicated ethnically diverse backgrounds; 4 in "Vet Start"
- 26% non-residents
- 77% female
- 35% in the Honors Program; 28 in the Hughes Undergraduate Research Scholars Program
- 3.33 – average CSU cumulative GPA
- The Biomedical Student Association (BSA), a very active undergraduate organization, hosted regular guest speakers, community service activities, and social events throughout the academic year.
- The Dr. Alan Tucker Memorial Scholarship and the three Biomedical Sciences Undergraduate Awards were awarded to BMS students for the first time in Spring 2007.
- 21 HURS students are being mentored by BMS faculty (8 are BMS majors).

Training Grants:
The NIH Training Grant in Mammalian Reproductive Biology is supported by faculty in the Animal Reproduction and Biotechnology Laboratory and other areas in the Department (Table 8). In addition, faculty in the Department form an important nucleus in the Molecular, Cellular and Integrative Neuroscience Program that also sponsored an NIH Training Grant. Departmental faculty members also participated in the Merck/Merial Summer Research Program for PVM Students, the NIH Short-Term Training for Minority Students Program and the Howard Hughes Undergraduate Research Program.

Postgraduate Education:
The Department is actively involved in providing postdoctoral students with advanced training. There are currently 22 post-PhD and 18-post-DVM graduates working in laboratories. In addition, departmental faculty trained 5 visiting students and 18 visiting faculty / clinicians during 2007.

VI. Research

The research enterprise is very strong in the Department of Biomedical Sciences (Table 9). Department research expenditures exceeded $6,864,000 in 2007. Funding sources included peer-reviewed extramural funding, Agricultural Experiment Station funding, contracts and gifts. Activity in research also is evidenced by the high productivity of the faculty in producing peer-reviewed papers and other scientific publications (Table 11).

Department faculty effectively organized a regional meeting of the Front Range Neuroscience Group and recruited a number of vendors to contribute to the sponsorship.

Faculty members also have been very active in study sections, editorial boards and national organization service, participated in international organizations and symposia, and have collaborated widely around the world, thus enhancing the outreach and extending the reputation of the University.

VII. Service

Departmental faculty members have been engaged in important service activities for the University. This includes significant committee service at the Department, College and University level and a very visible Short Course educational activity in Equine Reproduction, as well as an internationally respected commercial program in equine reproduction. Faculty members also have been highly sought after as members on editorial boards and grant review panels, as consultants, as reviewers of manuscripts, and as organizers of international meetings and symposia.

VIII. New Faculty

Dr. Gordon Woods joined the Biomedical Sciences faculty as the Alexander Professor in Equine Reproduction in January of 2007. Dr. Melinda Frye, a research scholar in the CSU Department of Clinical Sciences, joined the Department of Biomedical Sciences as an Assistant Professor. Drs. Gregory Amberg (Research Assistant Professor of the University of Washington), Shane Hentges (Research Assistant Professor of the Vollum Institute, Portland, OR) and Jozsef Vigh (Research Assistant Professor at the Vollum Institute) also joined the faculty during 2007.

IX. Goals for 2008

The Department will admit its fourth class into the Biomedical Sciences Undergraduate Major in FY07/08 and will begin offering the Capstone classes in Spring, 2008. The Department will continue developing experiential learning experiences and metrics for assessing the strengths of the major.

The Department will continue evaluation of its course offerings, their effectiveness and their role in the educational mission.

The Department will recruit 2 new faculty members in the area of neurobiology.

The Department will revise the Departmental Code, carry out a 5-year Departmental Self Analysis, and update its Strategic Plan.

The Department will continue to sponsor activities that will enhance the research and academic programs of faculty and students. These include, but are not limited to, a research retreat and the Frontiers in Biomedical seminar series.

Table 1: BIOMEDICAL SCIENCES FACULTY — 2007

Regular Faculty

Gregory C. Amberg, PhD, PharmD — Assistant Professor
Specialty: Membrane biophysiology

Russell V. Anthony, PhD — Hill Professor of Biotechnology
Specialty: Molecular endocrinology

Gerrit J. Bouma, PhD — Assistant Professor
Specialty: Reproductive biology

Richard A. Bowen, DVM, PhD — Professor
Specialty: Infectious disease and reproductive physiology

Elaine M. Carnevale, DVM, PhD — Assistant Professor
Specialty: Equine assisted reproduction

Colin M. Clay, PhD — Professor
Specialty: Molecular endocrinology

Scott Earley, PhD — Assistant Professor
Specialty: Cardiovascular physiology

Melinda Frye, DVM, PhD — Assistant Professor
Specialty: Cardiovascular physiology

James K. Graham, PhD — Professor
Specialty: Male reproductive physiology

Robert J. Handa, PhD — Professor
Specialty: Reproductive biology, early pregnancy, fetal development

Thomas R. Hansen, PhD — Traubert Professor and Director, ARBL
Specialty: Establishment and maintenance of pregnancy; Effects of maternal undernutrition

Shane T. Hentges, PhD — Assistant Professor
Specialty: Neural circuits regulating energy balance

Douglas N. Ishii, PhD — Professor
Specialty: Molecular neurobiology

Sue C. Kinnamon, PhD — Professor
Specialty: Molecular mechanisms of taste transduction

James E. Madl, DVM, PhD — Associate Professor
Specialty: Neurotransmitter release in central nervous system disease

Charles W. Miller, PhD — Professor
Specialty: Cardiovascular physiology

Terry M. Nett, PhD — Professor
Specialty: Reproductive endocrinology

Kathryn M. Partin, PhD — Associate Professor
Specialty: Structural and functional analysis of glutamate receptors

Gary E. Pickard, PhD — Professor
Specialty: Biological rhythms

John E. Rash, PhD — Professor
Specialty: Identifying and mapping connexins, aquaporins, and neurotransmitter receptors

Noreen E. Reist, PhD — Associate Professor
Specialty: Molecular dissection of neurotransmitter release

Deborah A. Roess, PhD — Professor
Specialty: Cellular endocrinology

Barbara M. Sanborn, PhD — Professor and Head
Specialty: Hormonal signal transduction

Michael M. Tamkun, PhD — Professor
Specialty: Molecular physiology, ion channels

Stuart Tobet, PhD — Professor
Specialty: Developmental neurobiology

D.N. Rao Veeramachaneni, BVSc, MscVet, PhD — Professor
Specialty: 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 — Professor and University Distinguished Teaching Scholar
Specialty: Design, development, and evaluation of interactive multimedia educational programs

Gordon L. Woods, DVM, PhD — Alexander Professor in Equine Reproduction
Specialty: Equine reproduction

Transitional Faculty

Gordon D. Niswender, PhD — University Distinguished Professor
Specialty: Reproductive endocrinology

George E. Seidel, Jr., PhD — University Distinguished Professor
Specialty: Reproductive physiology

Special Faculty

Anna D. Fails, DVM, PhD — Assistant Professor
Specialty: Teaching

Mark B. Frasier, MS — Associate Professor
Specialty: Teaching

Chun-Ying Ku, PhD — Assistant Professor
Specialty: Molecular signal transduction

Sandra Pitcaithley, PhD — Assistant Professor
Specialty: Teaching

Cynthia Smeraski, PhD — Assistant Professor
Specialty: Neurobiology, neuroimmunology and infectious diseases

Patricia J. Sollars, PhD — Assistant Professor
Specialty: Chronobiology and sleep

Connie Vader-Lindholm, PhD — Assistant Professor
Specialty: Teaching

Temporary Faculty

Edward L. Squires, PhD — Professor
Specialty: Assisted reproductive technology in the equine

Joint Faculty

Kenneth Allen, PhD — Professor, Food Science and Nutrition
Specialization: Nutrition

Jason Bruemmer, PhD — Associate Professor, Animal Sciences
Specialty: Equine reproduction

Robert W. Gotshall, PhD — Professor, Health and Exercise Science
Specialization: Cardiovascular and exercise physiology

Matthew Hickey, PhD — Associate Professor, Health and Exercise Science
Specialization: Cardiovascular, nutrition and exercise physiology

Patrick McCue, DVM, PhD — Associate 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 — University Distinguished Professor, Philosophy
Specialization: Animal ethics

Affiliate Faculty

Dan Baker, PhD
Colorado Division of Wildlife

Bruce W. Banfield, PhD
Department of Microbiology, University of Colorado School of Medicine, Denver, CO

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

Frederick Battaglia, MD
Perinatal Research Center, University of Colorado Health Sciences Center, Denver, CO

Kurt Beam, PhD
University of Colorado Health Sciences Center, Denver, CO

F. Edward Dudek, PhD
Department of Physiology, University of Utah, Salt Lake City, UT

David Gardner, PhD
Colorado Center for Reproductive Medicine, Denver, CO

William Horne, DVM, PhD
Cornell University, Ithaca, NY

Richard Martin, MD
Department of Medicine, Pulmonary Division, National Jewish Research and Medical Center, Denver, CO

Robert F. McGivern, PhD
Department of Psychology, San Diego State University, San Diego, CA

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

William Sather, PhD
University of Colorado Health Sciences Center, Denver, CO

Martha Tissot Van Patot, PhD
Department of Anesthesiology, University of Colorado Health Sciences Center, Denver, CO

Randall Wilkening, MD
Department of Pediatrics, University of Colorado Health Sciences Center, Denver, CO

Emeritus Faculty

Rupert P. Amann, tenure 1983–1995
Specialization: Male reproductive physiology
Howard O. Nornes, tenure 1972–2002
Specialization: Development and regeneration of the central nervous system
Robert Phillips, tenure 1964–1997
Specialization: General physiology
Bill W. Pickett, tenure 1967-2000
Specialization: Equine reproductive physiology; assisted reproductive technology
W. Lee Wilke, tenure 1978-2006
Specialty: Cardiovascular and renal physiology

Joint Faculty Appointments in Other Departments

Russell Anthony	Department of Pediatrics, UCHSC
Richard Bowen	Department of Microbiology, CSU
Melinda Frye	Department of Clinical Sciences, CSU
Thomas R. Hansen	Department of Animal Science, University of Wyoming
Douglas Ishii	Department of Biochemistry and Molecular Biology, CSU
Sue Kinnamon	Department of Cellular and Structural Biology, UCHSC
Noreen Reist	Special Appointment Faculty, UCHSC
Edward Squires	Department of Animal Sciences, CSU
Michael Tamkun	Department of Biochemistry and Molecular Biology, CSU
Ray Whalen	Department of Clinical Sciences, CSU
Gordon Woods	Department of Clinical Sciences, CSU

Visiting Faculty / Scientists

Dr. Lincoln Amorim, Post-doc, Brazil
Host: G. Seidel

Michael Belenky
Host: G. Pickard

Dr. Catalina Castaneira, Veterinarian, PhD candidate, Argentina
Host: E. Carnevale

Wynn Collins, National Zoo, Washington, DC
Host: J. Graham

Dr. Ants Kavak, Veterinarian, Estonian University of Life Sciences
Host: E. Carnevale

Dr. Carol Linder, New Mexico Highlands University
Host: R. Veeramachaneni

Dr. Marcello, Veterinarian, Brazil
Host: E. Carnevale

Thomas Mathiison, MD
Host: J. Rash

Phillip Mendoza, 4th-year medical student, UCHSC
Host: E. Carnevale

Lerma Ocampo, Philippines
Host: G.E. Seidel

Joao Francisco Oliveira, Brazil
Host: T.R. Hansen

Dr. Yong-Soo Park, Scientific Director, Federal Research Institute, Korea
Host: G. Seidel

Dr. John Parrish, PhD, University of Wisconsin, Madison, WI
Host: J. Graham

Dr. Roberto Sanches, Veterinarian, Germany
Host: E. Carnevale

Juliano da Silveira, graduate student from Brazil
Host: J. Bouma

Dr. Wayne Silver, sabbatical
Host: S. Kinnamon

Dr. Shaorui Xi
Host: D. Roess

Dr. Robert Zorec, IMOU collaborator, University of Ljubljana, Slovenia
Host: S. Kinnamon

Table 2: POSTDOCTORAL FELLOWS — 2007

	Advisor	Start Date	End Date
Elenice Amorim	Graham	08/13/06	7/1/07
Ryan Ashley	Hansen	12/01/06	
Jesus Arreguin-Arevalo	Nett	07/01/04	8/1/07
Ann Baker	Roess	04/01/06	
Jennifer Barfield ‡	Seidel	05/07/07	
Daesuk Chung	Sanborn	12/01/05	12/1/07
Tod Clapp	Kinnamon	05/15/04	
Tracy Davis	Nett	06/01/04	5/1/07
Chad Foradori	Handa	09/01/03	
Jodi Haller	Handa	08/15/05	02/21/07
Andy Hartwick ‡	Pickard / Sollars	11/14/05	
Kristin Jones	Bowen	05/14/07	
Yoon-Sun Kim ‡	Sanborn	04/01/04	05/31/07
Andrea Kudwa	Handa	08/07/05	
JingJing Liu	Roess	10/01/05	
Carin Loewen	Reist	07/01/05	7/18/07
Kristen O'Connell	Tamkun	12/01/02	3/07
Toni Pak	Handa	01/03/03	1/07
Elizabeth Randolph	Ishii	03/01/04	3/07
Jann Rhodes	Anthony	07/01/02	8/31/07
Steven Smith	Roess	10/01/06	
Aurelie Vandenbeuch	Kinnamon	09/17/06	
Jun Zhou	Roess	09/20/04	

‡ NRSA, training grant or individual fellowship.

Table 3: BIOMEDICAL SCIENCES STAFF — 2007

Research Associates / Technicians

Employee	Supervisor	Location
Matthew Allen	Nett	ARBL
Catherine Anderson	Kinnamon	Anatomy/Zoology
Jesus Arreguin-Arevalo	Nett	ARBL
Laurie Biela	Reist	Anatomy/Zoology
Jayne Bramley	Pickard	Anatomy/Zoology
Richard Brandes	Hansen	ARBL
Zella Brink	Seidel	ARBL
Jeremy Cantlon	Anthony	ARBL
Herschel Chadwick	Gallegos	ARBL
Allison Evans	Pickard	Anatomy/Zoology
Bethany Frank	Carnevale	ERL
Mike Gallegos	Hansen	ARBL
Alejandro Gonzalez-Sesana	McCue	ERL
Iris Handa	Handa	Anatomy/Zology
Laura Hinds	Handa	Anatomy/Zoology
Ruth Hurst	Carnevale	Equine Reproduciton Lab
Jeffrey Kemp	Graham	Physiology
Connie King	Pickard	Anatomy/Zoology
J. Gabe Knoll	Tobet	Physiology
Andrea Linton	Whalen	Anatomy/Zoology
Steven Lisano	Whalen	Anatomy/Zoology
Yizhen Liu	Frye	Physiology
Hans Mayan	Niswender	ARBL
Steve Mellin	Hansen	Equine Reproduction Lab
Carol Moeller	Veeramachaneni	ARBL
Paula Moffett	Hansen	Equine Reproduction Lab
Charles Ness	Hansen	Equine Reproduction Lab
Malcolm Ogilvie	Pickard	Anatomy/Zoology
Jennifer Palmer	Veeramachaneni	ARBL
Luisa Patterson	Whalen	Anatomy/Zoology
Collin Ruiz	Kinnamon	Anatomy/Zoology
Anne Simpson	Pickard	Anatomy/Zoology
JoAnne Stokes	Carnevale	Equine Reproduction Lab
Cecile Weigle	Tamkun	Anatomy/Zoology
Lesley Anne Westhoff	Hansen	Equine Center
Jennifer Whitesell	Clay	ARBL
Cory Wolfe	Tobet	Physiology

Administrative Professional Coordinators

Employee	Supervisor	Location
Robert E. Lee	Whalen	Anatomy/Zoology

Senior Research Associates

Employee	Supervisor	Location
Daesuk Chung	Sanborn	ARBL
Kimberly Davidson	Rash	Anatomy/Zoology
Paul Gordy	Bowen	ARBL
Jennifer (Nikki) Phillips	Sanborn	ARBL
Thomas Yasumura	Rash	Anatomy/Zoology

Research Scientists

Employee	Supervisor	Location
Luiz Henkes	Hansen	ARBL
Michio Morita	Rash	Anatomy/Zoology
Dilyara Murtazina	Sanborn	ARBL
Natalia Smirnova	Hansen	ARBL
Leslie Stone-Roy	Kinnamon	Anatomy/Zoology

Administrative Support

Employee	Title	Location
Louise Ansell	Administrative Assistant II	B.W. Pickett Equine Center
Erin Bisenius	Graduate Education Coordinator/Advisor	134 Physiology
Lisa Dell	Administrative Assistant II	Equine Reproduction Lab
Carol Dewbre	Administrative Assistant III	102 Physiology
Kay Gallatin	General Professional III	W108D ARBL Building
Melissa Hein	Department Administrator	102 Physiology
Sandra Hopper	Program Assistant I	B.W. Pickett Equine Center
Jan Marshall	Program Assistant II	W103 Anatomy/Zoology
Brenda Martin	Administrative Assistant III	W108 ARBL
Terrie Murphy	Administrative Assistant II	Equine Reproduction Lab
Jane Owen-Maul	Accounting Technician III	W108C ARBL Building
Karen Solomon	Administrative Assistant II	W103 Anatomy/Zoology
Lora Sonday	Accounting Technician III	102 Physiology
Kelly Swetich	Undergraduate Major Advisor	110 Physiology
Kathy Thomas	Program Assistant I	W117 ARBL Building
Shazette Tucker	Administrative Assistant II	W103 Anatomy/Zoology
Sallie Varner	Program Assistant I	W108B ARBL Building

Table 4: GRADUATE STUDENTS — 2007

Ph.D. Students

	Prior Degrees	Advisor	Specialty	Start / Finish Dates
Al-Qatati, Abeer	MS	Roess	Physio	SP 07
Al-Yahya, Khaleel	MS	Madl	Neuro	FA 02
Ashley, Ryan	BS	Nett	Repro	SP 02 / SP 07
Barcelo-Fimbres, Moises	MS	Seidel	Repro	FA 03 / SM 07
Baver, Scott	MS / MCIN	Sollars	Neuro	FA 07
Bisenius, Erin	MS / MCIN	Handa	Neuro	FA 05
Bott, Rebecca	MS	Bruemmer	Physio	FA 05
Campos-Chillon, Fernando	DVM / MS	Carnevale	Repro	FA 04
DeLille, Alexandra	DVM / MS	Seidel	Repro	SM 96
Donner, Nina	Diplom.	Handa	Neuro	SP 05
Fawley, Jessica ‡	BS / MCIN	Dudek	Neuro	SM 02
Gonzales, Albert	MS / MCIN	Earley	Neuro	FA 07
Grabenstatter, Heidi	BS	Dudek	Neuro	FA 01 / SP 07
Kohler, Dennis	BS	Bowen	Physio	SP 04
Magee, Christianne	DVM, MS	Clay	Repro	FA 07
Maresh, Ryan	MS	Anthony	Repro	FA 04
McBroom, Katherine	MS	Anthony/Hansen	DVM/ PhD	SM 04
Paddock, Brie	MS	Reist	Neuro	SP 03 / FA 07
Powers, Jenny	DVM	Nett	Repro	SP 05
Purcell, Scott *	MS	Anthony / Seidel	Repro	FA 04
Spizziri, Beth	MS	Graham	Repro	FA 07
Striegel, Amelia *	MS / MCIN	Reist	Neuro	FA 06
Waldbaum, Simon ‡	BS / MCIN	Dudek	Neuro	FA 01 / FA 07
Walker, David Josh *	MS	Seidel	Repro	FA 04
Weiser, Michael	MS	Handa	Neuro	FA 04
Wolf, Amber *	BS	Roess	Physio	SM 05

* Training grant trainee

‡ National Research Service Award or other individual fellowship recipient

M.S.-A Students

	Prior Degrees	Advisor	Specialty	Start / Finish Dates
Altermatt, Joy	DVM	Carnevale	Repro	SM 05
Berven, Jenny	BS	Bowen	Physio	FA 05 / SM 07
Coulter, Ernest (Chip)	BS	Tucker / Tissot	Cardio	FA 01
Cox, Timothy	BS	Carnevale	Repro	FA 04
Frank, Bethany	DVM	Carnevale	Repro	FA 07
Garber, Sarah	BS / MCIN	Tobet	Neuro	FA 05
Hartshorn, Cheryl ‡	BS	Tobet	Neuro	FA 07
Hudson, Melissa	BS	Seidel / Graham	Repro	FA 06
Kemp, Jeffrey	BS	Graham	Repro	FA 07
Knoblock, Ryan	BS			FA 99
Lund, Gretchen	BS	Carnevale	Repro	SM 07
Meyers, Melinda	BS	Graham	Repro	SM 06
Rasmussen, Sara	BS	Seidel	Repro	FA 07
Schoeberl, Samantha ‡	BS	Roess	Physio	FA 07
Shoemaker, Megan	BS	Hansen	Repro	FA 06
Spizziri, Beth	BS	Graham	Repro	FA 05 / SM 07
Torley, Katie ‡	BS	Bouma	Repro	FA 07
Young, Ginger	MS	Bowen	Physio	FA 06
Yourey, Rebecca ‡	BS	Carnevale	Repro	FA 07

* Training grant trainee

‡ Individual fellowship recipient

M.S.-B Students

	Prior Degrees	Advisor	Start / Finish Dates
Achdjian, Stacy	BS	Frasier	FA 06 / SM 07
Ackley, Ashley	BS	Frasier	FA 06 / SM 07
Addor, Martha	BS	Frasier	FA 06 / SM 07
Altamero, Joy	BS	Frasier	FA 07
Anstett, Tyler	BS	Frasier	FA 06 / SM 07
Baird, Kenneth	BS	Frasier	FA 07
Berkbigler, Jennifer	BS	Frasier	FA 07
Binding, Sara	BS	Frasier	FA 06 / SM 07
Bolinger, Christopher	BS	Frasier	FA 07
Bourland, Steven	BS	Frasier	FA 07
Brauch, Tia	BS	Frasier	FA 06 / SM 07
Cain, Donald	BS	Frasier	FA 06 / SM 07
Carlson, Rick	BS	Frasier	FA 06 / SM 07
Carr, Katherine	BS	Frasier	FA 07
Chapman, Brandon	BS	Frasier	FA 07
Cole, Michael	BS	Frasier	FA 06 / SM 07
Copeman, Jaret	BS	Frasier	FA 07
Corbin, Christine	BS	Frasier	FA 07
Critz, Catherine	MS	Frasier	FA 07
Cunz, Heidi	BS	Frasier	FA 07
Dooher, Elizabeth	BS	Frasier	FA 07
Early, Morganne	BS	Frasier	FA 06 / SM 07
Ellery, Kate	BS	Frasier	FA 06 / SM 07
Fox, Kimberly	BS	Frasier	FA 07
Frazee, Kolsie	BS	Frasier	FA 07
Freking, Angelique	BS	Frasier	FA 06 / SM 07
Gallagher, Shannon	BS	Frasier	FA 07
Gardner, Alison	BS	Frasier	FA 06 / SM 07
Gardner, Ryan	BS	Frasier	FA 07
Gilbert, Justin	BS	Frasier	FA 06 / SM 07
Gregorich, Scott	BS	Frasier	FA 07
Haji, Farnaz	BS	Frasier	FA 07
Hartman, Gavin	BS	Frasier	FA 06 / SM 07
Havrilla, Jennifer	BS	Frasier	FA 07
Henderson, Ryan	BS	Frasier	FA 07
Hickey, Erin	BS	Frasier	FA 07

	Prior Degrees	Advisor	Start / Finish Dates
Hines, Sarah Meagan	BS	Frasier	FA 07
Hochevar, Dayna	BS	Frasier	FA 07
Hocker, Molly	BS	Frasier	FA 06 / SM 07
Hurtubis, Cheryl	BS	Frasier	FA 06 / SM 07
Jarrett, Michael	BS	Frasier	FA 07
Keaner, Justin	BS	Frasier	FA 06 / SM 07
Keeler, Alexandra	BS	Frasier	FA 07
Korb, Danielle	BS	Frasier	FA 07
Lancaster, Brian	BS	Frasier	FA 07
LaVoy, Brittany	BS	Frasier	FA 06 / SM 07
Lenberg, Jamie	BS	Frasier	FA 06 / SM 07
Leonard, Michelle	BS	Frasier	FA 06 / SM 07
Leppien, Anna	BS	Frasier	FA 06 / SM 07
Levy, Jonathan	BS	Frasier	FA 07
Lewis, Whitney	BS	Frasier	FA 07
Lipkie, Brittany	BS	Frasier	FA 06 / SM 07
Loftus, Robert	BS	Frasier	FA 07
Luedke, Bret	BS	Frasier	FA 06 / SM 07
Lummus, Seth	BS	Frasier	FA 06 / SM 07
Magnuson, Kelsey	BS	Frasier	FA 06 / SM 07
Marchewitz, Lauren	BS	Frasier	FA 06 / SM 07
Mathre, Stephanie	BS	Frasier	FA 07
McAnelly, Catherine	BS	Frasier	FA 06 / SP 07
McDonald, Christopher	BS	Frasier	FA 07
Milnes, Casey	BS	Frasier	FA 07
Moritis, Karina	BS	Frasier	FA 07
Muther, Nicole	BS	Frasier	FA 07
Nguyen, Tan	BS	Frasier	FA 07
O'Driscoll, Cari	BS	Frasier	FA 07
Oyoung, Diana	BS	Frasier	FA 06 / SM 07
Pease, Julie	BS	Frasier	FA 06 / SP 07
Reid, Katherine	BS	Frasier	FA 07
Rice, Dahlia	BS	Frasier	FA 07
Riggle, Lindsay	BS	Frasier	FA 06 / SM 07
Rowe, Valerie	BS	Frasier	FA 07
Ruckman, Benjamin	BS	Frasier	FA 06 / SM 07
Schuneman, Keely	BS	Frasier	FA 07

	Prior Degrees	Advisor	Start / Finish Dates
Shapiro, Allison	BS	Frasier	FA 06 / SM 07
Slaght, Kiersten	BS	Frasier	FA 07
Sona, Jamie	BS	Frasier	FA 06 / SM 07
Sprunger, David	BS	Frasier	FA 07
Trainor, Drew	BS	Frasier	FA 06 / SM 07
Tumlinson, Meghan	BS	Frasier	FA 07
Usel, Matthew	BS	Frasier	FA 07
Virgin, Joanna	BS	Frasier	FA 06 / SM 07
Voet, Amy	BS	Frasier	FA 06 / SM 07
Walker, Caleb	BS	Frasier	FA 07
Wilson, Brittany	BS	Frasier	FA 07
Wingfield, Heidi	BS	Frasier	FA 07
Woltman, Nathan	BS	Frasier	FA 06 / SM 07
Woodard, Susan	BS	Frasier	FA 07
Zimmerman, Chelsea	BS	Frasier	FA 06 / FA 07

Graduate Students in Other Departments Advised by Biomedical Sciences Faculty

Name	Department	Advisor	Program	Status
Bosco-Lauth, Angela	MIP	Bowen	PhD	Active
Chen, Chu-te	Clinical Sciences	Madl (co-advisor)	MS	Active
Damle, Alpana	CMB	Roess (co-advisor)	PhD	Active
Davis, April	MIP	Bowen	PhD	Graduated
Delano, Theresa	Ed Human Res	Frye (co-advisor)	PhD	Active
Eckerle, Greg	Animal Sciences	Anthony (co-advisor)	MS	Active
Funk, Janel ‡	Biochemistry	Reist	PhD	Active
Huang, Xin	CMB	Roess	PhD	Active
Liu, JingJing	CMB	Roess	PhD	Graduated
Mangan, Brendan	Clinical Sciences	Madl (co-advisor)	MS	Active
McClellan, Kristy *	CMB	Tobet	PhD	Active
McInnis, Carey	Cliical Sciences	Madl (co-advisor)	MS	Active
McSweeney, Kevin	Clinical Sciences	Seidel (co-advisor)	MS	Active
Nemeth, Nicole	MIP	Bowen	PhD	Active
Serbedzija, Predrag	Biochemistry	Ishii	PhD	Active
Slough, Teresa	Animal Sciences	Niswender (co-advisor)	PhD	Graduated
Ulloa, Aida ‡	CMB	Sanborn	PhD	Active
Weiner, Christina	MIP	Hansen (co-advisor)	MS	Active
Winter, Peter	CMB	Roess/Sanborn	PhD	Active
Zerofski, Dara	Clinical Sciences	Madl (co-advisor)	MS	Active
Zhou, Jun	CMB	Roess (co-advisor)	MS	Active

* Training grant trainee

‡ National Research Service Award or other individual fellowship recipient

Table 5: DEGREES AWARDED — 2007

Ph.D. Degree

Student	Advisor	Thesis/Dissertation Title
Ashley, Ryan	Nett	Identification and Characterization of Two Ovine Membrane Receptors for Progesterone
Moises Barcelo-Fimbres	Seidel	Energy Substrates, Metabolic Regulators and Lipid Accumulation During the Culture of In Vitro Produced Bovine Embryos
Heidi Grabenstatter	Dudek	The Use of Chronic Models of Temporal Lobe Epilepsy in Antiepileptic Drug Development
Brie Paddock	Reist	The Role of [Ca2+]-Dependent Phospholipid Binding Residues of Synaptotagmin in Neurotransmission
Simon Waldbaum	Dudek	Single and Repetitive Paired-Pulse Suppression: Can it Provide an Analysis of Synaptic Inhibition in Epilepsy Research?

M.S. Degree

Student	Advisor	Thesis/Dissertation Title
Timothy Cox	Carnevale	Effect of FSH on Induction of Ovulation of Various Sized Follicles in the Mare
Melinda Meyers	Graham	Cryopreservation of Sex-Sorted Stallion Spermatozoa

Degrees Awarded in Other Departments to Students Advised by BMS Faculty

Student	Advisor	Thesis/Dissertation Title
April Davis	Bowen	Pathogenesis and Immunity to Rabies Virus in Bats (MIP)
JingJing Liu	Roess	(CMB)
Teresa Slough	Niswender (Co-advisor)	Factors Affecting Steroidogenesis and Luteolysis in Ovine and Equine Corpora Lutea (Animal Sciences)

Table 6: FELLOWSHIP AND SCHOLARSHIP RECIPIENTS — 2007

Abney Foundation Scholarship
Fernando Campos-Chillon

E.J. Carroll Memorial Scholarship
D. Josh Walker

Lisa Marie Craft Scholarship
Lauren Marchewitz

James N. Dupree Scholarship
Gretchen Lund

Pattridge Family Scholarship
Hallie Willmore

Dr. Dean Pavillard Scholarship
Christianne Magee, DVM

Dr. Virgil and Mitzy H. Yount Postgraduate Veterinary Medicine Scholarship
Nicole Nemeth, DVM (MIP student advised by Dr. R. Bowen)

National Research Service Award or Individual Fellowship Recipients

Jessica Fawley
Chad Foradori, PhD (NRSA)
Cheryl Hartshorn *
Andrew Hartwick, PhD (Canadian Institutes of Health Research Fellowship)
Kristen O'Connell, PhD (NIH K99 Grant)
Samantha Schoeberl *
Katie Torley *
Aida Ulloa (CMB; NRSA F31)
Simon Waldbaum
Amber Wolf (NRSA T32)
Rebecca Yourey *

Training Grant Recipients

Jennifer Barfield, PhD
Andrea Kudwa, PhD (MCIN Training Grant)
Kristy McClellan
Scott Purcell
Amelia Striegel
D. Josh Walker
Amber Wolf

* Colorado State Graduate Fellowship

Table 7: COURSES TAUGHT — 2007

Spring

Course #	Title	Instructors
	PVM Courses	
VM 619	Veterinary Neurobiology	Fails, Lee, Pitcaithley, Whalen
VM 621	Exotic Animal Anatomy and Husbandry	Madl, Pitcaithley
VM 640	Biology of Disease	Bowen
VM 744	Theriogenology	Bowen, Graham
VM 786A	Junior Practicum -- Equine Reproduction	Carnevale
VM 786B	Senior Practicum -- Equine Reproduction	Carnevale
VS 605	Comparative Anesthesiology	Earley, Fails
VS 606	Comparative Anesthesiology Lab	Earley, Fails
	Graduate Courses	
A 633	Understanding and Managing Animal Resources	Niswender
A 640	IRM Master Plan	Niswender
BS 501	Mammalian Physiology II	Anthony, Seidel, Vader, Wilke
BS 531	Domestic Animal Dissection	Frasier, Madl
BS 545	Neuroanatomy	Fails, Walrond
BS 633	Domestic Animal Anatomy: Case Discussion	Fails, Frasier
BS 792	Graduate Student Seminar	Partin
BS 796	Group Study – Reproductive Physiology	Anthony
EH 602	Toxicological Mechanisms	Earley
NB 503	Developmental Neurobiology	Handa, Ishii, Tobet
NB 505	Neuronal Circuits – Systems, Behavior	Handa, Lorenzon, Kinnamon, Pickard
NB 586	Practicum – Tech Neuroscience II	Kinnamon, Lorenzon, Reist, Tamkun
NB 750	Physiology of Ion Channels	Lorenzon
NB 796A	Group Study -- Ion Channels	Lorenzon
NB 796C	Group Study – Topics in Neuroscience	Reist
NB 796E	Group Study – Neuroendocrine Mechanisms	Handa
	Undergraduate Courses	
BC 475	Mentored Research	Handa, Ishii
BC 487	International Internship	Tobet
BN 450	Biomedical Entrepreneurship	Tobet
BSCC 120	Human Health and Disease	Veeramachaneni
BSCC 122	Drugs and the Human Body	Roess
BSCC 124	Sexuality and Health	Nett

Course #	Title	Instructors
BS 200	Concepts in Human Anatomy and Physiology	Early, Hartman, Walrond
BS 300	Human Anatomy and Physiology	Bowen, Miller, Walrond
BS 302	Laboratory in Principles of Physiology	Spizziri, Vader
BS 305	Domestic Animal Gross Anatomy	Frasier, Madl
BS 330	Microscopic Anatomy	Madl
BS 345	Functional Neuroanatomy	Druecker, Kinnamon, Pickard, Reist
BS 360	Fundamentals of Physiology	Ishii, Miller, Veeramachaneni
BS 365	Nerve & Muscle – Toxins, Trauma and Disease	Kinnamon, Lorenzon, Rash, Reist, Whalen
BS 450	Human Pharmacology	Ishii, Nett, Wilke
PLCC 130	Bioethics and Society	Clay

Summer

Undergraduate Courses

BS 300	Human Anatomy and Physiology	Miller, Sanborn, Walrond
BS 301	Human Gross Anatomy	Druecker, Frasier

Graduate Courses

VM 786B	Senior Practicum – Equine Reproduction	Carnevale

Fall

PVM Courses

VM 616	Functional Anatomy	Fails, Lee, Madl, Pitcaithley, Whalen
VM 618	Organ Systems – Anatomy and Physiology	Bowen, Fails, Pitcaithley, Walrond
VM 722	Veterinary Pharmacology	Ishii, Madl, Wilke
VM 749	Clinical Sciences III	Carnevale, Fails
VM 786A	Junior Practicum – Equine Reproduction	Carnevale
VS 680	Comparative Pain Medicine	Fails, Kinnamon

Graduate Courses

A 630	Introduction to IRM	Niswender
AN 510	Bovine Reproduction	Graham, Seidel
BC 698	Research	Tobeet
BC 798	Research	Ishii
BIOM 592	Biomedical Engineering Seminar	Tobet
BMS 500	Mammalian Physiology I	Earley, Kinnamon, Miller, Tamkun
BMS 575	Human Anatomy Dissection	Frasier, Hartman

BMS 610	Managing a Career in Science	Fails, Frasier, Partin, Tobet
BMS 619	Advanced Human Gross Anatomy	Frasier, Hartman
BMS 631	Mechanisms of Hormone Action	Clay
BMS 632	Metabolic Endocrinology	Anthony
BMS 792A	Seminar – Biomedical Sciences	Partin
BMS 792B	Seminar – Neurophysiology	Clay
BMS 792C	Seminar – Reproductive Physiology	Hansen
BMS 796C	Group Study – Reproductive Physiology	Hansen
MIP 778	Laboratory Animal Pathology	Bowen
MIP 798	Research	Bowen
NB 500	Readings in Molecular & Cellular Neuroscience	Tamkun
NB 501	Cell and Molecular Neurophysiology	Tamkun
NB 796A	Group Study – Ion Channels	Tamkun
NB 796C	Topics in Neuroscience	Reist
NB 796E	Group study – Neuroendocrine Mechanisms	Clay, Handa, Tobet

Undergraduate Courses

AN 440	Equine Production and Industry	Niswender
BMS 120	Human Health and Disease	Graham
BMS 124	Sexuality and Health	Nett
BMS 192	Freshman Seminar in Biomedical Sciences	Vader
BMS 200	Concepts in Human Anatomy and Physiology	Cole, Early, Walrond
BMS 300	Human Anatomy and Physiology	Clay, Miller, Walrond
BMS 301	Human Gross Anatomy	Frasier, Hartman
BMS 302	Laboratory in Principles of Physiology	Hines, Vader
BMS 325	Introduction to Cellular Neurobiology	Kinnamon, Partin, Pickard, Stone-Roy, Tobet, Walrond, Whalen
BMS 420	Cardiopulmonary Physiology	Miller
BMS 430	Endocrinology	Graham
ERHS 446	Environmental Toxicology	Veeramachaneni
LIFE 102	Biology	Roess

Table 8: TRAINING GRANTS — 2007

	Sponsor	Grant Title	Dates	Total $
J. Bamburg, PI	NIH	Training in Synaptic Neurobiology	7/02–6/07	260,000
G. Florant, PI	NIH	Short-term Training Program for Minority Students in Biomedical Sciences	7/04–6/09	
T. Nett, PI	NIH	Training in Mammalian Reproductive Biology	5/05-4/10	789,900

Table 9: RESEARCH FUNDING — 2007

PI Name	Sponsor	Title	Dates	Total Expenditures
Amberg	American Heart Assoc	Calcium sparklets during hypertension	7/1/06–6/30/10	6,624.16
Anthony	NIH	Prenatal hypoxia and development of insulin resistance	7/1/05–6/30/07	13,641.16
	USDA	Characterization of periattachment factor (Co-PI; Seidel Co-PI)	9/1/05–8/31/08	46,507.83
	CRC	Placental-fetal hormonal interactions (W112 project)	7/1/06–6/30/07	19,190.49
	CRC	Placental-fetal hormonal interactions (W112 project)	7/1/07–6/30/08	5,119.88
Bouma	CRC	MicroRNAs in sheep reproduction and development	7/1/07–6/30/08	10,207.84
Bowen	NIH	United States based collaboration in emerging infectious disease (Co-PI; B. Beaty, PI)	9/29/03–10/1/07	105,261.90
	NIH	RCE: Animal models scientific facilities core (Core Scientist)	4/30/05–4/30/09	462,785.34
	Merial, Ltd.	West Nile virus vaccine	3/1/06–6/30/07	7,006.33
	Lawrence-Livermore Labs	Evaluation of a synthetic vaccine to protect mice from West Nile virus	5/1/06–6/30/07	2,206.06
	CDC	Zoonotic avian influenza	10/1/06–9/30/09	201,809.53
	CDC	Zoonotic avian influenza: The Human-Animal Interface in the US and Asia	10/1/06–9/30/07	201,809.53
	Merial, Ltd.	West Nile virus challenge in horses	1/1/07–12/31/07	-0-
	Replikins, Inc.	Evaluation of Replikin peptides as vaccines against West Nile virus	1/1/07–6/30/07	-0-
	Merial, Ltd.	Evaluation of efficacy of a multivalent West Nile vaccine	1/1/07–12/31/07	24,956.72
	Intervet	Efficacy of inactivated & live West Nile virus vaccine in horses	1/17/07–12/31/07	55,401.16
	Merial, Ltd.	Evaluation of the virulence of 2 wild-type WEE viruses by subcutaneous administration in horses	3/1/07–2/28/08	22,051.42
	Merial, Ltd.	Eastern Equine Encephalitis (EEE): A dose/response study in horses on the Sindbis EEEV South American . . .	4/1/07–3/30/08	27,654.48
	Merial, Ltd.	Evaluation of the virulence of three wild-type WEE viruses by intrathecal administration in horses	5/1/07–4/30/08	18,014..00
	Intervet	Efficacy of inactivated & live West Nile virus vaccine in horses	1/1/07–6/30/08	55,401.16

PI Name	Sponsor	Title	Dates	Total Expenditures
	Merial, Ltd.	Evaluation of the efficacy of a WNV vaccine against an experimental WNV-intrathecal challenge in horses	7/25/07–6/30/08	-0-
	Replikins, Ltd.	Protocol for preliminary evaluation of Replikin peptides as vaccines against West Nile virus	9/1/07–8/30/08	-0-
	USDA-APHIS	Evaluations of wild bird AI surveillance sampling and testing protocols	11/1/07–10/30/08	-0-
	Hennessy Research	Efficacy of a West Nile virus vaccine in horses	10/1/07–6/30/07	38,056.65
Carnevale	Hylton Foundation	Development of assisted reproductive techniques for mares and stallions (Co-PI; E. Squires, Co-PI)	8/1/05–7/31/08	14,922.95
	PEG	Effects of aging and eFSH on initiation of oocyte maturation and oocyte developmental competence in the mare	5/1/06–4/30/07	28,283.16
	CRC	Comparison of laparoscopic techniques for oocyte transfer in the mare	7/1/06–6/30/07	19,955.71
	Stent donation	Transfer of in vitro produced embryos	6/1/06–8/1/07	-0-
	PEG	Differences in arrest and resumption of oocyte maturation in young versus old mares (Co-PI; E. Squires, Co-PI)	4/1/07–10/1/08	-0-
	XY, Inc.	Use of sexed semen to produce embryos in vitro (Co-PI; E. Squires, Co-PI)	5/1/07–5/1/08	6,917.80
	CRC	Advanced age alters meiotic and fertilization competency of oocytes in mares	7/1/07–6/30/08	-0-
	PEG	Age associated alterations in fertilization and blood flow	7/1/07–6/30/08	-0-
Clay	Syngenta	Effects of atrazine on reproductive neuroendocrine function (Co-I; R. Handa, PI)	10/19/05–8/31/08	171,683.78
	NIH	Quantitating GnRH evoked cell motion in live pituitary slices (Co-PI; S. Tobet, Co-PI)	1/15/06–12/31/07	20,343.36
	AQHA	Evaluation of Kisspeptin and its role in the hypothalamic-pituitary-gonadal axis in the mare	10/1/07–9/30/08	7,642.28
	PEG	Role of Kisspeptin in the hypothalamic-pituitary axis of the horse		2,033.92
Earley	American Heart Assoc	Functional significance of TRP channels in endothelium-dependent cerebral artery dilation	7/1/05–6/30/09	80,388.18
	NIH	Regulation of cerebral artery dilation (Collaborator; M.T. Nelson, PI)	1/1/07–12/31/11	University of Vermont
	CRC	Regulation of cerebral artery tone by TRPM4	7/1/07–6/30/08	13,890.90
Fails	USDA-CSREES	Compliance and training for specified risk material removal in beef meat products (Collaborator; M.D. Salman, PI)	8/1/05–8/11/07	
Frye	American Heart Assoc	Fatty acids and endothelial dysfunction in obesity: Role of beta-adrenergic stimulated lipolysis	7/1/04–6/30/07	22,452.57

PI Name	Sponsor	Title	Dates	Total Expenditures
	CRC	Dietary polyunsaturated fatty acids in obesity-related cardiac lipotoxicity: Exploring the role of protectins and resolvins in myocardial apoptosis, inflammation and contractility	7/1/07–6/30/08	4,797.58
	Res Cons Ag Metabolic Dis	Characterization of endothelial and myocardial DHA-derived	7/1/07–6/30/09	1,479.71
Graham	USDA	Collection, cryopreservation and evaluation of different poultry lines	9/15/03–8/31/08	'05 End Date
	XY, Inc.	Cryopreservation of sex-sorted stallion sperm	9/1/05–8/31/07	24,826.28
	USDA-APHIS	Development of oral contraceptives for the purpose of reducing reproduction in the wild pig	9/15/06–9/14/07	35,740.98
	PEG	Improving capacitation of stallion sperm to enhance in vitro fertilization	7/1/06–6/30/07	9,684.58
	PEG	Improving stallion sperm capacitation to enhance in vitro fertilization II	7/1/07–6/30/08	9,684.58
Handa	NINDS	Sex differences in the hypothalamo-pituitary-adrenal axis	2/15/04–1/31/08	365,555.02
	NIH	Fetal alcohol exposure and biological rhythms	1/1/05–12/31/09	136,948.68
	US AMRMC	Improving performance efficiency in the warfighter (Co-PI; T. John Wu, PI)	6/30/05–7/1/07	1,614.58
	NICHD	Orphanin FQ/nociceptin regulates LH release (Mentor; C. Foradori, PI)	8/1/05–7/31/07	28,697.64
	Syngenta, Inc.	Atrazine and reproductive function	10/1/05–9/30/08	171,683.78
	Soy Research Board	Prostate growth inhibition by equol, a novel phytoestrogen metabolite	11/1/06–10/31/07	10,000.00
	Syngenta, Inc.	Atrazine and female reproductive function, Phase II	7/1/07–6/30/09	171,683.78
	Ligand Pharmaceuticals	Androgen receptors regulation of social behaviors	8/8/07–8/8/08	31,518.13
	Brigham & Women's Hosp	Sex specific fetal programming of the HPA axis by glucocorticoids (PI; Jill Goldstein, Program Project PI)	9/15/07–7/15/12	-0-
Hansen	PEG	Gene expression in the equine endometrium during maternal recognition (Co-PI; J. Bruemmer, PI)	2/1/06–1/31/07	157.64
	CRC	Effect of bovine pestivirus s. bovine viral diarrhea virus (BVDV) on bovine blastocyst differentiation, chronology of apoptosis and receptor expression (Co-PPI; H. Bielefeldt-Ohmann, PI)	5/1/06–4/30/07	MIP
	USDA-CSREES	Maternal and fetal genetic response to bovine viral diarrhea virus infection	8/1/06–7/31/09	119,538.97
	USDA-CSREES	Gene expression in the blood and uterus during early pregnancy in the cow	9/1/06–8/31/09	78,077.89

PI Name	Sponsor	Title	Dates	Total Expenditures
Ishii	CDC	IGF and brain injury	9/1/01–7/31/07	99,668.44
	CCHE	Development of a therapeutic treatment for dementia	7/1/07–6/30/08	34,007.81
Kinnamon	NIH	Multiple mechanisms of nasal chemoreception	3/1/03–2/28/08	57,442.37
	NIH	Mechanisms of sweet transduction in mammalian taste buds	3/1/03–6/30/07	27,391.25
	NIH	Electrophysiology of taste transduction	4/1/04–3/31/09	384,839.66
	NIH	Neurotransmitters and transmission of taste information	12/1/05–11/30/10	238,704.30
	Univ Miami	Mechanisms of sweet transduction in mammalian taste buds	7/1/07–6/30/12	41,978.87
Ku	CRC	Protein kinase A expression increase on myometrium plasma membrane during early pregnancy in sheep	7/1/07–6/30/08	2,961.88
Madl	USDA	Anatomical basis of lameness in food animals	9/1/04–8/31/07	27,944.50
	ACVO	Inflammation and vessel obliteration in the retinas of dogs with primary glaucoma (Mentor; Gionfriddo, PI)	1/1/07–10/31/07	4,165.09
	CRC	Mechanisms of retinal damage in equine recurrent uveitis (Co-PI; J.R. Gionfriddo, PI)	7/1/07–6/30/08	2,406.60
Nett	USDA	Role of estrogen receptors (alpha and beta) in the preovulatory LH surge	1/1/05–12/31/07	83,330.77
	NIH	Training in mammalian reproductive biology	5/1/05–4/30/10	121,090.74
	Morris Animal Foundation	Effect of GnRH immunization on reproduction and behavior in female Rocky Mountain elk	9/1/05–2/28/08	30,787.33
	Ag Exp Station	Characterization of the ovine membrane progesterone receptor	7/1/06–6/30/07	24,012.81
	Mylan Pharm Inc.	Validation for determining serum concentrations of testosterone in mouse serum using radioimmunoassay	7/15/06–7/14/07	33,355.52
	Mylan Pharm Inc.	Evaluation of LH and testosterone in mice treated with DHT and/or Nebiovolo	8/1/06–7/31/07	46,849.81
	Barrier Therapeutics	Validation of radioimmunoassays to quantify FSH and progesterone in rat serum	12/1/06–11/30/08	131,551.44
	Barrier Therapeutics	Analysis of FSH, LH, progesterone, estradiol and testosterone in rat serum	2/1/07–1/31/09	-0-
	Morris Animal Foundation	Development of new, more efficacious technology to biochemically castrate male and female dogs	4/1/07–3/31/09	4,036.95
	Ag Exp Station	A novel gonadotropin-inhibiting hormone (GnIH) is the missing link in the inhibition of gonadotropin secretion in sheep	7/1/07–6/30/08	8,373.19

PI Name	Sponsor	Title	Dates	Total Expenditures
	Thorn Bioscience LLC	Validation of hormone assays in pig serum	8/15/07–8/14/09	16.86
	National Park Service	Technical support to evaluate fertility control	9/15/07–12/31/09	-0-
	Morris Animal Foundation	Effects of maternal GnRH antibody transfer on reproductive development in elk calves	11/1/07–10/31/09	-0-
Niswender	USDA	Enhancing the quality and accessibility of education for land managers	8/1/05–7/31/08	12,860.20
	Coop Extension	Integrated resource management (17)	7/1/06–6/30/07	10,986.00
	Ag Exp Station	Integrated resource management (15)	7/1/06–6/30/07	-0-
	Ag Exp Station	Reproductive performance in beef cattle and sheep (W112)	7/1/06–6/30/07	18,695.88
	Ag Exp Station	Reproductive performance in beef cattle and sheep (W112)	7/1/07–6/30/08	7,412.81
	Coop Extension	Integrated resource management (17)	7/1/07–6/30/08	6,999.00
	Ag Exp Station	Integrated resource management (15)	7/1/07–6/30/08	-0-
Partin	NIH	Glutamate receptor desensitization and its modulation	8/1/01–7/31/07	-225.16
	CRC	Membrane trafficking of AMPA receptors by stargazin	7/1/06–6/30/7	1,340.30
	CRC	Membrane trafficking of AMPA receptors (2)	7/1/07–6/30/08	1,986.45
Pickard	NIH-NEI	Retinal neurons afferent to the circadian system	7/1/00–6/30/11	435,549.17
	NIH	Retinal neurons afferent to the circadian system	7/1/01–6/30/07	22,574.60
	NIH	5HT presynaptic inhibition of retinal input to the SCN (Co-PI; P. Sollars, Co-PI)	9/1/05–8/31/09	152,638.78
Rash	NIH	Gap junctions and connexins in developing CNS	7/1/02–4/30/07	272.40
	NIH	Connexins in neuronal and glial gap junctions in CNS	7/1/02–5/31/07	145,192.39
	NIH	Connexins in neuronal and glial gap junctions in CNS	6/1/07–5/31/08	189,628.53
Reist	NIH	Mutational analysis of synaptotagmin function	7/1/03–6/30/08	224,987.02
	NIH	Role of ADF/cofilin in neurotransmission (Mentor; J. Funk, PI)	10/1/04–9/30/07	Biochemistry
Roess	CRC	Real-time effects of pulsatile LH on signaling by M17 neuroblastoma cells and accumulation of beta-amyloid, a process linked to the development of Alzheimer's disease	7/1/06–6/30/07	1,209.00

PI Name	Sponsor	Title	Dates	Total Expenditures
	American Heart Assoc	Biophysical evaluation of compounds with insulin-like actions on downstream signaling events	1/1/06–12/31/08	64.140.11
	NSF	Motion of biologically relevant molecules in restricted environments (Co-I; N. Levinger and D.C. Crans, Co-PI)	10/1/06–9/30/11	Chemistry
	NIH	Imaging cell signaling events during luteinizing hormone pulses	4/1/07–3/31/09	63,973.80
Sanborn	NIH	Uterine relaxing factors: Molecular aspects of action	5/1/79–7/31/08	267,870.16
	NIH Minority NSRA	Contributions of specific TrpCs to myometrial Ca^{2+} entry (Mentor; A. Ulloa, PI)	8/15/05–8/14/08	22,362.00
	March of Dimes	Signal-regulated calcium entry in human myometrium in pregnancy	6/1/05–5/31/08	90,204.54
	NIH	The role of Trp proteins in myometrial calcium dynamics	9/30/05–8/31/09	157,882.55
	Lalor Foundation	Role of TrpC6 in myometrial function (Mentor; Y. Kim, PI)	4/15/06–4/14/07	10,568,.83
Seidel	US-Egypt Joint Sci Tech Board	Vitrification of oocytes and embryos for conservation of animal genetic resources	8/1/05–7/31/07	111.11
	USDA	Characterization of periattachment factor (Co-PI; R. Anthony, Co-PI)	9/1/05–8/31/08	46,507.83
	CRC	Effects of progesterone on regulating cAMP in maturing bovine oocytes	7/1/06–6/30/07	12,796.78
	CRC	Effects of progesterone on regulating cAMP in maturing bovine oocytes	7/1/06–6/30/07	8,858.76
	PEG	Effect of supplementary inositol 1,4,5-triphosphate injection on fertilization and embryo development in equine ICSI	7/1/06–6/30/07	140.12
	USDA NRI	Integrating in vitro embryo technologies into the dairy industry	9/15/06–8/31/09	219,148.29
	CSU Exp Station	dsRNA knockdown of genes regulating mRNA in bovine oocytes	7/1/07–6/30/08	140.12
Smeraski	VPRIT Inf Dis Initiative	Infectious disease initiative	7/1/04–6/30/08	53,789.20
	CRC	West Nile virus encephalitis in Syrian hamsters: Temporal analysis of neuroinvasion in relation to barrier tissues and cytokine expression	7/1/07–6/30/08	-0-
Sollars	NIH	Fetal alcohol exposure and biological rhythms (Co-PI; R. Handa, PI)	1/15/05–12/31/09	136,948.68
	NIH	5HT presynaptic inhibition of retinal input to the SCN (Co-PI; G. Pickard, Co-PI)	9/1/05–8/31/09	152,638.78
	NIH	Retinal neurons afferent to the circadian system (Co-PI; G. Pickard, Co-PI)	7/1/06–6/30/11	5,643.65
Squires	Hylton Foundation	Development of assisted reproductive techniques for mares and stallions (Co-PI; E. Carnevale, Co-PI)	8/1/05–7/31/08	14,922.95

PI Name	Sponsor	Title	Dates	Total Expenditures
	PEG	Dietary supplementation of DHA and alpha-tocopherol and the effects on spermatozoa	1/1/07–12/31/07	36,643.69
	PEG	Improving stallion sperm capacitation to enhance in vitro fertilization II	1/1/07–12/31/07	9,611.79
	John Andreini	Evaluation of procedures for freezing day 7 and 8 equine embryos	1/1/07–12/31/07	-0-
	PEG	Characterization and prevention of luteal regression following nonsurgical transfer of equine embryos	1/1/07–12/31/07	66,225.79
	XY, Inc.	Production of in vitro equine embryos with sexed semen	1/1/07–12/31/07	6,917.80
	Private donors	General studies on equine reproduction	1/1/07–12/31/07	55,331.00
Tamkun	NIH	Regulatory mechanisms of cardiac repolarization	3/6/02–12/31/07	169,470.84
	NIH	Cardiac Kv channel cell biology (Mentor; K. O'Connell, PI	12/1/06–11/30/08	74,737.86
	CRC	Relationship between Kv2.1 channel localization and function	7/1/07–6/30/08	1,056.69
Tobet	NIH	SGER: Quantitating GnRH evoked cell motion in live pituitary slices (Co-PI; C. Clay, Co-PI)	2/1/06–1/31/08	20,343.36
	NIEHS	Fetal basis of sexual dysfunction: Brain differentiation (Co-PI; R. Veeramachaneni, Co-PI)	2/1/06–1/31/08	92,707.53
	NIMH	Cellular differentiation in the developing preoptic area	6/15/07–3/31/12	144,294.66
	NIMH	Animal models of sex-specific HPA axis development	7/1/07–6/30/12	-0-
	NIH-NIDCD	Migration of early olfactory neuronal progenitors (Co-PI; G. Schwarting, PI)	7/1/07–6/30/09	12,352.55
	Society for Neuroscience	Grass Foundation Traveling Lectureship	9/1/07–12/11/07	FRNG
Veeramachaneni	USEPA	Impact of phthalates on the male: Frog and rabbit models	3/1/02–2/28/07	15,809.60
	NIEHS	Fetal basis of sexual dysfunction: Brain differentiation (revised) (Co-PI; S. Tobet, Co-PI)	1/1/06–12/31/08	92,707.53
	NIEHS	Mechanisms causing cryptorchidism and fetal transformation of testicular cells (revised)	9/26/06–7/31/08	134,180.92
Whalen	AEP CSU	Virtual canine anatomy: Increasing the effectiveness of anatomical instruction	7/1/06–6/30/08	80,023.30

Table 10: AWARDS — 2007

Richard A. Bowen

Oliver P. Pennock Distinguished Service Award, Colorado State University

Anna D. Fails

Innovative Instructional Methodology in Graduate Education Award, College of Veterinary Medicine and Biomedical Sciences

Mark B. Frasier

Outstanding Academic Advising Award in Graduate Education, College of Veterinary Medicine and Biomedical Sciences

Outstanding Science Mentor Award, Students as Leaders in Science, Colorado State University

James K. Graham

Outstanding Faculty Member, CSU Greek Community

Edward L. Squires

Induction to University of Kentucky Equine Research Hall of Fame

L. Ray Whalen

Carl Norden-Pfizer Distinguished Teacher Award, Association of American Veterinary Medical Colleges

Outstanding Academic Advising Award in Professional Veterinary Medicine Education, College of Veterinary Medicine and Biomedical Sciences

Table 10: PATENTS — 2007

T.R. Hansen

Provisional patent submitted through CSURF — *Surrogate maternal markers for fetal viral infection and other inflammatory responses*. Patent ref: CSURF Technology ID 08-031, PCT/US 61014172, filed 12-17-08, Thomas R. Hansen and Natalia Smirnova..

Table 12: PUBLICATIONS — 2007

Gregory Amberg

Refereed Journal Articles

Amberg, G.C., M.F. Navedo, M. Nieves-Cintron, J.D. Molkentin and L.F. Santana. 2007. Calcium sparklets regulate local and global calcium in murine arterial smooth muscle. J. Physiol. 579:187-201.

Navedo, M.F., G.C. Amberg, R.E. Westenbroek, M.J. Sinnegger-Brauns, W.A. Catterall, J. Striessnig and L.F. Santana. 2007. Cav1.3 channels produce persistent calcium sparklets, but Cav1.2 channels are responsible for sparklets in mouse arterial smooth muscle. Am. J. Physiol. Heart Circ. Physiol. 293:1359-1370.

Nieves-Cintron, M., G.C. Amberg, J.D. Molkentin and L.F. Santana. 2007. Activation of NFATc3 downregulates the beta1 subunit of large conductance, calcium-activated K+ channels in arterial smooth muscle and contributes to hypertension. J. Biol. Chem. 285:3231-3240.

Russell Anthony

Refereed Journal Articles

Anthony, R.V. and J.D. Cantlon. 2007. RNA interference: A new approach to in vivo study of gene function. J. Anim. Sci. 85:E18-E19.

Lea, R.G., P. Wooding, I. Stewart, L.T. Hannah, S. Morton, K. Wallace, R.P. Aitken, J.S. Milne, T.R. Regnault, R.V. Anthony and J.M. Wallace. 2007. The expression of ovine placental lactogen, StAR, progesterone associated steroidogenic enzymes in placentae of over-nourished growing adolescent ewes. Reproduction 133:785-796.

Ziebell, B.T., R.V. Anthony, T.R.H. Regnault, T.A. Parker, H.L. Galan and J.A. Arroyo. 2007. Ontogeny of endothelial nitric oxide synthase mRNA in an ovine model of fetal and placental growth restriction. Am. J. Obstet. Gynecol. 197:420.e1-5.

Gerrit Bouma

Refereed Journal Articles

Bouma, G.J., J.P. Affourtit, C.J. Bult and E.M. Eicher. 2007. Transcriptional profile of mouse pre-granulosa and Sertoli cells isolated from early-differentiated fetal gonads. Gene Expression Patterns 7:113-123.

Bouma, G.J., L.L. Washburn, K.H. Albrecht and E.M. Eicher. 2007. Correct dosage of Fog2 and Gata4 transcription factors is critical for fetal testis development in mice. Proc. Natl. Acad. Sci. USA 104:14994-14999.

Richard Bowen

Refereed Journal Articles

Bowen, R.A. and N. Nemeth. 2007. Experimental infections with West Nile virus. Curr. Opinion Infect. Dis. 20:293-297.

Brault, A.C., C.Y.-H. Huang, S.A. Langevin, R.M. Kinney, R.A. Bowen, W.N. Ramey, N.A. Panella, E.C. Holmes, A.M. Powers and B.R. Miller. 2007. A single positively selected West Nile viral mutation confers increased virogenesis in American crows. Nature Genet. 39:1162-1166.

Bunning, M.L., P.E. Fox, R.A. Bowen, N. Komar, G.J. Chang, T.J. Speaker, M.R. Stevens, N. Nemeth, N.A. Panellia, S.A. Langevin, P. Gordy, M. Teehee, P.R. Bright and M.J. Turell. 2007. DNA vaccination of the American crow (*Corvus brachyrhynchos*) provides partial protection against lethal challenge with West Nile virus. Avian Dis. 51:573-577.

Davis, A.D., R.J. Rudd and Bowen, R.A. 2007. Effects of aerosolized rabies virus exposure in bats and mice. J. Infect. Dis. 195:1144-1150.

Ellison, L.E., T.J. O'Shea, D.J. Neubaum and R.A. Bowen. 2007. Factors influencing movement of big brown bats (Eptesicus fuscus) in buildings. Ecol. Appl. 17:620-627.

Ellison, L.E., T.J. O'Shea, D.J. Neubaum, M.A. Neubaum, R.D. Pearce and R.A. Bowen. 2007. A comparison of conventional capture versus PIT reader techniques for estimating survival and capture of big brown bats (*Eptesicus fuscus*). ACTA Chiropterologia 9:149-160.

Fine, D.L., B.A. Roberts, M.L. Teehee, S.J. Terpening, C.L.H. Kelly, J.L. Raetz, D.C. Baker, A.M. Powers and R.A. Bowen. 2007. Venezuelan equine encephalitis virus vaccine candidate (V3526) safety, immunogenicity, and efficacy in horses. Vaccine 25:1868-1876.

Nemeth, N.N. and R.A. Bowen. 2007. Dynamics of passive immunity to West Nile virus in domestic chickens (*Gallus gallus domesticus*). Am. J. Trop. Med. Hyg. 76:310-317.

Nemeth, N., G. Kratz, E. Edwards, J. Scherpelz, R. Bowen and N. Komar. 2007. Surveillance for West Nile virus in clinic-admitted raptors, Colorado. Emerg. Infect. Dis. 13:305-307.

Elaine Carnevale

Refereed Journal Articles

Lindbloom, S.L., T.A. Farmerie, C.M. Clay, G.E. Seidel, Jr. and E.M. Carnevale. 2007. Potential involvement of EGF-like growth factors and phosphodiesterases in initiation of equine oocyte maturation. Anim. Reprod. Sci. 103:187-192.

Chapters and Textbooks

Carnevale, E.M. 2007. Collection and transfer of oocytes in mares. In: Current Therapy in Equine Reproduction, J.C. Samper, J.F. Pycock and A.O. McKinnon (eds), Saunders Elsevier, pp. 289-295.

Colin Clay

Refereed Journal Articles

Arreguin-Arevalo, J.A., C.A. Lents, T.A. Farmerie, T.M. Nett and C.M. Clay. 2007. KiSS-1 peptide induces release of LH by a direct effect on the hypothalamus of ovariectomized ewes. Anim. Reprod. Sci. 101:265-275.

Bliss, S.P., A.M. Navratil, M. Breed, D.C. Skinner, C.M. Clay and M.S. Roberson. 2007. Signaling complexes associated with the type I gonadotropin-releasing hormone (GnRH) receptor: Colocalization of extracellularly regulated kinase 2 and GnRH receptor within membrane rafts. Molec. Endocrinol. 21:538-549.

Lindbloom, S.L., T.A. Farmerie, C.M. Clay, G.E. Seidel, Jr. and E.M. Carnevale. 2007. Potential involvement of EGF-like growth factors and phosphodiesterases in initiation of equine oocyte maturation. Anim. Reprod. Sci. 103:187-192.

Navratil, A.M., J.G. Knoll, J.D. Whitesell, S.A. Tobet and C.M. Clay. 2007. Neuroendocrine plasticity in the anterior pituitary: GnRH mediated movement *in vitro* and *in vivo*. Endocrinology 148:1736-1744.

Smith, J.T., C.M. Clay, A. Caraty and I.J. Clarke. 2007. KiSS-1 messenger ribonucleic expression in the hypothalamus of the ewe is regulated by sex steroids and season. Endocrinology 148:1150-1157.

Scott Earley

Refereed Journal Articles

Earley, S., S.V. Straub, J.E. Brayden. 2007. Protein kinase C regulates vascular myogenic tone through activation of TRPM4. Am. J. Physiol. Heart Circ. Physiol. 292:2613-2622.

Mark Frasier

Textbooks

Frasier, M. 2007. Domestic Animal Anatomy Laboratory Guide. Revised edition. Giddings Studio, Fort Collins, CO.

Frasier, M. 2007. Domestic Animal Anatomy Lecture Notes. Revised edition. Giddings Studio, Fort Collins, CO.

Frasier, M. 2007. Domestic Animal Anatomy Dissection Laboratory Guide. Revised edition. Giddings Studio, Fort Collins, CO.

James Graham

Chapters and Textbooks

Graham, J.K. and C. Card. 2007. Preservation of genetics from dead or dying stallions. In: Current Therapy in Equine Reproduction, J.C. Samper, J.F. Pycock and A.O. McKinnon (eds), Saunders Elsevier, pp. 181-184.

Robert Handa

Refereed Journal Articles

Chung, W.C.J., T.R. Pak, S. Suzuki, W.A. Pouliot and R.J. Handa. 2007. Detection and localization of an estrogen receptor beta splice variant (ERb2) protein in the adult rat brain. J. Comp. Neurol. 505:249-267.

Foradori, C.D., M. Amstalden, L.M. Coolen, S.R. Singh, C.J. McManus, R.J. Handa, R.L. Goodman and M.N. Lehman. 2007. Orphanin FQ: Evidence for a role in the control of the reproductive neuroendocrine system. Endocrinology 148:4993-5001.

Foradori, C.D., T.D. Lund, A.H. Nagahara, J.I. Koenig and R.J. Handa. 2007. Corticotropin releasing hormone heterogeneous RNA (hnRNA) and immunoreactivity is induced in novel brain sites following kainate elicited seizures and is altered by estrogen. Brain Res. 1164:44-54.

Foradori, C.D., S.M. Werner, U.S. Sandau, L.R. Hinds and R.J. Handa. 2007. Activation of the androgen receptor alters the intracellular calcium response to glutamate in primary hippocampal neurons and modulates sarco/endoplasmic reticulum ATPase 2. Neuroscience 149:155-164.

Handa, R.J., R.T. Zoeller and R.F. McGivern. 2007. Vasoactive intestinal polypeptide (VIP) and arginine vasopressin (AVP) mRNAs are altered by footshock stress in the suprachiasmatic nucleus of the rat hypothalamus. Neurosci. Lett. 425:99-104.

Pak, T.R., W.C.J. Chung, L.R. Hinds and R.J. Handa. 2007. Estrogen receptor-beta mediates DHT-induced stimulation of the arginine vasopressin promoter in neuronal cells. Endocrinology 148:3371-3382.

Sandau, U.S. and R.J. Handa. 2007. Glucocorticoids exacerbate hypoxia-induced expression of the pro-apoptotic gene Bnip3 in the developing cortex. Neuroscience 144:482-494.

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Handa, R.J. and W.C.J. Chung. 2007. Gender and stress. In: The Encyclopedia of Stress, 2nd Edition, G. Fink (ed). Academic Press.

Handa, R.J. and T.R. Pak. 2007. Androgen action. In: The Encyclopedia of Stress, 2nd Edition, G. Fink (ed). Academic Press.

Thomas Hansen

Refereed Journal Articles

Gifford, C.A., K. Racicot, D.S. Clark, K.J. Austin, T.R. Hansen, M.C. Lucy, C.J. Davies and T.L. Ott. 2007. Regulation of interferon-stimulated genes in peripheral blood leukocytes in pregnant and bred, nonpregnant dairy cows. J. Dairy Sci. 90:274-280.

Hansen, T.R. and D. Galligan. 2007. Strategies for early diagnosis of open/pregnant cows: Current status, economical implications. Proceedings of the Dairy Cattle Reproduction Council, J. Dairy Sci. (Suppl.) 2:93-107.

Kaneko-Tarui, T., L. Zhang, K.J. Austin, L.E. Henkes, J. Johnson, T.R. Hansen and J.K. Pru. 2007. Maternal and embryonic control of uterine sphingolipid-metabolizing enzymes during murine embryo implantation. Biol. Reprod. 77:658-665.

Kashiwagi, A., C.M. Digirolamo, Y. Kanda, Y. Niikura, C.T. Esmon, T.R. Hansen, T. Shioda and J.K. Pru. 2007. The postimplantation embryo differentially regulates endometrial gene expression and decidualization. Endocrinology 148:4173-4184.

Rempel, L.A., K.J. Austin, K.J. Ritchie, M. Yan, M. Shen, D.E. Zhang, L.E. Henkes and T.R. Hansen. 2007. Ubp43 gene expression is required for normal Isg15 expression and fetal development. Reprod. Biol. Endocrinol. 5:13 (15 pp.).

Sorensen, C.M., L.A. Rempel, S.R. Nelson, B.R. Francis, D.J. Perry, R.V. Lewis, A.L. Haas and T.R. Hansen. 2007. The hinge region between two ubiquitin-like domains destabilizes recombinant ISG15 in solution. Biochemistry 46:772-780.

Shane Hentges

Refereed Journal Articles

Hentges, S.T. 2007. Synaptic regulation of proopiomelanocortin neurons can occur distal to the arcuate nucleus. J. Neurophysiol. 95:3298-3304.

Douglas Ishii

Refereed Journal Articles

Lupien, S.B., E.J. Bluhm and D.N. Ishii. 2006. Effect of IGF-1 on DNA, RNA and protein loss associated with brain atrophy and impaired learning in diabetic rats. Neurobiol. Dis. 21:487-495.

Seigel, G.M., S.B. Lupien, L.M. Campbell and D.N. Ishii. 2006. Systemic IGF-1 treatment inhibits cell death in diabetic rat retina. J. Diab. Complications. 20:196-204.

Sue Kinnamon

Refereed Journal Articles

Stone, L.M., J. Barrows, T.E. Finger and S.C. Kinnamon. 2007. Co-expression of T1Rs and the gustducin in palate taste cells of mice. Chem. Senses 32:255-262.

Chun-Ying Ku

Referred Journal Articles

Ku, C.-Y., L. Babich, R.A. Word, M. Zhong, A. Ulloa, M. Monga and B.M. Sanborn. 2006. Expression of transient receptor channel proteins in human fundal myometrium in pregnancy. J. Soc. Gynecol. Invest. 13:217-225.

Massrieh, W., A. Derjuga, F. Doualla-Bell, C.-Y. Ku, B.M. Sanborn and V. Blank. 2006. Regulation of the MAFF transcription factor by proinflammatory cytokines in myometrial cells. Biol. Reprod. 74:699-705.

James Madl

Refereed Journal Articles

Alyahya, K., C.-T. Chen, B.G. Mangan, J.R. Gionfriddo, M.E. Legare, R.R. Dubielzig and J.E. Madl. 2007. Microvessel loss, vascular damage and glutamate redistribution in the retinas of dogs with primary glaucoma. Vet. Ophthalmol. 10:70-77.

Mangan, B.G., K. Al-Yahya, C.-T. Chen, J.R. Gionfriddo, C.C. Powell, R.R. Dubielzig, E.J. Ehrhard and J.E. Madl. 2007. Retinal pigment epithelial damage, breakdown of the blood-retinal barrier, and retinal inflammation in dogs with primary glaucoma. Vet. Ophthalmol. 10:117-124.

Terry Nett

Refereed Journal Articles

Arreguin-Arevalo, J.A., T.L. Davis and T.M. Nett. 2007. Differential modulation of gonadotropin secretion by selective estrogen receptor 1 and estrogen receptor 2 agonists in ovariectomized ewes. Biol. Reprod. 77:320-328.

Arreguin-Arevalo, J.A., C.A. Lents, T.A. Farmerie, T.M. Nett and C.M. Clay. 2007. KiSS-1 peptide induces release of LH by a direct effect on the hypothalamus of ovariectomized ewes. Anim. Reprod. Sci. 101:265-275.

Scholljegerdes, E.J., S.L. Lake, T.R. Weston, D.C. Rule, G.E. Moss, T.M. Nett and B.W. Hess. 2007. Fatty acid composition of plasma, medial basal hypothalamus, and uterine tissue in primiparous beef cows fed high-linoleate safflower seeds. J. Anim. Sci. 85:1555-1564.

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Niswender, G.D., T.L. Davis, R.J. Griffith, R.L. Bogan, K. Monser, R.C. Bott, J.E. Bruemmer and T.M. Nett. 2007. Judge, jury and executioner: The auto-regulation of luteal function. In: Reproduction in Domestic Ruminants VI. JL Juengel, JF Murray, MF Smith (eds), Nottingham University Press, Nottingham, UK, pp. 191-206.

Gordon Niswender

Refereed Journal Articles

Bogan, R.L., T.L. Davis and G.D. Niswender. 2007. Peripheral-type benzodiazepine receptor (PBR) aggregation and absence of steroidogenic acute regulatory protein (StAR)/PBR association in the mitochondrial membrane as determined by bioluminescence resonance energy transfer (BRET). J. Steroid Biochem. Molec. Biol. 104:61-67.

Bogan, R.L. and G.D. Niswender. 2007. Constitutive steroidogenesis in ovine large luteal cells may be mediated by tonically active protein kinase A. Biol. Reprod. 77:209-216.

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Niswender, G.D., T.L. Davis, R.J. Griffith, R.L. Bogan, K. Monser, R.C. Bott, J.E. Bruemmer and T.M. Nett. 2007. Judge, jury and executioner: The auto-regulation of luteal function. In: Reproduction in Domestic Ruminants VI. JL Juengel, JF Murray, MF Smith (eds), Nottingham University Press, Nottingham, UK, pp. 191-206.

Kathryn Partin

Refereed Journal Articles

Bedoukian, M.A., A.M. Weeks and K.M. Partin. Different domains of the AMPA receptor direct stargazin-mediated trafficking and stargazin-mediated modulation of kinetics. J. Biol. Chem. 281:23908-23921.

Gary Pickard

Refereed Journal Articles

Hartwick, A.T.E., J.R. Bramley, J. Yu, K.T. Stevens, C.N. Allen, W.H. Baldridge, P.J. Sollars and G.E. Pickard. 2007. Light-evoked calcium response of isolated melanopsin-expressing retinal ganglion cells. J. Neurosci. 27:13468-13480.

John Rash

Refereed Journal Articles

Hamzei-Sichani, F., N. Kamasawa, W.G.M. Jannsen, T. Yasumura, K.G.V. Davidson, P.R. Hof, S.L. Wearne, M.G. Stewart, S.R. Young, M.A. Whittington, J.E. Rash and R.D. Traub. 2007. Gap junctions on hippocampal mossy fiber axons demonstrated using thin-section electron microscopy and freeze-fracture replica immunogold labeling. Proc. Natl. Acad. Sci. 130:12548-12553.

Rash, J.E., C.O. Olson, K.G.V. Davidson, T. Yasumura, N. Kamasawa and J.I. Nagy. 2007. Identification of connexin36 in gap junctions between neurons in rodent locus coeruleus. Neuroscience 147:938-956.

Rash, J.E., C.O. Olson, W.A. Pouliot, K.G.V. Davidson, T. Yasumura, C.S. Furman, S. Royer, N. Kamasawa, J.I. Nagy and F.E. Dudek. 2007. Connexin 36, miniature neuronal gap junctions, and limited electrotonic coupling in rodent suprachiasmatic nucleus (SCN). Neuroscience 149:350-371.

Noreen Reist

Refereed Journal Articles

Tamura, T., J. Hou, N.E. Reist and Y. Kidokoro. 2007. Nerve-evoked synchronous release and high K+-induced quantal events are regulated separately by Synaptotagmin I at Drosophila neuromuscular junctions. J. Neurophysiol. 97:540-549.

Deborah Roess

Refereed Journal Articles

Barisas, B.G., S.M. Smith, J. Liu, J. Song, G.M. Hagen, I. Pecht and D.A. Roess. 2007. Compartmentalization of the Type I F_{CE} receptor and MAFA on mast cell membranes. Biophys. Chem. 126:209-217.

Lei, Y., G.M. Hagen, S.M.L. Smith, J. Liu, G. Barisas and D.A. Roess. 2007. Constitutively-activated human LH receptors are self-associated and located in rafts. Molec. Cell. Endocrinology 260-262:65-72.

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Roess, D.A., S.M.L. Smith, A.A. Holder, B. Baruah, A.M. Trujillo, D. Gilsdorf, M.L. Stahla and D.C. Crans. 2007. Do vanadium compounds drive reorganization of the plasma membrane and activation of insulin receptors with lipid rafts? In: Vanadium: The Versatile Metal, K. Kustin, D.C. Crans and J.C. Pessoa (eds). Oxford University Press, pp. 121-135.

Barbara Sanborn

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George Seidel

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Patricia Sollars

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Edward Squires

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Michael Tamkun

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Stuart Tobet

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Rao Veeramachaneni

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Gordon Woods

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BUDGET — 2006/2007

Biomedical Sciences – Main Accounts	Allocation 7/06-6/07	Expenses 7/06-6/07	Indirect Cost Return Allocation	Expenses
Faculty Salaries	2,458,750	2,209,718		
Admin Pro Salaries	291,003	308,620		3,571
State Classified Salaries	234,693	253,954		76,775
GTA Salaries	67,122	58,107		
Operating/Supplies/ Travel, etc.	198,189	4,597	395,156	7,000
Equipment Reimbursement		51,879		
Other Direct		3,452		8,565
Other (VTA, Dept Head Support, etc)	89,577			
Balance Forward	10,884		2,550	
BCR's	<134,802>		<272,111>	
MOU's	<60,000>		<28,500>	
Dean's Adjustment	<30,000>			
Subtotal	**3,125,416**	**2,890,327**	**97,095**	**95,911**
Division Accounts	**Allocation**	**Expenses**	**Indirect Cost Return Allocation**	**Expenses**
Salaries		46,965		61878
Operating/Supplies/ Travel, etc.	178,189	103,982	221,242	109,477
BCR's	9,979		<1,416>	
Balance Forward	2,728		4,614	
MOU's	<34,400>		<54,774>	
Subtotal	**156,496**	**150,947**	**169,666**	**171,355**
	State Allocation	**Expenses**	**Budgeted**	**Expenses**
Summer Teaching	**41,810**	**53,810**		
Recruiting Expenses			**58,911**	**53,566**
Seminar Expenses			**9,000**	**2,730**
Total Biomedical Sciences	**3,323,722**	**3,095,084**	**334,672**	**323,562**