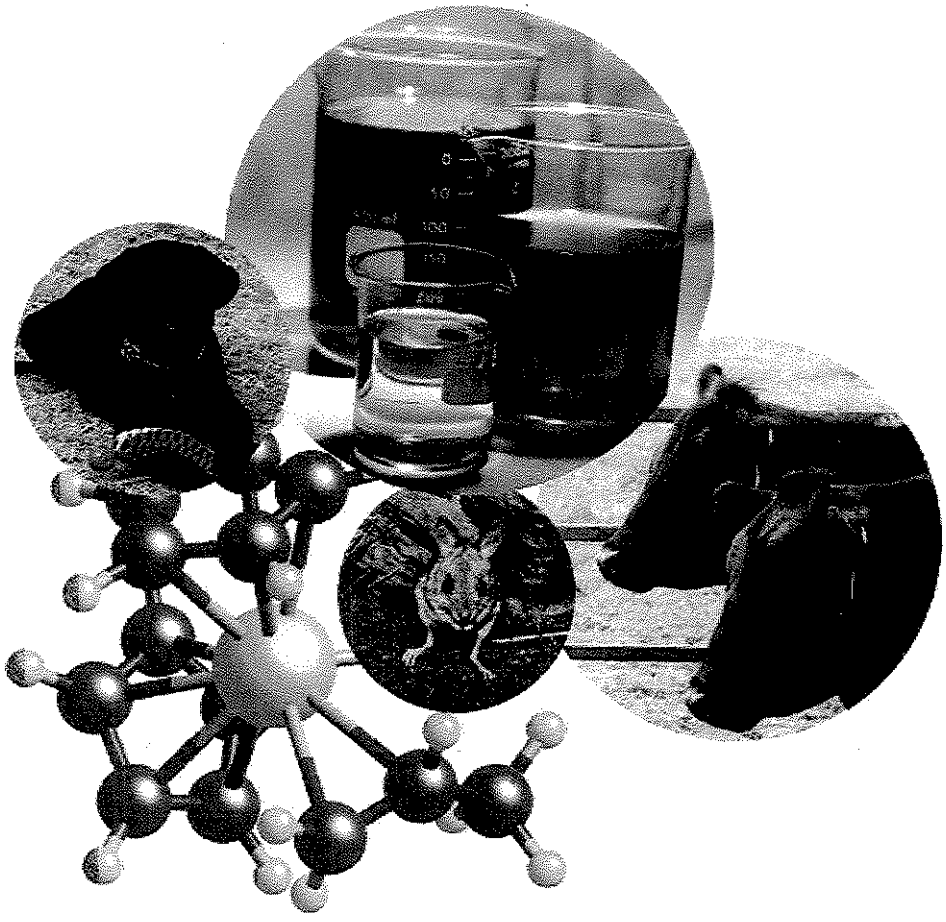
2007

Department of Veterinary and Biomedical Sciences 2007 Annual Report

Department of Veterinary and Biomedical Sciences

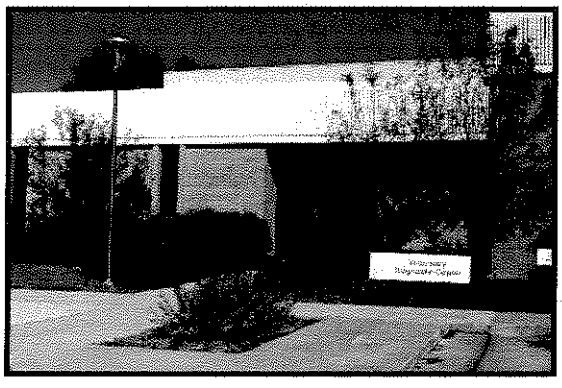


DEPARTMENT 2007 ANNUAL REPORT

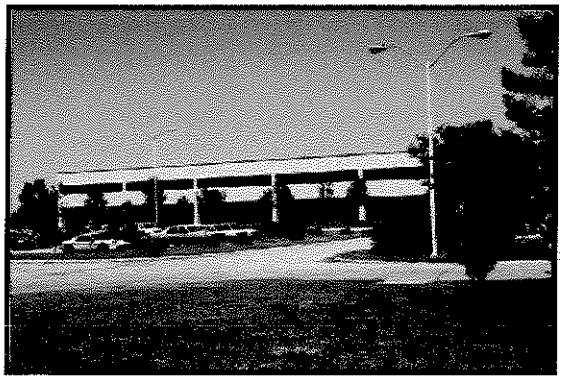
Institute of Agriculture and Natural Resources
University of Nebraska–Lincoln

Department of Veterinary and Biomedical Sciences
• Facilities •

• Veterinary & Biomedical Science, Lincoln, NE •

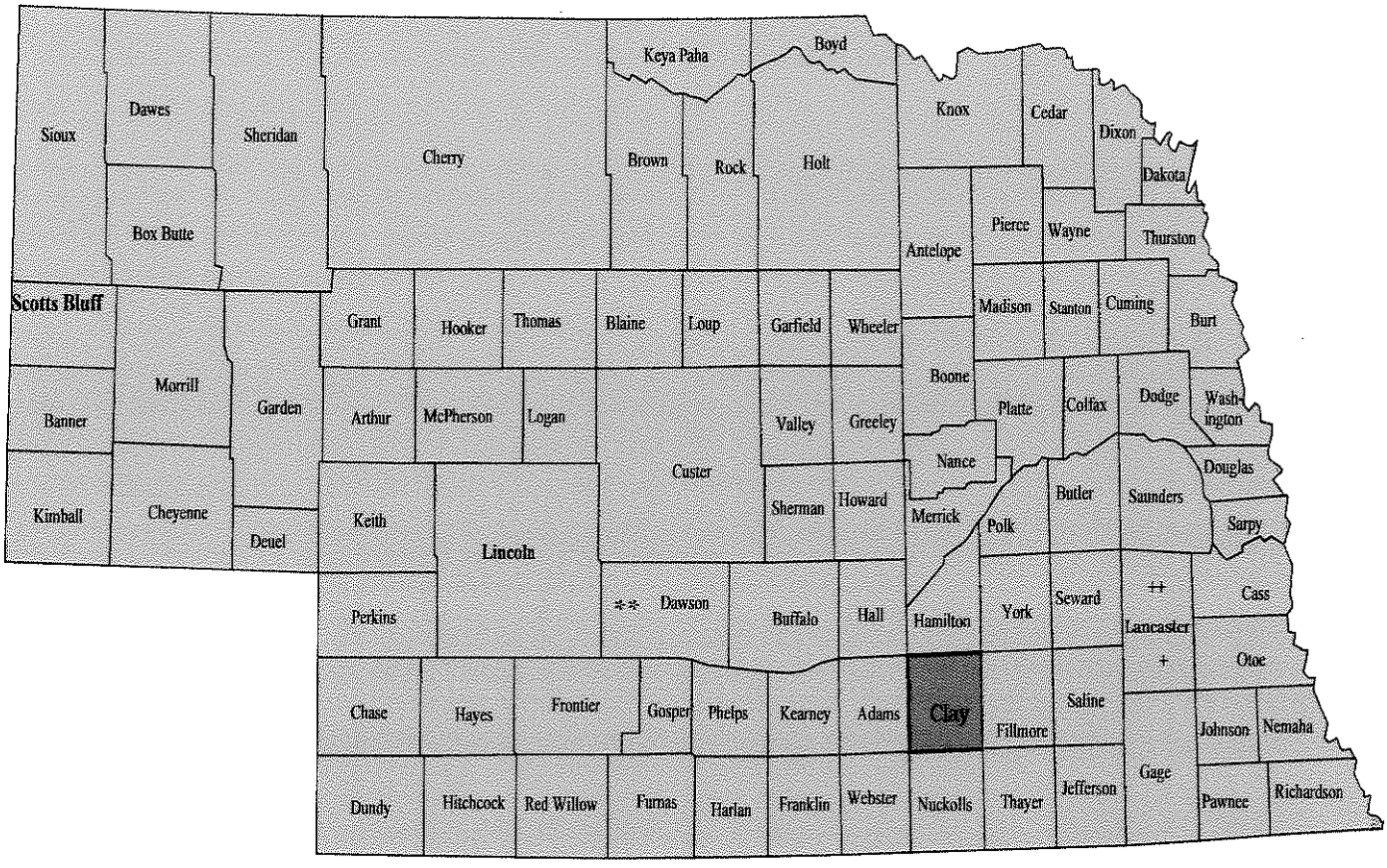


• Veterinary Diagnostic Center, Lincoln, NE •



• Great Plains Veterinary Educational Center, Clay Center, NE •

STATE OF NEBRASKA

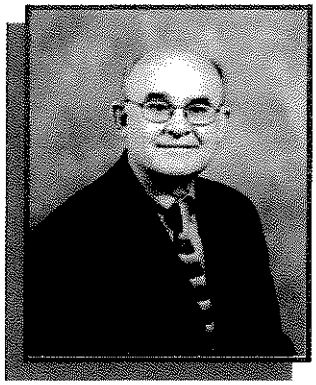


Great Plains Veterinary Educational Center (GPVEC), Clay Center, NE

\+ Veterinary Science Complex, (Veterinary Basic Sciences, Veterinary Diagnostic Center, Animal Research Facility, Sewage Sterilization Plant and Animal Holding Facility)

++ UNL Agricultural Research and Extension Center, Mead, NE (VBMS Beef Cattle Herd)

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine



Foreward

Dr. David K. Hardin, DVM
Professor and Department Head
Associate Dean, Professional Program in Veterinary Medicine

The first class of twenty-five Nebraska students began their DVM degree program at the University of Nebraska-Lincoln. The new program provides for students from Nebraska to complete their first two years of the professional school at UNL. The second two years of training will be completed at the College of Veterinary Medicine, Iowa State University. Under the agreement, the students will pay Iowa State resident tuition rates all four years.

To prepare for the new program, an anatomy teaching laboratory, classroom and microbiology laboratory were develop by renovating space in the Animal Science Complex. New faculty members hired to teach the courses that make up the first two years of the professional curriculum include Dr. Jennifer Wood and Dr. Tom Burkey, veterinary physiology; Dr. John Kammermann, veterinary anatomy; Dr. Jay Reddy, veterinary immunology; Dr. Gary Pickard, neurobiology; Dr. Doug Hostetler, veterinary surgery. Faculty searches are underway for a veterinary parasitologist, veterinary pathologist and veterinary epidemiologist. In addition to these positions, Dr. Jeff Ondrak join the faculty at GPVEC as a Beef Cattle Clinical Veterinarian.

The Department completed its CSREES and UNL 5-year review during the year and the feedback from the review team was very favorable. The department is encourage to maintain its research focus in the area of infectious diseases and biomedical research and commented on the positive addition of the 2+2 Program and how it complemented the program.

The Veterinary Diagnostic Center prepared for its five year AAVLD accreditation visit. The report was prepared and the site visit is schedule for early January 2008. We are concerned regarding the crowded conditions within the laboratories. In addition, this will be the first time the accreditation process will focus on Standard Operating Procedures within the laboratory.

The undergraduate program has had steady growth since a low point in 2003. Much of this growth is credited to the creation of the Professional Program in Veterinary Medicine. The graduate program remains solid, as does the extramural research funding. To strengthen our extension program, Dr. Richard Randle was hired to focus on beef cattle extension activities.

Additional activities include discussion with the Department of Animal Science and the Dean's Office to strengthen collaborative efforts in student recruitment and clarify some of the confusion related to Pre-vet students.

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Department of Veterinary and Biomedical Sciences and Professional Program in Veterinary Medicine 2007 Personnel

Faculty

Barletta, Raúl G.* BS, MS, PhD ..... Professor/PPVM
Brodersen, Bruce W.[1]* BS, DVM, MS, PhD ..... Assistant Professor/PPVM
Burkey, Thomas E.[1]* BS, MS, PhD ..... Assistant Professor/PPVM
Carlson, Michael P.[1], BS, MS, PhD ..... Assistant Professor of Practice
Das, Subash, DVM, MVS, PhD ..... Research Assistant Professor
Delhon, Gustavo A.[1], DVM, MSc, PhD ..... BSL-3 Facility Director/PPVM
Doster, Alan R.* DVM, MS, PhD, ACVP ..... Professor/PPVM
Duhamel, Gerald E.[LOA] BS, DMV, PhD, ACVP ..... Professor
Fernando, M. Rohan[2], BS, MSc, PhD, MPhil ..... Research Assistant Professor
Griffin, D. Dee* BS, DVM, MS ..... Professor/PPVM
Hardin, David K.*, DVM, Diplomat ACT ..... Professor, Dept. Head and Associate Dean
Hardin, Laura E., DVM, MS, PhD ..... Curriculum and Assessment/PPVM
Hostetler, Douglas E.[1]* DVM, MS ..... Associate Professor/PPVM
Jones, Clinton J.* BA, PhD ..... Professor
Kammermann, John R.[1]* BS, MS, PhD ..... Assistant Professor/PPVM
Kelling, Clayton L.* BS, MS, PhD, DVM ..... Professor
Keen, James E.[1]* BS, BS, DVM, PhD ..... Associate Professor/PPVM
Lou, Marjorie F.* BS, MS, PhD ..... Professor/PPVM
McVey, David S.* PhD, DVM ..... Professor/PPVM
Moxley, Rodney A.* DVM, PhD ..... Professor/PPVM
Ondrak, Jeff D., DVM, BS ..... Lecturer/PPVM
Osorio, Fernando A.* MV, MS, PhD, ACVM ..... Professor/PPVM
Pattnaik, Asit K.* BS, MS, PhD ..... Professor
Paul, Prem S.* BVSc, PhD ..... Professor, UN-L, Vice Chancellor for Research
Randle, Richard F.*[1] MS, DVM ..... Associate Professor
Reddy, N R Jayagopala[1]* DVM, MVSc, PhD ..... Associate Professor/PPVM
Rogers, Douglas G.* BS, DVM, MS, PhD ..... Professor/PPVM
Rupp, Gary P.* DVM, MS ..... Professor/PPVM
Smith, David R.* BS, DVM, PhD, ACVPM, ABVP ..... Professor/PPVM
Somerville, Greg A.* PhD, MS, BS ..... Assistant Professor/PPVM
Steffen, David J.* BS, DVM, PhD, ABVP ..... Professor
Wohlers, Arden, BS, DVM ..... Extension Assistant Professor
Wood, Jennifer R.[1],* BA, MS, PhD ..... Assistant Professor
Zhou, Joe Y., BSc, PhD ..... Research Associate Professor

[1] Appointment Began in 2007
[2] Appointment Ended in 2007
* Graduate Faculty
Ø Promoted in 2007
[LOA] Leave of Absence

Department of Veterinary and Biomedical Sciences
Postdoctoral and Senior Research Associates, 2007

Barletta-Chacón, Ofelia, ... Postdoctoral Research Associate
Kwon, Byungjoon[1], DVM, MS, PhD ..... Postdoctoral Research Associate
Li, Sumin[1], BS, MS, PhD ..... Postdoctoral Research Associate
Sadykov, Marat R.[1], MSc, PhD ..... Postdoctoral Research Associate
Topliff, Christina, BS, DVM, MS, PhD ..... Postdoctoral Research Associate
Xing, Kuiyi, BS, PhD ..... Senior Research Associate

Department of Veterinary and Biomedical Sciences
Adjunct Assistant/Associate and Courtesy Faculty, 2007

Cirillo, Jeffrey D.*, BA, PhD, MS ..... Adjunct Associate Professor
Chenoweth, Peter J.,* BVSc, PhD ..... Adjunct Professor
DeGroff, Terry, DVM ..... Adjunct Assistant Professor
Donis, Ruben O.,* MV, PhD ..... Adjunct Professor
Fajt, Virginia R., DVM, PhD ..... Adjunct Instructor
Grotelueschen, Dale M.* , DVM, MS ..... Adjunct Professor
Hesse, Richard*, BA, MS, PhD ..... Adjunct Assistant Professor
Hunsaker, Beck D.,* BS, DVM, MS, PhD ..... Adjunct Assistant Professor
Kador, Peter*, BA, PhD ..... Adjunct Professor
Keen, James Edward[2], BS, BS, DVM, PhD ..... Adjunct Associate Professor
Laegreid, William, BS, MS, DVM, PhD ..... Adjunct Associate Professor
Larson, Robert L., BS, DVM, PhD ..... Adjunct Assistant Professor
Lechtenberg, Kelly F.*, BS, DVM, PhD ..... Adjunct Assistant Professor
Loskutoff, Nadia, BS, MS, PhD ..... Adjunct Assistant Professor
Oestmann, Daniel J., BS, DVM, PhD ..... Adjunct Courtesy Assistant Professor
Petro, Thomas,* BS, MA, PhD ..... Courtesy Professor
Rock, Daniel*, BSE, PhD ..... Adjunct Associate Professor
Sanderson, Michael, BS, DVM, MS ..... Adjunct Associate Professor
Sargeant, Janice Merrill , DVM, MSc, PhD ..... Adjunct Assistant Professor
Spitzer, John C., BS, MS, PhD ..... Adjunct Professor
Wach, Ricky Sue B., BA, DVM, MA ..... Courtesy Instructor
Wood, Charles*, BA, MA, MPhil, PhD ..... Courtesy Professor
Zimmerman, Jeffrey J., BA, DVM, MS, PhD ..... Adjunct Associate Professor

Emeriti Faculty

Erickson, E. Denis*, DVM, PhD, ACVM ..... Professor Emeritus
Frey, Merwin,* BS, DVM, MS, PhD ..... Professor Emeritus
Johnson, Jerre L.,* BS, DVM, PhD ..... Professor Emeritus
Rhodes, Marvin,* BS, MS ..... Professor Emeritus
Rice, Duane, BS, DVM ..... Professor Emeritus
Schmitz, John A.,* DVM, PhD, ACVP ..... Professor Emeritus
Srikumaran, Subramaniam* BVSc, MS, PhD ..... Professor Emeritus
White, R. Gene,* BS, DVM, MS ..... Professor Emeritus

[1]Appt began in 2007 - [2]Appt ended in 2007

Department of Veterinary and Biomedical Sciences Personnel Administrative, Research, Diagnostic and Off-Campus Units, 2007

Department Administrative Personnel

- ■Hardin, David K., DVM, Diplomat ACT ..... Professor, Dept. Head and Associate Dean
- Brayton, Daisymae E.[1], BS ..... Administrative Associate
- Gellatly, Rene K.[2], BS ..... Administrative Team Manager
- Johnson, Lilo B. ..... Staff Assistant
- Martinez, Patsy A.[1], AA ..... Secretarial Specialist

Professional Program in Veterinary Medicine (PPVM)

- ■Hostetler, Doulgas E.[1], DVM, MS ..... Associate Professor/Coordinator of Student Affairs
- Hallberg, Andria S.[1], BS, Org Mgmt ..... Office Associate/PPVM
- Hardin, Laura E.[1], DVM, MS, PhD ..... Coordinator/Senior Lecturer

ABE Business Center Personnel

- ■Specht, John Allen, MBA ..... Business Manager
- Albrecht, Roxann R. ..... Administrative Support Associate
- DeWald, Debra K. ..... Personnel Generalist

Animal Care Program

- ■Rogers, Douglas G., BS, DVM, MS, PhD ..... Faculty Supervisor

Anatomy Teaching Program, ISU/UNL Professional Program in Veterinary Medicine (PPVM)

- ■Kammermann, John R.[1], BS, MS, PhD ..... Anatomy, Assistant Professor
- Hiskey, Heather J.[1], AAS, BS ..... Laboratory Technologist

ARF (Animal Research Facility), Lincoln, Nebraska

- ■Clowser, Blaine A., BS ..... ARF Animal Operation's Manager
- Bailey, Bruce E. ..... O/S Temporary Worker
- Ellis, Geoffrey[2] ..... Student Worker
- Goes, Tanner G.[2] ..... Student Worker
- Grotrian, Bonita K. ..... Agriculture Research Technician I
- Klintworth, Mary Chris[1] ..... O/S Temporary Worker
- Lytle, Kandy[2] ..... Research Technician II
- Nutt, Clarissa[1] ..... Agricultural Research Technician I
- Schmitz, Chad[1] ..... Agricultural Research Technician I
- Shultz, Mikaleh[2] ..... O/S Temporary Worker
- Stander, Janet E. ..... Agriculture Research Technician I
- Tucker, Steve ..... Office/Service On Call Worker

VBMS/ARDC - (Agriculture Research and Development Center) Ithaca, Nebraska

- ■Clowser, Blaine A., BS ..... ARDC Manager
- Bergman, Benjamin ..... Agricultural Research Technician I
- Heldt, Justin M. ..... Office/Service On Call Worker

[1]Appt began in 2007 [2]Appt ended in 2007

BioSafety Level-3 Facility, Lincoln, Nebraska

■Delhon, Gustavo A.[1], DVM, MSc, PhD ..... Director, BSL-3 Facility

Pre-Veterinary Advising

■Steffen, David J.[2], BS, DVM, PhD, ABVP ..... Advisor
■Hardin, Laura E.[1], DVM, MS, PhD ..... Coordinator/Senior Lecturer

Cataract Research

■Lou, Marjorie F., PhD ..... Biomedical Biochemist, Professor
Fernando, M. Rohan[2], BS, MSc, PhD, M.Phil. ..... Research Assistant Professor
Huo, YaNan[1], MD ..... Visiting Faculty
Lechner, Joel M.[1], BS ..... (Biochemistry Major) MS Student
Wang, Yin, BS, MS ..... (Biochemistry Major) PhD Student
Xing, Kuiyi[2], BS, PhD ..... Senior Research Associate

Immunology Research, ISU/UNL Professional Program in Veterinary Medicine (PPVM)

■Reddy, NR Jayagopala[1], DVM, MVSc, PhD ..... Immunologist, Associate Professor

Microbiology Research

■Barletta, Raúl G., PhD ..... Bacteriologist, Associate Professor
Barletta-Chacón, Ofelia, MSc, MD, PhD ..... Postdoctoral Research Associate
Dogra, Harshdeep, BS, MS ..... PhD Student
Fenton, Robert J.[2] ..... Office/Service Temporary Worker
Paulson, Avery[1], BS, MS ..... PhD Student
Zinniel, Denise, BS, MS ..... Research Laboratory Manager I

■Duhamel, Gerald E.[LOA], DVM, PhD ..... Pathologist & Microbiologist, Professor
Gulzar, Admad[2], BVSc ..... MS Student
Liyanage, Namal[1] BA, MS ..... PhD Student
Navarathna, Dhammika[2], BVSc ..... PhD Student
Reddy, Roopa[1], BS, ... MS Student
Risika, Jinadasa[2], BVSc ..... MS Student
Stryker, Cynthia, J.[2] ..... Research Technician III

■Moxley, Rodney A., DVM, PhD ..... Pathologist & Bacteriologist, Professor
Bailey, Doreen, AS, MT (Asst BioSci) ..... Research Technician III
Bretschneider, Gustavo[2], DVM ..... PhD Student
Erume, Joseph, DVM, MS ..... PhD Student
Hansen, Karen[2], BA ..... Research Technician III

■Somerville, Greg A., PhD, MS, BS ..... Microbiologist, Assistant Professor
Jacobs, Erik[2], BS (Withdrew) ..... (Biochemistry) MS Student
Kramer, Devon P.[2], BS (Withdrew) ..... PhD Student
Levorson, Erica ..... Undergraduate Student
Lucas, Melissa[2], BS ..... (Biochemistry) MS Student
Sadykov, Marat R.[1], MSc, PhD ..... Postdoctoral Research Associate
Zhu, Yefei, MEDI, MSVc ..... PhD Student

[1]Appt began in 2007 [2]Appt ended in 2007

Virology Research

■Jones, Clinton J., PhD ..... Virologist, Professor
da Silva, Leticia F.[1], DVM, MS ..... PhD Student
Gaudveavlt, Natasha[1], BS ..... (SBS) PhD Student
Henderson, Gail, MA ..... Laboratory Manager
Jaber, Tariq[1], BS, MS ..... (SBS) PhD Student
Li, Sumin[1], BS, MS, PhD ..... Postdoctoral Research Assoicate
Meyer, Florencia, BS, MS ..... (SBS) PhD Student
Rose, Susanne ..... (SBS) PhD Student
Shen, Wenwen[1], BS ..... MS Student
Saira, Kazima, BS, MS ..... PhD Student
Vitvitskaia, Olga V.[1], BS ..... MS Student

■Kelling, Clayton L., DVM, PhD ..... Virologist, Professor
Abdulrahman, Alkheraif,[1], BS ..... MS Student
Graiver, David[1], BS ..... (Engineering) MS Student
Mori, Yuko[2], BS ..... MS Student
Sampson, Holly C., BS ..... MS Student
Topliff, Christina, BS, DVM, MS, PhD ..... Postdoctoral Research Associate

■Pattnaik, Asit K., BS, MS, PhD ..... Professor
Ansari, Israrul H., BSc, MSc, PhD ..... Researcher
Das, Phani Bhusan, BVSc ..... PhD Student
Das, Subash C., BSVc, MVSc, PhD ..... Research Assistant Professor
Nayak, Debasis, BVSc, MVSc ..... PhD Student
Gill, Zhi Hong ..... Laboratory Assistant II

■Osorio, Fernando A., MV, PhD ..... Virologist, Professor
Beura, Lalit, BVSc ..... PhD Student
Brito, Monica R.[2], BS, MS ..... Laboratory Manager
Dinh, Phat Xuam[1], BS ..... MS Student
de Lima, Marcelo[2], DVM, MS ..... Visiting Scholar
Hsu, Ching Hsin[2], BS ..... MS Student
Kwon, Byungjoon, DVM, MS, PhD ..... Postdoctoral Research Associate
Subramaniam, Sakthivel, BVSc, MVSc ..... PhD Student
Vu, Hiep Lai-Xuan[1], DVM ..... MS Student

VBS Research Support Glassware Preparation Laboratory

■Barletta, Raúl G., PhD ..... Bacteriologist, Professor
Rajagopol, Janaki ..... Lab Assistant II

UNL Core Microscopy Facility - Beadle Center

Zhou, You (Joe), BSc, PhD ..... Director, UNL Core Microscopy Laboratory

Veterinary Epidemiology Research

■Smith, David R., DVM, PhD, ACVPM, ABVP ..... Faculty Supervisor, Extension
Clowser, Sharon L., BS ..... Extension Assistant
Oliveira, Marilia[2], DVM, MS ..... Extension Assistant
Paulson, Avery[1], BS, MS ..... PhD Program

[1]Appt began in 2007 [2]Appt ended in 2007

Extension

Clowser, Sharon L., BS ..... Extension Assistant, Lincoln
Griffin, D. Dee, DVM, MS ..... Feedlot Cattle, GPVEC
Smith, David R., DVM, PhD ..... Dairy and Beef Cattle Veterinarian, Lincoln

Veterinary Diagnostic Center (VDC) Office Personnel

▪Steffen, David J., DVM, PhD ..... Director
Ellis, Roxane L., BS ..... Specialist
Haahr, Patricia K. ..... Accounting Clerk II
Henning, Donna J.[1] ..... Medical Transcriptionist
Laws, Lenora L.[1] ..... Medical Transcriptionist
Seelmeyer, Mavis C.[1] ..... Staff Assistant

Bacteriology

▪McVey, David S.[1], PhD, DVM ..... Microbiologist/Bacteriology, Professor
Bauman, Jamie R. ..... Research Technician III
Bradaric, Marijana, BS ..... Research Technician III
Combs, Becky S.[2] ..... Research Technician III
Gehers, Angela[2] ..... Research Technician III
Kuszak, Jennifer, BS ..... MS Student/Laboratory Specialist
Olsen, Cassandra J.[2] ..... Research Technologist
Pike, Laura G., BS ..... Research Technician III
Royal, Deb, AS, BS ..... Reserach Manager Laboratory II

VDC Glassware Preparation Lab

▪Wheeler (Galeota), Judith G., BS ..... Supervisor
Heyer, Mary ..... Lab Assistant III

Histology

▪Brodersen, Bruce W.[1], DVM, MS, PhD ..... Faculty Supervisor
Bell, Diane K.[1], HT(ASCP), BAM ..... Research Manager Laboratory I
Claussen, Pat, CDA ..... Histological Technician III
Fields, Rosa M. ..... Histological Technician III
Johns, LaVonne, HT ..... Histological Technician III
Olmscheid, Robin[2], HT ..... Laboratory Supervisor
Premaratnemenike, Kalyani AMVK[2], BSc ..... Histological Technician III

Necropsy

▪Doster, Alan R., DVM, PhD ..... Pathologist, Faculty Supervisor
Grossman, Sharon L., BS ..... Research Technician III
Riggert, Christen, BS, AS ..... Research Technician III

Pathology

▪Doster, Alan R., DVM, PhD ..... Pathologist
Brodersen, Bruce W., DVM, MS, PhD ..... Pathologist
Henningson, Jamie, BS, DVM ..... PhD Student
Rogers, Douglas G., DVM, PhD ..... Pathologist
Steffen, David J., DVM, PhD ..... Pathologist

[1]Appt began in 2007 [2]Appt ended in 2007

Toxicology

▪Carlson, Michael P., PhD ..... Diagnostic Toxicologist/Analytical Chemist
Rajurkar, Sanju K., MS ..... Research Technician II

Virology

▪Kelling, Clayton L., DVM, PhD ..... Virologist, Faculty Supervisor
Braswell, Steve, AA, BS ..... Research Technician III
Dabydeen, Fredrick N. ..... Laboratory Assistant II
Frink-Kotschwar, Stephanie K. ..... Research Technician III
Wheeler (Galeota), Judith G., BS ..... Laboratory Manager
Lin, Qin, BS ..... Research Technician III
McCoy, Shannen[2], BS ..... Research Technician III
Moural, Timothy W., BS ..... Research Technician III
Russ, Julia A., BS ..... Research Technician III
Xie, Liping, MD ..... Assistant Laboratory Manager

Quality Assurance Program

Martinsen-Bloom, Angela M.[1], MS ..... Quality Assurance Manager

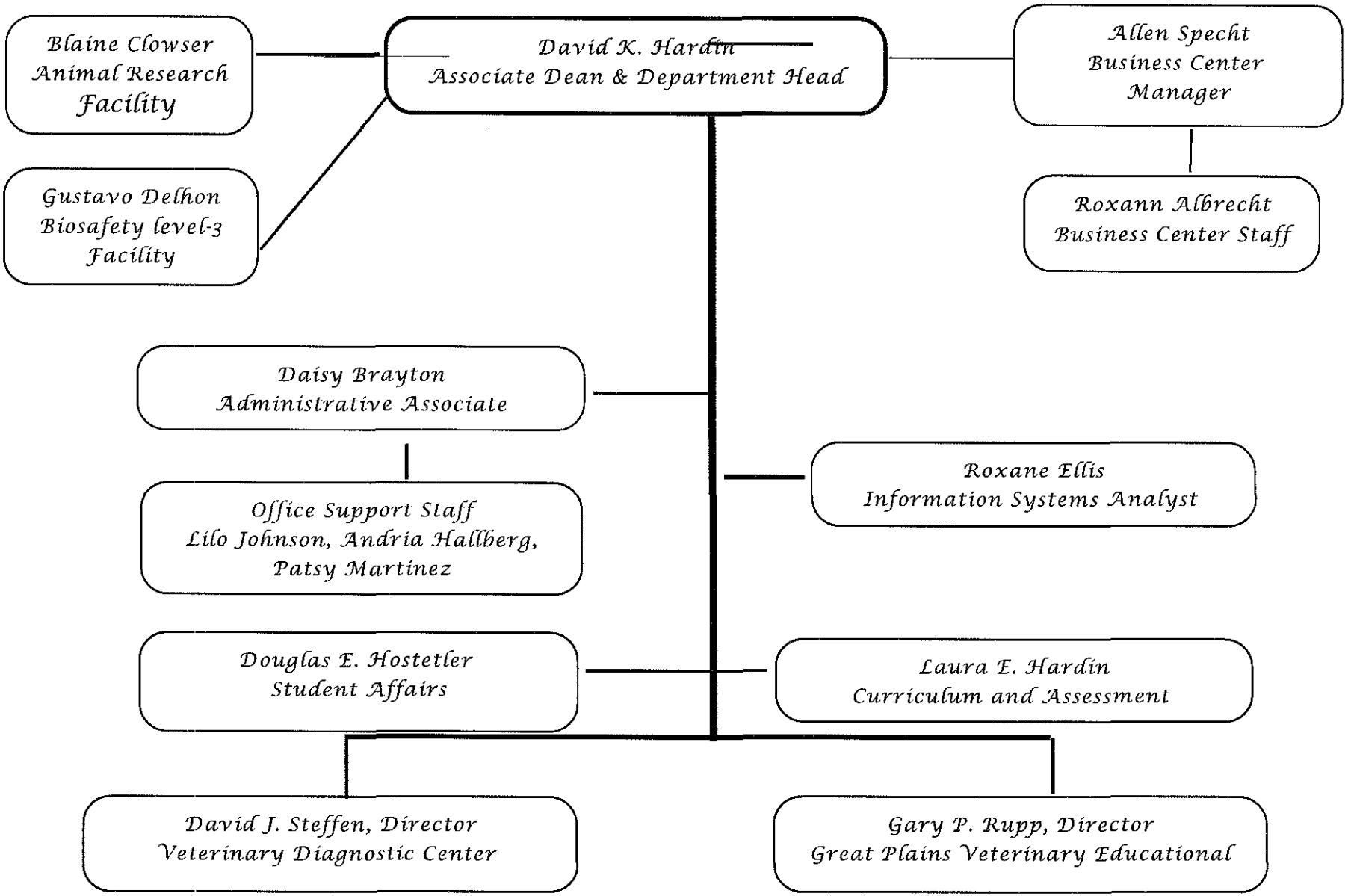
Great Plains Veterinary Educational Center (GPVEC) Clay Center, Nebraska

▪Rupp, Gary P., DVM, MS ..... Director & Professor – Beef Cattle
Reece, Thomas, BS, DVM ..... MS Student
Dana, Ramona M. ..... Custodian II
George, Debbie A. ..... Staff Assistant
Griffin, D. Dee, DVM, MS ..... Professor – Beef Cattle Extension Feedlot Veterinarian
Ondrak, Jeff D.[1], DVM, BS ..... Instructor/MS Student
Johnson, Steve E., BA ..... Systems Analyst
Keen, James E.[1], BS, BS, DVM, PhD ..... Associate Professor
Shuck, Karen K., CVT ..... Agricultural Research Technician III

[1]Appt began in 2007 [2]Appt ended in 2007

DEPARTMENT OF VETERINARY AND BIOMEDICAL SCIENCES

ORGANIZATIONAL CHART



University of Nebraska–Lincoln

Institute of Agriculture and Natural Resources

At Work For Nebraska

MANAGING IN TOUGH TIMES

Timely Topics

- IANR Calendar

NEW
- Doctor of Plant Health
- At Work for Nebraska
- Financial Crisis Media Resources

IANR ON THE AIR

Nebraska Pork Gateway

The Nebraska Pork Gateway web site offers timely updates tional information for Pork Producers across the state.

IANR Administration

Vice Chancellor
John C. Owens

Associate Vice Chancellor
Susan Fritz

Assistant Vice Chancellor
Alan Moeller

The roles of IANR's administrators in the administration of the Institute of Agriculture and Natural Resources have several components. The following areas of responsibility are applicable to the Vice Chancellor and to the Assistant Vice Chancellor of IANR. In each of these areas, they collaborate with many individuals and groups and provide direction, assistance, guidance, wisdom, stewardship, communication and the many other qualities of leadership and management within the shared enterprise of IANR and the University of Nebraska.

IANR Administrators have key roles in the following areas:

Leadership
Guide the development and articulation of the vision of the Institute for the future by encouraging programs and services that are consistent with this vision.

Promote high standards of performance and accomplishment for faculty, staff, and students.

Provide an example of communicating priorities, standards, and administrative procedures effectively while being open and responsive to faculty and staff concerns.

Administration and Management
Establish and promote an environment of integrity and collegiality in which faculty, staff and students can work at the highest levels of performance.

Oversee the recruitment and appointment of highly qualified people. Develop effective administrative structures and procedures to allow for optimum efficiency.

Planning
Lead the development and incorporation of effective planning processes for setting short- and long-term goals of IANR as well as the Institute's programs and budget allocations.

Involve broad perspectives in planning processes that include input from faculty, staff, students, and other entities in partnership with IANR.

Establish procedures and plans for evaluation of programs and their modification.

Public Relations and Development
Build support for IANR from a wide variety of constituencies, such as local, state and national leaders and business, industry, and governmental institutions.

Provide effective communication through several outlets for marketing the objectives and mission of IANR.

Seek and develop philanthropic, public and constituent support for the Institute.

University of Nebraska–Lincoln

Office of the Chancellor

The Power of Red

Dean & Directors

Click on any photo below to download a publication-quality version.

College Deans

(arranged by college)

Steven Waller
Dean
Agricultural Sciences & Natural Resources
472-2201 / email
full bio

R. Wayne Drummond
Dean
Architecture
472-9212 / email
full bio

David Manderscheid
Dean
Arts & Sciences
472-6262 / email
full bio

John Anderson
Interim Dean
Business Administration
472-1190 / email
full bio

Marjorie Kostelnik
Dean
Education & Human Sciences
472-2913 / email
full bio

David Allen
Dean
Engineering
472-7071 / email
full bio

Giacomo Oliva
Dean
Hixson-Lied Fine & Performing Arts
472-9339 / email
full bio

Charlyne Berens
Interim Dean
Journalism & Mass Communications
472-8241 / email
full bio

Anna Shavers
Interim Dean
Law
472-2194 / email
full bio

Division & Unit Deans

(arranged by area)

Alan Cerveny
Dean
Admissions
472-9531 / email
full bio

Susan Fritz
Interim Dean
Agricultural Research Division
472-2871 / email
full bio

Elbert Dickey
Dean & Director
Cooperative Extension Division
472-2966 / email
full bio

Ellen Weissinger
Dean
Graduate Studies
472-2875 / email
full bio

Joan Giesecke
Dean
University Libraries
472-2526 / email
full bio

Rita Kean
Dean
Undergraduate Studies
472-1185 / email
full bio

University of Nebraska–Lincoln

Office of the Chancellor

The Power of Red

Vice Chancellors and Chancellor's Office

Chancellor

Harvey Perlman was appointed 19th Chancellor of the University of Nebraska-Lincoln on April 1, 2001. He had served as Interim Chancellor since July 16, 2000. A former dean of the University of Nebraska College of Law from 1983 to 1998, he has also served as interim senior vice chancellor for academic affairs in 1995-96.

Chancellor Perlman, a Nebraska native, was raised in York and earned a bachelor of arts degree in history and a juris doctorate from the University of Nebraska. He joined the NU law faculty in 1967 and served until 1974 when he joined the faculty at the University of Virginia Law School. He returned to Nebraska in 1983 when he accepted the deanship of the College of Law.

Perlman and his wife, Susan, an NU alumna, are the parents of two daughters: Anne, who earned degrees from UNL and the University of Nebraska Medical Center, practices medicine in Lincoln, is married to UNL Alum David Spinar, and has the Perlman's three grandchildren, Will, Ava, and Marco, Husker fans all, and Amie, who received BA and JD degrees from UNL and is married to UNL alumnus Ron Larson.

Chancellor Perlman's full biography

Harvey Perlman
Chancellor
Office of the Chancellor
472-2116
email

Vice Chancellors

(arranged by vice chancellor area)

Barbara Couture
Sr. Vice Chancellor
Academic Affairs
472-3751 / email
full bio

Christine Jackson
Vice Chancellor
Business and Finance
472-4455 / email
full bio

John Owens
Vice Chancellor
Institute of Agriculture and Natural Resources
472-2871 / email
full bio

Prem Paul
Vice Chancellor
Research & Economic Development
472-3123 / email
full bio

Juan Franco
Vice Chancellor
Student Affairs
472-3755 / email
full bio

Chancellor's Staff

Susan Poser
Associate to the Chancellor
472-2116 / email
full bio

Michelle Waite
Assistant to the Chancellor for Community Relations
472-2116 / email
full bio

Linda Crump
Assistant to the Chancellor for Equity, Access & Diversity Programs
472-3417 / email
full bio

William Nunez
Director of Institutional Research and Planning
472-2097 / email
full bio

Meg Lauerman
Director of University Communications
472-0098 / email
full bio

Mark Askren
Chief Information Officer
472-4242 / email
full bio

Diane Mendenhall
Executive Director of Nebraska Alumni Association
472-2841 / email
full bio

Department of Veterinary and Biomedical Sciences
2007 Honors, Awards and Recognitions

University of Nebraska Awards

Faculty Awards

Dr. Greg A. Somerville received the Agricultural Research Division Junior Faculty Award, from the University of Nebraska-Lincoln, Agrucltural Research Division

Dr. Douglas G. Rogers was nominated for the College of Agriculture Science and Natural Resources Superior Academic Advising Award from the University of Nebraska-Lincoln, College of Agriculture Science and Natural Resources

Dr. David J. Steffen was awarded Best Contributions to Students from the University of Nebraska-Lincoln, Parents Association, recognizing his advising of students through their parents

Graduate Student Awards

Florencia Meyer received the Milton E. Mohr Fellowship from the University of Nebraska-Lincoln, Center for Biotechnology

Gustavo Bretschneider received the Susan Ann Smith Mills Award from the University of Nebraska-Lincoln, Foundation for an Outstanding Veterinary Science Student

Joseph Erume received the Widamen Trust Distinguished Graduate Assistant Award; NC-1007 Gastroenteric Diseases Student Award for his poster presentation at the Conference of Research Workers in Animal Diseases Meeting, December 2-4, 2007

HarshDeep Dogra received from the University of Nebraska-Lincoln, Office of Research and Graduate Studies for "Best Presentation" at the 2007 University of Nebraska Research Fair

Florencia Meyer and Kazima Saira received the Widaman Trust Distinguished Graduate Assistant Award from the Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, Agriculture Research Division

Lalit Beura was awarded by the 2007 American Association of Veterinary Immunologists (AAVI), Graduate Competition Award at the Conference on Research Workers in Animal Diseases; First Place for his Poster Presentation entitled, "Certain PRRSV Proteins inhibit IFN-a promoter activation"

Dhammika Navarathna received a Shear-Miles Agricultural Endowed Fellowship from the Nebraska University Foundation

Yefei Zhu received a Milton E. Mohr Graduate Fellowship from the University of Nebraska-Lincoln, College of Agriculture Science and Natural Resources

Staff Awards

Gail Henderson, Research Technologist and Lab Manager in Dr. Clinton Jones' laboratory, received the "Outstanding Employee Award" for Managerial/Professional staff for September/ October 2007

National and Regional Awards

Faculty Awards

Dr. Bruce W. Brodersen received the "Outstanding Service Award" from the Nebraska Veterinary Medical Assoication

Dr. Michael P. Carlson received the "Award of Merit" from the National Association of Colleges and Teachers of Agriculture (NACTA), University of Nebraska-Lincoln, College of Agriculture Science and Natural Resources

Dr. Clinton J. Jones received an "Honorary Cell Death Editorial Board Membership" from the International Cell Death Society

Dr. Rodney A. Moxley was awarded Research Council "Membership and President" at the Conference of Research Workers in Animal Diseases, 2007-2011

Dr. D. Scott McVey received the "2007 Distinguished Alumni Award" from the University of Tennessee, College of Veterinary Medicine

Dr. Marjorie F. Lou received an "International Honorary University Professorship" from the Xian Jiaotong University. She also received the "Kwan-Biao Zhao Distinguished Professorship" from Zhejiang University, Hangzhou, China

Dr. David R. Smith received the "Wendall Burgher Beef Industry Award" from the University of Nebraska Foundation

Marcelo de Lima received "First Place Award" entitled, "Jussara Pereira do Nacsiemnto Memorial Award," for the best Veterinary Virology Presentation at the XVIII National Meeting of Virology, Brazilian Society for Virology, paper entitled, "Mapping of â-cell linear epitopes and construction of porcine reproductive and respiratory syndrome viruses lacking immunodomiant regions by reverse genetic"

M. Rohan Fernando received from the University of Nebraska-Lincoln, Institute of Agricultural Natural Resources, Agriculture Research Divison, a "Reserach Travel Grant" to attend the Association for Research in Vision and Ophthalmology, Fort Lauerdale, FL

VBMS Departmental Awards

Gulzar Ahmad received the "Best Seminar presented by an MS Student"
Harshdeep Dogra received the "Best Seminar Presented" by a PhD Student

University of Nebraska-Lincoln
2007 Department Personnel - Service Awards

5-year Award	10-Year Awards	15-Year Awards
Marijana Bradaric	Doreen Bailey	Bruce Brodersen
Asit Pattnaik	Patricia Claussen	Mary Heyer
	Blaine Clowser	
	David Smith	

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine
Honors and Awards

Megan Hiatt received the Undergraduate Creative Activities and Research Experiences (UCARE) Award from the Office of Undergradaute Studies, funded by the Pepsi Endowment and Program of Excellence

Lindsey Hofman and Daniel Woodbury (Animal Science Major) received a Pre-Veterinary Scholarship from the Nebraska Veterinary Medical Association

Lindsey Hofman received the Milton E. Mohr Fellowship (undergraduate scholarship) from the University of Nebraska, Center for Biotechnology

Kristina J. Hubbard (Animal Science Major/Junior-Senior category) and **Ashlynn Jepson** (Animal Science Major/Freshman-Sophmore category) received the University of Nebraska Pre-Veterinary Club Scholarship

Ryan D. Koopmans received the Realizing Educational Dreams (RED) Undergraduate Achievement Award from the Nebraska Alumni Association

Theodoric Mattes received the Undergraduate Creative Activities and Research Experiences (UCARE) Award from the Office of Undergradaute Studies, funded by the Pepsi Endowment and Program of Excellence

Veterinary Medical Students

Jennafer M. Glaesemann received the "William C Yount Scholorship" from the University of Nebraska, College of Agriculture Sciences and Natural Resources

Jennafer M. Glaesemann received the Janet Beachler Scholarhip in Veterinary Medicine provided through the Nebraska University Foundation

Jennafer M. Glaesemann and **Sara B. Schuessler** received second place in the Anatomy Contest at the Student American Veterinary Medical Association (SAVMA) Symposium held at Auburn University, College of Veterinary Medicine

Daniel J. Woodbury received the Charles Yount Educational Award in Veterinary Medicine provided through the Nebraska University Foundation

Johanna A. Fithian received the Anatomy Award presented by the University of Nebraska-Lincoln, Department of Veterinary and Biomedical Sciences, Professional Program in Veterinary Medicine

Cole F. Vanicek received the Student Service Leadership Award presented by the University of Nebraska-Lincoln, Department of Veterinary and Biomedical Sciences, Professional Program in Veterinary Medicine

Scarlet - November 1, 2007, News Release
Veterinary Medicine Program Lands Endowed Scholarship -

The newly created Professional Program in Veterinary Medicine at UNL is celebrating receipt of its first endowed student scholarship fund.

Janet Beachler Day of Lincoln, an alumna of the College of Agricultural Sciences and Natural Resources, established the endowed fund with a gift to the University of Nebraska Foundation. Annual income from the fund will be used to provide one or more scholarships to students pursuing a doctor of veterinary medicine degree.

"I am very happy to provide the scholarship and hope it helps those who one day become veterinarians," Beachler Day said. "It's important to have goals, and scholarships can definitely help make students' goals possible."

The Professional Program in Veterinary Medicine was officially launched in 2006 between UNL and Iowa State University and brings together the nation's two leading livestock producing states in addressing the region's increasing need for veterinarians.

Beachler Day said, "she established the scholarship because she considered becoming a veterinarian, but chose instead to study agricultural sciences." "She added that women agriculture majors were not common in the 1950s, to the extent that her first professor thought she might be in the wrong class on her first day of school."

"My professor stood up in front of the class and said that if anyone was in the wrong place, they shouldn't be embarrassed and it would be OK to leave," he said. "Then after class, she came up to me to talk and assumed I was a farm girl. But I was actually a city girl from Chicago."

Beachler Day was the first woman initiated into UNL's Block and Bridle Club, an association of agriculture sciences students. Because of this, former Block and Bridle members who go on to study veterinary medicine will be given first preference for available scholarship awards.
"Hopefully, there will be students to take advantage of it in the future," she said.

Professional Program in Veterinary Medicine

All First-year Veterinary Students Enrolled at UNL, NVMA Scholarship Awarded or the J.J. and Eleanor S. Ogle Fellowship

Daniel C. Annin	Jennafer M. Gleasemann	Anna R. Ramsey
Kellie A. Barrett	Krista K. Holstein	Robert S. Reid
Amy Bell	Kathryn A. Kasten	Michael Rukstalis
Richard Christen	Kelsey L. Kerwin	Sara B. Schuessler
Jeffrey A. Eihusen	Megan K. Losee	Melissa K. Thompson
Jeffry Faimon	Abby L. McCracken	Amy L. Trutna
Elizabeth M. Farrow	Jordan C. Nickerson	Cole F. Vanicek
Johanna A. Fithian	Rachelle Pumphrey	Jennifer Willems

Professional Program in Veterinary Medicine
Dean's List , Spring 2007

Elizabeth M. Farrow	Kathryn A. Kasten	Sara B. Schuessler

Professional Program in Veterinary Medicine
Dean's List, Fall 2007

Johanna A. Fithian	Anna R. Ramsey
Sara B. Schuessler	Cole F. Vanicek

Department of Veterinary Biomedical Science
Committee Assignments
2007-2008

Name	Term	
	Begin	End
Peer Review Committee (3-Yr Com Mbr Appt/1-Yr Chair)		
Fernando Osorio (Chair, 12/2007-12/2008)	September, 2006	September, 2009
Gary Rupp	October, 2006	September, 2009
Clayton Kelling	September, 2006	September, 2009
Raúl G. Barletta	November, 2005	October, 2008
D. Scott McVey	December, 2007	December, 2010
VBMS-IBMS Graduate Committee (3-Yr Appt)		
Greg A. Somerville (Chair, 3-07/9-08)	October, 2005	September, 2008
Fernando A. Osorio	October, 2007	October 2010
Clinton J. Jones	October, 2007	October 2010
D. Scott McVey	October, 2007	October 2010
David R. Smith	October, 2007	October 2010
Lee Johnson (Secretarial Support)	–	Indefinite
Departmental Safety Committee		
Raúl G. Barletta (Chair, VBS)	September, 1999	August, 2002
Donna Henning (Secretarial Support/VDC)	July, 1996	Indefinite
Veterinary and Biomedical Science Undergraduate Student Research Coordinator		
Gerald E. Duhamel	November, 2002	Indefinite
Seminar, Chairman		
Greg A. Somerville	November, 2005	October, 2008
George A. Young Swine Conference Planning Committee		
Bruce W. Brodersen (Chair, UNL/VDC)	January, 2007	December, 2007
Ron Brodersen, Hartington Whole Hog Health Ctr	January, 2007	December, 2007
Mike Brumm, UNL, Northeast Research & Ext Ctr	January, 2007	December, 2007
Tom Buelt, Pfizer Animal Health	January, 2007	December, 2007
Phil Hardenburger, NVMA, Crete Veterinary Clinic	January, 2007	December, 2007
Jeff Husa, Boehringer Ingelheim Vetmedica, Inc.	January, 2007	December, 2007
Locke Karriker, ISU	January, 2007	December, 2007
Bill Lockey, Producer	January, 2007	December, 2007
Dana Morgan, Elanco	January, 2007	December, 2007
Duane Reese, UNL	January, 2007	December, 2007
Jim Unwin, Veterinarian, Red Barn Veterinary Clinic	January, 2007	December, 2007
Sharon Clowser, Conference Coordinator	-	Indefinite

Name	Term	
	Begin	End
Department Curriculum Committee		
Rodney A. Moxley	August, 2006	Indefinite
Bruce W. Brodersen	October, 2004	Indefinite
Michael P. Carlson	August, 2005	Indefinite
Clayton L. Kelling	September, 2000	Indefinite
Nebraska Veterinary Student Admission Committee		
Bruce W. Brodersen, Chair, UNL/VDC	August, 2001	Indefinite
Gary P. Rupp, NU/GPVEC	August, 2002	Indefinite
Ted Evans, NVMA Representative	October, 2005	September, 2007
Jess Hinrichs, NVMA Rep., Sutton Vet Clinic	October, 2006	Indefinite
David Hopper, ISU Representative	October, 2006	September, 2007
Jeffrey Keown, UNL/Animal Science Dept	October, 2005	September, 2007
Eileen Thacker, ISU Representative	October, 2006	September, 2007
Monica Howard, ISU Director of Student Affairs	--	Indefinite
Kathy Kuehl, ISU Coordinator of Admissions	July, 2005	Indefinite
Mavis Seelmeyer, UNL Secretarial Coordinator	--	Indefinite
Departmental Computer Support Designee and Liaison to IANR Computing		
Roxane Ellis	1990	Indefinite
CASNR Curriculum Committee (2-yr term) **(Veterinary and Biomedical Sciences; Biochemistry and Food Science and Technology Departments)**		
Clinton J. Jones	August, 2006	May, 2008
University of Nebraska-Lincoln - ISU/CVM Curriculum Committee		
Rodney A. Moxley	November, 2006	Indefinite
CASNR Faculty Advisory Council (2-yr term)		
Raúl G. Barletta	July, 2005	June, 2007
Pre-Veterinary Club Advisor		
Douglas G. Rogers, Advisor	May, 2004	Indefinite
David R. Smith, Co-Advisor	May, 2004	Indefinite
ARD Advisory Council (3-yr term) **(District 5 -- Department of Statistics, Entomology and Veterinary and Biomedical Sciences)**		
Lance Meinke (Statistics)	May, 2005	April 2008
Institutional Animal Care and Use Committee		
Gerald E. Duhamel, Department Representative	January, 2000	December 31, 2008
Fernando A. Osorio, Alternative Member	January, 2006	December, 2007
Institutional Biosafety Committee		
Rodney A. Moxley	January, 2006	December 2008

Name	Term	
	Begin	End
ARDC Oversight Committee		
No One Appointed		
VBMS Husker Harvest Days Committee		
Michael P. Carlson, Chair Clayton L. Kelling D. Dee Griffin David J. Steffen	June 2002 June 2002 June 2002 June 2002	Indefinite Indefinite Indefinite Indefinite
UNL Radiation Safety Committee		
Raúl G. Barletta	February, 2000	Indefinite
VBMS Representative to UNL Library		
Raúl G. Barletta	2000	Indefinite

Department of Veterinary and Biomedical Sciences and Professional Program in Veterinary Medicine

Summary of Faculty Appointments, Full-Time Equivalency and Faculty Profiles

Table 1. Summary of Faculty Appointments, Full Time Equivalency

Name Lincoln Campus	Current Rank	Year Appointed	Appointment Type (FTE)					
			R[a]	T[b]	D[c]	E[d]	F[e]	Total
Raúl G. Barletta	Professor	1991	0.88	0.10			0.02	1.00
Bruce W. Brodersen	Research Associate Professor	1991	0.93		0.02	0.05		1.00
Michael P. Carlson	Lecturer	1980	0.83	0.15		0.02		1.00
Gustavo A. Delhon	BSL-3 Director	2007	1.00					1.00
Alan R. Doster	Professor	1979	0.73	0.25		0.02		1.00
Gerald E. Duhamel	Professor	1986	0.88	0.10			0.02	1.00
David K. Hardin	Dept Head/ISU Assoc Dean	2006					1.00	1.00
Laura E. Hardin	Senior Lecturer	2006		0.49				0.49
Douglas E. Hostetler	Associate Professor	2007		1.00				1.00
Clinton J. Jones	Professor	1989	0.88	0.10			0.02	1.00
John R. Kammermann	Assistant Professor	2007		1.00				1.00
Clayton L. Kelling	Professor	1976	0.75	0.25				1.00
Marjorie F. Lou	Professor	1994	0.88	0.10			0.02	1.00
D. Scott McVey	Professor	2006	0.73	0.25		0.02		1.00
Rodney A. Moxley	Professor	1983	0.62	0.35			0.03	1.00
Fernando A. Osorio	Professor	1984	0.82	0.15			0.03	1.00
Asit K. Pattnaik	Professor	2002	0.78	0.20			0.02	1.00
Richard F. Randle	Associate Professor	2007				0.50	0.50	1.00
NR Jayagopal Reddy	Assistant Professor	2007	0.75	0.25				1.00
Douglas G. Rogers	Professor	1988	0.98			0.02		1.00
David R. Smith	Professor	1997	0.25			0.73	0.02	1.00
Greg A. Somerville	Assistant Professor	2004	0.90	0.10				1.00
David J. Steffen	Professor	1995	0.73				0.27	1.00
Kuiji Xing	Senior Research Associate	2002	1.00					1.00
Great Plains Veterinary Educational Center								
D. Dee Griffin	Professor	1991	0.20	0.48	0.30		0.02	1.00
Jeff D. Ondrak	Lecturer	2006	0.50	0.50				1.00
James E. Keen	Associate Professor	2007	0.25	0.50			0.25	1.00
Gary P. Rupp	Professor	1988	0.30	0.50			0.20	1.00
Panhandle Research and Extension Center								
Arden Wohlers	Extension Assistant Professor	2004				1.00		1.00

[a] Research [b] Teaching [c] Extension [d] Service Veterinary Diagnostic Center [e] Service Veterinary Science

Department of Veterinary and Biomedical Sciences

Raúl G. Barletta, BS, MS, PhD
Professor
Bacterial Pathogenesis/Drug Rresistance/ Mycobacteria/Tuberculosis

Appointment: 0.90 Rsch; 0.10 Tchg

The main focus of my laboratory is the study of bacterial pathogens including *Mycobacterium tuberculosis, Mycobacterium avium* subsp. *paratuberculosis* and related pathogens. In this area, the major long-term goals in my laboratory are: 1) to understand virulence and drug- resistance mechanisms in pathogenic mycobacteria, and 2) to develop molecular tools to diagnose and control mycobacterioses.

Drug resistance studies in mycobacteria have focused on the molecular targets of peptidoglycan synthesis inhibitors. We have identified the molecular targets for D-cycloserine. One of these targets is the enzyme D-alanine racemase, involved in the initial steps of peptidoglycan biosynthesis. Furthermore, we have shown that overproduction of D-alanine racemase in mycobacteria underlies the D-cycloserine resistance phenotype of resistant mutant strains. The specific molecular mechanism responsible for the overproduction of this enzyme was shown to be a promoter-up mutation in the control region of the D- alanine racemase gene. We have also studied related enzymes involved in D-alanine metabolism including L-alanine dehydrogenase and D-alanine ligase. We plan to study the essentiality of these genes in the context of drug design and vaccine development in *M. tuberculosis.*

M. paratuberculosis is the causative agent of Johne's disease, a wasting chronic enteritis affecting all ruminants. We have developed a genetic system for *M. paratuberculosis* that includes phage infection, plasmid transformation, and transposon mutagenesis. We have identified several attenuated strains from a mutant bank. In collaborative studies, we are testing these mutants in animal models including mice and baby goats. In addition, we have identified and characterized *M. paratuberculosis* secreted and cellular immunogenic proteins. From these molecular studies, a practical application test to measure the susceptibility of *M. paratuberculosis* to antimicrobial agents was developed. These steps are essential prerequisites for the understanding of pathogenesis, and the development of anti microbial therapies and new and more effective vaccines compatible with diagnostics.

My teaching responsibilities include serving as co-instructor for the courses VBMS 951 Advanced Molecular Infectious Diseases and VBMS 424/824 Basic Molecular Infectious Diseases. I advised seven MS and three PhD graduate students who have completed their degrees. I served as co-advisor for 2 MS graduate students who completed their degrees.

Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

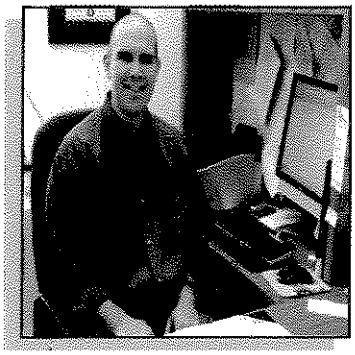
Bruce W. Brodersen, DVM, MS, PhD
Research Associate Professor
Pathologist

Appointment: 1.00 Diagnostic Service

My position was created out of a need for more pathologists at the Veterinary Diagnostic Center. The increased need was a result of continual increase in the numbers of case submission. Existing faculty at the Diagnostic Center were not able to meet other commitments as a result of the elevated case load. Funding for my position comes entirely from revenues generated by submission fees received at the Diagnostic Center.

My efforts are directed at coordination of appropriate testing of samples submitted to the Diagnostic Center, assimilating test results for determining a diagnosis, and generating a suitable report to the submitting veterinarian or owner. The range of species that samples originate from is wide and consists mainly of food animals and companion animals with avian species as well as wild and or exotic and aquatic species. I also supervise the contract with the USDA for testing of samples for scrapie in sheep and chronic wasting disease in deer.

I have no formal research FTE, but I am conducting projects which are directed at investigating diseases of cattle. Currently my projects concentrate mainly on bovine viral diarrhea virus (BVDV). One of these studies includes detection of cattle persistently infected with BVDV. I am collaborating with researchers at Auburn University, investigating the role of BVDV as a reproductive disease in cattle.



Department of Veterinary and Biomedical Science &
Department of Animal Science &
Professional Program in Veterinary Medicine

Thomas E. Burkey, BA, MS, PhD
Assistant Professor
Non-ruminant Nutritionist

Appointment: .60 FTE Rsch; .40 FTE Tchg

The main focus of my research program is to investigate interactions between nutrition and gastrointestinal health in swine using both applied and basic techniques. Therefore, current projects in my laboratory include: 1) Examining the effects of dam parity on progeny growth performance and health status; 2) Examining the effects of traditional and alternative dietary components on growth performance and health status of weanling pigs; and 3) examining the metabolic bases of nutrient absorption and utilization in an *in vitro* model using porcine jejunal epithelial cells.

Currently, anecdotal observations suggest that progeny of gilts (Parity 1; P1) have reduced health status and subsequent performance compared to progeny of sows (Parity 2 and greater). Unpublished reports demonstrate that P1 progeny have reduced weaning weights, decreased nursery and finishing growth performance and greater mortality than P2 progeny. It is possible that progeny health status is affected by factors including (but not limited to) animal stress, passive immunity, and susceptibility to pathogens. Accordingly, we are conducting experiments designed to assess the growth performance and health status of progeny derived from different parities by examining passive transfer of immunity and by characterizing differences in gastrointestinal microbiota. Work in this area will provide the pork industry with a better understanding of the effects of dam parity on progeny health and growth performance and may lead to dietary and management interventions that can be implemented to maximize animal health and increase efficiency of pork production.

The genesis for the other areas of my research program are facilitated by the need to increase efficiency of production and to decrease reliance on feed grade antibiotics for disease prevention by investigating the effects of traditional, new and alternative dietary ingredients on growth performance and animal health in weanling pigs. For example, our group is currently examining the effects of ethanol by-products (corn distiller's dried grains with solubles; DDGS) and the interactions of DDGS with other dietary components (e.g. lactose and yeast) on growth performance and gastrointestinal health.

Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

Michael P. Carlson, MS, PhD
Lecturer
Diagnostic Toxicologist/Analytical Chemist

Appointment: 85% Diagnostic, 15% Teaching

I serve as a diagnostic toxicologist for the VDC. I review cases submitted for toxicology services, obtain case histories as needed, interpret diagnostic toxicology results, write final toxicology reports for diagnostic cases and report results to case submittors or VDC diagnosticians. I also consult with veterinarians, clients and university faculty and staff about toxicology and analytical services.

I also serve as an analytical chemist for the VDC Toxicology Laboratory. I manage the operation of that laboratory; select and validate methods for analytical services; supervise, train and manage the staff of that laboratory; and assist with performance of analytical services as required.

I teach VBMS 410 – Introduction to Pharmacology and Toxicology, a 4-credit hour, integrated studies course required for Veterinary Science undergraduate majors. The course is intended to introduce students to basic principles of drug action and toxic effects of chemical substances. The course also emphasizes written and oral communication skills. Students are required to write a position paper on a controversial pharmacology or toxicology topic and present their position orally to the class. It is offered annually each fall semester.

My research interest is nitrate toxicosis in cattle, especially chronic nitrate exposure related to abortions. I also am interested in the application and implementation of international standards for laboratory certification to veterinary diagnostic laboratories.

Department of Veterinary and Biomedical Sciences and Center for Virology

Subash Das, BSVc, MVSc, PhD
Research Assistant Professor
Veterinary Molecular Virologist

Appointment: 1.00 FTE Research

My research includes the studies on viral gene expression and vaccine design using RNA viruses. The two viruses I am studying are vesicular stomatitis virus (VSV), a non-segmented negative-strand RNA virus and porcine reproductive and respiratory syndrome virus (PRRSV), a non-segmented positive-strand RNA virus. Due to its simple genome organization VSV has served as an attractive model to study the gene expression in negative-stranded RNA viruses. Understanding the mechanism of gene expression and its regulation is essential to identifying unique virus-specific targets for therapeutic interven-tion in controlling infection. More specifically I am looking at the role of VSV phosphoprotein P in viral transcription, replication and assembly of infectious virus particles. Phosphoprotein of VSV is a multifunctional protein which is an essential subunit of viral polymerase. Using reverse genetics I have demonstrated that phosphorylation at specific residues within the P protein of VSV regulates the activities of the viral RNA-dependent RNA polymerase in transcription and replication and plays a major role in the life cycle of VSV. Using transposon-insertion and deletion mutagenesis we recently found out that the hypervariable hinge region of VSV P protein plays an important role in viral RNA synthesis and assembly of infectious particles. At present we are mapping out the individual amino acids in the hypervariable region of P that is required for virus assembly. Currently efforts are being made to establish a yeast-two-hybrid system to identify the cellular/ viral factors involved in the assembly of VSV. We are further planning to investigate the role of nucleotide sequences within the viral genome that control encapsidation, transcription and replication processes.

We have made use of our recent finding that the hypervariable region of VSV P protein can tolerate insertion of 19 amino acids with minimal effect on P protein activity. This has led us to produce a fluorescently labeled VSV with the eGFP inserted at the hypervariable region of P protein. Using this green virus we are investigating the transport of viral nucleocapsids by time lapse microscopy. This has allowed us to track the movement of individual nucleocapsids in infected cells. We have demonstrated that microtubules play an important role in the transport of VSV nucleocapsids from the site of synthesis to the site of assembly and mitochondria may play a role in this process. Several leads in this direction include single-particle tracking of viral nucleocapsids, multicolor live-cell imaging of ribonucleoprotein complexes and identification of microtubule motors involved in the transport.

Another aspect of my work has been the development of viral vaccines by genetic manipulations. At present I am using VSV as a vector to express porcine respiratory and reproductive syndrome virus (PRRSV) glycoproteins to study the immunogenicity of these proteins in animals. Recombinant VSVs expressing PRRSV GP5 and M proteins have been recovered by reverse genetics. Using these recombinant viruses we further plan to study the mechanism of entry and tissue tropism in PRRSV infection. Animal experiments are also being carried out for testing these recombinant viruses for generation of humoral and cell-mediated immune responses against PRRSV and to explore the possibility of using them as vaccines for the prevention of PPRSV infection.

Department of Veterinary and Biomedical Sciences

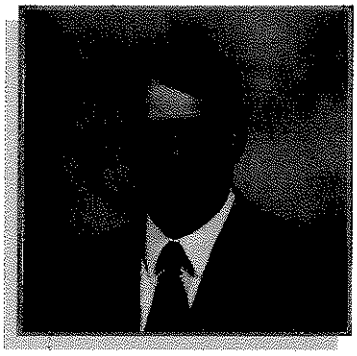
Gustavo Delhon, MSc, PhD, DVM
Virologist
Biosafety Level-3 Core Facility Director

Apptointment: .30 FTE Tchg; .30 FTE Rsch; .40 Srv

As Director of the BSL-3 Core Facility, I supervise and coordinate activities in the BSL-3 laboratory, develop and implement fiscal plans, provide facility-specific training to users, coordinate certification of the facility, develop and implement policies and procedures for select agent usage, monitor users adherence to established procedures and protocols, inspect facility equipment, maintain emergency response supplies and equipment, and conduct facility decontamination.

The main focus of my research is the study of poxviral pathogenesis. Poxviruses infect animals and humans, and they are masters in manipulating antiviral responses as part of their strategy to replicate in the host. The long-term goals of my research are 1) to understand how poxviruses counteract innate immune responses; 2) to develop tools to control infections by poxviruses, including vaccines and vectors.

To study poxviral pathogenesis, I am focusing on orf virus (ORFV), the causative agent of a ubiquitous disease of sheep and goats known as contagious pustular dermatitis or orf. The disease is characterized by proliferative mucocutaneous lesions around the mouth and nozzle. We have completely sequenced the ORFV genome and identified a group of genes with putative roles in virulence and host-range. Three of these genes likely encode for viral immunomodulators, as their expression in cells strongly interfere with the cellular response to virus infection. In a collaborative work, proteins encoded by these genes were found to target critical signaling pathways used by cells to alert the organism on the presence of pathogens, and to initiate an inflammatory response. Experiments that will define the mechanism of interference by viral proteins are under way. Based on these results we hypothesize that these ORFV genes play a role in infection of the natural host. To test the hypothesis, we are combining molecular approaches and animal studies. I am planning to study virulence factors used by a different poxvirus, sheeppox virus (SPPV). In contrast to ORFV, SPPV causes a systemic disease in sheep, reminiscent of smallpox in humans. We have previously identified a SPPV virulence gene which profoundly affects virus virulence. My goal here is to understand the function of this and other SPPV virulence genes in the context of the infected cell.



Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

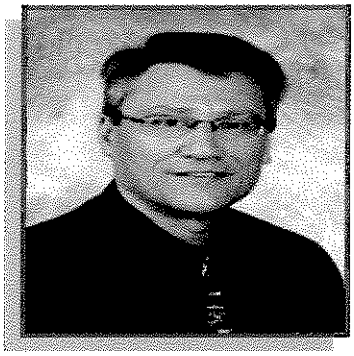
Alan R. Doster, DVM, MS, PhD, ACVP
Professor
Pathologist

Appointment: 100% Diagnostic Service

I serve as a Diagnostic Pathologist in the VDC and rotate necropsy duty on a regular basis with other pathologists. We are responsible for the gross examination of various species, histological examination of tissues from necropsies and surgical biopsies; requesting and interpretating results from the bacteriological, serological, virological, toxicological tests which are part of the laboratory work-up; and establishing a diagnosis or rendering an opinion regarding each case. I spend a considerable amount of time on the telephone consulting with veterinarians and livestock owners regarding clinical histories, case submissions, and results of diagnostic testing. I have served as an expert witness many times for legal proceedings or insurance inquiries, the largest being in excess of $20 million. I have acted as a consultant for United States Department of Agriculture regarding foreign veterinary diagnostic laboratory capabilities.

I have no formal teaching FTE, but have served as the faculty coordinator for VBMS 901 (Diagnostic Techniques) and have taught several advanced pathology courses for pathology residents and graduate students. In addition, I have served as major advisor for master's and doctoral students and am a member of several graduate supervisory committees in the Department.

My research interests consist of infectious diseases of cattle and swine. I have been active in pursuing emerging disease syndromes initially seen in the VDC such as porcine reproductive and respiratory syndrome virus (PRRSV) and porcine circovirus infection. The PRRSV project led to the development of a commercially available PRRSV vaccine. I and the other pathologists serve primarily as consultants in a team-oriented approach to research problems where each member of the team contributes his area of expertise to the project. Other faculty in the Department who have major research appointments act as project leaders and request our assistance as necessary.



Department of Veterinary and Biomedical Sciences

Gerald E. Duhamel, DVM, PhD, ACVP
Professor
Molecular Microbial Pathogenesis

Appointments: .80 FTE Rsch; .10 Tchg; .10 Serv

My long-range goal is to define basic mechanisms of host-parasite interactions, and their relationship to susceptibility or resistance against disease, particularly within the framework of enteric diseases caused by bacteria and viruses. Presently, I am engaged in basic and applied biomedical research aimed at characterizing molecular mechanisms of microbial pathogenesis and host defense with practical applications to diagnosis and control of enteric diseases of animals and human beings. Specifically, I am investigating the biology of polymicrobial interactions in inflammatory bowel diseases caused by *Brachyspira pilosicoli*, a newly discovered pathogenic intestinal spirochete, enterohepatic *Helicobacter* and *Campylobacter* species of human and animals, and *Lawsonia intracellularis*, an obligate intracellular bacterium that causes proliferative enteropathy in non-human primates and animals.

Also, I am investigating the role of heterotypic immunity in protection against intestinal disease caused by group A rotaviruses, a major cause of diarrheal disease in human infants and animals. Current research addresses bacterial virulence factors and model development of intestinal injury and repair, phenotypic and genotypic bases of microbial pathogenesis, development of molecular methods for diagnosis of enteric diseases and control using subunit and recombinant vaccines.

Department of Veterinary and Biomedical Sciences

M. Rohan Fernando, BS, MS, MPhil, PhD
Research Assistant Professor
Biochemist

Appointment: 1.00 FTE Research

Cataract is the major cause of blindness around the world. Age related cataract or senile cataract is the most common type of cataract. The normally transparent lens of the eye becomes cloudy in cataract. Oxidative stress which is induced by reactive oxygen species (ROS) has long been implicated in senile cataract formation. ROS molecules are generated in the lens either endogenously by enzyme systems or exogenously from the environment. ROS molecules produced through these processes in the lens are neutralized by antioxidants and ROS neutralizing enzyme systems in the lens. Even in the presence of these powerful antioxidants and ROS neutralizing enzyme systems, some ROS molecules get through these defense systems and oxidatively damage cellular molecules such as proteins, lipids and nucleic acids. Oxidation of lens proteins leads to lens opacification and cataract formation. Hence lens is also equipped with enzyme systems that can repair such oxidatively damaged proteins and other molecules. I have focused my research on the characterization of the repair systems in the lens.

1. Functions of thioltransferase-1

Thioltransferase-1 is a thiol/disulfide exchange enzyme. It is located in cytosol and has dethiolation activity in the lens. It can repair oxidatively modified lens proteins using its dethiolation activity. In addition to that we have shown that thioltrasferase-1 has ascorbic acid recycling ability. Human lens contains 2-3 times higher concentration of ascorbic acid as compared to other human tissues. Ascorbic acid functions as an antioxidant and its oxidation product dehydroascorbic acid is highly toxic and has been implicated in human cataract formation. Hence lens must have a mechanism to regenerate ascorbic acid. We have shown that thioltransferase is responsible for ascorbic acid recycling in human lens epithelial cells. We have also investigated the induction of thioltransferase-1, thioredoxin and thioredoxin reductase in pig lens under oxidative stress and found that all three enzymes are induced under the given oxidative stress conditions in an attempt to rescue the lens from the oxidative insult so that the clarity of the lens would not be affected by the give stress.

2. Thioltransferase-1 knockout mice

Primary cultures of mouse lens epithelial cells obtained from wild type mouse and thioltransferase-1 knockout mouse are used to compare the sensitivity of the these two cell types to oxidant stress. We are comparing the oxidative damage caused by oxidants in these two cell types using parameters such as marker enzyme activities, glutathione level, cell viability and cell proliferation.

Department of Veterinary and Biomedical Sciences
Great Plains Veterinary Educational Center
Clay Center, NE

Dicky Dee Griffin, BS, DVM, MS
Professor
Pathologist and Nutrition

Appointment: .50 FTE Tchng; .30 FTE Ext; .20 FTE Service

I am responsible for creating and coordinating veterinary medical education opportunities in feedyards. Through my extension appointment, I am responsible for conducting applied field research that relates to feedlot production management and beef safety. I am also responsible for disseminating production management information to the beef feedlot industry. Through my service commitment I provide a substantial portion of the veterinary medical service to the MARC feedlot. I also act as a consulting veterinarian to Nebraska feedlot veterinarians and other feedlot specialists. Through these contacts, I am able to provide unique educational opportunities to fourth-year veterinary students, veterinary technician students and animal science students.

The crux of my research involves management and production with an emphasis on creating or perfecting techniques that can be of direct benefit to the feedlot industry. I have a passionate interest in beef quality assurance (BQA) and a portion of my research focuses on developing and evaluating pre-harvest techniques that will help guarantee the wholesomeness of the beef supply in the United States. Developing and disseminating pre-harvest HACCP techniques for use in beef feedlots has become a major effort. I recognize the economic need for the beef cattle industry to present consumers with a consistently high quality product. I communicate this information to feedlot veterinarians, feedlot producers and potential consumers through my extension. This involves poster displays at trade shows, invited presentations and through GPVEC's Internet BQA home page. I always include BQA as a part of the focus of my consulting work. Food safety, including pre-harvest HACCP, residue avoidance and minimizing injection site blemishes is always a part of the feedlot teaching curricula at GPVEC. Inter-departmental or Inter-institutional Cooperative Activities

Cooperator	Cooperative Activity
KSU, Other Colleges of Veterinary Medicine	Electives
Industry representatives and Academicians	Continuing Education Seminars
KSU (1st yr Students)	Fundamentals of Food Animal Practice
Joe Bek (NCTA)	Feedlot Technical Elective
Joe Bek (NCTA)	Feedlot Employee Safety Training Workshop
TJ Klopfenstein, E Erickson (UNL AnSci Dept)	Undergraduate Feedlot Health
TJ DeGroff (Practitioner, Burwell, NE)	Training Students
MARC Scientists	Research Projects
Assigned UNL Faculty	ExpoVision/High School Careers Workshop
Assigned UNL Faculty	UNL Youth Leadership Workshop

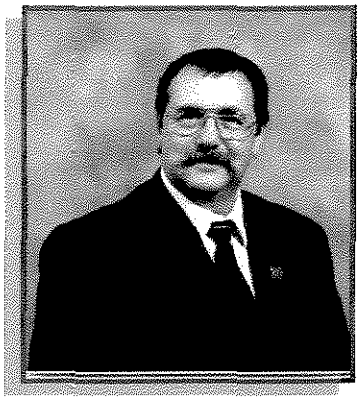
Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

Laura E. Hardin, DVM, MS, PhD
Coordinator of Curriculum & Assessment
Senior Lecturer
Epidemiology and Educational Assessment

Appointment: 1.00 FTE Tchg

One of my primary responsibilities is to manage the curriculum for the Professional Program. This includes coordinating courses with ISU and assuring that teaching faculty have the resources they need for teaching. I coordinate courses that are taught via PolyCom from ISU. I help plan schedules for classes and exams and provide curricular data to ISU. Work in this area will develop to further evaluate how courses relate to each other and where concepts overlap. I am also available to facutly for issues concerning teaching, grading, student difficulties and any other problems that arise that relate to teaching of the curriculum.

I serve as Undergraduate Advising Coordinator for the department. This involves recruiting faculty as advisors, attending student enrollment, developing advising materials and maintaining records for students who are advised by faculty in the department. I also teach the VBMS 101 course, Introduction to Veterinary Health Careers, which is a course taken by students whose major is veterinary science. An objective of this course and the other activities is to develop a strong undergraduate program and to provide good advice to students interested in continueing to veterinary school, regardless of their chosen major.



Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

Douglas E. Hostetler, DVM, MS
Associate Professor
Veterinary Surgery and Anesthesiology
Lecturer

Appointment: .75 FTE Tchg; .25 Ext

In my current position, I am assigned as a 100% CASNR teaching faculty. My primary teaching responsibilities include the development and teaching Principles of Surgery, a 3-credit course taught in the fall semester to VM2 students and Principles of Surgery Lab, a 1-credit course taught in the spring semester to VM2 students, along with teaching/course coordination for Small Animal Surgery, a 2-credit course that is taught in the spring semester to VM2 students. I also have the opportunity to participate in Case Study courses. This is a series of 1-credit courses taught the fall semester to VM1, spring semester VM1 and fall semester to VM2 students. In addition, my participation in a series of courses entitled, "Veterinarians in Society," includes a series of four 1-credit courses taught each semester to VM1 and VM2 students.

I also participate in student recruitment, at the undergraduate and professional levels, including my involvement in extension and continuing education activities and participate with other veterinarians within the state to enhance the program's success.

I continue to serve the university research community by providing food-animal consultation to the Institution Laboratory Animal Veterinarian and conduct collaborative research in a number of areas, such as education, basic and applied science.

Department of Veterinary and Biomedical Sciences and Nebraska Center for Viroloty
Clinton J. Jones, BA, PhD
Professor & Bessey Professorship
Molecular Virologist
Appointment: 0.90 Rsch, Tchg. 0.10

Statement of Current Research Activities

1. a -Herpesvirus latency

Latency of a-herpesviruses is the focus of research in my laboratory. Bovine Herpes Virus 1 (BHV-1) and Herpes Simplex Virus 1 (HSV-1) are being used to study virus host interactions. BHV-1 is a significant viral pathogen of cattle that can induce respiratory disease, abortion, or occasionally encephalitis. BHV-1 is also a causative agent of "Shipping Fever" or Bovine Respiratory Complex. As a consequence of the pathogenic potential of BHV-1, the cattle industry suffers more than $500,000,000/year in losses. HSV-1 causes a variety of clinical symptoms, is the leading cause of corneal blindness due to an infectious agent, and appears to be a cofactor in Alzheimer's disease. Approximately 99% of all human beings are infected with HSV-1. a-Herpesviruses infect epithelial cells of the upper respiratory tract or the genital tract. Extensive viral gene expression occurs, virus is shed, and clinical symptoms are apparent. Virus enters the peripheral nervous system, trigeminal ganglia or sacral ganglia, where it establishes a latent infection in neurons. Viral DNA can persist in a latent state for the lifetime of the infected host or periodically reactivate. Only one small region of the BHV-1 genome is transcriptionally active in latently infected neurons, the latency related (LR) gene. HSV has a similar gene; the latency associated transcript (LAT). A latent infection can be divided into 3 distinct stages: 1) establishment 2) maintenance and 3) reactivation of latent virus. Reactivation can cause recurrent disease and regardless of the clinical outcome promotes virus transmission. Thus, latency is crucial for pathogenesis and is required for virus transmission. LR gene products and LAT inhibit apoptosis (programmed cell death) in transiently transfect cells, and in trigeminal ganglia (TG) of infected calves or rabbits respectively. Based on these studies, we hypothesize that LR gene products and LAT promote survival of infected neurons. Future studies will identify the mechanism by which LR gene products and LAT inhibit apoptosis.

2. Regulation of productive infection by bICP0

Bovine herpesvirus 1 (BHV-1) is an important causative agent of "Shipping Fever", an upper respiratory tract disorder that costs the US cattle industry more than $500 million/year. Acute infection by BHV-1 results in conjunctivitis, pneumonia, genital disorders, abortions, and occasionally encephalitis. As discussed above, BHV-1 establishes latency in sensory neurons located in trigeminal ganglia, and also germinal centers within the tonsil. Periodically BHV-1 reactivates from latency, which is crucial for virus transmission in the field. In sharp contrast to latency in which viral gene expression is severely restricted, 75-80 viral genes are expressed during productive infection and reactivation from latency. The bICP0 protein activates expression of all viral genes, and thus stimulates acute infection and reactivation from latency. Our recent studies identified four separate domains in bICP0 that are necessary for activating transcription: 1) the zinc RING finger located between amino acids 13-51, 2) a large domain spanning amino acids 78-265, 3) sequences at or near amino acid 457, and 4) a nuclear localization signal located at the C-terminus. bICP0 also interacts with chromatin remodeling enzymes; histone deacetylase 1 (HDAC1) (116) and p300, a histone acetyltransferase (HAT). Functional studies demonstrated that bICP0 inhibits interferon (IFN)-induced transcription, and cooperates with p300 to activate viral transcription. Finally, a bICP0 null mutant was constructed that does not efficiently replicate or kill bovine cells, but this mutant strongly induces the IFN response. Our long-term goals are to delineate the mechanisms by which bICP0 stimulates viral gene expression, productive infection, and reactivation from latency.

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

John R. Kammermann, BS, MS, PhD
Assistant Professor
Anatomist

Appointment: 1.00 FTE Tchg

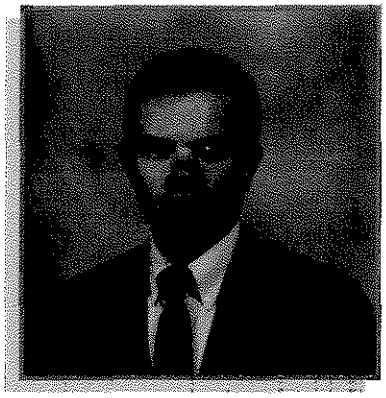
Teaching Interest – Comparative Veterinary Anatomy of Domestic Animals

The primary focus of my instructional program is the teaching of comparative anatomy of common domestic species including cats, dogs, swine, horses, birds, cattle, goats and sheep to first-year veterinary medical students, as part of the professional veterinary medical curriculum. The major goal of the gross anatomy teaching program is to provide students with a strong background in veterinary anatomy of the most common domestic animal species.

The veterinary anatomy program is divided into two semesters. In the fall, students are exposed to highly-detailed anatomy of domestic carnivores (cats & dogs), and demestic swine through an intensive dissection course, emphasizing three-dimensional anatomy. The class meets approximately fifteen hours per week during the fall semester. Clinical application of anatomical concepts, as well as, radiographic anatomy are also covered. The carnivore is the model animal used to discern the gross structure and function of the mammalian body. Anatomical concepts learned in the fall are used as the foundation for the spring anatomy course.

The spring course is an exercise in comparison and contrast of carnivore anatomy against the anatomy of ruminatns, birds and horses. Due to time contraints, the spring course moves at an accelerated rate, emphasizing more clinically-applied and functional anatomical concepts and structures.

Currently, I am in the process of creating a digital library of gross anatomical pictures. These pictures are being used in conjunction with notebook computers to enhance the productivity and efficiency of laboratory study of gross anatomy.



Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

Clayton L. Kelling, BS, MS, PhD, DVM
Professor
Microbiologist/Virologist

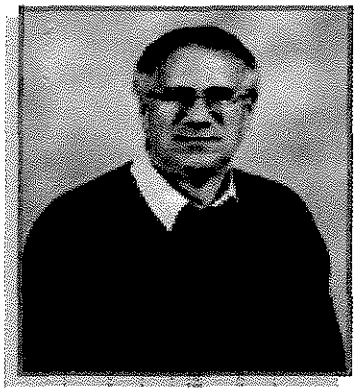
Appointment: .85 FTE Research; .15 FTE Teaching

Our research is focused on pathogenesis of bovine respiratory syncytial virus (BRSV) and bovine viral diarrhea virus (BVDV) infections in cattle. Immunity to BRSV infection is incomplete and reinfections occur. Protective host immune responses to vaccines or natural infections may be compromised by mutation of the surface glycoproteins. We are examining the roles of the BRSV surface attachment (G) and fusion (F) glycoproteins in pathogenesis and immunity. Genetic and antigenic heterogeneity, and structure of the BRSV G and F glycoprotein are being studied to determine the influence of those variables on survival of the virus in the host and on development of protective immunity in the host. Our studies involve use of recombinant BRSV glycoproteins expressed in insect cells using the baculovirus vector and developing of a cDNA BRSV F protein vaccine.

The overall goal of our BVDV research is to study the mechanisms involved in the pathogenesis of acute genotype 2 BVDV infections by studying virulence. We are examining the 5' untranslated region (5'UTR) of BVDV isolates for conserved nucleotide base substitutions in the internal ribosomal entry site (IRES) which are biologically significant. Translation studies using cDNA plasmid constructs of the 5' UTR of isolates from a panel of genotype 2 BVDV isolates are being used to study relationships between translational efficiency and virulence of individual isolates in experimental calf infection studies.

Since naturally-occurring pneumonia in cattle or neonatal calf diarrhea typically involves infection of the host with more than one infectious agent, we are also studying the interaction of BVDV with BRSV or bovine rotavirus in concurrent *in vivo* and *in vitro* infections.

Teaching responsibilities include serving as major advisor for graduate students, mentoring undergraduate students conducting thesis research projects, and as course instructor. I am the sole instructor for two courses, Principles and Prevention of Livestock Diseases and our departmental undergraduate capstone course: Integrated Principles and Prevention of Livestock Diseases. Each year, I have also contributed guest lectures in immunovirology or vaccinology courses.



Department of Veterinary and Biomedical Sciences
Great Plains Veterinary Educational Center
Clay Center, NE
Professional Program in Veterinary Medicine

James E. Keen, BS, BS, DVM, PhD
Associate Professor
Epidemiology

Appointment: .40 FTE Tchg; .60 FTE Rsch

My research focus for the past 15 years (pre-UNL) emphasizes zoonotic enteric food-borne bacteria detection, epidemiology and applied ecology in live cattle on farms and in feedlots, emphasizing *Salmonella enterica* and shiga-toxigenic *Escherichia coli* O157, O111 and O26. In addition, I have experience and interest in developing new detection techniques for these bacterial pathogens when needed in support of research investigations, including reagent development. In particular, I have several years experience in murine monoclonal antibody-based techniques.

In the past year (post-UNL), I began investigating outbreaks of *Tritrichomonas foetus* in western Nebraska cow-calf herds in collaboration with UNL colleagues. This venereal-transmitted protozoan parasite is a cause of economically damaging infertility and abortions in infected beef herds and is endemic in the Western United States cattle herds. Ongoing research aims to optimize detection of *Tritrichomonas foetus* carrier bulls in infected herds for disease control purposes. Recent and developing research interests include decision analysis of breast cancer screening in women and the genetic basic of livestock disease resistance or susceptibility.

Teaching Interests - Veterinary Public Health and Veterinary Epidemiology

Starting in 2008, I teach VMED 688 - Veterinary Public Health, a three hour course in the Professional Program in Veterinary Medicine in the Fall semester to second year UNL students. This course encompasses basic veterinary epidemiology, zoonotic diseases, food safety and other areas related to veterinary public health. In Fall 2008, I also taught an entire two hour distance-based course in Veterinary Epidemiology to second year veterinary students at the University of Illinois. In the future, I plan to offer or contribute to UNL graduate courses related to veterinary epidemiology. For the past 15 years, including calendar year 2008, I have been a mentor and instructor in epidemiology and biostatistics in the Beef Cattle Production Management Series for veterinarians. The BCPMS is a year-long continuing education program that enables practicing livestock veterinarians to upgrade their non-clinical skill sets in areas with applied value. I also serve as an advisor to the subset of veterinarians in the BCPMS course (currently five) who pursue a non-thesis distance Masters degree in Veterinary Science as a formal supplement to this program. In addition to the distance masters students, I am major advisor to one thesis Master's student and a committee member to another Master's student. Finally, I also periodically train veterinarians in central Asia in veterinary infectious disease and field epidemiology in support of programs to control dangerous epidemic and/or zoonotic livestock pathogens.

Department of Veterinary and Biomedical Sciences and Redox Biology Center

Marjorie F. Lou, BS, MS, PhD
Professor & Cather Professorship
Biochemistry/Biomedical Sciences

Appointment: .90 FTE Rsch; .10 FTE Tchg

Main Focus: Biochemical Mechanism of Senile Cataract Formation

Our focus on the biochemical mechanism of age-related cataract formation is oxidative stress. We used hydrogen peroxide-induced cataract in organ culture condition as our model to study the progressive changes in morphology and intracellular redox potential in the lens. We demonstrated that lens opacification is associated with the increased protein insolubility and protein aggregation, resulting from lens protein oxidation by oxidative stress. We also showed that the thiol groups in lens proteins are oxidized by forming protein-thiol mixed disulfides first followed by protein protein disulfide formation, a condition that will lead to lens opacification. We studied the site of thiolation on lens proteins by using mass spectrometry and found a direct evidence that protein thiolation caused change in protein conformation, thus supporting our hypothesis that protein-thiol mixed disulfide formation plays an important role in cataractogenesis.

We discovered that the lens has an intrinsic repair enzyme systems, the thioltransferase/ GSH and thioredoxin/thioredoxin reductase/NADPH systems, which can repair the damaged lens proteins/enzymes and restore their biological functions. We cloned, sequenced and characterized these enzymes and found them to be extremely oxidant-resistant in the lens epithelium cells. The physiological function of the two repair systems is proposed to be oxidative stress defense enzymes by preventing the accumulation of oxidant induced protein-protein disulfide in the lens and to regulate the thiol/disulfide homeostasis so that the lens will not be permanently damaged by oxidative stress.

Redox Signaling in the Lens Epithelial Cells

We examine the physiological function of reactive oxygen species in promoting cell growth and differentiation in the lens. This is a new research direction, which requires a lot of knowledge in signal transduction and the redox biology combined. We are using a growth factor, PDGF, as a model to study the mechanism of the mitogenic action of PDGF in cell proliferation. We now have extensive data suggesting that a growth factor binding can trigger generation of reactive oxygen species (ROS) via the membrane enzyme NADPH oxidase. ROS is then used by the cells to inhibit phosphatases, so that phosphorylation (activation) of signaling components, such as the MAPK cascades, can be initiated. We are also working on the regulation of this redox signaling system and investigating several transcription factors in the nucleus that are associated with gene expression under such experimental conditions.

Cataract Models

Our effort is also to establish a cataract model relevant to humans. We have recently developed a thioltransferase kockout mouse model, which showed lens protein aggregation as the animal aged beyond 13 months old, while the age-matched wild type remained normal. Thus, this is a model very much mimicking human age-related cataract. We plan to use this model to study the benefit of using various antioxidants and examine their efficacy against protein aggregation, including using thioltransferase, which is lacking in the lens of these animals.

Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

D. Scott McVey, PhD, DVM
Professor
Bacteriologist

Appointment: .25 FTE Rsch; .25 FTE Tchng; .50 Srvc

My long-term goal is to contribute to the understanding of virulence mechanisms of bacterial pathogens of food producing animals, with particular emphasis on elucidating the mechanisms by which bacteria infect and persist in tissues. The objectives in my research projects are to determine cellular, molecular and genetic mechanisms by which *Mannheimia haemolytica and Mycobacterium avium* subspecies *paratuberculosis* overcome the bovine immune system and persist in bovine tissues. The central hypothesis is that these bacteria respond to environmental conditions associated with local inflammation by induction and subsequent selection of phenotypes that express increased resistance to a broad array of host-generated immune effector mechanisms. We are approaching these studies initially by investigating the relationships between metabolic processes of the organisms and expression of known virulence factors. Our rationale for this research is that completion of this overall objective would be expected to lead to improved preventative and therapeutic approaches and diagnostic procedures for Johne's Disease and the bovine respiratory disease complex.

In addition, we are involved in developmental research to improve diagnostic medicine, especially for infectious diseases of food producing animals. This includes the continued development of The Nebraska Veterinary Diagnostic Center's (NVDC) capabilities to function as an integrated diagnostic laboratory resource of the National Animal Health Laboratory Network (NAHLN). As an integrated laboratory, the NVDC must strive to improve the efficiency of accurate laboratory testing, with emphasis on foreign animal diseases (FADs) as well as emerging and re-emerging threats. There are many ongoing projects that support these objectives such as evaluation, verification and validation of assays to diagnose FADs, bluetongue disease, tritrichomoniasis, brucellosis and tularemia. The laboratory is also involved in the development of novel methodology to detect trends in antimicrobial resistance and metabolic biochemical variation among bacteria of veterinary significance. In addition, the laboratory is involved with evaluation of the efficiencies of diagnostic test methods with regard to reliability, training, data reporting and material costs.

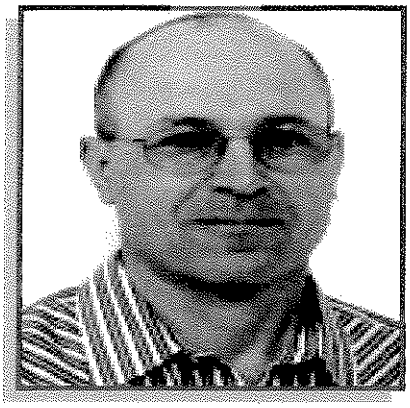
Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

Rodney A. Moxley, DVM, PhD
Professor
Microbiologist

Appointment: .10 FTE Tchng; .90 FTE Rsch

My research involves two main areas, the pathogenesis of enterotoxigenic *Escherichia coli* (ETEC) in swine and pre-harvest food safety on *E. coli* O157:H7. My research on ETEC in swine is focused on study of the roles of enterotoxins in enhancement of bacterial colonization of the intestine and causation of diarrheal disease. We are also currently studying the role of the immune response to K87 capsular polysaccharide in complement-mediated serum killing of ETEC serotype O8:K87. My research on *E. coli* O157:H7 mainly involves study of the roles of secreted bacterial proteins and immune responses to these proteins in enhancement or reduction of intestinal colonization, respectively. In addition, my research on *E. coli* O157:H7 involves collaborative field studies addressing the epidemiology and testing of pre-harvest intervention strategies for this organism in feedlot cattle.

My teaching responsibilities involve the instruction of BIOS/VBMS 441/841 Pathogenic Microbiology, serving as major advisor for graduate students, and serving as a member of graduate supervisory committees. I have also served several terms as the departmental representative on the College of Agricultural Sciences and Natural Resources (CASNR) Curriculum Committee.



Department of Veterinary and Biomedical Sciences
Great Plains Veterinary Educational Center, Clay Center, NE
Professional Program in Veterinary Medicine

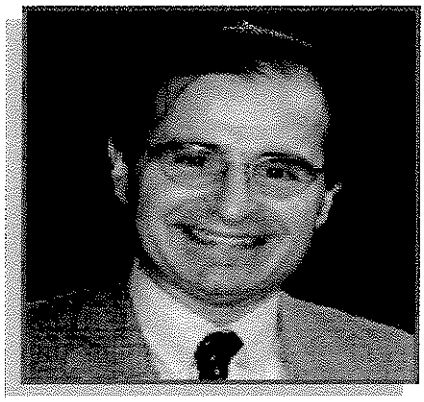
Jeff D. Ondrak, DVM, BS
Lecturer
Ruminant Nutrition, Beef Cattle Health

Appointment: .50 FTE Tchg; .50 FTE Rsch

My current area of research involves trichomoniasis in beef cattle due to *Tritrichomonas foetus*. The main focus of the research has been to examine the agreement between culture, gel PCR, and real time PCR for detecting *T. foetus* in samples as well as classifying bulls as *T. foetus* infected based on testing three serial samples. The goal of this research is to establish data-based *T. foetus* testing recommendations to the beef cattle industry.

The other research component of my appointment involves my activities on USMARC. I am responsible for working with the USDA veterinarian in charge of USMARC animal health to provide veterinary care to the animals of USMARC. Through these activities, I am directly involved in some USMARC research projects. These activities also indirectly support USMARC research activities by providing animal health services to the project animals.

My appointment also has a teaching component. I am responsible for providing clinical training for veterinary students who pass through our facility. This is accomplished through routine clinical activities on USMARC, as well as through other hands-on training and structured lectures/discussions.



Department of Veterinary and Biomedical Sciences and Nebraska Center for Virology

Fernando A. Osorio, MV, MS, PhD, ACVM
Professor
Virologist

Appointment: .60 FTE Rsch; .40 FTE Diag Srv

Research: My research centers on pathogenesis of viral infections. In the last decade we have focused on a major viral agent that affects swine: Porcine Reproductive and Respiratory Syndrome Virus (PRRSV, an arterivirus, ssRNA+ genome). PRRSV currently causes the most economically significant infectious disease of US swine stock. Our initial interest in this disease centered on the primary characterization of the cell tropism of this virus *in vivo*. We initially detected and characterized a novel tropism of PRRSV for male germ cells. Such a specialized tropism of PRRSV results in death of these cells by (*in vivo*) induction of apoptosis. This selectivity for testicular germ cells also explains the transmission of PRRSV via semen, one of the most imporatnt routes of dissemination of this agent. We have also further characterized the immunobiology of persistence of this virus in convalescent animals. Our research seems to indicate that, contrary to other known examples of RNA virus persistence, the persistent infection established by PRRSV is finite and seems to involve a low level of productive infection that progressively declines until complete viral clearance takes place. We found that during the period of viral persistence, extensive modulation of the homologous (PRRSV-specific) cell-mediated and humoral immune response takes place. We are particularly interested in the mechanisms responsible for establishment of protective immunity against PRRSV. There is an urgent need for improvement of the vaccines that are currently used against PRRSV. We have discovered that a major role for protection against infection and disease caused by PRRSV resides with a type of PRRSV-specific antibodies that has the ability to render PRRSV un-infectious (i.e. antibodies that neutralize PRRSV). The key to a better protection against PRRSV resides on the development of better and safer vaccines that would prevent infection and possess more genetic stability than the commercial attenuated vaccines currently in use. To that end, we are interested in: 1) characterization of the major immunogenic components of PRRSV, and 2) characterization of the genes responsible for the ability to produce disease (virulence) by PRRSV. Knowing the genetic basis of PRRSV virulence and attenuation should permit a more precise design of safer, more efficacious vaccines.

Diagnostic Service: As the director of diagnostic virology at the Veterinary Diagnostic Center, my main goal has been to expedite the diagnostic process through the implementation of rapid tests that are based on the direct detection of viral components or anti-viral antibodies in the clinical sample. I am particularly interested on the evaluation of the fitness and robustness of new commercial diagnostic serologic kits for PRRSV and for Foot-and-Mouth Disease Virus (FMDV). In the latter case, the differential (i.e. capable of distinguishing infected from vaccinated animals) kits for FMDV may be of cardinal importance to US Agriculture, in case any form of vaccination is considered as a viable rapid response against a possible outbreak of this disease in the US. Another major responsibility as diagnostic virologist is my maintaining an active diagnostic surveillance for Pseudorabies Virus (PRV), a very important herpesvirus that has been recently eradicated of domestic swine in the U.S. Our diagnostic virology lab serves as reference for other labs nationwide in relation to molecular detection of PRV in tissues of animals suspects of PRV infection.

Teaching: I collaborate with team teaching of virology courses. Together with Dr. Charles Wood, I co-teach a course on Advanced Viral Pathogenesis and collaborate with a team teaching of Advanced Viral Immunology.

Department of Veterinary and Biomedical Sciences and Nebraska Center for Virology

Asit K. Pattnaik, BS, MS, PhD
Professor
Virologist

Appointment: .80 FTE Rsch; .20 FTE Tchg

My research focuses on various aspects of viral genome transcription, replication, and virus assembly in cells infected with viruses. As model systems for these studies, we use vesicular stomatitis virus (VSV), a non-segmented negative-strand RNA virus, hepatitis C virus (HCV), a positive-strand RNA virus, and porcine reproductive and respiratory syndrome virus (PRRSV), another positive-strand RNA virus. VSV is a cattle pathogen but has been widely used as a paradigm for understanding of biology of this group of RNA viruses that include some of the most serious human pathogens. HCV is a significant human pathogen for which no effective antiviral therapy is currently available. PRRSV causes economically significant diseases in swine population.

In recent past, our research has been centered on the understanding the mechanism of VSV genome transcription and replication. We have generated plasmids encoding subgenomic replicons of VSV that when transfected into mammalian cells, faithfully reproduce the processes of transcription and replication that is normally observed in virus-infected cells. Using the system of reverse genetics that I developed several years ago, we have examined many different aspects of the mechanisms of this virus genome transcription and replication. We have proposed a model suggesting that nucleotide sequences present at the beginning and the end of each gene coding sequences of VSV contain regulatory signals that mediate synthesis of five individual mRNAs from the large viral genome in infected cells. In addition, in a separate model, we have proposed that differential phosphorylation of one of the key viral proteins (the phosphoprotein, P) regulates the transcription and replication functions of the viral RNA polymerase. Logical ongoing studies are directed at generating and characterizing mutant viruses with defects in the P protein so that it may be possible to create viruses with attenuated phenotypes for development of viral vaccines.

In the area of HCV, we are attempting to develop a system for replication of subgenomic replicons in transfected mammalian cells. These are extremely challenging studies, but if successful, will advance the field significantly. For these studies, we have generated a variety of HCV subgenomic replicons and are currently examining their ability to replicate in transfected cells. In addition, our studies are directed at generating infectious HCV from mammalian cells. Currently, attempts to develop antiviral therapy against this virus are hampered by the lack of a system to grow and propagate the virus in cultured cells. With PRRSV, we have generated a full-length cDNA clone of the viral genome in a transcription vector. In vitro transcripts generated from the cDNA clone when transfected into MARC-145 cells resulted in production of infectious recombinant PRRSV from the cells. The recombinant PRRSV generated from the cDNA exhibited pathogenic properties similar to that of the parental virus. We are currently using this reverse genetic system to determine the virulence and attenuation determinants of PRRSV. Results from these studies will be significant in our attempt to develop safe and more efficacious vaccine to combat PRRS. Using infectious VSV cDNA clone, we are also generating recombinant VSVs containing PRRSV genes to examine cell-mediated and humoral immune response to the specific PRRSV proteins.

Department of Veterinary and Biomedical Sciences
Cooperative Extension Division

Richard F. Randle, DVM, MS
Associate Professor
Extension Beef Cattle Veterinarian

Appointment: .20 FTE Tchg; .80 FTE Ext

I joined the Department of Veterinary and Biomedical Sciences, University of Nebraska- Lincoln on December 3, 2007, as Extension Beef Cattle Veterinarian. My principal goal is to develop and implement education outreach programs that are designed to address the needs of the cattle producers in Nebraska. The outcome of these programs will contribute to the viability and sustainability of the beef cattle industry with emphasis on ranch production systems. I specialize in beef cow/calf production management with emphasis on young stock management, disease surveillance, biosecurity and quality assurance.

Current Activities

1. Awareness and education of the disease Trichomoniasis
   a) Trichomoniasis is a sexually transmitted disease that results in compromised reproductive performance in beef cattle. There has been a recent apparent increase in the occurrence of this disease in Nebraska. Major focus has been to provide to cattle producers information about Trichomoniasis and biosecurity measures to protect their herds.
   b) Continuing education, consultation, and support to veterinary practitioners in reproductive management, awareness and education on emerging technologies, diagnostic support and management, disease surveillance, and biosecurity with emphasis on Trichomoniasis.
2. Cattle feeders and their veterinarians in the high-plains of Nebraska, Wyoming and Colorado have expressed concern that a meaningful number of feedlot cattle deaths are recently attributed to cardio-pulmonary disease (CPD). A common presenting sign is brisket edema
   a) Coordinating with other investigators to further define the problem, determine its cause(s), and identify strategies for preventing these deaths.
   b) Two approaches include to characterize the occurrence of CPD in participating feed yards by time and place, and to describe the pathology of heart, lungs, liver and kidneys of affected cattle from participating feed yards.

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

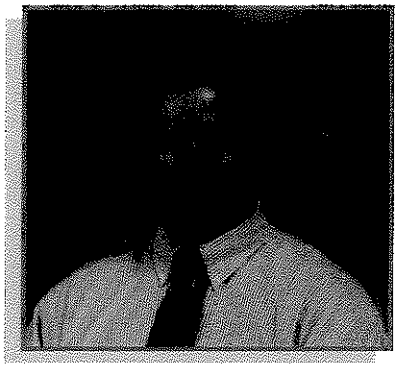
N R Jayagopala (Jay) Reddy, DVM, MVSc, PhD
Associate Professor
Immunologist

Appointment: .25 FTE Tchg; .75 FTE Rsch

My research focus will be centered upon the autoimmune diseases, which occurs as a result of recognition of self tissues by our own immune system as 'foreign.' While it is true that most of us have a propensity to develop autoimmune diseases, only few individuals show the clinical manifestations spontaneously and their underlying mechanisms are not clear. Furthermore, autoimmune diseases are more prevalent in women than in men and the gonadal steroids can influence the outcome of autoimmune diseases. To this end, we will focus our investigations on two models of autoimmunity namely, experimental autoimmune encephalomyelitis (EAE) induced with the central nervous system myelin proteolipid protein (PLP) and Coxsackie virus B3 (CVB3)-induced myocarditis in mice as the disease models for multiple sclerosis and postinfectious myocarditis in humans, respectively. EAE is induced in SJL mice by immunizing them with PLP in complete Freund's adjuvant.

While, both male and female SJL mice develop disease with a comparable severity, only the female mice show a chronic relapsing remitting type of paralysis. Using this model, we proposed to: study the role of sex steroids in the generation of myelin-reactive T cells; determine gender-disparity in the production of cytokines and identify gender-specific microRNAs that potentially contribute to sexual dimorphism in autoimmunity. In addition, we will study the role of reactive oxygen species in the maintenance of T cell tolerance and genetic resistance to autoimmunity in EAE-susceptible, SJL and EAE-resistant, B10.S mice. In the second model of autoimmunity namely, myocarditis, we will delineate the contribution of autoimmunity in the induction of postinfectious myocarditis in humans. CVB3 infection is often implicated in myocarditis in humans and it can lead to dilated cardiomyopathy, a frequent reason for heart transplantation. The virus causes myocarditis in mice histologically similar to humans and the disease follows acute or viral and chronic or non-viral phase. It has been a long-standing question as to whether chronic myocarditis results from viral- or cardiac antigen-specific immune response. We will address this question by analyzing the evolution of viral and cardiac antigen-specific T cell repertoires and importantly, the generation of cross-reacting T cells during the course of myocarditis.

Taken together, the observations that will be made in the proposed studies will address two fundamental questions in autoimmunity: 1. What are the mechanisms of gender-associated autoimmunity? and 2. How the T cell tolerance is maintained in the genetically resistant individuals and how this tolerance might be broken to induce autoimmunity.

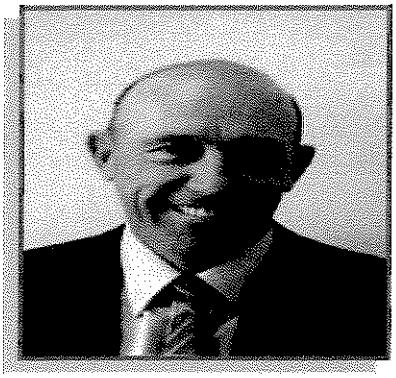


Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

Douglas G. Rogers, BS, DVM, MS, PhD
Professor
Diagnostic Pathologist

Appointment: 1.0 FTE Diagnostic Service

My major responsibility within the Department of Veterinary and Biomedical Sciences and within the Veterinary Diagnostic Center is diagnostic veterinary medicine. As a Diagnostic Pathologist, the position requires the histopathologic examination of diseased tissues, performing necropsies, assimilation and evaluation of supportive laboratory data, reporting to referring veterinarians or animal owners, preparing the laboratory reports and researching pertinent scientific literature. My special interest is conducting field investigations relative to infectious disease of livestock. This position has afforded me several opportunities to identify "new" infectious diseases of livestock and also to identify "new trends" of "old diseases." The ultimate goal of these investigations has been (and will be) to establish intra- and inter- institutional collaborative studies on the pathogenesis of infectious diseases of livestock. My teaching responsibilities include the training of graduate students/residents interested in diagnostic veterinary medicine, advising graduate students (as major advisor or committee member), conducting research on bacterial diseases of livestock.



Department of Veterinary and Biomedical Sciences
Great Plains Veterinary Educational Center
Clay Center, Nebraska

Gary P. Rupp, DVM, MS, ACT Diplomate
Professor and Director
Theriogenology

Appointment: .50 FTE Tchg: .30 FTE Rsch; .20 FTE Srvc

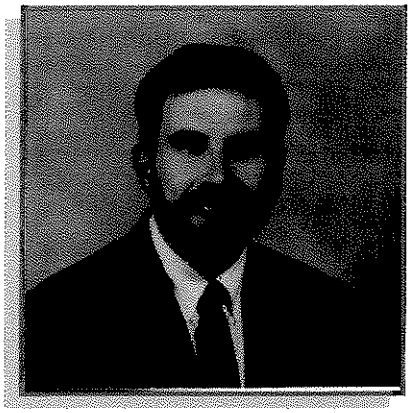
As Director of The University of Nebraska Great Plains Veterinary Educational Center I work with other Departmental faculty to provide instruction in clinical and applied areas of production management and specialized health care for veterinary students in the professional curriculum of the joint KSU/UNL program. This mission is accomplished through another important activity, which is providing health and production management services for the US MARC livestock in concert with the Herd Health Veterinarian. The combination of duties provides an excellent opportunity for student experience in clinical veterinary medicine and livestock management.

An additional aspect of our Center is that of providing continuing education programs for graduate veterinarians. This activity requires working with a wide array of allied specialists in the diverse areas involved in the beef cattle industry. We are just finished providing the eighth Beef Cattle Production Management Series which increases our total participation to more than 140 veterinarians. They represent beef cattle practitioners from across the United States and Canada and also from other aspects of the animal health industry. During the past three years this educational series has evolved into an optional graduate program which usually leads to an MS degree through distance education but has contributed to several PhD programs as well. The Series is currently being taught by University from Animal Science, Agronomy, Agricultural Economics, Veterinary Science from the University of Nebraska and educators from Kansas State University, Iowa State University, the University of Missouri, Texas A&M University, as well as specialists from other beef industry perspectives.

Research by faculty involves projects conducted in cooperation with U. S. Meat Animal Scientists and with cooperating producer herds and private feed yards in Nebraska. Recent efforts have been associated with reproduction, antibiotic residues, and tracking calves through retained ownership from birth to processing. The development of biosecurity and quality assurance programs for beef producers, and work to prevent and control foodborne pathogens. Additional projects have been carried out in areas of neonatal health and production.

In the future the GPVEC program hopes to further expand the interaction of other colleges of veterinary medicine and related disciplines to broaden the teaching and industry exposure for graduate veterinarians and allied specialists to provide a broad and in-depth coverage of production, management, economic, and health related issues essential for providing service to progressive livestock producers.

Our faculty wish to continue improving our involvement in areas of clinically related research, extension, and veterinary service to MARC, Nebraska producers, and the entire livestock industry. This can best be accomplished through our cooperation and interactive participation in education, research, and service commitments. The benefits of distance education and other innovative multimedia technologies are gradually increasing general knowledge and will enhance our service to the livestock industry.



Department of Veterinary and Biomedical Sciences
Extension Division

David R. Smith, BS, DVM, PhD
Professor
Extension Dairy and Beef Veterinarian

Appointment: .75 FTE Ext; .25 FTE Rsch

The goals of my research and extension programing are to contribute new knowledge and apply existing knowledge to solve animal and public health problems associated with dairy and beef production systems. I conduct research on, and communicate applications of, biosecurity and pathogen containment to control pathogens that affect dairy and beef cattle health and pre-harvest food safety.

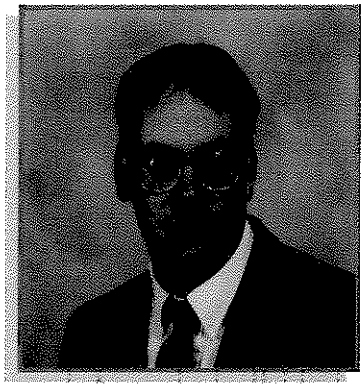
My current research and extension efforts are directed towards animal production food safety related to *Escherichia coli* O157:H7 and *Salmonella* in feedlot cattle, evaluating herd-level diagnostic approaches for Johne's disease and bovine viral diarrhea in dairy and beef cattle, and evaluating new production systems to prevent calf scours on Nebraska Sandhills ranches.

Department of Veterinary and Biomedical Sciences
Center for Redox Biology

Greg A. Somerville, BS, MS, PhD
Assistant Professor
Infectious Disease Specialist/Microbiologist

Appointment: .90 FTE Rsch; .10 FTE Tchng

S. aureus and *S. epidermidis* are the two leading causes of nosocomial infections in the USA, resulting in dramatically increased morbidity and treatment costs. Additionally, *S. aureus* is a major cause of bovine mastitis, a disease costing the USA approximately $2 billion annually, due to reduced production, animal replacement costs, discarded milk, treatment costs, and veterinary fees. My research focuses on addressing how environmental conditions affect the bacterial metabolic status and, in turn, how the metabolic status affects staphylococcal virulence. This is particularly important in the era of "omics," when genomics, proteomics, and high throughput mutagenesis screens consistently identify the genes of bacterial physiology and metabolism as being important, or essential, for pathogenesis. Currently, my lab is working on identifying the intermediary metabolism derived signals in *S. aureus* that facilitate the transition from a commensal state to a pathogenic state. The long-term goal of my research is the elucidation of mechanisms by which *Staphylococcus aureus* and *S. epidermidis* controls virulence factor production in response to metabolic and environmental stimuli. It is anticipated that by understanding the mechanisms of virulence regulation in response to environmental stimuli that vaccines can be developed that will attenuate the bacterial response to the host environment.



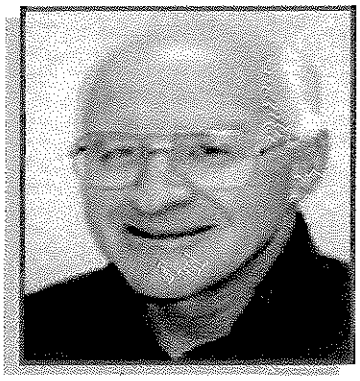
Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

David J. Steffen, BS, DVM, PhD, ABVP
Professor and Director
Diagnostic Pathologist

Appointment: 1.0 FTE Diagnostic Service

My appointment in the Nebraska Veterinary Diagnostic Center is to serve as the Director and as a Diagnostic Pathologist. My scholarly component involves making use of case materials. A regular funded congenital defects referral center was established and I was actively investigating Dwarfism in Angus cattle. I am working with the Angus and Hereford Associations to update their genetic disease control policies. Collaboration with Dr. Kelling on BVDV infections in calves is ongoing as is collaborative studies in West Nile virus infection in horses. Laboratory accessions continue to rise.

Major time commitment is toward providing administrative guidance to the Diagnostic Center and providing diagnostic and consultation services to the Nebraska livestock industry. I served as a case coordinator on 1,300-1,400 investigations per year, which involve a multi-disciplinary approach to disease diagnosis. All cases culminate in a written report to the veterinarian and/or the animal owner, and often telephone consultations regarding disease management.



Department of Veterinary and Biomedical Sciences
and
Panhandle Research & Extension Center, Scottsbluff, NE

Arden R. Wohlers, BS, DVM
Extension Assistant Professor
Beef Cattle Health and Production Management

Appointment: .50 FTE Extension Services

My 0.50 FTE position includes veterinary education responsibilities at the UNL Panhandle Research and Extension Center. The principal goal for my position is to contribute to the viability and growth of the animal agriculture industries in western Nebraska, especially the beef cattle industry and public health. I am responsible for coordination and cooperation with faculty and staff located at PHREC and other research and extension centers, VBMS, GPVEC and other UNL units.

I am responsible for development, coordination and implementation of educational programs that are sensitive to the needs of animal owners, veterinary practitioners, extension personnel and wildlife managers. My programs relate to animal health and production management that is pertinent to industry.

I deal with one on one conferences concerning isolated disease or management problems on a daily basis. An emphasis is placed on biosecurity applications for animal production systems. Currently my focus programs are the IRM pen of 5 demonstration project, foreign animal disease and agroterrorism issues and the planning for a beef industry discussion group to be implemented in the future. I am involved in the study of veterinary needs of the future in rural Nebraska.

Department of Animal Science
Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

Jennifer R. Wood, BA, MS, PhD
Assistant Professor
Physiological Genomics: Molecular Reproductive Physiologist

Appointment: .40 FTE Tchng; .60 FTE Rsch

Nutrition and reproduction are intimately linked in eutherian mammals such that states of undernutrition and obesity are correlated with embryonic, fetal, and neonatal loss, birth defects, and obstetric complications. Recent studies also provide evidence that the developmental environment of the embryo and fetus has significant consequences on the long-term growth and health of viable offspring. Our ***long-term goal*** is to elucidate how metabolic hormones, which reflect maternal metabolic status, regulate embryonic development and how changes in these hormone levels contribute to adverse pregnancy outcomes. To this end, the current objectives of the lab are to determine the mechanistic roles of insulin and insulin-like growth factor during the establishment of oocyte quality and pre-implantation development

Oocyte quality is established during oocyte growth and maturation within the ovarian follicle and is dependent on the accumulation of factors which regulate meiotic resumption, fertilization, and/or pre-implantation development. One factor that regulates oocyte quality is appropriate bi-directional communication between the oocyte and supporting granulosa cells. To determine how insulin and IGF-1 regulate oocyte-granulosa cell interactions, we are carrying out three complementary projects. First, the insulin/IGF-dependent regulation of paracrine factor expression in supporting granulosa cells is being examined. Since bi-directional communication between the oocyte and granulosa cells is dependent on the intimate association between these cells and includes the formation of gap junctions, the objective of our second project is to identify insulin/IGF-dependent mechanisms that mediate the interaction between granulosa cell and oocyte. For both of these studies, changes in granulosa cell function or phenotype are being correlated to changes in oocyte gene expression and chromatin structure, markers of oocyte quality. In beef and dairy cows, the development of a persistent follicle due to low circulating progesterone levels is associated with reduced developmental competence of the oocyte. Therefore, we are participating in a collaborative project with Andrea Cupp and Robert Cushman to define how the hormone environment of the persistant follicle affects markers of oocyte quality (i.e. gene expression and chromatin conformation).

The hormonal environment during pre-implantation development influences not only development of the embryo and fetus but also determines the long-term phenotype of multiple organ systems in viable offspring. Given that mammalian embryos express the receptor for insulin and IGF-1, the lab is defining how insulin and IGF regulate cell cycle progression, apoptosis, and lineage differentiation in the pre-implantation embryo. In current studies, insulin/IGF-dependent changes in histone modifications (i.e. epigenetic alterations in chromatin) are being correlated to changes in embryonic gene expression. It is our hypothesis that insulin/IGF-dependent alterations in histone modifications will affect placental function and organ system development. Furthermore, we propose that there will also be lasting effects on the metabolic phenotype of the offspring which contribute to individual differences in weight gain, glucose utilization, and/or fat-to-muscle ratios. Likewise, these epigenetic differences may influence other important parameters in the offspring including disease resistance and reproductive performance.

Department of Veterinary and Biomedical Sciences & Center for Biotechnology

Y. "Joe" Zhou, BSc, PhD
Research Associate Professor
Cell Biologist
Manager, Microscopy Core Research Facility

Appointment: .70 FTE Managing & Srv; .20 FTE Rsch; .10 FTE Training & Tchg

As Manager for the Microscopy Research Core Facility, Center for Biotechnology, my main goal has been to establish and maintain the-state-of-art microscopy imaging facility, which provides expertise and instrumentation to researchers within/outside UNL. I am also actively involved in research collaborations and in providing technical support for seeking research funding. One of the major research and service projects involves the use of immunochemical labeling and digital imaging technology to support an NIH-funded collaborative study of viral pathogenesis by a group of scientists from UNL, UNMC and UNC. Microscopy imaging technologies we provide include: a) immunofluorescence microscopy using whole tissues or sections, b) multi-probe *in situ* hybridization, c) real-time imaging confocal microscopy (i.e. detection of GFP-tagged proteins in live cells in cultures and d) transmission and scanning electron microscopy. My research is focused on genetic and environmental effects on stress responsiveness in relation to age-related neurodegeneration using animal models. The goal of my research is to establish a mouse model of altered stress response in order to identify and characterize the genes/proteins associated with or affecting stress susceptibility and aging. One of the ongoing projects, in collaboration with Dr. MK Nielsen of Animal Sciences, is genetic selection of mouse lines with high and low responsiveness to stress, in order to establish a useful mouse model of stress-induced early aging and neurodegeneration. Molecular events associated with stress-induced abnormalities remain ambiguous despite scientific advancement, owing to the complexity of genetic and environmental interactions. Many experimental paradigms have been used to study the mechanisms of stress responses in animals, but to date there is no well-documented animal model generated from genetic selection for altered corticosterone response to stress to facilitate the study of stress-induced changes in gene expression with relation to behavioral abnormalities.

We recently initiated genetic selection of two mouse lines for high and low stress responsiveness (SH and SL lines, respectively), using serum corticosterone as one of the key criteria. After completion of the selection process for the second generation, the SH mice displayed up to twice the level of serum corticosterone observed in the SL mice (with or without exposure to stress). The initial microarray using the SH/SL mouse brains revealed significant differences in expression of many genes between the stressed and control mice within the same line and between the two genotypes. I, therefore, *hypothesize* that the difference in stress responses between the SH and SL lines results from complex genetic alteration (mainly in differential gene expression), and in mechanisms of central response to stress that were applied throughout the genetic selection process. Major focuses of my research are 1) *In vitro* characterization of biochemical properties and functional integrity of primary cultured hippocampal neurons derived from the embryonic SH and SL mice; 2) Assessment of behavioral activity and cognitive performance and subsequent gene expression profiling in the SH and SL mice in response to stress; and 3) Gene expression profiling and behavioral/cognitive assessments in the SH and SL mice in response to chronic stress in relation to the aging process in order to identify age-related genes associated with high or low susceptibility to chronic stress. This research is expected to foster an increased understanding of the molecular and biochemical events associated with neuronal calcium/kinase signaling and with regulation of genetic and environmental interactions in the mechanisms of stress.

Table 2. Current Postdoctoral Research Associates, 2007

Name	Alma Mater	VBMS Host	Length of Stay
Ofelia Chaćon-Barletta	University of Antioquia, Colombia	Raúl G. Barletta	2004-2008
Byungjoon Kwon	University of Nebraska-Lincoln, Lincoln, NE	Fernando A. Osorio	2007-Present
Sumin Li	China Agricultural University, Beijing, PRC	Clinton J. Jones	2007-Present
Marat Sadykov	Moscow State University, Russia	Greg A. Somerville	2006-Present
Christina Topliff	University of Nebraska-Lincoln	Clayton L. Kelling	2004-Present
Kuiji Xing	University of Nebraska-Lincoln	Marjorie F. Lou	2002-2008

Department of Veterinary and Biomedical Sciences Researchers, Postdoctoral and Senior Research Associates, 2007

Name **Ofelia Chaćon-Barletta** **Title: Postdoctoral Research Associate**
Mentor Raúl G. Barletta, UNL Place of Birth Colombia
G. Adams (TX A&M Univ) Arrival in US January 1995
Degree(s) **MSc** – January 1995 – University of Antioquia, Colombia (Immunology)
MD – July 1991 – University of Antioquia, Colombia (Physician and Surgeon, General Practice)
PhD – December 2002 – Texas A&M University, Texas (Microbiology)

Name **Sumin Li** **Title: Postdoctoral Research Associate**
Mentor Clinton J. Jones Place of Birth Zambuang, Hebei, People's Republic of China
Degree(s) **BS** – July 1996 – Hebei Agricultural University, Hebei, People's Republic of China, (Animal Science)
MS – July 1999 – Hebei Agricultural University, Hebei, People's Republic of China, (Animal Science)
PhD – July 2002 – China Agricultural University, Beijing, People's Republic of China, (Physiology)

Name **Byungjoon Kwon** **Title: Postdoctoral Research Associate**
Mentor Fernando A. Osorio Place of Birth Anyang Geonggi Republic of Korea
Degree(s) **BS** – February 1988 – KonkukUniversity, Seoul, Republic of Korea (Veterinary Medicine)
MS – February 1990 – Konkuk University, Seoul, Republic of Korea (Veterinary Microbiology)
DVM – February 1988 – Konkuk University, Seoul, Republic of Korea (Veterinary Medicine)
PhD – December 2006 – University of Nebraska-Lincoln, Integrative Biomedical Sciences, Lincoln, NE, USA (Animal Virology)

Name **Marat R. Sadykov** **Title: Postdoctoral Research Associate**
Mentor Greg A. Somerville Place of Birth: Russia
Degree(s) **MSc** – June 1991 – Kazan State University, Kazan, Russia (Genetics)
PhD – April 1999 – Moscow State University

Name **Christina Topliff** **Title: Postdoctoral Research Associate**
Mentor Clayton L. Kelling Place of Birth Nebraska
Arrival in US US Citizen
Degree(s) **BS** - May 1985 – Kansas State University, Manhattan, KS (Veterinary Science)
MS - December 1995 – University of Nebraska-Lincoln, Lincoln, NE (Veterinary Science)
DVM – May 1987 – Kansas State University, Manhattan, KS
PhD – December 2004 – University of Nebraska-Lincoln, Integrative Biomedical Sciences, Lincoln, NE

Name **Kuiyi Xing** **Title: Senior Research Associate**
Mentor Marjorie F. Lou Place of Birth Jiangsu Province, PRC
Degree(s) **BS** - July 15, 1991 - Fudan University, Shangaahi, People's Republic of China (Biochemistry)
PhD - December 20, 2002 - University of Nebraska-Lincoln (Biochemistry)

Table 3. Visiting Scientists, 2007-2008

Status	Name	Faculty Member	Country of Origin
2005-2007	Marcelo De Lima	Fernando A. Osorio	Brazil
2006-2007	Yanan Huo	Marjorie F. Lou	China
2008-Present	Mariana Silva	Clinton J. Jones	Brazil

University of Nebraska–Lincoln

Registration and Records
Serving Students, Faculty and Staff

Academic Year 2007 - 2008

Tuition and Fees

Payment of Consolidated Student Statements

The Consolidated Student Statement is a comprehensive statement that bills students for tuition and fees, University housing and meals, athletic tickets, parking permits and citations, telecommunication services, health center charges and NCard charges which could include charges from the University Bookstore, campus recreation, campus snack bars, etc. When payment is made or financial aid is applied to a student account, it will appear as a credit on the next Consolidated Student Statement. If credits exceed charges, a refund will be issued to the student electronically or by check, and will be posted on the next statement as a charge.

Consolidated Student Statements will be generated at the end of each month. You will receive an e-mail notification for on-line viewing via WAM! (What About Me) or WAMS! (What About My Student). Statements will always be available by the 25th of the month, and associated payments are due on the second Wednesday of the following month. Students may call the Office of Student Accounts to request a printed bill be mailed; however, we strongly encourage students and their families to utilize WAM! or WAMS! and print their own bills in order to greatly reduce postage and printing costs. The Student Information System allows students to designate a billing address, which will be used for all consolidated student statement mailings. If a billing address is not designated, local addresses will be used during the first and second semesters, and permanent addresses will be used in December and May-July. Students may call the Office of Student Accounts (402) 472-2887 to designate a billing address.

Semester tuition and fees will appear on the Consolidated Student Statement that is generated in August (First Semester) or January (Second Semester). Tuition and fees are due the second Wednesday of September (First Semeseter) or February (Second Semester). All other charges are due the second Wednesday of the month following their appearance on the bill.

Students can grant parents, or others, access to their billing information via the WAM! (What About Me) page. The student sets up a password that can be used along with their student identification number to allow parents or others to log into WAMS! (What About My Student). They will have access to the 'My Bill' screens, which includes the monthly bill and on-line payment options.

The following payment options are available for the Consolidated Student Statements:

In Person	Cash, personal check, money orders/bank drafts, travelers checks, credit card checks
Via Web (WAM!) or (WAMS!)	MasterCard or Discover cards with 2% non-refundable convenience fee ($2 minimum) based on the payment amount, e-check
Via US Mail	Personal checks, money orders/bank drafts, travelers checks, credit card checks

It is important that you keep Registration and Records, 107 Canfield Administration Building South, informed of your current mailing and e-mail addresses. If someone else will be paying your bills, be certain to inform them of the processes available.

All payments mailed or placed in the Bursar's drop box, 121 Canfield Administration Building North, should always be identified with your name and 8-digit student identification number. Consolidated Student Statements are generated each month for students with unpaid balances, and if there any new activity since the previous billing cycle.

The late charge for failing to meet payment deadlines is $20 each month. A HOLD is placed on the records of students with delinquent accounts. A HOLD prohibits future enrollment (including adds, section changes) and also prohibits the release of transcripts and diplomas until the accounts are brought current. Students with an account one-month delinquent will lose NCard charging privileges and telecommunication service and may lose access to campus recreation and the health center. If an account becomes two months delinquent, the process will begin that will lead to eviction from Housing.

Tuition and Fees

Statements concerning tuition and fees in this schedule are by way of announcement only and are not to be regarded as an offer of contract. The University of Nebraska-Lincoln expressly reserves the right to change any and all fees and/or tuition and other

charges at any time without notice in advance of such a change.

Tuition and Fee Rates

All students (except students enrolled only in Distance Education type = "F" and type = "S"; and/or type = "X" courses) who register for college credit are assessed tuition and "University Program and Facilities Fees" (UPFF). Tuition is assessed per credit hour based upon the table shown below. UPFF fees are based upon the total credit hours of enrollment (see table).

The tuition and fee rates for the 2007-2008 academic year are:

Undergraduate Tuition (Course Numbers 100-499)	Resident	Nonresident
UNL On-campus Undergraduate Tuition	$169.50	$503.50
Criminology and Criminal Justice, Gerontology, Public Administration (UNO)*	$154.75	$456.00
Dental Hygiene, Nursing Medicine (UNMC) *	$169.50	$503.50
Nursing (UNMC)*	$214.75	$629.00
Distance Education "F" Courses**	$169.50	$169.50
Distance Education "S" Courses -Meat Culinology Certificate Program (Animal Science and Nutrition)	$169.50	$318.00
Distance Education "S" Courses - Nursing	$214.75	$629.00
Distance Education "S" Courses** - All Other "S" Courses	$169.50	$250.75
Distance Education "X" Courses** - Nursing	$214.75	$629.00
Distance Education "X" courses** - All Other "X" Courses	$169.50	$503.50
Nebraska College of Technical Agriculture - Curtis, NE	Click Here	Click Here

Graduate Tuition (Course Numbers 800-999)	Resident	Nonresident
UNL On-campus Graduate Tuition	$224.00	$604.00
Criminal Justice, Gerontology and Public Administration (UNO)*	$192.75	$507.25
Distance Education "F" Courses**	$224.00	$224.00
Distance Education "S" Courses** -Masters in Architecture with Specialization in Interior Design	$224.00	$447.25
Distance Education "S" Courses** -Masters Engineering Courses	$224.00	$754.00
Distance Education "S" Courses** -Entomology Courses	$224.00	$429.25
Distance Education "S" Courses** -Education, Educational Administration and Educational Psychology	$224.00	$421.25
Distance Education "S" Courses** -Masters of Agriculture	$224.00	$429.25
Distance Education "S" Courses** -Masters of Textiles, Clothing and Design	$224.00	$362.00
Distance Education "S" Courses ** - Journalism	$224.00	$422.00
Distance Education "S" Courses** -All other "S" Courses	$224.00	$330.25

Professional Tuition (Course Numbers 500-799)	Resident	Nonresident
Architecture	$224.00	$604.00

Distance Education "S" Courses** -Master of Science - Architecture	$224.00	$447.25
Law	$220.25	$617.50

* These courses are administered by UNO/UNMC and are assessed at the UNO/UNMC tuition rates.

** The type of course you are taking is notated in the online *Schedule of Classes* under "Group Code". In the printed *Schedule of Classes* , this same information is indicated under "Type" .

University Program and Facilities Fees (UPFF)

All students who register for college credit (except students enrolled only in Distance Education "F" and "S" courses) must pay UPFF fees based on total credit hours of enrollment. The 2007-2008 rates are:

Hours of Enrollment	Rate
1 to 6 credit hours	$233.05
7 or more credit hours	$405.00

Refunds of Fund "A" Portion of Student Fees

Applications and information may be obtained at Student Activities Financial Services, 222 Nebraska Union.

Special Fees

Special fees will be billed on the consolidated statements. Courses with a special fee are listed in the *Schedule of Classes* followed by the notation, "Special Fee", and a dollar amount. If you drop a course for which there is a "Special Fee", you will be charged the same percentage charge for the "Special Fee" that you will be charged for the course tuition.

There is an "Architecture Professional Fee" of $24.00 per credit hour assessed on all Architecture and Interior Design courses at the 100 through 999 levels.

An "Engineering Fee" of $40.00 per credit hour will be assessed on all courses offered by the College of Engineering and the Departments of Computer Science and Engineering and Biological Systems Engineering (this includes Agricultural Engineering and Mechanized Systems Management).

Special Service Fees

A special service fee will be assessed for:

1. Registering for classes ($20.00).
2. Processing an initial registration during the Late Registration period ($25.00).
3. Late payment of student accounts ($20.00 each month).
4. Returned Check Fee ($30.00)
5. NCard (I.D. card) replacement ($20.00).
6. Graduation application ($25.00).
7. International student fee ($35.00).
8. Distance Education fee ($25.00 per credit hour).
9. Technology fee ($7.35 per credit hour).
10. Library fee ($2.00 per credit hour).
11. New International Student Enrollment Fee (one time $150 fee).

Charges for Drops or Withdrawal

If you drop a course and process your drop through eNRoll or at Registration and Records during the first six class days of the semester, you will not be charged any tuition for the course dropped. If you officially drop classes or file a "Cancellation/Withdrawal Form" **after the first six class days of the semester**, you will be charged for tuition and fees according to the following schedule. You will not be able to substitute a new course for a dropped course without incurring additional tuition and fee charges. This includes mini-courses. The following percentages will prevail when determining the amount of tuition and fees to be charged for dropped courses or withdrawal* from the University.

Chargeable	Period of Enrollment ** Fall	Period of Enrollment ** Spring
0%	To September 4	To January 22

25%	September 5 - 7	January 23 - 25
50%	September 8 - 14	January 26 - February 1
75%	September 15 - 21	February 2 - 8
100%	After September 21	After February 8

* You will be expected to pay any unpaid portion of the percentage of tuition and fees chargeable. Graduate teaching and research assistants who withdraw from all courses or leave their assistantship become liable for their tuition and fees.

** The official period of enrollment is the time from the beginning of the semester through the day you drop or withdraw on **eNRoll**, or file your "Schedule Adjustment Form", or "Cancellation/Withdrawal Form" with Registration and Records, 107 Canfield Administration Building South. Only in the case of a timely notification of unexpected hospitalization of the student, the death of a member of the student's immediate family living in the student's household, or University error may the effective date of the drop or withdrawal be adjusted to the date of the occurrence of the event. Proper documentation will be required to determine the adjusted effective date.

Courses that meet for less than a semester (mini-courses) follow a special prorated schedule for the charges. Contact the Office of Student Accounts, 124 Canfield Administration Building North, (402) 472-2887, for the particular details.

If after the sixth class day of the semester you decide to drop a course or courses and/or withdraw from the University, you should contact the Office of Scholarships and Financial Aid, 17 Canfield Administration Building South, (402) 472-2030, **before you act** to discuss the possible need for repayment of federal aid and your eligibility for subsequent aid in future semesters.

Payment of Financial Obligations

Failure by a student to pay a financial obligation to the University or any department, division, or agency thereof, will result in denial of readmission, denial of transcripts, denial of registration for ensuing terms, withholding of diplomas, and may result in an administrative cancellation of enrollment until the debt is paid in full. NOTE: See Registration Holds.

Past due accounts will be subject for assignment to a professional collection agency and collection costs may be added to the delinquent account.

In the event that your check is returned unpaid for insufficient or uncollected funds, we may re-present your check electronically. In the ordinary course of business, your check will not be provided to you with your bank statement.

More Registration Info:

Advising
Drop/Add
eNRoll Instructions
Registration Information
Registration Instructions

Table 4. Department MS and PhD Degree Graduates; Thesis Topics, Advisors and Placements After Graduation, 2007

Year of Graduation	Name	Degree	Thesis Topic	Advisor	Placement After Graduation
2007	Dhammika Navarathna	PhD	Farnesol is a virulence factor in a mouse model of disseminated candidiasis	Gerald Duhamel	Postdoctoral Fellow, NIH, Maryland
	Gustavo Bretschneider	PhD	*Escherichia coli* O157:H7 infection and associated immune responses in Adult Cattle	Rodney Moxley	Returned to Country, Argentina, for a position
	Gulzar Ahmad	MS	Genetic diversity of *brachyspira pilosicoli* isolated from human and animals with colonic spirochetosis	Gerald Duhamel	Pursuing PhD, UNMC
	Ching-Hsin Hsu	MS	Neutralizing antibody responses in PRRS	Fernando Osorio	Veterinary Nutrition/ Pharmaceutical Company in Taiwan
	Resika Jinadasa	MS	Immunoinhibitory activity of *helicobacter hepaticus* cytolethal distending toxin against lymphocytes from inbred strains of mice	Gerald Duhamel	Pursuing PhD, Cornell University, NY
	Yuko Mori	MS	Role of bovine respiratory syncytial virus fusion protein N-glycosylation on host cell fusion and partial construction and characterization of BRSV infectious clone	Clayton Kellling	Scientist, Santa Claire, CA

Department of Veterinary and Biomedical Sciences Teaching Program

Table 5. VBMS Courses, 2007

Course #	Course Title /Cross listing	Credit Hours/Semester
VBMS 101	Introduction to Animal Health Careers	1 cr, I
VBMS 303	Principles and Prevention of Livestock Diseases	3 cr, II
VBMS 403	Integrated Principles and Prevention of Livestock Diseases	4 cr,
VBMS 408	Functional Histology Lec 2, lab 2	4 cr, II
VBMS 410	General Pharmacology and Toxicology	3 cr, II - Lec 3
VBMS 416	Veterinary Entomology/Ectoparasitology (Animal Science; Entomology; Forestry, Fisheries and Wildlife 416/816)	2 cr, II
VBMS 424	Basic Molecular Infectious Diseases	3 cr, II, even numbered yrs
VBMS 441	Pathogenic Microbiology (BIOS 441/841)	3 cr, II
VBMS 452	Introduction to Molecular Virology and Viral Pathogenesis	3 cr, I
VBMS 488	Exploration of Production Medicine	2 cr, III - Lec 2
VBMS 496	Independent Study in Veterinary Science	1-5 cr, I, II
VBMS 499H	Honors Thesis	3-6 cr, I, II, III
VBMS 805	Introduction to Mechanisms of Disease	3 cr, II
VBMS 808	Functional Histology	4 cr, II Lec/Lab
VBMS 811	Introduction to Veterinary Epidemiology	2 cr, III - Lec/Disc/Lab
VBMS 816	Veterinary Entomology/Ectoparasitology	2 cr, II
VBMS 816L	Veterinary Entomology/Ectoparasitology	1 cr, I
VBMS 818	Computer-aided Sequence Analysis Primer	2 cr, I
VBMS 820	Molecular Genetics (420/820) (BIOS 820)	3 cr
VBMS 824	Basic Molecular Infectious Diseases	3 cr, I
VBMS 835	Animal Biochemistry (BIOS 835)	3 cr, II even numbered yrs
VBMS 838	Molecular Biology Laboratory (BIOS 838)	5 cr, III
VBMS 840	Microbial Physiology (BIOS 840)	3 cr

VBMS 841 Pathogenic Microbiology (BIOS 841)	3 cr, II Lec/Lab
VBMS 842 Endocrinology (ASCI 842, BIOS 842)	3 cr, I
VBMS 843 Immunology (BIOS 843)	3 cr
VBMS 845 Animal Physiology I (ASCI 845, BIOS 813)	4 cr, I Lec/Lab
VBMS 846 Animal Physiology II (ASCI 846, BIOC 814)	4 cr, II Lec/Lab
VBMS 847 A&B Interdisciplinary Concepts in Beef Production	3 cr, max 6, I, II
VBMS 848 Introduction to Veterinary Biotechnology	1-2 cr, II
VBMS 852 Molecular Virology and Viral Pathogenesis	3 cr, I
VBMS 899 Masters Thesis	6-10 cr , I, II, III
VBMS 901 Diagnostic Techniques	1-10 cr, I, II
VBMS 909 Seminar	1-4 cr, I, II
VBMS 919 Regulation of Eukaryotic Gene Expression	3 cr, II
VBMS 920 Measurement of Animal Disease and Production	2 cr, I
VBMS 921 Analytic Observational Studies in Veterinary Epidemiology	2 cr, I
VBMS 925 Critical Reading of the Epidemiology Literature	1-4 cr, II
VBMS 930 Advanced Food Animal Production Medicine	2 cr, II (even yrs)
VBMS 942 Microbial Genetics	3 cr
VBMS 944 Immunovirology (BIOS 944)	3 cr
VBMS 948 Concepts in Experimental Immunology (BIOS 948)	3 cr, II
VBMS 949 Vaccinology	3 cr, II, alternate yrs
VBMS 950 Medical Molecular Virology (BIOS 950)	3 cr, I
VBMS 951 Advanced Molecular Infectious Disease	3 cr, II
VBMS 964 Signal Transduction (BIOS 964)	3 cr
VBMS 966 Advanced Viral Pathogenesis (BIOS 966)	3 cr (alternate yrs)
VBMS 975 Seminar in Veterinary Histopathology	1 cr, I, II
VBMS 996 Research on Selected Problems in Veterinary Science	2-10 cr, I, II
VBMS 998 Special Topics in Veterinary Science	1-10 cr, I, II
IBMS 999 Doctoral Dissertation	1-10 cr, I, II, III

Table 6. Course Descriptions

VBMS 101. Introduction to Animal Health Careers (1 cr I)
Explore potential majors and career track in animal health. Information to make realistic and informed decisions about preparation for veterinary school, animal nursing and various alternative animal health careers
VBMS 303 Principles and Prevention of Livestock Diseases (3 cr II)
Management techniques in the control of metabolic, infectious and parasitic diseases of domestic animals and understanding of basic concepts of the important diseases of livestock. Prereq: Juniors and seniors; ASCI 240 and BIOS 300 or 312 recommended, or permission
VBMS 403 Integrated Principles and Prevention of Livestock Diseases (4 cr, II)
Emphasizes integrated management techniques of livestock and understanding the basic integrated concepts of the important diseases of domestic animals. Biotechnology in animal health and current issues in management practices to control diseases. Prereq: ASCI 240, BIOS 312, CHEM 251
VBMS 408/808 Functional Histology (4 cr I)
Microscopic anatomy of the tissues and organs of major vertebrate species, including humans. Normal cellular arrangements of tissues and organs as related to their macroscopic anatomy and function, with reference to sub-cellular characteristics and biochemical processes. Prereq: BIOS 101 and 101L or 102 or 112; ASCI 240, BIOS 315 recommended
VBMS 410 General Pharmacology and Toxicology (4 cr I)
Introduction and overview of basic principles and sciences of drug action (as therapeutic agents) and of adverse (toxic) effects of harmful chemical substances. Application of these concepts and selected examples to current and controversial issues in animal production and care, regulatory concerns, legal and ethical decisions, human and animal health hazards, food safety and environmental contamination. Prereq: CHEM 251 and 253, BIOS 213 or ASCI 240 or equivalent; or permission; CHEM 252 and 254, BIOC/CHEM/BIOS 431 and 433 recommended
VBMS 416/816 Veterinary Entomology/Ectoparasitology (1 cr I)
VBMS 424/824 Basic Molecular Infectious Disease (3 cr I)
Introduction to the molecular genetic and cellular aspects of microbial pathogenesis in humans and animals. Prereq: BIOS 312; AGRO 360 or equivalent; or permission
VBMS 441/841 Pathogenic Microbiology (3 cr II)
Fundamental principles involved in host-microorganism interrelationships. Identification of pathogens, isolation, propagation, mode of transmission, pathogenicity, symptoms, treatment, prevention of disease, epidemiology, and methods of control. Prereq: BioSci 312 and either 313 or 314, or permission

VBMS 488 Exploration of Production Medicine (2 cr, III)
Introduction to production medicine and animal health management that weaves together the interrelationship of pasture ecology, animal nutrition, animal well-being, environmental assessment, worker safety, and pre-harvest food safety. Emphasis on the interrelationships between scientific disciplines, and sustainable agriculture. Assessment of normal production potential and health of food producing animals (beef cattle, swine and sheep) and indicators of abnormal health. Introduction to techniques used to evaluate animal well-being, to computerized information management and to the veterinarian's role in sustainable agriculture. Prereq: Acceptance to an accredited college of veterinary medicine. Course to be taught at the Great Plains Veterinary Educational Center at Clay Center, Nebraska. Prereq: Acceptance to an accredited college of veterinary medicine
VBMS 496 Independent Study in Veterinary Science (1-5 cr, max 12 I, II)
Individual or group projects in research, literature review, or extension of course work under supervision and evaluation of a departmental faculty member. Prereq: 12 hrs veterinary science or closely related areas and permission
VBMS 499H Honors Thesis (3-6 cr, max 6 I, II, III)
Conduct a scholarly research project and write a University Honors Program or undergraduate thesis. Prereq: Admission to the University Honors Program and permission, AGRI 299H recommended
VBMS 805 Introduction to Mechanisms of Disease (3 cr I)
Designed for students of biological, animal, and veterinary sciences. Introduction to general pathology emphasizing etiology, pathogenesis, morphologic features, and fundamental alternations associated with the fundamental changes of disease. Prereq: ASCI 240 or equivalent, BIOC/BIOS/CHEM 431/831, VBMS/BIOS 441/841, or permission
VBMS 811 Introduction to Veterinary Epidemiology (2 cr)
Introduces to concepts of epidemiology including the definition and uses of epidemiology. Prereq: Permission
VBMS 818 Computer-aided Sequence Analysis Primer (2 cr I)
Introductory course in biological sequence display, analysis and manipulation with computers. Applied rather than theoretical aspects of different programs are emphasized providing skills to satisfy the analysis demands of molecular biology research. Students completing this course will be able to search, display and analyze the biological information content of macromolecules. Prereq: BIOC 831 or BIOS 801, 350 or BIOS 820
VBMS 820 Molecular Genetics (3 cr)
Molecular basis of genetics. Gene structure and regulation; transposable elements; chromosome structure; DNA replication, repair mechanisms and recombination. Prereq: 12 hrs biological sciences including BIOS 206 or equivalent

VBMS 835 Animal Biochemistry (3 cr II)
Biochemistry of animal cells and tissues, with integration of major metabolic pathways and aspects of their control mechanism. Prereq: BIOC 831 or permission
VBMS 838 Molecular Biology Laboratory (5 cr III)
Prereq: BIOC 832, BioSci 312, 313, an advanced course in genetics and permission Students may use a gene of their own interest if they have a suitable probe; for course description, see BIOC 838
VBMS 840 Microbial Physiology (3 cr)
For course description, see BIOS 840; Prereq: BIOS 312 and either 313 or 314; or permission
VBMS 842 Endocrinology (3 cr I)
Mammalian endocrine glands from the standpoint of their structure, their physiological function in relation to the organisms, the chemical nature and mechanisms of action of their secretory products, and the nature of anomalies manifested with their dysfunction. Prereq: A course in vertebrate physiology and/or biochemistry
VBMS 843 Immunology (BIOS 843) (3 cr)
A fundamental consideration of cellular and humoral mechanisms of immunity, the structure and function of immunoglobulins, antigen-antibody interactions, hypersensitivity, transplantation and tumor immunity; immune and autoimmune disorders. Prereq: BIOS 206 and one semester organic chemistry; BIOS 206 and one semester organic chemistry. BIOS 201, recommended
VBMS 847 A&B Interdisciplinary Concepts in Beef Production (3 cr, max 6) (ASCI 847)
The contributions and interactions of the major academic disciplines upon the production, performance, health, profitability and sustainability of beef cow and cattle feeding operations. Prereq: Degree in veterinary medicine or animal science, or allied agricultural degree, or permission
VBMS 848 Introduction to Veterinary Biotechnology (1-2 cr)
Theoretical basis for emerging cellular, molecular and reproductive technologies, and their potential applications and impacts in the practice of food animal veterinary medicine. Prereq: 12 hours of veterinary and biomedical sciences or DVM degree, or equivalent and permission. Information and assignments for VBMS 848 exchanged in the classroom and via internet
VBMS 852 Introduction to Molecular Virology and Viral Pathogenesis (3 cr I)
Introduction to virology with an emphasis on molecular biology and pathogenesis. Concepts of virus replication strategies, virus-host interactions and virus pathogenesis, Prereq: BIOS 843; Offered even-numbered calendar years
VBMS 899 Masters Thesis (6-10 cr)
Prereq: Admission to masters degree program and permission of major advisor
VBMS 901 Diagnostic Techniques (1-10 cr)
Application of principles of pathology to current problems in the diagnostic laboratory

VBMS 909 Seminar (1-4 cr, I, II)
VBMS 920 Measurement of Animal Disease and Production (2 cr I)
Measurements of disease and production, the basic tenants of epidemiology; Prereq: VBMS 811 or permission; offered odd-numbered calendar years
VBMS 925 Critical Reading of the Epidemiology Literature (1 cr, max 4)
Analysis of current epidemiology and animal health literature. Critical evaluation of study design, methods of analysis biases, field applicability and basis for conclusions. Prereq: VBMS 811 or 920; or permission; may be repeated for credit
VBMS 942 Genetics, Genomics, and Bioinformatics of Prokaryotes (3 cr)
Prokaryotic gene regulation, DNA exchange, DNA recombination and repair, comparative prokaryotic genomics and computer-based methods of analysis. Prereq: BIOS 241 312, or permission
VBMS 944 Immunovirology (3 cr)
Description of virus and immune system interactions, with emphasis on mouse and human models. Prereq: Permission; organic chemistry; biochemistry; immunology and/or concepts in virology and virolopathogenesis. Pathogenic microbiology recommended
VBMS 948 Concepts in Experimental Immunology (3 cr II)
Recent advances in immunological techniques and review of conventional methods. Prereq: BIOS 843 or permission
VBMS 949 Vaccinology (2 cr)
Analysis of the theory and mechanisms involved in the development of efficacious vaccines. Microbiological and immunological aspects as well as the manufacturing and regulatory aspects of vaccine development. Prereq: VBMS/BIOS 841, BIOS 843, VBMS 843, VBMS/BIOS 852, or permission
VBMS 950 Medical Molecular Virology (3 cr, I)
Current topics in molecular virology relevant to the natural history and pathogenesis of viral diseases of humans an animals. Prereq: BIOC 831 and 832; or permission
VBMS 951 Advanced Molecular Infectious Diseases (3 cr II)
Molecular and cellular aspects of microbial pathogenesis. Key literature, synthesis of scientific problems into research proposals. Prereq: BIOC 832, or equivalent; 18 hours of biological, biomedical and/or veterinary sciences including fundamental microbiology and genetics, or permission
VBMS 964 Signal Transduction (3 cr)
Molecular basis of genetics in eukaryotes. Gene structure and regulation, transposable elements, chromosome structure, DNA replication and repair mechanisms and recombination. Prereq: BIOS 832, BIOS 820 or equivalent, or permission

VBMS 966 Advanced Viral Pathogenesis (3 cr)
Advanced analysis on the mechanisms of cell and tissue damage by viruses, the spread of viruses through the body and the host response. Prereq: BIOS 843; VBMS 852 or equivalent introductory course in virology or experience
VBMS 975 Seminar in Veterinary Histopathology (1 cr I, II)
Descriptive veterinary histopathology covering diseases of all body systems in animal species including domestic, laboratory, wildlife birds, fishes, reptiles and amphibians. Source material is world wide in scope. Prereq: VBMS 805 or equivalent and permission. (May be repeated for credit)
VBMS 996 Research Problems (1-10 cr I, II, III)
VBMS 998 Special Topics in Veterinary Science (1-10 cr, I, II)
Reviews of specialized subject areas. The subject will be dependent on student demand and availability of staff. Prereq: Permission of instructor
BioSci 998 Special Topics in Veterinary Science (1-10 cr, I, II)
Reviews of specialized subject areas. The subject will be dependent on student demand and availability of staff. Prereq: Permission of instructor
IBMS 999 Doctoral Dissertation

Department of Veterinary and Biomedical Sciences
2007 Enrollment

Spring, Semester 2007

Course #	Course Title	Instructor	Students	Cr Hrs
VBMS 303	Preventive Livestock Diseases	Kelling	19	57
VBMS 403	Capstone:Issues Ani Health	Kelling	20	80
VBMS 441	Pathogenic Microbiology	Moxley/Somerville/Barletta	20	80
BIOSCI 441	Pathogenic Microbiology	Moxley/Somerville/Barletta	4	12
VBMS 496	Independent Study	Smith	1	1
BIOS 841	Pathogenic Microbiology	Moxley/Somerville/Barletta	1	3
VBMS 899	Masters Thesis	Staff	3	7
VBMS 909	Seminar	Hardin	22	22
VBMS 951	Advanced Molecular Infectious Dis	Barletta/Chacon	9	27
VBMS 996	Research Problems	Staff	13	56
VBMS 998	Population Approaches to Medicine	Smith	13	26
IBMS 999	Doctoral Dissertation	Staff	5	24

First Five-Week Summer Session

Course #	Course Title	Instructor	Students	Cr Hrs
VBMS 899	Masters Thesis	Staff	8	20
VBMS 975	Veterinary Histopathology	Brodersen	1	1
VBMS 996	Research Problems	Staff	10	27
VBMS 998	Mycobacteria Genetics	Barletta	4	8
IBMS 999	Doctoral Dissertation	Staff	5	13

Second Five-Week Summer Session

Course #	Course Title	Instructor	Students	Cr Hrs
VBMS 496	Independent Study	Steffen	1	1
VBMS 899	Masters Thesis	Staff	5	13
VBMS 996	Research Problems	Staff	11	28
VBMS 998	Mycobacteria Genetics	Barletta	3	6
VBMS 998	Intestinal Histopathology	Moxley	2	4
IBMS 999	Doctoral Dissertation	Staff	3	9

Fall Semester 2007

Course #	Course Title	Instructor	Students	Cr Hrs
VBMS 101	Animal Health Careers	LE Hardin	41	41
VBMS 408	Functional Histology	Georgi	9	36
BIOS 408	Functional Histology	Georgi	6	24
BIOS 808	Functional Histology	Georgi	2	8
VBMS 410	Pharmacology & Toxicology	Carlson	9	36
VBMS 496	Capstone:Issues Animal Health	Kelling	1	1
VBMS 899	Masters Thesis	Staff	2	8
VBMS 909	Seminar	DK Hardin	21	21
VBMS 950	Medical Molecular Virology	Pattnaik/Jones	15	45
VBMS 996	Research Problems	Staff	13	49
VBMS 998	Pharmacology & Toxicology	Carlson	1	3
IBMS 999	Doctoral Dissertation	Staff	4	18

Table 7. Course Enrollments and Student Credit Hours, 2007

Course Offerings	# Stdts	Cr Hrs
First Five-Week Summer Session	2007	
VBMS 496 Independent Study		
VBMS 899 Masters Thesis	8	20
VBMS 901 Diagnostic Technique		
VBMS 925 Epidemiology Lit		
VBMS 975 Vet Histopathology	1	1
VBMS 996 Research Problems	10	27
VBMS 998 Biotechnology		
VBMS 998 Mycobacteria Genetics	4	8
VBMS 998 Clinical Trials		
VBMS 998 Computer Aided Sequence Analysis		
IBMS 999 Doctoral Dissertation	5	13
MSIA 999 Doctoral Dissertation		
Second Five-Week Summer Session		
VBMS 496H Independent Study		
VBMS 496 Independent Study	1	1
VBMS 899 Masters Thesis	5	13
VBMS 901 Diagnostic Techniques		
VBMS 925 Epidemiology Lit		
VBMS 996 Research Problems	11	28
VBMS 996 Beef Production Records		
VBMS 998 Sequence Analysis		
VBMS 998 Mycobacteria Genetics	3	6
VBMS 998 Intestinal Histopathology	2	4
IBMS 999 Doctoral Dissertation		
MSIA 999 Doctoral Dissertation	3	9
Fall Semester		
UNFD 101 Student Life Seminar		
AGRI/NRES 103 Recitation		
VBMS 101 Animal Health Careers	41	41
BIOS 408/808 Functional Histology	6	24
VBMS 408/808 Functional Histology	9	36
BIOS 808 Functional Histology	2	8
VBMS 410 Pharamacology/Tox	9	36
VBMS 410H Pharm/Tox (Honors)		
VBMS 452/852 Molecular Viro/Viral		
AGRI 496 Independent Study		
VBMS 496 Intro to Ani Health Career		
VBMS 496 Capstone: Issues Animal Health	1	1
VBMS 499H Honors Thesis		
VBMS 811 Vet Epidemiology		
VBMS 847A Interdisciplinary Concepts in Beef Production		
VBMS 848 Intro to Vet Biotechnology		
VBMS 852 Molecular Virol/Viral		
VBMS 899 Masters Thesis	2	8

Course Offerings	# Stdts	Cr Hrs
VBMS 901 Diagnostic Technique		
VBMS 902 BioTech Core Research		
VBMS 909 Seminar	21	21
VBMS 920 Measure of Animal Disease and Production		
VBMS 925 Epidemiology Lit		
VBMS 950 Medical Molecular Virology	15	45
VBMS 966 Advanced Viral Pathogen		
VBMS 996 Research Problems	13	49
VBMS 998A Feedlot Health Management		
VBMS 998 Feedlot Comparative Outcome		
VBMS 998 General Pathology		
VBMS 998 Intestinal Histopathology		
VBMS 998 Population App Medicine		
VBMS 998 Sequence Analysis Primer		
VBMS 996 Research Problems	13	49
VBMS 998 Pharmacology & Toxicology	1	3
IBMS 999 Doctoral Dissertation	4	18
MSIA 999 Doctoral Dissertation		
Spring Semester		
AGRI/NRES 103 Recitation		
VBMS 303 H Livestock Diseases		
VBMS 303 Preventive Livestock Diseases	19	57
BIOS 308 Vertebrate Histology		
VBMS 308 Vertebrate Histology		
VBMS 403 Capstone:Issues Ani Health	20	80
VBMS 408/808 Functional Histology		
VBMS 403 Preventive Livestock Dis		
VBMS 403H Livestock Dis (Honors)		
VBMS 424 Molecular Diseases		
BIOS 441/841 Pathogenic Microbiol		
VBMS 441/841 Pathogenic Microbiol		
VBMS 496 Independent Study (Capstone: Issues Animal Health)		
VBMS 496 Independent Study		
VBMS 499H Honors Thesis		
VBMS 811 Veterinary Epidemiology		
BIOS 816 Sequence Analysis Primer		
VBMS 818 Sequence Analysis Primer		
VBMS 824 Molecular Diseases		
VBMS 835 Animal Biochemistry		
BIOS 835 Animal Biochemistry		
BIOS 841 Pathoginic Microbiology	1	1
VBMS 846 Animal Physiology II		
VBMS 847B Beef Production II		
VBMS 848 Intro to Veterinary Biotech		
VBMS 899 Masters Thesis	3	7
VBMS 901 Diagnostic Techniques		
VBMS 909 Seminar	22	22
VBMS 921 Veterinary Epidemiology		
VBMS 925 Critical Reading		
VBMS 930 Advanced Food Ani Prod Medicine		

Course Offerings	# Stdts	Cr Hrs
VBMS 944 Immunovirology		
VBMS 949 Vaccinology		
VBMS 951 Advanced Mol Infect Dis	9	27
VBMS 964 Signal Transduction		
BIOS 964 Signal Transduction		
VBMS 975 Veterinary Histopathology		
VBMS 996 Research Problems	13	56
VBMS 998 Advanced Systemic Pathol		
VBMS 998 Clinical Trials		
VBMS 998 A (Critical Literature Review)		
VBMS 998 D (Concepts in Beef Production)		
VBMS 998 E Beef Biotechnology		
VBMS 998 Special Topics (Animal Production Food Safety)		
VBMS 998 Special Topics		
VBMS 998 Population Approaches to Medicine	13	26
IBMS 999 Doctoral Dissertation	5	24
MSIA 999 Doctoral Dissertation		
Total Student Credit Hours	**295**	**769**

Table 8. Current Enrollment of VBMS Students in Graduate Program

Program	MS Degree	PhD Degree
Veterinary Science	7	
Integrative Biomedical Sciences		18
Biological Sciences		4
Biochemistry		3

Table 9. Veterinary Science and Veterinary Technologist Majors, Graduates by Year, 2007

Year	Major and Option		
	VBMS	VETT	
	VM	BMS	VS
2007	--	23	2

VM = Veterinary Medicine BMS = Biomedical Sciences VS = Veterinary Sciences

Table 10. In-Coming Students, Seeking BS Degree Program, First Semester, 2007-2008

Student Name	Class	Major	Advisor
Michelle Ann Adamson	FR	VBMS	Bruce W. Brodersen
Rebecca Jane Dornbierer	FR	VBMS	Rodney A. Moxley
Leif Craig Forster	JR	VBMS	David J. Steffen
Elizabeth Gwendolyn Heiskell	JR	VBMS	David J. Steffen
Lindsay Jo Johnson	FR	VBMS	Bruce W. Brodersen
Alicia Marie Koopman	FR	VBMS	Douglas G. Rogers
Anthony Michael McClary	FR	VBMS	Bruce W. Brodersen
Emily Jean Morlok	FR	VBMS	Douglas G. Rogers
Kate Elizabeth Myrtue	FR	VBMS	Michael P. Carlson
Dana Lynn Newtson	FR	VBMS	Alan R. Doster
Chelsea Lynn Paul	FR	VBMS	Rodeny A. Moxley
Mary Faye Peetz	FR	VBMS	Clayton L. Kelling
Emma Mary Ramsey	FR	VBMS	Clayton L. Kelling
Luke John Reeves	FR	VBMS	Bruce W. Brodersen
Jessi Joan Saxton	FR	VBMS	Douglas G. Rogers
Elissa Renee Schultz	FR	VBMS	Michael P. Carlson
Hanna Rose Sonenberg	FR	VBMS	Clayton L. Kelling
Kayla Jean Stram	JR	VBMS	Michael P. Carlson
Amanda L. Thaler	FR	VBMS	Clayton L. Kelling
Sara Jane Tonjes	FR	VBMS	Alan R. Doster
Paige Elizabeth Walla	FR	VBMS	Michael P. Carlson

Table 11. In-Coming Students, Pre-Vet Non-Degree Program, First Semester, 2007-2008

Student Name	Class	Major	Advisor
Amanda Lynne Bergstrom	FR	PVET	Douglas G. Rogers
April Emil Drohman	FR	PVET	Clayton L. Kelling
Troy Keith Eberle	JR	PVET	David J. Steffen
Kathryn Rose Eller	FR	PVET	Alan R. Doster
Haley Shay Gonzenbach	FR	PVET	Rodney A. Moxley
Brittany Noel Goosen	FR	PVET	Rodney A. Moxley
Eric Thomas Huschka	FR	PVET	Michael P. Carlson
Kayce Lynn Kobs	FR	PVET	Bruce W. Brodersen
Mary Amber Kula	FR	PVET	Alan R. Doster
Sul Hwa Lee	FR	PVET	David J. Steffen
Nolan James Lien	FR	PVET	Bruce W. Brodersen
Jessica Danielle Munch	FR	PVET	Bruce W. Brodersen
Thomas Wayne Murphy, Jr.	FR	PVET	David J. Steffen
Brianna Grace Plachy	FR	PVET	Clayton L. Kelling
Catheryn Kristen Redmon	FR	PVET	Douglas G. Rogers
Mary Danielle Stastny	FR	PVET	Clayton L. Kelling
Natalie Renee Wertz	FR	PVET	Clayton L. Kelling
Kellie Marie Wise	FR	PVET	Michael P. Carlson

Table 12. In-Coming Students, Veterinary Tech, BS Degree Program, First Semester, 2007-2008

Student Name	Class	Major	Advisor
Heidi Marie Kleinschmit	FR	VETT	David J. Steffen
Mandi Nicole Pickering	SR	VETT	David J. Steffen
Krystal Anne Quinata	FR	VETT	David J. Steffen
Shawna Lynn Rutar	SO	VETT	David J. Steffen
Monica Louise Tvrdy	FR	VETT	David J. Steffen

Table 13. In-Coming Students, Seeking BS Degree Program Second Semester, 2007-2008

Student Name	Class	Major	Advisor
Michelle A. Adamson	SO	VBMS	Bruce W. Brodersen
Jenna K. Albrecht	SR	VBMS	David J. Steffen
Erin M. Andresen	SO	VBMS	
Talia R. Bang	SO	VBMS	David J. Steffen
Laura J. Beezley	JR	VBMS	David J. Steffen
Stephanie J. Bequeath	SR	VBMS	Douglas G. Rogers
Alisha R. Borisow	JR	VBMS	Michael P. Carlson
Megan R. Busekist	SR	VBMS	Bruce W. Brodersen
Melissa G. Curfman	SO	VBMS	Clayton L. Kelling
Sarah M. Danahy	SO	VBMS	Rodney A. Moxley
Rebecca J. Dornbierer	FR	VBMS	Rodney A. Moxley
Anabel K. Flores	SO	VBMS	David J. Steffen
Leif C. Forster	SR	VBMS	David J. Steffen
Katie L. Franson	JR	VBMS	Douglas G. Rogers
Carrie M. Fuller	SR	VBMS	Douglas G. Rogers
Kara L. Garside	SO	VBMS	David J. Steffen
Jenna E. Giangarra	SR	VBMS	Rodger K. Johnson
Christine M. Glaser	SR	VBMS	Alan R. Doster
Sarah N. Goodbrod	SR	VBMS	Rodney A. Moxley
Melissa A. Goodrich	JR	VBMS	Douglas G. Rogers
Sarah E. Grimm	SR	VBMS	Douglas G. Rogers
Michael J. Guenther	JR	VBMS	David J. Steffen
Nerissa A. Harry	SR	VBMS	David J. Steffen
Lindsey A. Hofman	SR	VBMS	Bruce W. Brodersen

Student Name	Class	Major	Advisor
SammiJo L. Hruby	SO	VBMS	Rodney A. Moxley
Ashlynn N. Jepson	JR	VBMS	Rodney A. Moxley
Jacob A. Johnson	SO	VBMS	Laura E. Hardin
Lindsay J. Johnson	FR	VBMS	Bruce W. Brodersen
Thomas W. Murphy, Jr.	SO	VBMS	David J. Steffen
Alicia M. Koopman	FR	VBMS	Douglas G. Rogers
Ryan D. Koopmans	SR	VBMS	Clayton L. Kelling
John P. Lazoritz	JR	VBMS	David J. Steffen
Danielle R. LeGros	SO	VBMS	David J. Steffen
Sarah J. Linn	JR	VBMS	David J. Steffen
Jarrod M. Lutz	SO	VBMS	Douglas G. Rogers
Ashlee C. Majorek	SO	VBMS	Douglas G. Rogers
Spencer J. Mason	SR	VBMS	David J. Steffen
Theodoric A. Mattes	JR	VBMS	Clayton L. Kelling
Anthony M. McClary	FR	VBMS	Bruce W. Brodersen
Tyler A. Molacek	JR	VBMS	David J. Steffen
Emily J. Morlok	FR	VBMS	Douglas G. Rogers
Mandi L. Murray	SR	VBMS	David J. Steffen
Kate E. Myrtue	FR	VBMS	Michael P. Carlson
Dana L. Newtson	FR	VBMS	Alan R. Doster
Chelsea L. Paul	FR	VBMS	Rodney A. Moxley
Mary F. Peetz	FR	VBMS	Clayton L. Kelling
Geoffrey R. Pierce	SO	VBMS	Laura E. Hardin
Mark T. Pokomy	SO	VBMS	Alan R. Doster
Ashlee M. Poulas	SR	VBMS	David J. Steffen
Emma M. Ramsey	FR	VBMS	Clayton L. Kelling
Luke J. Reeves	FR	VBMS	Bruce W. Brodersen
Brittney L. Riley	SR	VBMS	David J. Steffen

Student Name	Class	Major	Advisor
Jennifer L. Rue	SO	VBMS	Clayton L. Kelling
Jessi J. Saxton	FR	VBMS	Douglas G. Rogers
Diane E. Schmidt	JR	VBMS	Bruce W. Brodersen
Jacquelyn J. Schrack	SR	VBMS	David J. Steffen
Elissa R. Schultz	FR	VBMS	Michael P. Carlson
Kelly C. Scribner	SR	VBMS	David J. Steffen
Robyn C. Shannon	SO	VBMS	Alan R. Doster
Hanna R. Sonenberg	FR	VBMS	Clayton L. Kelling
Kayla J. Stram	JR	VBMS	Michael P. Carlson
Justin M. Tejkl	SR	VBMS	Rodney A. Moxley
Amanda L. Thaler	FR	VBMS	Clayton L. Kelling
Sara J. Tonjes	FR	VBMS	Alan R. Doster
Ashley N. Vanderheiden	SR	VBMS	David J. Steffen
Paige E. Walla	FR	VBMS	Michael P. Carlson
Dustin W. Weitzel	SO	VBMS	Laura E. Hardin
Daniel J. Woodbury	SR	VBMS	Clayton L. Kelling
Rebecca Zeleda	SO	VBMS	David J. Steffen

Table 14. In-Coming Students, Non-Degree Program, Second Semester, 2007-2008

Student Name	Class	Major	Advisor
Deana M. Andrew	SR	PVET	David J. Steffen
April E. Drohman	FR	PVET	Clayton L. Kelling
Haley S. Gonzenbach	FR	PVET	Rodney A. Moxley
Brittany N. Goosen	FR	PVET	Rodney A. Moxley
Dillion E. Harvey	JR	PVET	Bruce W. Brodersen
Megan M. Hiatt	SO	PVET	Douglas G. Rogers
Eric T. Huschka	FR	PVET	Michael P. Carlson
Kayce L. Kobs	FR	PVET	Bruce W. Brodersen
Amber M. Kula	FR	PVET	Alan R. Doster
Kelsey R. Lamb	SO	PVET	Michael P. Carlson
Tien N. Le	SO	PVET	David J. Steffen
Sul H. Lee	FR	PVET	David J. Steffen
Nolan J. Lien	FR	PVET	Bruce W. Brodersen
Sharon A. Little	SO	PVET	Douglas G. Rogers
Jessica D. Munch	SO	PVET	Bruce W. Brodersen
Catheryn K. Redman	FR	PVET	Douglas G. Rogers
Kai C. Schafer	FR	PVET	
Sarah J. Vitosh	SR	PVET	David J. Steffen
Natalie R. Wertz	FR	PVET	Clayton L. Kelling
Kellie M. Wise	FR	PVET	Michael P. Carlson

Table 15. In-coming Students, Veterinary Tech, BS Degree Program, Second Semester, 2007-2008

Student Name	Class	Major	Advisor
Linda J. Bowers	SR	VETT	Clayton L. Kelling
Erica O. Ehlers	SR	VETT	David J. Steffen
Tiffany M. Hoss	SO	VETT	Alan R. Doster
Heidi M. Kleinschmit	FR	VETT	David J. Steffen
Ryan T. Loock	SR	VETT	Douglas G. Rogers
Heather L. Mitchell	SR	VETT	David J. Steffen
Krystal A. Quinata	FR	VETT	David J. Steffen
Brandais M. Rose	FR	VETT	Laura E. Hardin
Shawna L. Rutar	SR	VETT	David J. Steffen

Department of Veterinary and Biomedical Sciences
2007 Graduate Degrees Obtained

PhD Degrees

May

Dhammika Navarathna — "Farnesol is a virulence factor in a mouse model of disseminated Candidiasis"
Advisor: Gerald E. Duhamel

December

Gustavo Bretschneider — "*Escherichia coli* O157:H7 infection and associated immune responses in adult cattle"
Advisor: Rodney A. Moxley

MS Degrees

August

Gulzar Ahmad — "Genetic diversity of brachyspira pilosicoli isolated from human and animals with colonic spirochetosis"
Advisor: Gerald E. Duhmel

Ching-Hsin Hsu — "Neutralizing antibody response in PRRS"
Advisor: Fernando A. Osorio

Rasika Jinadasa — "Immunoinhibitory activity of helicobacter hepaticus cytolethal distending toxin against lymphocytes from inbred strains of mice"
Advisor: Gerald E. Duhamel

Yuko Mori — "Role of bovine respiratory syncytial virus fusion protein N-glycosylation on host cell fusion and partial construction and characterization of a BRSV infectious clone"
Advisor: Clayton L. Kellling

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Table 16. First-ime Freshmen Enrollment by College/Department, Degree, Major, Race and Gender

Spring Semester, 2007 *(College of Agricultural Science and Natural Resources)*

Degree	Major Code	Major Name	Black		American Indian		Asian		Hispanic		White		Total by Gender		Total
			Male	Famale	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B1VS	VBMS	Veterinary Science										2		2	2
TOTALS												**2**		**2**	**2**

Fall Semester, 2007

B1VS	VBMS	Veterinary Science									2	17	2	17	19
B1VT	VETT	Veterinary Technologist										2		2	2
NDEG	PVET	Pre-Veterinary Medicine		1			1			1	1	10 (1)	2	12 (1)	14 (1)
TOTALS				**1**			**1**			**1**	**3**	**30 (1)**	**4**	**32 (1)**	**36 (1)**

Table 17. First-time Gradaute Enrollment by College/Department, Degree, Major, Race and Gender

Spring Semester, 2007 *(College of Agricultural Science and Natural Resources)*

Degree	Major Code	Major Name	Black		American Indian		Asian		Hispanic		White		Total by Gender		Total
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
MS	VETS	Veterinary Science					1 (1)	1 (1)					1 (1)	1 (1)	2 (2)
TOTALS							**1 (1)**	**1 (1)**					**1 (1)**	**1 (1)**	**2 (2)**

Fall Semester, 2007

MS	VETS	Veterinary Science									2 (1)		2 (1)		2 (1)
TOTALS											**2 (1)**		**2 (1)**		**2 (1)**

( )Indicates number of students in the category who are non-resident aliens

Department of Veterinary and Biomedical Sciences

Table 18. Senior Headcount Enrollment by College/Department, Degree, Major, Race and Gender

Spring Semester, 2007 ***(Colleg eof Agricultural Sciences and Natural Resources)***

Degree	Major Code	Major Name	Black		American Indian		Asian		Hispanic		White		Total by Gender		Total
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B1VS	VBMS	Veterinary Science		1				1 (1)			6	24 (1)	6	26 (2)	32 (2)
B1VT	VETT	Veterinary Technologist										3		3	3
NDEG	PVET	Pre-Veterinary Medicine										4		4	4
TOTALS				1				1 (1)			6	31 (1)	6	33 (2)	39 (2)

Fall Semester, 2007 ***(College of Agricultural Sciences and Natural Rescoures)***

Degree	Major Code	Major Name	Black		American Indian		Asian		Hispanic		White		Total by Gender		Total
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B1VS	VBMS	Veterinary Science			1						4	12	5	12	17
B1VT	VETT	Veterinary Technologist										4		4	4
NDEG	PVET	Pre-Veterinary Medicine										4		4	4
TOTALS					1						4	20	5	20	24

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Table 19. Total Enrollment By College/Department, Degree, Major, Race and Gender

Spring Semester, 2007 *(College of Agricultural Sciences and Natural Resources)*

Degree	Major Code	Major Name	Black		American Indian		Asian		Hispanic		White		Total by Gender		Total
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B1VS	VBMS	Veterinary Science		1	1		1	2 (1)		3	17	51 (1)	19	57 (2)	
B1VT	VETT	Veterinary Technolgist										5		5	5
NDEG	PVET	Pre-Veterinary Medicine				1		1			3	9	3	11	
TOTALS				**1**	**1**	**1**	**1**	**3 (1)**		**3**	**20**	**65 (1)**	**22**	**73 (2)**	**95 (2)**

Summer 2007 *(College of Agricultural Sciences and Natural Resources)*

B1VS	VBMS	Veterinary Science			1					1	4	17	5	18	23
B1VT	VETT	Veterianry Technologist										3		3	3
NDEG	PVET	Pre-Veterinary Medicine		1								4		5	5
TOTALS				**1**	**1**					**1**	**4**	**24**	**5**	**26**	**31**

Fall Semester 2007 *(College of Agricultural Sciences and Natural Resources)*

DVM	VMED	Veterinary Medicine									8	17	8	17	25
B1VS	VBMS	Veterinary Science			1			1		2	14	52	15	55	70
B1VT	VETT	Veterinary Tecnologist						1			1	9	2	10	12
NDEG	PVET	Pre-Veterinary Medicine		1		1	1	1		1	5	17 (1)	6	21 (1)	27 (1)
TOTALS				**1**	**1**	**1**	**1**	**3**		**3**	**28**	**95 (1)**	**31**	**103 (1)**	**134(1)**

Department of Veterinary and Biomedical Sciences

Table 20. Degrees Conferred by College/Department, Major, Race and Gender

Fiscal Year 2006-2007 ***(Institute of Agriculture & Natural Resources)***

Degree	Major Code	Major Name	Black		American India		Asian		Hispanic		White		Total by Gender		Total
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
B1VS	VBMS	Veterianry Sciences		1				1			4	17	4	19	23
B1VT	VETT	Veterinary Technologist										2		2	2
TOTALS				**1**				**1**			**4**	**19**	**4**	**21**	**25**

Table 21. Gender, Race, Nationality Degree Status of Departmental Graduate Students and Post-Doctoral Fellows, 2007

Nationality	MS		PhD		Postdoctoral Fellows	
	Male	Female	Male	Female	Male	Female
Albania			1			
Argentina			1			
Brazil				1		
China		1	1			
Columbia						1
India	1	1	5	1		1
Japan		1				
Korea					1	
Pakistan	1					
Russia		1		1	1	
Saudi Arabia	1					
Sri Lanka			1			
Taiwan	1					
Uganda			1			
USA	2	2	1	1		1
Vietnam	2					
TOTALS	**8**	**6**	**11**	**4**	**2**	**3**

Table 22. Department MS and PhD Degree Graduates; Thesis Topics, Advisors and Placements After Graduation, 2007

Year of Graduation	Name	Degree	Thesis Topic	Advisor	Placement After Graduation
2007	Dhammika Navarathna	PhD	Farnesol is a virulence factor in a mouse model of disseminated candidiasis	Gerald Duhamel	Postdoctoral Fellow, NIH, Maryland
	Gustavo Bretschneider	PhD	*Escherichia coli* O157:H7 infection and associated immune responses in Adult Cattle	Rodney Moxley	Returned to Country, Argentina, for a position
	Gulzar Ahmad	MS	Genetic diversity of *brachyspira pilosicoli* isolated from human and animals with colonic spirochetosis	Gerald Duhamel	Pursuing PhD, UNMC
	Ching-Hsin Hsu	MS	Neutralizing antibody responses in PRRS	Fernando Osorio	Veterinary Nutrition/ Pharmaceutical Company in Taiwan
	Rasika Jinadasa	MS	Immunoinhibitory activity of *helicobacter hepaticus* cytolethal distending toxin against lymphocytes from inbred strains of mice	Gerald Duhamel	Pursuing PhD, Cornell University, NY
	Yuko Mori	MS	Role of bovine respiratory syncytial virus fusion protein N-glycosylation on host cell fusion and partial construction and characterization of BRSV infectious clone	Clayton Kellling	Scientist, Santa Claire, CA

Table 23. Current Graduate Students; Advisors, Thesis Topics and Start Date

Student Name	Advisor	Thesis/Dissertation Topic	Start Date
Abdulrahman Alkheraif (MS)	C. Kelling	Innate immune responses of alpacas to acute bovine viral diarrhea virus infections	2007
Lalit Beura (MS)	F. Osorio	Studies on virulence, pathogenesis and immune response of porcine reproductive and respiratory syndrome virus	2006
Gustavo Bretschneider (PhD)	R. Moxley	Immune response to *Escherichia coli*O157:H7 in cattle and role in protection	2003
Leticia da Silva (PhD)	C. Jones	Analysis of innate immune responses following infection with bovine herpesvirus type 1 (BHV-1)	2007
Phani Das (PhD)	A. Pattnaik	Viral glycoproteins in PRRSV immunity	2006
Phat Xuan Dinh (MS)	F. Osorio	Molecular techniques for discovery of novel viruses	2007
Harshdeep Dogra (PhD)	R. Barletta	Mechanisms of drug action and resistance in mycobacteria	2005
Joseph Erume (PhD)	R. Moxley	Influence of enterotoxins on virulence and colonization of the porcine intestine by *Escherichia coli*	2003
Jamie Henningson (PhD)	D. Steffen	Comparative virulence of non cytopathic variants of NADL bovine viral diarrhea virus with mutation and non-structural protein NS4B or inpro by experimental inoculation of calves	2005
Tariq Jaber (PhD) (SBS)	C. Jones	Analysis of the latency related gene of BHV-1	2007
Jennifer Kuszak (MS)	S. McVey	Mannheimia haemolytica: Characterization of the relationship of the lactate permease operon and oxidative metabolism with expression of virulence factors	2007
Joel Lechner (MS) (Biochemistry)	M. Lou	Effect of hyperglycemic stress on thioredoxin and thioredoxin binding protein -2(TBP-2) in the lens	2007
Namal Liyanage (PhD)	G. Duhamel	Comparative strucutre and function relationship of cytoleathal disfending toxins from bacterial pathogens	2006
Florencia Meyer (PhD)	C. Jones	Analysis of genes expressed during BHV-1 latency	2003
Debasis Nayak (PhD)	A. Pattnaik	Role of the nucleocapsid protein in VSV genome replication	2003
Jeff Ondrak (MS)	D. Griffin	The role of nutrition in beef cow production	2007
Debasis Panda (PhD)	A. Pattnaik	The phosphoprotein P of VSV and its functions in viral replication and assembly	2006
Avery Paulson (PhD)	D. Smith R. Barletta	Epidemiology and diagnostic surveillance , paratuberculosis and related infectious diseases	2006

Student Name	Advisor	Thesis/Dissertation Topic	Start Date
Roopa Reddy (MS)	G. Duhamel	Interaction of enterohepatic *Helicobacter* Species and *Brachyspira pilosicoli* with cultured Intestinal epithelial cells	2006
Thomas Reece (MS)	D. Griffin	Non-Thesis	2004
Kazima Saira (PhD)	C. Jones	Regulation of interferon production by Alpha-herpesviruses	2004
Holly Samson (MS)	C. Kelling	Comparative responses of ruminant species host cells to bovine viral diarrhea virus infections	2006
Wenwen Shen (MS)	C. Jones	Inhibition of apoptosis by the bhv-1 latency related gene	2007
Sakthivel Subramaniam (PhD)	F. Osorio	Studies on virulence, pathogenesis and immune response of porcine reproductive and respiratory syndrome virus	2006
Olga Vitvitskaia (PhD)	C. Jones	Chromatin remodeling of the viral genome during productive infection	2006
Hiep Lai Vu (MS)	F. Osorio	Biology of the PRRSV-neutralizing antibody response	2007
Yin Wang (PhD) (Biochemistry)	M. Lou	Signal transduction: The mechanism for ROS generation in lens epithelial cells	2003
Yefei Zhu (PhD)	G. Somerville	Exploiting staphylococcal metabolism to prevent biofilm associated heart infection	2005
David Graiver (Engineering/PhD)	C. Kelling	Survival of Avian Influenza in Landfill Leachate	2007
Natasha Gaudreavlt (SBS/PhD)	C. Jones	Role of the bICPO zinc RING finger during productive infection	2007

Department of Veterinary and Biomedical Sciences
Seminar Series, 2007

VBMS 909 Seminars
Spring Semester, 2007

January 8	***"Virus-Host Interactions and the Pathogenesis of Viral Diseases"*** LuWen Zhang, Assistant Professor, School of Biological Sciences, UNL
January 22	***"Degradation of Antiviral Signaling Transcription Factor IRF3 by Bovine Herpesvirus 1Encoded Infected Cell Protein 0 (bICP0)"*** Kazima Saira, PhD Candidate, Department of Veterinary and Biomedical Sciences, UNL
January 29	***"Veterinary Medicine: Looking to the Future"*** David Hardin, Associate Dean, Cooperative Program in Veterinary Medicine, Professor & Head, Department of Veterinary and Biomedical Sciences, UNL
February 5	***"Multi-locus Sequence Typing (MLST) of Brachyspira pilosicoli Isolated from Humans and Animals with Colonic Spirochetosis"*** Gulzar Ahmad, Masters Candidate, Department of Veterinary and Biomedical Sciences, UNL
February 12	***"What We Have Learned About Detecting Cattle Persistently Infected With Bovine Viral Diarrhea Virus"*** Bruce Brodersen, Research Associate Professor, Department of Veterinary and Biomedical Sciences, UNL
February 19	***"Molecular Mechanisms And Functional Analyses Of Cytolethal Distending Toxins (CDT) Produced By Intestinal Bacterial Pathogens"*** Namal Liyanage, PhD Candidate, Department of Veterinary and Biomedical Sciences, UNL
February 26	***"Inhibition Of Mitogen-induced Lymphocyte Proliferation By The Cytolethal Distending Toxin of Helicobacter hepaticus Corresponds To Inbred mouse Strain Disease Susceptibility Phenotype"*** Rasika Jinadsa, Masters Candidate, Department of Veterinary and Biomedical Sciences, UNL
March 5	***"The Role of amp C Gene Expression In Gram-negative Bacteria Resistant to â-Lactam Antibiotics"*** Nancy Hanson, Director of Molecular Biology, Creighton University School of Medicine, Omaha, NE
March 19	***"Efficacy of E. coli O157:H7 Vaccination In Beef Cattle"*** Karen Hnsen, Masters Candidate, Department of Veterinary and Biomedical Sciences, UNL
March 26	***"Clostridum Perfingens Infections In Ruminants"*** Francisco Uzal, Professor of Clinical Diagnostic Pathology, University of California, Davis, CA

April 2 — *"RNA Virus Replication and Assembly"*
Asit Pattnaik, Professor, Nebraska Center for Virology, UNL

April 9 — *"Influence Of Mutations In Bovine Viral Diarrhea Nonstructural Proteins NS4B Or Npro On Virulence"*
Jamie Henningson, PhD Candidate, Department of Veterinary and Biomedical Sciences, UNL

April 16 — *"Herpes Simplex virus Envelopment And The Nuclear Lamina"*
Richard Roller, University of Iowa, School of Medicine, Iowa City, IA

April 23 — *"Genetic Regulation Of Staphylococcal Capsule"*
Chia Lee, Department of Microbiology and Immunology, University of Arkansas, Little Rock, AR

Fall Semester, 2007

September 10 — *"Cellular response to virus infection"*
Saumendra Sarkar, Project Scientist, Department of Molecular Research Institute, Cleveland Clinic

September 17 — *"C/EBP-á binds to a novel Bovine Herpesvirus 1 protein and modulates viral gene transcription"*
Florencia Meyer, PhD Candidate, University of Nebraska-Lincoln

September 24 — *"Role of protein serine/threonine phosphatease-1 and -2A in human diseases"*
David Li, Associate Professor, Department of Biochemistry and Molecular Biology, University of Nebraska Medical Center, Omaha, NE

October 10 — *"Exploiting the innate immune response to herpes viruses"*
Karen Mossman, Associate Member, Department of Pathology & Molecular Medicine, University of Alberta Edmonton, Canada

October 15 — *"Bovine viral diarrhea virus infections in alpacas"*
Jamie Henningson, PhD Candidate, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

October 29 — *"Peptide toxins and RNA antidotes: plasmid addiction in Enterococcus faecalis"*
Keith Weaver, PhD, Division of Basic Biomedical Sciences, Sanford School of Medicine, University of South Dakota, Vermillion, South Dakota

November 5 — *"Tricarboxylic acid cycle mediated signal transduction in Staphylococcus epidermidis"*
Greg Somerville, PhD, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

November 12 — *"Congenital defects in calves of the Great Plains"*
David Steffen, PhD, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

Novemer 19 — *"Relative contributions of LT and STb to the virulence of F4$^+$ Escherichia coli in swine"*
Joseph Erume, PhD Candidate, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

November 26 ***"Chromatinization of bovine herpes virus type 1 during productive infection in MDBK cells"***
Olga Vitvitskaia, MS Candidate, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

Departmental Special Seminars

January 25 ***"Sheeppox virus encodes a BBK-like protein that contributes to virus virulence"***
Gustavo Delhon, Urbana, IL; Candidate, Biosafety Level-3 Core Facility Director

January 29 ***"STEC in livestock - off the beaten path"***
James Keen, US MARC; Candidate, Epidemologist

February 5 ***"Influencing beef production medicine with epidemilogical research and teaching"***
Suelee Robbe-Austerman, Iowa State University, National Animal Disease Center, Ames, IA; Candidate, Epidemologist

February 14 ***"Brucella Cytotoxicity In Macrophage Is Type IV Secretion System Dependent"***
Jianwu Pei, Texas A&M; Candidate, Biosafety Level-3 Core Facility Director

February 23 ***"Applying My Teaching Experiences To Veterinary Parasitology"***
Immo Hansen, Universityof California-Riverside; Candidate, Veterinary and Medical Parasitologist/Entomologist

March 12 ***"Teaching Parasitology To A New Generation of Veterinarians And Scientists"***
Julian Hillyer, University of Minnesota; Candidate, Veterinary and Medical Parasitologist/Entomologist

March 15 ***"Mosquito World"***
Smitri Boudko, University of Florida, WhitneyLaborarory for Marine Bioscience; Candidate, Veterinary and Medical Parasitologist/Entomologist

April 11 ***"Regulation Of Circadian Function By The Suprachiasmatic Nucleus"***
Patricia Sollars, University of Colorado; Candidate, Neurobiologist

April 24 ***"Vaccine Development For Bovine Fetal Protection"***
Martin Ficken, Benchmark Biolabs; Candidate, Veterinary Pathologist

June 8 ***"Current And Emerging Infectious Diseases Of Reptiles: Comparative Medicine At The Crossroads Of Vertebrate Evolution"***
Elliott Jacobson, Professor of Zoological Medicine, University of Florida, Gainesville, FL

October 2 ***"Building programs for success"***
Richard Randle, Monsanto; Candidate, Extension Beef Cattle Veterinarian

US Meat Animal Research Center In-House Seminars

January 12	*"Whole genome approaches to gleaning information from phenotypes"* John Keele
January 26	*"The new US MARC GPE project"* Mark Thallman
February 9	*"A single nucleotide polymorphism (SNP) marker set for DNA-based traceback in North American beef and dairy cattle"* Mike Heaton
February 23	*"Prevalence and multi-drug resistance status of Salmonella isolated from cattle presented for slaughter at four cow-bull processing plants in the US"* Dayna Brichta
March 8	*"Nutrition research unit"* Lea Rempel
March 9	*"Prevalence and multi-drug resistance status of Salmonella isolated from cattle presented for slaughter at four cow-bull processing plants in the US"* Dayan Harhay
March 9	*"The future of environmental management"* Jack Nienaber
March 23	*"Genomics of the prion locus in US cattle"* Mike Clawson
April 10	*"Next Generation Sequencing Technology"* Roche Applied Science
April 13	*"Sperm production in boars"* Joe Ford
April 27	*"Matching the potential to the environment"* Tom Jenkins
September 27	*"State of the US Meat Animal Research Center"* Mohammad Koohmaraie
October 5	*"Genetics of bovine respiratory"* Larry Kuehn
October 19	*"Full-length bovine cDNA sequencing of the bovine genome ay US MARC"* Greg Harhay
November 2	*"Quantitative trait loci in beef cattle"* Eduardo Casas
November 16	*"Engineering solutions for controlling CAFO's environmental footprint"* Bryan Woodbury
December 7	*"Instrument Grading for beef cattle"* Steven Shackelford

IANR News Release – May 05, 2006
New Head of Vet Sciences, Associate Dean of UNL-ISU Program Hired

LINCOLN, Neb. — The University of Nebraska-Lincoln's new joint veterinary medical program with Iowa State University has taken a key step forward with the hiring of a new administrator for UNL's share of the initiative.

Dr. David K. Hardin will head UNL's Department of Veterinary and Biomedical Sciences and serve as associate dean of the ISU-UNL joint program, pending approval of the program by the Nebraska Coordinating Commission for Postsecondary Education, which is expected to act June 1. Dr. Hardin currently is the head of the Department of Pathobiology and Population Medicine in Mississippi State University's College of Veterinary Medicine. Hardin's dual role is key to the UNL-ISU program's success, said John Owens, University of Nebraska vice president and vice chancellor of the university's Institute of Agriculture and Natural Resources.

"This cooperative venture between UNL and ISU is unique and requires the creation of some new and unique relationships," Owens said. "We're seeking to build an academic structure that provides clear communication and strong collaboration." "Dr. Hardin's experience will serve UNL well in helping to make this arrangement with ISU one of the most focused and relevant veterinary medical programs in the country," Owens added.

The joint program, which is scheduled to begin in fall, 2007, will feature UNL's expertise in veterinary medicine and animal science and brings together two states with some of the largest concentrations of livestock in the world, Owens noted. Owens added that the UNL-ISU program will build on Nebraska's already strong reputation for veterinary medical education. "UNL's Great Plains Veterinary Education Center and USDA's Meat Animal Research Center, both at Clay Center, are key partners in our efforts," he said.

Hardin's background also includes 12 years as director of veterinary medical extension and continuing education at the University of Missouri's College of Veterinary Medicine. "I am tremendously excited to have this opportunity to join the faculty at the University of Nebraska-Lincoln and be a part of the new ISU-UNL Cooperative Veterinary Program. Building on the strengths of the two institutions creates unique opportunities for collaboration that will not only strengthen veterinary medical education, but enhance collaborative research, diagnostics and extension/outreach in service to the citizens of Nebraska, Iowa and the nation."

Hardin received his bachelor's degree in agriculture in 1974, his doctorate in veterinary medicine in 1977 and his residence certificate in theriogenology in 1983, all from the University of Missouri. Hardin will assume the job this summer. One of his first duties will be to appoint a transition team to help implement the new UNL-ISU agreement.

Professional Program in Veterinary Medicine

In July, 2006, a cooperative agreement was finalized between the University of Nebraska-Lincoln (UNL) and the Iowa State University College of Veterinary Medicine (ISU-CVM) creating the Professional Program in Veterinary Medicine offered by Iowa State University and the University of Nebraska-Lincoln (PPVM). Subsequently in 2007, the AVMA Council on Education accredited the cooperative program.

The University of Nebraska-Lincoln will admit twenty-five Nebraska residents to the program each year. The admitted students will attend UNL for the first two years of the program where the basic science portion of the curriculum will be delivered parallel to the first two years of the ISU-CVM curriculum. Twenty faculty members from the departments of Veterinary and Biomedical Sciences, Biochemistry, Animal Science, and Entomology will provide instruction in the PPVM at UNL.

The UNL curriculum will contain courses including Anatomy (10 semester hours), Animal Physiology (12 semester hours), Physiological Chemistry (3 semester hours), Veterinary Immunology (2 semester hours), Veterinary Microbiology (5 semester hours), Virology (3 semester hours), Veterinary Pathology (7 semester hours), Neurobiology (3 semester hours), Veterinary Parasitology (4 semester hours), Pharmacology (3 semester hours), Clinical Pathology (4 semester hours), Veterinary Public Health (3 semester hours), Principles of Surgery (3 semester hours), and Small Animal Surgery (4 semester hours). Additionally, a series of courses entitled Foundations in Veterinary Medicine (11 semester hours total) will provide instruction relating to careers, ethics, animal behavior, restraint, examination and treatment procedures of domestic animals. Following successful completion of the first two years of the curriculum at UNL the class will transfer to ISU-CVM and join the third year class at ISU-CVM. The inaugural class of 25 students was admitted in April, 2007 and the students began classes on August 27th, 2007.

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine
2007 Faculty

Barletta, Raúl G.[1],* BS, MS, PhD ..... Professor

Brodersen, Bruce W.[1],* BS, DVM, MS, PhD ..... Assistant Professor/PPVM

Burkey, Thomas E.[1],*, BS, MS, PhD ..... Assistant Professor/PPVM

Delhon, Gustavo A.[1], DVM, MSc, PhD ..... BSL-3 Facility Director

Doster, Alan R.[1],* DVM, MS, PhD, ACVP ..... Professor

Duhamel, Gerald E.[LOA], BS, DMV, PhD, ACVP ..... Professor

Griffin, D. Dee[1],* BS, DVM, MS ..... Professor

Hardin, Laura E.[1], DVM, MS, PhD ..... Coordinator of Curriculum and Assessment/PPVM

Hostetler, Douglas E.[1],* DVM, MS ..... Associate Professor

Kammermann, John R.[1],* BS, MS, PhD ..... Assistant Professor

Keen, James Edward[1],* BS, BS, DVM, PhD ..... Associate Professor

Lou, Marjorie F.[1],* BS, MS, PhD ..... Professor

McVey, David S.[1],* PhD, DVM ..... Professor

Moxley, Rodney A.[1],* DVM, PhD ..... Professor

Ondrak, Jeff D.[1], DVM, BS ..... Lecturer

Osorio, Fernando A.[1],* MV, MS, PhD, ACVM ..... Professor

Reddy, Jay[1],* DVM, MVSc, PhD ..... Associate Professor

Rogers, Douglas G.[1],* BS, DVM, MS, PhD ..... Professor

Rupp, Gary P.[1]*, DVM, MS ..... Professor

Smith, David R.[1]*, BS, DVM, PhD, ACVPM, ABVP ..... Professor

Somerville, Greg A.[1],* PhD, MS, BS ..... Assistant Professor

Wood, Jennifer R.[1],* BA, MS, PhD ..... Assistant Professor/PPVM

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[1] Appt began in 2007

[2] Appt ended in 2007

* Graduate Faculty

Professional Program in Veterinary Medicine
2007 Faculty

Barletta, Raúl G.,* BS, MS, PhD ..... Professor; .10 Tchg; .90 Rsch

Department: Department of Veterinary and Biomedical Sciences

Education: B.S. (Chemist) – Universidad Nacional de La Plata 1976
M.S. (Biochemist) – Universidad Nacional de La Plata 1976
Ph.D. – University of Alabama at Birmingham 1987

Dates of Appointment: UNL - 1991; Rank -2004; Tenure - 1997

Specialty: Microbiology/Bacterial Genetics

Research Emphasis: Molecular biology of mycobacterial infections of humans and animals; molecular genetics; virulence determinants; drug resistance; diagnostic tests; recombinant vaccines

Brodersen, Bruce W.,* BS, DVM, MS, PhD ..... Research Associate Professor; 1.0 Diag

Department: Department of Veterinary and Biomedical Sciences, Veterinary Diagnostic Center

Education: B.S. – University of Nebraska-Lincoln 1978
D.V.M. – Iowa State University 1983
M.S. – University of Nebraska-Lincoln 1989
Ph.D. – University of Nebraska Medical Center 1996

Dates of Appointment: UNL - 1991; Rank - 2004; Tenure – N/A

Specialty: Pathology

Research Emphasis: Infectious diseases of food animals

Burkey, Thomas E.,*, BS, MS, PhD ..... Assistant Professor; .60 Rsch; .40 Tchg

Department: Department of Animal Sciences

Education: B.S. – Rockford College 1996
M.S. – Kansas State University 2003
Ph.D. – Kansas State University 2006

Dates of Appointments: UNL - 2006; Rank – 2006; Tenure

Specialty: Nonruminant Nutrition

Research Emphasis: Current research involves applied and basic research in porcine nutrition, immunology and digestive physiology

Delhon, Gustavo A., DVM, MSc, PhD ..... BSL-3 Facility Director; .30 Tchg; .30 Rsch; .40 Srvc

Department: Department of Veterinary and Biomedical Sciences, BSL-3 Core Facility

Education: D.V.M. – University of Buenos Aires 1980
M.Sc. – University of Nebraska-Lincoln 1990
Ph.D. – University of Nebraska-Lincoln 1996

Dates of Appointment: UNL - 2002; Rank - 2007; Tenured - N/A

Speciality: Virology

Research Emphasis: Viral Pathogenesis and Diagnosis

Doster, Alan R.,* DVM, MS, PhD, ACVP ..... Professor, 1.0 Diag

Department: Department of Veterinary and Biomedical Sciences, Veterinary Diagnostic Center

Education:	D.V.M. -- Iowa State University	1975
	M.S. -- University of Georgia	1977
	Ph.D. University of Georgia	1979
	Diplomate - American College of Veterinary Pathologists	1980
Dates of Appointment:	UNL - 1979; Rank - 1990; Tenure - 1985	
Specialty:	Pathology	
Research Emphasis:	Infectious diseases of food animals. Biology of infectious diseases of the respiratory tract of swine and cattle	

Griffin, D. Dee,* BS, DVM, MS ..... Professor; .30 Ext; .50 Tchg; .20 Srvc

Department: Department of Veterinary and Biomedical Sciences, Great Plains Veterinary Educational Center, Clay Center, NE

Education:	B.S. -- Oklahoma State University	1974	
	D.V.M. -- Oklahoma State University		1975
	M.S. -- Purdue University		1978
Dates of Appointment:	UNL - 1991; Rank 1999; Tenure 1997		
Specialty:	Pathology and Nutrition (Clay Center, NE)		
Research Emphasis:	Beef cattle production medicine		

Hardin, Laura E., DVM, MS, PhD ..... Coordinator/Senior Lecturer, 1.00 Tchg

Department: College of Agricultural Sciences & Natural Resources, Department of Veterinary and Biomedical Sciences

Education:	B.S. – Eastern Kentucky University (Agriculture)	1982
	D.V.M. – Mississippi State University (College of Veterinary Medicine)	1987
	M.S. – University of Missouri-Columbia (Veterinary Epidemiology)	1994
	Ph.D. – University of Missouri-Columbia (Curriculum and Instruction, College of Education)	2001
Dates of Appointment:	UNL - 2006; Rank – 2006; Tenure – N/A	
Specialty:	Epidemiology and Educational Assessment	
Teaching Emphasis:	Foundations in Veterinary Medicine	

Hostetler, Douglas E.,* DVM, MS ..... Associate Professor; 1.00 Tchg (Coordinator of Student Affairs, Professional Program in Veterinary Medicine)

Department: Department of Veterinary and Biomedical Sciences, Professional Program in Veterinary Medicine

Education:	A.A. – Columbus Technical Institute (Animal Health Technology)	1978
	B.S. – The Ohio State University	1989
	D.V.M. – The Ohio State University	1993
	M.S. – Michigan State University (Large Animal Clinical Sciences)	1998
Dates of Appointment:	UNL – 2007; Rank – 2007; Tenure – 2007	
Area of Interest:	Lameness in Cattle	

Kammermann, John R.,* BS, MS, PhD ..... Assistant Professor; 1.00 Tchg

Department: Department of Veterinary and Biomedical Sciences

Education:	B.S. – Northern Illinois University	1984
	M.S. – Auburn University	1994
	Ph.D. – Auburn University	2004
Date of Appointment:	UNL – 2007; Rank – 2007; Tenure	
Specialty:	Anatomist	
Teaching Emphasis:	Multi-species gross anatomist of domestic animals	

Keen, James Edward,* BS, BS, DVM, PhD ..... Associate Professor; .60 Rsch; .40 Tchg

Department: Department of Veterinary and Biomedical Sciences, Great Plains Veterinary Educational Center, Clay Center, NE

Education	B.S. – Eastern Kentucky University (Biology)	1980
	B.S. – University of Illinois at Urbana-Champaign	1986
	D.V.M. – University of Illinois at Urbana-Champaign (Veterinary Medicine)	1988
	Ph.D. – University of Illinois at Urbana-Champaign (Veterinary Epidemiology)	1994
Date of Appointment:	UNL – 2008; Rank – 2008; Tenure – 2008	
Specialty:	Epidemiology	
Research Interest:	Infectious disease control, epidemiology of STEC and Salmonella	

Lou, Marjorie F.,* BS, MS, PhD ..... Professor; .10 Tchg; .90 Rsch

Department: Department of Veterinary and Biomedical Sciences

Education:	B.S. – National Taiwan University	1960
	M.S. – Virginia Polytechnic Institute	1962
	Ph.D. – Boston University Medical Center	1966
Dates of Appointment	UNL - 1994; Rank - 1994; Tenure 1997	
Specialty:	Biochemistry/Biomedical Sciences	
Research Emphasis:	Biochemical mechanism of ocular degenerative diseases and aging; the redox regulation and metabolism in the eye lens and other tissues	

McVey, David S.,* PhD, DVM ..... Professor; .25 Rsch; .25 Tchg; .50 Srv

Department: Department of Veterinary and Biomedical Sciences, Veterinary Diagnostic Center

Education:	Ph.D. – Texas A&M University	1986
	D.V.M. – The University of Tennessee	1980
Dates of Appointment:	UNL - 2006; Rank - 2007; Tenure – 2006	
Speciality:	Microbiology	
Research Emphasis:	Molecular diagnostics and vaccinology of infectious diseases of cattle and swine	

Moxley, Rodney A.,* DVM, PhD ..... Professor; .10 Tchg; .90 Rsch

Department: Department of Veterinary and Biomedical Sciences

Education:	D.V.M. – University of Missouri-Columbia	1978
	Ph.D. – University of Missouri-Columbia	1983
Dates of Appointment:	UNL - 1983; Rank - 2004; Tenure - 1990	
Specialty:	Pathology	
Research Emphasis:	Pathogenesis of *Escherichia coli* infections; *E. coli* virulence determinants; enteric pathology	

Ondrak, Jeff D., DVM, BS ..... Lecturer, .50 Tchg; .50 Rsch

Department: Department of Veterinary and Biomedical Sciences, Great Plains Veterinary Educational Center, Clay Center, NE

Education:	D.V.M. – Kansas State University	1992
	B.S. – University of Nebraska-Lincoln (Animal Science)	1988
Date of Appointment:	UNL – 2006; Rank – 2006; Tenure – N/A	
Specialty:	Ruminant Nutrition	
Research Emphasis:	Beef Cattle Health	

Osorio, Fernando A.,* MV, MS, PhD, ACVM ..... Professor; .40 Diag; .60 Rsch

Department: Department of Veterinary and Biomedical Sciences

Education:	M.V. – Buenos Aires National University	1972
	M.S. -- Iowa State University	1982
	Ph.D. -- Iowa State University	1984
	Diplomate -- American College of Veterinary Medicine	1986
Dates of Appointment:	UNL - 1984; Rank - 1995; Tenure - 1990	
Specialty:	Virology	
Research Emphasis:	Viral latency and persistence; Pseudorabies virus; arterviruses; porcin reproductive and respiratory syndrome virus; Vesicular Diseases	

Reddy, Jay,* DVM, MVSc, PhD ..... Associate Professor; .75 Rsch; .25 Tchg

Department: Department of Veterinary and Biomedical Sciences

Education:	Ph.D. – University of Guelph (Immunology)	1998
	M.V.Sc. — The University of Agricultural Sciences, India (Veterinary Medicine)	1990
	D.V.M. – The University of Agricultural Sciences, India (Veterinary Science)	1985
Dates of Appointment:	UNL – 2007; Rank – 2007; Tenure –	
Specialty:	Immunology	
Research Emphasis:	Autoimmunity	

Pickard, Gary E.,* BS, MS, PhD ..... Professor; .75 Rsch; .25 Tchg

Department: Department of Veterinary and Biomedical Sciences

Education:	Ph.D. – University of Wisconsin (Neuroscience)	1978
	M.S. – Purdue University (Neuropsychology)	1975
	B.S. – Purdue University (Biology)	1972
Dates of Appointment:	UNL – 2008; Rank – 2008; Tenure 2008	
Specialty:	Neuroscience	
Research Emphasis:	Biological Rhythms	

Randle, Richard F., MS, DVM ..... Associate Professor, .20 Tchg, .80 Ext

Department of Veterinary and Biomedical Sciences

Education:	MS – University of Illinois, College of Veterinary Medicine	1987
	DVM – Mississippi State University	1982
Dates of Appointments:	UNL - 2007; Rank - 2007; Tenure – 2007	
Specialty:	Beef cow/calf production management	
Research Emphasis	Young stock management, disease surveillance, biosecurity and quality assurance	

Rogers, Douglas G.,* BS, DVM, MS, PhD ..... Professor; 1.0 Diag

Department: Department of Veterinary and Biomedical Sciences, Veterinary Diagnostic Center

Education:	B.S. – Iowa State University	1973
	D.V.M. – Iowa State University	1979
	M.S. – Iowa State University	1983
	Ph.D. – Iowa Sate University	1987
Dates of Appointment:	UNL - 1988; Rank - 2001; Tenure - 1995	
Specialty:	Pathology	
Research Emphasis:	Pathogenesis of bacterial diseases of livestock	

Rupp, Gary P.*, DVM, MS ..... Professor; .50 Tchg; .30 Rsch; .20 Srvc

Department: Department of Veterinary and Biomedical Sciences, Great Plains Veterinary Educational Center, Clay Center, NE

Education:	D.V.M. – Colorado State University	1964
	M.S. – Colorado State University	1975
Dates of Appointment:	UNL - 1988; Rank - 1988; Tenure 1988	
Specialty:	Theriogenology (Clay Center, NE)	
Research Emphasis:	Beef cattle reproduction	

Smith, David R.*, BS, DVM, PhD, ACVPM, ABVP ..... Professor; .75 Ext; .25 Rsch

Department: Department of Veterinary and Biomedical Sciences, Extension Services

Education:	B.S. – The Ohio State University	1980
	D.V.M. – The Ohio State University	1983
	Ph.D. – The Ohio State University	1997
	Diplomate, American College of Veterinary Preventive Medicine	
	Diplomate, American Board of Veterinary Practitioners, Food Animal Practice	
Dates of Appointment:	UNL - 1997; Rank - 2007; Tenure – 2002	
Specialty:	Dairy and Beef Cattle Extension	
Research Emphasis:	Use of field and observational epidemiology to solve health and productivity problems of dairy and beef cattle	

Sollars, Patricia J.,* BA, PhD ..... Associate Professor; .75 Rsch; .25 Tchg

Department: Department of Veterinary and Biomedical Sciences

Education:	B.A. – St. John's College (Liberal Arts)	1980
	Ph.D. – University of Oregon (Neuroscience)	1991
Dates of Appointments:	UNL – 2008; Rank – 2008; Tenure	
Specialty:	Neurobiologic mechanisms	
Research Emphasis:	Chronobiology and sleep	

Somerville, Greg A.,* PhD, MS, BS ..... Assistant Professor, .90 Rsch; .10 Tchg

Department: Department of Veterinary and Biomedical Sciences, Redox Biology Center

Education:	Ph.D. – University of Texas at Dallas	1999
	M.S. – University of Texas at Dallas	1993
	B.S. – University of Texas at Dallas	1988
Date of Appointment:	UNL – 2004; Rank - 2004; Tenure	
Speciality:	Microbiology	
Research Emphasis:	Elucidation of Mechanisms by which *Staphylococcus aureus* metabolism controls virulence factor production and survival within a host	

Wood, Jennifer R.,* BA, MS, PhD ..... Assistant Professor, .60 Rsch; 0.40 Tchg

Department: Department of Animal Sciences

Education:	B.A. - Indiana University	1992
	M.S. - University of Illinois	1996
	Ph.D. - University of Illinois	2000
Date of Appointment:	UNL — 2006; Rank - 2006; Tenure	
Speciality:	Physiology	
Research Emphasis:	Reproductive Physiology, Genomics	

Department of Veterinary and Biomedical Sciences

Table 24. Professional Program in Veterinary Medicine Courses Listed, 2007

Courses	Course Title/Cross Listing	Credit Hours/ Semester
VMED 511	Foundations of Veterinary Medicine	3 cr, I
VMED 512	Foundations of Veterinary Medicine II	2 cr, II
VMED 513	Foundations of Veterinary Medicine III	3 cr, I
VMED 514	Foundations in Veterinary Medicine IV	2 cr, II
VMED 583	Principles of Surgery	3 cr, I
VMED 584	Veterinary Clinical Pathology	4 cr, II
VMED 589	Small Animal Surgery Fundamentals	4 cr, II
VMED 620	Physiological Chemistry	3 cr, I
VMED 630	Veterinary Anatomy I /VBMS 830	6 cr, I
VMED 631	Veterinary Anatomy II	4 cr, II
VMED 637	Neurobiology	3 cr, II
VMED 642	General Pathology I	3 cr, II
VMED 645	Animal Physiology I -(VBMS/ASCI 845; BIOS 813)	4 cr, I
VMED 646	Animal Physiology II - (VBMS/ASCI 846; BIOS 814)	4 cr, II
VMED 654	Pharmacology	6 cr, II
VMED 660	Histology	4 cr, I
VMED 682	Systemic Pathology	4 cr, I
VMED 676	Veterinary Parasitology	4 cr, II
VMED 680	Veterinary Immunology	2 cr, II
VMED 686	Veterinary Microbiology	5 cr,I
VMED 687	Veterinary Virology	3 cr, II
VMED 688	Veterinary Public Health	3 cr, II

Table 25. Professional Program in Veterinary Medicine Course Descriptions, 2007

First Year, Beginning Fall Semester, 2007

Courses	Course Descriptions	Instructor

VMED 511 Foundations of Veterinary Medicine L. Hardin

Foundations of Veterinary Medicine (3 cr I) Lec 3. Prereq: First year standing in and admission toVeterinary Medicine. Basic behavior, animal handling and restraint; medical record keeping; physical examination; and clinical cases

VMED 512 Foundations of Veterinary Medicine II L. Hardin

Foundations of Veterinary Medicine II (2 cr II) Lec 2. Prereq: First year standing and admission to Veterinary Medicine. Animal welfare issues, clinical cases, animal handling, and restraint

VMED 513 Foundations of Veterinary Medicine III L. Hardin

Foundations of Veterinary Medicine III (3 cr I) Lec 3. Prereq: Second year standing in and admission to Veterinary Medicine. Ethical issues in veterinary medicine, clinical cases, animal handling, and restraint

VMED 514 Foundations in Veterinary Medicine IV L. Hardin

Foundations of Veterinary Medicine IV (3 cr II) Lec 3. Prereq: Second year standing in and admission to Veterinary Medicine. Ethical issues in veterinary medicine, clinical cases, animal handling, and restraint

VMED 583 Principles of Surgery D. Hostetler

Principles of Surgery (3 cr I) Lec 3. Prereq: Second year standing in and admission to Veterinary Medicine. General principles of surgery for and common surgical problems in animals

VMED 584 Veterinary Clinical Pathology H. Bender

Veterinary Clinical Pathology (4 cr II) Lec 2, lab 2. Prereq: Second year standing in and admission to Veterinary Medicine. Integration of hematology, clinical chemistry and cytology in mechanisms of disease

VMED 589 Small Animal Surgery Fundamentals D. Hostetler

Small Animal Surgery Fundamentals (4 cr II) Lec 2, lab 2. Prereq: Application of surgical and anesthetic principles to animal surgery

VMED 620 Physiological Chemistry M. Lou

Physiological Chemistry (3 cr I) Lec 3. Prereq: First year standing in and admission to Veterinary Medicine. Structure and function of proteins, lipids, amino acids and nucleic acids, and their relationship of biochemistry to selected animal diseases

Courses	Course Descriptions	Instructor

VMED 630 Veterinary Anatomy I /VBMS 830 J. Kammermann

Veterinary Anatomy I (6 cr I) Lec 3, lab 6. Prereq: First year standing in and admission to Veterinary Medicine. Comparative and topographic anatomy of the dog

VMED 631 Veterinary Anatomy II J. Kammermann

Veterinary Anatomy II (4 cr II) Lec 2, lab 4. Prereq: VMED 630. Comparative and topographic anatomy of the horse, ruminants, the pig, and the chicken

VMED 637 Neurobiology G. Pickard

Neurobiology (3 cr II) Lec 2, lab 2. Prereq: First year standing in and admission to Veterinary Medicine. Concepts of nervous system functioning, problem identification, and neurologic diseases

VMED 642 General Pathology I R. Moxley

General Pathology I - (3 cr II) Lec 2, lab 2. Prereq: First year standing in and admission to Veterinary Medicine. Disease processes in animals at the systems and cellular level

VMED 645 Animal Physiology I - (VBMS/ASCI 845; BIOS 813) C. Wood

Cross listed as ASCI 846 Animal Physiology II

VMED 646 Animal Physiology II - (VBMS/ASCI 846; BIOS 814) C. Wood

Cross listed as ASCI 846 Animal Physiology II

VMED 654 Pharmacology M. Carlson

Pharmacology (4 cr II) Lec 4. Prereq: Second year standing in and admission to Veterinary Medicine. General principles; drug disposition; drugs acting on the nervous, cardiovascular, renal, gastrointestinal, and endocrine systems

VMED 660 Histology G. Delhon

Veterinary Histology (4 cr I) Lec 3, lab 2. Prereq: First year standing in the Professional Program in Veterinary Medicine. Eukaryotic cell biology and early development, basic tissues and organs of the body, following a system and/or apparatus approach at the cellular level

VMED 672 Systemic Pathology A. Doster

Systemic Pathology II (4 cr I) Lec 2, lab 2. Prereq: Second year standing in and admission to Veterinary Medicine. Disease processes, immunopathology and pathogenesis, in domestic and captive animals

VMED 676 Veterinary Parasitology R. Cortinas

Veterinary Parasitology (4 cr I) Lec 3, lab 1. Prereq: Second year standing in and admission to Veterinary Medicine. Biology of parasites of major veterinary importance. The understanding required for control of parasitism

VMED 680 Veterinary Immunology R. Jeddy

Veterinary Immunology (2 cr II) Lec 2. Prereq: First year standing in and admission to Veterinary Medicine. Principles and mechanisms underlying the immune system

VMED 686 Veterinary Microbiology S. McVey

Veterinary Microbiology (5 cr I) Lec 3, lab 6. Prereq: Second year standing and admission to Veterinary Medicine. Bacteria and fungi of veterinary importance. Mechanisms of disease production and laboratory diagnostic methods

VMED 687 Veterinary Virology F. Osorio

Veterinary Virology (3 cr II) Lec 3. Prereq. Second year standing in and admission to Veterinary Medicine. The unique biological features of viruses in terms of their reproduction and specialization

VMED 688 Veterinary Public Health J. Keen

Veterinary Public Health (3 cr II) Lec 3. Prereq: Second year standing in and admission to Veterinary Medicine. Fundamentals of epidemiology, zoonotic diseases, occupational health, food safety, and other public health topics

Department of Veterinary and Biomedical Sciences
Professional Program in Veterinary Medicine

Table 26. In-coming Students Professional Program First Semester, 2007-2008

Student Name	Class	Major	Advisor
Daniel L. Annin	P1	VMED	
Kellie A. Barrett	P1	VMED	
Amy M. Bell	P1	VMED	
Richard D. Christen	P1	VMED	
Jeffrey A. Eihusen	P1	VMED	
Jeffry R. Faimon	P1	VMED	
Elizabeth M. Farrow	P1	VMED	
Johanna A. Fithian	P1	VMED	
Jennafer M. Glaesemann	P1	VMED	
Krista K. Holstein	P1	VMED	
Kathryn A. Kasten	P1	VMED	
Kelsey L. Kerwin	P1	VMED	
Megan K. Losee	P1	VMED	
Abby L. McCracken	P1	VMED	
Jordan C. Nickerson	P1	VMED	
Rachelle A. Pumphrey	P1	VMED	
Anna R. Ramsey	P1	VMED	
Robert S. Reid	P1	VMED	
Carey L. Renken*	P1	VMED	
Michael B. Rukstalis	P1	VMED	
Sara B. Schuessler	P1	VMED	
Melissa K. Thompson	P1	VMED	
Amy L. Trutna	P1	VMED	
Cole F. Vanicek	P1	VMED	
Jennifer Willems	P!	VMED	
Amanda J. Young	P1	VMED	

*Joined PPVM in Spring, 2008

Department of Veterinary and Biomedical Sciences
Undergraduate Enrollment, 2007

2007 Spring Semester Enrollment		*2007 Fall Semester Enrollment*	
Veterinary Science	76	Veterinary Science	70
Pre-Veterinary Medicine	12	Pre-Veterinary Medicine	28
Veterinary Technician	5	Veterinary Technician	11

Pre-Veterinary Ambassadors

Spring, 2007

Malori Marotz Lauren Taylor Kylie Wiedel

Undergraduate, Dean's List, Spring 2007

Sin Yee Chia Sarah E. Grimm Megan M. Hiatt

Lindsey A. Hofman John P. Lazoritz Malori M. Marotz

Tracy M. Sonderup

Undergraduate, Dean's List, Fall 2007

Megan M. Hiatt Lindsey A. Hofman Alicia M. Koopman

Ryan D. Koopmans Theodoric A. Mattes Anthony M. McClary

Thomas W. Murphy Brittney L. Riley Robyn C. Shannon

Sarah J. Vitosh Daniel J. Woodbury

Undergraduate Degrees Obtained

May, 2007

Name	**Major**	**Name**	**Major**
Sin Yee Chia	VBMS	Siobhan J. Marvin Kriegler	VBMS
Meredith A. Cruse	VBMS	Abby L. McCracken	VBMS
Nicole R. Forsell	VBMS	Jordan C. Nickerson	VBMS
Jennafer M. Glaesemann	VBMS	Melissa K. Thompson	VBMS
Satomi Handa	VBMS	Bryan J. Trout	VBMS
Kelsey L. Kerwin	VBMS	Abby L. Van Hoef	VBMS
Malori M. Marotz	VBMS	Jennifer J. Woods	VBMS

December, 2007

Ryan P. Church	VBMS	Kylie C. Wiedel	VBMS
Melissa A. Fairfax	VETT		

Professional Program in Veterinary Medicine

Dean's List, Spring 2007

Elizabeth M. Farrow

Kathryn A. Kasten

Sara B. Schuessler

Dean's List, Fall 2007

Johanna A. Fithian

Anna R. Ramsey

Sara B. Schuessler

Cole F. Vanicek

Department of Veterinary and Biomedical Sciences

Nebraska Residents Enrolled in KSU CVM Academic Year 2007 (05-2006/04-2007)

Fourth Year Students	Class	Third Year Students	Class	Second Year Students	Class
Backlund, Michelle	2007	Abel, Jeramie	2008	Fear, Clarence	2009
Becher, Megan	2007	Bottger, Jeffrey	2008	Flock, Katie	2009
Bessmer, Aaron	2007	Eitzmann, Allison	2008	Crystal Frost Rhine	2009
Bockelman, Toni	2007	England, Shauna	2008	Corinna Gibbons	2009
Buschkamp, Nicholas	2007	Friedel, Christopher	2008	Nathan Kotschwar	2009
Cole, Jeremiah	2007	Haase, Melissa	2008	Alicia Lloyd	2009
Creighton, Amanda	2007	Holt, Kristina	2008	Shauna Malchow	2009
Fellers, Kristen	2007	Kilburn, Jennifer	2008	Brooke Martin	2009
Friedericks, Marc W.	2007	Kilzer, Elizabeth	2008	Mathew McGraw	2009
Grosse, Miranda	2007	Koppold, Emily	2008	Todd Mitchell	2009
Heftie, David	2007	Korus, Jeffrey	2008	Brian Stones	2009
Jirovsky, Lynn	2007	Kruce, Rachel	2008		
Knisley, Cody	2007	Lustgarten, Meghann	2008		
Larson, Aaron	2007	Moravec, Martin	2008		
Leach, Tiffany	2007	Pigsley, Becky	2008		
Nienhueser, Travis	2007	Robbins, Joel	2008		
Olson, Emily	2007	Schumacher, Stephen	2008		
Rainwater, Kimberly	2007	Staab, Dusty	2008		
Schmid, Luke	2007	Stevens, Elliot	2008		
Stevens, Lindsey	2007	Straka, Lindsey	2008		
Stones, Allen	2007	Talbott, Joan	2008		
Svehla, Nichole	2007	Waechter-Mead, Lindsay	2008		
Thiel, Kevin		Wood, Jamie	2008		
Thomassen, Michael	2007	Wright, Leann	2008		
Tolstedt, Calvin	2007				
Torpy, Rebecca	2007				
Willers, Amanda	2007				

Department of Veterinary and Biomedical Sciences

UNL Students Attending Other Veterinary Colleges Other Than Iowa State

Name	Pre-Vet Curriculum Completed	Admitted to
Merdith Cruse	UNL	Kansas State
Malori Marotz	UNL	Kansas State
Sara Joy	UNL	Kansas State

Nebraska Residents Attending Iowa State University

Name	Class	Name	Class	Name	Class
Assad, Katherine M	2009	Aerts, Alyse	2010	Annin, Daniel	2011
Bierman, Merle J	2009	Arens, Brenda	2010	Barrett, Kellie	2011
Deroin, Jamie L.	2009	Bader, Jordan	2010	Bell, Amy	2011
Dinslage Tyson G.	2009	Bader, Donna	2010	Christen, Richard	2011
Friedrich, Rachel A.	2009	Baker, Katherine	2010	Eihusen, Jeffrey	2011
Gulbrandson, Cody M.	2009	Behlke, Eric	2010	Faimon, Jeffry	2011
Jensen, Justin V.	2009	Eggers, Lesha	2010	Farrow, Elizabeth	2011
Kahle, Kelsey L.	2009	Hadenfeldt, Tracy	2010	Fithian, Johanna	2011
Kopf, Kelli M.	2009	Hankins, Cody	2010	Glaesemann, Jennifer	2011
Kreifels, Tammy L.	2009	Hanson, Nicole	2010	Holstein, Krista	2011
Meyer, Ashley E.	2009	Hayek, Sandi	2010	Kasten, Kathryn	2011
Perez, Margarita M	2009	Jenkins, Carrie	2010	Kerwin, Kelsey	2011
Petersen, George F.	2009	Lurz, Jeri	2010	Losee, Megan	2011
Pieper, Jason B.	2009	Martin, Amy	2010	McCracken, Abby	2011
Reiman, Amber N.	2009	Painter, Laura	2010	Nickerson, Jordan	2011
Reiter, Dawn M	2009	Pumphrey, Danielle	2010	Pumphrey, Rachelle	2011
Schaefer, Jennifer L	2009	Ringenberg, Glenn	2010	Ramsey, Anna	2011
Schmidt, Megan E.	2009	Saathoff, Andrew	2010	Reid, Robert	2011
Shemek, Angela K.	2009	Schmidt, Nathan	2010	Rukstalis, Michael	2011
Shultz, Mikaleh A.	2009	Uden, Jessika	2010	Schuessler, Sara	2011
Smith, Rik R.	2009	Waddell, Jess	2010	Thompson, Melissa	2011
Thiele, Melissa A.	2009	Worth, Troy	2010	Trutna, Amy	2011
Waples, Alison J	2009			Vanicek, Cole	2011
Whitted, Alexis L.	2009			Woods, Jennifer	2011
Woolard, Rebecca L.	2009			Young, Amanda	2011

Department of Veterinary and Biomedical Sciences
PhD & MS Graduate Students, 2007

MS Candidate/Advisor	Program	Title: Research Project
Gulzar Ahmad BS, MS, Agric-Faisalabad, India (GE Duhamel)	VBMS	Genetic diversity of *Brachyspira pilosicoli* isolated from humans and animals with colonic spirochetosis
Abdulrahman Alkheraif BS, Saudi Arabia (CL Kelling)	VBMS	Innate immune responses of alpacas to acute bovine viral diarrhea virus infections
Ching Hsin Hsu BS, China (FA Osorio)	VBMS	Protective immunity to PRRSV
Phat Xuan Dinh BS, Vietnam (FA Osorio)	VBMS	Molecular techniques to investigate unknown viral etiologies
David Graiver BS, UNL (CL Kelling)	Engineering	Survival of avian influenza in Landfill Leachate
Rasika Jinadasa BVSc, Peradeniya,India (GE Duhamel)	VBMS	Mouse susceptibility to *Helicobacter hepaticus* cytolethal distending toxin
Kuszak, Jennifer BS, UNL (DS McVey)	VBMS	Strain variation of *Mycobacterium avium* spp. *paratuberculosis* isolated from bovine feces
Lechner, Joel BS, UNL (MF Lou)	BIOC	The effect of hyperglycemic conditions on the regulatory role of thioredoxin binding protein 2 in thioredoxin activity in the lens
Ondrak, Jeff BS, DVM (DD Griffin)	VBMS	Evaluation of testing methods for bovine trichomoniasis
Yuko Mori BS, UNL (CL Kelling)	VBMS	Influence of bovine respiratory syncytial virus Fusion protein N-glycosylation on host cell Fusion
Roopa Reddy BS, MS (GE Duhamel)	VBMS	Interaction of enterohepatic *Helicobacter* Species and *Brachyspira pilosicoli* with cultured Intestinal epithelial cells
Holly Sampson BS, UNL (CL Kelling)	VBMS	Comparative responses of ruminant species host Cells to bovine viral diarrhea virus infections
Wenwen Shen BVSc, China (CJ Jones)	VBMS	Inhibition of apoptosis by the BHV-1 Latency related gene
Olga Vitvitskaia, MS, Moscow (CJ Jones)	VBMS	Chromatin remodeling of the viral genome during productive infection
Hiep Lai Xuan Vu DVM, Vietnam (FA Osorio)	VBMS	Use of crossneutralization assays to define PRRSV serotypes

PhD Candidate/Advisor	*Program*	*Title: Research Project*
Lalit Beura BVSc, India (FA Osorio)	IBMS	Studies on virulence, pathogenesis and immune response of porcine reproductive and respiratory syndrome virus
Gustavo Bretschneider DVM, University of Nacional de Buenos Aires; MS, National Univ of Mar Del Plata, Argentina (RA Moxley)	IBMS	Immune responses to *Escherichia coli* O157:H7 in cattle and role in protection
Phani Das BVSc, India (AK Pattnaik)	IBMS	Viral glycoproteins in PRRSV immunity
da Silva, Letcia DVM, MS (CJ Jones)	IBMS	Analysis of innate immune responses following infection with bovine herpesvirus following infection with bovine herpesvirus type 1 (BHV-1)
Harshdeep Dogra BVSc, PAU Ludhiana, India MVSc, CSKHPKV, Palampur, India (RG Barletta)	IBMS	Mechanisms of drug action and resistance in mycobacteria
Tariq Jaber, BS, MS, Jordan University (CJ Jones)	SBS	Analysis of the latency related gene of BHV-1
Joseph Erume DVM, Makerere University, Uganda; MS, University of London (RA Moxley)	IBMS	Influence of enterotoxins on virulence and colonization of the porcine intestine by *Escherichia coli*
Natasha Gaudreavlt BS, Kansas State (CJ Jones)	SBS	Role of the bICP0 zinc RING finger during productive infection
Jamie Henningson BS, DVM, KSU (DJ Steffen)	IBMS	Comparative virulence of non cytopathic variants of NADL bovine viral diarrhea virus with mutation and non-structural protein NS4B or inpro by experimental inoculation of calves
Namal Liyanage BA, University of Sri Lanka MS, UNL (GE Duhamel)	IBMS	Comparative structure and function relationship of cytoleathal disfending toxins from bacterial pathogens
Florencia Meyer BS, MS, Uruguay, Tx Tech (CJ Jones)	BIOS	Analysis of genes expressed during BHV-1 latency
Dhammika Navarathne BVSc, University of Peradeniya Sri Lanka (GE Duhamel)	IBMS	Pathogenesis of *Candida albicans* infection in a laboratory mouse model of dissem inated candidiasis

PhD Candidate/Advisor	*Program*	*Title: Research Project*
Debasis Nayak BVSc, Orissa Vet College, India MVSc, Maras Vet College,India (AK Pattanik)	IBMS	Role of the nucleocapsid protein inVSV genome replication
Debasis Panda BVSc, MS, India (AK Pattnaik)	IBMS	The phosphoprotein P of VSV and its functions in viral replication and assembly
Avery Paulson BS, MS, Univ of North Dakaota (DR Smith, RG Barletta)	IBMS	TBD
Kazima Saira BS, MS, India (CJ Jones)	IBMS	Regulation of interferon production by á-herpesviruses
Sakthivel Subramaniam BVSc, MVSc, Inida (FA Osorio)	IBMS	Studies on virulence, pathogenesis and immune response of porcine reproductive and respiratory syndrome virus
Yin Wang BS-MS-Taiwain (MF Lou)	BIOS	Signal transduction: The mechanism for ROS generation in lens epithelial cells
Yefei Zhu MEDI, MSVc, Zhejiang Med Univ, India (GA Somerville)	IBMS	Exploiting staphylococcal metabolism to prevent biofilm associated heart infections

Department of Veterinary and Biomedcial Sciences
Great Plains Veterinary Educational Center

Faculty
Gary P. Rupp, Director
D. Dee Griffin, Professor
James Keen, Associate Professor
Jeff Ondrak, Lecturer

Staff
Deborah A. George, Staff Assistant
Steve E. Johnson, Systems Analyst
Karen K. Shuck, Veterianry Technician

Many important changes occurred in 2007 that impacted the University of Nebraska Great Plains Veterinary Educational Center. The entire teaching program was in transition from the previous agreement with Kansas State University to the new agreement with Iowa State University. A new Director of the U. S. Meat Animal Research Center (USMARC) was appointed and the need to emphasize and discuss the critical association between the GPVEC mission and the scientists, staff, and the livestock population at USMARC were re-evaluated. The opportunity to continue and hopefully expand the involvement of GPVEC leadership in interdisciplinary food animal education, primarily in beef cattle production management on a national basis was emphasized. In addition, we were able to begin interviews for the critical veterinary epidemiology position that was open and we had just filled the Beef Cattle Clinical Veterinarian position with a previous KSU/UNL student that had practiced in Nebraska following graduation.

UNL/ISU Program

Several visits were made by UNL faculty to ISU for program development and interaction. Also, faculty from ISU have visited GPVEC at several times during the year. The Dean of the CVM at ISU attended the Nebraska Veterinary Medical Association in Grand Island, Nebraska, and gave an overview of the new UNL/ISU program and the interaction with GPVEC. This discussion continued with NVMA representatives and UNL faculty during the Regional Veterinary Educators Conference at ISU in April. Overall, the transition from KSU to ISU to provide education and clinical training for students in the professional veterinary curriculum appears to be working very well.

Student Program

The 2007-08 school year was the last group of KSU/UNL students that started the veterinary student training program initiated in the UNL/KSU/USMARC agreement in 1989. The student electives were filled with 34 KSU senior students, 30 students from ISU and 15 students from other Colleges of Veterinary Medicine involved in elective rotations (Table 1). In addition two groups of second and third year students attending ISU were involved in Clinical Foundations (VDPAM 340) which is a one-week introduction into food animal practice. During the rotation,

ISU instructors cover the swine and dairy industry for two days followed by the trip to GPVEC where cow/calf, feedlot, and sheep production are discussed and students are provided hands-on opportunities with livestock. The Advanced Beef Students (VDPAM 483) also attended GPVEC during their spring and fall elective rotations (Table 2). Other student activities include the "teaser bull" preparation elective in the fall of each year which introduces the students to animal handling and basic surgical technique.

A new agreement was initiated with the Western University of Health Sciences to teach their third year course in Livestock Mixed Practice II, CVM 7021 (Meat and Fiber). Approximately 100 students (25 per group, four times/year) attend the two-week course (Table 3) during the academic year. Students fly into Omaha and charter a bus to the Center where they are housed in the GPVEC residence hall. The training program involves an overview of the beef cattle, sheep, and swine industries and covers management, nutrition, selection, and economics in addition to livestock health. Presentations and discussion also involve animal welfare, biosecurity, food safety, and environmental issues. Clinical case studies involving daily veterinary services and performing postmortem examinations. Students also receive hands-on training with calves and sheep during the rotation. This program is unique in that it provides inter-institutional education and is the first GPVEC program with an outside institutional agreement that permits tuition transfer for clinical education. Western students interested in further food animal training can apply for advanced training in beef cattle production during their senior year.

Continuing Education

The Beef Cattle Production Management Series continues to be offered and although it was planned to begin in June of 2007 it was postponed due to low enrollment. Other continuing education activities for veterinarians involved the CowCalf5 training sessions in February and June for veterinarians and producers. The software was completely revised and is supervised and supported by staff and faculty at the GPVEC. Currently there are over 1,000 registered users of the software package and it is constantly being updated to accommodate new innovations such as electronic identification and the use of field data collection devices that can be downloaded later for analysis and storage. The annual Farmers and Ranchers Cow/Calf College was held in conjunction with UNL Cooperative Extension in January and was again successful in drawing over 70 local producers.

GPVEC and U. S. MARC

Our location at the U. S. Meat Animal Research Center provides an opportunity for faculty to work with the herd veterinarian and provide health services for the livestock population and interact with the Agricultural Research Service scientists on some projects. Our faculty continue to work closely with USMARC personnel to provide veterinary services on a routine and emergency basis. This also serves well with our teaching commitment.

Faculty Research and Grants

USDA Higher Education Grant: We completed the final year of our biosecurity for farms and ranches by conducting a survey of beef cattle producers, feeders, and veterinarians that deliver their services. We hope to publish the results of that study in the future. ARD BVD Project: The project was initiated in the fall of 2006 by working with private cow/calf herds to collect ear notch samples for the detection of persistently infected BVD calves. Samples were obtained from 9992 calves and were individually tested using IHC and the AG-ELISA tests. The same samples were then combined into pools of 50 or 100 samples and tested by PCR. A total of 32 herds were involved. Twenty-nine herds were BVD free and 3 herds had one or more persistently infected (PI) calves. Two herds of 661 and 895 calves sampled had a single PI calf and a third herd had 5 PI calves. All PI calves were detected by AG-ELISA and all but one calf was detected by IHC.

We cooperated with USMARC scientists in evaluating a Salmonella vaccine utilizing a Using Chamber technique which involved surgical removal of a section of large bowel to measure in-vitro resistance to a live challenge by the bacteria. Approximately 20 feedlot cattle between 800 and 1100 pounds were surgically prepared and a portion of large intestinal mucosa was obtained for follow-up laboratory challenge exposure.

Publications

Topliff C., Rupp G.P., Keen J.E., Griffin D.D., Wohlers A., Steffen D.J., Brodersen B.W., Galeota J.A., Kelling C.L. Diagnostic PCR assays for detection of BVDV in pooled ear notch samples to characterize herd BVDV status: influence of inhibition, sample condition, pool size and BVDV from different herds on assay results. Abstract AAVLD Annual Meeting, Reno, NV 2007.

Schmitz JA, Voght RJ, Rupp GP, Brodersen BW, Abel JM, Wohlers AR, Marx DB. Factors Associated with Practice Decisions of Nebraska Veterinarians Regarding Type of Practice and Community Size. J Vet Med Educ, Summer 2007; 34:340-349.

Extension

A grant entitled "Stimulating the development of veterinarians to serve rural America" was funded through USDA CSREES in conjunction with KSU faculty and involved a group of private veterinary practitioners. The group initiated the Academy of Rural Veterinarians and utilized the grant funding to encourage veterinary students to consider rural practice following graduation. The veterinarians visited colleges of veterinary medicine and accepted interested students into externships in their practices.

Supporting the Nebraska Cattlemen and the National Cattlemen's Beef Association's (NCBA) quality assurance and cattle care efforts was another important and ongoing activity. In 2007, we

completed and published the NCBA's Cattle Care and Handling Guidelines. We distributed over 200,000 copies of this manual across the United States.

Biosecurity training for cattle producers and their employees continues to be a fruitful area of extension education. Biosecurity materials development, presentations and on farm assessments is an ongoing activity that is critical in safeguarding the economy of rural communities and U.S. livestock production.

Residue avoidance education continues to be an important extension activity. The "Pre-Harvest Antibiotic Screening Test" (PHAST) developed at UNL-GPVEC through a USDA-CSREES grant was completed this year and validation is currently being completed at Iowa State University, College of Veterinary Medicine. The PHAST technology mirrors the USDA-FSIS approved antibiotic residue screening test used after harvest and can be vital to helping livestock producers avoid violative antibiotic residues and maintaining consumer's confidence in livestock product safety.

Electives Offered by the GPVEC

Bovine Reproduction (VDPAM 482G – Iowa State University)

This elective involves some of the clinical techniques utilized in beef cattle reproductive management. The majority of time will be spent examining cows for pregnancy, collecting ovarian data from non-pregnant cows and evaluating open cows for reproductive pathology. Additional opportunities involve hands on activities such as data collection, summarization and analysis, body condition scoring, discussing breeding herd nutrition, and ration evaluation. There will be a short discussion of artificial insemination, synchronization, semen handling, and some use of ultrasound. Examination of excised reproductive tracts, discussion of reproductive programs such as heifer selection and development, immunization against reproductive diseases, and computer usage is also involved.

Bull Breeding Soundness (VDPAM 482B – Iowa State University)

The Bull Breeding Soundness Examination Elective involves training in all phases of the examination, collection, and semen evaluation for herd bulls and/or sale bulls as recommended by the Society for Theriogenology. Culture for trichomoniasis and discussion of bull management and breeding season considerations.

Calving (VDPAM 482C – Iowa State University)

The Calving Elective provides an opportunity to expand knowledge and experience in all phases of calving management. The program is structured around normal calving operations at USMARC. The GPVEC and USMARC veterinary staff will make an effort to include students in veterinary activities that take place during the Calving Elective. The opportunity exists for assistance in diagnosis, treatment, and management of many commonly encountered situations involving the dam and calf. Students are encouraged to make every effort to become involved in USMARC calving activities. Direct involvement includes routine husbandry activities beyond those involving traditional veterinary roles which are expected of the student.

Students are encouraged to offer suggestions and recommendations to the staff. At the same time, they must realize that the final decisions, as well as responsibilities regarding intervention, method of delivery, and level of assistance by the student, or the time and method of treatment for periparturient disease conditions will rest upon the USMARC employees and established protocol. The primary mission of USMARC is research. Therefore, the main concern is collecting research data in an orderly and repeatable manner. It is important that each student realize the limitations imposed regarding the development of experience at critical times due to the demands of research protocol and the established chain of responsibility.
Assistance with C-sections may be possible but is not a guaranteed event.

Students are expected to learn as much as possible about the entire calving management operation. Some possible activities are:

1. Recognition of the characteristics of "springers."
2. Detecting early signs of impending parturition.
3. Observation of the normal birth process.
4. Determining the optimum time of intervention for calf and dam health while following established guidelines for collection of research data.
5. Handling animals properly to minimize injury and improve mothering ability.
6. Performing rectal and vaginal examinations.
7. Assisting in the delivery of dystotic animals.
8. Developing decision making criteria and evaluating results.
9. Care and monitoring of postpartum calves and dams for good preventive health and early disease detection.
10. Performing routine husbandry chores such as feeding, cleaning, assisting calves to nurse, etc.

Students involved in the Calving Elective will be assigned to duties following their arrival.

A schedule for transportation to the areas will be provided when the students arrive at the GPVEC.

Students participating in this program may be asked to complete a paper and present it to the GPVEC faculty and other students.

Students are required to participate in necropsy and clinical rounds.

Clinical/Calving (VDPAM 482CC – Iowa State University)

This clinical rotation involves participation in veterinary field services at the USMARC during calving season. Activities include examination, diagnosis, treatment, and intensive care of individual animals as well as occasional herd problems. Additional activities include clinical and/or microbiological diagnostic techniques, clinical pharmacology, record keeping, and health surveillance.

Students will accompany the "on duty" veterinarian on cases, including emergency out of hour calls. The majority of clinical activities during calving season are related to peri-parturient, perinatal and neonatal problems. Students will assist in handling difficult calf deliveries and

cesarean sections and will be involved with the necropsy examination of all animals lost during the previous 24 hours.

Feedlot Production Management and Health Consulting (VDPAM 482D - ISU)

The students in this elective will visit the USMARC feedlot and commercial feedyards. This elective focuses on production management, the veterinarian's role in production management and economic analysis of production decisions.

The activities of the students enrolled in the Feedlot Production Management and Health Consulting Elective vary depending on the weaning schedule at the USMARC. Students enrolled during the time USMARC weans their spring born calves will have the opportunity to actively participate in the hands-on cattle handling and care activities of the USMARC calves. During the other offerings of the elective students will spend time at different commercial feedyards, but will not have the opportunity to have the intensive hands-on activities.

All students will learn how to evaluate production techniques and evaluation of production including ration and feeding management, health management program development and evaluation, environmental management, quality assurance, biosecurity, feedlot necropsy and microbiology techniques, and breakeven analysis. Working on approaches to solve seasonal health problems within the management objectives for different feedyards is the strong emphasis of this elective. Students will be given several computer aided health and management evaluation programs. Students may have the opportunity to follow cattle to a packing plant to learn the methods for tracking animals into the food chain, identifying production problems that are not diagnosable at the feedlot level, and monitoring beef quality assurance. Appropriate biosecurity activities will be emphasized and practiced between visits to different operations.

Pregnancy Examination (VDPAM 482F - Iowa State University)

The Pregnancy Examination Elective involves students, the GPVEC faculty, and USMARC personnel during pregnancy examination. Activities involve rectal examination for pregnancy, collecting the data and entering it into the CowHerd/CowCalf computer software program to evaluate the reproductive performance of the herd. This elective is designed for students who have some palpation experience and are interested in honing their skills. Some ultrasound technology will be utilized. Pregnancy examination occurs during yearly fall herd work at the USMARC, therefore speed and accuracy will be stressed, rather than basic technique. Introduction into rectal examination for reproductive use is stressed during the Bovine Reproduction Elective.

Weaning Management (VDPAM 482E – Iowa State University)

This is a hands-on elective in which students participate in the weaning management at the USMARC. Students will be involved with processing, feeding, finding and treating sick calves. Additionally, students will be introduced to developing weaning rations and managing feed delivery. Students will also learn how to develop vaccination and treatment protocols and each student will have as an objective the development of their own vaccination and treatment protocol template. As time allows students will visit commercial feedyards and cover production management topics.

Special Studies Elective

Senior veterinary students may request special electives if they have preceptorships or externships and would like to spend time with faculty or veterinarians in local practices or on special projects, clinical rotations, or areas of research assistance. This may involve one or more weeks and must be approved with a specific faculty member and/or practitioner in advance.

Students participating in this program may be asked to complete a paper and present it to the GPVEC faculty and other students.

Students will be graded on ability, improvement, attitude, participation, and personal skills. In cases where students have worked closely with clients, practitioners, or personnel other than faculty, these parties may be consulted regarding the final grade. Grades are issued on the A - F scale.

Lambing (VDPAM 482L – Iowa State University)

The Lambing Elective involves students in the USMARC lambing activities working with their crew. GPVEC faculty, the Herd Veterinarian and veterinary technician assist in providing support. Students participate in observations, assistance with delivery when necessary, and routine lambing duties. Students are involved in daily necropsies and work the veterinary personnel during postmortem examination of sheep and lambs to define loss surveillance. Activities and objectives closely parallel to those listed in the Calving Elective.
Self study material will be provided covering topics such as pre-breeding and breeding evaluation, pregnancy diagnosis, pregnant ewe management, pre-lambing ewe/lambing management, feeder lamb health and nutrition management, and replacement ewe and ram management.

Livestock Mixed Practice (CVM 7021 – Western University)

The goal of this course is to educate students about production systems involved in the rearing of beef cattle, sheep and swine, and the practice of food animal medicine and surgery. Students should also carry out independent studies in goat and camelid production, medicine and surgery.

Major emphases will be on herd health preventive programs, population medicine, record analysis, facility evaluation and animal welfare issues. The curriculum will also focus on the students' active participation in individual animal medicine, in the diagnostic and therapeutic management of patients including physical diagnoses, patient care and therapeutic problem-oriented decision-making opportunities that will primarily occur while on emergency service. Core curricular competences related to reproductive management and evaluation, surgical and obstetric techniques, may be addressed given the season during which the course is taken. Necropsy assignments are typical for this course and will be performed in designated teams. Students will have the opportunity to improved their skills in preparing necropsy reports in their teams for submission to Western University CVM professors.

Clinical Foundations (VDPAM 340 – Iowa State University)

This is a basic, "hands on" practical elective that will give students an overview of animal husbandry, handling, restraint, and welfare of sheep, swine, and cattle (dairy and beef). Students will become familiar with the equipment and common procedures used in food animal medicine. The objective is to introduce students to performing physical exams, collecting diagnostic specimens, and performing treatment son food animals.

Advanced Beef (VDPAM 483 – Iowa State University)

Two week advanced clinical rotation in beef production medicine. Fifteen hours recitation/discussion and 20 hours clinical experience per week. This course is designed to expose students to cow-calf and feedlot production concepts. The activities scheduled for the rotation depend greatly on the time of year. Whenever possible, the class incorporates field trips. Students should anticipate that travel is possible and overnight stays may be required. These field trips can vary in length from several hours to several days and may include weekends. As of 2006, one week of this rotation has been spent at the Great Plains Veterinary Educational Center, Clay Center, Nebraska.

2007-2008 Electives

University of Nebraska

Great Plains Veterinary Educational Center

Elective Enrollment	Dates Offered	Student
Lambing	May 14-18, 2007	1
	October 1-5, 2007	1
	January 7-11, 2008	1
	January 14-18, 2008	1
	February 4-8, 2008	1
	February 11-15, 2008	1
	March 10-14, 2008	1
Fall Calving	August 13-18, 2007	3
	August 20-25, 2007	3
Weaning Management	September 10-14, 2007	4
Feedlot Production Management and Health Consulting	September 24-28, 2007	4
	October 1-5, 2007	4
	October 8-12, 2007	4
	October 15-19, 2007	4
	February 4-8, 2008	7
Pregnancy Examination	October 9-12, 2007*	4
	October 15-19, 2007	4
	October 22-26, 2007	4
Bovine Reproduction	October 29 - November 2, 2007	10
Spring Calving	March 3-8, 2008	4
	March 10-15, 2008	4
	March 17-22, 2008	4
	March 24-29, 2008	4
Clinical/Calving	March 31 - April 5, 2008	3
	April 7-12, 2008	2
	April 14-19, 2008	2
Bull Breeding Soundness	April 21-26, 2008	5
Special Studies	Available Upon Request / Approval	

7-31-06

*Due to Federal Holiday on Monday, this elective will begin on Tuesday.

Table 1.

GPVEC Student Enrollment 2007-08

May 2007 - May 2008

	Bovine Reproduction	Bull Breeding Soundness	Calving	Clinical / Calving	Weaning Management
1	Ben Gardner (KSU)	Chere Stephen (ISU)	Mitch Christensen (KSU)	Alexandra Tracey (KSU)	Ben Gardner (KSU)
2	Travis Hawkins (ISU)	Alex Erickson (UC-Davis)	Travis Hawkins (ISU)	Amy Kafer (ISU)	Dean Cline (ISU)
3	Leah Thies (ISU)	Megan Dispenza (WesernU)	Travis Hargens (ISU)	Amber Stricker (ISU)	Sara McReynolds (KSU)
4	Kristie Jo Sadler (VA/MD)		Jeffrey Korus (KSU)	Stephen Russell (KSU)	
5	Bom Inman (VA/MD)		Kathleen Saltysiak (KSU)	Cheryl Eia (ISU)	
6	Kelly Everson (WesternU)		Kristi Snyder (KSU)	Tim Sprank (ISU)	
7	Megan Dispenza (WesernU)		Rachel Kruce (KSU)	Kip Butler (KSU)	
8	Gatz Graf (Oklahoma)		Lindsay Waechter-Mead (KSU)	Chere Stehen (ISU)	
9			Ryan Bousselot (ISU)	Alex Erickson (UC-Davis)	
10			Jamie Clark-Streff (ISU)		
11			Seth Stammerjohan (UC-Davis)		
12			Justin Huser (KSU)		
13			Clay Hallman (KSU)		
14			Niki Nicholas (KSU)		
15			Maria Harvey (ISU)		
16			Sara McReynolds (KSU)		
17			Amanda Burlingham (KSU)		
18			David Shirbroun (ISU)		
19			Molly Burns (ISU)		
20			Allison Eitzmann (KSU)		
21			Shauna England (KSU)		
22			Sonya Wesselowski (KSU)		
	Total Bovine Repro - 8	Total Bull Breeding Soundness - 3	Total Calving - 22	Total Clinical / Calving - 9	Total Weaning Mngmt - 3
	2 - ISU	1 - ISU	7 - ISU	5 - ISU	1 - ISU
	1 - KSU	1 - UC-Davis	14 - KSU	3 - KSU	2 - KSU
	2 - Western U	1 - Western U	1 - UC-Davis	1 - UC-Davis	
	2 - Virginia / Maryland				
	1 - Oklahoma				

	Feedlot Production Mngmt / Consulting	Pregnancy Examination	Lambing	Gomer Bull Surgeries
1	Paul Sylliaasen (ISU)	Thomas Bays (KSU)	Michelle Miller (ISU)	Katie Flock
2	Dean Cline (ISU)	Angela Juno (KSU)	Megan Dispenza (WesternU)	Lindsey Scherbenske
3	Brent Volker (ISU)	Arron Mailern(KSU)	Joan Talbott (KSU)	Sarah Weber
4	David Shirbroun (ISU)	Brent Volker (ISU)	Amanda Neighbours (ISU)	Megan Busby
5	Megan Dispenza (WesternU)	Justin Huser (KSU)	Travis Hawkins (ISU)	Susan Barnett
6	Joel Robbins (KSU)	Joel Robbins (KSU)	Tim Sprank (ISU)	Shauna Malchow
7	Brad Spain (KSU)	Dustin Rogh (ISU)	Amanda Burlingham (KSU)	Lindsey Jones
8	Brandi Huddle (ISU)	Allison Eitzmann (KSU)		Amanda Sherck
9	Kelly Everson (WesternU)	Brad Spain (KSU)		Carissa Huebert
10	Kristine Koepplin (Minn)	Alexandra Tracey (KSU)		Nadine Tedford
11	Bom Inman (VA/MD)	Lindsay Waechter-Mead (KSU)		Alphina Ho
12	Martin Moravec (KSU)	Brandi Huddle (ISU)		Kristan Klein
13	Larry Vogel (KSU)			Ty Klein
14	Travis Hargens (ISU)			Rachael Johnson
15	Darren Loula (Missouri)			Laura Lawrenz
	Total Feedlot Mngmt - 15	Total Preg. Exam. - 12	Total Lambing - 7	Jeff Bottger
				Adam Smith
				Mike Gamble
				Nate Iliff
				Clay Adair
				Kabel Robbins
				Brian Davis
				Sylan Lutter
				Kyle Anderson
				Total Gomer Bull - 24 (not calculated in grand totals)

6 - ISU
4 - KSU
2 - Western U
1 - Virginia / Maryland
1 - Minnesota
1 - Missouri

4 - ISU
8 - KSU

4 - ISU
2 - KSU
1 - Western U

Grand Total by University (Special Electives Only)

30 - ISU
34 - KSU
6 - Western University
3 - Virginia / Maryland
3 - UC-Davis
1 - Minnesota
1 - Missouri
1 - Oklahoma

Total = 79

Table 2.

	VDPAM 340 Clinical Foundations - May	VDPAM 340 Clinical Foundations - August	VDPAM 483 Advanced Beef - May	VDPAM 483 Advanced Beef - October	VDPAM 483 Advanced Beef - March
1	Merle Bierman	Laura Baseler	Alysia Alger	Travis Hargens	
2	Nate Hass	Donna Bader	Jaclyn Bradley	Mimi Harvey	
3	Mathew Reed	Rachel Davelaar	Molly Burns	Travis Hawkins	CANCELLED
4	Gwyneth Watrous	Tyler Dohlman	Amy Kafer	Brandi Huddle	
5	Christy Hanthorn	Cameron Dow	Melissa Perin	Amanda Kreuder	
6	Caitlin Kelly	Tanya Giannantonio	Ryan Bousselot	Lisa Lynn	
7	Jessica Platts	Nathaniel Haas	Dean Cline	Michele Miller	
8	Tara Leigh	Jacci Hermansen	Bleaux Johnson	Dustin Roth	
9	Brenda Arens	Maggie Hoenig	David Shirbroun	Ryan Schaefer	
10	Karl Christianson	Haley Holen	Tim Sprank	Amber Stricker	
11	Frances Jutz-Zacharakis	Matthew Miller		Paul Sylliaasen	
12	Emily Kloskin	Aleisha Nesset		Jarrod Thoroman	
13	Jennifer Arnold	Emily Petersen		Brian Vander Ley	
14	Janessa Mechler	Danielle Pumphrey			
15	Scott Beeman	Zoe Quik			
16	Ryan Edwards	Glenn Ringenberg			
17	Nate Hansen	Ruth Schinstock			
18	Cody Gulbrandson	Emily Snyder			
19	Christy Ehlers	Alison Waples			
20	Kayla Fjeldahl	Gavin Yager			
21	Emily Tooker				
22	Angela Hall				
23	Angela Shemek				
24	Arynne Robinson				
	Total VDPAM Clinical Foundations - 44		Total VDPAM 483 Advanced Beef - 23		

Table 3.

	CVM 7021 Livestock Mixed Practice	Western University Students		
	Week 1 -- Aug 27 - Sept 7, 2007	Week 2 - December 3-14, 2007	Week 3 - February 3-15, 2008	Week 4 - April 28 - May 9, 2008
1	Amber Andersen	Shane Andrews	Veronica Boling	Angel Auyeung
2	Kara Breeding	Jessica Craig	Amber Brown	Brianne Brockmeier
3	Heather Bunting	Yen Chou	Minden Buswell	Dawn Brown
4	Nicole Campanaro	Lauren Work	Vicky Chan	Sarah Burbridge
5	Vanessa Fravel	Kelly Flaminio	Audra De LaTorre	Laura Chan
6	Erin Goodwin	Stephanie Friedman	Melanie Goodstein	John David
7	Jana Grant	Brandon Hayes	Cassandra Hughes	Alicia Elwell
8	Vivian Koo	Zarah Hedge	Robert Imhoff	Trudy Golub
9	Danielle Lasley	Karyn Irwin	Walter Lam	Jeremy Hoge
10	McGee Leonard	Linda Jenkins-Pacetti	Alexis McMurray	Elizabeth Ingram
11	Elizabeth MacDonald	Rebekah Kane	Caitlin O'Shea	Laura Marttila
12	Melissa Moss	Briana Mirchel	Nicole Petschauer	Erin McNeill
13	Laurie Nester	Sarah Ortega	Amy Swenson	Manpreet Mundh
14	Darci Pollard	Armi Pigott	James Ransom	Jennifer Probert
15	Samuel Rivera	Graciela Pinto	Richard Reeves	Angela Roberts
16	Gael Lamielle	Alexander Rahm	Darlene Sanchez	Rachael Sachar
17	Jordan Scherk	Ryan Smith	Kelly Schmidtbauer	Tamerin Scott
18	Erin Power	Brett Sollinger	Sarah Stieg	Renae Selzer
19	Cheryl Sanfilippo	William Sullenberger	Lena Stuart	Felicitas Tantiyatyanon
20	Dainna Stelmach	Alexandra Swope		Marc Togneri
21	Lindsay Tangeman	Naomi Tateishi		Amy Wertheimer
22	Zhenya Sheriff	Nina To		Brianna Wilson
23				Brandy Witte
24				Christine Wong
	Total Western University Students - 87			

Department of Veterinary and Biomedical Sciences
2007 Research Program

All Department faculty are involved in some research activity, either as project leaders or as contributors to research teams. Some faculty members have designated appointments in research. As a part of this appointment, they prepare research project descriptions which are peer-reviewed through a process established by the Agricultural Research Division (ARD) and assigned an ARD Research Project number. Through an extension of this same process, projects can be approved by the USDA Cooperative State Research Services for matching federal funds, including Hatch, Regional Research or Animal Health Research Formula Funds. As a matter of USDA policy, competitive research grants from USDA are assigned separate ARD project numbers. Several projects are assigned ARD project numbers for administrative and budget management purposes even though they are not specifically research projects, e.g., the Nebraska SPF Swine laboratory project (NEB 14-029) and the Nebraska Veterinary Diagnostic Laboratory System project (NEB 14-059). Research projects funded by the UNL Center for Biotechnology or other external sources are not required to go through the ARD Research Project review process.

• Faculty Research Interests •

✣*Barletta, Raúl G.*	Molecular genetic bases of bacterial pathogenesis and drug resistance, mycobacterial infections in cattle (Johne's disease) and human beings (tuberculosis, *M. avium* infections)
✣*Brodersen, Bruce W.*	Pathogenesis of bovine viral diarrhea virus; diagnostic pathology
✣*Burkey, Thomas E.*	The effects of dam parity on progeny health and growth performance (swine); the effects of dietary components on health and growth performace in weanling pigs
✣*Cortinas, Manuel R.*	Arthropod-focused parasitology, vector ecology, and emerging animal and human disease
✣*Doster, Alan R.*	Ultrastructural changes in the lung produced by bacteria, viruses and pneumotoxic compounds
✣*Delhon, Gustavo C.*	Viral pathogenesis/posviruses

Facutly Research Interest (Con't)

✣*Duhamel, Gerald E.*	Pathogenesis of enteric diseases caused by spirochetes and rotavirus; primarily *Brachyspira pilosicoli* and bovine rotavirus
✣*Griffin, D. Dee*	Beef cattle production medicine, especially respiratory disease in feedlot cattle
✣*Jones, Clinton J.*	Regulation of viral gene expression and persistent herpesvirus infections; mechanisms of chemical and viral carcinogenesis
✣*Kelling, Clayton L.*	Pathogenesis of viral diseases, primarily bovine respiratory syncytial virus and bovine viral diarrhea virus infections
✣*Keen, James E.*	Veterinary public health and zoonotic diseases, infectious disease epidemiology and ecology, veterinary diagnostic reagent and test development, validation and evaluation
✣*Lou, Marjorie F.*	Biochemical mechanism of senile cataract formation: controls of cellular thiol/disulfide homeostasis
✣*Moxley, Rodney A.*	Pathogenesis and control of *Escherichia coli* infections in swine and cattle; on-farm control of *E. coli 0157:H7* prevalence in beef cattle (food safety)
✣*Ondrak, Jeff D.*	Trichomoniasis in Beef Cattle
✣*Osorio, Fernando A.*	Pathogenesis of persistent viral infections including persistent reproductive and respiratory syndrome (PRRS) virus and herpesvirus latency; vesicular diseases
✣*Pattnaik, Asit K.*	Transcription, replication and assembly of RNA viruses; viral pathogenesis; interferons and antivirals
✣*Reddy, NR Jayagopal*	Mechanisms of Genetic Resistance to Autoimmunity
✣*Rogers, Douglas G.*	Pathogenesis of chlamydial infections in livestock
✣*Rupp, Gary P.*	Effect of production practices and management on beef cattle diseases and enterprise profitability
✣*Smith, David R.*	Food safety through study of on-farm prevalence and control of *E. coli 0157:H7* in beef cattle; epidemiologic approaches to study of livestock diseases

Facutly Research Interest (Con't)

✣*Somerville, Greg A.*	Metabolic and environmental regulation of staphylococcal pathogenesis. Redox-dependent regulation of virulence factor synthesis
✣*Steffen, David J.*	Diagnosis and characterization of genetic and congenital diseases of cattle
✣*Wood, Jennifer R.*	Impact of metabolic hormones on embryonic and fetal development: regulation of oocyte maturation and embryonic gene expression

Department of Veterinary and Biomedical Sciences
Agricultural Research Division
Faculty Research Projects, 2007

ARD Project #	Project Title (Researchers)	Expiration Date
14-039	SAES/NEB/STATE HATCH PROJECT (0096920): Research Laboratories and Animal Care Facility (Departmental)	Indefinite 12/21/2020
14-059	STATE HATCH PROJECT (0153376): Vet Diagnostic Lab System: Diagnostic Surveillance & Disease Investigation in Nebraska Livestock & Poultry (Veterinary Diagnostic Center)	Indefinite 12/21/2020
14-115	CSREES/USDA (0187737) (Hatch Multi-State Project/NC-229): Porcine Reproductive and Respiratory Syndrome (PRRRS) (F.A. Osorio, AK Pattnaik, R. Johnson, J. Weber)	Revised 09/30/2009
14-118	CSREES/USDA Animal Health (0190103): Pathobiology of Porcine Colonic Spirochetosis Caused by Brachyspira Pilosicoli (G. E. Duhamel)	Extended 08/31/2007
14-123	CSREES/NEB (0192972) Develop Pre-Harvest Version of the USDA-FSIS Fast Antibiotic Screening Test and Antibiotic Residue Avoidance Education (D.D. Griffin)	Extended 09/14/2007
14-125	CSREES/NEB (NC-1007 Hatch Multi-State Project) (0195366/0005609): Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety (R. A. Moxley, G.E. Duhamel, D. R. Smith)	09/30/2007
14-126	CSREES/NEB (Animal Health) (0194929) Pathogenesis of Bovine Viral Diarrhea Virus and Bovine Respiratory Syncytial Virus Infections (C. L. Kelling)	Extended 09/30/2008
14-127	NEB/Other CSREES Grant (0196793) Intervention Strategies to Reduce Escherichia Coli O157:H7 in Beef Feedyards (D. R. Smith)	Extended 09/14/2007
14-129	CSREES/NEB/NRI Comp Grant (0199138) Molecular Analysis of a Mycobacterium Paratuberculosis Colony-Morphology Attenuated Mutant (R.G. Barletta. C. J. Czuprynski)	Extended 01/31/2007
14-130	CSREES/NEB Animal Health (0199447): Regulation of the Latency-Reactivation Cycle by the Bovine Herpesvirus 1 (BHV-1) Latency Related (LR) Gene (C. J. Jones)	09/30/2008
14-131	SAES/NEB/State (0199961) Veterinary Field Disease Research Program (D. R. Smith)	04/30/2009

ARD Project #	Project Title (Researchers)	Expiration Date
14-132	CSREES/NEB Hatch Project (0200658): Examination of Attenuation and Virulence Determinants of Porcine Reproductive and Respiratory Syndrome Virus (A. K. Pattnaik/F. A. Osorio)	06/30/2009
14-133	CSREES/NEB/ NRI Comp Grant (0200538): Analyses of Virulence and Attenuation Determinants of Porcine Reproductive and Respiratory Syndrome Virus Using Reverse Genetics Approach (A. K. Pattnaik, F. A. Osorio)	08/31/2007
14-136	HATCH (0204923): Tricarboxylic Acid Cycle Mediated Regulation of Staphylococcus Aureus Virulence Factors (G. A. Somerville)	02/28/2010
14-137	SAES/NEB/State (0203810) Genetic Basis of Resistance to Food-Borne Bacterial Pathogens (G. E. Duhamel, J. S. Weber)	06/30/2007
14-140	CSREEs Grant (0205221) Stimulating the Development of Veterinarians to Serve Rural America (D.D. Griffin)	09/14/2007
14-141	Animal Health (0205570) Molecular Genetic Analysis of Mycobacterium avium subsp. Parathuberculosis (MAP) and related mycobacterial pathogens (R.G. Barletta)	09/30/2010
39-142	State (0207398) Development of Broad-Spectrium Antibiotics Against Bacterial Pathogens (R.G. Barletta, R. Powers, J.M. Takacs)	06/30/2008
39-143	NRI Competive Grant (0207841) Functional Analysis of Proteins Encoded by the Bovine Herpesvirus 1 (BHV-1) (C.J. Jones)	09/14/2009
39-144	Hatch Project/State (0208701) Management Model for Diagnosis Control, and Monitoring for Bovine Viral Diarrhea Virus in Beef Cattle Herds (GP Rupp, BW Brodersen, DD Griffin, CL Kelling, DJ Steffen, AR Wohlers)	08/31/2011
39-145	Hatch/Multi-State Project #NC-1027 (0209811): An Integrated Approach to Control of Bovine Respiratory Diseases (C.J. Jones)	09/30/2011

Biochemical Mechanism of Cataract Formation: Oxidative Stress, Thiol Regulation and Cataract Models

Investigator: Marjorie F. Lou

Our focus on the biochemical mechanism of age-related cataract formation is oxidative stress. The other focus is the enzyme systems for the protein thiol oxidation damage repair in the lens. Our hypothesis is that oxidation during aging decreased the oxidation defense systems and the damage repair cabability of a lens can result in senile cataract formation. We used hydrogen peroxide-induced cataract in organ culture condition as our *in vitro* model to study the progressive changes in morphology and intracellular redox potential in the lens. We demonstrated that lens opacification is associated with the increased protein insolubility and protein aggregation, resulting from lens protein oxidation by oxidative stress. We also showed that the thiol groups in lens proteins are oxidized by forming protein-thiol mixed disulfides (protein thiolation) followed by protein protein disulfide formation, a condition that will lead to lens opacification. We discovered that this deleterious process could be reversed or delayed if cataract formation is at an early stage, such as removal of the oxidant. The most drastic recovery is the reversal of the thiolation of lens proteins. These earlier studies led us to the discovery of two major repair systems: the glutathione-dependent thioltransferase (Grx-1) system, which is a cytosolic enzyme and can specifically dethiolate protein-s-s-glutathione; the NADPH-dependent thioredoxin (Trx) system, which in conjunction with thioredoxin reductase and NADPH can reduce protein-protein disulfides. Currently we use the *in vivo* Grx-1 knockout (KO) mouse model to demonstrate the role of Grx-1 in protecting lens clarity. Recent results have shown that in comparison with the lens of wild type (WT) mouse, Grx-1 KO induced much faster age-dependent lens opacification.

Since KO thioredoxin is lethal, we only focus on the balance of the intrinsic thioredoxin binding protein (TBP-2) with the bioavailability of thioredoxin under oxidation and hyperglycemic conditions. Both repair systems have been demonstrated to retore key metabolic enzyme activities that are essential for the health and the clarify of the lens. Additionally, genes for Grx-1 and thioredoxin are upregulated under oxidative stress conditions, which we believe this is a phenomenon of adaptive response by the cells to combat the stress.

In collaboration with surgeons in China and Italy, human cataractous lenses have been obtained and examined for the redox parameters and the status of each component enzyme in the repair systems described above. The results have led us to the conclusion that human cataract tissues are oxidized with extensive lost in both Grx1 and Trx repair systems.

A mitochondrial-specific thioltranferase (Grx2), which we co-discovered with Dr. Gladyshev in the Biochemistry Department, has been shown to present in the mitochondria of human lens epithelial cells. It possesses duel activities of dethiolase and dehydroascorbate

reductase, similar to the cytosolic thioltransferase enzyme. We have been focuing on the physiological function, and the targets of this enzyme. Recent results have shown that Grx2 can protect mitochondrial membrane potential and is able to prevent oxiation-induced apoptosis.

Research Project Significance/Impacts

Based on our research results, the concept of oxidative stress-induced cellular damage as one of the major factor for cataractogenesis continue to gain momentum and has escalated our scholarly standing in the eye field, as well as outside of the lens research. The major impact is our research progress and the significance of study had led to a recent 6.5 percentile NIH grant review, resulting in a grant renewal (2008-2012). Another impact is the renwal of Redox Biology Center grant from NIH (2007-2012). My role of being one of the 5 senior advisors has contributed to the success of the funding.

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The Role of Reactive Oxygen Species (ROS) in Maintaining the Health of Lens Cells: The Redox Signaling

Investigator: Marjorie F. Lou

We have been concentrating in the redox signaling and have published several papers describing the basic signaling pathways in the lens and how diabetic condition can alter the cell signaling. We demonstrated that reactive oxygen species (ROS), which may be harmful to the cells/tissues, but at low level (nanomolar range) are essential in mediating growth factor/ cytokine stimulated cell functions, including cell proliferation and differentiation. We used PDGF growth factor as a model and have established the mechanistic pathway for the rodox signaling system. Futhermore, we have established the association of the above mentioned protein thiol damage repair systems in signaling. For instance, thioltransferase plays an important role in regulating the regulator, protein tyrosine phosphatases of the cell membrane receptor. We also established the important role of thioredoxin in regulating cell growth and protecting against oxidation-induced apoptosis.

Research Project Significance/Impacts

A new physiological function of reactive oxygen species is identified as redox signaling, which is a process to mediate the function of certain growth factors for cell function. This finding has raised tremendous interest in the lens community. We are definitely regarded as being the leader in this field. The results have been given in symposiums at the major international eye research conferences. Two doctoral students have received their respective degree with thesis in this area.

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The Animal Research Facility (ARF) provided housing for 2,626 animals; species include: 150 dogs, 179 hogs, 23 cattle, 14 frogs, 1 River Otter, 35 hamsters and 2,225 mice. ARF personnel performed their first gnotobiotic surgeries in a couple of years on, 2 sows and 1 cow. In addition, the ARF staff performed the first ever river otter surgeries in the facility. The surgery involved the implantation of Radio Transmitters for tracking purposes. This service provided direct support for UNL's School of Natural Resources and the Nebraska Games and Parks Department. A 120-head dog vaccine study for a animal health company was conducted, which had international implications; animal health interests from the European Union were involved with this study. ARF activities updates in personnel: Hired one full-time Agriculture Research Technician I, Ms. Clarissa Nutt; three full-time Temporary Employees were hired, five new student workers hired; hired one full-time Agriculture Research Technician I. The ARF lost one full-time Ag Technician position this year. Significant Purchases: New washer for the ARF work room, five new canopies for the gnotobiotic Isolators. Facility Improvements: Brought on-line the large pass-through autoclave, which had set idle for nearly two years. A new roof was put on the animal holding facility. Planning was conducted for a five-million dollar loan to fund the remodel efforts for the west wing, with some work expected to begin in late 2008. Compliance IACP/IACUC Issues: New animal care procedures were implemented in caring for companion animals such as dogs. The significant increase in the need for more manpower is required. The implementation of a new training/certification program, coupled with a rigorous documentation of all training for animal care technicians. ARF placed their SOPs on-line this year. Animal Care Technicians are conducting web-based animal care training. ARF has experimented with several environmental friendly products used in sealing porous material/surfaces within the facility. An attempt to find a cheaper more effective product than epoxy paint that will tolerate the harsh environment within ARF unit.

Impact Statement

The UNL, Animal Research Facility's staff contributed to a variety of research projects on animal diseases, by supporting many research projects for VBMS faculty members. The ARF staff also supported many investigators in other departments at UNL. The Animal Research Facility staff also supported projects for private industry; thereby, assisting in the development of new commercially available animal health care products. The Animal Research Facility has provided some temporary housing for research animals from the Dental College while the Dental College animal housing is being upgraded/renovated. The Animal Research Facility also participates in public relations and educational ventures, including the Nebraska State Fair and the Birthing Pavilion.

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NEB 14-059

Veterinary Diagnostic Laboratory System: Diagnostic Surveillance & Disease Investigation in Nebraska Livestock & Poultry

Veterinary Diagnostic Center

The lab received over 15,000 requests for diagnostic assistance from producers. Foreign animal diseases are included in the differentials and excluded based on laboratory examination or clinical data. We assist state health officials with monitoring programs for M paratuberculosis, avian influenza, newcastle disease, classical swine fever, CWD and West Nile virus. Testing for BVDV PI status was performed on over 200,000 calves. Positive animals are removed from production to prevent spread of virus. The BVDV testing was compared to PCR pooling strategies in side by side comparisons of ELISA, IHC and pooled PCR. On over 6,000 samples. It was determined that accuracy of PCR was satisfactory on pools of 10 samples and perhaps up to twenty, but was reduced beyond that. Robust testing. A poster was presented at the AAVLD meeting and a publication is in preparation. CWD prevalence studies in Nebraska are ongoing and the disease appears to be stable and endemic in the western aspects of the state. We continued to support Johnes disease control programs and evaluation of different testing strategies and PCR sensitivity issues. Dwarfism investigations continued and DNA samples shared with ISU for genetic analysis resulted in identification of a marker for the disease. A commercial test has been licensed.. Investigations into deaths of wildlife and zoo animals led to recognition of a novel herpes virus in Hyrax. The isolate was sequenced and a poster presented and manuscript is being presented. The full host range is still undetermined. We also provided Immunohistochemical analysis on alpaca samples for characterization of BVDV persistent infection in alpacas and for determination of the prevalence of acute and persistent infection of aplaca's with BVDV. A poster was presented and papers are in progress.

Impact Statement

BVDV infections rate at 1% means over 1,500 persistently infected calves, the reservoir for virus were eliminated from production facilities. We determined that some widely used BVDV pooled testing approaches were insensitive and unfit for some uses and made the sceintific community aware of these issues. We determined the scope of the BVDV problem for the alpaca industry and characterized acute and persistent disease in that species. Routine surveillance testing supports free movement of livestock products across state and national boundaries and identifies endemic diseases providing useful data for management and treatment of diseases that affect livestock profitability. The CWD and Johnes surveys will provide base line statistically valid prevalence data for the state so that effectiveness of intervention can be measured. Identification of and publications describing, emerging diseases (hyrax herpes, alpaca BVDV, dwarfism) of domestic and wild animals aids those responsible for animal health in humane management of those resources.

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NEB 14-115

Porcine Reproductive and Respiratory Syndrome (PRRRS)

Fernando A. Osorio

New knowledge on PRRSV biology derived from this project: Theme: Virulence of PRRSV 1) We have learned that certain PRRSV non-structural proteins and two structural genes (ORF 5 and ORF2) are involved in virulence. This invites considering our novel information about GP2 in light of the previous reports stating that the major envelope of PRRSV(GP5) would not be the gp that interacts

with the cell receptor, this may then attract the attention of researchers to GP2, that we know now, through our research, is importantly associated to virulence. Theme: Immuno-pathogenesis and vaccinology of PRRSV 2) We have found that PRRSV evades the immune system by means of a glycan-shielding mechanism and that the deglycosylation of the PRRSV GP5 enhances significantly the ability of the PRRSV strain to induce protective antibody response. These two concepts, added to the notion that PRRSV may have several serologic markers (immunodominant B-cell epitopes) that could be used for DIVA differentiation, make together a significant contribution to PRRSV vaccinology. Theme: Research tools to study PRRSV pathogenesis and immunity issues 3) We have been able to successfully establish a reverse genetics experimental system for PRRSV that serves as national and international reference. Several laboratories worldwide have requested and are successfully using our IC system (24, 55). We know now that our IC is fully functional, being ours the PRRSV infectious clone system with best recorded evidence of stability and reproducible pathogenesis *in vivo*. Theme: PRRS strain diversity 4)By means of cross neutralization of PRRSv strains, using strain-specific neutralization sera, it may be possible to set the basis to cluster or subgroup the wide universe of strains of PRRSV in subtypes. These subtypes may have a direct correlation with cross-protection. If true, this concept may help to define the minimal number of valences or specificities that should be present in a PRRSV vaccine for this product to be broadly protective

Impact Statement

Major conclusions of this project include the following new information on PRRSV Biology: Theme: Virulence of PRRSV 1) we know now that certain PRRSV non-structural proteins and two structural genes (ORF 5 and ORF2) are involved in virulence. This invites considering our novel information about GP2 in light of the previous reports stating that the major envelope of PRRSV (GP5) would not be the gp that interacts with the cell receptor; this may then attract the attention of researchers to GP2 that we know now, through our research, is importantly associated to virulence. Theme: Immunopathogenesis and vaccinology of PRRSV 2) we have found that PRRSV evades the immune system by means of a glycan-shielding mechanism and that the deglycosylation of the PRRSV GP5 enhances significantly the ability of the PRRSV strain to induce protective antibody response. These two concepts, added to the notion that PRRSV may have several serologic markers (immunodominant B-cell epitopes) that could be used for DIVA differentiation, make together a significant contribution to PRRSV vaccinology. Theme: Research tools to study PRRSV pathogenesis and immunity issues 3) we have been able to successfully establish a reverse genetics experimental system for PRRSV that serves as national and international reference. Several laboratories worldwide have requested and are successfully using our IC system (24, 55). We know now that our IC is fully functional, being ours the PRRSV infectious clone system with best recorded evidence of stability and reproducible pathogenesis in vivo. We believe that all these points sustain the significance of renewing funding for this type of work in our labs. Theme: PRRS strain diversity 4) By means of cross neutralization of PRRSv strains, using strain-specific neutralization sera; it may be possible to set the basis to cluster or subgroup the wide universe of strains of PRRSv in subtypes. These subtypes may have a direct correlation with cross protection. If true, this concept may help to define the minimal number of valences or specificities that should be present in a PRRSv vaccine for this product to be broadly protective

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NEB 14-118

Pathobiology of Porcine Colonic Spirochetosis Casued by Brachyspira Pilosicoli

Gerald E. Duhamel

Brachyspira pilosicoli is a major cause of colonic spirochetosis, a polymicrobial inflammatory bowel disease that affects humans and a wide range of animal species. Five penicillin-binding proteins were identified among human and porcine *B. pilosicoli* strains. *Cecal spirochetosis* and typhlitis associated with *B. pilosicoli* was characterized in 7.5- to 18-week-old commercial turkeys for the first time. *Enterohepatic Helicobacter* species, including the prototype *H. hepaticus*, are emerging causes of intestinal diseases in humans and animals that produce a novel nuclease toxin, known as cytolethal distending toxin (Cdt). A sensitive fluorometric assay was developed to assess the biochemical properties of the CdtB effector subunit. The Ca2+- and Mg2+-dependence and neutral properties of CdtB were similar to mammalian nucleases, but DNA hydrolysis by CdtB was approximately 100-fold less active and was considerably more resistant to inhibition by ZnCl2 and G-actin than mammalian nucleases. Similar to other gram negative pathogens, the CdtB subunit of *H. hepaticus* localized to the nucleus and alone was sufficient for cellular intoxication. Comparative analysis of CdtB genes and toxins produced by *C. jejuni*, a major cause of food-borne diarrheal illnesses, *C. hyointestinalis*, an emerging cause intestinal diseases in pigs and human beings, and *C. coli* commonly found in intestinal specimens obtained from pigs and other species provided new insights into the pathogenesis of intestinal disease associated with these pathogens and methods for improved detection. By contrast with a recent report suggesting high CdtB activity among *C. coli* isolated from pigs in Denmark, CdtB activity was not found among US porcine *C. coli*.

Impact Statement

Identification of penicillin-binding proteins of *B. pilosicoli* provides a basis for development of improved control strategies for pathogenic intestinal spirochetes of humans and animals. Cecal spirochetosis caused by *B. pilosicoli* was characterized in commercial turkeys for the first time. Differences between the biochemical properties of Helicobacter CdtB and mammalian nucleases suggest that novel antitoxin control strategies can be developed. A novel *Campylobacter* cdtB gene encoding a highly toxic CdtB subunit was characterized among porcine and human *C. hyointestinalis*. Porcine *C. coli* are an unlikely source of toxigenic *Campylobacter* for humans.

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NEB 14-123

Develop Pre-Harvest Version of the USDA-FSIS Fast Antibiotic Screening Test and Antibiotic Residue Avoidance Education

Dickey D. Griffin

The objective to develop a live animal test equivalent to FAST by determining the minimum inhibitory concentration (MIC) of commonly used antimicrobials on Bacillus megaterium has been accomplished, validation of these results, testing of antibiotic spiked urine and *in vivo* testing of 12 classes of antibiotics in cattle born in the spring of 2003 and 2004, and who's health histories were traced from birth to the farm of origin has been completed. Using cattle that can be traced from birth insures a complete analysis of health treatment records. Cattle with a history of antibiotic treatment were excluded. Minimum inhibitory concentrations (MIC) for 12 different antibiotics commonly used

in the field, using the ATCC reference strain 9885 of *B. megaterium* will be determined and compared to the *in vitro* results. Originally 14 total antibiotics were included but due to FDA AMDUCA regulations two antibiotics from the class aminoglycosides (gentamicin, neomycin) had to be excluded because of prolonged residue potential. The following antimicrobial groups were represented: aminocyclitols (spectinomycin), beta-lactams (penicillin G, ampicillin, ceftiofur), chloramphenicol derivatives (florfenicol), fluoroquinolones (enrofloxacin), lincosamides (lincomycin), macrolides (tilmicosin, tylosin), sulfonamides (sulfadimethoxine, sulfamethazine), and tetracyclines (oxytetracycline). A unique renal biopsy technique was developed, which use a copotamy approach. A large three millimeter biopsy instrument was developed as the available commercial biopsy instrument did not retrieve a sufficient sample for HPLC analysis. All the samples were collected without apparent discomfort or harm to the cattle used in this project. The renal tissue samples were analyzed by the Iowa State University, Veterinary Toxicology Laboratory. Analysis demonstrated successful matching of the relationship between the paired renal tissue samples and the urine in treated cattle. Field evaluation of the Pre-Harvest Antibiotic Screening Test (PHAST) by 20 practicing beef feedlot veterinarians was successful. The veterinarians were located in Colorado, Iowa, Kansas, Nebraska, Oklahoma and Texas. The PHAST information has been presented at four professionals conferences and is now being adopted, not only from the field evaluation group, but by veterinarians from other states. There is particular interest from producers and veterinarians managing marketing of cull dairy cows that have a history of previous antibiotic treatment.

Impact Statement

The PHAST is the first and only pre-harvest antibiotic residue screening test available, which mirrors the new antibiotic screening test adopted by the USDA-FSIS 2000. This increases the risk of producers marketing an animal with violative residue, risks consumer confidence in the nation's food supply and potentially impacts the economic sustainability and profitability of the United States beef industry. The PHAST is being disseminated to producers and veterinarians.

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Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety

NEB 14-125

Rodney A. Moxley, Gerald E. Duhamel and David R. Smith

The following outputs were completed: the conduct and analysis of experiments; the mentoring and teaching of graduate and undergraduate students; the sponsoring of an international conference; the consultation of veterinarians and livestock producers; the development of new fundamental and applied knowledge, new curricula, and new techniques; the outreach education of veterinarians, livestock producers, public health officials and consumers.

Impact Statement

Studies conducted with isogenic enterotoxigenic *Escherichia coli* (ETEC) strains indicated that heat-labile enterotoxin (LT) contributes more to virulence in the causation of severe diarrheal disease in pigs less than two weeks old than heat-stable enterotoxin-b (STb). By contrast, STb appears to potentially play a more important role in post-weaned pigs over six weeks old. Antibodies to the K87 capsular antigen of ETEC serotype O8:K87 were found to be highly prevalent in swine, and the results

of studies with immune serum suggest they may play an important role in host defense against ETEC-mediated post-diarrheal septicemia. Studies tested the effectiveness of feeding *Lactobacillus acidophilus* strain NP51 on the proportion of cattle shedding *E. coli* O157:H7 in the feces. In studies conducted over a two-year period, NP51 treated steers were 35% less likely to shed *E. coli* O157:H7 than steers in untreated pens. From 2003 to 2006, a bacterial extract vaccine (Bioniche Life Sciences, Belleville, Ontario) containing *E. coli* O157:H7, type III, secreted proteins was tested in a series of vaccine trials in beef feedlots. The efficacy of vaccination on *E. coli* O157:H7 colonization of the terminal rectum mucosa (TRM), fecal shedding, hide contamination and pen-level contamination resulting from natural exposure was tested. In a 2003 trial, the efficacy of 1, 2 or 3 doses of the vaccine based on fecal shedding was 68, 66 and 73% respectively, compared with pens of non-vaccinates. In a 2004 trial, cattle given 3 doses were 98.3% less likely to be colonized than nonvaccinates. In a 2004 large-scale trial (n=20,556), pens of cattle given 2 doses were 27% less likely to test positive for exposure than pens of nonvaccinates. In a subset (n=720), vaccinates had a 92% lower probability of being colonized. In a 2005 trial, cattle in vaccinated regions of the feedyard were 62% and 54% less likely to shed *E. coli* O157:H7 in their feces and have hide contamination, respectively, compared to cattle in nonvaccinated regions. In a 2006 trial, a 3-dose regimen had 63% efficacy based on fecal shedding. The results indicate this vaccine has the potential to be an effective preharvest intervention method to prevent cattle from being colonized with *E. coli* O157:H7, and prevent subsequent contamination of feces and hides and further environmental transmission. Attachment of *Brachyspira pilosicoli*, but not *B. aalborgi*, to cultured human intestinal epithelial cells *in vitro* elicits the release of interleukin 8 that might play a role in the pathogenesis of colitis in human and animals. A high-throughput nucleotide sequencing and bioinformatic analysis method was developed for allelic profiling by multilocus sequence typing of pathogenic *B. pilosicoli* isolated from humans and animals with colonic spirochetosis. Re-emergence of swine dysentery in swine production units in the mid-west and North Carolina, require renewed efforts into (i) development of improved methods for specific identification and tracking of *B. hyodysenteriae* in clinical specimens, (ii) monitoring development of antimicrobial resistance, and (iii) understand basic mechanisms of disease pathogenesis.

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NEB 14-126 *Pathogenesis of Bovine viral Diarrhea Virus and bovine Respiratory Syncytial virus Infections*

Clayton L. Kelling

Bovine respiratory disease complex (BRDC) has a major negative impact on profitability in the beef cattle industry. BRDC outbreaks are caused by interactions of multiple ubiquitous pathogens, such as bovine viral diarrhea virus (BVDV) and bovine respiratory syncytial virus (BRSV) in affected animals. BRSV fusion (F) protein mediates fusion of virus and host cell membranes which form multinucleated giant cells called syncytia. The F protein is synthesized as an inactive precursor F0, co-translationally modified by N-glycosylation, and post-translationally cleaved into disulfide-linked F1 and F2 subunits. N-glycosylation influences F protein folding, transport, and virus infectivity. The F2 subunit has three N-glycosylation sites whereas the F1 subunit has one site. We evaluated the level of F protein expression and fusion activity in mammalian cells transfected with vectors encoding different N-glycosylation deletion F proteins. Using site-directed mutagenesis, asparagine codons were changed to alanine codons individually or in various combinations creating ten different constructs. We examined expression of F protein and level of fusion activity by an indirect immunofluorescence assay using confocal microscopy and luciferase assay, respectively. In addition, luciferase-based content mixing assay was used to evaluate the F protein fusion activity of each deletion construct. Pooling of samples collected from multiple animals for diagnostic PCR testing for BVDV persistently-infected

(PI) carrier animals is done to reduce costs in herd surveillance testing. We conducted comparative experiments to characterize the influence of inhibition, sample condition, pool size and BVDV from field origin ear notch samples used to prepare eluate pools for real-time and gel-based RT-PCR assays. BVDV infections of pregnant alpacas may lead to reproductive failure or to persistent infections of crias. Persistently-infected (PI) crias are persistently viremic, shed virus continuously, and are the primary reservoirs of viral exposure within and among herds. We determined the current prevalence of BVDV-infected alpaca herds in the United States by testing crias from participating herds representing 26 states.

Impact Statement

The BRDC causes a significant negative impact on animal well-being and profitability in the U.S. cattle industry. BVDV and BRSV infections are important causes of BRDC and vaccines are available to help control those infections; however, the vaccines do not provide complete protection. Our BRSV research based on evaluation of the level of F protein expression and fusion activity in mammalian cells transfected with vectors encoding different N-glycosylation deletion F proteins using site-directed mutagenesis was insightful. We examined expression of F protein and level of fusion activity by an indirect immuno-fluorescence assay using confocal microscopy and luciferase assay, respectively, a well as luciferase-based content mixing assays. We found a direct correlation between the extent of N-glycosylation and BRSV F protein expression, fusion activity and syncytia formation. Our research contributed to the understanding of mechanisms involved in BRSV infections. This understanding is useful for developing effective intervention strategies to help control BRDC to enhance animal well-being and increase profitability. Our studies to characterize the influence of inhibition, sample condition, pool size and BVDV from field origin ear notch samples used to prepare eluate pools for real-time and gel-based RT-PCR assays provided additional insight into factors that influence outcome of pooled PCR tests for detection of PI carrier cattle. We found that diagnostic PCR assays for detection of BVDV in pooled ear notch samples did not appear to be influenced by inhibition, sample condition nor by BVDV isolate variability, whereas pool size did influence the ability to detect BVDV. These findings are useful for interpretation of results of pooled PCR tests for detection of PI carrier cattle. BVDV PI crias are persistently viremic, shed virus continuously, and are the primary reservoirs of viral exposure within and among herds. We determined the current prevalence of BVDV-infected alpaca herds in the United States is a relatively high, confirming the importance of BVDV infections in US alpaca herds. This underscores the merit of alpaca breeders adhering to sound herd biosecurity practices to avoid exposure to PI crias and the potentially costly consequences of exposure of alpaca herds to BVDV infection.

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NEB 14-127 — *Intervention Strategies to Reduce Escherichia coli 0157:H7 in Beef Feedyards*

David R. Smith

A large-scale (Phase III) clinical trial of commercially fed cattle was conducted totest the effect of a two-dose regimen of a vaccine against type III secreted proteins of enterohemorrhagic *Escherichia coli* O157:H7 on the probability to detect the same organism on environmental sampling devices and on colonization of terminal rectum mucosal cells. Within commercial feedlots, pens of vaccinated cattle were matched to unvaccinated pens by reprocessing schedule. Vaccine was administered at initial processing and re-implanting. Pens of cattle were sampled one week after the second dose of vaccine and every three weeks for four test periods. Pair-matched pens of cattle were sampled concurrently.

Test samples were seven ropes per pen hung overnight from the feed-bunk neck-rail (ROPES). Recovery of *E. coli* O157:H7 from at least one rope classified the pen ROPES-positive. At harvest, terminal-rectum-mucosal cells (TRM) collected from a sample of vaccinated and unvaccinated cattle were cultured to assess colonization. *E. coli* O157:H7 isolates were identified by standard biochemical methods and multiplex PCR. The probability for pens of cattle to test ROPES-positive was modeled in a generalized estimation equations (GEE) model using the logitlink function and accounting for clustering by matched pairs of pens within feedlot and repeated measures. The probability to detect *E. coli* O157:H7 from TRM was modeled using a generalized linear mixed model (GLMM) with a logit link function and accounting for random effect of pen.

Impact Statement

We studied 140 pens of cattle (n=20,556 cattle) in 19 feedlots from February through October, 2004. TRM samples were collected from 718 cattle within 21 pens (11 vaccinated, 10 not vaccinated). Vaccinated pens of cattle were less likely to test ROPES-positive (OR=0.59, p=0.004). Likewise, at harvest, vaccinated cattle had 92% lower probability for *E. coli* O157:H7 colonization (OR=0.07, p=0.0008). The two-dose vaccine regimen reduced the probability of *E. coli* O157:H7 colonization of the terminal rectum in commercially fed cattle and reduced pen-level *E. coli* O157:H7 contamination within commercial cattle feeding systems. The results of the study have been shared as abstracts at national and international scientific and beef producer meetings. Two publications are in preparation. An Internet site is used to highlight meaningful new knowledge about animal health and pre-harvest food safety.

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NEB 14-129 *Molecular Analysis of a Mycobacterium Paratuberculosis Colony-Morphology Attenated Mutant*

Raúl G. Barletta and C.J. Czuprynski

The main findings for the entire period were: (1) primary bovine monocytes exhibited greater ability to phagocytose *Mycobacterium avium* paratuberculosis (MAP) as compared with the BOMAC cell line, (2) phagocytosis of MAP by monocytes, but not the cell line, was enhanced by the addition of autologous serum, (3) the number of viable MAP cells in monocytes increased within the first 4 days and then declined, while this number remained unchanged in the cell line during the incubation period, (4) the number of microscopically visible acid-fast bacilli increased with time in monocytes, but not in the cell line, (5) Southern blot and PCR analysis are consistent with a transposon insertion site upstream of the gene MAP1152, (6) transcription of MAP1152 in broth cultures is not affected in the mutant strain and (7) complementation analysis demonstrated that the MAP1156 wild type gene restored the altered colony morphology of the mutant strain to wild type. Complementation analysis was done in the current period. Shuttle plasmids carrying either MAP1152 or MAP1156 genes were introduced into the MAP by transformation. Transformants of the wild type strain with recombinant plasmids (over-production controls) did not result in any colony alteration. Likewise, transformants of the mutant strain with the plasmid carrying MAP1152 yielded similar results. However, transformants of the mutant with the plasmid carrying MAP1156 restored the altered colony morphology of the mutant strain to wild type. In addition, the attenuated phenotype of the mutant strain was confirmed with primary bovine macrophages. In other studies, it was shown that the addition of serum from infected or uninfected cattle increased ingestion of MAP without affecting the overall pattern of bacilli survival. Differential live/dead staining of bacilli from infected monocytes showed that the percentage of viable bacilli decreased from 70% at day 0 to 25% at day 8. Regarding the role of reactive

intermediates (RI), bovine monocytes did not produce increased amounts of oxygen- or nitrogen-RI after infection with MAP. Monocytes infected with live MAP exhibited 30%, while monocytes that ingested heat killed MAP showed about 94% phagosome-lysosome fusion at 24 hours after infection. Addition of 5 mM ATP to MAP-infected bovine monocytes resulted in 50% cytotoxicity of bovine monocytes at 24 h. Addition of a longer-lived ATP homologue and a purinergic receptor agonist significantly increased membrane pore activation. Neither ATP nor its homologue reduced the survival of MAP in bovine mononuclear phagocytes. Bovine monocytes constitutively secreted ATP during an 8 day incubation period *in vitro*; however, MAP infection did not enhance ATP release. Removal of extracellular ATP by the addition of apyrase increased the viability of infected monocytes, but surprisingly decreased the number of viable intracellular bacilli. In contrast to previous reports, addition of extracellular ATP (1 mM) increased intracellular survival of MAP in bovine monocytes. Neither apyrase nor ATP altered production of oxygen- or nitrogen-RI by bovine monocytes.

Impact Statement

A definite linkage was established between the altered colony morphology mutant and the role of the gene encoded by MAP1156. The results suggest that the mutant strain displays an altered expression of MAP1156 and that the wild type gene provided in trans is capable of complementing this defect. Another aspect studied was the ability of MAP to survive and multiply in bovine mononuclear phagocytes. These studies demonstrated that concomitant bacillary growth and killing can occur in bovine monocytes. Evidence was also obtained that phagosome-lysosome fusion is inhibited by viable MAP. However, the relatively poor induction of mycobactericidal mechanisms by infected bovine monocytes might explain in part the intracellular survival of MAP. Some factors were also ruled out as significant contributors to MAP survival: extracellular ATP did not induce the killing of intracellular MAP in bovine mononuclear phagocytes. Likewise, ATP release from MAP infected bovin Thus, bovine monocytes are able to both support the survival or and kill intracellular MAP. e monocytes improved rather than decreased the intracellular survival of MAP.

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NEB 14-130 *Regulation of the Latency-reactivation Cycle by the Bovine herpesvirus 1 (BHV-1) Latnecy Related (LR) Gene*

Clinton J. Jones

Bovine herpesvirus 1 (BHV-1) is an important pathogen of cattle that belongs to the á-herpesvirus subfamily. Like other members of this subfamily, a latent infection is established in sensory neurons following acute infection. However, the virus can reactivate and spread to other cattle. Reactivation from latency is the mechanism by which the virus survives in nature, and is thus, an important property of pathogenesis. During a latent infection, one abundant viral transcript can be detected, the latency related RNA (LR-RNA). Plasmids expressing LR gene products enhance survival of monkey kidney cells (CV-1), neuronal like cells (neuro-2A), and human lung cells (IMR-90) after treatment with chemicals that induce apoptosis. We have cloned alternatively spliced LR-transcripts, and have now shown that these transcripts have differential effects on apoptosis. In addition, we have no identified three distinct LR proteins that are expressed. The function of these specific proteins is now being examined. We have developed a LR mutant that does not express LR proteins. This mutant grows well in tissue culture, but does not grow well in the eyes or tonsil during acute infection of calves. Furthermore, the LR gene mutant does not reactivate from latency indicating that the LR gene is important for the latency-reactivation cycle in calves. Immune infiltration into trigeminal ganglia

(TG) occurs as a result of infection and it is believed this is important for regulating latency. Calves infected with the LR mutant contain enhanced immune infiltration and programmed cell death (apoptosis) in TG at the end of acute infection. In summary, these studies have demonstrated that the LR gene plays a critical role in the latency-reactivation cycle of BHV-1.

Impact Statement

BHV-1 is an important pathogen of cattle, which costs the cattle industry $1/2 billion/year in the US. The ability of BHV-1 to infect lymphocytes is believed to enhance pathogenesis and virus transmission. We are trying to understand virus host interactions in the peripheral nervous system to facilitate production of a better vaccine.

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NEB 14-131 *Veterinary Field Disease Research Program*

David R. Smith

The Field Disease Research Program uses a team approach to solve problems of animal or human health related to livestock production systems. The following projects were underway during the reporting period. A clinical trial conducted during 2006 evaluated the effects of two- and three-dose regimens of an *Escherichia coli* O157 vaccine product on the probability of detecting *E. coli* O157:H7 in feces and on colonization of the terminal rectum. Agreement between Johne's disease serological tests. The objective of this study was to determine the level of agreement between two commercially available antibody capture ELISAs for MAP and the level of agreement between repeated runs of the same assay. Idexx and Biocor MAP ELISA test kits were used to test 450 serum samples stored at -80°C, which had been previously tested by the Idexx ELISA for an observational study of MAP herd-prevalence in beef herds. Two hundred stored serum samples were randomly selected from apparently healthy cattle originating from four herds with and without culture-based evidence of Johne's disease; an additional 250 serum samples were randomly selected from 423 apparently healthy cattle with positive original ELISA result from 64 herds. Each sample was tested twice with both assays in a randomized order for each run. Agreement between Johne's disease fecal agent tests. The objective of this study was to compare the agreement of liquid media (MGIT) culture and solid media culture for detection of MAP from feces. MGIT testing was conducted on 415 fecal samples stored at -80°C from cattle with a positive MAP serology result, and on 608 pools of feces (5 animals/pool, stored -80°C) from 15 herds. Solid media culture was done prior to freezing and storage. PCR was performed on aliquots of all MGIT liquid cultures to determine if MAP DNA could be detected.

Impact Statement

The three-dose *E. coli* O157:H7 vaccine regimen significantly reduced the probability for cattle to shed *E. coli* O157:H7 in feces by 63% compared to placebo treated cattle. A dose-effect was demonstrated because a two-dose regimen of the vaccine product was intermediate in effect. These results are consistent with previous estimates of vaccine efficacy against fecal shedding, and agree with our previous finding that efficacy is related to the number of doses. Johne's disease serological test agreement: Agreement beyond chance was measured using the Kappa statistic. Idexx and Biocor ELISA results agreed for 434 of 450 samples (Kappa = 0.70, $p < 0.05$). Results of two runs of the Idexx ELISA agreed for 449 of 450 samples (Kappa=0.98, $p < 0.05$). Results of two runs of the Biocor ELISA agreed among 444 of 450 samples (Kappa= 0.87, $p < 0.05$). Interestingly, both Idexx and Biocor test results had poor agreement with previous Idexx results conducted prior to freezing and storage (Kappa

=0.11 and 0.07, respectively); the primary direction of disagreement being previously test positive, but negative in this study. We concluded that both tests had good agreement with each other and that both tests gave concordant results upon repeated testing, although this does not imply that the test results represent the true infection status of the animals. Finally, the discordant results in this study as compared with previous testing may have been due to either loss of antibodies during freezing and storage, or differences in test conditions. Johne's disease fecal agent test agreement: From individual fecal samples, solid media culture identified MAP in the feces of 18 (4.3%) cattle, MGIT in 22 (5.3%), and PCR in 35 (8.4%). MGIT results compared to solid media culture were: 11 animals pos. both tests; 11 animals MGIT pos., solid media neg.; 7 MGIT neg., solid media pos. PCR results compared to solid media culture were: 13 animals pos. both tests; 22 animals PCR pos., solid media neg.; 5 solid media pos., PCR neg. The Kappa agreement between the MGIT and PCR to solid media culture was 0.53 and 0.46, respectively. All 22 animals classified positive by MGIT culture were also PCR positive (Kappa= 0.76). Only 1 pool (0.2%) from 1 herd (6.7%) was classified positive by solid media culture. MGIT culture classified 28 pools (4.6%) MAP-positive from 6 herds (40.0%). PCR classified 29 pools (4.8%) MAP-positive from 6 herds (40.0%). MGIT and PCR each identified the same 6 herds as MAP positive (Kappa= 0.98). PCR and MGIT failed to identify MAP in the single solid media culture positive pool and agreement was low (Kappa=0.00). Further research is necessary to understand the reason for discordant MGIT and solid media culture results. The results of these studies are being reported at scientific meetings and to cattle producers and veterinarians.

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NEB 14-132

Examination of Attenuation and Virulence Determinants of Porcine Reproductive and Respiratory Syndrome Virus

Asit K. Pattnaik and Fernando A. Osorio

We have generated an infectious molecular clone (PP-18) from the Prime Pac attenuated vaccine strain of PRRSV. The viral genome is 15,520 nucleotides long excluding poly (A) tail, which is the same length as the parental virus. The full-length cDNA clone was assembled in pBR322 after incorporating T7 RNA polymerase promoter. *In vitro* transcribed RNAs, when transfected into MARC-145 cells resulted in production of infectious virus. The rescued virus had the similar growth properties in both MARC-145 cells and porcine alveolar macrophages (PAMs) as the parental vaccine virus. The derivation of this infectious clone from the attenuated PRRSV vaccine strain should significantly facilitate ongoing molecular attenuation studies by providing an avirulent phenotypic background on which to evaluate the contribution that single wt PRRSV genes may have on virulence. We have also generated a series of chimeric viruses containing specific genomic sequences of an attenuated PRRSV vaccine strain (Prime Pac) within the genomic context of a highly virulent infectious clone (FL-12). Eight viable chimeras, encompassing the entire genome of Prime Pac, have been obtained. Clear-cut characterization of the chimeric viruses for virulence phenotype was obtained *in vivo*, upon inoculation of pregnant sows at day 90 of gestation. Most virulence determinants clustered in the structural genes of PRRSV. Some non-structural regions of the PRRSV genome (NSP3-8) exhibited a marked role in virulence. Meanwhile, other non-structural regions (NSP1-3, NSP10-12) showed an intermediate attenuation phenotype, while other non-structural (NSP9) or structural (ORF2) regions could be ruled out as important determinants of virulence. We further dissected the structural genes for a finer mapping and generated 5 chimeras representing the majority of each individual ORF, 3 through 7. The *in vitro* growth kinetics in both MARC-145 cells and PAM and *in vivo* characterization in pregnant sows are currently in process. This approach should

allow us to narrow down the relative contribution of individual ORFs on attenuation of virulence of PRRSV, thus opening the avenue for precise mapping of the critical regions and residues within the individual gene products that are important for attenuation.

Impact Statement

Porcine reproductive and respiratory syndrome (PRRS) in pigs is a complex disease responsible for significant economic losses to the swine industry. The virus, PRRSV in not well characterized and current vaccines are less efficacious. Using a reverse genetic approach, we attempt to understand the genetic determinants of PRRSV that are responsible for causing disease in infected pigs and how such information can be used for generation of safer and efficacious vaccine to combat PRRS.

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NEB 14-132

Analyses of Virulence and Attenuation Determinants of Porcine Reproductive and Respiratory Syndrome Virus Using Reverse Genetics Approach

Asit K. Pattnaik and Fernando A. Osorio

The objectives of this project are: 1) To identify genes which are important to virulence of PRRSV and 2) To characterize *in vitro* and *in vivo* the attenuated mutants constructed. With the support of NRICGP, the following studies were completed. The major objectives were achieved by the establishment of reverse genetics system through development of infectious clones of highly pathogenic and attenuated strains of PRRSV that retain the biological properties of the parental viruses. Furthermore, by reverse genetic manipulation of the viral genome, we have unequivocally demonstrated that "glycan shielding" is a mechanism by which PRRSV evades host immune response. By construction and characterization various chimeric viruses, we have mapped the virulence and attenuation determinants of PRRSV. Furthermore, we have also identified dominant B-cell epitopes that will be used for generation of potential marker vaccines in the future. Some of our accomplishments from this project are: i) Development of infectious clones for a highly pathogenic strain and an attenuated strain of PRRSV. To uncover virulence determinants of PRRSV, our initial studies focused on establishing reverse genetics system for PRRSV. The viruses generated from the cDNA clones retain all the biological properties of the parental viruses in pregnant sow model; ii) Construction and characterization of chimeric PRRSVs. Using the two infectious clones, various chimeric full-length cDNA clones were constructed and chimeric viruses were recovered and characterized for their biological properties *in vitro* and *in vivo*. Our results demonstrate that the major cluster of virulence determinants are localized in genomic regions encoding the nonstructural proteins 3 to 8 (NSP3-8), ORF 5 encoding GP5, and ORF2 encoding GP2a glycoproteins; iii) PRRSV evades host immune response by "glycan shielding" mechanism. By altering the glycosylation pattern of the major surface glycoprotein (GP5) of PRRSV, we have demonstrated that PRRSVs encoding hypoglycosylated forms of GP5 induce earlier and higher neutralizing antibody response in pigs. These results suggest that PRRSV evades the immune system by means of a glycan-shielding mechanism and that the deglycosylation of the PRRSV GP5 enhances significantly the ability of the PRRSV strain to induce protective antibody response; and iv) Epitope mapping identifies potential serologic markers for marker vaccine development. Using sera from infected pigs and a peptide scanning approach, we have been able to identify several strong B-cell epitopes in the nonstructural and structural proteins of PRRSV. This study will be useful in development of possible marker vaccines in the future.

Impact Statement

Porcine reproductive and respiratory syndrome virus (PRRSV) is responsible for significant economic losses to the swine industry. The goal of the project is to gain knowledge about the determinants of virulence and attenuation of PRRSV, which will be important toward developing safer and more efficacious vaccine to combat the disease.

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NEB 14-136 Tricarboxylic Acid Cycle Mediated Regulation of Staphylococcus Aureus Virulence Factors

Greg A. Somerville

In many organisms, aconitase is a bifunctional protein having both an enzymatic and regulatory function. Previously, we performed transcriptional profiling on three *Staphylococcus aureus* tricarboxylic acid cycle mutants (citB, citC, and citZ) to determine which genes may be post-transcriptionally regulated by aconitase. We have now analyzed these transcriptional profiles using statistical methods to identify a common set of genes affected by the loss of TCA cycle metabolic function and/or regulatory function. The majority of genes that are potentially regulated by aconitase are metabolic genes; however, some virulence genes and regulators were identified. In addition to tentatively identifying aconitase regulatory targets, we over-expressed and purified *S. aureus* aconitase in *Escherichia coli* and demonstrated that it will specifically bind to mRNA. These results have been presented at three meetings by a post-doctoral fellow, a graduate student and myself. In addition, I have presented this information in five seminars at colleges and universities both locally and nationally. At these meetings and seminars, I have discussed the translation of this basic research into an applied therapy for bovine mastitis. Lastly, these results will be communicated to veterinarians and scientists by publication in peer-reviewed journals.

Impact Statement

As an outcome of the research contained within this proposal, we have definitively shown that *Staphylococcus aureus* aconitase is an RNA binding protein, whose binding activity is mediated by iron. These data suggest that, like the eukaryotic iron-responsive protein-1, *S. aureus* aconitase has a regulatory function. As an outcome of the DNA microarray studies, we have identified several putative aconitase regulated mRNAs. Because milk contains the iron chelator lactoferrin, most of the aconitase in *S. aureus* would be predicted to be in the apo-aconitase form (i.e., the RNA binding form); hence, aconitase may have a major regulatory function in bovine mastitis. Finally, this research has allowed one postdoctoral research associate and one graduate student to be trained in molecular microbiology and to understand the importance of animal health in state and national priorities.

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NEB 14-137 Genetic Basis of Resistance to Food-Borne Bacterial Pathogens

Gerald E. Duhamel and J. S. Weber

Campylobacter jejuni and *Eschericha coli* are leading causes of food-borne bacterial infections in humans worldwide. Conversely, *Helicobacter hepaticus* is a well-established cause of chronic hepatitis and liver cancer in susceptible mouse strains. Cytolethal distending toxin (CDT) is a newly discovered virulence factor consisting of a tri-peptide complex of subunit A, B and C which is shared among these bacterial pathogens. The proposed mechanism of CDT toxicity is consistent with that of heterodimeric AB2 bacterial toxins where subunits A and C bind to host cell membrane for cellular delivery of the toxic B subunit. The central hypothesis of this project is that subunits A and C of CDT bind to specific host tissue/cellular receptor(s) resulting in damage and illness. The objective of this project is to characterize the distribution of CDT-binding target tissues in susceptible pigs and susceptible and resistant inbred strains of mice. We have cloned, overproduced and characterized the biochemical properties of *H. hepaticus* CdtB in details. Hexahistidine (His6)-tagged CDT subunits A, B and C of *H. hepaticus* and B subunit of *C. jejuni* have been cloned and purified and monospecific rabbit polyclonal hyperimmune sera have been produced against the B subunits of each pathogen. Currently, His6-tagged A and C subunits of *H. hepaticus* have been cloned and purified for production of rabbit hyperimmune sera whereas overexpression and purification of His6-tagged A and C subunits of *C. jejuni* are in progress.

Impact Statement

Identification of cellular targets and receptors for CDT will form the basis for implementation of genetic selection of livestock resistant to these important food-borne bacterial pathogens, and basic understanding of disease susceptibility and resistance to several important bacterial pathogens of humans and animals.

######

NEB 14-140 Stimulating the Development of Veterinarians to Serve Rural America

Dickey D. Griffin

Since funding in 2005, 2,000 veterinary students have been mentored by rural practicing veterinarians. The opportunities for veterinary practice in rural communities have been presented at 26 veterinary student groups and veterinary colleges. The grant aided the development of the Academy of Rural Veterinarians (ARV), whose sole purpose is to develop mentorship relationships with student to stimulate interest in living and serving rural communities. The ARV currently has 210 members who last year, on average, contributed over $5000 each through direct contributions, dues, lodging and travel for veterinary students interested in investigating opportunities in rural communities.

Impact Statement

Presently, there is national concern with the shortage of veterinarians to serve rural communities. This project has improved the visibility of opportunities for graduating veterinarians across the United States.

NEB 14-141 **Molecular Genetic Analysis of Mycobacterium avium subsp. Parathuberculosis (MAP) and related mycobacterial pathogens**

Raúl G. Barletta

The focus of this reporting period was on Objective 2. One new attenuated mutant of *Mycobacterium avium subsp. paratuberculosis* (MAP) strain K-10 was characterized, the transposon insertion site was mapped within the open reading frame designated MAP1566 in the genome sequencing project. This ORF seems to be contained within an operon that also encodes ABC transporter components (mod genes). A homologous gene was found in *M. avium subsp avium* strain 104. Both strains K-10 and 104 display the same gene organization in this region. Homologues were also found in *Mycobacterium smegmatis* and *Mycobacterium tuberculosis*, but in these cases the corresponding homologues were not linked to ABC transporter component genes. In addition, collaborative studies were carried out. With the Kris Huygen Laboratory at the Institute Pasteur in Brussels, a luminescent MAP strain of bovine origin expressing the luxAB genes of *Vibrio harveyi* were used to evaluate the effect of the Slc11a1 (formerly Nramp1) polymorphism on susceptibility against MAP. A series of inbred mouse strains were infected intravenously with luminescent MAP S-23 and monitored for bacterial replication in spleen, liver and lungs for 12 weeks. In BALB/c, congenic BALB.B10 (BALB/c background, H-2b), C57BL/6 and mutant C57BL/6bg/bg mice (all Slc11a1s) bacterial numbers in spleen and liver remained unchanged during the first 4 weeks of infection, whereas in DBA/2 and congenic C.D2 mice (both Slc11a1r) and in (C57BL/6xDBA/2)F1 (Slc11a1s/r) the bacterial number had decreased more than 30-fold at 4 weeks post-infection in both male and female mice. At later time points, additional differences in bacterial replication were observed between the susceptible mouse strains, particularly in the liver. Whereas, bacterial numbers in the liver gradually decreased more than one-hundred fold in C57BL/6 mice between week 4 and week 12, bacterial numbers remained more or less constant in liver from BALB/c and mutant C57BL/6bg/bg mice. Mycobacteria-specific IFN-ã responses developed earlier and to a higher magnitude in C57BL/6 mice than in BALB/c mice and were lowest in resistant C.D2 mice. In collaboration with the William Davis Laboratory, Washington State University, an efficient allelic exchange method was developed to generate directed mutations within preselected genes of MAP. Using this method, we obtained a 78 to 100% allelic exchange frequency and a 9.5 x 10-8 to 1.6 x 10-7 transduction frequency. Three genes were selected to demonstrate the utility of the method: pknG and relA are genes known to be important virulence factors in mycobacteria and lsr2 is a gene that regulates lipid biosynthesis. Mutants were successfully generated in the MAP K-10 strain and a variant of K-10 containing the green fluorescent protein gene.

Impact Statement

MAP is the causative pathogen of paratuberculosis or Johne's disease, a chronic inflammatory wasting disease of the intestine in cattle. Paratuberculosis and related mycobacterioses cause an estimated $1 billion in annual losses to U.S. Agriculture. The disease has been difficult to control, because of the lack of an effective vaccine. The analysis of mutant strains for replication and survival in bovine macrophages may aid in the development of a vaccine to control Johne's disease and bovine tuberculosis. Mice studies indicate that, as for MAV, innate resistance to infection is genetically controlled by Slc11a1. These results support the hypothesis that MAP may play a role as an etiologic or opportunistic pathogen of Crohn's disease (CD) in humans. In this context, CD is also associated with this type of genetic control. The improved efficiency of disrupting selected genes in MAP should accelerate development of mutants to test as vaccines.

NEB 39-142 Development of Broad-Spectrium Antibiotics Against Bacterial pathogens

Raúl G. Barletta, R. Powers and J.M. Takacs

The objectives of this study were to (1) overexpress and characterize peptidoglycan biosynthetic enzymes of *Mycobacterium tuberculosis*, (2) to conduct functional and (3) structural NMR studies, (4) apply combinatorial chemistry and (5) identify lead compounds. Objective 1: These studies were focused on the D-alanine ligase. We determined that D-alanyl-D-alanine was produced in equivalent molar amounts to the release of inorganic phosphate (Pi). A continuous Pi assay was developed to determine enzyme inhibition. Inhibition assays were carried out in a reaction mixture containing 0.1 mM enzyme, 1.0 mM D-alanine and 6.0 mM ATP. Under these conditions, we found that D-cycloserine and (S)-(+)-(1-Amino ethyl) phosphonic acid inhibited the enzyme with IC50 values of 0.3 and 0.5 mM, respectively. Objectives 2 and 3: Principal component analyis of metabolmic data indicated signgicant differences between the D-alanine racemase mutant and wild type cells treated with D-cycloserine. Objectives 4 and 5: N-octyl-D-cyloserine and 3-chloro-2,2-dimethyl-N-[4(trifluoromethyl)phenyl]propanamide were prepared by chemical synthesis. Compounds were crystallized from ethyl acetate-hexanes. For N-octyl-D-cycloserine, the residue was purified by flash column chromatography on silica with MeOH-CHCl3 (1:49) to give the desired amine (27 mg, 84% yield). All compounds synthesized had a melting point and chemical shifts for 1H and 13C NMR consistent with the structure. Dissemination: three posters were presented at the 2007 University of Nebraska Research Fair: 1) Principle Component Analysis to Determine the Lethal Target of D-cycloserine in *Mycobacteria* (Steven Halouska, Department of Chemistry), 2) Targeting the D-alanine-D-alanine Ligase of *Mycobacterium tuberculosis* for Drug Design (HarshDeep Dogra, Department of Veterinary and Biomedical Sciences) and 3) Approaches to the Design of Inhibitors for Targeting the D-alanyl-D-alanine Ligase of *Mycobacterium tuberculosis* (Judy Miska, Department of Chemistry). HarshDeep Dogra was awarded a prize in the Biological Sciences and Agricultural Sciences area. A manuscript was published in the Journal of Proteome Research.

Impact Statement

The continuous inorganic phosphate (Pi) assay was established as the method of choice to screen for inhibitors of the D-alanine ligase. This knowledge will allow screening of a large number of compounds for inhibition. The IC50 values of D-cycloserine (0.3 mM) and phosphonic acid (0.5 mM) indicate that these compounds may target the ligase. However, the actual values indicate that they are relatively weak inhibitors. This knowledge will guide us in the synthesis of derivatives with greater binding affinity and inhibitory action. The metabolomics data indicate that D-cycloserine does not target D-alanine racemase as the main lethal target. This knowledge is useful to direct our search for new antimicrobial compounds to inhibitors of alternative targets such as D-alanine ligase. Two chemical compounds were made. Toxicity and inhibitory activity against *mycobacterium tuberculosis* D-alanine ligase and live bacilli will be determined. This knowledge will be used to determine whether these compounds could be developed into new agents against tuberculosis.

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NEB 39-143 Functional Analysis of Proteins Encoded by the Bovine herpesvirus 1 (BHV-1)

Clinton J. Jones

Bovine herpesvirus 1 (BHV-1) is an important pathogen of cattle that belongs to the á-herpesvirus subfamily. Like other members of this subfamily, a latent infection is established in sensory neurons following acute infection. However, the virus can reactivate and spread to other cattle. Reactivation from latency is the mechanism by which the virus survives in nature, and is thus, an important property of pathogenesis. During a latent infection, one abundant viral transcript can be detected, the latency related RNA (LR-RNA). Plasmids expressing LR gene products enhance survival of monkey kidney cells (CV-1), neuronal like cells (neuro-2A), and human lung cells (IMR-90) after treatment with chemicals that induce apoptosis. We have cloned alternatively spliced LR-transcripts, and have now shown that these transcripts have differential effects on apoptosis. In addition, we have no identified three distinct LR proteins that are expressed. The function of these specific proteins is now being examined. We have developed a LR mutant that does not express LR proteins. This mutant grows well in tissue culture, but does not grow well in the eyes or tonsil during acute infection of calves. Furthermore, the LR gene mutant does not reactivate from latency indicating that the LR gene is important for the latency-reactivation cycle in calves. Immune infiltration into trigeminal ganglia (TG) occurs as a result of infection and it is believed this is important for regulating latency. Calves infected with the LR mutant contain enhanced immune infiltration and programmed cell death (apoptosis) in TG at the end of acute infection. In summary, these studies have demonstrated that the LR gene plays a critical role in the latency-reactivation cycle of BHV-1.

Impact Statement

BHV-1 is an important pathogen of cattle, which costs the cattle industry $½ billion/year in the United States. The ability of BHV-1 to infect lymphocytes is believed to enhance pathogenesis and virus transmission. We are trying to understand virus host interactions in the peripheral nervous system to facilitate production of a better vaccine.

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NEB 39-144 Management Model for Diagnosis control, and Monitoring for Bovine Viral Diarrhea Virus in Beef Cattle Herds

Gary Rupp, Bruce Brodersen, D. Dee Griffin, Clayton Kelling, David Steffen and Arden Wholers

The program was initiated in the fall of 2006, by working with private cow/calf herds to collect ear notch samples, which were used for the detection of persistently infected calves. Samples were obtained from 9,992 calves and were individually tested using IHC and the AG-ELISA tests. The same samples were then combined into pools of 50 or 100 and tested by PCR. A total of 32 herds were involved in the initial part of the project, which was conducted to validate the sensitivity and specificity of pooled samples for herd surveillance utilizing field samples from individual calves with known BVDV status. A number of selected herds will then be followed during subsequent production cycles to monitor the presence of the BVDV and evaluate the effect of the virus on herd production and performance parameters. Herd owners were informed of the results from their herds immediately

after individual testing and recommendations were made regarding immediate isolation and then elimination of PI calves.

Impact Statement

Twenty-nine herds were BVD free and three herds had one or more persistently infected (PI) calves. Two herds of 661 and 895 calves sampled had a single PI calf and a third herd had five PI calves. All PI calves were detected by AG-ELISA and all, but one calf was detected by IHC (subsequently confirmed a PI). Real time PCR detected the positive PI pooled samples in the third herd with multiple calves in samples, but failed to detect the single infected pooled samples. Gel-based PCR detected all but one pool containing a single infected calf from one herd. Based on results of spiked pools, the presence of endogenous inhibitors did not appreciably reduce the sensitivity of pooled sample PCR assays. In summary, under these conditions, diagnostic PCR assays for detection of BVDV in pooled ear notch samples did not appear to be influenced by inhibition, sample condition nor by BVDV isolate variability, while pool size influenced ability to detect BVDV.

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NEB 39-145 An Integrated Approach to Control of Bovine Respiratory Diseases

Clinton J. Jones

BHV-1 is a significant viral pathogen of cattle that can induce respiratory disease, abortion, or occasionally encephalitis. BHV-1 is also frequently found in buffalo, which is a growing food animal source in the US. BHV-1 is also a causative agent of "Shipping Fever" or Bovine Respiratory Complex. As a consequence of the pathogenic potential of BHV-1, the cattle industry suffers more than $3 billion/year in losses. BHV-1 typically initiates infection in mucosal epithelial surfaces located in the eyes, nose, mouth, upper respiratory tract or genital tract. Extensive viral gene expression occurs, virus is shed, and clinical symptoms are apparent. Virus then enters the peripheral nervous system, where it establishes a latent infection in sensory neurons. Viral DNA can persist in a latent state for the lifetime of the infected host or it can periodically reactivate. In contrast to the 70-80 viral genes expressed in epithelial cells, only one small region of the viral genome is transcriptionally active in latently infected neurons. This region is designated the latency related (LR) gene. Expression of LR gene products is necessary for the latency-reactivation cycle. The focus of these studies is to understand the mechanism by which the LR gene regulates latency. Studies are also being performed to understand how a viral transcriptional activator, bICP0, regulates productive infection and to develop better vaccines against BHV-1.

Impact Statement

Bovine respiratory disease is a significant problem to the cattle industry. BHV-1, is an important pathogens of cattle. Studies focused on understanding the replication of BHV-1 and developing better vaccines are crucial for the cattle industry.

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Department of Veterinary and Biomedical Sciences
International Activities for 2007

Raúl G. Barletta

Dr. Barletta will continue his specific project, on the Mycobacterial drug targets. Corporacion para Investigaciones Biologicas, CIB, Medellin, Colombia. Dr. Barletta will continue to serve as the PI, representing the University of Nebraska-Lincoln and will work in collaboration with J. Robledo, CIB and Ofelia Chacon also from the University of Nebraska-Lincoln, CIB. This special project will be funded by an NIH and USDA grants, subcontracts and Colciencias, Colombian Federal Agency for Science.

Marjorie F. Lou

Dr. Lou continues to serve as the Founder and organizer of the Asian Cataract Research Conference. She continues to organize the Biannual Conference that will be held in a major city in Asia. The 7th Conference will be held in Beijing, China, which Dr. Lou has been actively supervising the progress of the local organizers. For the same reason, she will continue to actively support, promote and sponsor the lens and cataract research programs in Asian countries, such as South Korea, Hong Kong, China, India, Pakistan and Singapore.

Dr. Lou was elected as Membership Committee Chairman for the International Society for Eye Research (ISER), 2004-2007. As a Committee Chairman, she will be responsible for the promoting and increasing new or active members. She will also remain as the key person and will be responsible for the Biannual International Congress of Eye Research (ICER), sponsored by ISER for the selection of young investigator's travel award and this year there are 25 that were selected.

Dr. Lou will continue to be Board of Trustees for the National Foundation for Eye Research since 1998. This research foundation sponsors the US-Japan Cataract Corporation Research Group (CCRG) Conference. Each board member is responsible for selecting one young investigator for the Lens Research Achievement Award per year and other travel grants to attend the US-Japan CCRG Meetings.

Fernando A. Osorio

Fernando A. Osorio traveled on February 20 to 28, to Kazakhstan to conduct technical audits for the USDA/ARS/Foreign Agricultural Service. In conjunction with the U.S. Department of Defense, the mission consisted of conducting technical audits of two research projects financed by the Institute for Scientific and Technical Cooperation (ISTC), a multi-national center based in Moscow and dedicated to collaborative research projects between the West and countries of the former Soviet Union. The two projects involved the Institute for Microbiology and Virology, the M.A. Aytkhozhin Institute of Molecular Biology and Biochemistry (both in Almaty, KZ) and the Scientific Research Agricultural Institute of the National Biotechnology Center (near Otrar, KZ). The two projects deal with detection and sequencing of avian flu and

other pathogenic viruses in migratory birds and the development of growth promoter factors to improve vaccines for PRRSV and other important livestock viruses

Dr. Osorio will continue to serve as an Advisor for the PRRSV Eradication Campaign in Chile. He will continue on a joint international effort to fight PRRS. He continues his collaborative work with J-H Sur (Konkuk University, Seoul, Korea) and M. Quezada (University of Concepcion, Chillan, Chile) jointly developing the most current and practical techniques to fight PRRS in each of the three countries. The Porcine Reproductive and Respiratory Syndrome (PRRS) is a disease that causes multi-billion dollar losses world wide.

Dr. Osorio will continue his Membership from the Scientific Advisory Committee "Center for Research in Swine Infectious Diseases." He will continue to serve in the capacity of Visiting Faculty of Veterinary Medicine, St-Hyacinthe, University of Montreal, Québec, Canada, beginning appointment began in 2006

Asit K. Pattnaik

Dr. Pattnaik attended the International Conference on "Lessions From the Microbial World," in Bhubaneswar, India. He presented his research findings to collaborators and colleagues, November 2007.

Dr. Pattnaik presented a poster at the International PRRSV Symposium, held in Chicago. He also attended, as an invited speaker, the National Institute of Immunology, New Delhi in November 2007.

Topics/Titles of Extension Program Emphases

D. Dee Griffin, DVM, MS, Feedlot Veterinarian

Improve Veterinary Recruitment to Rural Communities

My participation continuation with the Academy of Rural Veterinarians to develop mentor ship opportunities for veterinary students with rural veterinary practitioners is on schedule. I continue to aid in the organizational efforts to recruit and mentor students. My challenge continues in seek funding sources to support efforts to strengthen veterinary services in rural communities.

Support the NC and NCBA Qaulity Assurance and Cattle care Efforts

At present, I continue to aid the NC and NCBA with their efforts to educate producers and their employees on proper quality assurance and cattle care. I participate in the NCBA's quality assurance and animal care efforts, including helping develop training for auction market workers, including livestock care and handling and personal work safety.

Biosecurity Training for Cattle Producers, their Employees and Veterinarians

I continue to develop and deliver educational programs and presentations on biosecurity to cattle producers.

Develop and Revise my Educational Materials in Relationship to UNL/ISU New Professional Program

I keep ISU informed on updated teaching files and develop links in my materials between ISU and GPVEC to better address the relationship with them.

Pre-Harvest Antibiotic Screening Test (PHAST) research project

I have pardner with the USDA Food Safety Inspection Service to develop and monitor programs for the PHAST research project we are collaborating on together.

David R. Smith, DVM, PhD, Dairy and Beef Cattle Veterinarian

Extension Emphasis

Communicating the principles of biosecurity and pathogen containment; emphasizing diagnostics and the role of production-systems on transmission of pathogens and the resulting impact on dairy and beef cattle health and pre-harvest food safety.

2007 Extension Programming

•biocontainment of calf scours - the Sandhills Calving System;
•Biosecurity and diagnosis of Johne's disease and BVDV in cattle herds;
•Vaccination against *E. coli O157:H7* as a pre-harvest food safety intervention;
•Responsible use of antibiotics in aanimal agriculture;
•Nebraska 4H Veterinary Science School Standards Curriculum and
•Nebraska State Fair Livestock Drug Testing

D. D. Griffin, DVM, MS, Feedlot Veterinarian

Beef Safety

Beef safety is the No. 1 priority for America's beef producers. Collectively, the beef industry invests approximately $350 million toward beef safety research, interventions and testing every year. Despite progress in understanding and reducing pathogens like *E. coli* O157:H7, we recognize there's more to be done and remain committed to advancing beef safety.

The Beef Industry Food Safety Council (BIFSCo), founded by America's beef producers, brings together representatives from each segment of the industry to develop industry-wide, science-based strategies to solve the problem of *E. coli* and other foodborne pathogens in beef. Through these and other efforts, every step of the beef chain remains dedicated to fighting the battle against foodborne pathogens.

Consumers also have an important role in ensuring food safety in their own homes. By always cooking meat to the proper internal temperature; cleaning hands, cutting boards, utensils and countertops with hot, soapy water before and after handling meat; properly thawing frozen meat products; and separating raw meat and poultry from other foods, consumers can help ensure their food is safe.

Using a Meat Thermometer

Using a meat thermometer is the only reliable way to ensure safety and to determine the "doneness" of meat, poultry, and egg products. To be safe, foods must be cooked to an internal temperature high enough to destroy harmful bacteria such as *Salmonella* and *E. Coli O157:H7.* A meat thermometer can help you in the prevention of foodborne illness; cook and hold food at a safe temperature and prevent overcooking.

Tips on Using a Meat Thermometer

A meat thermometer must be inserted properly to be an accurate indicator of temperature. The sensing area of thermometers is ½" to 2" long, and this area must be completely immersed in the deepest area of the food.

- Ground meat and poultry – place in the thickest are oaf the meat loaf; insert sideways in thin items such as patties;
- Red meat, roasts, steaks or chops – insert in the center of the thickest part, away from bone, fat and gristle;
- Poultry – insert in the inner high area near the breast of the bird, but not touching

bone;
- Casseroles and egg dishes – insert in the center or thickest area; and
- Hot, cooked foods must remain at 140°F or higher; cold foods, at 40°F or below.

Most meat thermometers are accurate to within plus or minus 1 to 2°F. Always check cooked meat and poultry in several places with a meat thermometer to ensure food safety.

Food Safety Research: Don't Cook on "Autopilot"

Research Background – American's food supply is safer than ever due to hard work taking place on farms, ranches and in processing plants across the country. Each segment of the production chain has taken steps to keep food safe and is committed to the flight against foodborne pathogens. However, there are still many opportunities for consumers to improve food safety in their own kitchens.

Janet Anderson, MS, RD, of Utah State University, and her colleagues at The Safety Food Institute, set out to look at what people really do when preparing food in their home through their research study entitled, "A Camera's View of Consumer Food-Handling Behaviors." They found that many people were just flying on "autopilot" and were not paying enough attention to their food preparation habits.

Safety Things to Keep in Mind –

- Hand Washing
- Cross-Contamination
- Food Safety
- Cooking Temperatures –
  - Poultry - 165°F
  - Beef Roasts, Steaks/Seafood – 145°F
  - Ground Beef - 160°F

David R. Smith, DVM, PhD, Dairy and Beef cattle Veterinarian

Treatment Of Calf Scours

What causes calf scours?
As new calves arrive, so does the threat of the common condition known as "calf scours" or neonatal calf diarrhea. Infectious agents such as viruses and bacteria cause this condition. These agents have the common property of causing a **net loss** of water and electrolytes from the calf's body via the gut. This causes potentially life-threatening dehydration and electrolyte imbalances that can result in death. The main infectious organisms that can cause diarrhea in beef calves are:
Rota virus, *Corona virus*, *Cryptosporidium parvum*, *E. coli* (K99 enterotoxigenic form)

The first 3 on the list usually cause diarrhea at 7 to 21 days of age, while the common *E. coli* strains cause diarrhea within the first few days of life. The diarrhea is the result of a combination of factors including: (1) dose (number) of organisms the calf is exposed to, (2) calf immunity (colostrum), and (3) stress on the calf. The number of

organisms in the calf's environment is a result of sanitation or the lack of sanitation, i.e., mud, manure, and other cattle. The immunity of the calf is dependent on the quality and quantity of colostrum that the calf received from the cow. Calves that do not receive adequate colostrum are much more susceptible to disease and are at much greater risk of dying from the resulting diarrhea that occurs. Stressful conditions (low milk production by underfed cows, bad weather, crowding) further increase the risk of diarrhea in young calves. The balance of all these factors determine if disease occurs and the severity of disease.

When should I treat the calf?

Calves running around the pasture with their tails in the air, bucking and kicking with yellow or white diarrhea may not need treatment. The main indications for treatment are (1) general disposition, (2) appetite, (3) dehydration, and (4) body temperature. If the calf is weak, depressed, or reluctant to move these are all indications that something is wrong. If the calf is not eating, the cow's udder will be distended and this is sign of trouble also. Dehydration can be evaluated easily by pulling up the skin on the side of the neck or shoulder. In a normal calf, the skin snaps back into position quickly. In a dehydrated calf, the skin remains "tented" for a period of time–the longer it remains "tented" the worse the dehydration. Also, as dehydration worsens, the eyeballs sink back away from the eyelids–this is a bad sign and fluids are indicated immediately. Normal body temperature (measured with a rectal thermometer) is 100.5° F to 102.5° F. Body temperatures less than 100° F and greater than 102.5° F is a sign of problems and treatment should be started.

What are the recommended treatments?

The main treatment is fluid therapy. Secondary treatments are antibiotics and nursing care. Because the main problem in scouring calves is loss of body fluid and electrolytes, the primary treatment must be aimed at restoring the water balance. The calves are thirsty, but they are too sick to drink. Therefore, the first line of treatment is ***oral electrolyte solutions***. There are a number of excellent commercial products on the market for treatment of calf scours. All of these products contain glucose or a similar material, sodium chloride (table salt), and other electrolytes. The glucose and sodium allow the animal to absorb the water they need from their digestive tract. **Giving straight water does not work.** Usually 2 liters (just over 2 quarts) of the oral fluid solution is given 1 to 3 times per day to the sick calf. Consult with your veterinarian regarding the appropriate oral electrolyte product for your operation. **Always follow the label mixing instructions**–do not add too much powder to the solution as this may kill the calf and unnecessarily adds to the cost of treatment. Antibiotics are often given to scouring calves even though antibiotics do not kill most of the calf scours agents. Due to damage in the gut of scouring calves, bacteria will "leak" into the blood stream of these calves and cause further problems. Antibiotics are of value for this reason. Again, consult with your veterinarian regarding the correct choice of antibiotics to give. Many of the antibiotics are not labeled for calf scours and thus require a prescription from your veterinarian and an extended withdrawal time. Avoid

the use of injectable gentamicin or kanamycin. Tissue residues from these drugs can persist for up to one year and this can cause problems in the packing plant. Long acting tetracyclines can cause some kidney damage in dehydrated calves and should be avoided. Baytril® is not labeled for scouring calves and should not be used. In addition to fluids and antibiotics, nursing care may be essential for the calves to recover. Shelter from the wind, heat lamps, etc can be very helpful. However, this requires some type of facility and may result in a contaminated environment and increased spread of the germs that cause calf scours. Additionally, the problem of separating the cow and calf has to be solved. **When treating sick calves, always treat them *after* you have attended to all the normal calves.** This will decrease the spread of germs from the sick calves to the younger healthy calves. Also, keep all your treatment equipment clean–including your hands and clothes, as you can easily transmit these agents.

When do I need additional help?

If your treatment methods are not working, contact your veterinarian immediately for additional help. If more than 5% of your calves are scouring and require treatment, you need help. If death loss is greater than 2% due to calf scours contact your veterinarian. Many advances have made the diagnosis of these conditions. Your veterinarian can submit refrigerated (not frozen) stool samples to the University of Nebraska's, Veterinary Diagnostic Laboratory and receive answers in as little as a few days. Freshly dead calves can also be examined to determine the cause of the diarrhea and to aid in determining those factors needed for prevention and treatment in your herd.

Accountability Report for Year: 2006-2007

ID: 92008	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
% of Extension Appointment Position Held	75% Faculty	75% Faculty	75% Faculty	75% Faculty
(4) Food Production & Natural Resource Systems	50%	50%	50%	
(5) Nutrition, Health and Food Safety	50%	50%	45%	
Female:	100	88	51	
Male:	176	196	69	
White	265	278	110	
Black	1	1	5	
Native American	1	1	0	
Hispanic	4	3	5	
Asian	5	1	0	

Accountability Report for Year: 2005-2006

ID: 92008	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
% of Extension Appointment Position Held	75% Faculty	75% Faculty	75% Faculty	75% Faculty
(4) Food Production & Natural Resource Systems	50%	50%	50%	50%
(5) Nutrition, Health and Food Safety	50%	50%	50%	50%
Female:	289	110	50	123
Male:	182	150	125	202
White	450	250	140	300
Black	20	3	25	10
Native American	0	0	2	0
Hispanic	1	5	5	10
Asian	0	2	3	5

Department Of Veterinary and Biomedical Sciences

Nebraska Veterinary Diagnostic Center

David J. Steffen, BS, DVM, PhD, ABVP
Professor and Director

OVERVIEW

The NVDC consists of the diagnostic laboratory in Lincoln. The VDC is an AAVLD provisionally accredited full service diagnostic laboratory, whose emphasis is on food animal diagnostic services and disease surveillance with as a second area of emphasis in surgical pathology. The lab maintians basic services to the poultry industry, wildlife, zoo, pet and public health interests. The laboratory also strives to meet research needs of campus and private concerns in the state with laboratory support primarily in pathology, histology and microbiology research services. The Nebraska Veterinary Diagnostic Laboratory provides a full complement of necropsy, bacteriologic, histologic, immunohistochemical, molecular diagnostic, serologic, toxicologic, electronmicroscopic and traditional virologic services.

VISION

The vision of the Nebraska Veterinary Diagnostic Center is to enhance the economic vitality and life quality for all Nebraskans by promoting healthy livestock and companion animals, enhancing the safety of animal-derived consumer products and protecting wildlife resources through disease control and enhancing and understanding of diseases.

MISSION

The Diagnostic Laboratory's mission is to assist veterinarians, their clients, and others responsible for animal and public health in the detection, prevention and understanding of animal diseases. Faculty and staff approach these tasks by providing accessible, accountable, timely and accurate diagnostic services and by sharing information generated through scholarly publications, meeting presentations, including direct communications.

OBJECTIVES

Provide accessible, accountable, timely and accurate diagnostic, research and information services to veterinarians, animal owners, food producers and animal health industries.

Provide proactive investigational support to enhance population approaches to, and efficiency of diagnostic testing.

Implement modern current and updated biotechnology methods, where appropriate, into diagnostic services.

Monitor and report the incidence and threat of animal diseases, as well as diseases that are transmissible from animals to humans.

Share new information with colleagues through publication in a manner that respects the confidentiality of all clientele.

Prioritize research activities, in applied areas, (epidemiology, diagnostic techniques and emerging diseases) and areas of current concern to Nebraska citizens.

Improve communications and cooperation with extension, teaching and research programs throughout IANR.

Maintain an affordable diagnostic testing program to assure sufficient case numbers in the support of disease surveillance functions with the support of international trade and have full access (tissues, field isolates, etc.) to current research information and materials for accurate diagnostic testing and disease prevalance and trends.

Improve communications with target clientele toward fulfilling their needs and providing services based on those needs.

Communicate with clientele toward educating them on population approaches to diagnostics and current updated testing technologies.

Assist in anyway with the National Surveillance Programs.

Support advances in current and updated biomedical research through diagnostic services to reach a wider range of clientele in the community.

Director's Message

The Nebraska Veterinary Diagnostic Laboratory (NVDL) located in Lincoln is an AAVLD accredited full-service diagnostic laboratory whose emphasis is on food animal diagnostic services and disease surveillance with a second area of emphasis in surgical pathology. The lab maintains basic services to the poultry industry, wildlife, zoo, pet and public health interests. The laboratory continues to meet research needs of campus and private industry within the state with laboratory support primarily in pathology, histology and microbiology research services.

The NVDL provides a full complement of necropsy, bacteriologic, histologic, immunohistochemical, molecular diagnostic, serologic, toxicologic, electron microscopic and traditional virologic services. Most laboratory accessions are supervised by faculty veterinarians and test reports are interpreted by case coordinators, who provide interpretive comments along with assay results. A computer network links all the laboratory units, and faculty to a server. A second server is available for external communication with clients and Public Health Laboratory. The network also provides links to campus computers and the internet. Results are faxed or mailed at the preference of the veterinarian and are complemented by electronic telephone communication of interim results.

Total Square Footage

The Diagnostic Center contains 15,604 usuable square feet and houses office space (secretarial and faculty), laboratories (bacteriology, histopathology, necropsy, emerging technologies, serology, toxicology and virology), a laundry room, a glassware autoclave area, restrooms, lockers, and a departmental break room. A minimal amount of storage space is the laundry facility room 117 and in room 127. An incinerator and dock area are located on the east side of the building. The incinerator is fueled by natural gas and is capable of burning 800 pounds of wet material per hour at 1200 degrees.

Office/Administration		**Laboratory Areas**	
Office Staff	316	**Microbiology**	
Faculty Offices	844	Bacteriology	1,054
Resident/Temp Faculty	168	Bacteriology Research	159
Quality Manager	154	**Subtotal Bacteriology**	**1,213**
Microbiology Managers	133	**Virology**	
Total Offices	**1,615**	Traditional Virolgy	543
Miscellaneous Space		Serology	580
Communications	197	PCR Extraction	129
Slide Consultation	189	Rabies	71
Breakroom/Kitchen	415	Emerging Tech	669
Restrooms	111	**Subtotal Virology**	**1,982**
Total Miscellaneous	2,527	**Histology**	

Equipment Rooms	242	Trim & Process	279
Laundry/Storage	279	Embed/Section	454
		Manager Alcove	54
Resource Space		Storage	197
Freezer Alcove	79	**Total Histology**	**984**
Media Prep	110	**Toxicology**	
Cooler	89	Chemistry lab	710
Microbiology Store	160	**Total Toxicology**	**710**
Dish Autoclave	365	**Pathology**	
Subtotal Resource	**803**	Necropsy	1,533
Total Micro/Virol/Res	**3,998**	Cooler	189
		Ante Room	56
		Women's locker	230
		Men's locker	288
		Toal Pathology	**2,296**
		9,258	**Total Usable Space**

Reception Area

The reception area of the Veterinary Diagnostic Laborartory has a front window, where walk-in clinets are assisted in filling out necessary paperwork and where samples are left for processing. Seating is also available in the reception area. A table is also available for placement of incoming samples. All samples except for after hours samples and carcasses enter this area.

Live Animal and Equipment Receiving

Unloading facilities are available on the southeast dock for large live animals including a small pen, ramp, head catch and hoist. The northeast dock is "clean" and used for receiving large equipment and for storage of formalin waste barrels and access to paper waste and cardbord recycling dumpsters. The incinerator loading facility is the demarcation of biologiclaly "dirty" and "clean" areas. The dock is disinfected after carcasses are moved across the surface.

Laboratory Animal Holding Facilities

Laboratory animals for use by the Veterinary Diagnostic Laborarory are housed in the Animal Research Facility (ARF), which is located directly north of the Veterinary Diagnostic Laboratory. The Animal Research Facility meets USDA and UNL guidelines for animal housing and welfare.

Live lab animals delivered for necropsy are held in the cages they were delivered in until they are euthanized. Two steel dog cages are available for holding small piglets awaiting necropsy.

Diagnosticians Faculty Appointments

Diagnosticians in the Veterinary Diagnostic Laboratory hold faculty appointments in the Department of Veterinary and Biomedical Sciences and are vital contributors to the academic programs of the department. The NVDL is integrated inter-dependently with the departmental extension, research and teaching programs. Diagnosticians in the NVDL have an appointment in "Scholarly Service" to represent their diagnostic service responsibilities. In addition, they may have an additional appointment in research, teaching or extension. The majority of diagnostic pathologists have 100% Scholarly Service appointments, but they are also expected to collaborate on research and all have teaching or advising activities as well. Scholarly aspects of the positions are demonstrated through program leadership, grants and contracts, publications and presentations. Diagnostic microbiologists have appointments split with formal research and/or teaching appointments. They are expected to have a research plan and are required to develop extramurally funded research on a collaborative or individual basis. All current faculty members regularly participate in research and coauthor publications irrespective of the appointment.

The vision of the NVDL is to enhance the economic vitality and life quality for all Nebraskans by promoting health livestock and companion animals, enhancing the safety of animal derived consumer products, protecting wildlife resources through disease control and enhancing understanding of diseases.

Specific activities of the NVDLS are summarized in the following tables.

Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

Table 27. Accessions by Species by Month (January 2007-December 2007)

NEBRASKA VETERINARY DIAGNOSTIC LABORATORY - LINCOLN, NEBRASKA

Species	January	February	March	April	May	June	July	August	Sept	October	Nov	Dec	TOTAL	% of Total
Avian - Chicken	29	12	36	36	35	14	25	34	14	25	19	13	292	1.90
Avian - Misc	26	29	43	28	35	31	121	105	57	59	38	19	591	3.85
Avian - Turkey	8	10	9	11	13	22	23	24	15	6	19	6	166	1.08
Bovine	701	654	886	812	683	485	513	521	503	721	586	575	7640	49.68
Canine	238	220	236	238	243	225	276	271	212	260	254	186	2859	18.59
Caprine	6	3	9	9	6	4	4	8	12	10	8	6	85	0.55
Equine	39	43	109	114	111	91	80	119	87	89	44	28	954	6.20
Feed & Water	1	2	0	2	3	1	0	0	0	1	1	0	11	0.07
Feline	64	56	55	66	52	52	52	59	62	57	59	52	686	4.46
Ovine	5	6	11	8	6	5	8	11	9	6	5	5	85	0.55
Porcine	153	98	104	91	111	107	68	120	81	102	134	119	1288	8.38
Porcine - PRV	14	15	13	6	15	14	10	13	9	12	15	7	143	0.93
Misc. Mammal	40	49	51	38	37	31	37	41	47	67	50	31	519	3.37
Misc.	6	4	3	4	7	4	5	5	3	4	4	11	60	0.39
TOTAL	1,330	1,201	1,565	1,463	1,357	1,086	1,222	1,331	1,111	1,419	1,236	1,058	15,379	100.00

Table 28. Summary of Laboratory Procedures (January 2007-December 2007)

NEBRASKA VETERINARY DIAGNOSTIC LABORATORY

PROCEDURE	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTAL
Necropsies	71	59	52	88	36	41	48	50	37	51	20	49	602
Histology	4,568	4,586	510	64,857	3,670	2,611	3,479	4,155	3,220	4,353	3,079	3,899	47,583
Bacteriology	1,829	940	1,762	1,461	1,025	574	594	696	608	1,054	802	1.211	12,556
PCR/RFLP/Sequencing	546	463	709	861	677	417	951	1,481	675	1,134	893	718	9,525
Mycology	4	6	8	7	11	13	10	9	12	12	7	10	109
Sensitivity Tests	188	188	231	195	155	99	135	123	126	181	171	166	1,958
FA Tests (Bact)	3	8	5	2	2	0	0	1	2	1	5	1	30
FA Tests (Viral)	1	0	0	0	0	0	0	0	0	0	0	0	1
EM Exams	2	16	4	6	2	7	2	13	5	6	2	1	66
Toxicology	111	231	227	131	58	47	43	53	46	108	43	59	1,157
Parasitology	347	213	456	700	418	190	28	107	111	391	222	146	3,329
Clincial Pathology	6	10	14	13	15	21	20	32	22	18	26	15	212
Bacterial Serology	43	86	93	97	65	37	79	27	3	75	93	147	876
Viral Serology	2,311	1,834	2,067	3,903	2,237	3,823	2,175	2,656	2,360	3,819	3,430	2,614	33,229
Avian Serology	1,177	890	2,131	471	2,011	1,220	1,840	1,602	572	2,500	1,216	1,510	17,173
Immunohistochemistry	125	185	153	143	106	67	71	56	65	108	97	96	1,272
BVD Skin Biopsy	20,347	17,573	21,074	22,575	20,204	17,051	15,657	17,694	18,107	23,645	16,978	14,487	225,392
CWD	2	11	2	1	0	1	1	0	0	78	3,267	52	3,415
Scrapie	1	20	0	0	0	0	0	0	0	12	13	51	100
Virus Isolation	32	25	48	24	8	6	9	15	8	18	9	27	229
Rabies	1	4	10	14	6	9	25	16	22	10	5	7	129
BCV, BVD & Rota Elisa	58	161	630	202	136	53	50	73	144	85	192	60	1,844
TOTAL FOR MONTH	32,082	27,767	35,346	35,858	31,321	26,517	25,559	29,099	26,323	37,900	30,786	25,793	364,351

Table 29. Total Number of Accessions, Previous Five Years

2003	2004	2005	2006	2007
15,330	14,485	14,904	15,693	15,379

Table 30. Total Number of Laboratory Procedures Conducted, Previous Five Years

2003	2004	2005	2006	2007
356,129	359,907	368,398	429,903	364,351

Department of Veterinary and Biomedical Sciences
Veterinary Diagnostic Center

Table 31. Lag Time Report

Number of Days to Report	All Accessions % Reported (Cumulative %)				Normal Accessions % Reported (Cumulative %)				Pseudorabies Accessions % Reported (Cumulative %)			
	First Report		Final Report		First Report		Final Report		First Report		Final Report	
	Given	%	Sent	%	Given	%	Sent	%	Given	%	Sent	%
0	4.2	4.2	4.0	4.1	4.1	4.1	4.1	19.6	19.6	19.6	19.6	19.6
1	15.0	19.2	15.0	19.2	14.7	18.8	14.7	18.8	38.5	58.0	38.5	58.0
2	14.4	33.6	14.4	33.6	14.4	33.3	14.4	33.3	15.4	73.4	15.4	73.4
3	13.8	47.4	13.8	47.4	13.9	47.1	13.9	47.1	2.8	76.2	2.8	76.2
4	11.6	58.9	11.6	58.9	11.6	58.7	1.6	58.7	9.8	86.0	9.8	86.0
5	15.4	74.3	15.0	74.3	15.4	74.1	15.4	74.1	9.8	95.8	9.8	95.8
6	9.3	83.7	9.3	83.7	9.4	83.5	9.4	83.0	0.7	96.5	0.7	96.5
7	7.0	90.7	7.0	90.7	7.1	90.6	7.1	90.6	2.8	99.3	2.8	99.3
8	2.6	93.3	2.6	93.3	2.7	93.3	2.7	93.3	0.0	0.0	0.0	0.0
9	1.0	94.4	1.1	94.4	1.1	94.4	1.1	94.4	0.0	0.0	0.0	0.0
10	1.2	95.7	1.0	95.7	1.2	95.6	1.2	95.6	0.0	0.0	0.0	0.0
11-15	2.2	97.8	2.2	97.0	2.2	97.8	2.2	97.8	0.0	0.0	0.0	0.0
16-20	0.6	98.4	0.6	98.4	0.6	98.4	0.6	98.4	0.0	0.0	0.0	0.0
21-30	0.8	99.2	0.8	99.2	0.8	99.2	0.8	99.2	0.0	0.0	0.0	0.0
31-50	0.4	99.6	0.4	99.6	0.4	99.6	0.4	99.6	0.0	0.0	0.0	0.0
over 50	0.4	100.0	0.4	100.0	0.4	100.0	0.4	100.0	0.7	100.0	0.07	100.0

NOTE: Weekends and holidays are included in this report. If a case is not called or faxed out, it will have no record of a first report date. Research cases may or may not have a first and final report date.

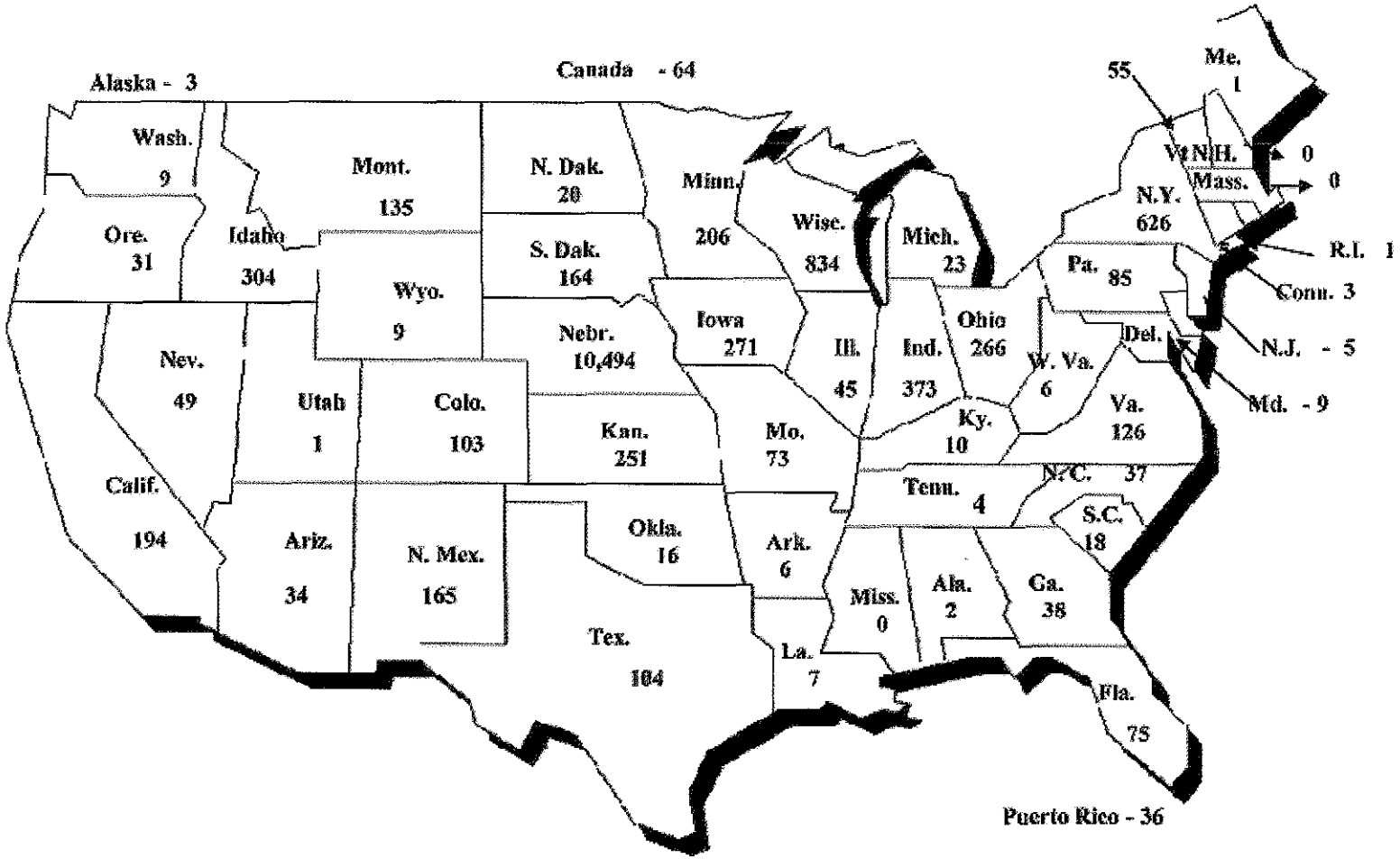


Figure 1

Cases Received Per State

January 2007 – December 2007

Cases as Received by County

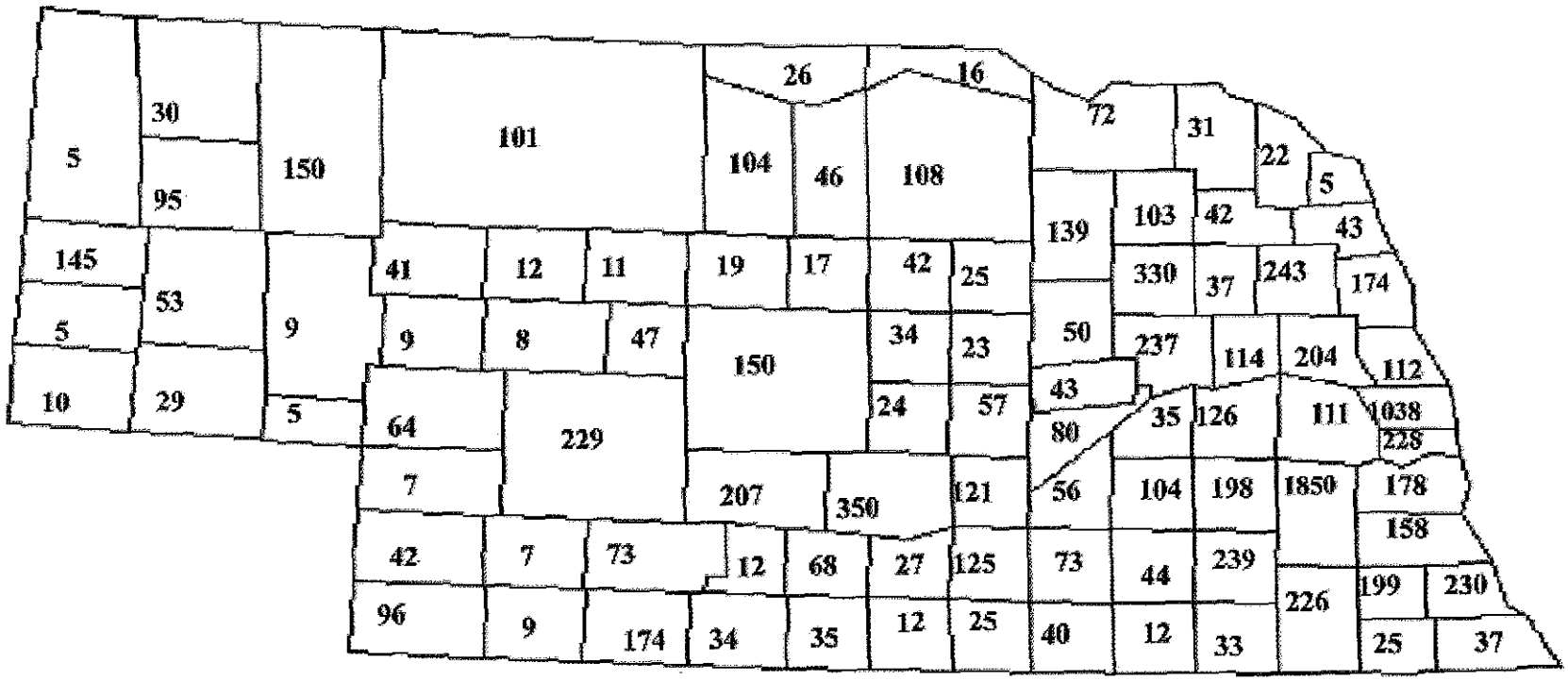


Figure 2

January 2007 – December 2007

University of Nebraska - Lincoln
Details of all Proposals, Grants, Contracts and Gifts by College Department

Proposals submitted in the period of 01/01/2007 - 12/31/2007

Submitted through Department of Veterinary and Biomedical Sciences

Title/PI	Budget Period/Award %	Agency Name	Requested Amount	Cat
IANR-CASNR				
Department of Veterinary and Biomedical Sciences				
Veterinarian to Serve Rural America	09/01/2007 - 08/31/2010	Dept of Agriculture-CSREES-HEC		
Dee Griffin	50%		$249,194	1F
Veterinarian to Serve Rural America	09/01/2007 - 08/31/2010	Dept of Agriculture-CSREES-HEC		
Gary Rupp	50%		$249,194	1F
	Totals for Department of Veterinary and Biomedical Sciences:		$498,388	
	Totals for IANR-CASNR:		$498,388	
IANR-Cooperative Extension				
Get Smart on the Farm - Nebraska	-	Ne Dept Health & Human Serv		
David Smith	100%		$1,000	3S
BSE Informational Brochure	11/01/2007 - 06/30/2008	Ne Dept Agriculture		
David Smith	100%		$11,000	3S
	Totals for Department of Veterinary and Biomedical Sciences:		$12,000	
	Totals for IANR-Cooperative Extension:		$12,000	
IANR-Research				
Glycosylation of GP-1 in LCMV	04/01/2008 - 03/31/2010	DHHS-NIH-Nat Inst Health		
Israrul Ansari	100%		$362,250	2F
American Society for Microbiology Member...	-	NU Foundation		
Raul Barletta	100%		$224	2U
M. tuberculosis Ligase Inhibitors	10/01/2007 - 09/30/2009	DHHS-NINDS		
Raul Barletta	100%		$206,249	2F
MAP - Macrophage Genomic Study	01/01/2008 - 12/31/2010	Dept of Agriculture-NRICGP		
Raul Barletta	100%		$708,724	2F
Johne's Disease Integrated Program	04/15/2008 - 04/14/2010	Univ of Minnesota		
Raul Barletta	100%		$64,136	2V
Johne's Disease Integrated Program	04/15/2008 - 04/14/2009	Univ of Minnesota		
Raul Barletta	100%		$95,698	2V
Rapid Diagnosis of Tuberculosis	08/01/2008 - 07/31/2009	Philisa Technology Corporation		
Raul Barletta	100%		$19,931	2I
MAP Virulence Determinants	08/01/2008 - 07/31/2010	Dept of Agriculture-NRICGP		
Raul Barletta	100%		$161,561	2F
PPE Proteins in MAP pathogenesis	09/01/2008 - 08/31/2011	Dept of Agriculture-NRICGP		
Raul Barletta	85%		$243,235	2F
Regulation of Viral RNA Synthesis	12/01/2007 - 11/30/2009	DHHS-NIH-Nat Inst Health		
Subash Das	100%		$362,500	2F
Enteric Disease Research	-	NU Foundation		
Gerald Duhamel	100%		$1,065	2U
Enteric Disease Research	-	NU Foundation		
Gerald Duhamel	100%		$754	2U

Enteric Disease Research	-		NU Foundation		
Gerald Duhamel	100%			$953	2U
Best Seminar Award for PhD Student - Har...	-		NU Foundation		
David Hardin	100%			$100	2U
Best Seminar Award for MS Student - Gulz...	-		NU Foundation		
David Hardin	100%			$100	2U
Enteric Disease Research	-		NU Foundation		
David Hardin	100%			$1,653	2U
Susan Ann Smith Mills Memorial Award - G...	-		NU Foundation		
David Hardin	100%			$1,800	2U
Bovine Herpesvirus 1 Gene Analysis	10/01/2006 - 09/30/2011		Dept of Agriculture-NRICGP		
Clinton Jones	100%			$374,906	2F
Avian Influenza (AI) - Hi Path Surv	-		Ne Dept Agriculture		
Clayton Kelling	25%			$17,728	2S
AIV & IBD Virus Survival in NRP	04/01/2007 - 03/31/2008		Michael Foods		
Clayton Kelling	34%			$16,552	2I
Avian Influenza (AI) - HI Path Surv	04/30/2007 - 12/31/2007		Ne Dept Agriculture		
Clayton Kelling	25%			$23,513	2S
Screening of Lilly Compound	04/01/2007 - 03/31/2008		Eli Lilly & Company		
Marjorie Lou	100%			$46,593	2I
Mixed Disulfide in Cataractogenesis	07/01/2007 - 06/30/2008		DHHS-Nat Eye Institute		
Marjorie Lou	100%			$494,711	2F
Encore Vision Study 1	07/09/2007 - 08/08/2007		Encore Vision Inc		
Marjorie Lou	100%			$12,462	2I
Mixed Disulfide in Cataractogenesis	02/01/2008 - 01/31/2013		DHHS-Nat Eye Institute		
Marjorie Lou	100%			$2,623,824	2F
Dangerous Bacterial Pathogens	10/01/2007 - 09/30/2007		Dept of Agriculture-CSREES		
David McVey	50%			$25,000	2F
PPE Proteins in MAP pathogenesis	09/01/2009 - 08/31/2011		Dept of Agriculture-NRICGP		
David McVey	35%			$130,973	2F
Escherichia coli Bacterial Extract	05/01/2006 - 06/30/2007		Bioniche Life Sciences		
Rodney Moxley	25%			$66,429	2I
Anti-Adherence Activity	08/01/2007 - 07/31/2008		Dairy Management Inc		
Rodney Moxley	50%			$24,998	2I
Anti-adherence of prebiotics	10/01/2007 - 09/30/2009		Dept of Agriculture-NRICGP		
Rodney Moxley	50%			$171,740	2F
BARD Anti-Adhesive Agents	06/01/2008 - 05/31/2011		Dept of Agriculture-BARD		
Rodney Moxley	42%			$84,672	2F
Rational Design of PRRSV Differen	-		Natl Pork Board		
Fernando Osorio	100%			$109,313	2I
PRRSV GPs in Virus Biology	09/01/2008 - 08/31/2011		Dept of Agriculture-NRICGP		
Fernando Osorio	20%			$74,892	2F
PRRSV Virulence Genes	09/01/2008 - 08/31/2011		Dept of Agriculture-NRICGP		
Fernando Osorio	50%			$187,301	2F
LCMV GP1 in Immune Response	03/01/2008 - 02/28/2009		DHHS-NIH-Nat Inst Health		
Asit Pattnaik	100%			$144,726	2F
VSV Replication in Yeast	04/01/2008 - 03/31/2010		DHHS-NIH-Nat Inst Health		
Asit Pattnaik	100%			$380,216	2F

VSV Replication and Assembly	04/01/2008 - 03/31/2013	DHHS-NIAID		
Asit Pattnaik	100%		$1,771,269	2F
PRRSV GPs in Virus Biology	09/01/2008 - 08/31/2011	Dept of Agriculture-NRICGP		
Asit Pattnaik	80%		$299,969	2F
PRRSV Virulence Genes	09/01/2008 - 08/31/2011	Dept of Agriculture-NRICGP		
Asit Pattnaik	50%		$187,301	2F
Escherichia coli Bacterial Extract	05/01/2006 - 06/30/2007	Bioniche Life Sciences		
David Smith	25%		$86,429	2I
Junior Faculty for Excellence in Researc...	-	NU Foundation		
Greg Somerville	100%		$3,000	2U
Functional Annotation using NMR	10/01/2007 - 09/30/2010	Dept of Energy		
Greg Somerville	7%		$104,358	2F
Aconitase Mediated Signal Transduct	08/01/2008 - 07/31/2012	DHHS-NIH-Nat Inst Health		
Greg Somerville	100%		$1,305,822	2F
Diagnostic Surveillance & Disease Invest...	-	Natl Assn of Animal Breeders		
David Steffen	100%		$1,500	2A
Avian Influenza - Lab Testing NE	-	Dept of Agriculture-APHIS		
David Steffen	100%		$6,000	2F
Avian Influenza - Lab Testing NE	-	Dept of Agriculture-APHIS		
David Steffen	100%		$30,000	2F
Avian Influenza (AI) - Hi Path Surv	-	Ne Dept Agriculture		
David Steffen	75%		$53,184	2S
Genetic Defects	-	American Simmental Association		
David Steffen	100%		$2,500	2A
Genetic Defects	-	American Simmental Association		
David Steffen	100%		$2,500	2A
Chronic Wasting Disease Monitoring	09/09/2006 - 09/08/2007	Ne Game & Parks Commission		
David Steffen	100%		$135,000	2S
Avian Influenza - Lab Testing NE	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS		
David Steffen	100%		$47,000	2F
Avian Influenza - Lab Testing KS	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS		
David Steffen	100%		$33,425	2F
Johne's Disease Testing	01/01/2007 - 12/31/2007	Ne Dept Agriculture		
David Steffen	100%		$64,166	2S
AIV & IBD Virus Survival in NRP	04/01/2007 - 03/31/2008	Michael Foods		
David Steffen	33%		$16,085	2I
Avian Influenza (AI) - Hi Path Surv	04/30/2007 - 12/31/2007	Ne Dept Agriculture		
David Steffen	75%		$70,539	2S
Dangerous Bacterial Pathogens	10/01/2007 - 09/30/2007	Dept of Agriculture-CSREES		
David Steffen	50%		$25,000	2F
Viral Latency in AIDS Oral Malignan	02/01/2008 - 01/31/2013	DHHS-NIH-Nat Inst Health		
You Zhou	12%		$661,880	2F
Totals for Department of Veterinary and Biomedical Sciences:			$12,190,527	
Totals for IANR-Research:			$12,190,527	
Grand Total:			$12,700,915	

University of Nebraska - Lincoln
Details of all Proposals, Grants, Contracts and Gifts Awarded

Awards received in the period of 01/01/2007 - 12/31/2007

Submitted through Department of Veterinary and Biomedical Sciences

Title/PI	Budget Period/Award %	Agency Name	Awarded Amount	Cat
IANR-Cooperative Extension				
Department of Veterinary and Biomedical Sciences				
Get Smart on the Farm - Nebraska	10/01/2006 - 09/30/2007	Ne Dept Health & Human Serv		
David Smith	100%		$1,000	3S
	Totals for Department of Veterinary and Biomedical Sciences:		$1,000	
	Totals for IANR-Cooperative Extension:		$1,000	
IANR-Research				
American Society for Microbiology Member...	07/01/2006 - 06/30/2007	NU Foundation		
Raul Barletta	100%		$224	2U
Enteric Disease Research	07/01/2006 - 06/30/2007	NU Foundation		
Gerald Duhamel	100%		$1,065	2U
Enteric Disease Research	07/01/2006 - 06/30/2007	NU Foundation		
Gerald Duhamel	100%		$754	2U
Enteric Disease Research	07/01/2007 - 06/30/2008	NU Foundation		
Gerald Duhamel	100%		$853	2U
Best Seminar Award for PhD Student - Har...	07/01/2006 - 06/30/2007	NU Foundation		
David Hardin	100%		$100	2U
Best Seminar Award for MS Student - Gulz...	07/01/2006 - 06/30/2007	NU Foundation		
David Hardin	100%		$100	2U
Enteric Disease Research	07/01/2006 - 06/30/2007	NU Foundation		
David Hardin	100%		$1,653	2U
Susan Ann Smith Mills Memorial Award - G...	07/01/2007 - 06/30/2008	NU Foundation		
David Hardin	100%		$1,800	2U
Vaccination as E.coli Intervention	07/01/2005 - 06/30/2006	Bioniche Life Sciences		
Susanne Hinkley	20%		$30,858	2I
HSV-1 Latency Assoc Transcript LAT	07/05/2007 - 06/30/2008	DHHS-NIAID		
Clinton Jones	100%		$221,250	2F
Bovine Viral Diarrhea Virus in Nort	04/13/2006 - 04/12/2008	Alpaca Research Foundation		
Clayton Kelling	100%		$2,400	2A
Avian Influenza (AI) - HI Path Surv	04/30/2007 - 12/31/2008	Ne Dept Agriculture		
Clayton Kelling	25%		$23,513	2S
Avian Influenza (AI) - HI Path Surv	06/25/2007 - 12/31/2008	Ne Dept Agriculture		
Clayton Kelling	25%		$17,728	2S
Screening of Lilly Compound	04/12/2007 - 04/11/2009	Eli Lilly & Company		
Marjorie Lou	100%		$46,593	2I
Encore Vision Study 1	06/01/2007 - 06/14/2007	Encore Vision Inc		
Marjorie Lou	100%		$8,639	2I
Mixed Disulfide in Cataractogenesis	07/01/2007 - 06/30/2008	DHHS-Nat Eye Institute		
Marjorie Lou	100%		$494,711	2F
Dangerous Bacterial Pathogens	09/30/2006 - 08/31/2008	Dept of Agriculture-CSREES		
David McVey	50%		$25,000	2F

Vaccination as E.coli Intervention	07/01/2005 - 06/30/2006	Bioniche Life Sciences		
Rodney Moxley	20%		$30,558	2I
Escherichia coli Bacterial Extract	05/01/2006 - 06/30/2007	Bioniche Life Sciences		
Rodney Moxley	25%		$86,429	2I
Rational Design of PRRSV Differen	12/15/2006 - 06/15/2008	Natl Pork Board		
Fernando Osorio	50%		$74,200	2I
Rational Design of PRRSV Differen	12/15/2006 - 06/15/2008	Natl Pork Board		
Asit Pattnaik	50%		$74,200	2I
Escherichia coli Bacterial Extract	05/01/2006 - 06/30/2007	Bioniche Life Sciences		
David Smith	25%		$86,429	2I
Vaccination as E.coli Intervention	07/01/2005 - 06/30/2006	Bioniche Life Sciences		
David R. Smith	20%		$30,558	2I
Staph Biofilm Heart Infections	01/01/2007 - 12/31/2007	American Heart Association		
Greg Somerville	100%		$71,500	2A
Staphylococcus epidermidis PIA Synt	02/01/2007 - 01/31/2008	DHHS-Nat Inst Gen Medical Sci		
Greg Somerville	100%		$146,800	2F
Staphylococcus epidermidis PIA Synt	02/01/2007 - 07/31/2008	DHHS-Nat Inst Gen Medical Sci		
Greg Somerville	100%		$31,379	2F
Junior Faculty for Excellence in Researc...	08/01/2007 - 07/31/2008	NU Foundation		
Greg Somerville	100%		$3,000	2U
Chronic Wasting Disease Monitoring	09/09/2006 - 09/08/2007	Ne Game & Parks Commission		
David Steffen	100%		$135,000	2S
Dangerous Bacterial Pathogens	09/30/2006 - 08/31/2008	Dept of Agriculture-CSREES		
David Steffen	50%		$25,000	2F
Avian Influenza - Lab Testing NE	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS		
David Steffen	100%		$47,000	2F
Avian Influenza - Lab Testing KS	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS		
David Steffen	100%		$33,425	2F
Avian Influenza - Lab Testing NE	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS		
David Steffen	100%		$8,000	2F
Johne's Disease Testing	01/01/2007 - 12/31/2007	Ne Dept Agriculture		
David Steffen	100%		$64,186	2S
Genetic Defects	03/13/2007 - 06/30/2007	American Simmental Association		
David Steffen	100%		$2,500	2A
Avian Influenza (AI) - Hi Path Surv	04/30/2007 - 12/31/2008	Ne Dept Agriculture		
David Steffen	75%		$70,539	2S
Diagnostic Surveillance & Disease Invest...	07/01/2007 - 06/30/2008	Natl Assn of Animal Breeders		
David Steffen	100%		$1,500	2A
Avian Influenza (AI) - Hi Path Surv	08/25/2007 - 12/31/2008	Ne Dept Agriculture		
David Steffen	75%		$63,184	2S
Avian Influenza - Lab Testing NE	10/01/2007 - 04/30/2008	Dept of Agriculture-APHIS		
David Steffen	100%		$30,000	2F
Genetic Defects	11/12/2007 - 06/30/2008	American Simmental Association		
David Steffen	100%		$2,500	2A
Totals for Department of Veterinary and Biomedical Sciences:			$1,985,126	
Totals for IANR-Research:			$1,985,126	
Grand Total:			$1,986,126	

University of Nebraska - Lincoln
Details of all Proposals, Grants, Contracts and Gifts Awarded

Awards received in the period of 01/01/2007 - 12/01/2007

Submitted through Department of Veterinary and Biomedical Sciences

Title/PI	Budget Period/% Credit	Agency Name/% Award	Awarded Amount

IANR-Research

Department of Veterinary and Biomedical Sciences

Vaccination as E.coli intervention	07/01/2006 - 06/30/2006	Bioniche Life Sciences	
David R. Smith	20%	$30,558	
Rodney Moxley	20%	$30,558	
Susanne Hinkley	20%	$30,558	
Other	40%	$61,116	
			Department Credit: $91,674
HSV-1 Latency Assoc Transcript LAT	07/05/2007 - 06/30/2008	DHHS-NIAID	
Clinton Jones	100%	$221,250	
			Department Credit: $221,250
Staph Biofilm Heart Infections	01/01/2007 - 12/31/2007	American Heart Association	
Greg Somerville	100%	$71,500	
			Department Credit: $71,500
Rational Design of PRRSV Differen	12/15/2006 - 06/15/2008	Natl Pork Board	
Fernando Osorio	50%	$74,200	
Asit Pattnaik	50%	$74,200	
			Department Credit: $148,400
American Society for Microbiology Member...	07/01/2006 - 06/30/2007	NU Foundation	
Raul Barletta	100%	$224	
			Department Credit: $224
Staphylococcus epidermidis PIA Synt	02/01/2007 - 01/31/2008	DHHS-Nat Inst Gen Medical Sci	
Greg Somerville	100%	$146,800	
			Department Credit: $146,800
Escherichia coli Bacterial Extract	05/01/2006 - 06/30/2007	Bioniche Life Sciences	
Rodney Moxley	25%	$86,429	
David Smith	25%	$86,429	
Other	50%	$172,857	
			Department Credit: $172,858
Enteric Disease Research	07/01/2006 - 06/30/2007	NU Foundation	
Gerald Duhamel	100%	$1,065	
			Department Credit: $1,065

Title/PI	Budget Period/% Credit	Agency Name/% Award	Awarded Amount
Staphylococcus epidermidis PIA Synt Greg Somerville	02/01/2007 - 07/31/2008 100%	DHHS-Nat Inst Gen Medical Sci $31,379	Department Credit: $31,379
Screening of Lilly Compound Marjorie Lou	04/12/2007 - 04/11/2009 100%	Eli Lilly & Company $46,593	Department Credit: $46,593
Enteric Disease Research Gerald Duhamel	07/01/2006 - 06/30/2007 100%	NU Foundation $754	Department Credit: $754
Avian Influenza - Lab Testing NE David Steffen	10/01/2006 - 09/30/2007 100%	Dept of Agriculture-APHIS $47,000	Department Credit: $47,000
Avian Influenza - Lab Testing KS David Steffen	10/01/2006 - 09/30/2007 100%	Dept of Agriculture-APHIS $33,425	Department Credit: $33,425
Genetic Defects David Steffen	03/13/2007 - 06/30/2007 100%	American Simmental Association $2,500	Department Credit: $2,500
Bovine Viral Diarrhea Virus in Nort Clayton Kelling	04/13/2006 - 04/12/2008 100%	Alpaca Research Foundation $2,400	Department Credit: $2,400
Chronic Wasting Disease Monitoring David Steffen	09/09/2006 - 09/08/2007 100%	Ne Game & Parks Commission $135,000	Department Credit: $135,000
Dangerous Bacterial Pathogens David Steffen David McVey	09/30/2006 - 08/31/2008 50% 50%	Dept of Agriculture-CSREES $25,000 $25,000	Department Credit: $50,000
Best Seminar Award for PhD Student - Har... David Hardin	07/01/2006 - 06/30/2007 100%	NU Foundation $100	Department Credit: $100
Best Seminar Award for MS Student - Guiz... David Hardin	07/01/2006 - 06/30/2007 100%	NU Foundation $100	Department Credit: $100
Encore Vision Study 1 Marjorie Lou	06/01/2007 - 08/14/2007 100%	Encore Vision Inc $8,839	Department Credit: $8,839

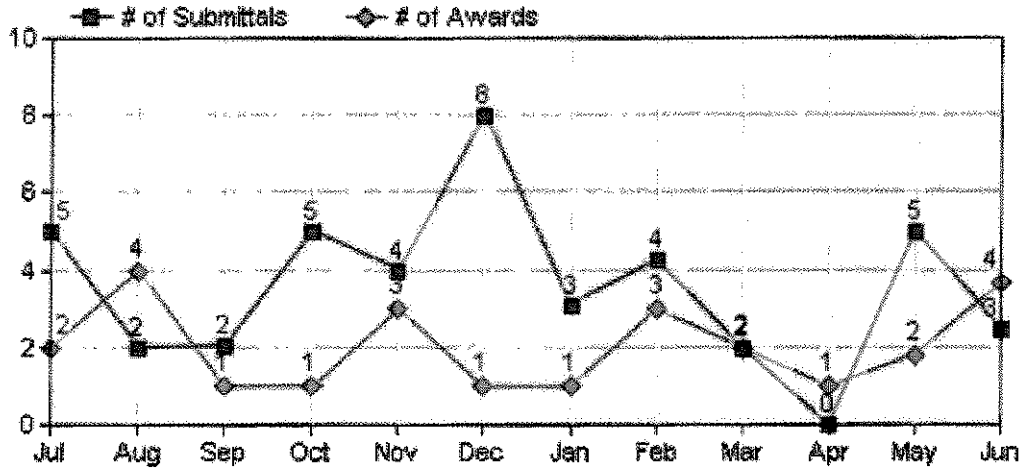
Title/PI	Budget Period/% Credit	Agency Name/% Award	Awarded Amount
Enteric Disease Research	07/01/2006 - 06/30/2007	NU Foundation	
David Hardin	100%	$1,653	
			Department Credit: $1,653
Diagnostic Surveillance & Disease Invest...	07/01/2007 - 06/30/2008	Natl Assn of Animal Breeders	
David Steffen	100%	$1,500	
			Department Credit: $1,500
Susan Ann Smith Mills Memorial Award - G...	07/01/2007 - 06/30/2008	NU Foundation	
David Hardin	100%	$1,800	
			Department Credit: $1,800
Johne's Disease Testing	01/01/2007 - 12/31/2007	Ne Dept Agriculture	
David Steffen	100%	$64,186	
			Department Credit: $64,186
Avian Influenza (AI) - Hi Path Surv	04/30/2007 - 12/31/2008	Ne Dept Agriculture	
David Steffen	75%	$70,539	
Clayton Kelling	25%	$23,513	
			Department Credit: $94,052
Mixed Disulfide in Cataractogenesis	07/01/2007 - 06/30/2008	DHHS-Nat Eye Institute	
Marjorie Lou	100%	$494,711	
			Department Credit: $494,711
Enteric Disease Research	07/01/2007 - 06/30/2008	NU Foundation	
Gerald Duhamel	100%	$953	
			Department Credit: $953
Junior Faculty for Excellence in Researc...	06/01/2007 - 07/31/2008	NU Foundation	
Greg Somerville	100%	$3,000	
			Department Credit: $3,000
Avian Influenza - Lab Testing NE	10/01/2006 - 09/30/2007	Dept of Agriculture-APHIS	
David Steffen	100%	$8,000	
			Department Credit: $8,000
Avian Influenza - Lab Testing NE	10/01/2007 - 04/30/2008	Dept of Agriculture-APHIS	
David Steffen	100%	$30,000	
			Department Credit: $30,000
Avian Influenza (AI) - Hi Path Surv	09/25/2007 - 12/31/2008	Ne Dept Agriculture	
David Steffen	75%	$53,184	
Clayton Kelling	25%	$17,728	
			Department Credit: $70,912

Title/PI	Budget Period/% Credit	Agency Name/% Award	Awarded Amount
Genetic Defects	11/12/2007 - 06/30/2008	American Simmental Association	
David Steffen	100%	$2,500	
		Department Credit:	$2,500

Totals for Department of Veterinary and Biomedical Sciences: $1,985,128

Proposal & Award Activity Report for FY 07-08

College: Department of Veterinary and Biomedical Sciences
as of August 21, 2009



Month	# of Submittals	# of Awards
Jul	5	2
Aug	2	4
Sep	2.04	1
Oct	5	1
Nov	4	3
Dec	8	1
Jan	3.1	1
Feb	4.25	3
Mar	1.99	2
Apr	0	1
May	5	1.83
Jun	2.5	3.66

University of Nebraska - Lincoln
Summary of all Proposals, Grants, Contracts and Gifts by Department

Proposals submitted in the period of 01/01/2007 - 12/31/2007

Submitted through Department of Veterinary and Biomedical Sciences

Department Name	Requested Amount
IANR-CASNR	
Department of Veterinary and Biomedical Sciences	$498,388
	Totals for IANR-CASNR: $498,388
IANR-Cooperative Extension	
Department of Veterinary and Biomedical Sciences	$12,000
	Totals for IANR-Cooperative Extension: $12,000
IANR-Research	
Department of Veterinary and Biomedical Sciences	$12,190,527
	Totals for IANR-Research: $12,190,527
	Grand Total: $12,700,915

University of Nebraska - Lincoln
Summary of all Proposals, Grants, Contracts and Gifts by Department

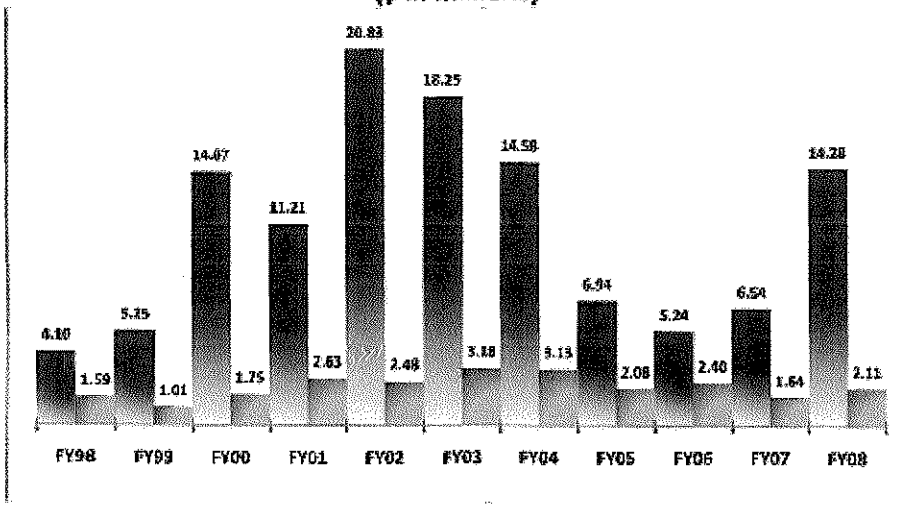
Awards received in the period of 01/01/2007 - 12/31/2007

Submitted through Department of Veterinary and Biomedical Sciences

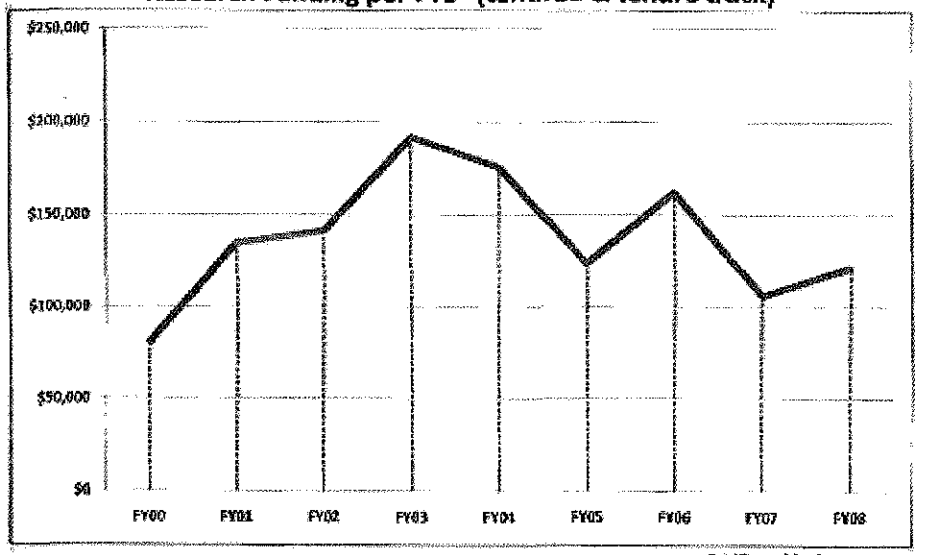
Department Name	Awarded Amount
IANR-Cooperative Extension	
Department of Veterinary and Biomedical Sciences	$1,000
Totals for IANR-Cooperative Extension:	$1,000
IANR-Research	
Department of Veterinary and Biomedical Sciences	$1,985,128
Totals for IANR-Research:	$1,985,128
Grand Total:	$1,986,128

Veterinary & Biomedical Sciences
David Hardin, Department Head

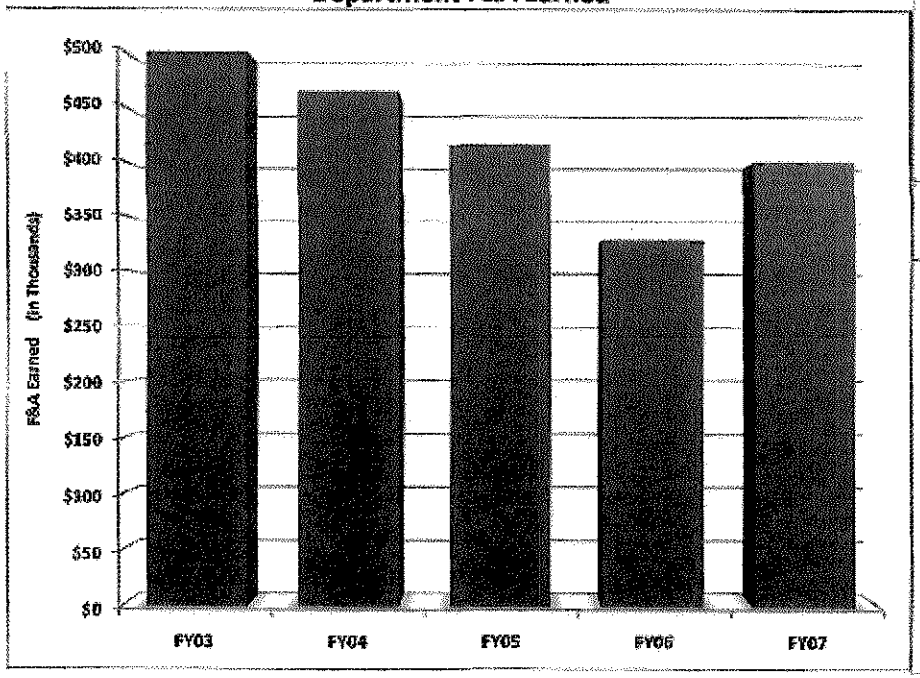
Total Research Proposals Submitted & Research Awards Received ($ in millions)



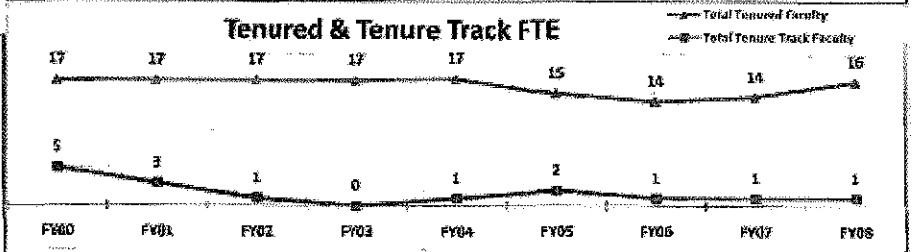
Research Funding per FTE (tenured & tenure track)



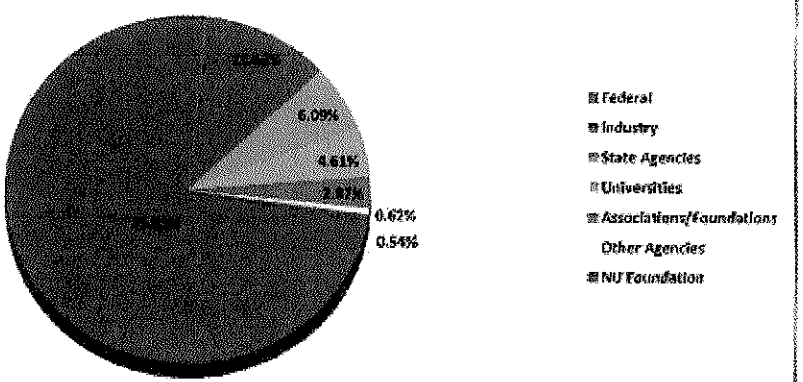
Department F&A Earned



Tenured & Tenure Track FTE



Awards by Source

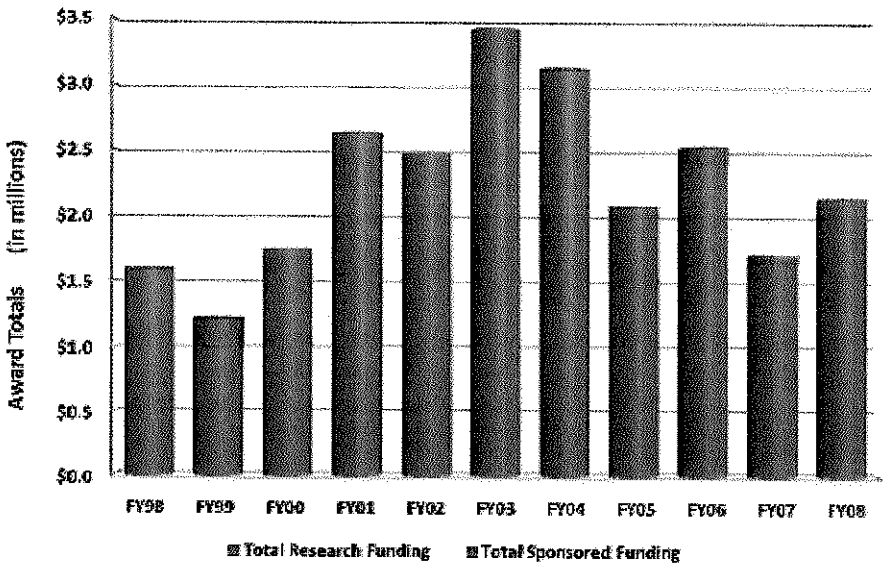


Data as of 6/30/2008

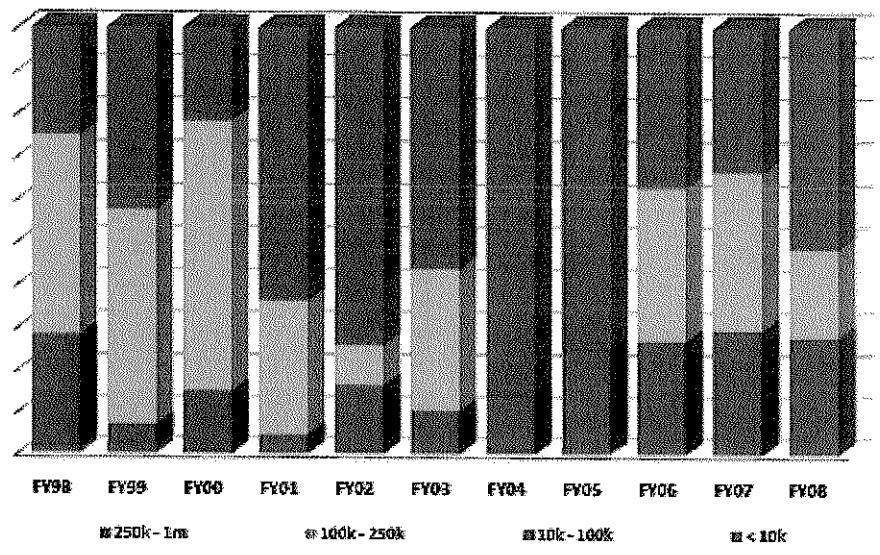
UNL Office of Research

Veterinary & Biomedical Sciences
David Hardin, Department Head

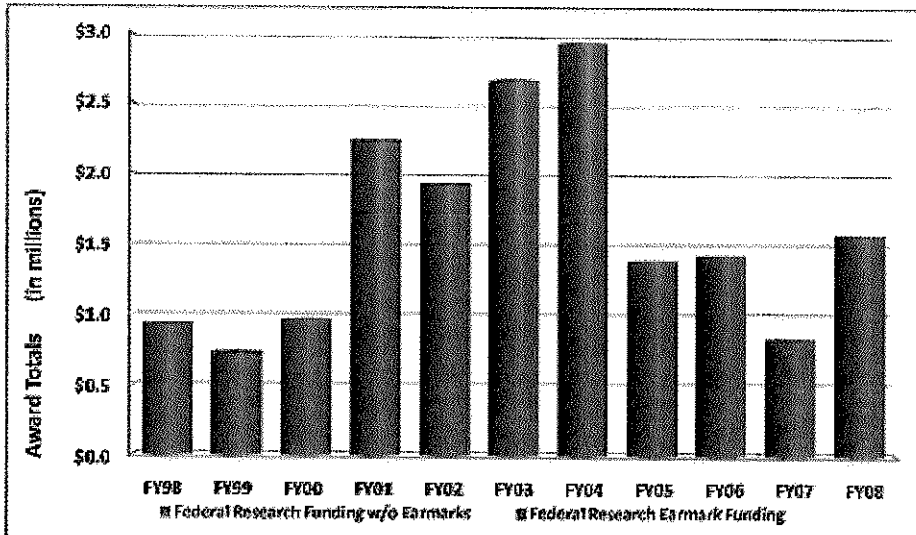
Research and Total Sponsored Awards



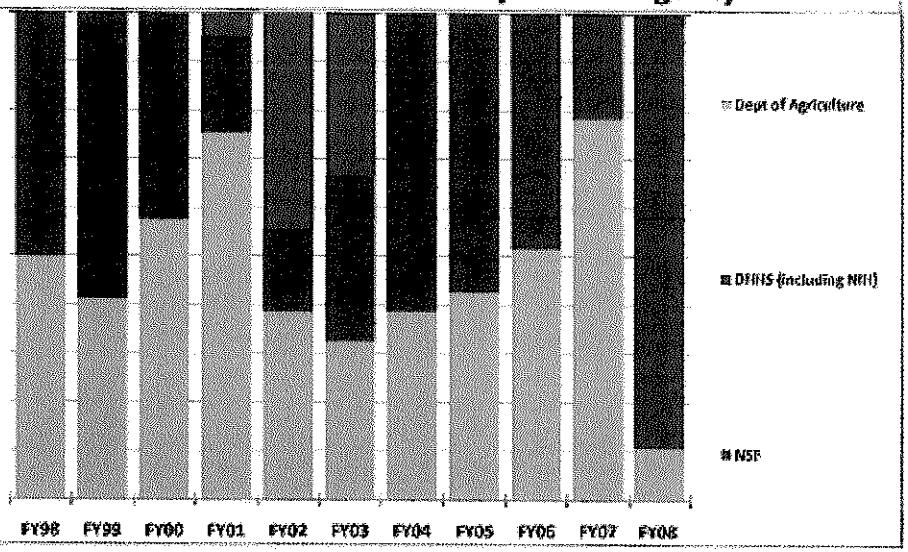
Total Research Funding by Award Size
(excluding NU Foundation, Industry Awards & Earmarks)



Federal Research Awards



Total Research Awards by Federal Agency



Department of Veterinary and Biomedical Scineces
2007 Patents Pending

Recombinant Mycobacteria Overexpressing D-alanine Ligase Gene and Uses Therefore

RG Barletta, Z Feng. Submitted December 17, 2002. US Patent Application Serial #10/738,938, pending

Identification of Virulence Determinants

RG Barletta, NB Harris. Submitted January 11 2001, US Patent Application Serial #09/759,287, pending

Department of Veterinary and Biomedical Sciences
Refereed Journal Articles Published in 2007

A Protein Encoded by the Bovine Herpesvirus 1 Open Reading Frame E Gene Induces Neurite-Like Morphological Changes in Mouse Neuroblastoma Cells and is Expressed in Trigeminal Ganglionic Neurons

Perez S, Meyer F, Henderson G, Jiang Y, Sherman S, Doster A, Inman M and Jones C. 2007. J Neurovirol, 13(2):139-49

A Protein Encoded by the Bovine Herpes Virus 1 (BHV-1) Latency Related Gene Interacts with Specific Cellular Regulatory Proteins, Including the CCAAT Enhancer Binding Protein Alpha (C/EBP-a)

Meyer F, S Perez, V Geiser, M Sintek, M Inman and CJ Jones. 2007. J Virol, 81:59-67

A Review of the Biology of Bovine Herpesvirus Type 1 (BHV-1), its Role as a Cofactor in the Bovine Respiratory Disease Complex, and Development of Improved Vaccines

Jones CJ and S Chowdhury. 2007. Vet Microbiol, 1136:61-79

A Regulatory Loop between Kaposi's Sarcoma-Associated Herpesvirus Replication and Transcription Activator (RTA) and Epstein-Barr Virus Latent Membrane Protein 1 (LMP-1)

Xu D, J Zhang, T Coleman, A Fagot, C Kotalik, L Zhao, CJ Jones and L Zhang. 2007. J Virology, 81:6068-6078

Assessment of the Efficacy of Commercial Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) Vaccines Based on Measurement of Serologic Response, Frequency of Gamma-IFN-Producing Cells and Virological Parameters of Protection Upon Challenge

Zuckermann FA, Garcia EA, Luque ID, Christopher-Hennings J, Doster A, Brito M and Osorio F. 2007. Vet Microbiol, 123(1-3):69-85

Associated with Practice Decisions of Nebraska Veterinarians Regarding Type of Practice and Community Size

Schmitz JA, Vogt RJ, Rupp GP, Brodersen BW, Abel JM, Wohlers AR, Marx and DB Factors. 2007. J Vet Med Educ, 34:340-349

Characterization of Protection Against Systemic Infection and Disease from Experimental BVDV Type 2 Infection in Calves by Use of a Modified-Live Noncytopathic Bovine Viral Diarrhea Virus Type 1 Vaccine

Kelling CL, BD Hunsaker, DJ Steffen, CL Topliff and KM Eskridge. 2007. American Journal of Veterinary Research, 68:788-796

Control of PDGF-Induced Reactive Oxygen Species (ROS) Generation and Signal Transduction in Human Lens Epithelial Cells

Chen KC, Y Zhou, W Zhang and MF Lou. 2007. Mol Vis, 13:374-387

Differences in Virulence Among *Escherichia coli* O157:H7 Strains Isolated from Human Disease Outbreaks and Healthy Cattle

Baker DR, RA Moxley, MB Steele, JT LeJeune, J Christopher-Hennings, D Chen, PR Hardwidge and DH Francis. 2007. Applied and Environmental Microbiology, 73:7338-7346

Effect of a Vaccine Product Containing Type III Secreted Proteins on the Probability of *Escherichia coli* O157:H7 Fecal Shedding and Mucosal Colonization in Feedlot Cattle

Peterson RE, TJ Klopfenstein, RA Moxley, GE Erickson, S Hinkley, G Bretschneider, EM Berberov, D Rogan and DR Smith. 2007. Journal of Food Protection, 70:2568-2577

Effect of Lactobacillus Strain NP51 on *Escherichia coli 0157:H7* Fecal Shedding and Finishing Performance in Beef Feedlot Cattle

Peterson RE, TJ Klopfenstein, GE Erickson, J Folmer, S Hinkley, RA Moxley and DR Smith. 2007. J Food Prot, (70)2:287-291

Efficacy of Tulathromycin or Enrofloxacin for Initial Treatment of Naturally Occurring Bovine Respiratory Disease in Feeder Calves

Robb EJ, Bade D, Brodersen BW, Bryson WL, Corley L, Rogers KC, Sturgess K and Tucker CM. 2007. Vet Ther, 8(2):127-135

Efficacy of Dose Regimen and Observation of Herd Immunity from a Vaccine Against *Escherichia coli* O157:H7 for Feedlot Cattle

Peterson RE, TJ Klopfenstein, RA Moxley, GE Erickson, S Hinkley, D Rogan and DR Smith. 2007. Journal of Food Protection, 70:2561-2567

Envelope Protein Us9 is Required for the Anterograde Transport of Bovine Herpesvirus Type 1 From Trigeminal Ganglia to Nose and Eye Upon Reactivation

Butchi NB, Jones C, Perez S, Doster A and Chowdhury SI. 2007. J Neurovirol, 13(4):384-388

Evaluation of the Pathogenesis and Rransmissibility of a Chilean Isolate of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV)

Ramírez R, Moreno V, Díaz N, Osorio F, Ruiz A, Neira V and Quezada M. 2007. J Vet Med, 54:1-8

Extracellular ATP Is Cytotoxic to Mononuclear Phagocytes but Does Not Induce Killing of Intracellular *Mycobacterium avium* subsp. paratuberculosis

Woo S-R, RG Barletta and CJ Czuprynski. 2007. Clinical and Vaccine Immunology, 14:1078-83

Hypersusceptibility to Vesicular Stomatitis Virus Infection in Dicer-Deficient Mice is Due to Impaired miR24 and miR93 Expression

Otsuka M, Jing Q, Georgel P, New L, Chen J, Mols J, Kang YJ, Jiang Z, Das SC, Pattnaik AK, de la Torre JC, Beutler B and Han J. 2007. Immunity. 27: 123-134

Isotype-Specific Antibody Responses Against *Escherichia coli* O157:H7 Locus of Enterocyte Effacement Proteins in Adult Beef Cattle Following Experimental Infection

Bretschneider G, EM Berberov and RA Moxley. 2007. Veterinary Immunology and Immunopathology, 118:229-238

Laboratory Investigations for the Morphologic, Pharmacokinetic, and Anti-retroviral Properties of Indinavir Nanoparticles in Human Monocyte-Derived Macrophages

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The Infected Cell Protein 0 Encoded By Bovine Herpesvirus 1 (bICP0) Induces Degradation of Interferon Response Factor 3 (IRF3), and Consequently Inhibits â-interferon Promoter Activity

Saira K, Y Zhou and CJ Jones. 2007. Journal of Virology, 81(7):3077-3086

The Presence of a Transsulfuration Pathway in the Lens: A New Oxidative Stress Defense System

Persa C, Pierce A, Ma Z and Lou MF. 2004. Experimental Eye Research, 79:875-886, ARD Journal Series #14519

The Genome of Swinepox Virus

Afonso CL, Tulman ER, Lu Z, Zsak L, Osorio FA, Balinsky C, Kutish GF and DL Rock. 2002. Jouunal of Virology, 76(2):783-790

The Possible Physiological Function of Thioltransferase in Cells

Xing K and Lou MF. 2003. Published as doi:10.1096/fj.2-1164fje, The Journal of Federation of America Societies for Experimental Biology, 17:2088-2090, ARD Journal Series #14082

The Latency-Related Gene Encoded by Bovine Herpesvirus 1 Promotes Virus Growth and Reactivation from Latency in Tonsils of Infected Calves

Perez S, M Inman, AR Doster and CJ Jones. 2005. Journal of Clinical Microbiology, 43(1):393-401, ARD Journal Series #14736

Thioltransferase Mediated Ascorbate Recycling in Human Lens Epithelial Cells

Fernando MR, Satake M, Monnier VM and Lou MF. 2004. Investigative Ophthalmology and Visual Sciences, 45(1):430-437

Thioltransferase as an Ascorbate Recycling Enzyme in Human Lens Epithelial Cells

Fernanda MR, Makoto A, Monnior V and Lou MF. 2004. Investigation Ophthalmology and Visual Science, 45:230-237, ARD Journal Series #14083

Thioredoxin, Thioredoxin Reductase and -Crystalline Revive the Inactivated Glyceraldehyde 3-Phosphate Dehydrogenase in Human Aged and Cataract Lenses

Yan H, Lou MF, Fernando MR and Harding JJ. 2006. Molecular Vision, 12:1153-1159

TNF-Related Apoptosis-Inducing Ligand Mediates Human Neuronal Apoptosis: Links to HIV-1- Associated Dementia

Ryan LA, Peng H, Erichsen DA, Huang Y, Persidsky Y, Zhou Y, Gendelman HE and Zheng J. 2004. Journal of Neuroimmunolgy,148(1):127-139

Trans-10, Cis-12 Conjugated Linoleic Acid Activates the Integrated Stress Response in Adipocytes

P Christopher LaRosa, Jean Jack Riethoven, Han Chen, Jess Miner, Yuannan Xia, You Zhou, Mei Chen, Steve Kachman and Michael E. Fromm. 2007. PG-00156-2007.R1, Physilogical Genomics, 31:544-553

Transmission of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) to Age-Matched Sentinel Pigs

Wills RW, AR Doster and FA Osorio. 2002. Journal of Swine Health and Production, 10(4):161-165, ARD Journal Series #13767

Use of a Portable Real-time Reverse Transcriptase -Polymerase Chain Reaction Assay for Rapid Detection of Foot-and-Mouth Disease Virus

Callahan JD, Brown F, Osorio FA, Sur JH, Kramer E, Long GW, Lubroth J, Ellis SJ, Shoulars KS, Gaffney KL, Rock DL and Nelson WM. 2002. Journal of American Veterinary Medical Association, 220(11):1636-1642

Use of a Modified Live Vaccine to Prevent Persistent Testicular Infection with Bovine Viral Diarrhea Virus

Givens MD, Riddell KP, Zhang Y, Galika PK, Stringfellow DA, Brodersen BW,

Jackson JA, Ellsworth MA, Ficken MD, Carson RL, Wenzel JG and Marley MS. 2006. Veterinary Therapeutics, 7(3):305-318

Use of Rope-Devices to Describe and Explain the Feedlot Ecology of *Salmonella* by Time and Place

Smith DR, Moxley RA, Clowser SL, Folmer JD, Hinkley S, Erickson GE and Klopfenstein TJ. 2005. Foodborne Pathogens and Disease, 2(1):61-69, ARD Journal Series #14641

Use of Rope-Devices to Describe and Explain the Feedlot Ecology of *Escherichia coli* O157:H7 by Time and Place

Smith DR, RA Moxley, SL Clowser, JD Folmer, S Hinkley, GE Erickson and TJ Klopfenstein. 2005. Foodborne Pathogens and Disease, 2:50-60, ARD Journal Series #14640

Vancomycin Intermediate *Staphylococcus aureus* have Impaired Acetate Catabolism: Implications for Polysaccharide Intercellular Adhesion Synthesis and Atolysis

JL Nelson, KC Rice, SR Slater, PM Fox, GL Archer, KW Bayles, PD Fey, BN Kreiswirth and GA Somerville. 2007. Antimicrob Agents Chemother, 51:616-622

Very Low Ethanol Concentrations Affect Viability and Growth Recovery in Post-Stationary *Staphylococcus aureus* Populations

I Chatterjee, GA Somerville, C Heilmann and M Herrmann. 2006. Applied Environmental Microbiology, 72:2627-2636

Vesicular Stomatitis Virus Infection and Neuropathogenesis in the Murine Model are Associated with Apoptosis

Sur JH, R Allende and AR Doster. 2003. Veterinary Pathology, 40:512-520, ARD Journal Series #14081

Visualization of Intracellular Transport of Vesicular Stomatitis Virus Nucleocapsids in Living Cells

Das SC, Nayak D, Zhou Y and Pattnaik AK. 2006. Journal of Virology, 80:6368-6377

West Nile Virus Infection in Reindeer (*Rangifer tarandus*)

Palmer MV, WC Stoffregen and DG Rogers, et al. 2004. Journal of Veterinary Diagnostic Investigation, 16:219-222, ARD Journal Series #14162

Veterinary Product Safety Use Guide

Nebraska Beef Cattle Report MP-90:68-70

Bremer, Virgil R., Galen E. Erickson, Terry J. Klopfenstein, David R. Smith, Kyle J. Vander Pol, Matthew A. Greenquist, Dee Griffin, Gary E. Sides, and Lonty Bryant. 2007. Evaluation of Excede® given at either initial processing or revaccination on bovine respiratory disease and pasture vs feedlot receiving systems.

Department of Veterinary and Biomedical Sciences
2007 Presentations

Analysis of Incidence of Porcine Circovirus Associated Disease (PCVAD) in a Landrace/Large White Composition Population

Bates JS, Doster AR and Johnson RK. 03-19/21-2007. Annual Meeting of the American Society for Animal Science, Des Moines, IA

Analysis of á-herpesvirus Genes Expressed During Latency

CJ Jones. 10-22-2007. Presented seminar at the Department of Microbiology and Molecular Genetics, Oklahoma State University

Analysis of Herpesvirus Genes Expressed During Latency: Regulation of Neuronal Cell Death

CJ Jones. 11-12-2007. University of Edmonton, Canada.

Analysis of BHV-1 Reactivation from Latency

CJ Jones. 03-13-2007. Nebraska Center for Virology, Intercampius Virology Meeting

Antibiotic Selection and Use

DD Griffin. 03-07-2007

Antibiotic Selection and Use

DD Griffin. 06-13-2007

Antibiotic Use; Resistance and Residues

DD Griffin. 05-23-2007

Antibiotic Use ... Getting the most ... Causing the least damage

DD Griffin. 08-22-2007

Antibiotic Selection and Use

DD Griffin. 07-26-2007

Applied Population Diagnostics

DR Smith. 02-24-2007. Midwest Veterinary Conference, Columbus, OH

Applying Population Dynamics to the Control of Neonatal Calf Diarrhea

DR Smith. 01-20-2007. 115th Annual Convention, Missouri Veterinary Medical Association, Lake Ozark, MO

Applying Population Dynamics to the Control of Neonatal Calf Diarrhea

DR. Smith. 09-12-2007. Annual Meeting, Colorado Veterinary Medical Association, Copper Mountain, CO

Aujeszky's Disease and PRRS

FA Osorio. 11-22-2007. 2007 Congress of GITEP (Grupo de Intercambio Tecnologico de Explotaciones Porcinas), San Nicolas, Buenos Aires, Argentina

Autogenous Vaccines, Continuing Education Seminar

DS McVey. 04-03-2007. Academy of Veterinary Consultants, Oklahoma City, OK

Beef Production Management

DD Griffin. 02-19-2007

Biotechnology in Diagnosis of Infectious Diseases (a Case Example: Differential Vaccine Pursuit, the Reverse Genetics Approach for PRRSV)

FA Osorio. 11-29-2007. Interbio I, International Meeting, Biotechnology and Animal Health, Universidade Federal de Vicosa, MG, Brazil

Bovine Congenital Malformations of Current Concern

DJ Steffen. 06-06-2007. American College of Veterinary Internal Medicine Forum, Seattle, WA

Broad Antigenic Coverage Vaccination against PRRS: Chimera or Reality?

FA Osorio. 04-12-2007. Round Table on Viral vaccines, at the IX Annual Meeting of Virology ,Zaragoza Spain

Chain of Custoday and Shipping Biological Substances

DJ Steffen. 07-18-2007. NVMA District 6 Meeting. Presented training to certify Vets and technical staff to ship in compliance with CFR. Handouts and training materials distributed

Chain of Custody and Diagnostic Sample Shipment

DJ Steffen. 10-02-2007. Presentation to district and regional veterinarians and trained-tested and certified Vets and Techs at Our Palce Restraunt, Ainsworth, NE

Clinic Biosecurity Table Top Excercises

DJ Steffen. 08-02-2007. Presentation to LEDERS Conference regarding areas of improvement in veterianry clinic biosecurity. Data gathered and discussions were used to develop a templae for distribution to clinics to design their clinics for a specific plan, Grand Island Nebraska

Comparative Analyses of Lesions and Viral Antigen Distribution in Alpacas and Calves Persistently Infected with Bovine Viral Diarrhea Virus Type 1b

Henningson JN, Topliff CL, Steffen DJ, Brodersen BW, Bedenice D, Callan RJ, Davis WE, Rupp GA, Smith DR and Kelling CL. 12-05-2007. Academy of Veterinary Pathologists Annual Meeting

Comparative Geography of Nebraska and Overveiw of Nebraska Livestock Enterprises

DJ Steffen. 11-05-2007. Lunch Semniar: Faculty of Pathology, Univeristy of Copenhagen, Copenhagen DK

Comparison of the Effects of Different Nutrient Media on Expression of *Escherichia coli* Heat-Stable Enterotoxin-b (STb)

Erume J, EM Berberov and RA Moxley. 12-02-2007. 88th Annual Meeting, Conference of Research Workers in Animal Diseases, Chicago, IL

Controlling *Escherichia coli O157:H7* in feedlot Cattle: A Population Approach

DR Smith. 02-1202007. Seminar/Department of Food Science and Technology, University of Nebraska-Lincoln

Controlling *Escherichia coli O157:H7* in Feedlot Cattle: A Population Approach

DR Smith. 03-27-2007. USDA/FSIS/OPHS Foodborne Disease Investigations Branch, FSIS Technical Center, Omaha, NE

Development and Characterization of Attenuated Mutant Candidate Vaccines for Control of Paratuberculosis

Kun Taek Park, John L Dahl, John P Bannantine, Raul G Barletta, Andrew J Allen, Mary Jo Hamilton, Min Kyung Park and William C Davis. 10-31-2007. Scope: International Invitation

Developmnent of Molecular Genetic Approaches to Study *Mycobacterium* paratuberculosis (MAP) Pathogenesis

RG Barletta. Meeting on Gram-positive microorganisms; University of Nebraska-Lincoln, 07-13-2007

Distiller's Grain: Mycotoxins and Sulfate: Maybe a Few More Concerns

Carlson MP. 06-20-2007. Summer Meeting: Nebraska Veterinary Medical Association, Valentine, NE

Drug Targets, Drug-Resistance, and Redox Reactions in *Mycobacterium*

RG Barletta. Meeting Redox Biology Center, Mohoney Park, Nebraska; 07-24-2007

Round Table Presentation: Bovine Viral Diarrhea Virus Testing to the Committee on Infectious Disease for Cattle, Bison, and Camelids

BW Brodersen. 10-21-2007. United States Animal Health Association

Effect of Drying on Forage Nitrate Analysis

Erica Harms, UNL Animal Science Undergraduate Student and MP Carlson. 04-12-2007. Poster presentation: The 13th Annual Undergraduate Research Conference, UNL Office of Undergraduate Studies, Lincoln, NE

Effect of N-Glycosylation on Bovine Respiratory Syncytial Virus Fusion Protein Activity

MoriY, Klink HA, Topliff CL and Kelling CL. 12-04-2007. Conference of Research Workers in Animal Diseases.

Efficacy of a Vaccine Product Containing Type III Secreted Proteins for Reduction of *Escherichia coli O157:H7* in Cattle

Rodney A Moxley and David R Smith. 07-09-2007. 94th Annual Meeting of the International Association for Food Protection, Technical Committee on Food Microbiology, Lake Buena Vista, FL

Relative Contributions of LT and STb to the Virulence of F4$^+$ *Escherichia coli* in Swine

J Erume, EM Berberov, SD Kachman, MA Scott, DH Francis and RA Moxley. 12-02-2007. 88th Annual Meeting of the Conference of Research Workers in Animal Diseases, Chicago, IL, poster, abstract #71P

Emerging Inherited Disorders of North American Cattle

DJ Steffen. 11-05-2007. Presentation to faculty of Life Sciences, University of Copenhagen, Copenhagen DK

Genetic Polymorphism in Porcine Mucin 4 Gene Correlates with Jejunual Secretory Responses to LT But Not STb

Erume J, EM Berberov, SD Kachman, DJ Oestmann, DH Francis and RA Moxley. 12-02-2007. 88th Annual Meeting, Conference of Research Workers in Animal Diseases, Chicago, IL, poster abstract #72P

Gram Positive Pathogens

GA Somerville. 07-12-2007. Meeting Chair and Platform speaker at the Mid-American Consortium Annual Meeting, Lincoln, NE

Immune Responses to Vaccination and Infection/Clinical Immunomodulation/ Autoimmunity/Serology and More/Proper and Safe Handling of Vaccines

DS McVey. 07-16-2007. American Veterinary Medical Association. Continuing Education Presentation, Washington, DC

Innate Resistance of Mice to *M. avium* subsp. Paratuberculosis is Controlled by SLC11A1

Valerie Rosseels, Virginie Roupie, Virginie Piersoel, Denise Zinniel, Raul G Barletta and Kris Huygen; 10-31-2007; Scope: International - Invitation

Introduction to Biological Risk Management

DR Smith. 02-27-2007. Nebraska Beef Feedlot Roundtable, Lexington, NE

Introduction to Biological Risk Management

DR Smith. 02-28-2007. Nebraska Beef Feedlot Roundtable, Bridgeport, NE

Introduction to Diagnosis of Genetic Diseases in Cattle

DJ Steffen. 10-15-2007. Seminar to ISU students' chapter, American Assocaiton of Bovinve Veterinarians

Introduction to Biological Risk Management

DR Smith. 02-06-2007. Nebraska Beef Feedlot Roundtable, Norfolk, NE

Investigating Congenital Diseases of Calves

DJ Steffen. 06-06-2007. American College of Veterinary Internal Medicince Forum, Settle, WA

Lameness in Feedlot Cattle

DD Griffin. 09-05-2007

Lameness in Feedlot Cattle

DD Griffin. 04-18-2007

Long Term Physiology of Immunologic Memory: Application to Immunization Programs/ What is Required for Functional Immunity: Lessons From Congenital Immunodeficiencies/Vaccine Efficacy: Interpretation and Application/Diagnostic Lessons from Leptospirosis/Safe Handling of Vaccines and Biologic Fluids/Update on Sepsis: Diagnostic and Therapeutic Strategies/Really Nasty Bacterial Infections

DS McVey. 10-22-2007. Continuing Education Seminar, Central Veterinary Conference, West San Diego, CA

Managing the Birth of Livestock

DR Smith. 08-28-2007. NU Pre-Veterinary Club, Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln

Mela-What? Melamine-Contaminated Pet Food: A Veterinary Toxicological Viewpoint

Carlson MP. 11-08-2007. University of Nebraska-Lincoln, Pet Food Symposium, Lincoln, NE

Modulation of *Staphylococcus aureus* Biofilm Formaiton by Selective Inhibition of Amino Acid Transport

Yefei Zhu, Graduate Student, 08-10-2007. Poster presentation at the Molecular Genetics of Bacteria and Phages, Madison, WI

Nebraska Diagnostic Centers Role in the National Animal Health Network

DJ Steffen. 08-01-2007. Presentation to State LEDERS Conference to approximately 200 veterinarians and concerned individuals that are first responders for foreign animal disease outbreaks, Grand Island, NE

New Generation of PRRSV Vaccines

FA Osorio. 04-10-2007. The SYVA Swine Technical Day in Silleda, Galicia, Spain

ORF5 and ORF2 are the Main Structural Genes Carrying Determinants of Virulence of PRRSV

BJ Kwon, IH Ansari, AK Pattnaik and FA Osorio. 12-02-2007/12-01/05-2007. The 3rd International Symposium on PRRSV and Conference of Research Workers in Animal Diseases, Chicago Illinois, Abstract #50

Overview of Toxicology

Carlson MP. 02-06-2007. Invited guest lecture NRES 448/848 - Wildlife Diseases Class

Sheeppox Virus Kelch-Like Gene *SPPV-019* Affects Virus Virulence

Gustavo Delhon. 12-03-2007. Annual CRWAD Meeting, Chicago, IL

Oxidation Damage Repair in the Lens: Thioltransferase and Thioredoxin Systems in the Symposium Session of Oxidative Stress in the Lens

MF Lou. 10-3/6-2007. European Vision and Eye Research Conference, Portoroz, Slovenia; EVER 2007 Program Book, pg 43, WWW.ever.be

Oxidation Damage repair in the Lens: Thioltransferase and Thioredoxin Systems in the Symposium Session of Oxidative Stress in the Lens

MF Lou. 05-06-2007. Co-chair and opening speaker, Sunday, Symposium of 2007 ARVO. Mitochondrial Oxidative stress in visual system. Fort Lauderdale, FL

Pathology of Emerging Inherited Disorders, the importance of phenotypic classification

DJ Steffen. 11-12-2007. Presentation to faculty and students of VBMS

Population Dynamics and Animal Health

DR Smith. 01-20-2007. 115th Annual Convention, Missouri Veterinary Medical Association, Lake Ozark, MO

Population Dynamics of BVDV

DR Smith. 02-24-2007. Midwest Veterinary Conference. Columbus, OH

Population Dynamics and Animal Health

DR Smith. 09-12-2007. Annual Meeting, Colorado Veterinary Medical Association, Copper Mountain, CO

Population Dynamics of BVDV

DR Smith. 09-12-2007. Annual Meeting, Colorado Veterinary Medical Association, Copper Mountain, CO

Population Diagnostics and Johne's Disease

DR Smith. 02-23/24-2007. Midwest Veterinary Conference, Columbus, OH

Population Dynamics and Animal Health

DR Smith. 02-24-2007. Midwest Veterinary Conference, Columbus, OH

Pre-Harvest Food Safety: *E. coli O157:H7*

DR Smith. 02-24-2007. Midwest Veterinary Conference. Columbus, OH

Presentation: My Career as an Analytical Chemist and Diagnostic Toxicologist

MP Carlson. 10-20-2007. Guest lecture to students enrolled in the VBMS 101 class regarding the Department of Veterinary and Biomedical Sciences

PRRS: The Disease, its Diagnosis, and What was Done in Chile and the US for its Control

FA Osorio. 05-11-2007. II Symposium of UFRGS (Universidade Federal Rio Grande do Sul), on Swine Production, Reproduction and Health, Porto Alegre, Brazil, Acta Scientiae Veterinariae, 35(supl 1): s1-s219

PRRSV Vaccines ExampleS

FA Osorio. 11-29-2007. Interbio I International Meeting, Animal Health Biotechnology, Viçosa, MG, Brazil

PRRSV, State of the Art

FA Osorio. 11-12-2007. Istituto Zooprofilactico Sperimentale della Lombardia e dell?Emilia Romagna, Brescia, Italy

Pulmonary Lymphomatoid Granulomatosis in a Dog: Evidence of Immunophenotypic Diversity and Relationship to Human Pulmonary Lymphomatoid Granulomatosis and Pulmonary Hodgkin's Disease

AR Doster. 11-10-2007. 58th Annual Meeting of the American College of Veterinary Pathologists. Savannah, Georgia, Veterinary Pathology 44(5):733, 2007; Abstract #44

Reactivity and Repair in Thioltransferase (glutaredoxin) Knockout Lens Epithelial Cells After Oxidative Stress from UV Radiation or Peroxide Treatment

Lofgren S, Fernando RM, Ho Y-S and Lou MF. 05-10-2007. Published abstract, Investigation Ophthalmology and Visual Science, Abstract, pg. 240

Regulation of Neuronal Death by á-Herpes Virus Genes Expressed During Latency

CJ Jones. 10-31-2007. University of Nebraska, Dental School

Regulation of Rhabdovirus Gene Expression and Virus Assembly

AK Pattnaik. 11-26-2007. National Institute of Immunology, New Delhi, India

Residue Avoidance

DD Griffin. 04-27-2007

Risk to Pets and Livestock

Carlson MP. 06-13-2007. Toxic Algae In-Service for UNL Extension Educators organized by UNL School of Natural Resources, Lincoln, NE

RNA Virus Replication and Assembly

AK Pattnaik. 11-16-2007. KIIT University School of Biotechnology, Bhubaneswar, India

Role of Viral Proteins in Gene Expression of Vesicular Stomatitis Virus

AK Pattnaik. 04-19-2007. University of Connecticut

Role of Cellular microRNAs in Regulating VSV Replication

AK Pattnaik. 11-23-2007. International Conference on "Lessons from Microbial World," KIIT University, Bhubaneswar, India

Shipping Diagnostic Specimens: Testing, and Cetification of Attendees Along With Discussion of Lab Related Topics

DJSteffen. 10-07-2007. District VII, Nebraska Veterinary Medical Association Meeting, Gering, Nebraska

Shipping Diagnostic Specimens and "Chain of Custody"

DJ Steffen. 1-15-2007. NVMA District Veterinarians, Grand Island ,NE

Shipping Biological Substances

DJ Steffen. 07-28-2007. Continuing Education course, with distributed handouts, for veterianry technicians, Curtis Nebraksa

Shipping Biological Substances

DJ Steffen. 10-10-2007. NVMA District Veterinarians and Staff at Pringers. Trained,

examined and certified veterinarians on shipping samples in compliance with CFR and distributed training materials for additional training of staff, Norfolk NE

Staphylococcal Diseases

GA Somerville. 09-06-2007. Gordon Conference, Les Diablerets, Switzerland, Session Chair for the Bacterial Physiology and Metabolism Session

Strategies for Controlling Neonatal Diarrhea in Cow-Calf Herds: The Sandhills Calving System

DR Smith. 03-28-2007. Bovine Club, College of Veterinary Medicine, Iowa State University, Ames, IA

Strategies for Controlling Neonatal Diarrhea in Cow-Calf Herds: The Sandhills Calving System

DR Smith. 09-14-2007. 125th Annual Meeting, Iowa Veterinary Medical Association, Ames, IA

Swine Herd Management and Disease Control

BW Brodersen. 05-30-2007. United States Grain Council-sponsored Chinese Swine Management Team

Targeting the D-alanine-D-alanine Ligase of *Mycobacterium* tuberculosis for Drug Design

HarshDeep Dogra and RG Barletta. University of Nebraska-Lincoln, Research Fair; 04-11-2007; Presentation: Research; Local Invitation, Volunteer

Targeting the D-alanine-D-alanine Ligase of *Mycobacterium* tuberculosisfor Drug Design

HarshDeep Dogra and RG Barletta. University of Nebraska-Lincoln, Microbiology Initiative Meeting; 08-20-2007; Presentation: Research; Scope: Local Invitation, Volunteer

The LR Ggene of BHV1 Iinteracts with the Ccellular Transcription Factor c/EBP-alpha, Which Activates Productive Infection

Florencia Meyer and Clinton Jones. 07-25-2007. International Herpesvirus Workshop. Published abstract from proceedings

The Yin and Yang of ROS Effect in the Biological Function of Eye Tissues

MF Lou. 01-31-2007. Department of Biomedical Sciences, Florida Atlantic University

The BHV-1 bICP0 Protein Inhibits Innate Immune Responses by Degrading IRF3

Kazina Sahira & Clinton Jones. 07-25-2007. International Herpesvirus Workshop

The Damage Effect of Oxidation on the Lens

MF Lou and Xian Jao Tung, University School of Medicine. 08-22-2007. Department of Ophthalmology

The Four Horseman of the Apocalypse in the 21st Century

GA Somerville. 10-26-2007. Morningside College, Sioux City, IA; Host:Miranda Martin, Undergraduate student

The Role of NADPH Oxidase (NOX) in Regulating Platelet Derived Growth Factor (PDGF) Mitogenic Signaling in Huyman Lens Epithelial Cells

Wang Y and Lou MF. 12-05-2007. CCRG Conference in Kona, Hawaii

The Novel Function of Thioredoxin as a Growth Factor in Human Lens Epithelial Cells

Lou MF, Fernando MR, Wang Y and Wyatt J. 12-03-2007. CCRG Conference in Kona, Hawaii

The Challenges of Infectious Diseases in the 21st Century

GA Somerville. 02-14-2007. Morningside College, Sioux City, IA. Host: Jenny Nelson, Undergraduate student

Thioredoxin has a Growth Factor/Cytokine-Like Property that Generates Reactive Oxygen Species (ROS) and Stimulates Cell Growth in Human Lens Epithelial Cells

Fernando MR, Wang Y and Lou MF. 05-08-2007. Published abstract, Investigation Ophthalmology and Visual Science, Abstract - pg 123

Tricarboxylic Acid Cycle Mediated Signal Transduction in *Staphylococcus epidermidis*

GA Somerville. 11-05-2007. University of Nebraska-Lincoln, Host: David Hardin

Tricarboxylic Acid Cycle Mediated Signal Transduction in *Staphylococcus epidermidis*

GA Somerville. 08-31-2007. University of Saarland, Homburg, Saar, Germany; Host: Mathias Herrmann

Tricarboxylic Acid Cycle Dependent Regulation of *Staphylococcus epidermidis* Polysaccharide Intercellular Adhesin Synthesis

Marat Sadykov, Postdoctoral Research Associate, Yefei Zhu, Graduate Student and Greg A. Somerville, Assistant Professor. 08-10-2007. Poster presentation at the Molecular Genetics of Bacteria and Phages, Madison, WI

Tricarboxylic Acid Cycle Mediated Signal Transduction in *Staphylococcus epidermidis*

GA Somerville. 11-12-2007. Creighton University, Omaha, NE; Host: Rich Goering

Understanding Immune Responses: Vaccination and Infection/Immunomodulation Therapy/ Overview of Autoimmunity/Overview of Autoimmunity

DS McVey. 02-18-2007. Continuing Education Presentation at Western Veterinary Conference, Las Vegas, NV

Vaccination of Cattle as a Pre-Harvest Intervention against *E. coli O157:H7*

DR Smith. 10-21-2007. AAFHV Food Safety Symposium, United States Animal Health Association. Reno, NV

Vaccine Strategies against PRRSV

FA Osorio. 11-13-2007. XXXI Course in Swine Pathology and Husbandry, Italian Society of Swine Pathology and Husbandry, Brescia, Italy

What Can We Expect from Vaccinating Feedlot Cattle against *E. coli O157:H7*?

DR Smith. 09-19-2007. Council of On-Farm Food Safety. Edmonton, AB, Canada.

What Can We Expect From Vaccinating Feedlot Cattle Against *E. coli O157:H7*?

DR Smith. 06-13-2007. Feedlot Health Associates, Okotoks, AB, Canada

What is Wrong With My Mouse-From Behaviors to Genes

YJ Zhou. 09-18-2007. Seminar: Neurosciences program, Iowa State University

What Can We Expect From Vaccinating Feedlot Cattle Against *E. coli O157:H7*? An Evidence-Based Stochastic Model

DR Smith. 03-01-2007. Beef Safety Summit, Beef Industry Food Safety Council (BIFSCO). Dallas, TX

What We Have Learned About Dectecting Cattle Persistently Infected with Bovine Viral Diarrhea Virus

BW Brodersen. 02-12-2007. Presentation for the VBMS Departmental Graduate Seminar Series

What Can We Expect From Vaccinating Feedlot Cattle Against *E. coli O157:H7*?

DR Ssmith. 06-13-2007. Lethbridge Research Centre, Agriculture and Agri-Food, Canada Lethbridge, AB, Canada

Zoo and Wildlife Pathology at UNL

DJ Steffen. 03-21-2007. Nebraska Pathology Association, Omaha Nebraska

Department of Veterinary and Biomedical Sciences
Selected Committees Editorial and Other Appointments

♦*Raúl G. Barletta*

⋆*University Service*

08-2004/08-2007	Member of Committee or Board: Title: Review graduate satudent applications and graduate recruitment activities
03-2000/03-2009	Radiation Safety Committee - Member of Committee or Board; Title: Review and recommend approval of radiation safety applications. Develop policies involving radiaoactive materials. Interact with regulatory agencies, review accidents and miss-use of radiaoctive materials and recommend corrective actions
10-2007/10-2008	Center for Redox Biology Founding Member; Member of Committee or Board: Title: Interact with members of the Center regarding research on redox biology
10-2005/10-2007	Peer Review Committee - Member of Committee or Board Comparative Microbiology and Pathobiology Graduate Research Emphasis Group
06-1997/06-2007	Member of Committee or Board
06-1997/06-2008	Book Chair, Department of Veterinary and Biomedical Sciences, Chair of Committee or Board
09-2005/09-2010	Faculty Advisory Council - Member of Committee or Board

⋆*Professional Service*

08-2007/09-2007	Tuberculosis, National/International scientific or professional organization or committee, Journal Reviewer
01-2006/12-2007	Infection and Immunity - National/International scientific or professional organization or committee, Journal Reviewer
01-2006/12-2007	Journal of Clinical Microbiology - National/International scientific or professional organization or committee, Journal Reviewer

⋆*NIH Study Sections*

Ad-hoc Panel Member, NIH, Center for Scientific Review, AIDS-associated Opportunistic Infections and Cancer (AOIC) Study Section

Ad-hoc Panel Member, NIH, Center for Scientific Review, Immunity and Host Defense (IHD) Study Section

♦*Bruce W. Brodersen*

⋆*University Service*

01-2003/12-2007	Nebraska Veterinary Student Admissions Committee - Chair of Committee or Board, Title: Coordinate interview and admissions process for students who applied to veterinary school on the Nebraska Contract with Iowa State University
05-2005/12-2007	VBMS Curriculum Committee - Member of Committee or Board
08-2007/09-2007	Search Advisory Committee for Office Associate for the Professional Program in Veterinary Medicine, Member of Committee or Board
06-2007/09-2007	Search Advisory Committee for VDC Histology Manager - Chair of Committee or Board
09-2006/12-2006	Search Advisory Committee for Veterinary Surgery/Anesthesiology position, Member of Committee or Board
09-2006/12-2006	Search Advisory Committee for Veterinary Anatomist, Member of Committee or Board
09-2006/11-2006	Search Advisory Committee for Veterinary Diagnostic Laboratory Quality Manager, Member of Committee or Board

⋆*Professional Development - Completed*

Teaching and/or Advising Improvement Activity - 7th CL Davis Diagnostic Pathology Symposium: Diagnostic Orthopaedic Pathology in conjunction with AAVLD Annual Meeting, Friday, October 19, 2007

Acadamey of Veterinary Consultants - Spring Meeting, Oklahoma City

⋆*Student Recruitment Activity*

January 2007 Work World Success Day, Wood River High School, Chapter of the Future Business Leaders of America, presentation to 65 high school students

♦*Michael P. Carlson*

⋆*University Service*

05-2007/04-2010	UNL Faculty Senate - Title: Senator representing District II (VBMS)
08-2007/06-2008	Environmental Health Graduate Program Development Committee, Member of Committee or Board, The committee is charged to help develop the Environmental Health, Occupational Health and Toxicology Program in the UNMC College of Public Health

11-2005/12-2007	Pesticide Advisory Board - Institute of Agriculture and Natural Resources - Member of Committee or Board
08-2003/12-2007	CASNR Recruitment, Retention and Placement Committee - Member of Committee, One of two department representatives
10-2006/12-2007	CASNR Web Framework/CMS Standards Group - Member of Committee, work with CIT staff to identify audiences, assess and evaluate audience preferences, design interfaces and develop web tools
01-2005/12-2007	VBMS Undergraduate Curriculum Committee - Member of Committee
06-2002/12-2007	VBMS Husker Harvest Days Committee - Chair of Committee or Board, Coordinate the departmental participation in the annual Husker Harvest Days

★*Citizenship*

09-2006/08-2009	St. Elizabeth Regional Medical Center Research Council - Member of Board

★*Professional Development - Completed*

CASNR Winter Interim Workshop - Evaluating Program Assessment

★*Student Recruitment Activity*

November 2007	Experience the Power of Red (CASNR Open House) - Set up and lend support to staff for the VBMS undergraduate recruiting booth with Dr. John Kammermann. Assisted Dr. Kammermann with hosting an estimated 90 people, high school students and their parents, as they toured the PPVM classroom and anatomy laboratory in the Animal Science Building
November 2007	Job shadowing by a high school student - Hosted Ryan Dolezal, Junior, East Butler Public Schools, as he visited the UNL VDC. Ryan is interested in a career in veterinary medicine. Coordinated his visit to each of the VDC laboratories, including Necropsy, Histology, Bacteriology and Virology. He also toured the Toxicology Laboratory, including his attendance in my VBMS 410 Lecture the morning of his visit
October 2007	Distinguished Scholars Day/World Herald Dinner - Faculty table-host at dinner. Visited with one prospective chemistry major and his father at the reception preceding the dinner. Visited with three students and their parents
September 2007	Red Letter Day - meet for lunch with prospective students interensted in pre-vet and their parents visiting campus for the day

September/November, 2007 - Met with approximately nine students and their parents

⋆Collegiate FFA/Toyota Tailgate Party

September 2007	UNL was selected as the venue to hold the first national traveling tailgate party sponsored by National FFA and Toyota. The event included free food, games and activities featuring CASNR. A volunteer student and I staffed the VBMS booth at the event. We had both Ectomy games and gave out VBMS pens to those trying the game. Attendance was estimated to be 350. The Ectomy games attracted many people, several of which asked about the new Professional Program in Veterinary Medicine
August 2007	UNL Admissions Staff Training - Presented an overview of VBMS to undergraduate and the Professional Veterinary Medicine Program to UNL Admissions staff, 15 people attended
June/July 2007	New Student Enrollment 2007 - Enrolled approximately 30 students during the 7 NSE sessions conducted in June and July 2007
July 2007	VDC Tour by Oxbow Pet Products summer camp - Planned and coordinated a tour of the UNL Veterinary Diagnostic Center, which four high school students were attending the Oxbow Pet Products summer camp

⋆Circle of Nations

July 2007	Planned and assisted staff with the VBMS presentation regarding careers in veterinary science for high school students attending the Circle of Nations Youth Council at UNL, approximately 80 students attended the sessions
June 2007	Campus visits by prospective student - Met with 52 prospective high school or transfer students and their parents between July 1, 2006 and June 30, 2007, during their visit to UNL campus. Discussed our undergraduate VBMS programs, preparation for veterinary school in high school and college, and application to veterinary school
	Thirty eight students entered UNL the Fall Semester 2007 in either the VBMS or VETT undergraduate programs and 6 students transferred to UNL at VETT, VBMS or PVET students
May 2007	Expanding Your Horizons - Presented an overview of careers in Veterinary and Biomedical Sciences to visting high school students in two sessions, approximately 30 students attended the sessions
April 2007	Tour of the Veterinary Diagnostic Center for Johnson Brock High School advanced biology class - Planned, coordinated and hosted

	a tour of the various laboratories of the UNL Veterinary Diagnostic Center, approximately 10 students and 2 adults, including a complete tour of the Toxicology Laboratory
April 2007	NCTA Day - Presented two sessions to students from the Nebraska College of Technical Agriculture regarding transferring into our undergraduate program. Also, gave them an overview of the professional program in veterinary medicine, 60 students attended
April 2007	NU Preview Day (Sponsored by UNL Extension) - Gave a mock lecture to high school students who are in their junior year, during a campus visit. Provided them with flyers about the VBMS undergraduate programs, 30 students attended
March 2007	CASNR Admitted Student Event – Met with students admitted to VBMS, VETT or PVET Programs, who will attend UNL in the fall semester 2007
March 2007	Big Red Road Show - Omaha – Planned, supervised and assisted staff in the VBMS undergraduate program booth at the Big Red Road Show at the Qwest Center, Omaha, NE, the booth had over 2,000 individuals attending the event
March 2007	Big Red Road Show, South Sioux City – Planned, supervised and assisted staff in the VBMS undergraduate program booth at the Big Red Road Show held at the Marina Inn Conference Center, South Sioux City, NE, 800 people attended the event
March 2007	Science Olympiad – Organized and assisted staff in the VBMS undergraduate program booth for the Science Olympiad held at the East Campus Union, attendance unknown
February 2007	Central City FFA Agriculture Forum, Central City High School – 40 minute presentation, titled "Career Opportunities in Animal Health, Veterinary Science and Biomedical Sciences," presented to high school students, estimated attendance 25 students
February 2007	College/Career Fair, sponsored by Cedar Rapids FFA Chapter & Student Council – Organized and assisted staffed in the VBMS undergraduate program recruiting booth, attendance was not provided
January 2007	Wood River Success Day – By the Wood River Rural High School Future Business Leaders of America – Presentation title, "A Career in Animal Health." An overview of careers in animal health as a veterinarian and non-veterinarian was presented, estimated attandance was 50

♦*Alan R. Doster*

⋆*Awards*

NVMA Distinguished Service Award from the Nebraska Veterinary Medical Association; Given in recognition for 27 years of diagnostic service to the Nebraska Veterinay Medical Association and Nebraska Livestock Industries

⋆*Professional Service*

01-2007/12-2007	Nebraska Veterinary Medical Association Liaison Committe – Committee serves as a liasion between the Department, livestock owners and organized veterinary medicine in the State of Nebraska
01-2007/12-2007	Nebraska Veterinary Medical Association Scholarship Committee – Member of the Committee, Scholarship Committee makes suggestions regarding distribution of funding to qualified veterinary students at regional schools
01-2007/12-2007	National Pork Producers Council – Member of the Committee, Scientific reviewer for PRRSV and Circovirus Research Initiative Grants
01-2007/12-2007	National Pork Board – Member of the Board, Scientific reviewer National Pork Board Research Grants
01-2004/12-2010	American Association of Swine Practitioners/Journal of Swine Health and Production – Journal Reviewer; served as an ad hoc reviewer for the journal and assigned, by the editor, to review manuscripts dealing primarily with disease diagnosis and/or disease pathogensis in swine

⋆*IANR Scholarly Service*

Revenues Generated – $275,644 – Nebraska Veterinary Diagnostic Center, University of Nebraska-Lincoln – Diagnostic service consultation, advise and continuing education provided to Nebraska veterinarians, livestock and poultry producers and state and federal regulatory officials

University of Nebraska-Lincoln – Pathology research support provided to various individuals in VBMS and other departments on campus

⋆*Professional Development - Completed*

January 22-24, 2007	Nebraska Veterinary Medical Association, Winter Meeting, Grand Island, NE
August 7, 2007	Nebraska Veterinary Medical Association, District II Meeting, Lincoln,

NE

September 7, 2007 Nebraska Veterinary Medical Association, District II Meeting, Lincoln, NE

October 16, 2007 Nebraska Veterinary Medical Association, District II Meeting, Lincoln, NE

October 23, 2007 Nebraska Veterinary Medical Association, District II Meeting, Lincoln, NE

November 8-9, 2007 15th Annual Iowa State, University Swine Conference, Ames, IA

♦*D. Dee Griffin*

⋆*Awards*

Feedlot Veterinary VIP, Bovine Veterinary Publication – One of six veterinarians that have had the most impact on the feedlot veterinary medicine in the previous 35 years (the number of years since the Academy of Veterinary Consultants was organized)

⋆*CEHS Non-funded Active Research or IANR Non-ARD Research*

2006-2007 Evaluate antibiotic resistance in *P. multocida* following oral chlortetracycline therapy in newly weaned feeder cattle

⋆*Outreach Activities*

Worked with Nebraska Cattlemen's Youth Education Program
Developed and presented lectures in quality management to weekend sessions to the Nebraska participants, State attendance approximately 40

Worked with the UNL educational project for beef purveyors
Developed and presented residue edcational materials for participants, attendance approximately 120

Audited cattle handling disputes between USDA-FSIS and a all natural packing plant in Colorado
Instrumental in helping settle two disputes which could have been very distructive in publicly debated in the media and would have had an adverse effect on the livestock prices, Regional attendance approximately 10

⋆*IANR Scholarly Service*

National Cattlemen's Beef Association, Nebraska Cattlemen's Association and Nebraska Beef Council
Organized and delivered educational materials for quality assurance and food safety, Clients were within the University

★*Professional Development - Completed*

Extension Improvement Activity

Participated in continuing education meetings that covered beef production medicine, management and biosecurity. These included the Academy of Veterinary Consultants Meeting in Kansas City and the LEDRS (Livestock Emergency Disease Response System) Meeting in Grand Island, Nebraska

★*Student Recruitment Activity*

December 2007 Worked with high school students to develop science projects -- Improving the confidence and thought skills of students to improve their abilities to succeed academically

♦ *Clinton J. Jones*

★*University Service*

10-2007/10-2009 VBMS Departmental Graduate Committee – Elected office
01-2003/11-2008 Nebraska Center for Virology – University of Nebraska-Lincoln, Member of Department as the Associate Director

★*IANR Cirriculim Committee*

09-2006/09-2008 Institute of Agriculture and Natural Resources – Member of Committee

★*Professional Development - Completed*

Attended International Herpesvirus Workshop

★*Student Recruitment Activity*

May 2007 SBS recruitment of graduate students
This recruiting is done for the Nebraska Virology Center. We have successfully increased the numbers of US citizens to enroll in graduate school over the past 4 years

♦ *Clayton L. Kelling*

★*University Service*

09-1996/09-2010 Promotion and Tenure Committee – Elected office role, Member
07-1993/12-2008 VBMS Curriculum Committee – Member

Graduate Commitee

09-2004/09-2007 Elected Office Role, Member

⋆*Citizenship*

12-2005/12-2009 Gamma Sigma Delta – Member of the Board, Nebraska Chapter, Secretary (2007);Treasurer (2006)

⋆*Professional Development - Completed*

October 18-22, 2007 Attended the American Association of Veterinary Laboratory Diagnosticians and the US Animal Health Association Meetings in Reno, Nevada

⋆*Professional Development - Planned for Next Year*

Attend the 2007 Conference of Research Workers in Animal Diseases
Attend 2008 Annual Meeting of American Association of Veterinary Laboratory Diagnosticians
Attend 2008 Nebraska Veterinary Medical Association Meeting

♦*Marjorie F. Lou*

⋆*Awards*

2004-2007 Kwan-Biao Zhao Distinguished Professorship – Zhejiang University at Hangzhou, China, International; This competitvely awarded professorship is to award those internationally known scholars who will or who have made extensive contribution to promote excellence at the Zhejiang University. My award is for three additional years

⋆*University Service*

11-2006/01-2007 Search Committee - Chair, Department of Biochemistry – University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources; Member of search committee to search for a suitable Chairman for the Department of Biochemistry

09-2005/08-2007 University System-wide Gender Equity Committee – University of Nebraska System; Member of committee as representing UNL campus to help establish policies for gender-related issues

10-2007/12-2007 Search Committee for the Department Chair of Biochemistry – Member of the search committee to once again search for a

suitable Chairman for the Department of Biochemistry

09-2007/12-2007 Search Committee, for Co-director for the Redox Biology Center – Member of search committee to search for a suitable Codirector for the Redox Biology Center

10-2007/12-2007 Search Committee for junior faculty member for the Redox Biology Center/Department of Biochemistry – Member of search committee to search for a suitable junior faculty member to join the Redox Biology Center and the Department of Biochemistry

08-2007/05-2008 Chancellor's Commission on the Status of Women – University of Nebraska-Lincoln; Member of the search committee to study the issues of the status of women at UNL and to suggest suitable policies to recruite and to retain women at UNL

10-2007/02-2007 Search Committee for a junior faculty member for an Immunologist position in the Department of Veterinary and Biomedical Sciences; Member of the search committee to select an appropriate candidate for the position

★*Professional Service*

07-2004/12-2007 International Society of Eye Research – Elected office role to the ISER Organization to serve on their Membership Committee, representing North America and as the Chair of this committee

09-1998/08-2008 National Foundation for Eye Research – Elected office role to serve as a member of the five international-membered Board of Trustees

06-1996/10-2008 Asian Cataract Research Conference – Chair of the Committee. Responsible for co-founding this ACRC Organization to promote the lens research in Asian Countries

♦*D. Scott McVey*

★*Awards*

2007 University of Tennessee, College of Veterinary Medicine, Distinguished Alumni Award – University of Tennessee, College of Veterinary Medicine, Knoxville, Tennessee

★*IANR ARD Research Project*

2007-2009 "*Mannheimia haemolytica*: Characterization of isolates associated with fatal bronchopneumonia of cattle," ARD Project #NEB 39-146

⋆CEHS Non-funded Active Research or IANR Non-ARD Research

2007-2009 Diagnostic Development: Extended spectrum ã-lactamase activity in *Salmonella*, biotyping porcine *Salmonella* isolates, development of a direct rt-PCT for *Tritrichomonas foetus* in cattle. This project is an ongoing diagnostic assay improvement for the Nebrasak Veterinary Diagnostic Center

⋆University Service

07-2006/01-2007 Department of Veterinary and Biomedical Sciences, Immunologist Search Committee Member

09-2007/06-2008 Department of Veterinary and Biomedical Sciences and Department of Entomology, Parasitologist Search Committee Member

⋆Professional Service

01-2005/12-2008 American College of Veterinary Microbiologists – Chair of the committee for the continuing of the Educational Fund Raising Committee, CE Program Committee, AAVLD, Liason Committee, Immunology Certification Test Committee

08-2005/08-2008 Consultant to The Ruckelshaus Institute and Haub School of Environmental and Natural Resources; Member of Committee for the Brucellosis Working Symposium regarding elk and bison population in national parks and forests

⋆IANR Scholarly Service

Schering Plough, Inc., Consulting, diagnostic and regulatory services – University of Tennessee, Department of Comparative Medicine; Tenure, promotion and external peer review of teaching materials for veterinary students

⋆Department of Veterinary and Biomedical Sciences Graduate Committee

Committee member for the fall 2007 to screen applicants and other administrative services
State of Nebraska and other national and regional clients for diagnostic services in bacteriology, mycology and parasitology

⋆Professional Development - Completed

NURAMP Training Modules 2, 3 and 4
WVC, AVMA, AABP, AVC, CRWAD Conferences attended

★*Student Recruitment Activity*

09-2007 Cornhusker Harvest Days – Presentation of departmental programs to public and prospective students

♦*Rodney A. Moxley*

★*Awards*

01-01-08/12-31-2010 Editorial Board, Infection and Immunity – American Society for Microbiology; Reappointed to the Editorial Board of Infection and Immunity for the term. This journal is ranked #8 by impact factor out of 43 journals in the Infectious Diseases category

★*IANR ARD Research Projects*

2007-2010 Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety; Multi-state Hatch Project #NEB-39-147

2004-2008 Influence of Enterotoxins on Virulence and Colonization of the Porcine Intestine by *Escherichia coli*; Competitive Grant Project #NEB 14-134

2002-2007 Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety; Regional Research Project #NEB 14-125

★*University Service*

08-2007/05-2010 Academic Rights and Responsibility Panel (ARRP) – University of Nebraska-Lincoln, Member

06-2006/12-2008 Veterinary Pathologist faculty position, Department of Veterinary and Biomedical Science, University of Nebraska-Lincoln; Chair of Committee and liaison between the committee and department head. Assist in the decisions of each candidate in the hiring process, including making final recommendations to the department head

06-2006/02-2007 Biosafety Level-3 Core Facility Director position in the Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln – Member of Committee to assist with ranking/evaluating potential candidates applying for the position, Making contact with references and report those findings to the chair of the committee

01-2003/12-2008 Department of Veterinary and Biomedical Sciences, Department Curriculum Committee, Chair

⋆UNL Academic Senate

05-2004/04-2007 Representative for the Department of Veterinary and Biomedical Sciences

⋆UNL Institutional Biosafety Committee

01-2006/12-2008 University of Nebraska-Lincoln, Chair
10-2005/11-2008 VBMS Department Curriculum Committee, Chair
06-2005/11-2008 Teaching Outcome Assessment Coordinator – Coordinator for undergraduate and graduate teaching outcome assessment programs

⋆VBMS/IBMS Graduate Committee

11-2005/11-2007 Member

⋆Professional Service

10-2007/09-2012 NC-1041 Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety – University of Nebraska, Agricultural Experiment Station Reprsentative on USDA/CSREES, Multi-State Research Technical Committee
01-2007/12-2007 Applied and Environmental Microbiology – Ad hoc reviewer
01-2007/12-2007 Current Microbiology – Ad hoc reviewer
01-2007/12-2007 Food and Chemical Toxicology – Ad hoc reviewer
01-2007/12-2007 Journal of Animal Science – Ad hoc reviewer
01-2007/12-2007 Canadian Journal of Animal Science – Ad hoc reviewer
01-1996/12-2010 Editorial Board, Infection and Immunity – Appointed member of the Editorial Board of Infection and Immunity, a journal published by the American Society for Microbiology
10-2002/09-2007 NC-1007 Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety – Member of Committee as the University of Nebraska, Agricultural Experiment Station Reprsentative on USDA/CSREES Multi-State Research Technical Committee

⋆IANR Scholarly Service

University of Nebraska-Lincoln, College of Agriculture Sciences and Natural Resources, PEARL Program Leader

⋆Professional Development - Completed

July 8-11, 2007 Attended and presented research findings at the 94th Annual Meeting of the International Association of Food Protection, Lake Buena Vista, Florida

October 22-23, 2007 Attended the Printed Microarray Workshop, offered by Dr. Andrew Benson, UNL Printed Microarray Core Facility and Department of Food Science & Technology

November 15, 2007 Attended and served as Moderator at NAAC-ICASH Meeting, "The Changing Face of Agricultural Health and Safety: Biofuels, Food Safety and Alternative Agriculture," Omaha, Nebraska

December 1-2, 2007 Attended and presented research findings at the NC-1041, "Enteric Diseases of Swine and Cattle: Prevention, Control and Food Safety," Meeting, Chicago, Illinois

December 2, 2007 Attended and presented research findings at the USDA Animal Protection PD Workshop, Chicago, Illinois

December 2-4, 2007 Attended and presented research findings at the 88th Annual Conference of Research Workers in Animal Diseases, Chicago, Illinois

⋆Student Recruitment Activity

June 29, 2007 **"Take A Parent to Lunch,"** in the East Campus Union, and met with sequentially two different students and their parents – "Take a Parent to Lunch" - I met with four couples who had high school children and answered questions regarding a BS degree in the Veterinary Science Degree Program in the Cooperative Veterinary Medical Education Program with Iowa State University. Later that afternoon, I met with two additional high school students and their parents, giving them an overview of our degree programs and the veterinary medical program with Iowa State

♦*Fernando A. Osorio*

⋆IANR ARD Research Projects

2004-2009 Multi-state Hatch Project NC-229, "Porcine Reproductive and Respiratory Syndrome: Mechanisms of Disease, and Methods for the Detection, Protection and Elimination of the PRRS Virus," ARD Project #NEN 14-115

2004-2009 "Examination of Attenuation and Virulence Determinants of PRRSV" – Agriculture Research Hatch Project #NEB-14-132

★*University Service*

09-2006/09-2007	Search Committees - Department of Veterinary and Biomedcial Sciences and the Professional Program in Veterinary Medicine; Epidemiologist, Member; Immunologist, Member; Neurobiologist, Member and Chairman for the BSL-3 Core Facility Director position
03-2007/04-2008	IACUC, University of Nebraska-Lincoln – VBMS representative

★*Professional Service*

03-1999/03-2011	NC-229 Committee regional research PRRSV – Nebraska representative
03-2005/03-2009	Journal Swine Health & Production, Member of Editorial Board

♦*Asit K. Pattnaik*

★*IANR ARD Research Projects*

2004-2009	"Examination of attenuation and virulence determinants of porcine reproductive and respiratory syndrome virus," ARD Project #NEB 14-132
2004-2007	"Analysis of virulence and attenuation determinants of porcine reproductive and respiratory syndrome virus using reverse genetics approach," ARD Project #NEB 14-133

★*CEHS Non-funded Active Research or IANR Non-ARD Research*

2002-2010	"VSV RNA Transcription and Replication" – The major goal of this project is to decipher the mechanisms of transcription and replication of vesicular stomatitis virus
2006-2010	"Replication of VSV in Yeast" – The goal of this project is to establish a replication system for VSV in yeast. This system will be used to examine the role of various cellular proteins in VSV genome transcription, replication and virus assembly
2006-2010	"Molecular Biology and Pathogenesis of Lymphocytic Choriomeningitis Virus (LCMV)," The objective of this project is to understand the mechanisms of LCMV genome transcription and replication. We will also study the role of the viral glycoproteins in immune response
2003-2007	"HCV replication and assembly," – The goal of this project is to generate infectious HCV from cultured cells; however, this project is no longer active in the laboratory

★*University Service*

08-2006/02-2007	Department of Veterinary and Biomedical Sciences Search Committee, Veterinary Pathologist – Screen all applications, set minimum qualifications, interview perspective applicants and make recommendations to the Department Head

★*Professional Service*

01-2007/02-2007	National Institute of Health – Reviewed grant applications submitted to VIROLOGY A Study Section
06-2007/07-2007	American Society for Microbiology – Reviewed manuscripts submitted for publication in the journal
07-2007/08-2007	Archives of Virology – Reviewed manuscript submitted for publication in the journal
05-2007/06-2007	Vaccine – Reviewed manuscript submitted for publication in the journal
05-2007/06-2007	Journal of Virological Methods – Reviewed manuscript submitted for publication in the journal

★*Professional Development - Completed*

2007	Attend the Annual Meeting of the American Society for Virologists

★*Professional Development - Planned for Next Year*

2008	Attend scientific meetings to discuss our research findings with colleagues

♦*Douglas G. Rogers*

★*University Service*

07-2004/06-2007	VBMS Peer Review Committee Member
07-2004/07-2008	Department of Veterinary and Biomedical Sciences - Faculty supervisor for departmental operations in the Animal Research Facility and at the ARDC
04-2006/04-2008	Veterinary/Medical Parasitologist Search Committee, Member
07-2007/09-2007	Histology Laboratory Manager Search Committee, Member

★*Professional Service*

01-2004/01-2008	Nebraska Veterinary Medical Association Professional and Consumer Relations Committee, Chair

01-2001/01-2008	Nebraska Veterinary Medical Association Student Scholarship Committee Member
01-2005/01-2008	Nebraska Veterinary Medical Association University Liaison Committee, Member
07-2002/09-2011	Nebraska Livestock Emergency Disease Response System (LEDRS); Certified emergency responder
05-2004/09-2011	Nebraska Fish and Wildlife Health Council, Member

★*IANR Scholarly Service*

Revenues Generated – $254,204 – Clientele of the Veterinary Diagnostic Center; Diagnostic veterinary medicine

★*Professional Development - Completed*

June 7-8, 2007	Attended the North Central Conference of the American Association of Veterinary Laboratory Diagnosticians Meeting in Ames, IA
January 22-23, 2007	Attended annual meetings of the Nebraska Veterinary Medical Association (NVMA) in Grand Island, Nebraska; Participated as member of the NVMA Liaison and Student Scholarship Committees in committee activites at the January meeting
June 18-21, 2007	Participated as member of the NVMA Liaison and Student Scholarship Committee activites at the June meeting in Valentine, Nebraska
August/September/October, 2007	Attended three of four Nebraska Veterinary Medical Association District II Meetings

★*Professional Development - Planned for Next Year*

Attend Nebraska Veterinary Medical Association Meetings and related committee meetings
Attend training sessions for the Livestock Emergency Disease System and one or more national/regional meetings related to diagnostic veterinary medicine and/or research

♦ *Gary P. Rupp*

★*IANR ARD Research Projects*

2006-2009	"Management Model for Diagnosis, Control, and Monitoring Bovine Viral Diarrhea Virus (BVDV) Free Beef Cattle Herds," ARD Hatch Project #NEB 39-144

★*CEHS Non-funded Active Research or IANR Non-ARD Research*

2007 "Evaluation of a Salmonella vaccine utilizing a Using Chamber," Consultant; Develop a surgical technique to provide large intestinal mucosa for using chamber experiment in cooperation with US MARC scientists

★*University Service*

11-2005/11-2008 Peer Review Committee, Chair

★*Citizenship*

03-2004/11-2007 South Central Cattlemen Association, Member

★*Professional Development - Completed*

Nebraska Veterinary Medical Association Annual Meeting - LA Session
Nebraska Department of Agriculture LEDRS Conference

♦ *David R. Smith*

★*IANR ARD Research Projects*

2004-2009 Veterinary Field Disease Research Program - ARD Project #NEB 14-131
2004-2006 "Intervention strategies to reduce *Escherichia coli* O157:H7 in beef feedyards," ARD Project #NEB 14-127

★*Outreach Activities*

Feedlot Medicine – ASCI 490A Beef feedlot management internship, Terry Klopfenstein - University of Nebraska -Lincoln
"Module 6: *E. coli* O157:H7," Electronic lecture; National, Spring Semester 2007 – Issues in PreHarvest Food Safety, FS04-VM-813-732 Special Studies in Food Safety (Grooms) Michigan State University
"BSE and FMD: keeping livestock safe and secure in the 21st century" – Senior seminar ASCI 491(D. Beermann) University of Nebraska-Lincoln
"World Issues in Animal Health," – Japanese Agricultural Training Program (Doane) University of Nebraska-Lincoln
"Strategies for controlling neonatal diarrhea in cow-calf herds" – Foundations course (D. Hostetler) Nebraska Professional Program in Veterinary Medicine, University of Nebrsaska-Lincoln
"Veterinary Extension, What's that?" – Foundations course (D. Hostetler); Nebraska Professional Program in Veterinary Medicine, University of Nebrsaska-Lincoln

"Population thinking in veterinary medicine," Western University Livestock Mixed Practice Course (G. Rupp), GPVEC, University of Nebraska

"Food animal population diagnostics" – Food Animal Diagnostics Senior Elective, North Carolina State University, College of Veterinary Medicine, Raleigh, NC

⋆University Service

01-2007/12-2007	Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln - Graduate Studies Committee
01-2006/12-2007	Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln – Chair, Search Committee, Veterinary Surgery/Anesthesiology position
01-2006/12-2006	Department of Veterinary and Biomedical Sciences, University of Nebraska-Lincoln – Chair, Search Committee, Food Animal Veterinary Epidemiologist
01-2006/12-2006	Department of Veterinary Diagnostic and Production Animal Medicine, Iowa State University College of Veterinary Medicine – Search committee member, Beef Cattle Veterinarian
01-2007/12-2007	Department of Animal Science, University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources – Member of Search Commmittee, Panhandle Feedlot Nutritionist

⋆Professional Service

01-2005/12-2007	Alliance for Bovine Health, Steering Committee
01-2001/12-2007	American Association of Bovine Practitioners – Food Quality, Safety, and Security Committee
01-1999/12-2007	American Association of Bovine Practitioners – Co-manager, AABP-L listserve, 1800+ subscribers from 60+ countries
01-2005/12-2007	American Association of Extension Veterinarians – Scientific program planning committee
01-2005/12-2007	American College of Veterinary Preventive Medicine – President, Epidemiology Specialty
01-2006/12-2007	American Veterinary Medical Association – Food Safety Advisory Committee, Vice-chair 2006, Chair 2006-2007
01-2005/12-2006	American Veterinary Medical Association – Food Safety Advisory Committee
01-2007/12-2007	Foodborne pathogens and disease – Ad hoc reviewer
01-1998/12-2007	Nebraska Bureau of Animal Industry – Johnes Disease Advisory Committee
01-2000/12-2007	Nebraska State Dairymens Association – Board of Directors
01-2005/12-2007	Nebraska State Dairymens Association – Coordinator, Quality Milk Awards

01-2005/12-2007	Nebraska Veterinary Medical Association – Continuing Education Committee
01-2004/12-2007	Nebraska Veterinary Medical Association – Food Animal Safety Committee
01-2006/12-2006	Washington State Antibiotic Stewardship Advisory Board – Advisory Board Member, Washington State Antibiotic Stewardship Advisory Board
01-2005/12-2006	USDA/CSREES/NRI Competitive Grants Program – Panelist: 44.0 Animal Protection, Panel C
01-2007/12-2007	USDA/CSREES/NRI Competitive Grants Program – Panelist: 32.1 Epidemiology of Food Safety

★*Professional Development - Completed*

Complete additional training in risk modeling/multilevel analysis

♦ *Greg A. Somerville*

★*Awards*

University of Nebraska-Lincon, Institute of Agriculture and Natural Resources, "Junior Faculty Excellence in Research Award"

★*IANR ARD Research Projects*

2004-2009 "Tricarboxylic acid cycle mediated regulation of *Staphylococcus aureus* virulence factors," – ARD Hatch Project #NEB 14-136

★*CEHS Non-funded Active Research or IANR Non-ARD Research*

2006-2008 "Environmental Regulation of *Staphylococcus epidermidis* PIA Synthesis," The objective of this research is to determine how extracellular environmental factors alter the intracellular metabolic status to affect changes in *S. epidermidis* PIA synthesis. Our reserch strongly suggests that changes in TCA cycle activity alter the intracellular redox status of the bacteria resulting in changes in PIA synthesis. As a component of this research, we have identified potential redox responsive regulators and are attempting to genetically inactivate them.

2006-2008 "Exploiting staphylococcal metabolism to prevent biofilm associated heart infections." The objectives of this application are to determine which amino acids are required during *S. aureus* PIA synthesis, construct mutants in the transporters of those amino acids, test the ability of these mutants to form a biofilm, and assess the ability of these mutants to

initiate and propagate infective endocarditis. We anticipate that this research will lead to the identification of new vaccine targets that will aid in the control of in dwelling medical device-associated infections

2006-2008 "Physiological characterization of *S. epidermidis* icaR mutant," IcaR is a regulator of PIA synthesis in both *S. aureus* and *S. epidermidis*. Dr. Paul Fey's lab at UNMC constructed an *S. epidermidis* icaR mutant and we have characterized the effect of this mutation on the metabolism. This research has provided important information about the impact of metabolism on *S. epidermidis* pathogenesis

2006-2008 "Physiological characterization of *S. epidermidis* icaR mutant," Icz-aR is a regulator of PIA synthesis and biofilm maturation in both *S. aureus* and *S. epidermidis*. Dr. Paul Fey's lab at UNMC constructed an *S. epidermidis* IcaR mutant and we have characterized the effect of this mutation on the metabolism. This research has demonstrated a connection between SarA and anaerobic metabolism, providing important information about the function of SarA in biofilm maturation

★*University Service*

10-2006/09-2007 Veterinary Parasitology Search Committee – Institute of Agriculture and Natural Resources – Member of Committee or Board

01-2006/12-2008 Graduate Fellowship Committee – University of Nebraska-Lincoln; Member of Committee, Review fellowship applications from current graduate students

10-2005/10-2008 Graduate Education Committee – Chair of Committee

10-2005/10-2008 Department of Veterinary and Biomedical Sciences – Elected Office Role, Faculty Coordinator for weekly department seminar series

★*Professional Service*

01-2007/11-2007 American Society for Microbiology – Reviewer for 8 ASM journal articles

01-2007/11-2007 Molecular Microbiology – Reviewer for three journal manuscripts

01-2007/11-2007 FEMS Microbiological Letters – Reviewer for 2 journal articles

01-2007/11-2007 Journal of Molecular Microbiology and Biotechnology – Reviewer for 1 journal article

01-2007/11-2007 Journal of Infection – Reviewer for 1 journal article

09-2007/09-2007 Gordon Research Conference – Chaired a session on Bacterial Physiology and Metabolism at the GRC on Staphylococcal Diseases

04-2007/07-2007 Mid-American Consortium on Gram Positive Pathogens – Host and Organizer for the annual Gram-positive pathogen meeting

★*Student Recruitment Activity*

February 2007	Presented a seminar titled "The challenges of infectious diseases in the 21st century" to pre-professional students at Morningside College in Iowa – This seminar was given to interest students in the Redox Biology Summer REU program and to inform students about graduate school opportunities at UNL
June 2007	Hosted the Honors Colloquium students for seminar ans question and answer session – The Honors Colloquium is important for recruiting high ability students entering their senior year of high school
July 2007	Hosted Lincoln Public School Teachers for a continuing education class, This workshop provides middle and high school teachers an opportunity to fulfill their yearly continuing education requirement. It is anticipated they will incorporate some of the material taught at this workshop into their lectures. Additionally, we hope they will convey some of the educational opportunities at UNL to their students, with the goal of increasing undergraduate enrollment
October 2007	Presented a seminar at Morningside College entitled, "The Four Horseman of the Apocalypse in the 21st Century" – The goal of this seminar is to interest students in the Summer REU Program and increase graduate student enrollment

♦*David J. Steffen*

★*Awards*

2007 Recognition for contribution to students
University of Nebraska-Lincoln, Parents Association – In recognition of advising faculty nominated student advisees through their parents

★*IANR ARD Research Projects*

2000-2013 Veterinary Diagnostic Laboratory: Diagnostic Surveillance and Disease Investigation in Nebraska Livestock and Poultry – Animal Health Project #NEB 14-039

★*Outreach Activities*

Publish diagnostic lab newsletter, including providing input to website enhancement – Newsletter is published about 3-4 times per year

⋆University Service

01-2006/12-2008	Curriculum Committee, University of Nebraska-Linconl, Department of Veterinary and Biomedical Sciences, Member
09-2006/01-2008	Department of Veterinary and Biomedical Sciences, Veterinary Pathologist Search Committee, Member; assist with identifying a viable candidate
07-2007/06-2010	IANR Vice Chancellors Faculty Liasion Committee – Institute of Agriculture and Natural Resources, Elected Office Role as a Member of committee

⋆Professional Service

11-2007/10-2008	AAVLD president Elect and program chair – Elected office role as responsible for next program year (2008) annual meeting
03-2005/03-2010	Nebraska Livestock Poultry Health Committee – Advisory to Department of Agriculture on poultry health issues
06-2004/05-2010	NVMA University Liasion Committee - Member, Provide the comminications link form NU and NVMA regarding the laboratory
10-1996/10-2008	Journal of Diagnostic Investigations Associate Editor – Elected office role to work with the Editor-in-Chief to establish a format and policies for the Journal and provide peer reveiw for 6-18 papers per year
10-2000/10-2009	AAVLD Program Committee – Member of Committee, provide input to the presedent elect on the annual scientific program, serve as a session moderator for the pathology session at the annual meeting and reveiw papers for inclusion in the meeting or as posters
01-2003/01-2009	Nebraska Johne's Committee – Member of Committee, committe sets standards for Nebraska's voluntary Johne's disease control program. Advise the committee regarding the policy and lab capabilities and ensure the lab has the capabilities in place to support the program
10-2007/10-2011	AAVLD Executive Committee – Elected office role to attend three meetings a year to discuss the overall operations and finances of national orgnaization and vote on policy changes
10-2006/10-2007	Vice President American Association of Veterinary Laboratory Diagnosticians – Elected office role as Vice President
01-2005/01-2007	Executive Board AAVLD – Elected office role to represent North Central Board and was elected by ballot of peers in the region

**IANR Scholarly Service*

Revenues Generated – $252,000 – Veterinary Diagnostic Center – Provide leadership and many administrative oversight functions as Director of the Center, while also participating as a pathologist and Case Coordinator on a substantial number of diagnostic cases. In fiscal year 2007, I performed 67 diagnostic necropsies and 1,801 cases as primary diagnostician with an additional 5 necropsies and 293 cases performed by my resident. BVDV cases were 41,764 and 14,403, respectively. The revenues generated by cases was $199,244 and $53,603 for a total of over $252,000 in revenue. This does not include revenues generated elsewhere as a result of negotiated contracts for program disease diagnostics. I also had 84 research cases and 1,455 slides, which generated $15,868 in additional funds. I examined aproximately 3,700 slides, with over 10,500 tissue sections.

**Professional Development - Completed*

ACVIM Meeting in Seattle, Washington
Nebraska LEDERS Confernece
AAVLD Meeting
NVMA Winter Meeting
On campus seminar for Department Adminstrators and read book by U of Ill Attorney that presented the seminar

**Professional Development - Planned for Next Year*

NVMA Meetings
January 2008 – Western Conference of Bovine Veterinarians, Calgary Alberta, Canada
AAVLD Annual Meeting, Greensboro, NC
Western Veterinary Conference

**Student Recruitment Activity*

01-2007 Hosted high school student visits – This process is an essential part of CASNR recruiting process

01-2007 Advising is a key component in the recruitment as happy alumni are an excellent recruiting tool – The average of my contact is at least one student appointment per week year around, with the most concentrated time is in the semesters with 3-4 per week during periods of registration. I also manage significant amounts of advising via phone and e-mail with 1-2 e-mails per day from advisees during the semesters

Department of Veterinary and Biomedical Sciences
Articles Regarding the Department in 2007

"Nebraska Beef Feedlot Roundtable Offered in Norfolk, Lexington and Bridgeport," IANR News, January 9, 2007

"Sorting out BVDV Testing," Bovine Veterinarian, pgs. 16-20, February 2007

"Keep Calves Clean, Dry and Health This Calving Season; Break the Pathogen Cycle," IANR News, March 13, 2007

"Veterinary Medical Education Program Gets Accreditation," IANR News, March 29, 2007

"UNL/Iowa State Vet Medicine Program Earns Accreditation," Scarlet, April 5, 2007, pg 6

"UNL's Veterinary Diagnostic Center Offers Pet Food Analysis for Melamine," IANR News, May 3, 2007

"UNL's Veterinary Diagnostic Center's Quality Program Internationally Recognizable," IANR News, May 3, 2007

"Calf Born with Six Legs Sold to Texas Freak Show," Lincoln Journal Star, May 10, 2007

"ISU Earns Full Accreditation," Bovine Veterinarian, May-June 2007, pg 12

"VIPS of the Feedlot Industry," 35 Years of Feedlot Medicine, D. Dee Griffin, Bovine Veterinarian, July-August 2007, pg 8

"UNL's Veterinary Diagnostic Center Gets Information to Producers Faster," Farm and Ranch, August 16, 2007, pg 21

"Leptospirosis Cases in Dogs are Low in Nebraska, Vaccine Available," IANR News, August 20, 2007

"Graduate Fellowships Awarded to IANR Students," IANR News, August 22, 2007

"Friendly Feeding," Drovers, October 2007, pgs 30-32

"Vet Shortage to be Addressed in Next Legislative Session," Nebraska Cattleman, October 2007, Vol. 63, Issue 8, pg 16

"Newly Created Veterinary Medicine Program Celebrates First Endowed Student Scholarship," IANR News, October 26, 2007

"Vet Medicine Program Lands Endowed Scholarship," Scarlet, Vol. 17, # 26, November 1, 2007, pg 3

"Panhandle Feedlot is State-of-the-Art," Nebraska Farmer, November 2007, pg 60

Department of Veterinary and Biomedical Sciences
Departmental Budget Summaries

Table 32. General Operating Budget, 2007-2008

		Faculty		Non-Faculty		Employee	Personal Services	Total Personal	Total Operating	Total
		Dollar	FTE	Dollar	FTE	Benefits	Credit	Services	Expenses	
21-6139-0001	Veterinary Biomedical Sciences	155,229	1.49	59,292	1.52	45,801	0	260,322	9,783	270,105
21-6139-0002	Veterinary Biomedical Science, Veterinary Educational Center	120,594	1.20	207,996	5.01	64,771	0.00	393,361	84,238	477,599
21-6160-0001	Veterinary Medicine	561,898	5.85	260,000	8.00	244,173		1,066,071	0	1,066,071
21-6239-0001	Veterinary Biomedical Science	749,507	5.98	470,834	12.34	260,411	0.00	1,480,752	50,056	1,530,808
21-6239-0002	Veterinary Biomedical Science, Diagnostic Laboratory	444,022	3.60	736,232	21.66	315,665	0.00	1,495,919	10,716	1,506,635
21-6239-0003	Veterinary Biomedical Science, Veterinary Educational Center	83,778	0.90	205,268	5.24	61,666	0.00	350,712	84,505	435,217
21-6260-0001	Veterinary Medicine	399,479	4.40	0	0.00	116,752	0.00	516,231	0	516,231
21-6339-0001	Veterinary Biomedical Science	95,885	0.75	54,818	1.23	40,143	0.00	190,846	21,258	212,104
21-6339-0002	Veterinary Biomedicla Science, Veterinary Educational Center	36,819	0.30	13,494	0.50	15,040	0.00	65,353	6,679	72,032
21-6360-0001	Veterinary Medicine	22,100	0.25	0	0.00	13,142	0.00	35,242	0	35,242
	Total	**2,669,311**	**25**	**2,007,934**	**56**	**1,177,564**	**0**	**5,854,809**	**267,235**	**6,122,044**

Department of Veterinary and Biomedical Sciences

Table 33. General Operating Budget, 2006-2007

		Faculty		Non-Faculty		Employee	Personal Services	Total Personal	Total Operating	Total
		Dollar	FTE	Dollar	FTE	Benefits	Credit	Services	Expenses	
21-6139-0001	Veterinary Biomedical Sciences	162,122	1.20	53,586	1.52	60,556	0.00	276,264	9,783	266,047
21-6139-0002	Veterinary Biomedical Science, Veterinary Educational Center	82,953	0.70	200,451	5.01	55,436	0.00	388,840	84,238	423,078
21-6160-0001	Veterinary Medicine	538,200	5.85	260,000	8.00	204,370	0.00	1,002,570	0	1,002,570
21-6239-0001	Veterinary Biomedical Sciences	753,875	6.33	444,731	11.34	253,363	0.00	1,451,969	50,056	1,502,025
21-6239-0002	Veterinary Biomedical Sciences, Diagnostic Laboratory	507,256	4.05	681,914	20.66	310,882	0.00	1,500,052	36,974	1,537,026
21-6239-0003	Veterianry Biomedical Sciences, Veterinary Educational Center	48,080	0.40	198,484	5.24	52,563	0.00	299,127	84,505	383,632
21-6260-0001	Veterinary Medicine	404,800	4.40	0	0.00	93,807	0.00	498,607	0	498,607
21-6339-0001	Veterinary Biomedcial Sciences	83,995	0.75	50,410	1.23	56,220	0.00	190,625	21,258	211,883
21-6339-0002	Veterianry Biomedcial Sciences, Veterinary Educational Center	34,876	0.30	13,156	0.50	14,520	0.00	62,552	6,679	69,231
21-6360-0001	Veterinary Medicine	22,100	0.25	0	0.00	12,855	0.00	34,955	0	34,955
	Total	2,638,257	24	1,902,732	54	1,114,572	0	5,655,561	293,493	5,949,054

*Table 34. Summary of Other Income, 2006-2007**

Source of Income	Amounts
Animal Health Funds (10-01-06/09-30-07)	95,000
Multi-State Research Funds (10-01-06/09-30-07)	52,500
Interdisciplinary Research Funds	20,000
Grants Received (Calendar Year 2007)	1,730,024
Research Revolving Income	593,820
Teaching Revolving Income	19,375
Extension Revolving Income	2,649
Diagnostic Revolving Income	999,309
TOTAL	**$3,475715**

*Includes AOC funds

Table 35. Nebraska Veterinary Diagnostic Laboratory System Revolving Account Summary, 2007

LINCOLN DIAGNOSTIC LAB (VDC)			
Income	Personnel Expense	Operating Expense	Balance
1,719,215	**504,917**	**1,097,064**	**117,234**

Table 36. Grant Summary

Grant $/FTE	FY 03	FY 04	FY 05	FY 06	FY 07
Teaching	93,206		1,333	62,719	39,072
Research	222,869	234,281	159,867	231,356	150,166
Extension	806				35,238
Total Grant $	**316,881**	**234,281**	**161,200**	**294,075**	**224,476**

Table 37. Nebraska Cash Receipts from Farm Marketings by Commodity, 2007***
Total All Commodities = $14,555,820

LIVESTOCK PRODUCTS			CROPS		
Commodity	$ Value in Thousands	% of Total	Commodity	% Value in Thousands	% of Total
Livestock & Products	8,358,073	57.4	Food Grains	435,991	***
Meat Animals	7,903,057	***	Rye	***	***
Cattle & Calves	7,137,669	49.0	Wheat	435,278	3.0
Hogs	755,129	5.2	Millet, Proso	14,503	0.1
Sheep & Lambs	10,259	0.1	Feed Crops	3,899,563	***
Dairy Products	200,220	1.4	Oats	5,0634	0.0
Milk, Wholesale	***	***	Barley	***	***
Poultry & Eggs	230,409	***	Corn	3,682,231	25.3
Broilers	12,330	0.1	Hay	126,458	0.9
Farm Chickens	20	0.0	Sorghum Grain	71,309	0.5
Chicken Eggs	185,092	1.3	Oil Crops	1,606,565	***
Other Poultry	975	***	Misc Oil Crops	***	***
Misc. Livestock	24,387	***	Soybeans	1,597,084	11.00
Honey	2,161	0.0	Sunflower	9,481	0.1
Wool	216	0.0	Vegetables	138,613	***
Other Livestock	***	***	Dry Beans	68,974	0.5
Crops	6,197,747	42.6	Potatoes, Fall	60,589	0.4
Other Berries	90	***	Misc. Vegetables	9,050	***
Other Seeds	1,000	***	Greenhouse/nursery	34,000	0.2
Fruits & Nuts	1,790	***	All Other Crops	115,225	***
Misc Fruits & Nuts	1,700	***	Net Farm Income	3,361,633	***
Sugar Beets	46,325	0.3	All Other Livestock	22,010	***
Other Field Crops	33,900	***			

* Data from Nebraska Agricultural Statistics ** Most current data available *** Data not available

Table 38. Nebraska Agriculture Rank and Ag Business Facts Current Rank in U.S. Agriculture, Amount, and Percent of U.S. Total, Selected Commodities, Nebraska (Issued, May 2007),***

Rank, Commodity and Date	Number	Units	% of US Total
1st Commercial red meat production, 2006	7,226,800,000	*Pounds*	15.2
1st Great Northern bean production, 2006	1,030,000	*Cwt.*	86.6
2nd Commercial cattle slaughter, live weight, 2006	9,287,561,000	*Pounds*	21.7
2nd Commercial cattle slaughter, number, 2006	7,068,500	*Head*	21.0
2nd All cattle and calves, January 1, 2007	6,650,000	*Head*	6.9
2nd All cattle on feed, January 1, 2007	2,700,000	*Head*	18.9
2nd Cash receipts from all meat animals, 2005	7,238,692,000	*Dollars*	11.2
2nd Cash receipts from cattle and calves, 2006	6,628,903,000	*Dollars*	13.5
2nd Proso millet production, 2006	2,420,000	*Bushels*	23.7
2nd Light red kidney bean production, 2006	175,000	*Cwt.*	23.6
2rd Pinto beans production, 2006	1,363,000	*Cwt.*	14.2
3nd Total value of all cattle and calves, January 1, 2007	5,918,500,000	*Dollars*	6.6
3nd Fed cattle marketed (1,000+ capacity lots), 2006	4,635,000	*Head*	20.6
3rd All dry edible beans production, 2006	2,728,000	*Cwt.*	11.3
3rd Cash receipts from all feed crops, 2005	2,258,640,000	*Dollars*	8.9
3rd Cash receipts from corn, 2005	2,085,894,000	*Dollars*	10.9
3rd Cash receipts from sorghum grain, 2005	42,640,000	*Dollars*	6.0
3rd Corn for grain production, 2006	1,178,000,000	*Bushels*	11.2
3rd Sorghum for grain production, 2006	19,200,000	*Bushels*	6.9
4th Cash receipts from all commodities, 2005	11,470,159,000	*Dollars*	4.8
4rd Cash receipts from livestock and products, 2005	7,545,285,000	*Dollars*	6.0
4th On-farm grain storage capacity, December 1, 2006	1,070,000,000	*Bushels*	9.2
4th Off-farm grain storage capacity, December 1, 2006	739,753,000	*Bushels*	8.4
4th Beef cows and heifers that have calved, January 1, 2007	1,940,000	*Head*	5.9
4th Land in farms and ranches, 2006	45,700,000	*Acres*	4.9
5th Soybean production, 2006	250,500,000	*Bushels*	7.9
5th Cash receipts from soybeans, 2005	1,213,207,000	*Dollars*	7.2
5th Cash receipts from all oil crops, 2005	1,228,184,000	*Dollars*	6.7
5th Calf crop, 2006	1,820,000	*Head*	4.8

Rank, Commodity and Date	Number	Units	% of US Total
5th Value of principal crops producted, 2006	6,217,068,000	*Dollars*	5.1
5th Sorghum silage production, 2006	330,000	*Tons*	7.1
5th Cash receipts from hogs and pigs, 2006	728,060,000	*Dollars*	5.2
6th Commercial hog slaughter, live weight, 2006	1,943,013,000	*Pounds*	6.9
6th Commercial hog slaughter, number, 2006	7,216,100	*Head*	6.9
6th Pig crop, 2006	6,514,000	*Head*	6.2
6th Value of all hogs and pigs on farms, December 1, 2006	288,000,000	*Dollars*	5.2
6th All hogs and pigs, December 1, 2006	3,000,000	*Head*	4.8
6th Alfalfa hay production, 2006	4,125,000	*Tons*	5.8
6th Winter wheat production, 2006	61,200,000	*Bushels*	4.7
6th Sunflower production, 2006	62,400,000	*Pounds*	2.9
6th Harvested acreage, principal crops, 2006	18,225,000	*Acres*	6.2
7th Net farm income, 2005	2,699,540,000	*Dollars*	3.7
7th Sugarbeet production, 2006	1,274,000	*Tons*	3.8
7th Cash receipts from sugarbeets, 2005	41,895,000	*Dollars*	3.8
7th Table eggs production, 2006	3,129,000,000	*Eggs*	4.0
8th Cash receipts from crops, 2005	3,924,874,000	*Dollars*	3.4
8th All hay production, 2006	5,675,000	*Tons*	4.0
9th Corn silage production, 2006	3,920,000	*Tons*	3.7
10th All wheat production, 2006	61,200,000	*Bushels*	3.4
10th Cash receipts from wheat, 2005	205,815,000	*Dollars*	3.0
11th All potato production, 2006	8,633,000	*Cwt.*	2.0
12th Oats production, 2006	2,255,000	*Bushels*	2.4
13th All chickens, December 1, 2006	13,165,000	*Head*	2.9
13th Cash receipts from all food grains, 2005	206,787,000	*Dollars*	2.5
13th Cash receipts from potatoes, 2005	42,484,000	*Dollars*	1.8
13th Honey production, 2006	3,431,000	*Pounds*	2.2
14th Cash receipts from chicken eggs, 2005	82,989,000	*Dollars*	2.1
15th Other hay (excludes alfalfa) production, 2006	1,550,000	*Tons*	2.2
15th Wool production, 2006	600,000	*Pounds*	1.7
15th Value of wool production, 2006	216,000	*Dollars*	0.9
16th Total value of all chickens, December 1, 2006	23,697,000	*Dollars*	2.0

Rank, Commodity and Date	Number	Units	% of US Total
17th Cash receipts from hay, 2005	115,576,000	*Dollars*	2.4
18th All sheep and lambs, January 1, 2007	95,000	*Head*	1.5
18th Number of farms, 2006	47,600	*Farms*	2.3

***/Data from USDA/NASS, Lincoln, NE; **/Most current data available**

University of Nebraska Lincoln

Appendix

The 48th Annual George A. Young Swine Health and Management Conference

August 16, 2007

Conference Location
Marina Inn
Fourth & 'B' Street
South Sioux City, NE

Sponsors
University of Nebraska-Lincoln
Institute of Agriculture and Natural Resources
University of Nebraska-Lincoln Extension
College of Agricultural Sciences and Natural Resources
Department of Veterinary and Biomedical Sciences

University of Nebraska Lincoln EXTENSION

The 48th Annual George A. Young Swine Health and Management Conference

August 16, 2007

"Achieving the Best of Production Through Knowledge"

MARINA INN
Fourth & B Streets
South Sioux City, Nebraska 68776

- **Swine Industry Economics**
- **Swine Diseases**
- **Production and Management Strategies**

Sponsors

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SPONSORS

We would like to thank the following sponsors for their support and contributions in making this Conference possible:

American Association of Swine Veterinarians
Alpharma Animal Health
Boehringer Ingelheim Vetmedica
Elanco Animal Health
Hermitage NGT
Nebraska Pork Producers Association and the Pork Check-off
Newport Laboratories
Pfizer Animal Health
Waldo Farms, Inc.

CANCELLATIONS

If you must cancel your registration, please notify us prior to August 1, 2007 in order to receive a full refund. Cancellations received after August 1, 2007 will be subject to an administrative charge of $10.00.

HOTEL RESERVATIONS

For those people needing hotel accommodations, a block of rooms has been reserved for the Conference at the Marina Inn, 4th and B Streets, South Sioux City, Nebraska, 68776. The rate for a single/double occupancy room is $81.00. To make your reservations, call 1-800-798-7980 or (402) 494-4000 and ask for rooms reserved for the George Young Swine Conference.

For further information, contact Sharon Clowser, Conference Coordinator, Department of Veterinary and Biomedical Sciences, 126 VBS, P.O. Box 830905, University of Nebraska–Lincoln, Lincoln, NE 68583-0905, phone (402) 472-8550; FAX (402) 472-9690; E-mail address: sclowser2@unl.edu

GEORGE A. YOUNG SWINE HEALTH & MANAGEMENT CONFERENCE

Registration Form

Name_____

Address_____

City_____

State_____ Zip_____

Phone_____ Fax_____

Email_____

Conference Fees:

____	Pre-registration:	$ 65.00 per person before August 1, 2007
____		$ 75.00 per person after July 31, 2007
____		$ 55.00 per person (Group of 3 or more)
____	At the door:	$ 85.00

One Proceedings will be provided with each paid registration. Please check the one you prefer.

____ Book ____ CD

Additional Proceedings may be ordered.

____	Extra Proceedings—Book:	$ 20.00 at the door
____		$ 35.00 by mail
____	Extra Proceedings—CD	$ 10.00 at the door
____		$ 15.00 by mail

Total Enclosed $_____

____ Number of people attending luncheon.

Make checks payable to: University of Nebraska

Return this form to: George Young Conference Registration
Attn: Sharon Clowser
P.O. Box 830905
University of Nebraska-Lincoln
Lincoln, NE 68583-0905

PROGRAM OVERVIEW

"PCVAD: When immunology goes wrong, life on the farm becomes very expensive!" Dr. Tom Gillespie

Since late in 2004, a "new" problem became apparent to producers with a dramatic increase of mortality, slower growth, systemic problems, pneumonia and other clinical signs. Although this problem first became a concern in the late 1990's, the high mortality rates commonly observed today associated with PCVII was not seen back then. Porcine Circovirus type II continues to create problems that may go beyond a mortality concern. What has been found and how do we change? A vaccine is now available that controls mortality but how well are the animals responding in their growth post vaccination? There are many aspects that need research to further our understanding of PCVII and how it is damaging the animals.

"The PRRS Risk Assessment Tool for the Breeding Herd – Practical Applications and Lessons Learned" Dr. Derald Holtkamp

The PRRS Risk Assessment Tool for the Breeding Herd is part of the AASV Livestock Disease Risk Assessment Program coordinated by the Food Supply Veterinary Services within Iowa State University's College of Veterinary Medicine. An overview and development update will be provided for the program. Practical applications and experience using the PRRS Risk Assessment Tool for the Breeding Herd will be given. Preliminary information related to the importance of various risk factors for PRRS will be presented.

"Regional Eradication of PRRS Virus: A Pilot Project" Dr. Robert Morrison

In the last 20 years we have learned much about PRRS virus, including how to eliminate it from farms. Despite our best efforts to keep it out of farms, many herds become infected. It is often difficult to identify the source of virus, but we know that herds are at risk of becoming infected with whatever pathogens their neighbors have. Therefore, we have initiated a pilot program in two counties in Minnesota to try and eliminate the virus. This project has had its high points and challenges, but overall, we are moving in the right direction. In this presentation, we will describe the project, discuss our progress and present our current challenges. A national eradication program has been proposed by swine veterinarians, and the key to success will be producer leadership.

"Use of Positive Pressure High Efficiency Particulate Air (HEPA) Filtration for Disease Control" Dr. Andy Holtcamp

Positive pressure HEPA filtration systems have been promoted as a means of establishing a biosecure environment in modern swine facilities. Discussion will revolve around cost of installing and maintaining a positive pressure HEPA filtration system. This presentation will also discuss the expectations of which diseases can potentially be impacted.

"Biosecurity: Research Considerations and Real World Applications for Working with PRRS and PCV2 in Swine" Dr. Richard Hesse

The presentation will deal with research needs and methods of containment for working with PRRS and PCV2 infectious disease models in pigs. Infectious agent pseudo modeling will be utilized to demonstrate transmission considerations, explain failed experiments and emphasize real world biosecurity applications

"Practical Approaches to Biosecurity from a Practitioner's Perspective" Dr. Joel Nerem

Protecting the health of swine farms is critical to a producer's success. Practical and effective biosecurity measures can be challenging to implement. This presentation will address how many swine farms have adopted the latest information in disease transmission to effective biosecurity practices at the individual farm level.

Tales from Trent Loos

Consumers are unaware of where their food comes from. Producers are too busy trying to feed the world to stop and show them. Who is going to bridge the gap? Trent will offer tales from his travels about people from every aspect of food production who have taken it upon themselves to spread the good word about agriculture. How can we tell our story and protect consumers from the fearmongering animal rights activists that want us all to become vegans. You won't want to miss this moving address.

PROGRAM

8:00 am	Registration *(with coffee and rolls)*
8:25	*Welcome* - Dr. Bruce Brodersen, Conference Chair
8:30 - 9:20	**PCVD: When immunology goes wrong, life on the farm becomes very expensive** Dr. Thomas Gillespie
9:20 - 10:10	**The PRRS Risk Assessment Tool for Breeding Herd — Practical Applications and Lessons Learned** Dr. Derald Holtkamp
10:10-10:20	**BREAK**
10:20 - 11:10	**Regional Eradication of PRRS: A Pilot Project** Dr. Robert Morrison
11:10 - 12:00	**Use of Positive Pressure High Efficiency Particulate Air (HEPA) Filtration for Disease Control** Dr. Andy Holtcamp
12:00 pm	**LUNCH PROGRAM** **Professional Program in Veterinary Medicine with the University of Nebraska and Iowa State University** Dr. David Hardin
1:15 - 1:45	**Biosecurity: Research Considerations and Real World Applications for Working with PRRS and PCV2 in Swine** Dr. Richard Hesse
1:45 - 2:30	**Practical Approaches to Biosecurity from a Practitioner's Perspective** Dr. Joel Nerem
2:30 - 3:15	**Tales from Trent Loos**

*The Conference has been approved for **4.5** hours of Nebraska Veterinary Continuing Education credits.*

INTRODUCTION

Pork producers, large animal and swine practitioners, faculty in the animal and veterinary sciences, and industry representatives will benefit from this update of research and industry developments as they relate to modern swine production and technology.

The George A. Young Swine Conference has a long-standing tradition of providing up-to-date information on developments in research and production techniques as they relate to today's swine industry. Industry experts have come to respect this conference as their annual opportunity to communicate with colleagues, and to interact with others throughout the spectrum of swine research and production.

GUEST PARTICIPANTS

Dr. Thomas Gillespie, Veterinary Practitioner, Swine Health Management Specialty, Rensselaer Swine Services, P.C., Rensselaer, Indiana

Dr. Derald Holtkamp, Assistant Professor, Veterinary Diagnostic and Production Animal Medicine, Food Supply Veterinary Services, Iowa State University, Ames, Iowa

Dr. Robert Morrison, Professor, Veterinary Population Medicine, College of Veterinary Medicine, University of Minnesota, St. Paul, Minnesota

Dr. Andy Holtcamp, Veterinary Practitioner, Iowa Select Farms L.P., Iowa Falls, Iowa

Dr. Richard Hesse, Associate Professor, Diagnostic Medicine/ Pathobiology, College of Veterinary Medicine, Kansas State University, Manhattan, Kansas

Dr. Joel Nerem, Veterinary Practitioner, Pipestone Veterinary Clinic, Pipestone, Minnesota

Trent Loos, Rancher, Motivational Speaker, Writer, Radio Personality, Loup City, Nebraska

INSTITUTE OF AGRICULTURE AND NATURAL RESOURCES (IANR) AND UNIVERSITY OF NEBRASKA PROGRAM PARTICIPANTS

Dr. David Hardin – Associate Dean & Department Head Veterinary & Biomedical Sciences, University of Nebraska; Lincoln, Nebraska

Dr. Bruce Brodersen – Associate Professor, Dept. of Veterinary & Biomedical Sciences, Veterinary Diagnostic Center, University of Nebraska; Lincoln, Nebraska

PROGRAM COMMITTEE

Bruce Brodersen, Conference Chair, University of Nebraska
Sharon Cowser, Conference Coordinator, University of Nebraska
Ron Brodersen, Whole Hog Health Center, Barrington, NE
Mike Brumm, Brumm Swine Consultancy, Inc., North Mankato, MN
Tom Buck, Pfizer Animal Health
Phil Hardenburger, Crete Veterinary Clinic, Crete, NE
Jeff Husa, Boehringer Ingelheim Vetmedica, Inc.
Locke Karriker, Iowa State University
Bill Lackey, Producer, Columbus, Nebraska
Dana Morgan, Elanco Animal Health
Duane Reese, University of Nebraska
Jim Unwin, Red Barn Veterinary Clinic, Oakland, NE

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