

Rosemary A. Marusak, Ph.D., DVM

E-mail: *rosemary_marusak@ncsu.edu*

Education: **North Carolina State University**, Raleigh, NC (2008-present)
MSPVM – Poultry Health Management, expected July 2010

Michigan State University, East Lansing, MI (2004-2008)
DVM

University of Notre Dame, Notre Dame, IN, (1986-90)
PhD in Inorganic Chemistry

Providence College, Providence, RI (1982-86)
Bachelor of Science in Biology / Bachelor of Arts in Chemistry

PROFESSIONAL EXPERIENCE

Administrative Positions:

Chair, Chemistry Department (Kenyon College) Oversaw a department with 7 full-time faculty members, and 3 staff; conducted and reported on departmental and general education assessment; oversaw budget and teaching schedules; provided annual departmental reports and staff reviews; facilitated individual faculty reviews; prepared all departmental statements. (1999-2000, 2001-04)

Co-Founder and Co-Chair of the Biochemistry/Molecular Biology Program (Kenyon College) - developed, organized, and assessed academic and administrative responsibilities (1995-99, 2002-03)

National Chemistry Division Council (elected position) for the **Council on Undergraduate Research** (2000-03) Duties included:

- **Canadian Membership and Activity Coordinator**- Initiated and established a Canadian Affinity Group of CUR
- **Research Abstract Reviewer** (2001) and **Coordinator** (2002) for *Posters on the Hill*- undergraduate science research presentations to Congress
- **Grant Writing Advisor and Jr. Faculty Mentor** (1996-2002) to science colleagues at various undergraduate institutions
- **Membership Committee**- (2000-03); Activities Coordinator (2002-03)
- **Kenyon College Campus Representative** (2000-04) - organized and disseminated information about CUR and other research opportunities

Advisory Council for the College of Science (University of Notre Dame) - Advised on funding allocations for teaching and research endeavors (1995-98)

Editorial Board for the international journal *Metal-Based Drugs* (1998-2003)

Research Experience:

North Carolina State University, Raleigh, NC (2008-present)

- Studied the effect of day of placement, environment and management on the health and growth of turkeys.
- Investigated the etiologies of cerebellar hypoplasia and hydrocephalus in day old broiler chicks and of proventriculitis in broiler breeder and layer hens using PCR analysis of paraffin-embedded, formalin fixed field samples. *Poultry Resident Researcher*

Michigan State University, East Lansing, MI (2005-2007)

- Studied keratinocyte mobilization in an equine hoof keratinocyte cell culture model. *Research Associate*

Pfizer Global Research & Development, Division of Safety Sciences, Ann Arbor, MI (summer-2005)

- Studied the mechanism of drug toxicity on the female rat reproductive system using western blotting and immunohistochemistry. *Veterinary Student Intern*

Kenyon College, Department of Chemistry, Gambier, OH (1993-2004)

- Characterized metal complexes of chemotherapeutic ICRF drugs, investigated metal-ICRF interactions and reactivity with biological molecules, designed and synthesized novel ICRF drugs, and studied chemotherapy drug localization in CHO cell models. *Faculty Mentor*

University of Manitoba, Faculty of Pharmacy, Winnipeg, MB, CANADA (2000-01)

- Studied ICRF chemotherapeutic drugs in combination with topoisomerase II poisons in CHO cells and investigated mechanisms of ICRF drug action in neonatal rat heart myocyte cell models. *Sabbaticant*

University of California, Department of Chemistry, Davis, CA (1990-93)

- Studied the mechanism of protein conjugated FeEDTA-catalyzed biomolecular cleavage. *NIH Postdoctoral Researcher*

University of Notre Dame, Department of Chemistry & Biochemistry, Notre Dame, IN, (1986-90)

- Studied stereoselectivity in inner- and outer-sphere electron transfer reactions involving classical metal coordination complexes. *Graduate Student*

Providence College, Department of Chemistry, Providence, RI (1983-86)

- Examined rhodium-based, anti-neoplastic agents and carried out diketone syntheses. *Undergraduate Student*

Techniques: Organic, inorganic, and bioconjugate synthesis; protein purification and isolation; animal and yeast cell culture; protein and DNA electrophoresis; PCR; epifluorescence microscopy; HPLC and other chromatographic methods; NMR spectroscopy; circular dichroism, uv-vis, stopped-flow, fluorescence, IR, and atomic absorption spectrophotometry; electrochemistry (cyclic voltammetry)

POULTRY HEALTH MANAGEMENT EXPERIENCE

Professional Poultry

Training Courses:

NCSU Hatchery Management Workshop, North Carolina State University (Aug. 2009)

NCSU MSpVM

Poultry Courses:

Turkey Production I & II - managed 2000 turkey hens from placement to load out (Fall 2008), Assisting 1st year resident in turkey management (Fall 2009).

Broiler Production I - managed 5000 broiler chickens from placement to load out (Spring 2009).

Disease Training & Field Investigations (Summer 2008 – present)

- **Clinical cases:** broiler and broiler breeder vertebral osteoarthritis, layer hen ovarian cancer, broiler breeder cloacitis, tom turkey histomoniasis, organic broiler necrotic enteritis, turkey breeder toms – poult “flip over” syndrome, backyard flock external parasitism. Evaluations have included farm and hatchery management, biosecurity, and flock health assessment, environmental sampling, bird selection, tissue and blood sampling, bird and egg necropsy, and data workup.
- **Health Monitoring:** participated in a variety of necropsy sessions with veterinarians and service technicians from the Allied Health Industry
- **Flock Vaccination:** assisted in series 2 vaccination of 3500 broiler breeder pullets

Avian Gross and Histopathology (Fall 2009)

Avian Histopathology weekly case reviews (2008-present)

Laboratory Rotations - Marek's disease sampling and analysis techniques (PCR, cell culture, IHC), *Mycoplasma* culture and PCR identification, virus identification by PCR and immunofluorescence microscopy (Fall 2008)

Experimental Statistics for Biological Sciences Course, North Carolina State University (Fall 2008)

Backyard Flock Health and Management - primary consultant for backyard flock owners (2008-present)

Teaching Assistant for the Poultry Teaching Animal Unit laboratories (2008-present)

- teach 1st-3rd year veterinary students techniques in turkey and broiler management practices, bird restraint and diagnostic sampling

Teaching Assistant for Senior Poultry Management Selective (2009)

- accompany senior veterinary students to hatcheries, commercial farms, and processing plants, assist in management/biosecurity training and bird and egg necropsy

Teaching Assistant for undergraduate *Poultry Diseases* course (Spring 2009)

- wrote and graded quizzes and exams
- wrote and gave lectures on *Poultry Welfare, Avian Influenza, Newcastle Disease*
- mentored Honors student project on *Broiler Disease and Management*
- assisted in poultry necropsy laboratory

PUBLICATIONS AND PRESENTATIONS

Poultry

Publications:

Parvovirus-Associated Cerebellar Hypoplasia and Hydrocephalus in Day-Old Broiler Chicks **Rosemary A. Marusak**, James S. Guy, J., Tahseen A. Abdul- Aziz, Melissa A. West, Oscar J. Fletcher, J. Michael Day, Laszlo Zsak, and H. John Barnes, submitted for publication to *Avian Diseases*.

The Influence of Grower Management Practices on Health and Production of Turkeys Placed Day of and Day After Hatch **Rosemary A. Marusak**, Dennis P. Wages, David H. Ley, J. Michael Day, Michael P. Martin, David Rives, and H. John Barnes. In preparation.

Transmissible Viral Proventriculitis in Broiler Breeder and Layer Hens **Rosemary A. Marusak**, Melissa A. West, Oscar J. Fletcher, and James S. Guy. In preparation.

Mycoplasma iowae Associated with Skeletal Lesions in Meat Turkeys David H. Ley, **Rosemary A. Marusak**, Eduardo J. Vivas, H. John Barnes, Oscar J. Fletcher. In preparation.

Other Recent

Publications:

Total number of non-poultry research and teaching publications: 26

Expression of K₆₇ in the Uterus During Various Stages of the Estrous Cycle in Rats. **Rosemary A. Marusak**, Zaher A. Radi, and Leslie Obert; *Experimental and Toxicologic Pathology*, **2007**, 59, 151-155.

Integrated Approach to Coordination Chemistry: An Inorganic Laboratory Guide, **Rosemary A. Marusak**, Kate Doan and Scott D. Cummings John Wiley & Sons: Hoboken, NJ, **2007**. For a recent review visit: <http://www3.interscience.wiley.com/cgi-bin/fulltext/117870908/PDFSTART>

A Response to Bio2010: Transforming Undergraduate Education for Future Research Biologists, from the Perspective of the Biochemistry and Molecular Biology Major Program at Kenyon College, Joan L. Slonczewski and **Rosemary Marusak**, *Biochemistry and Molecular Biology Education*, **2004**, *32*, 151-155.

Prevention of Doxorubicin-induced Damage to Rat Heart Myocytes by Arginine Analog Nitric Oxide Synthase Inhibitors and Their Enantiomers. Norman Barnabe, **Rosemary A. Marusak**, and Brian B. Hasinoff; *Nitric Oxide: Biology and Chemistry*, **2003**, *9*, 211-216.

Conferences & Presentations:

Poultry Science Association 98th Annual Meeting Raleigh, NC, July 2009.
AVMA-AAAP Annual Convention Seattle, WA July, 2009 “*Day of Hatch vs. Day After Hatch Placement of Turkey Poults: The Influence of Environment on Turkey Health and Performance*” poster presentation
North Carolina State University Residents Seminar Series, Raleigh, NC Apr. 2009 “*Welfare and Management of Birds in the Commercial Poultry Industry*” oral presentation.
Poultry Health Management Seminar Series NCSU, Raleigh, NC, Apr. 2009 “*Parvovirus-Associated Cerebellar Hypoplasia and Hydrocephalus in Day Old Broiler Chickens*” oral presentation.
Western Poultry Disease Conference, Sacramento, CA Feb. 2009 “*Comparison of Turkey Grower Management Practices on Flock Health and Performance*” oral presentation and proceedings publication.
International Poultry Expo, Atlanta, GA, Jan. 2009 (Attended AAAP Biosecurity and Welfare Meetings)
The Center for Gastrointestinal Biology and Disease, NCSU, Raleigh, NC, Dec. 2008 “*The Effects of Day of Placement and Growout Environment on Turkey Poult Growth and Health*” oral presentation award winner.
Poultry Health Management Seminar Series NCSU, Raleigh, NC, Dec. 2008 “*RT-PCR Identification of TVP Virus in Formalin-Fixed, Paraffin-Embedded Tissues*” oral presentation.
National Meeting on Poultry Health and Processing, Ocean City, MD Oct., 2008.
North Carolina Veterinary Conference, Raleigh, NC Nov., 2008 “*Day of Hatch vs Day After Hatch Placement of Turkey Poults*” oral presentation (invited).
AVMA-AAAP Annual Convention New Orleans, LA July, 2008

I have given over twenty international, national, and local conference and university/college **chemistry research presentations**.

A full listing of publications and presentations is available upon request.

HONORS & PROFESSIONAL ASSOCIATIONS

Awards and Fellowships:

Robert J. Tomsich Research Award for Excellence in Science - Kenyon College (1995, 2000)
Trustees' Junior Faculty Teaching Award - Kenyon College (1997)
NIH Postdoctoral Research Fellowship (1990-1993)/American Cancer Society Postdoctoral Research Fellowship, 1990, (declined for NIH Fellowship)
Rohm and Haas Outstanding Graduate Research Award (1990)
Reilly Fellowship-University of Notre Dame (1989-90)
American Institute of Chemists Regional Award (1986)
J. Joseph Hanley Award for Organic Chemistry-Providence College (1983)

Professional Associations:

AVMA-AAAP (1 year)
▪ Committee on Biosecurity – member and contributor to the revision of the AAAP Biosecurity Manual
▪ Poultry Welfare Committee - participant
Poultry Science Association (1 year)
American Chemical Society (19 years)