

**Alejandro Banda, D.V.M., M.Sc., Ph.D., Dipl. A.C.P.V., Dipl. A.C.V.M.**

Clinical Professor and Executive Laboratory Director  
Department of Pathobiology and Population Medicine  
College of Veterinary Medicine,  
Mississippi State University

**OFFICE ADDRESS:** Poultry Research and Diagnostic Lab  
3137 Highway 468 West  
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**E-MAIL ADDRESS:** ab665@msstate.edu

**BORN:** Mexico City, Mexico

**NATIONALITY:** American Citizen through Naturalization

**EDUCATIONAL EXPERIENCE:**

2003-2004 Postdoctoral Associate - University of Georgia, Athens, GA.  
2002 Doctor of Philosophy (Medical Microbiology) - University of Georgia,  
Athens, GA.  
1996 Master of Science (Veterinary Sciences) UNAM, Mexico City.  
1992 Doctor of Veterinary Medicine -National University of Mexico (UNAM),  
Mexico City.

**LANGUAGE SKILLS:**

Native Spanish speaker, fluent in English, intermediate knowledge of Portuguese, and basic knowledge of Italian.

**LICENSES, BOARD CERTIFICATIONS, AND ACCREDITATIONS:**

- 1 USDA National Accreditation, Category II (all animal species) with Number: 101673. December 15<sup>th</sup>, 2023
- 2 Mississippi Veterinary Faculty License. License No. 401. Mississippi Board of Veterinary Medicine. July 27<sup>th</sup>, 2017.
- 3 Diplomate of the American College of Veterinary Microbiologists, (ACVM) Specialty: Virology. December 3<sup>rd</sup>, 2007.
- 4 Diplomate of the American College of Poultry Veterinarians, (ACPV). July 24<sup>th</sup>, 2004.

## ACADEMIC AND PROFESSIONAL POSITIONS HELD:

June/2024 to Present     **Clinical Professor and Executive Laboratory Director**, Mississippi Veterinary Research and Diagnostic Laboratory System, College of Veterinary Medicine, Department of Pathobiology and Population Medicine, Mississippi State University, Pearl, MS.

### **Duties:**

Serve as chief operating officer of the MVRDLS and assume responsibility for overall planning, development, and implementation of the strategic plan.

Serve as a member of the CVM leadership team and serve on the CVM Cabinet.

Oversee coordination with AAVLD, National Veterinary Services Labs (NVSL), state agencies (MBAH, Dept of Ag, Dept of Health), the National Animal Health Laboratory Network, the Veterinary Laboratory Investigation & Response Network, and federal agencies.

Develop and maintain active relationships with key partners in industry and other stakeholders.

Seek and maintain collaborative service and research opportunities for the MVRDLS.

Promote and lead the quality management system, maintain AAVLD accreditation, and maintain cooperative agreements with federal and state agencies.

Provide oversight to ensure efficient and fiscally sound operations. T Supervise employees, including hiring and discharging staff, evaluation, and managing employee conflict.

June/2014 to May 2024     **Clinical Professor**, Poultry Research and Diagnostic Laboratory, College of Veterinary Medicine, Department of Pathobiology and Population Medicine, Mississippi State University, Pearl, MS.

In this position my duties include to oversee the activities of four staff members in the following laboratory sections:

- a) Poultry Virology
- b) Mammalian Virology
- d) Vivarium

I am also part of the rotation of the necropsies and diagnostic service for poultry diseases.

My teaching activities include lectures for the following DVM courses: Special Species, Agents of Infectious Disease, and Veterinary Anatomy for DVM students. I also participate as lecturer in Advanced Poultry Diseases, and I am the leader of the course Poultry Virology, both courses for Master of Science students.

April/2008-  
June/2014

**Associate Clinical Professor**, Poultry Research and Diagnostic Laboratory, College of Veterinary Medicine, Department of Pathobiology and Population Medicine, Mississippi State University, Pearl, MS.

In this position my duties include to oversee the activities of eight staff members in the following laboratory sections:

- a) Poultry Serology and Virology
- b) Mammalian Serology and Virology
- c) Agar Gel Immunodiffusion Lab (Diagnosis of avian influenza and equine infectious anemia)
- d) PCR and molecular diagnostics
- e) Vivarium

I am also part of the rotation of the necropsies and diagnostic service for poultry diseases.

My teaching activities include lectures for the Special Species, and Agents of Infectious Disease courses for DVM students and Advanced Poultry Diseases to Poultry Science Students

Jan/ 2007-  
Apr/ 2008

**Senior Extension Associate and Laboratory Director**, Cornell University Duck Research Laboratory. Eastport, Long Island, NY. College of Veterinary Medicine, Department of Population Medicine and Diagnostic Sciences, Cornell University

**Duties:**

- Oversee laboratory human resources, finances and facilities.
- Serve as a main liaison with the Center of Veterinary Biologics (USDA) for biologic licensing matters.
- Supervise and manage the avian disease diagnostic and extension service.

Oct/ 2004-  
Apr/ 2008

**Senior Extension Associate**, Cornell University Duck Research Laboratory. Eastport, Long Island, NY. College of Veterinary Medicine, Department of Population Medicine and Diagnostic Sciences, Cornell University

**Duties:**

- Supervise and manage the avian disease diagnostic and extension service.
- Participate in the development, production and testing of USDA-licensed biologics for use in ducks.
- Develop and conduct research on problems of economic importance to the duck industry.
- Supervise technical staff.

Aug/ 2003-  
Oct/ 2004      **Postdoctoral Associate**, College of Veterinary Medicine, Department of Avian Medicine, University of Georgia, Athens, GA.

**Duties:**

- Research and diagnostics in avian virology by classic and molecular techniques.

Jan/ 1999-  
Aug/ 2002      **Graduate Research Assistant**, Department of Avian Medicine, University of Georgia, Athens, GA.

**Duties:**

- Molecular characterization of infectious bursal disease virus and chicken anemia virus.
- Research and diagnosis in avian virology by classic and molecular techniques.
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May/ 1995-  
Aug/ 2004      **Associate Professor**, Department of Avian Medicine, College of Veterinary Medicine and Animal Husbandry, UNAM, Mexico City.

**Duties:**

- Teaching for DVM and graduate students
- Research in avian virology

1992-1995      **Academic Assistant**, Department of Avian Medicine, College of Veterinary Medicine and Animal Husbandry, UNAM, Mexico City.

- Diagnostic services in avian virology

1991-1992      **Consultant in Animal Health**. Inter-American Institute for Cooperation on Agriculture (IICA), Office in Mexico.

- Diagnostic services in rabies and avian virology

1988-1992      **Laboratory Assistant**, College of Veterinary Medicine, Department of Pathology, UNAM, Mexico City.

- Assistance in class and preparation of teaching materials

**PROFESSIONAL SOCIETY MEMBERSHIPS:**

1. ABSA International. The Association for Biosafety and Biosecurity. Since January 2025.
2. Mississippi Veterinary Medical Association (MVMA) Since 2015
3. American Association of Veterinary Laboratory Diagnosticians (AAVLD) since September 2009.
4. American Veterinary Medical Association (AVMA) since 2005.
5. American Association of Avian Pathologists (AAAP) since 2004.
6. American Translators Association (ATA) from 2008 to 2010.

## **HONORS AND AWARDS:**

- 2023 Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM) Service Recognition for 15 years of Service to Mississippi State University.
- 2018 Division of Agriculture, Forestry, and Veterinary Medicine (DAFVM) Service Recognition for 10 years of Service to Mississippi State University.
- 2011 Recipient of the Walter & Jean Rotchild Faculty Award (MS State University)
- 2010 Recipient of the Richard C. Adkerson Faculty Award (MS State University)
- 2003 Member of the Mexican Network of Research Scientists (SNI), Mexican Council of Science and Technology (CONACYT), from 2002 to 2003.
- 1996 Mexican Association of Poultry Science Specialists (ANECA) Award for Best Research Paper.
- 1993 Mexican Association of Poultry Science Specialists (ANECA) Award for Best Research Paper.

## **ESPECIALIZED TRAINING:**

1. Leadership Essentials. Online certificate program with eCornell University 76 hours. February 2025
2. Bioinformatics Workshop. USDA National Veterinary Services Laboratory. October 28 and 29, 2023
3. High Pathogenic Avian Influenza (HPAI) Diagnostic Training Course. USDA, IICAB, Iowa State University. Ames, Iowa. May 14-18, 2007.
4. Preparedness Training for Rapid International Deployment to Combat Highly Pathogenic Avian Influenza. USDA. Washington, D.C. March 12-16, 2007.

## **PARTICIPATION IN COMMITTEES:**

- 2018 Chair of the AAAP Respiratory Diseases Committee. Term from 2019 to 2021.
- 2016 Consultative Workshop for the development of an e-learning course on "Design and implementation of surveillance in Live Bird Markets" Food and Agriculture Organization of the United Nations (FAO) June 27-28, 2016, Bangkok, Thailand
- 2015 Member of the Mississippi State University Institutional Animal Care and Use Committee (IACUC). From 2015 to 2021
- 2015 Member of the American College of Poultry Veterinarians Continuing Education Committee, From 2015 to 2018.
- 2010 Core member of the Respiratory Diseases Committee of the American Association of Avian Pathologists (AAAP)
- 2009 President of the Southern Conference on Avian Diseases (SCAD), one year-term

## **ORGANIZATION OF WORKSHOPS, CONFERENCES AND SYMPOSIA:**

- 2018 ACPV Sponsored Workshop. Current Issues on Animal Welfare and Antibiotic use in Poultry: Perception vs Science. American College of Poultry Veterinarians. April 15, 2018. Salt Lake City, UT

## **EDITORIAL AND TRANSLATOR ACTIVITIES:**

- 1 Member of the Editorial Board of the Scientific Journal Avian Diseases since 2007
- 2 *Ad Hoc* Reviewer for the following journals:
  - Journal of Veterinary Medicine Series B
  - Poultry Science
  - Journal of Applied Poultry Research
  - Journal of Virological Methods
  - Veterinary Microbiology
  - Avian Pathology
  - Virology Journal
  - Journal of Veterinary Diagnostic Investigation
  - European Journal of Wildlife Research
  - Vaccine
  - Preventive Veterinary Medicine
  - Viruses
  - Transboundary and Emerging Diseases
  - BMC Veterinary Research
- 3 Spanish language coordinator for the scientific Journal Avian Diseases. From April 2008 to present.
- 4 Review of the Chapter on Duck Virus Hepatitis of the OIE Manual of Standards for Diagnostic Tests and Vaccines. December 2016
- 5 Translation into Spanish of the AAAP Slide Study Sets 1 to 25 (In cooperation with Dr. C. Estevez, Dr. I. Alvarado and Hugo Moscoso). 2001-02.
- 6 Translator of the abstracts from English into Spanish for publication in the scientific journal Avian Diseases from 2000 to 2004.

## ***AD HOC* REVIEWER OF RESEARCH PROPOSALS:**

1. Reviewer of two project proposals submitted to the Strategic Research and Development Program (SRDP) in Alberta Agriculture and Forestry (AAF). October 2017
2. Reviewer of one project proposal submitted to the BARD United States - Israel Binational Agricultural Research and Development Fund December 2016-January 2017
3. Reviewer of one project proposal submitted to the MITACS Accelerate Program. Canada June 2016.
4. Reviewer of one project proposal submitted to the Egg Industry Center. Iowa US. July 2015

## **EVALUATOR OF GRADUATE PROGRAMS:**

1. Evaluator of the Master and Doctoral Program in Production Sciences and Animal Health at the National University of Mexico (UNAM). Mexico City. December 6<sup>th</sup> to 8<sup>th</sup>, 2022.

## **TEACHING ACTIVITIES:**

### **1. Poultry Virology (CVM 8013) (3 hours)**

College of Veterinary Medicine, Mississippi State University.

Description of poultry viruses of importance. Topics on individual agents: morphology, classification, character of disease, epizootiology, pathogenesis, immunity, cultivation, diagnosis, prevention, control, and zoonotic potential.

100% responsibility for this course. (Offered since 2015)

### **2. Advanced Poultry Diseases (CVM 8113)**

College of Veterinary Medicine, Mississippi State University.

Five 3-hour lectures on Viral Diseases of Poultry (Yearly since 2013)

### **3. Agents of Infectious Disease (CVM 5093)**

College of Veterinary Medicine, Mississippi State University.

Lectures on Herpesviruses, Flaviviruses and Picornaviruses (Yearly since January 2009)

1 hours/topic

### **4. Special Species (CVM 5183)**

College of Veterinary Medicine, Mississippi State University.

Two 1-hour lectures on Poultry Viral Diseases (Yearly since April 2008)

### **5. Veterinary Anatomy (CVM 5072)**

College of Veterinary Medicine, Mississippi State University.

3-hour lecture and 3-hour laboratory class on avian anatomy. (Yearly since January 2013).

### **6. Laboratory Diagnostic Services (CVM 8801)**

College of Veterinary Medicine, Mississippi State University.

Supervise Graduate Students on Necropsy and Diagnostic Services

1 to 2 days/Week

### **7. Diseases of Poultry (PO 4033)**

Department of Poultry Science, Mississippi State University

2-hour lecture on virological diagnosis in poultry

(Yearly since 2012)

### **8. Topics on Avian Diseases (CVM 7000).**

College of Veterinary Medicine, Mississippi State University

Directed Individual Study for Rebecca Mackey

(Summer 2020)

### **9. Population Medicine Rotation (CVM 5273)**

College of Veterinary Medicine, Mississippi State University.

Visit with CVM student to hatchery Plant and two broiler farms.

(8 hours during 2018)

### **10. Avian Virus Diseases (AVMD 8050)**

**College of Veterinary Medicine, The University of Georgia.**

Lectures on infectious bursal disease virus, and chicken anemia virus. Yearly from 2002 to 2007.

2 hours/topic.

**11. Poultry Production (016-1809) (In Spanish)**

**College of Veterinary Medicine, UNAM, Mexico City.**

Course Description: This course introduces the veterinary students into the basic principles for commercial poultry production and offers a review of the main diseases that affect the chickens under commercial conditions.

Taught from 1995 to 2003 (two terms of 18 weeks each year).

100% responsibility for this course. Enrollment is usually 20-30 students.

**12. Activities as Graduate Faculty. College of Veterinary Medicine, Level 2. Mississippi State University**

1. Committee Member of the Master on Animal Health. David Santiago Escobar. Title of Master Thesis: "Detection and molecular typing of Avian Metapneumovirus Aviar in commercial poultry and wild birds from Colombia" National University of Colombia, Bogota City, Colombia. Approved. National University of Colombia February 19th, 2025
2. Committee Member of the Master of Veterinary Science, Concentration: Population Medicine Poultry: Marcela Arango. College of Veterinary Medicine. Mississippi State University. Expected to Graduate in May 2025
3. Committee Member of the Master of Veterinary Science, Concentration: Population Medicine Poultry: Hugo Ramirez. College of Veterinary Medicine. Mississippi State University. Expected to Graduate in May 2024
4. Committee Member of the Master on Animal Health. Nicolás Upegui Porras. Title of Master Thesis: Evaluation of the immune response elicited by a vaccine applied through feed to control Newcastle disease. National University of Colombia, Bogota City, Colombia. Approved. National University of Colombia March 10<sup>th</sup>, 2022
5. Major Professor of Dr. Gunnar Dunam. Master of Veterinary Science, Concentration: Population Medicine Poultry. Graduated in May 2023.
6. Major Professor of Rebecca Mackey. Doctor of Philosophy in Veterinary Medical Science (VMS). Concentration: Veterinary Medical Research (VMRC).
7. Committee Member of the Master of Veterinary Science, Concentration: Population Medicine Poultry: Rachel Thiemann. College of Veterinary Medicine. Mississippi State University. Graduated May 2022
8. Major Professor of Dr. Eric Orozco. Master of Veterinary Science, Concentration: Population Medicine Poultry. Graduated in May 2020.
9. Committee Member of the Master of Veterinary Science, Concentration: Population Medicine Poultry: Leslie B. Johnson. Title of Master Thesis: An investigation of variables associated with mortality in a broiler complex in Mississippi. Graduated May 2019. College of Veterinary Medicine. Mississippi State University.



10. Committee Member of the Master of Veterinary Science, Poultry Specialty: Jessica K. Brown-Hockaday. Title of Master Thesis: A comparative analysis of gross and histopathologic lesions of gizzard erosions in antibiotic free and conventionally raised broiler flocks. Approved. March 22nd, 2018. College of Veterinary Medicine. Mississippi State University
11. Committee Member of the Master on Veterinary Sciences. Elizabeth Lucia Folleco Villarreal. Title of Master Thesis: Molecular characterization of avian infectious anemia virus circulating in the east and north of Antioquia. Approved. May 2, 2017. University of Antioquia, Medellin City, Colombia.
12. Major Professor of William S. Dillard. Master of Veterinary Science, Poultry Specialty. Non-Thesis Program. Graduated: December 2015. College of Veterinary Medicine. Mississippi State University.
13. Committee Member of the Master of Veterinary Science, Poultry Specialty: Myles Hill. Non-Thesis Program. Graduated: May 2015. College of Veterinary Medicine. Mississippi State University.
14. Committee Member of the Master of Veterinary Science, Poultry Specialty: Kevin S. Maschek. Title of Master Thesis: The efficacy of a spot-on pesticide against ectoparasites affecting poultry in Mississippi. Approved. March 9th, 2015. College of Veterinary Medicine. Mississippi State University.
15. Member of the Ph. Committee of Lifang Yan. Title of dissertation: Diagnosis and characterization of bovine viral diarrhea virus. Approved. May 2012. College of Veterinary Medicine, Mississippi State University

**THESIS DIRECTED FOR DVM STUDENTS, NATIONAL UNIVERSITY OF MEXICO (UNAM):**

1. Santiago G.R. Analysis of the antibody titers against infectious bursal disease. Comparison of the systemic and Harderian gland immunity in broilers inoculated experimentally. College of Veterinary Medicine, National University of Mexico (In Spanish), May 1998.
2. Garcia M.J.L. Comparison of the antibody titers against infectious bursal disease by ELISA from whole blood samples adsorbed in filter paper and sera. College of Veterinary Medicine, National University of Mexico (In Spanish). February 1995

**THESIS DIRECTED FOR MS. STUDENTS, UNAM**

1. Villa G.R. Evaluation of the *Gallus gallus* as an animal model for the study of gliotoxin produced by *Aspergillus fumigatus* (In Spanish), December 1998.

**TRAINING OF PERSONEL:**

1. Laura Catherine Inman. Training in RT-QuIC methods to detect Chronic wasting disease prions. June 15 to October 31, 2024.

2. Raminier E. Charles-Alba. Short-term scholar from Dominican Republic. August 27th to September 24th, 2023. Training on avian pathology, necropsies, and different laboratory diagnostic methods applied to commercial poultry.
3. Mary Beth Coates. Training in RT-QuIC methods to detect Chronic wasting disease prions. June 15 to July 31st, 2023.
4. Hannah Garvin. APHL Subaward Internship Program. September 12, 2022, to December 15, 2022. Genetic characterization of avian reovirus isolates Isolation and identification of Salmonella sp. and coliform isolates of avian origin and their enumeration using the 3M™ Petrifilm™ aerobic count plate system.
5. Daniel Sebastian-Pineda. Short-term scholar from Dominican Republic. June 25, 2022, to September 25, 2022. Training on avian pathology, necropsies, and different laboratory diagnostic methods applied to commercial poultry.
6. Jordan Smink. Directed Individual Study on Veterinary Virology. July 10-14, 2017. Training on molecular and classic virological techniques for detecting and typing viral agents of animals.
7. Amber Carreon-Chavez. Directed Individual Study on Veterinary Virology. April 3-7, 2017. Training on molecular and classic virological techniques for detecting and typing viral agents of animals.
8. Gonzalo Tomas-Custodio. Short-term scholar from Uruguay. February 2nd to March 31st, 2015. Training on molecular and classic virological techniques for detecting and typing infectious bursal disease virus.
9. Ana Eugenia Marandino-Peregalli. Short-term scholar from Uruguay. February 2nd to March 31st, 2015. Training on molecular and classic virological techniques for detecting and typing infectious bronchitis virus.
10. Martha Pulido-Landinez. Short-term scholar from Colombia. September 4th to December 3rd, 2012. Training on different laboratory diagnostic methods applied to commercial poultry.
11. Ana Eugenia Marandino-Peregalli. Short-term scholar from Uruguay. September 5th to September 24th, 2011. Training on classic and molecular methodologies for the detection and characterization of poultry viruses.
12. Bayo Sokale. Directed Individual Study. Selected Topics of Poultry Virology (3 Credits).

#### **EXTRAMURAL FUNDING GRANTS:**

1. USDA-APHIS-10028-WSNWRC00-23-0018. FY23 Wild Cervid CWD Management and Response Activities. “Evaluation of Real-Time Quaking Induced Conversion (RT-QuIC) for antemortem and environmental detection of Chronic Wasting Disease” Banda A. (PI), Epperson, W. (Co-PI). **Not Funded.**
2. USDA APHIS WS. Wild Cervid CWD Management and Response Activities FY22. “Evaluation of the possible role of feral hogs as vectors in the dissemination of CWD in the environment through the detection by Real-Time Quaking-Induced Conversion (RT-QuIC) methodologies”. Banda A (PI), Pace L (Co-PI). **No Funded.**

3. USDA- National Animal Health Laboratory Network (NAHLN) 2021 NAHLN Enhancement Project: “Enhancement of chronic wasting disease (CWD) testing capacity”. Pace, L (PI), Banda, A (Co-PI). **Funded: \$108,057.40**
4. USDA National Wildlife Research Center (USDA APHIS) (NWRC) - AP21WSNWRC00C044. Demarais, S. (PI), Banda A (Co-PI). Project Title: “Environmental Monitoring as Early Sentinel Warning for Presence of CWD”. **Funded: \$169,405.50**
5. USDA – NAHLN- National Animal Health Laboratory Network Enhancement 2020 Cooperative/Interagency Agreements. Project Title: “Development and validation of real-time quaking-induced conversion (RT-QuIC) as confirmatory testing for chronic wasting disease CWD”. AP21WSNWRC00C044, Banda A (PI), Pace L (Co-PI). **Funded: \$141,433.00**
6. Department of Agriculture – NAHLN- National Animal Health Laboratory Network Enhancement 2020 Cooperative/Interagency Agreements. Project Title: Mississippi Veterinary Research and Diagnostic System – Enhancement of chronic wasting disease (CWD) testing capacity. Banda A (PI), Pace L (Co-PI). **Not Funded.**
7. Department of Agriculture - APHIS - Chronic Wasting Disease Management and Response Activities 2020 Cooperative Agreements. Funding Opportunity Number: USDA-APHIS-10025-VSSPRS00-20-0124. Project Title: Improving CWD Surveillance and Educational Outreach in Mississippi Walsh R. PI. Demarais S. Pace L. Banda. **Not Funded.**
8. Mississippi Board of Animal Health. NPIP Low-path AI Laboratory. Dr. Lanny W. Pace (PI), Alejandro Banda, and Danny L. Magee (co-PIs). Contract 2012. **Funded: \$99,377.60.**
9. Mississippi Board of Animal Health. National Poultry Improvement Program, Low path Avian Influenza Lanny W. Pace (PI), Alejandro Banda, Danny L. Magee (co-PIs). Contract 2011. **Funded: \$98,280.**
10. Mississippi Board of Animal Health. National Poultry Improvement Plan, Low Pathogenic Avian Influenza Lanny W. Pace (PI), Alejandro Banda, Danny L. Magee, Zhenyu Zhang (co-PIs). Contract 2010. **Funded: \$94,080**
11. Molecular and pathogenic analysis of co-infection with infectious bursal disease and chicken anemia viruses. U.S. Poultry and Egg Association, Dr. Pedro Villegas (Principal investigator), Dr. Alejandro Banda (Co-investigator), **Funded: \$20,000.00**, 2002.

## **FEE FOR SERVICE PROJECTS AND CONTRACTS**

1. Association of Public Health Laboratories. APHL Internship Subaward Program at the MS Veterinary Research and Diagnostic Lab. September 12, 2022. To support Hannah Garvin as intern. **Amount \$12,800.00**
2. Comparative study on the protection conferred by three different recombinant infectious bursal disease vaccines against the challenge with Delaware E infectious bursal disease virus. Finalized on December 2022. **Revenue \$42,730.00**

3. Evaluation of safety and efficacy of Univax Plus applied by coarse spray. Concluded in August 2021. **Revenue: \$67,438.13.**
4. Stability of two live attenuated vaccines (Infectious bronchitis and Salmonella) in mixtures with three coccidial vaccines. Concluded December 2019 **Revenue: \$8,000.00**
5. Stability of two live attenuated vaccines (infectious bronchitis and Salmonella) in gel mixtures with a coccidial vaccine. Concluded November 2019. **Revenue: \$5,712.50**
6. Evaluation of the vaccine reactions induced by infectious bronchitis vaccine strains MA5, and M41 and Newcastle vaccine strains B1, C2, and VG/GA in single and combined applications. Concluded November 2019. **Revenue \$38,617.50**
7. Evaluation of the protection conferred by a dual-construct herpesvirus of turkey (HVT) based vaccine (Innovax ND-IBD), against the challenge with infectious bursal disease virus, alone or in combination with vaccine strains 89/03 and Univax-BD. **Revenue: \$43,780.00.**
8. Evaluation of the protection conferred by a dual-construct herpesvirus of turkey (HVT) based vaccine (Innovax ND-IBD) against the challenge with infectious bursal disease virus. **Revenue: 22,360.00**
9. Evaluation by ELISA of the antibody response elicited by a recombinant Newcastle disease vaccine applied in ovo in both specific pathogen free (SPF) birds and commercial broilers. **Revenue: \$22,066.20.**
10. Evaluation of the vaccine reactions induced by infectious bronchitis vaccine strains Ma5, M41, and Newcastle vaccine strains B1, C2 and VG/GA in single and combined applications. **Revenue: \$39,742.50.**
11. Preparation of Immunized Specific Pathogen Free (SPF) Sentinel Birds for the Detection of Variant Strains of Infectious Bronchitis Virus Strains in Commercial Poultry Farms. **Revenue: \$9,829.00**
12. Vaccination Solutions on Poultry Health (Number 010230). **Revenue: \$99,153.07**
13. The effect of immunomodulators on humoral immune response against avian viruses. Chinling Wang (PI) and Alejandro Banda (co-PI). **\$68,283**

#### **MANUSCRIPTS PUBLISHED IN PEER REVIEWED JOURNALS:**

1. Huang, M., S. Demarais, B.K. Strickland, A. Houston, A. Banda, and K.C. Vercauteren. Chronic wasting disease effects on a breeding season behavior in White-tailed Deer (*Odocoileus virginianus*). *Journal of Mammalogy*, gya050, <https://doi.org/10.1093/jmammal/gyae050> Published: 23 May 2024
2. Huang, M., S. Demarais, **A. Banda**, B. Strickland, A.G. Welch, S. Hearst, S. Lichtenberg, A. Houston, K. Pepin, and K. Vercauteren. Expanding CWD Disease Surveillance Options Using Environmental Contamination at Deer Signposts. *Ecological Solutions and Evidence*. 5, e12298. <https://doi.org/10.1002/2688-8319.12298>
3. Techera-Ramírez, C.A., G. Tomás, S. Grecco, J. Williman; M. Hernández; V. Olivera; **A. Banda**; A. Vagnozzi; Y. Panzera; A. Marandino. R. Pérez. A rapid and affordable amplicon-based method for next-generation genome sequencing

- of the infectious bursal disease virus. *Journal of Virological Methods*. 2023 Dec; 322:114807. doi: 10.1016/j.jviromet.2023.114807. Epub 2023 Sep 6. PMID: 37683937.
4. Dunnam, G., A. Varela-Stokes, H. Rose, and **A. Banda**. *Heterakis isolonche* infection associated with severe nodular typhlitis and suspect aberrant pulmonary migration in a golden pheasant (*Chrysolopus pictus*). *Avian Dis.* 66:243-247, 2022
  5. Jara, M. R. Crespo, D. L. Roberts, A. Chapman, **A. Banda** and G. Machado. Development of a Dissemination Platform for Spatiotemporal and Phylogenetic Analysis of Avian Infectious Bronchitis Virus. *Frontiers in Veterinary Science* 2021 Vol. 8
  6. Wilson, F.D., **A. Banda**, F.J. Hoerr, I. Alvarado, E. Orozco, and R. Mackey. Histopathologic lesion scoring and histomorphometric methods for measuring vaccine reactions in the trachea of broiler chickens. *Avian Dis.* 65:18–25, 2021
  7. Techera, C., G. Tomás, Y. Panzera, **A. Banda**, P. Perbolianachis, R. Pérez, A. Marandino. Development of real-time PCR assays for single and simultaneous detection of infectious bursal disease virus and chicken anemia virus. *Mol. Cell Probes.* 43: 58-63, 2019.
  8. Tomás, G., M. Hernández, A. Marandino, C. Techera, S. Grecco, D. Hernández, **A. Banda**, Y. Panzera and R. Pérez. Development of an RT-qPCR assay for the specific detection of a distinct genetic lineage of the infectious bursal disease virus. *Avian Pathol.* 46: 150–156, 2017
  9. Marandino, A., G. Tomás, M. Hernández, Y. Panzera, M.I. Craig, A. Vagnozzi, F. Vera, C. Techera, S. Grecco, **A. Banda**, D. Hernández, and R. Pérez. Development of RT-qPCR assays for the specific identification of two major genotypes of avian infectious bronchitis virus. *J. Virol. Methods.* 235:21-25, 2016
  10. Hernández M, G. Tomás, A. Marandino, G. Iraola, L. Maya, N. Mattion, D. Hernández, P. Villegas, **A. Banda**, Y. Panzera, R. Pérez. Genetic characterization of South American infectious bursal disease virus reveals the existence of a distinct worldwide-spread genetic lineage. *Avian Pathol.* 44:212-221, 2015
  11. Marandino, A., A. Pereda, G. Tomás, M. Hernández, G. Iraola, M. Craig, D. Hernández, **A. Banda**, P. Villegas, Y. Panzera, R. Perez. Phylodynamics analysis of avian infectious bronchitis virus in South America. *J. Gen. Virol.* 96 (Pt 6):1340-6. 2015.
  12. Pulido-Landínez, M., P. Washington, J.K. Thornton, Y. Zhang, R. Sánchez-Ingunza, **A. Banda**, J. Guard, V.P. Nascimento, D.L. Magee, and M.J. Mauel. Serotype and Antimicrobial Resistance Patterns of Salmonella Isolates from Commercial Birds and Poultry Environment in Mississippi. *Avian Dis.* 58:64-70, 2014.
  13. Tomás, G., M. Hernández, A. Marandino, Y. Panzera, L. Maya, D. Hernández, A. Pereda, **A. Banda**, P. Villegas, S. Aguirre, R. Pérez. Development and validation of a TaqMan-MGB real-time RT-PCR assay for simultaneous detection and characterization of infectious bursal disease virus. *J. Virol. Methods.* 185:101-107, 2012.

14. Hernández, M., G. Tomás, D. Hernández, P. Villegas, **A. Banda**, L. Maya, Y. Panzera, R. Pérez. Novel multiplex RT-PCR/RFLP diagnostic test to differentiate low from high pathogenic strains, and to detect reassortant infectious bursal disease virus. *Avian Dis.* 55:368-374, 2011.
15. Hernández M, P. Villegas, D. Hernández, **A. Banda**, L. Maya, V. Romero, G. Tomás, R. Pérez. Sequence variability and evolution of the terminal overlapping VP5 gene of the infectious bursal disease virus. *Virus Genes.* 41:59-66, 2010.
16. **Banda A**, P. Villegas, L. Purvis, and F. Perozo. Protection Conferred by Coarse Spray Vaccination against the Challenge with Infectious Bursal Disease Virus in Commercial Broilers. *Avian Dis.* 52:297-301, 2008.
17. **Banda, A.** R.Galloway-Haskins, T.S. Sandhu, and K.A. Schat. Genetic analysis of a duck circovirus (DuCV) detected in commercial Pekin ducks in New York. *Avian Dis.* 51:90-95, 2007.
18. Hernández, M., **A. Banda**, D. Hernández, F. Panzera, and R. Pérez. Detection of very virulent strains of infectious bursal disease virus (vvIBDV) in commercial broilers from Uruguay. *Avian Dis.* 50:624-631, 2006.
19. **Banda, A.**, P. Villegas, and J. El-Attrache. Heteroduplex mobility assay for genotyping infectious bursal disease. *Avian Dis.* 48:851-862, 2004.
20. **Banda, A.**, and P. Villegas. Genetic characterization of very virulent infectious bursal disease viruses (vvIBDV) from Latin America. *Avian Dis.* 48:540-549, 2004.
21. **Banda, A.**, P. Villegas, and J. El-Attrache. Molecular characterization of infectious bursal disease virus from commercial poultry in the United States and Latin America. *Avian Dis.* 47:87-95, 2002.
22. Majó, N., J. El-Attrache, **A. Banda**, P. Villegas, A. Ramis, A. Pages, and N. Ikuta. Molecular characterization of Spanish infectious bursal disease virus field isolates. *Avian Dis.* 46: 859-868, 2001.
23. **Banda, A.**, P. Villegas, J. El-Attrache, and C. Estevez. Molecular characterization of seven field isolates of infectious bursal disease virus obtained from commercial broilers chickens. *Avian Dis.* 45: 620-630, 2001.
24. **Banda, C.A.**, J. C. Valladares, and J. A. Navarro: Clinical and pathologic characterization of three infectious bursal disease virus isolates from commercial broiler flocks in Mexico. (Article in Spanish). *Vet. Mex.* 30:7-18, 1999.

## MANUSCRIPTS IN ELABORATION

1. Ramirez, H., F. Vargas, L. Colvero, F. Rios, J. Cabriales, R. Marcano, C. Reyes, P. Nervi M. Pulido-Landinez, and **A. Banda**. Genotypic characterization of infectious bursal disease viruses (IBDV) detected in the Southern United States and some Latin American Countries between 2017 and 2023.- Detection of an Asian Genotype in South America. To be submitted to *Avian Diseases*.
2. Comparative detection of chronic wasting disease (CWD) by ELISA and real-time quaking-induced conversion (RT-QuIC) and evaluation of oral swab

samples for antemortem testing. To be submitted to the Veterinary Journal of Veterinary Diagnostic Investigation

### **SCIENTIFIC PRESENTATIONS IN NATIONAL AND INTERNATIONAL MEETINGS:**

1. **Banda, A.**, A. G. Welch, T. Eichelberger, W. Mckinley, S. Demarais, M. Huang. Evaluation of real-time quaking-induced conversion (RT-QuIC) to detect chronic wasting disease (CWD) in retropharyngeal lymph node and oral swab samples. AAVLD-USAHA 2023 Annual Meeting. National Harbor, MD. October 12-18, 2023.
2. **Banda, A.**, R. Mackey, H. Ramirez, C. Zhang, A.G. Welch. Amino acid sequence and phylogenetic analyses of segments A and B of recent infectious bursal disease field strains in Southern United States. American Association of Avian Pathologists, 2023 Annual Meeting. Jacksonville, FL. June 11 to June 14, 2023.
3. Ramirez, H., R. Mackey, A.G. Welch, C. Zhang, I. Alvarado, M. Pulido, and **A. Banda**, Efficacy evaluation of three Infectious bursal disease vaccines by quantifying the viral replication in bursal tissues in a vaccination/challenge model. American Association of Avian Pathologists, 2023 Annual Meeting. Jacksonville, FL. June 11 to June 14, 2023.
4. Huang, M., S. Demarais, **A. Banda**, B. Strickland, A. G. Welch, S. Hearst, S. Lichtenberg, A. Houson, K. Pepin, K. VerCauteren. Can We Leverage Environmental Contamination for CWD Surveillance? 4th International CWD Symposium, Colorado State University, USDA Wildlife Services. Denver, Colorado. May 31-June 2, 2023
5. **Banda, A.**, A.G. Welch, T. Eichelberger, W. McKinley, and L.W. Pace. Comparison between ELISA and RT-QuIC to detect chronic wasting disease in retropharyngeal lymph nodes of deer. Conference of Research Workers in Animal Diseases (CRWAD). January 22 to 24, 2023
6. Ramirez, H., F. Vargas, L. Colvero, F. Rios, J. Cabriales, R. Marcano, C. Reyes, P. Nervi, M. Pulido-Landinez, **A. Banda** Genotypic characterization of infectious bursal disease viruses (IBDV) detected in the Americas between 2019 to 2022. International Poultry Scientific Forum. Atlanta, GA. January 23-24, 2023
7. Dunnam, G. A. Bishop, M.F. Dalton, J.K. Thornton, R. Mackey, **A. Banda**, and M. Pulido-Landinez. A novel presentation of focal ulcerative dermatitis syndrome (FUDS) in broiler breeder hens. International Poultry Scientific Forum. Atlanta, GA. January 23-24, 2023
8. **Banda, A.**, R. Mackey, and M. Pulido. Effect of Coccidial Vaccines on the Stability of Salmonella and Viral Live Attenuated Vaccines. American Association of Avian Pathologists, 2022 Annual Meeting. Philadelphia, PA. July30 to August 2, 2022.
9. Mackey, R. and **A. Banda**. Antigenic Variation and In Vitro Neutralization of Avian Reovirus Isolates from Mississippi. American Association of Avian Pathologists, 2022 Annual Meeting. Philadelphia, PA. July30 to August 2, 2022.
10. Dunnam G., T. Cummings, P. Stayer, R. Cran, E. Riley, **A. Banda**, J. McKee, R. Mackey, S. Baughman. How Many Antigens Can You Give a Pullet: A Field

- Study Assessing How Multiple Vaccines Influence Antibody Titers. American Association of Avian Pathologists 2022 Annual Meeting. Philadelphia, PA. July 30 to August 2, 2022
11. Huang, M., S. Demarais, **A. Banda**, B. Strickland, A.G. Welch, S. Hearst, S. Lichtenberg, A. Houston, K. Pepin, K. VerCauteren. Behavioral Scrapes as a Route of Transmission and Potential Environmental Sentinel for Chronic Wasting Disease. 70<sup>th</sup> Annual International Conference. Wildlife Disease Association. Madison, WI July 23-29, 2022
  12. **Banda, A.**, Mackey, R., and Wilson F. Protection induced by IBDV vaccine strains ST-12 and 51A/C4 versus Delaware E challenge. Seventy-first Western Poultry Disease Conference. Vancouver, BC, Canada. April 3-6, 2022.
  13. Dunnam, G, and **A. Banda**. Proventriculitis in a broiler company in Mississippi: a field investigation. International Poultry Scientific Forum. Atlanta, GA. January 24-25, 2022.
  14. **Banda, A.**, R. Mackey, C. Zhang, and L. Yan. Genotyping of Fowl Aviadnaviruses (FAdV) field isolates from Southern U.S. during 2015 to 2021. American Association of Avian Pathologists 2021 Annual Virtual Meeting. July 1, to August 30, 2021.
  15. **Banda, A.**, R. Mackey, and M. Pulido. Stability evaluations of infectious bronchitis and Salmonella vaccines in combination with different coccidial vaccines. XVII Western Poultry Disease Conference, Virtual Conference. March 15-16, 2021.
  16. Mackey, R., **A. Banda**, C. Zhang, L. Yan, H. Sellers. Clinical characteristics and neutralization patterns of avian reovirus field isolates from Mississippi. International Poultry Scientific Forum. Atlanta, GA. January 25-26, 2021.
  17. Orozco, E., Thornton, J.K., **A. Banda**, and Pulido-Landinez, M. Characterization and Antimicrobial Resistance Patterns of *Pasteurella multocida* Isolates from Chickens in Mississippi. 2020 AAAP Virtual Annual Meeting. July 30 - August 6, 2020.
  18. Mendoza-Reilly, A., Alvarado, I., and **A. Banda**. Protection by a Novel Dual Recombinant HVT ND-IBD Vaccine alone or in combination of an IBD 89/03 Live Attenuated Vaccine against a Variant E Strain Challenge of Infectious Bursal Disease. 2020 AAAP Virtual Annual Meeting. July 30 - August 6, 2020.
  19. **Banda, A.**, E. Orozco, Mackey, R., S. Baughman. Molecular characterization of field isolates of infectious bronchitis virus in Mississippi from 2013 to 2019. 2020 AAAP Virtual Annual Meeting. July 30 - August 6, 2020.
  20. Orozco, E., **A. Banda**, R. Mackey, C. Zhang, M. Pulido-Landinez. Two clinical cases of pullets with severe lesions in lymphoid tissues and increased mortality associated with chicken anemia virus in Southern United States. 2020 International Poultry Scientific Forum. Atlanta, GA. January 27-28, 2020.
  21. Yang, S., N. Armour, M. Pulido-Landinez, **A. Banda**, H. Rose, B. Baughman. Characterization of neuropathologic lesions associated with avian reovirus infection in commercial broiler chickens. 2019 ACVP Annual Meeting. San Antonio, TX. November 9-13, 2019.



22. Huffman R.H., B.S. Baughman, **A. Banda**, W.T. McKinley, T. Hay-Eichelberger, and R. Mackey. Chronic wasting disease in Mississippi white-tailed deer. 2019 USAHA-AAVLD Annual Meeting. Providence, R.I. October 24 - 30, 2019.
23. Yan, L., R. Mackey, Y. C. Zhang, **A. Banda**, S. Baughman, and L. Pace. Application and comparison of iSeq100 and MinION sequencing in identifying Avian Infectious Bronchitis Virus. 2019 USAHA-AAVLD Annual Meeting. Providence, R.I. October 24 - 30, 2019.
24. Alvarado, I., and **A. Banda**. Protection by a novel HVT-ND-IBD and two live attenuated vaccines against a variant E strain of Infectious bursal disease. XXIst World Veterinary Poultry Association Congress. Bangkok, Thailand. September 16-20, 2019.
25. Orozco, E., T. Cummings, T. Niino, E. Riley, P. Stayer, and **A. Banda**. Effect of litter condition (new litter vs. built-up litter) and two anticoccidial programs (bioshuttle vs. non-bioshuttle) on the oocyst concentration in feces of broiler breeder pullets. AAAP 2019 Annual Meeting. Washington D.C. August 2-5, 2019.
26. Osorio, C., D. Smith, G. Slacum, **A. Banda**, and E. Orozco. Use of different NDV ELISA kits for the evaluation of the antibody response at different ages elicited by a recombinant Newcastle disease vaccine (HVT+ND) applied *in ovo* in both specific pathogen free (SPF) birds and commercial broilers. AAAP 2019 Annual Meeting. Washington D.C. August 2-5, 2019.
27. **Banda, A.**, E. Orozco, R. Mackey, I. Alvarado, Y. Zhang, and L. Yan. Persistence of Infectious Bronchitis and Newcastle Disease Vaccine Virus by *In Situ* Hybridization. Washington D.C. August 2-5, 2019.
28. Alvarado I.R., **A. Banda**, L. Johnson, and E. Orozco. Effect of *in ovo* IBDV vaccines on the size and integrity of the bursa in commercial broilers. 68<sup>th</sup> Western Poultry Disease Conference. Puerto Vallarta, Jalisco, Mexico. April 3 to 6, 2019.
29. Orozco, E., P. Stayer, E. Riley, R. Lawhon, **A. Banda**. Comparison of the serological responses induced by a multivalent inactivated oil emulsion virus vaccine applied in two sites (breast intramuscular and inguinal subcutaneous), and gross evaluation of the local vaccine reaction. 2019 International Poultry Scientific Forum. Atlanta, GA February 11-12, 2019.
30. Johnson, L., R. Wills, B. Carter, P. Stayer, **A. Banda**, N. Armour. An investigation of variables associated with mortality in a broiler complex in Mississippi. 2019 International Poultry Scientific Forum. Atlanta, GA February 11-12, 2019.
31. Johnson, L.B., P. Stayer, B. Carter, **A. Banda** and N.K. Armour. An Investigation of Variables Associated with Reduced Livability in a Broiler Complex in Mississippi. AAAP 2018 Annual Meeting. Denver, CO. July 14-17, 2018.
32. **Banda, A.** F. Wilson, S. Baughman, C. Zhang, M. Pulido, P. Stayer, D. French, and E. Riley. Description of clinical signs, gross and histological lesions in chickens inoculated *in ovo* with chicken astroviruses associated with “white chick disease”. AAAP 2018 Annual Meeting. Denver, CO. July 14-17, 2018.

33. Hockaday, J.K., **A. Banda**, J.K. Thornton, L. Yan, M. Pulido-Landínez. Characteristics of *Gallibacterium anatis* isolated from poultry samples. 2018 International Poultry Scientific Forum. Atlanta, GA January 29-30, 2018.
34. Hockaday, J.K., **A. Banda**, J.K. Thornton, L. Yan, C. Zhang, M. Pulido-Landínez. Comparison of three conventional polymerase chain reaction (PCR) methods to detect and genotype *Gallibacterium anatis* isolates. 2017 AAVLD / USAHA Annual Meeting. San Diego, CA. October 12-18, 2017
35. Mendoza-Reilley, A., B. Jordan, **A. Banda**, and I. Alvarado. Compatibility of coccidiosis and viral respiratory vaccines after simultaneous application at the hatchery. XX<sup>th</sup> World Veterinary Poultry Association Congress. Edinburgh, UK. September 4-8, 2017.
36. Stayer, P.A., E.G. Riley, J. D. French, **A. Banda**, H.S. Sellers, T.S. Cummings, K. Cookson. Various Manifestations of Georgia 08. AAAP 2017 Annual Meeting. Indianapolis, IN July .21-25, 2017.
37. Cummings T, J. Schaefer, K. Cookson, P. Stayer, D. French, E. Riley, **A. Banda**, A. Byrd. Sentinel Bird Project: Southern Style. AAAP 2017 Annual Meeting. Indianapolis, IN July .21-25, 2017.
38. **Banda, A.**, S. Baughman, J. Hockaday, L. Yang, C. Zhang, O. Chukwulobe, M. Pulido, and F. Wilson. Genetic characterization of chicken astroviruses isolated in Southern United States. AAAP 2017 Annual Meeting. Indianapolis, IN July .21-25, 2017.
39. Stayer, P.A., E.G. Riley, J. D. French, **A. Banda**, H.S. Sellers, T.S. Cummings, K. Cookson. When GA08 Ain't 08. Various Manifestations of Georgia 08. Mississippi Poultry Association. Poultry Health Seminar. Jackson, MS. February 22, 2017.
40. Pulido-Landínez, M., and **A. Banda**. Analysis of five clinical cases of runting-stunting syndrome in broiler chickens caused by avian astrovirus and avian Reovirus. The Southern Conference on Avian Diseases 58th Annual Meeting. Atlanta, GA. January 2017.
41. Pulido-Landínez, M., and **A. Banda**. Fatty liver disease and osteoporosis (cage layer fatigue): predisposing factors or consequence of Salmonella Gallinarum in commercial laying hens? AAAP 2016 Annual Meeting. San Antonio, TX August 6-9, 2016.
42. Alvarado, I., **A. Banda**, and P. Stayer. Characterization of NDV Field Isolates and Evaluation of Protection against an NDV Isolate by a Recombinant HVT-ND and a Live Attenuated (C2) Vaccines in Commercial Broilers. AAAP 2016 Annual Meeting. San Antonio, TX August 6-9, 2016.
43. Stayer, P.A., E.G. Riley, J.D. French, P. Ferro, S. Vanhooser, **A. Banda**, B. Baughman. Incursion and Recursion of "White Chicks" in U.S. Commercial Broiler Production. AAAP 2016 Annual Meeting. San Antonio, TX August 6-9, 2016.
44. **Banda, A.**, P.A. Stayer, E.G. Riley, D. French, L. Yan, and C. Zhang. Virological and molecular characterization of chicken astrovirus associated with reduction in hatchability, poor chick quality and "white chick disease". AAAP 2016 Annual Meeting. San Antonio, TX August 6-9, 2016.

45. Mendoza-Reilley, A., and B. Jordan, **A. Banda**, and I. Alvarado. Coccidiosis and viral respiratory vaccines: Compatibility after simultaneous application at the hatchery. 65th Western Poultry Disease Conference. Vancouver, BC. Canada April 24-27, 2016.
46. Alvarado, I, K. Wamsley, **A. Banda**, and F. Wilson. Protection against infectious bursal disease and performance of commercial broilers immunized in ovo with a recombinant HVT-IBD and 89/03 vaccines. 65<sup>th</sup> Western Poultry Disease Conference. Vancouver, BC. Canada April 24-27, 2016.
47. **Banda A.**, K. Cookson, T. Cummings, F. Wilson, K. Maschek, M. Hill, and L. Yan. Evaluation of the protection against a GA08-like infectious bronchitis field isolate in broiler chickens vaccinated with combinations of Massachusetts, Holland, Arkansas DPI or Ga08 serotypes. 151st Annual Meeting of the American Veterinary Medical Association. Boston, MA. July 2015.
48. Alvarado, I., **A. Banda**, L. Yan, O. Chukwulobe, and F. Wilson. Protection of Ma5, DE07 and GA08 Live IBV Vaccines against a Highly Pathogenic GA08 Field Isolate in Broilers. Southern Conference on Avian Diseases, 55th Annual Meeting. Atlanta, GA. January 2015.
49. Pulido-Landinez, M., **A. Banda**, and J. Guard. Salmonella emerging serotypes for poultry industry: Salmonella Infantis identified in a broiler vertical integration. Southern Conference on Avian Diseases, 55th Annual Meeting. Atlanta, GA. January 2015.
50. Stayer, P.A., E. Riley, D. French, P.J. Ferro, **A. Banda**, H.S. Sellers, and R.E. Mock. Virus Isolation Experiences Across the Chicken Belt. 151st Annual Meeting of the American Veterinary Medical Association. Denver, CO. July 2014.
51. **Banda**, A. R. Mackey, S. Baughman, L. Yan, and Y. Zhang. Review of Virological Cases Submitted to the Poultry Research and Diagnostic Laboratory from 2008 to 2013. 151st Annual Meeting of the American Veterinary Medical Association. Denver, CO. July 2014.
52. Pulido-Landinez, M., **A. Banda**, J. Guard, V. Pinheiro do Nascimento. Identification of risk factors and causes of persistence of Salmonella Gallinarum in laying hens farms from Colombia. Southern Conference on Avian Diseases, 55th Annual Meeting. Atlanta, GA. January 2014.
53. Huston, C.L., J. M. Cain, F.W. Austin, T. Doler, **A. Banda**, L.W. Pace, K. Walters, R.H. Bailey, and D.R. Smith. Factors affecting *Tritrichomonas foetus* culture and PCR test performance. 9th Annual Applied Animal and Public Health Research and Extension Symposium. USAHA. San Diego, CA October 19, 2013.
54. **Banda**, A., R. Mackey, L. Yang, C. Zhang, O. Chukwulobe, T. Tabor, and F. Wilson. Viruses Isolated from Broilers with Joint Problems. 150th Annual Meeting of the American Veterinary Medical Association. Chicago, IL. July 2013.
55. Pulido-Landinez, M., P. Washington, J. Thornton, **A. Banda**, R. Sanchez-Ingunza, J. Guard, V. Do Nascimento, and M. Mael. Use of Intragenic Sequence Ribotyping (ISR) for Serotyping Salmonella Obtained from Commercial Birds and Poultry Environment in Mississippi and Determination of their Antibiotic

- Resistance Patterns. 150th Annual Meeting of the American Veterinary Medical Association. Chicago, IL. July 2013.
56. Magee, D., **A. Banda**, F. Wilson. Laboratory Monitoring of Young Broiler Flocks During a Vaccinal Infectious Laryngotracheitis Outbreak. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  57. Wilson, F., E. Riley, A. Mirande, P. Stayer, and **A. Banda**. Histomorphometric Studies of the Kinetics of Inflammatory Response of Tracheas to Vaccine Challenges or Natural Infections with Infectious Laryngotracheitis. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  58. Jones, K., **A. Banda**, G. Slacum. A Serological Study of ILTV Using ELISA In Backyard and Commercial Chickens in Mississippi Prior to Vaccination. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  59. Stayer, P., **A. Banda**, A. Mirande and E. Riley. Clinical Infectious Laryngotracheitis (ILT) in a Commercial Broiler Flock after Vaccinating with Recombinant and Chick Embryo Origin ILT Vaccines. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  60. Riley, E.G., P. Stayer, A. Mirande, **A. Banda**, T. Cummings, F. Wilson. Field Evaluation of LT CEO Vaccination Methods in Broilers Using Serologic and Histopathologic Techniques. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  61. **Banda, A.**, F. Wilson, R. Mackey, C. Zhang, T. Tabor, and D. Magee. Laboratory Observations During the Occurrence of Vaccinal Infectious Laryngotracheitis (vILT) in Mississippi During Year 2011. 149th Annual Meeting of the American Veterinary Medical Association. San Diego, CA. August 2012.
  62. Ayala, A.J, T. Tabor, **A. Banda**, and D. Twedt. Testing for avian paramyxovirus-1 (Newcastle Disease) in resident passerines within the Mississippi Valley Loess Plains. 60th Wildlife Disease Association Annual International Meeting. Québec Canada. August 14-19, 2011.
  63. Hernández, M, G. Tomás, D. Hernández, P. Villegas, **A. Banda**, L. Maya, Y. Panzera, and R. Pérez. Detection and differentiation of high and low pathogenic strains and reassortant infectious bursal disease viruses by a multiplex RT-PCR/RFLP assay that simultaneously analyze both genomic segments. 148th Annual Meeting of the American Veterinary Medical Association. St. Louis, Missouri, July 2011.
  64. Wilson, F., **A. Banda**, and I. Alvarado. Comparison of microscopic methods for bursa histopathology evaluation. 148th Annual Meeting of the American Veterinary Medical Association. St. Louis, Missouri, July 2011.
  65. **Banda, A.**, T. Tabor, and R. Mackey. Correlation between phylogenetic topology and antigenic properties determined by virus neutralization of field infectious bursal disease viruses detected in U.S. during 2009 and 2010. 148th Annual Meeting of the American Veterinary Medical Association. St. Louis, Missouri, July 2011.

66. Jones, K. D. Magee, S.A. Hubbard, **A. Banda**, F. Wilson, and T. Cummings. An investigation into cases of severe flushing in Mississippi commercial broilers. 59<sup>th</sup> Western Poultry Disease Conference. Vancouver, Canada April 19-21, 2010.
67. **Banda, A.**, T. Tabor, and R. Mackey. Review of diagnostic virological cases submitted to PRDL in 2009. 2010 Mississippi Veterinary Winter Meeting. Mississippi State, MS. February 26, 2010.
68. Tabor, T., R. Mackey, F. Wilson, and **A. Banda**. Viruses isolated from proventriculitis cases in Mississippi broiler flocks. 51st Annual Meeting of the Southern Conference on Avian Diseases. Atlanta, GA. January 2010.
69. Valladares, J.C., V. Palya, L. Etcharren, **A. Banda**, D. Juárez, B. Barrientos, E. Angulo, A. Lara, G. Escobedo, A. Ondarza y R. Morfín. Genetic characterization of infectious bursal disease virus field strains detected in broiler farms in Nuevo León State, Mexico (Presentation in Spanish). XXXIV National Convention of the Mexican Association of Poultry Science Specialists (ANECA) Acapulco, Guerrero, August 12-15, 2009.
70. **Banda, A.**, T. Tabor, H. Sellers. Characterization of infectious bronchitis virus field strains isolated in 2008 from poultry farms in Mississippi. 146th Annual Meeting of the American Veterinary Medical Association. Seattle, WA. July 2009.
71. Ruiz, J., T. Sandhu, B. Lucio-Martinez, and **A. Banda**. The commercial duck industry in the United States: History, current disease challenges and future. 144<sup>th</sup> Annual Meeting of the American Veterinary Medical Association. New Orleans, LA. July 2008
72. Galloway-Haskins, R., **A. Banda**, and T.S. Sandhu. Serotyping and antibiotic susceptibility of *Riemerella anatipestifer* isolates obtained from commercial Pekin duck flocks in Northeastern United States. 143rd Annual Meeting of the American Veterinary Medical Association. Honolulu, HI. July 2006.
73. **Banda, A.**, R. Galloway-Haskins, T.S. Sandhu, and K.A Schat. Nucleotide and amino acid sequence analysis of a circovirus in commercial Pekin ducks in New York. International Conference on Animal Circoviruses. Belfast, Northern Ireland. September 2005.
74. **Banda, A.**, P. Villegas, and F. Perozo. Evaluation of the protection conferred by coarse spray vaccination against infectious bursal disease in commercial broilers. 142<sup>nd</sup> Annual Meeting of the American Veterinary Medical Association. Minneapolis, MN. July 2005.
75. **Banda, A.**, R. Galloway-Haskins, and T. Sandhu. Detection and sequence analysis of a circovirus in commercial Pekin ducks in New York. 77<sup>th</sup> Northeastern Conference on Avian Diseases. Ithaca, NY. June 2005.
76. **Banda, A.** y P. Villegas. Dynamics of an immune complex vaccine against infection bursal disease virus (IBDV) in commercial broiler immunized in ovo. 141st Annual Meeting of the American Veterinary Medical Association. Philadelphia, PA. July 2004.
77. Villegas, P., and **A. Banda**. Clinical and molecular characteristics of infectious bursal disease viruses identified in Latin America. 53<sup>rd</sup> Western Poultry Disease Conference. Sacramento, CA, March 2004.

78. **Banda, A.**, and P. Villegas. Nucleotide and amino acid sequence analysis of field strains of infectious bursal disease virus from the United States and some other countries. 45<sup>th</sup> Annual Meeting of the Southern Poultry Science Society. Atlanta, Georgia, January 2004.
79. **Banda, A.**, P. Villegas, and J. El-Attrache. Molecular characterization of field strains of infectious bursal disease virus in the United States and some Latin American countries. 140<sup>th</sup> Annual Meeting of the American Veterinary Medical Association. Denver, Colorado, July 2003.
80. **Banda, A.**, and P. Villegas. Genotyping of infectious bursal disease virus by heteroduplex mobility assay and single strand conformational polymorphism (Presentation in Spanish). XXVIII Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Veracruz, Mexico, May 2003.
81. **Banda, A.**, P. Villegas, J. El-Attrache and N. Ledesma. The use of the single-strand conformational polymorphism analysis (SSCP) for genotyping isolates of the infectious bursal disease virus (IBDV). 44<sup>th</sup> Annual Meeting of the Southern Poultry Science Society. Atlanta, Georgia, January 2003.
82. **Banda, A.**, P. Villegas, J. El-Attrache, and C. Brown. Clinical and molecular characterization of chicken anemia virus isolates obtained from commercial broilers. 139<sup>th</sup> Annual Meeting of the American Veterinary Medical Association. Nashville, Tennessee, July 2002.
83. **Banda, A.**, P. Villegas, J. El-Attrache, and H. Sellers. The use of the heteroduplex mobility analysis (HMA) for genotyping field isolates of the infectious bursal disease virus (IBDV). 43<sup>rd</sup> Annual Meeting of the Southern Poultry Science Society Meeting. Atlanta, Georgia, January 2002.
84. **Banda, A.**, P. Villegas, J. El-Attrache, and C. Brown. Pathogenicity of recent IBDV isolates inoculated in commercial broilers using *in situ* hybridization. 138<sup>th</sup> Annual Meeting of the American Veterinary Medical Association. Boston, MA, July 2001.
85. **Banda, A.**, P. Villegas, and J. El-Attrache. Detection and typing of infectious bursal disease isolates by molecular methods (In Spanish) XXVI Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Acapulco, Guerrero, Mexico. April 25 to 28, 2001.
86. **Banda, A.**, J. El-Attrache, and P. Villegas. Isolation and identification of a US IBDV isolate with a vvIBDV molecular marker. 42<sup>nd</sup> Annual Meeting of the Southern Poultry Science Society Meeting. Atlanta, Georgia, January 2001.
87. **Banda, A.**, J. El-Attrache, P. Villegas, M. Ruano, and C. Estevez. Clinical and molecular characterization of IBDV field strains obtained from commercial broilers. 137<sup>th</sup> Annual Meeting of the American Veterinary Medical Association. Salt Lake City, Utah, July 2000.
88. **Banda, A.**, M. Ruano, J. El-Attrache, and P. Villegas. Molecular characterization of infectious bursal disease virus associated with respiratory problems and poor performance on broiler farms in Georgia. 41<sup>st</sup> Annual Meeting of the Southern Poultry Science Society Meeting. Atlanta, Georgia, January 2000.
89. Villegas, P., J. El-Attrache, **A. Banda**, G. N. Rowland, and J. R. Glisson. Effect of infectious bursal disease variant-like viruses on broiler flocks. 136<sup>th</sup> Annual

- Meeting of the American Veterinary Medical Association. New Orleans, Louisiana, July 1999.
90. Santiago, G.R., **Banda, C.A.**, Fehervari, B.T., Téllez, I.G. Dynamics of seric and local immunity in Harderian gland against infectious bursal disease in chickens vaccinated and challenged under experimental conditions. XXIV Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA) León, Guanajuato, Mexico. April 1999.
  91. Villa, G.R, **Banda C.A.**, Tapia, P.G y Cervantes, O.R.A. Comparison of two *Aspergillus fumigatus* strains (high and low in vitro gliotoxin producers) on the respiratory lesions by air sac inoculation (In Spanish). XXXIII Annual Meeting of Agricultural Research SAGAR INIFAP. Mexico City. November 3 to 8, 1997
  92. **Banda, A.**, J. C. Valladares, and S. Mendoza. Serotyping and virulence characterization of three field isolates of infectious bursal disease in Mexico. XI International Congress of the World Veterinary Poultry Association. Budapest, Hungary, August 1997.
  93. **Banda, C.A.**, Valladares, C, J.C. Virulence of three Mexican field isolates of infectious bursal disease virus. XXI Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA) and 45th Western Poultry Disease Conference. Cancún Q.R., Mexico May 1-5, 1996.
  94. **Banda, C.A.**, Quintana, L.J.A.: Serological experiences on egg drop syndrome in commercial layers (In Spanish). XIX Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Puerto Vallarta, Jalisco, Mexico. May 5-7, 1994.
  95. **Banda, C.A.** Preparation of fluorescent antibodies in rabbits to diagnose infectious bursal disease by direct fluorescent antibody technique. XVIII Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Cancún Q.R., Mexico May 5-9, 1993.
  96. **Banda, C.A.**, Chávez N. V.M., Quintero, R. V.: Report of canine neoplasms submitted to the Diagnostic Service of the Pathology Section of FES-Cuautitlán during the years 1988 and 1989. 12th National Meeting of the Mexican Association of Veterinarians Specialists in Small Animals (AMMVEPE) May 1990.

#### **SEMINARS AND CONFERENCES BY INVITATION:**

1. Recent situation, epizootiology and control of avian influenza (Webinar in Spanish). Lecture part of the Diplomate in Food Safety. FES-Cuatitlán UNAM. State of Mexico, Mexico August 3<sup>rd</sup>, 2024
2. Update on infectious laryngotracheitis (In Spanish). XLVIII Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Boca del Rio, Veracruz, Mexico, May 23-26, 2024.
3. Avian orthoreoviruses. - Clinical presentations, diagnosis and control (Webinar in Spanish) ELANCO Animal Health Brazil. April 23<sup>rd</sup>, 2024.
4. Current situation of infectious bursal disease in Mexico and United States. (In Spanish) XXX Jornada Médico Avícolas. College of Veterinary Medicine,

- National University of Mexico (UNAM), Mexico City, Mexico. February 21 to 23, 2024
5. Diagnosis, prevention and control of avian orthoreoviruses (In Spanish) Webinar ELANCO Animal Health Brazil. November 9<sup>th</sup>, 2023.
  6. Current situation of the infectious bursal disease in the Americas (In Spanish) Webinar on Poultry Immunology and Emerging Diseases in Poultry 2023. Seminarios PaP-ITESO Santa Cruz de la Sierra Bolivia. April 24-28, 2023.
  7. Virological diagnosis of respiratory viruses of poultry. The 4th Annual Veterinary Diagnostic Conference, AVDC. Chongqing, China, March 29-31, 2023.
  8. Significance and diagnostic and control current challenges of avian orthoreoviruses. XI Postgraduate Congress in Production Sciences and Animal Health. National University of Mexico (UNAM). Mexico City. December 7-8, 2022.
  9. Webinar. Epidemiology and pathogenesis of avian influenza viruses. Relevant viral aspects to control the disease. Conferences about the risk management for avian influenza. Colombian Poultry Federation (FENAVI). November 22, 2022.
  10. Webinar. Clinical manifestations of fowl aviadenoviruses and they impact in poultry productivity (In Spanish). Webinar organized by Elanco Brazil. Brasilia, Brazil. June 7 and 8, 2022.
  11. Webinar. Impact of inclusion body hepatitis in the productive and economic performance in poultry (In Spanish). Webinar organized by Elanco Argentina. Bueno Aires and Dos Rios, Argentina June 7 and 8, 2022.
  12. Genotyping of Fowl Aviadenoviruses detected in Southern United States. Emerald Coast Veterinary Conference. Destin, FL. June 2-5, 2022
  13. Situation of the diagnosis and control of avian influenza in the United States. (Conference in Spanish). Mexican Veterinary Academy. Mexico City April 26, 2022.
  14. Avian reoviruses, their impact and interactions with adenoviruses (In Spanish). Webinar: Immunosuppressive diseases and emerging diseases in Brazil. Organized by ELANCO. February 16<sup>th</sup>, 2022.
  15. Adenovirus (IBH) diagnostics – Why serotyping doesn't explain pathogenicity. MPA Poultry Health Seminar. Mississippi Poultry Association. Jackson, MS. February 15<sup>th</sup>, 2022.
  16. Status of Avian Influenza Viruses with Epizootic and Zoonotic Potential for the Americas (In Spanish and virtual). XXVI Pan-American Congress of Veterinary Sciences. Mexico City. November 24 to 26, 2021.
  17. Instructor, Wet Lab. Clinical examination, sample collection, euthanasia and necropsy session for the Small Ruminant, Swine, and Poultry Student Club at CVM. Mississippi State University. Starkville, MS. October 26, 2021.
  18. Current global situation of infectious bronchitis (In Spanish). Webinar “Overcoming Challenges of the New Era” organized by The Association of Veterinarians Specialists in Poultry Sciences of Western Mexico (AVECAO). September 9th, 2021.
  19. Update on laboratory diagnostic techniques for avian influenza. The 3rd Annual Veterinary Diagnostics Conference (AVDC). Hangzhou, China. June 25-27, 2021.



20. Webinar. How are the IBH adenoviruses diagnosed and how are they related? Mississippi Poultry Association's Poultry Health Seminar Feb. 16-17, 2021
21. Webinar. Key aspects on infectious bronchitis and infectious laryngotracheitis (In Spanish). Webinar "Generating fundamentals for a new poultry industry" organized by The Association of Veterinarians Specialists in Poultry Sciences of Western Mexico (AVECAO). October 20, 2020.
22. Webinar. Aviadenoviruses Group 1. The impact of the different serotypes of avian adenoviruses on the poultry health and productivity (In Spanish). Webinar organized by Elanco Brazil. October 7, 2020.
23. Webinar. Infectious bronchitis virus- Features in common with other coronaviruses especially COVID-19 (In Spanish). Webinar organized by the Colombian Federation of Poultry Producers (FENAVI). April 2020.
24. Current Situation of Avian Reovirus in the United States (In Spanish) XXVI Jornada Médico Avícolas. College of Veterinary Medicine, National University of Mexico (UNAM), Mexico City, Mexico. February 21, 2020.
25. Gastrointestinal Anatomy and Physiology: The Basics. Sanderson Farms-Merck Animal Health Pullet/Breeder Workshop. Laurel, MS. December 12, 2019.
26. Poultry Vaccine Co-Mingling Studies at the Poultry Research and Diagnostic Lab. 2019 Poultry Health Summit. Merck Animal Health. Nashville, TN. May 21<sup>st</sup> and 22<sup>nd</sup>, 2019
27. The Avian Respiratory Complex. Update Seminar on Poultry Health (In Spanish). Colombian Poultry Federation (FENAVI) Bucaramanga City, Colombia. April 25th and 26th, 2019.
28. The Resurgence of GA 08 IBV. Poultry Health Seminar. Mississippi Poultry Association. Jackson, MS., March 6, 2019.
29. Infectious bursal disease in Latin America (In Spanish). Seminar organized by Hipra Laboratories. Guatemala City, Guatemala. September 20<sup>th</sup>, 2018.
30. Clinical Significance of Enteric Viruses in Poultry. (In Spanish). XXVII Jornadas Médico Avícolas. College of Veterinary Medicine, National University of Mexico (UNAM), Mexico City, Mexico. February 23, 2018.
31. Current Findings on Viral Diseases in Mississippi. MPA Poultry Health Seminar. Mississippi Poultry Association. Jackson, MS February 14, 2018
32. Gumboro Disease in Latin America (In Spanish). XXV Latin American Poultry Congress. Latin American Poultry Association (ALA)/Mexican Poultry Producers Union (UNA). Guadalajara, Mexico. September 26th -29<sup>th</sup>, 2017.
33. Instructor of the workshop for "First Responders on a Highly Pathogenic Avian Influenza Outbreak". Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures (In Spanish and Portuguese). APHIS, Ministry of Agriculture, Livestock and Supply of Brazil (MAPA), and the University of Brasília (UnB). Brasilia City, Brazil. August 8-11, 2017.
34. Vaccination Fundamentals to control infectious bursal disease. (In Spanish). Poultry Day in Antioquia. Organized by Colombian Association of Veterinarians Specialists in Poultry (AMEVEA). Medellin City, Colombia. May 3, 2017

35. Current situation of Gumboro disease in Colombia (In Spanish). XIV Seminar in Poultry Health in Santander Organized by the Colombian Federation of Poultry Producers (FENAVI). Bucaramanga City. Colombia. April 7, 2017.
36. Update on clinical aspects, diagnostics, genotyping, and vaccination for infectious bursal disease. Avian Forum Asia 2016. Merial. Tokyo, Japan July 12, 2016.
37. Update on infectious laryngotracheitis (In Spanish). International Meeting on Veterinary Sciences. National Autonomous University of Mexico. College of Veterinary Medicine and Animal Science. Mexico City June 2<sup>nd</sup>, 2016.
38. Significance of immunosuppressive diseases of poultry (In Spanish). International Meeting on Veterinary Sciences. National Autonomous University of Mexico. College of Veterinary Medicine and Animal Science. Mexico City June 1<sup>st</sup>, 2016.
39. Update on infectious bronchitis (In Spanish). International Meeting on Veterinary Sciences. National Autonomous University of Mexico. College of Veterinary Medicine and Animal Science. Mexico City June 1<sup>st</sup>, 2016
40. Compatibility studies of respiratory and intestinal vaccines. Poultry Health Summit. Merck Animal Health. Nashville TN. May 23-25, 2016
41. Characterization of NDV Field Isolates and Evaluation of Protection against an NDV Isolate by a Recombinant HVT-ND (Innovax ND) and a Live Attenuated (C2) Vaccines. Poultry Health Summit. Merck Animal Health. Nashville TN. May 23-25, 2016
42. Update on infectious bronchitis. Mississippi Poultry Association Poultry Health Topics. Poultry Research and Diagnostic Laboratory. Pearl, MS. February 24, 2016.
43. Current poultry viral disease in the United States of America (In Spanish) XVII Jornadas Médico Avícolas. College of Veterinary Medicine and Animal Science, National University of Mexico. Mexico City. February 4, 2016.
44. Instructor of the 18th International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Plum Island Animal Disease Center. Plum Island, Greenport, NY. September 14-16, 2015.
45. Infectious laryngotracheitis: The virus, diagnosis, control measures, immunity and vaccines. (In Spanish) International Seminar on Health Management applied to the poultry industry. Organized by the Colombian Federation of Poultry Producers (FENAVI). Bogotá City, Buga City and Bucaramanga City. Colombia. August 31st-Sept 2<sup>nd</sup>, 2015.
46. Seminar on Avian Influenza through Skype, to DVM and graduate students at the National University of Colombia (In Spanish). May 15, 2015
47. Instructor of the 17th International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Plum Island Animal Disease Center. Plum Island, Greenport, NY. April 14 and 15, 2015.
48. Webinar: Optimizing the protection against Chicken Infectious Anemia. Organized by Elanco and WattAgnet.com. November 12, 2014.

49. Instructor of the 16<sup>th</sup> International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Plum Island Animal Disease Center. Plum Island, Greenport, NY. September 16 and 17, 2014.
50. Current situation on infectious bronchitis virus and avian metapneumoviruses. (In Spanish). IX International Seminar in Poultry Science. Bolivian Association of Veterinarians Specialists in Poultry (AMEVEA-Bolivia), Santa Cruz de la Sierra, Bolivia, August 21-22, 2014.
51. Immunosuppression and control of Gumboro disease and infectious Anemia. (In Spanish). IX International Seminar in Poultry Science. Bolivian Association of Veterinarians Specialists in Poultry (AMEVEA-Bolivia), Santa Cruz de la Sierra, Bolivia, August 2014.
52. Seminar on Avian Influenza through Skype, to DVM and graduate students at the National University of Colombia (In Spanish). June 3, 2014
53. Antigen Detection in Avian Medicine, Use of ELISA and Real-time PCR. Session number 4 webinar: IDEXX Poultry Academy Series. Organized by IDEXX Laboratories. May 7, 2014.
54. Mechanisms of Adaptive Immunity of the chicken. Session number 3 webinar: IDEXX Poultry Academy Series. Organized by IDEXX Laboratories. April 9, 2014.
55. Instructor of the International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Plum Island Animal Disease Center. Plum Island, Greenport, NY. April 1<sup>st</sup>, and 2<sup>nd</sup>, 2014.
56. Immunosuppression and control of Gumboro disease and infectious Anemia. (In Spanish). XIII International Seminar in Avian Pathology and Production. AMEVEA, The University of Georgia. Athens, Georgia, March 2014.
57. Cells involved in the avian immune response. Session number 2 webinar: IDEXX Poultry Academy Series. Organized by IDEXX Laboratories. March 12, 2014.
58. Introduction to the avian immune response. Session number 1 webinar: IDEXX Poultry Academy Series. Organized by IDEXX Laboratories. February 12, 2014.
59. Key aspects on the diagnosis and control of Gumboro disease. Current situation on the Americas. (In Spanish). Series of Conferences on Swollen Head Syndrome and Gumboro Disease. Hipra Laboratories (Spain). San Salvador City, El Salvador. November 12, 2013.
60. Current programs for controlling infectious laryngotracheitis. (In Spanish). XVI International Poultry Seminar of the Ecuadorian Association of Veterinarians Specialists in Poultry, AMEVEA-Ecuador. Guayaquil, Ecuador March 20-22, 2013.
61. Prevention of infectious bursal disease. Types of vaccines, vaccination programs and routes of application. (In Spanish). XVI International Poultry Seminar of the Ecuadorian Association of Veterinarians Specialists in Poultry, AMEVEA-Ecuador. Guayaquil, Ecuador March 20-22, 2013.

62. Metapneumovirus infections and swollen head syndrome. (In Spanish). Programa de Alta Gerencia en Enfermedades de las Aves (Advanced Management Program in Avian Diseases). Santa Cruz de la Sierra, Bolivia, March 11-16 2013.
63. General aspects of anatomy and physiology of birds. (In Spanish). Programa de Alta Gerencia en Enfermedades de las Aves (Advanced Management Program in Avian Diseases) Santa Cruz de la Sierra, Bolivia, March 11-16 2013.
64. Current technologies for live vaccines for poultry. (In Spanish). Programa de Alta Gerencia en Enfermedades de las Aves (Advanced Management Program in Avian Diseases) Santa Cruz de la Sierra, Bolivia, March 11-16 2013.
65. Diagnosis and control of immunosuppressive diseases of birds. (In Spanish). Programa de Alta Gerencia en Enfermedades de las Aves (Advanced Management Program in Avian Diseases) Santa Cruz de la Sierra, Bolivia March 11-16 2013.
66. Development of adaptive immunity in poultry (humoral immunity and cell-mediated immunity). (In Spanish). Programa de Alta Gerencia en Enfermedades de las Aves (Advanced Management Program in Avian Diseases) Santa Cruz de la Sierra Bolivia. March 11-16, 2013.
67. Current pathological problems that face the U.S. poultry industry (In Spanish) XIX Jornadas Médico Avícolas. College of Veterinary Medicine and Animal Science, National University of Mexico. Mexico City. March 8, 2013.
68. Gastrointestinal Anatomy & Physiology (The basics). Gut Health Workshop. PRDL September 18-19, 2012.
69. Infectious bursal disease: update on the virus, diagnostic methodologies, and vaccination programs (In Spanish). I Seminar of the Argentinean Association of Veterinarians Specialists in Poultry, AMEVEA Entre Ríos Argentina. Athens, GA. June 11-15, 2012.
70. Update on diagnostic methods and control of infectious laryngotracheitis (In Spanish). XXXI International Seminar in Avian Pathology and Production. Colombian Association of Veterinarians Specialists in Poultry (AMEVEA). Bogota, Colombia April 18-20, 2012.
71. New developments in diagnostic methods and current status of infectious bursal disease (In Spanish). Webinar: Management of Gumboro disease in poultry flocks of Latin America. Organized by WattAgnnet.com. November 15<sup>th</sup>, 2011.
72. Laboratory experiences with poultry viruses from Mississippi. Lohmann Animal Health Laboratories Open House. Winslow, ME. June 16<sup>th</sup>, 2011.
73. Prevention against Gumboro disease: vaccine types, vaccination programs and routes of application. (In Spanish). VI International Seminar and Scientific Meeting of the Peruvian Association of Veterinarians Specialists in Poultry AMEVEA-Peru. Lima, Peru, May 10-13, 2011.
74. Update on worldwide situation of infectious bursal disease. (In Spanish). XVII Jornadas Médico Avícolas. College of Veterinary Medicine and Animal Science, National University of Mexico. Mexico City. February 18, 2011.
75. Review of Diagnostic Poultry Virological Cases from Mississippi. Seminar at Poultry Science Department. North Carolina State University. Raleigh, NC. September 2, 2010.

76. Review of diagnostic poultry virological cases submitted to PRDL in 2009. 2010 Mississippi Veterinary Winter Meeting. Mississippi State, MS. February 26, 2010.
77. Immunosuppressive syndrome in poultry. Very virulent infectious bursal disease. Presentation of a clinical case. (In Spanish). Course on Integration of a Final Diagnosis in Poultry. Mexican Association of Poultry Science Specialists. Cholula, Puebla. Mexico December 2, 2009.
78. Seminar on influenza viruses. Presented to the students of the Master of Public Health Program. University of Southern Mississippi/Mississippi State University. Starkville, MS. September 26th, 2009.
79. Instructor of the 9<sup>th</sup> International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Cornell University and Plum Island Animal Disease Center. Plum Island, Greenport, NY. September 13rd to 18th, 2009.
80. Practical applications of molecular techniques for the diagnosis of immunosuppressive diseases in poultry (In Spanish). Keynote Speaker at the XXXIV Annual Convention of the Mexican Association of Poultry Science Specialists. August 12-15, 2009
81. Insights and current challenges in diagnostic poultry virology. Annual Meeting of the Association of Veterinary Microbiologists. Jackson, MS August 7, 2009.
82. Instructor, Wet Lab Breakout (Poultry Virology). 2008 Poultry Management School. Mississippi Poultry Association, Mississippi State University. Pearl, MS. May 14, 2008.
83. Instructor of the 8<sup>th</sup> International Course on Transboundary Animal Diseases (ICTAD) Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Cornell University and Plum Island Animal Disease Center. Plum Island, Greenport, NY. August 5th to 8th, 2007.
84. Current situation of infectious bursal disease in Latin America (In Spanish). VII Technical Meeting of Antioquia, Colombia. Colombian Federation of Poultry Producers (FENAVI) Medellin, Colombia, September 2006.
85. Current situation of infectious bursal disease in Latin America (In Spanish). XXVII Seminar in Poultry. AMEVEA. Bogotá, Colombia, September 2006.
86. Instructor of the 7<sup>th</sup> International Foreign Animal Disease Course. Topics: Avian Influenza, Newcastle Disease, and hands on demonstration on necropsy and sample collection procedures. APHIS, Cornell University and Plum Island Animal Disease Center. Plum Island, Greenport, NY. August 8th to 11st, 2006.
87. Gumboro Disease: Diagnostic methodology and current worldwide situation. (In Spanish). XI International Seminar in Avian Pathology and Production. AMEVEA, The University of Georgia. Athens, Georgia, May 2006.
88. Commercial production of duck in the United States (In Spanish). XII Jornadas Médico Avícolas. College of Veterinary Medicine and Animal Science, National University of Mexico. Mexico City. February 2006.

89. Pathological aspects of commercial duck production. Seminar in the Poultry Diagnostic and Research Center. The University of Georgia. Athens, GA November 14, 2005.
90. Instructor of the 6<sup>th</sup> International Foreign Animal Disease Course. Topics: Avian Influenza, Newcastle Disease, and hands-on demonstration on necropsy and sample collection procedures. APHIS, Cornell University and Plum Island Animal Disease Center. Plum Island, Greenport, NY. October 13 and 14, 2005.
91. Genetic characterization of field strains of infectious bursal disease virus. North Carolina Poultry Health Meeting. North Carolina State University. Raleigh, NC. November 12, 2004.
92. Genetic analysis of very virulent infectious bursal disease virus strains detected in Latin American Countries. (In Spanish). XIX Annual Meeting of the Mexican Association of Poultry Science Specialists (ANECA). Guerrero, Mexico, May 2004.
93. Molecular properties of infectious bursal disease virus (In Spanish). 3rd Scientific Meeting IDISA. Mexico City, Mexico April 2003.
94. Methodology for the diagnosis of chicken infectious anemia virus (In Spanish). International Seminar of the Santander Academy of Avian Pathology. Cartagena, Colombia, September 2002.
95. Gumboro Disease: Diagnostic procedures and interpretation of results. (In Spanish). X International Seminar in Avian Pathology and Production. Colombian Association of Veterinarians Specialists in Poultry (AMEVEA), and The University of Georgia. Athens, Georgia, May 2002.
96. Differentiation of strains of the Gumboro disease virus by the RT-PCR technique (Presentation in Spanish). VIII Jornadas Médico Avícolas. College of Veterinary Medicine, National University of Mexico, Mexico City, February 2002.
97. New diagnostic and typing methods for field infectious bursal disease virus strains (In Spanish). XIV International Seminar Avimex. Mexico City, July 2001
98. Significance of the infectious bursal disease (In Spanish). Seminar in the College of Veterinary Medicine. University of the State of Puebla. Puebla, Mexico. February 26, 1998
99. Immunosuppressive diseases of poultry (In Spanish). XV International Symposium in Poultry Science. Juarez University of the State of Tabasco. Tabasco, Mexico. June 5, 1997.
100. Bursal index, and bursal/tibiotarsus ratio in broilers experimentally infected with three Mexican field infectious bursal disease isolates. VI Jornada Médico Avícola College of Veterinary Medicine, National University of Mexico (UNAM), Mexico City, Mexico. March 12 to 14, 1997.
101. Clinical and pathological significance of avian influenza (In Spanish). Second cycle of conferences on avian health. Autonomous University of Tlaxcala. May 19 1995.
102. Heat stress in chickens (In Spanish). 1<sup>st</sup> Conference on stress of domestic animals. College of Veterinary Medicine. National University of Mexico. April 26, 1994.
103. Egg drop syndrome serological retrospective study by hemagglutination inhibition in commercial layers (In Spanish). IV Jornada Médico Avícola. College

- of Veterinary Medicine, National University of Mexico (UNAM), Mexico City, Mexico. August 4 to 6, 1993.
104. Preparation of hyperimmune sera for serological diagnosis of poultry diseases (In Spanish). III Jornada Médico Avícola. College of Veterinary Medicine, National University of Mexico (UNAM), Mexico City, Mexico. August 12-14, 1992.

#### **CONSULTING ACTIVITIES:**

1. Consulting Services to the Colombian Federation of Poultry Producers (FENAVI) on avian influenza control in Colombia by vaccination. November-December 2022. Bogota, Colombia.
2. Consulting Services to the Colombian Institute for Agriculture (ICA) on the diagnosis of infectious bursal disease virus and by molecular and classic virological procedures. September 1-5, 2008. Bogota, Colombia.

#### **CHAPTERS IN BOOKS:**

1. Banda A. Chapter 1. Understanding the molecular biology of avian viruses and their role in poultry health. In Advances in understanding poultry viral disease transmission/epidemiology. In de Wit, Sjaak (ed). Optimising poultry flock health. Burleigh Dodds Science Publishing LTD. September 2022.
2. Banda A., Yan L. (2022) Chapter 7. Isolation and Propagation of Infectious Bronchitis Virus (Avian Coronavirus) in Chicken Embryonated Eggs. In: Wang L. (eds) Animal Coronaviruses. Springer Protocols Handbooks. 2<sup>nd</sup> ed. Humana Press, New York, NY. [https://doi.org/10.1007/978-1-0716-2091-5\\_7](https://doi.org/10.1007/978-1-0716-2091-5_7)
3. Yan L., Banda A., Wang L. (2022) Chapter 22. Whole Genome Sequencing of Avian Infectious Bronchitis Virus by iSeq100 Platform and MinION. In: Wang L. (eds) Animal Coronaviruses. Springer Protocols Handbooks. 2<sup>nd</sup> ed. Humana Press, New York, NY. [https://doi.org/10.1007/978-1-0716-2091-5\\_22](https://doi.org/10.1007/978-1-0716-2091-5_22)
4. Banda A. Chapter on Duck Viral Enteritis (Duck Plague) (Chapter Update) In. 11<sup>st</sup> Edition of The Merck Veterinary Manual. Pp. 2799 to 2801. Merck & CO., Inc. Kenilworth, NJ. 2019.
5. Banda A. Chapter on Duck Viral Enteritis (Duck Plague) In. 11<sup>st</sup> Edition of The Merck Veterinary Manual. Pp. 2799 to 2801. Merck & CO., Inc. Kenilworth, NJ. 2016.
6. Banda A. Chapter on Duck Viral Enteritis (Duck Plague) In. 10<sup>th</sup> Edition of The Merck Veterinary Manual. pps 2403 to 2405., Merck & CO., Inc. 2010.
7. Banda A. Infectious Bursal disease worldwide situation. In the White Book of Gumboro Disease (Chapter in English and translated into Spanish). Pp. 15 – 20 Hipra Laboratories, Spain. Girone, Spain, 2006.
8. Banda, A. Environmental factors with significance in the egg-laying hen. (Chapter in Spanish). In Systems of Animal Production – Poultry 2 Vol. 1. Pp 16 – 25 National Autonomous University of Mexico (UNAM). Mexico City 1999.

9. Banda, A. Productive goals and production parameters of egg-laying hens. (Chapter in Spanish). In Systems of Animal Production – Poultry 2 Vol. 1. Pp. 64 – 75 National Autonomous University of Mexico (UNAM). Mexico City 1999.
10. Banda, A. Heat stress in chickens. (Chapter in Spanish). In Systems of Animal Production – Poultry 2 Vol. 2. Pp. 94 – 102. National Autonomous University of Mexico (UNAM). Mexico City 1999.
11. Banda, A. Biosecurity systems in poultry operations (Chapter in Spanish). In Systems of Animal Production – Poultry 1 Vol. 1. Pp 47 – 56. National Autonomous University of Mexico (UNAM). Mexico City 1998.
12. Banda, A. Prevention and sanitary control in poultry operations. (Chapter in Spanish). In Systems of Animal Production – Poultry 1 Vol. 2. Pp 109 – 119. National Autonomous University of Mexico (UNAM). Mexico City 1998.
13. Banda, A. Infections by Avian Reovirus. (Chapter in Spanish). In Systems of Animal Production – Poultry 1 Vol. 2. Pp. 170-173. National Autonomous University of Mexico (UNAM). Mexico City 1998.

#### **PUBLICATIONS IN TRADE MAGAZNES AND NEWSLETTERS:**

- 1 **Banda A.** Eurasian H5 clade 2.3.4.4, highly pathogenic avian influenza viruses... Why these guys are different? Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 1, 2023.
- 2 **Banda A.** Importance of respiratory vaccine reactions in commercial poultry. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 3, 2021.
- 3 **Banda A.** Updates on Newcastle disease. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 4, 2020
- 4 **Banda A.** Inclusion body hepatitis in broilers, clinical and pathological aspects of this disease, and its relationship with immunosuppression. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 2, 2020.
- 5 **Banda A.** Infectious Bronchitis: An ever-changing virus of poultry: Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 3, 2019.
- 6 **Banda A.** Virulent Newcastle disease outbreak in California: The importance of biosecurity and rapid detection. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 2, 2019.
- 7 **Banda A.** Update on clinical aspects of infectious bursal disease. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 3, 2018.
- 8 **Banda A.** The role of the immune system in the health of poultry flocks. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 1, 2017.
- 9 **Banda A.** Biosecurity and disinfection in the time of avian influenza. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 4, 2015.
- 10 **Banda A.** Current Respiratory Problems Due to Infectious Bronchitis in Poultry. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 2, 2014.
- 11 **Banda A.** Leg problems due to avian reovirus. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 2, 2013.



- 12 **Banda A.**, and C. Zhang. Factors to consider for bovine trichomoniasis sampling. Pegasus Dx. Summer 2013. Vol 10. Number 3.
- 13 **Banda A.** From chicken embryos to DNA and beyond: Development of diagnostic technologies for poultry viruses. Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 3, 2012.
- 14 **Banda A.** Practical aspects on equine herpesvirus 1 (EHV-1) diagnosis. Pegasus Dx. Spring 2012. Vol 9. Number 2.
- 15 **Banda A.** Prevention against Gumboro disease: Types of vaccines, vaccination programs and routes of application (Article in Spanish). Actualidad Avipecuaria. September 14<sup>th</sup>, 2011. (<http://www.actualidadavipecuaria.com/dr-alejandro-banda>).
- 16 **Banda A.** Detection and genotyping of infectious bursal disease virus strains in Southern United States. Avian Insight. Vol. 3 Lohmann Animal Health International. November 2011.
- 17 **Banda A.** What is immunosuppression and why is important for our flocks? Emerging Trends. A newsletter of the Mississippi Poultry Association. Issue 1 2010.
- 18 **Banda A.** Infectious bursal disease virus strains for vaccination and inactivated bursal tissue origin vaccines. Avian Insight. Vol. 2 Lohmann Animal Health International. June 2009.
- 19 **Banda A.**, and T. Tabor. Characterization of infectious bronchitis field isolates from Mississippi Poultry Farms during 2008. Pegasus Dx. Summer 2009. Vol 6. Number 3.
- 20 **Banda A.** Commercial Production of Ducks in the United States of America (Article in Spanish). Los Avicultores y su Entorno. Volume 8, issue 51, pp. 62-69. June-July, 2006. Mexico.
- 21 **Banda, A.**, and P. Villegas. Infectious bursal disease diagnosis by reverse transcription and polymerase chain reaction (Article in Spanish). Los Avicultores y su Entorno. Volume 5, issue 26, pp. 88-94 April-May, 2002. Mexico.
- 22 **Banda A.** Heat Stress in Commercial Poultry (Article in Spanish). Los Avicultores y su Entorno. Volume 4, issue 20, pp. 45-54. April-May. 2001. Mexico.
- 23 **Banda C.A.:** Fluorescent antibody technique applied to detect infectious bursal disease (Article in Spanish). Revista Nuestro Acontecer Avícola May June 1994

#### **PREPARATION OF DIDACTIC MATERIAL:**

1. Atlas of Avian Diseases. Partners in Animal Health. Cornell University. <http://partnersah.vet.cornell.edu/avian-atlas/> June 2008