Oladipupo Ridwan Bello

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New York, USA | Authorized to work in the USA

SUMMARY

Computational immunologist with extensive experience applying bioinformatics and machine learning to decode immune system complexity, with the goal of accelerating the development of immunotherapies and diagnostic/prognostic biomarkers for human and animal health. Also explores selective breeding strategies to enhance animal health.

EDUCATION

PhD in Animal Sciences (Genetics and Genomics), University of Maryland, College Park, USA, August 2025
Dissertation: Exploring the Drivers of Public T-Cell Receptors Using Deep Learning and Single-Cell Transcriptomics

MSc in Animal Breeding & Genetics, University of Ibadan, Nigeria, 2019
Thesis: Relationship Between Milk Yield and Udder Traits in White Fulani Cows

Professional Certification: Graduate Animal Scientist (Distinction), 2016
Exam: Graduate Animal Scientist Examination
Body: Nigerian Institute of Animal Science (nias.gov.ng)

BSc in Animal Science (First Class Honors), University of Ibadan, Nigeria, 2015
Project: Variations in Hematological and Serum Biochemical Indices Among White Fulani Bulls, Ouda Rams, and West African Dwarf Bucks

RELEVANT SKILLS

- **Programming:** R, Python, Bash, SQL, C, Rust, Angular/TypeScript, JavaScript, HTML, CSS.
- **Statistical Analysis:** Hypothesis testing, linear and generalized linear models, mixed models, survival analysis, multivariate statistics, time series analysis, Bayesian statistics.
- **Bioinformatics:** NGS data analysis (bulk/single-cell RNA-Seq, WGS, ChIP-Seq, ATAC-Seq), TCR/BCR repertoire analysis, structural modeling, metagenome analysis, GWAS, genomic selection.
- **Machine Learning:** Neural networks, transformers, generative models, classification, regression, clustering.
- **Environments and Tools:** Git, Docker, Singularity, HPC/Slurm, Quarto, Linux, macOS, Windows.
- **Laboratory Techniques:** DNA Extraction, PCR, Gel Electrophoresis, Molecular Cloning, Laboratory Compliance Officer.

RESEARCH EXPERIENCE

Doctoral Research Assistant (January 2021 – August 2025)
Department of Animal and Avian Sciences, University of Maryland, College Park, USA

- **Evaluated the role of public (shared) T cell receptors in human and bovine immunity**
  - Designed and trained a high-performance convolutional neural network classifier (over 85% precision and recall) to distinguish highly variable public and private T cell receptor nucleotide sequences.
  - Modeled 3D T-cell receptor structures in MHC contexts to investigate the structural basis of publicness.
  - Isolated T cell receptor sequences from single-cell RNA-Seq data and examined the transcriptome profile of public and private T cells.
  - Studied intercellular communication patterns of public and private T cells with other immune cells.
  - Functionally characterized T cells with public and private receptor sequences to identify candidate genes that are associated with T cell receptor publicness.
  - Integrated GWAS of important traits to identify the role of public T cells in complex traits.
  - Examined the relationship between gut microbial diversity and public T cell receptor diversity in surrounding tissues.
- **Evaluated the genetic and epigenetic mechanisms of Marek's disease resistance in chickens**
  - Examined the gene expression profile of Marek's disease-resistant and susceptible chicken lines with bulk RNA-Seq to identify candidate genes that are associated with Marek's disease resistance.
  - Used ChIP-Seq and ATAC-Seq to corroborate and resolve candidate genes identified by RNA-Seq.
  - Leveraged the highly inbred nature of the chicken lines to identify RNA editing events and associated genes implicated in Marek's disease resistance.
  - Examined the biological functions and pathways of co-expressed candidate genes.

Project Assistant (National Youth Service Corps) (April 2016 – April 2017)
Faculty of Agriculture, Adekunle Ajasin University, Ondo, Nigeria

- Managed the on-campus cocoa nursery for the Ondo State cocoa revolution project, overseeing the propagation and care

of *Theobroma cacao* seedlings.

Intern—Cocoa Research Institute of Nigeria, Ibadan, Nigeria (July – August 2014)

- Served in the entomology unit as a research assistant on the use of neem extract (*Azadirachta indica*) as an organic pesticide for *Theobroma cacao*.
- Served in the pathology unit as a research assistant on the potency of different candidate fungicides on black pod disease of *Theobroma cacao*.

Intern—Teaching & Research Farm, University of Ibadan, Nigeria (April – June 2014)

- Assisted with daily animal husbandry, including feeding, watering, sanitation, and health monitoring, across the poultry, piggery, rabbitry, and dairy units.

TEACHING EXPERIENCE

Graduate Teaching Assistant (January 2021 – August 2025)
Department of Animal and Avian Sciences, University of Maryland, College Park, USA

- **ANSC 101 & 103 (Principles of Animal Science Lab)**, Fall 2023 – Spring 2025
  - Demonstrated animal handling, stockmanship, and health care to students on the farm and in the lab.
  - Introduced students to experimental design and statistical analyses used in animal research.
  - Proctored and graded laboratory reports, tests, and exams.
- **ANSC 627/327 (Quantitative and Molecular Genetics)**, Spring 2023
  - Held weekly TA office hours to assist students with the course materials.
  - Led course review sessions and graded exams.
- **ANSC 447 (Physiology of Mammalian Reproduction Lab)**, Fall 2021
  - Demonstrated gross anatomy and histology of livestock reproductive system to students in the lab.
  - Proctored and graded tests and laboratory reports

Tutorial Assistant (March 2017 – September 2018)
Department of Animal Science, University of Ibadan, Nigeria

- Coordinated and led tutorials on molecular and quantitative genetics for undergraduate students.
- Coordinated and led tutorials on probability, probability distributions, and design of experiments for undergraduate students.

PUBLICATIONS (Google Scholar)

Bello, O.R., Salako, A.E., Akinade, A.S., & Yakub, M. (2023). Relationship between Milk Yield and Udder Morphology Traits in White Fulani Cows. *Dairy*, 4, 435-444. https://doi.org/10.3390/dairy4030029

Ewuola, E.O., Adeyemi, A.A., & **Bello, O.R.** (2020). Variations in haematological and serum biochemical indices among White Fulani bulls, Ouda rams and West African Dwarf bucks. *Nigerian Journal of Animal Production*, 44(1), 136–143. https://doi.org/10.51791/njap.v44i1.561

SELECTED CONFERENCE PRESENTATIONS

Bello, O.R., & Johnson, P.L.F. (2025, January 10-15). *Public T Cell Receptors in Bovine Immunity*. International Plant & Animal Genome Conference, San Diego, California, USA.

Bello, O.R., Chu, Q., & Song, J. (2023 July 10-13). *Temporal profiling of the bursa transcriptome reveals systemic differences induced by Marek's disease virus*. Poultry Science Meeting, Philadelphia, Pennsylvania, USA.

SELECTED HONORS AND AWARDS

- Invited Peer Reviewer (2025): Elsevier
- Jacob K. Goldhaber Travel Grant (2025): Graduate School, University of Maryland, College Park, USA
- Animal Health and Care Academy Fellow (2024/2025 cohort): MANRRS, USA (sponsored by Merck and Zoetis)
- Shaffner Award for Second Place in Poultry Research (2022): 35th Annual Symposium, Department of Animal and Avian Sciences, University of Maryland, College Park, USA
- Dean's Fellowship (2021): Graduate School, University of Maryland, College Park, USA
- EducationUSA Opportunity Funds Program Fellow (2019): United States Embassy in Nigeria
- University of Ibadan Master's Scholarship and Tutorial Assistantship (2017): University of Ibadan, Nigeria
- Overall Best Candidate (Nationwide), Graduate Animal Scientist Exam (2016): Nigerian Institute of Animal Science