ABIODUN JOSEPH FATOBA

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Professional Summary

As a scientist with a sound background in biology and genetics, I have diverse research experience across molecular genetics of infectious disease, immunoinformatics vaccine design and drug target. I presently use computational genomics and statistical genetics to study the etiology of complex traits in humans and understand their shared genetic architecture. I am skilled in molecular biology techniques and computational genomics.

Technical/Core Skills

- Molecular biology: Genomic DNA extraction, total RNA extraction, Library preparation for sequencing, Standard and real-time quantitative polymerase chain reaction, gel electrophoresis, cloning and Western blotting
- Genome and transcriptome tools: MAKER2, Augustus, TransDecoder, Samtools, hisat, trinoate
- Ability to work on HPC server
- Programming Language: Bash scripting, R, and Python
- Computational Vaccinology: Antigen screening, epitopes prediction, 3D protein structure prediction, molecular docking, and dynamics, Immune simulation, and protein expression
- Microscopy: Light and fluorescent microscope
- Statistical Genetics skills: PLINK, Haploview, GATK, Vcftools, Imputes, PRSice, MTAG, SMR

Teaching and Research Experience

Postdoctoral Research Fellow, 01/2023 to 08/2026
University of Tennessee Health Science Centre — Memphis, USA

- I work as a genetic epidemiologist under the CHARGE Consortium. I work with GWAS datasets to understand the potential interaction of genes and environment (GxE) in the risk of autism spectrum disorder. I also screen for causal variants and shared genetic architecture in psychiatric disorders to understand their etiology.

Postdoctoral Research Fellow, 01/2022 to 12/2022
University of Pretoria — South Africa

- I developed the analysis workflow for the non-model Apicomplexa parasite-Babesia caballi. I used this workflow for de novo genome assembly, annotation, and comparative genomics with other Babesia species.

Postdoctoral Research Fellow, 07/2020 to 06/2021
University of KwaZulu-Natal — Durban, South Africa

- Computational immunoinformatics and genomics approach to design novel Multiepitope vaccines against bacterial and viral diseases in animals and humans.

Ad-hoc Lecturer, 01/2020 to 06/2020
University of KwaZulu-Natal — Durban, South Africa

- Teaching Introductory Genetics, and Parasitology to year 3 students. Supervision of B.Sc. and MS students.

Teaching Assistant, 02/2017 to 09/2019
University of KwaZulu-Natal — Durban, South Africa

- Teaching of Genomics and Genetics module (Gene 240, Gene 330) and guiding undergrads through hands-on practicals, including microscopic examination of chromosomes, DNA extractions, restriction digest, cloning, and introduction to bash scripting.

Research Assistant - Department of Cell Biology and Genetics, 12/2012 to 04/2014
University of Lagos — Nigeria

- Preparation of microscopic slides for cytogenetics analysis, Imaging, and karyotyping analysis of normal and deformed chromosomes from animal cells.

Co-supervision

I successfully co-supervised a graduate student.
Name: Petronella Nokukhanya Tenza
Dissertation Title: Diversity of Eimeria Fenella apical membrane antigen-1 from chickens in Mpumalanga province and its in silico epitope prediction as a vaccine
Programme: M.Sc
Year of Graduation: 2021

Education

Ph.D.: Genetics, 04/2020
University of KwaZulu-Natal - Durban, South Africa

M.Sc.: Genetics, 05/2014
University of Lagos - Nigeria

B.Tech. (Hons): Biology, 12/2010
Ladoke Akintola University of Technology - Ogbomosho, Nigeria

Peer-Reviewed Publications

- A.J Fatoba and Claire Simpson (2025). Exploring the potential causal association of gut microbiota on panic and conduct disorder: A two-sample Mendelian randomization approach. Journal of Affective Disorder 385, 119312 (https://doi.org/10.1016/j.jad.2025.04.143).
- A.J Fatoba, D.O Fatoba, and Claire Simpson (2026). A genome-wide cross-trait analysis detects shared genetic architecture between alcohol use disorder and ischemic stroke. Human Genetics 145:97
- Olukunle O. Oyegoke ....., Abiodun J. Fatoba, Matthew A. Adeleke, Rajendra Maharaj and Moses Okpeku (2024). Molecular detection of sub-microscopic infections and Plasmodium falciparum histidine-rich protein-2 and 3 gene deletions in pre-elimination settings of South Africa. Scientific Reports https://doi.org/10.1038/s41598-024-60007-8.
- A.J Fatoba and Claire Simpson (2024). Assessing the causal association between celiac disease and autism spectrum disorder: A two-sample Mendelian randomization approach. Autism Research, 1-7 https://doi.org/10.1002/aur.3257.
- A.J Fatoba, Dorcas Fatoba and Olufemi Babalola (2022). Pangenome and subtractive genomic analysis of Clostridioides difficile reveals putative drug targets. Journal of Proteins and Proteomics. doi.org/10.1007/s42485-022-00097-y.
- Avanthi Moodley, AJ Fatoba, Moses Okpeku, Thamsanqa E Chiliza and Ofentse Jacob Pooe (2022). Reverse Vaccinology approach to design a multiepitope vaccine construct based on the Mycobacterium tuberculosis biomarker-PE_PGRS17. Immunologic Research https://doi.org/10.1007/s12026-022-09284-x.
- A.J Fatoba, Leah Maharaj, Victoria Adeleke, Moses Okpeku, Adebayo Adeniyi and Matthew Adeleke (2022). Design of a multiepitope vaccine against chicken anemia virus disease. MDPI Viruses 14(7):1456.
- A.J Fatoba, Moses Okpeku, and Matthew Adeleke (2021). Subtractive genomics approach for identification of novel therapeutic drug targets in Mycoplasma genitalium. Pathogens 10(8), 921 https://doi.org/10.3390/pathogens10080921
- A.J Fatoba, Leah Maharaj, Victoria Adeleke, Moses Okpeku, Adebayo Adeniyi and Matthew Adeleke (2021). Immunoinformatics prediction of overlapping CD8 + T-cell, IFN- y, and IL- 4-inducer CD4 + T-cell and linear B-cell epitopes- b a s e d vaccines against COVID-19 (SARS- COV-2). Vaccine 39: 1111-1121.
- A.J Fatoba, Leah Maharaj, Victoria Adeleke, Moses Okpeku, Adebayo Adeniyi and Matthew

infection. International Journal of Peptide Research and Therapeutics (doi.org/10.1007/s10989-021-10245-5).

- Leah Maharaj, Victoria Adeleke, A.J Fatoba, Selalco I Tshilwane, Moses Okpeku, Rajendra Maharaj, Adebayo Adeniyi, Matthew Adeleke and Moses Okpeku (2021). Immunoinformatics approach to multiepitope vaccine design against P. falciparum malaria. Infection Genetics and Evolution 92: 1-10.
- Thabile Madlala, Victoria T. Adeleke, Abiodun J. Fatoba, Moses Okpeku, Adebayo A Adeniyi, and Matthew A. Adeleke (2021). Designing Multiepitope-based vaccine against Eimeria from Immune mapped protein 1 (IMP-1) antigen using immunoinformatic approach. Scientific Reports 11, 18295.
- A.J Fatoba, O.T Zishiri, J, Lepede, S Peters, D.P Blake, S Mukaratirwa and M.A Adeleke (2020). Study on the prevalence and genetic diversity of Eimeria species from broiler and free-range chickens in KwaZulu-Natal, South Africa. Onderstepoort Journal of Veterinary Research 87: 1837.
- A.J Fatoba and M.A Adeleke (2020). Transgenic Eimeria parasite: A potential control strategy of chicken coccidiosis. Acta Tropica 205:105417.
- A.J Fatoba and M.A Adeleke (2018). Diagnosis and Control of chicken coccidiosis: a recent update. Journal of Parasitic Diseases 42(4): 483-493
- A.J Fatoba and M.A Adeleke (2019). Chicken Anemia Virus: A deadly pathogen of poultry. Acta Virologica 63: 19-25.

Training

- 05/2023 Advanced Gene Mapping Course funded by NIH and hosted by The Rockefeller University, New York
- 01/2020 Immunoinformatics and Vaccine Design Training organized by the Laboratory of Computational Genomics and Vaccine Design, University of KwaZulu-Natal
- 11/2019 RNAseq Analysis Training organized by the Biotechnology Cluster, School of Life Sciences, University of KwaZulu-Natal
- 01/2019 Wellcome Genome Advance Course (WGCAC 2019) on Next Generation Sequencing Bioinformatics Training hosted at the University of Witwatersrand, Johannesburg
- 10/2018 Training on Microbiome and Transcriptomic Analysis hosted by the Nelson Mandela School of Medicine, University of KwaZulu-Natal
- 08/2017 Wellcome Genome Advance Course on Human and Vertebrate Genomics hosted in Southern Sun Elangeni Hotel, Durban, South Africa

Referee Responsibilities

- Reviewer for Frontiers in Immunology
- Reviewer for Frontiers in Genetics
- Reviewer for Parasitology Research
- Reviewer for the Kuwait Journal of Science

- Reviewer for Revista Brasileira de Parasitologia Veterinaria
- Reviewer for Nutritional Neuroscience
- Reviewer for World Poultry Science Journal
- Reviewer for Scientific Reports
- Reviewer for Bioinformatics and Biology Insights

Grants and Awards

2023 NIH travel grant to attend Advanced Gene Mapping Course at Rockefeller University, New York.
2018-2019 National Research Foundation (NRF) Grant.
2019 World Association for the Advancement of Veterinary Parasitology Travel Grants.
2019 Wellcome Genome Advance Course (WGCAC) Travel Grants.
2020 College of Agriculture, Engineering and Sciences Postdoctoral Scholarship.

Conference Presentation

- A.J Fatoba, D.O Fatoba, and C.L Simpson: Multi-trait shared genetic analysis detects shared genetic architecture between alcohol use disorder and ischemic stroke. 75th Annual Conference of the American Society of Human Genetics, held on October 14-18, 2025, at Thomas Menino Convention and Exhibition Center, Boston, Massachusetts, USA (Presented by A.J Fatoba).
- A.J Fatoba and C.L Simpson: Exploring the potential causal association of gut microbiota on panic and conduct disorders: A two-sample Mendelian randomization approach. 33rd Annual Meeting of International Genetic Epidemiology Society, held on November 3-4, 2024, at Embassy Suit Downtown, Denver, Colorado USA (Presented by A.J Fatoba).
- A.J Fatoba and C.L Simpson. Exploring the potential causal association of gut microbiota on panic and conduct disorders: A two-sample Mendelian randomization approach.74th Conference of the American Society of Human Genetics held on November 5-9, 2024, at the Colorado Convention Center, Denver, Colorado USA (Presented by A.J Fatoba).
- A.J Fatoba and C.L Simpson. Assessing the causal association between celiac disease and autism spectrum disorder: A two-sample Mendelian randomization approach. 73th Conference of the American Society of Human Genetics, held on November 1-5, 2023, at the Walter E. Washington Convention Center, Washington DC (Presented by A.J Fatoba).
- A.J Fatoba, O.T Zishiri, J, Lepede, S Peters, D.P Blake, S Mukaratirwa and M.A Adeleke. Morphological and Molecular detection of Eimeria parasite species from chicken farms in KwaZulu-Natal Province, South Africa. 27th Conference of the World Association for the Advancement of Veterinary Parasitology, held on 7th to 11th July 2019 at Monona Terrace Convention Center in Madison, Wisconsin, USA. (Presented by AJ Fatoba).