AUGUSTA ONYEBUCHI OPUTE

Cell Biology & Genetics | Molecular Parasitology | Genetic Toxicology

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Google Scholar | LinkedIn | Research Portfolio

Research Profile

Distinction-level MSc graduate with research spanning molecular detection of schistosomiasis, malaria parasite genetic diversity and environmental genotoxicity. Experienced in human field studies, PCR-based diagnostics, computational primer design and biochemical assays. Co-author of four publications: two peer-reviewed journal articles and two preprints. Currently developing broader bioinformatics skills.

Education

University of Ibadan, Nigeria | 2022–2024

MSc Zoology (Cell Biology and Genetics) | Distinction, CGPA 6.40/7.00

Thesis: *Unisexual Schistosomiasis in Natural Infections in Nigeria.* Supervisor: Dr. Chiaka I. Anumudu.

University of Ilorin, Nigeria | 2015–2019

BSc (Hons) Zoology | CGPA 4.42/5.00

Project: Antioxidant responses and genotoxic potential in *Clarias gariepinus* and *Tilapia zilli* from water bodies in Kwara State.

Technical Skills

Molecular Biology: DNA/RNA extraction; primer design; singleplex, multiplex, nested and touchdown PCR; agarose gel electrophoresis; NanoDrop DNA quantification.

Bioinformatics: NCBI GenBank, BLAST, Primer-BLAST, UCSC Genome Browser, in-silico PCR; reference sequence retrieval and primer assessment.

Cell Biology and Toxicology: Microscopy, micronucleus assay, slide staining, fish handling, oxidative-stress and biochemical biomarkers (AST, ALT, SOD, GST, GPx).

Field and Data Analysis: Urinalysis, biological sample collection, structured questionnaires, water-quality assessment, Excel, SPSS 20, descriptive statistics and Pearson chi-square testing.

Current Training: Bioinformatics and computational biology (ongoing).

Research Experience

MSc Student Researcher | University of Ibadan

Cell Biology and Genetics Unit | October 2023–May 2024

- Conducted a cross-sectional schistosomiasis study with 181 analyzable participants across four communities in Atiba, Oyo State; 194 participants were initially recruited.
- Extracted DNA from 48 plasma and four urine samples and assessed DNA yield using NanoDrop spectrophotometry.
- Designed two candidate primer pairs targeting male-associated genes AG8_1 and MS3_00009462 using GenBank and Primer-BLAST; screened 20 candidate pairs across the two targets.
- Evaluated four sex-associated molecular markers using in-silico PCR against the UoM_Shae V3 reference genome and experimental PCR assays.
- Established 12.7% conventional schistosomiasis prevalence through urine microscopy; analyzed demographic and infection data using Excel and SPSS.
- Investigated discrepancies between predicted and experimental amplification; documented failure of the sex-associated markers to amplify and the need for further diagnostic development.

Field Research Assistant | Cellular Parasitology Unit

University of Ibadan | September 2023–March 2024

- Supported biological sample collection, sample documentation and rapid on-site urinalysis; administered structured questionnaires and organized epidemiological and demographic data for analysis.

BSc Student Researcher | University of Ilorin

Department of Zoology | October 2018–July 2019

- Contributed to research on environmental exposure, oxidative stress and DNA damage in two fish species across five aquatic sampling sites.
- Prepared and stained slides and scored micronuclei by microscopy; the published study protocol involved scoring 2,000 erythrocytes per slide.
- Assessed biochemical markers (AST, ALT, SOD, GST and GPx), measured water physicochemical properties, and interpreted biochemical and genotoxicity findings; research contributed to a 2022 co-authored journal article.

Publications

Peer-Reviewed Journal Articles

Opute, A. O., Akinkunmi, J. A., Funsho, A. O., Obaniyi, A. K., & Anifowoshe, A. T. (2022). Genetic diversity of *Plasmodium falciparum* isolates in Nigeria: A review. *Egyptian Journal of Medical Human Genetics, 23*, 129. doi:10.1186/s43042-022-00340-7

Anifowoshe, A. T., Oladipo, S. O., Oyinloye, A. N., **Opute, A.**, Odofin, E. O., Omotola, A., Abdulrahim, Y. M., Akinseye, K. M., Abdulkareem, S. I., & Iyiola, O. A. (2022). Induction of oxidative stress and DNA damage in two common fish species of rivers and reservoirs in Ilorin, Northcentral, Nigeria. *Journal of Taibah University for Science, 16*(1), 480–494. doi:10.1080/16583655.2022.2074201

Preprints

Anifowoshe, A. T., Oladipo, S. O., Oyinloye, A. N., **Opute, A.**, Odofin, E., Aiki, O., Abdulrahim, M. Y., Akinseye, K. M., Abdulkareem, S. I., & Iyiola, O. A. (2021, August 9). Induction of micronuclei, cellular stress response, and DNA strand breakage in two common fish species from rivers and reservoirs in Ilorin, Nigeria. *Research Square* [Preprint]. doi:10.21203/rs.3.rs-699545/v1

Anifowoshe, A. T., Oladipo, S. O., Oyinloye, A. N., **Opute, A.**, Odofin, E., Aiki, O., Abdulrahim, M. Y., Akinseye, K. M., & Iyiola, O. A. (2021, June 24). Cellular stress response, induction of micronuclei and DNA strand breaks in two common fish species of rivers and reservoirs in Ilorin, North Central, Nigeria. *Research Square* [Preprint]. doi:10.21203/rs.3.rs-172188/v1

Academic Seminar & Scholarly Essay

Genetics of Grey Hair in Humans

University of Ibadan | May 2024 | Supervisor: Professor A. A. Bakare, FAS

- Authored an MSc scholarly review on genetic, cellular and environmental determinants of hair greying, synthesizing evidence on pigmentation genes, genetic polymorphisms, melanocyte stem cells, melanogenesis, oxidative stress and mitochondrial DNA damage.
- Reviewed genomic and transcriptomic findings on pigmentation and compared hair greying across humans and four non-human mammalian groups.

Professional Experience

Research and Quality Control Staff | Loveworld Medical Missions and Services

Lagos, Nigeria | February 2025–Present

- Develop evidence-based health communication articles, prepare departmental progress reports and conduct quality assurance of digital products.

Research Writer | Urban Research

April–December 2024

- Conducted literature reviews and policy analysis on infectious disease, environmental toxicology, public health infrastructure and healthcare access; synthesized evidence and verified technical accuracy.

Training & Conferences

- Bioinformatics workshop, Cellular Parasitology Unit, Department of Zoology (2023).
- Responsible Conduct of Research, Faculty of Science Fifth Biennial International Conference (2023).