Daniel Adediran

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About Me

Genomics scientist passionate about understanding molecular pathogenesis of diseases using single cell multiomics analysis with the aim and intention of developing CRISPR-based therapeutics by employing the best practices of bioinformatics via reproducibility and open science enabling environments.

Education

Ladoke Akintola University of Technology Ogbomoso, Nigeria, Department of Biochemistry

- **Relevant coursework**: Molecular genetics, Forensic biochemistry, Industrial fermentation, Endocrinology, Bioenergetic, Neurobiochemistry, Xenobiochemistry.
- **Academic project:** Assessment of Zingiber officinales on Tramadol-Induced Nephrotoxicity in Rats

Research Experience

Helix Biogen Institute

❖ **Teaching assistant**   2022-Present

- Instructed participants/students in both virtual and physical settings on the utilization of bioinformatics software for the analysis of biological data and computational vaccine design.
- Led multiple teams in the computational design of Nipah virus and COVID-19 vaccines, coordinating efforts and guiding the development process.

❖ **Research Intern**   Aug-Dec, 2021

- Gained exposure to bioinformatics methodologies and received training in computational vaccine and diagnostic kit design for infectious diseases.
- Acquired proficiency in conducting classical analyses in bioinformatics such as phylogenetic tree construction and multiple sequence alignment.

BigDataBiology, Fudan university

❖ **Intern**   2023

- Introduction to python programming language and the use of Git, GitHub and VS code and other python IDE
- Analyses and visualization of Dog metadata collected from Shanghai using the Pandas and Matplotlib libraries in Python

Oluseun Onigbinde Fellowship

❖ **Fellow**   2023

- Undergoing comprehensive training on Excel and Power BI for data analysis and visualization, gaining proficiency in utilizing these tools to analyze and present data effectively.

AgBioData

❖ **Member of data federation training working group**   2023-present

- Collecting training material on best practice in conducting data federation and the technology require in AgBioData community

American society of computational biology and bioinformatic (Omicscodeathon)

❖ **Co-lead**   2022

- Multiple sclerosis and their differentially expressed gene using bioinformatics analysis [ASBCB Omics Codeathon - October 2022 | Data Science at NIH]

Teaching Experience

Helix Biogen Institute   2022- Present

- Facilitated comprehensive training sessions for IT and Interns students, and virtual participants, covering a wide range of intricacies in vaccine and diagnostic kit design. Topics included Basic Immunology, T-cell and B-cell epitope prediction, as well as protein and RNA 2D and 3D structure predictions.

- Developed and prepared training materials to enhance the understanding and learning experience of the participants, ensuring effective knowledge transfer and comprehension of the course content.

Professional Affiliations

- British Society of Immunology
- Africa Society of Bioinformatics and Computational Biology
- H3ABioNet Trainer Network
- International Society of Computational Biology

Skills

- Basic computing: Linux, Bash, High Performance Computing, R, Python, Bioconductor
- Bioinformatics: RNA-Seq, Mutation calling, Mutational signature analysis, RNA deconvolution
- Workflow Management system: Nextflow, Galaxy
- Data analysis and Visualization: Microsoft Excel and Power BI
- Containerization & Virtualization Technology: Docker, VirtualBox, Virtual machine

Grant and Awards

- Grant award winner of Nnamdi Azikiwe Bioinformatic Genomics Consortium, 2021

- Student scholarship to attend RNA therapeutic symposium: From concept to clinic 2022

- Dan kohn Scholarship to virtually attend KubeCon+CloudNativeCon Europe 2023

- Recipients of eDNA collaborative microgrant to participate in one of the Physalia course, 2023

Publications

- Oladipo, E. K., Jimah, E. M., Irewolede, B. A., Folakanmi, E. O., Olubodun, O. A., Adediran, D. A., Akintibubo, S. A., Odunlami, F. D., Olufemi, S. E., Ojo, T. O., Akinro, O. P., Hezekiah, O. S., Olayinka, A. T., Abiala, G. A., Idowu, A. F., Ogunniran, J. A., Ikuomola, M. O., Adegoke, H. M., Idowu, U. A., Akindiya, O. E., … Adelusi, T. I. (2022). Immunoinformatics design of multi-epitope peptide for the diagnosis of Schistosoma haematobium infection. Journal of biomolecular structure & dynamics, 1–8. Advance online publication. https://doi.org/10.1080/07391102.2022.2111358.

- Oladipo, E. K., Akindiya, O. E., Oluwasanya, G. J., Akanbi, G. M., Olufemi, S. E., Adediran, D. A., Bamigboye, F. O., Aremu, R. O., Kolapo, K. T., Oluwasegun, J. A., Awobiyi, H. O., Jimah, E. M., Irewolede, B. A., Folakanmi, E. O., Olubodun, O. A., Akintibubo, S. A., Odunlami, F. D., Ojo, T. O., Akinro, O. P., Hezikiah, O. S., … Babalola, M. O. (2022). Bioinformatics analysis of structural protein to approach a vaccine candidate against Vibrio cholerae infection. Immunogenetics, 1–16. Advance online publication. https://doi.org/10.1007/s00251-022-01282-5

- Oladipo, E.K.; Adeniyi, M.O.; Ogunlowo, M.T.; Irewolede, B.A.; Adekanola, V.O.; Oluseyi, G.S.; Omilola, J.A.; Udoh, A.F.; Olufemi, S.E.; Adediran, D.A.; Olonade, A.; Idowu, U.A.; Kolawole, O.M.; Oloke, J.K.; Onyeaka, H. Bioinformatics Designing and Molecular Modelling of a Universal mRNA Vaccine for SARS-CoV-2 Infection. Vaccines 2022, 10, 2107. https://doi.org/10.3390/vaccines1012

Scientific communication

- Poster presentation at Nnamdi Azikiwe Bioinformatic Genomics Consortium
- Seminar presentation on Design of diagnostic kit for Schistosoma haematobium infection
- Group presentation on Identification of drug target in differentially expressed genes
- Beyond Science Initiative conference 2023 on the computation design of mRNA Vaccine for Lassa virus infection [Conference 2023 | 20230271 | Daniel A. Adediran]

Conferences/Workshops Attended

- Introduction to scientific computing (Python, Linux and version control system)- **AG2PI**
- Cancer genome analysis for Africa
- Introduction to Single cell RNA sequencing analysis
- Nnamdi Azikiwe Bioinformatic Genomics consortium
- Festival for Genomics 2022
- Health Informatics Summit
- X-Omics festival
- Genomics England Research summit
- Bosscon conference 2022: Bioinformatic and open science Empowerment in the Era of genomics
- RNA therapeutic symposium: From concept to clinic

Selected Certification

- Biochemistry of cancer**: Academy Europe Open University**
- 16S rRNA Microbiome Intermediate Bioinformatics Training Course (INB-BT): **H3ABioNet**
- Bioinformatics for biologists: An introduction to Linux-Bash scripting and R: **FutureLearn**
- Train the Trainer: **H3ABioNet**
- Next generation sequence analysis: **Wellcome Connecting Science**
- Basic Bioinformatics: **Helix Biogen Institute**

Personal Projects

❖ **Single cell RNA sequencing analysis**
  - Basic analyses of single cell RNA data using Seurat package which includes creating Seurat objects, Quality control, Normalisation, Finding variables genes, Scaling, Dimensional reduction analysis using UMAP and tSNE, principal component analysis, and differential genes expressions analysis [Github]

❖ **Developing Docker tutorial**

  - Understanding what is Containerization, the significance of docker in reproducibility, a containerization technology, creating a dockerfile, Building a docker image, Container image repository e.g Dockerhub, Quay and private container registry, Docker volume.
  - Project: Performing genome analysis and building it image based on Rocker RStudio base image and deployment to GitHub or Heroku [Docker-for-bioinformatics]