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Education

2022-Present — PhD Student
Van Andel Institute Graduate School
Grand Rapids, MI, USA

2015-2019 — Biochemistry (BSc)
University of Cape Coast,
Cape Coast, Ghana

- Dissertation: Stabilization of ascorbic acid through liposomal encapsulation
  Supervisor: Francis Abrokwah (PhD): fabrokwa@ucc.edu.gh

Research and Teaching Experience

2022 - 2023 — **Rotation Student**

Van Andel Institute Graduate School

- Investigated the DNA methylome of colorectal cancer mice expressing Dnmt1 hypomorphs (***at the Laird Lab***).
- Investigated the epigenetic modifiers that are differentially expressed in HEK293T cells expressing the C9orf72 dipeptide repeats (DPRs). (***at the Zhu Lab***).
- Cloned, transfected, and expressed KDM5C in T cells. Characterized transduction efficiency by flow cytometry and western blotting (***at Krawczyk Lab***).

Supervisors: Peter Laird (PhD): peter.laird@vai.org
Qiang Zhu (PhD): qiang.zhu@vai.org
Connie Krawczyk (PhD): connie.krawczyk@vai.org

2020 - 2022 — **Research Assistant**

Kumasi Center for Collaborative Research in Tropical Medicine (KCCR), Ghana

- Performed bioinformatics and computational studies.
- Prepared manuscripts for journal publication.
- Assisted research on lymphatic filariasis stigmatization.

Supervisor: Alexander Kwarteng (PhD): senkwarteng@yahoo.co.uk

2019-2020 — **Teaching Assistant**

Department of Biochemistry, University of Cape Coast, Ghana

- Taught undergraduates practical courses (microscopy, spectroscopy, and electrophoresis)
- Assisted lecturers with supervision and tutoring of undergraduates.
- Marked and graded undergraduate examinations.

2018-2019 — **Undergraduate Research**

Stabilization of ascorbic acid through liposomal encapsulation.

- Conceptualized and designed research.
- Isolated egg phospholipids.
- Prepared liposome-encapsulated ascorbic acid.
- Analyzed encapsulated ascorbic stability.

Supervisor: Francis Abrokwah (PhD): fabrokwa@ucc.edu.gh

Research Interests

Immunology, Epigenetics, Neuro-oncology, Neurodegeneration, Microglia, Bioinformatics

Research Works

Under peer-review

- **Asiedu, E.**, *et* al., (2023). Genomic analyses reveal molecular factors associated with an inverse relationship between glial tumorigenesis and neurodegeneration in Alzheimer's disease. ***Scientific Reports***

Published

1. **Asiedu, E.**, Larbi, A., Adankwah, E., Yambah, K. J., Obiri-Yeboah, D., Kwarteng, A. Transcriptome profiling reveals unique biological mechanisms and gene signatures associated with cerebral malaria. (2022). ***GeneReports*** 28. https://doi.org/10.1016/j.genrep.2022.101650

   Role*: Conceptualized study, performed all analysis, wrote manuscript*

2. Kwarteng, A., **Asiedu, E.**, Koranteng, K. K. & Asiedu, S. O. Highlighting the Relevance of CD8+ T Cells in Filarial Infections (2021). ***Frontiers in Immunology*** 12, 1–11. https://doi.org/10.3389/fimmu.2021.714052

   Role*: Prepared figures, wrote manuscript*

3. Kwarteng, A., **Asiedu, E.**, Sylverken, A., Larbi, A., Mubarik, Y., & Apprey, C. (2021). *In silico* drug repurposing for filarial infection predicts nilotinib and paritaprevir potential inhibitors of the Wolbachia 5'-aminolevulinic acid synthase. ***Scientific Reports***, 1–14. https://doi.org/10.1038/s41598-021-87976-4

   Role*: Conceptualized study, performed all analysis, wrote manuscript*

4. Kwarteng, A., Sylverken, A., **Asiedu, E.**, & Ahuno, S. T. (2021). Genome editing as control tool for filarial infections. ***Biomedicine & Pharmacotherapy***, 137, 111292. https://doi.org/10.1016/j.biopha.2021.111292

   Role*: Prepared figures, wrote manuscript*

5. Kwarteng, A., **Asiedu, E.**, Sylverken, A. A., Larbi, A., Sakyi, S. A., & Asiedu, S. O. (2021). Molecular characterization of interactions between the D614G variant of SARS-CoV-2 S-protein and neutralizing antibodies: A computational approach. ***Infection, Genetics and Evolution***, 91, 104815. https://doi.org/10.1016/j.meegid.2021.104815

   Role*: Conceptualized study, performed all analysis, wrote manuscript*

6. Fordjour, F. A., **Asiedu, E.**, Larbi, A., & Kwarteng, A. (2021). The role of nuclear factor kappa B (NF-κB) in filarial pathology. ***Journal of Cell Communication and Signaling***, 15(2), 185–193. https://doi.org/10.1007/s12079-021-00607-5

   Role*: Prepared figures, reviewed manuscript*

7. Kwarteng, A., **Asiedu, E.**, Mubarik, Y., Katawa, G., & Asiedu, S. O. (2021). Exploring *Onchocerca volvulus* Cysteine Protease Inhibitor for Multi-epitope Subunit Vaccine Against Onchocerciasis: An Immunoinformatics Approach. ***Int. J. Pep. Res. Ther***, 1–14. https://doi.org/10.1007/s10989-021-10224-w

   Role*: Conceptualized study, performed all analysis, wrote manuscript*

8. Kwarteng, A., **Asiedu, E.**, Sakyi, S. A., & Asiedu, S. O. (2020). Targeting the SARS-CoV2 nucleocapsid protein for potential therapeutics using immuno-informatics and structure-

based drug discovery techniques. ***Biomedicine & Pharmacotherapy***, 132, 110914. https://doi.org/10.1016/j.biopha.2020.110914

***Role**: Conceptualized study, performed all analysis, wrote manuscript*

9. **Asiedu, E.** (2020). Designing Effective Small Interfering RNA for Post-Transcriptional Silencing of Human GREM1: A Comprehensive Bioinformatics Approach. ***Preprint.*** https://doi.org/10.1101/2020.01.23.917559
10. **Asiedu, E.** (2019). *In-Silico* Methods for Investigating the Effect of Single Nucleotide Polymorphisms on the Structure and Function of Proteins: A Review. ***Preprint.*** 2019120131. https://doi.org/10.20944/preprints201912.0131.v1

Skills

- **Programming**:
  - R, Python
- **Bioinformatics**:
  - Transcriptomics Data Analysis
  - DNA methylation data analysis
  - Histone modification data analysis
  - Protein Structure Modeling and Simulation
  - In silico drug screening
  - Immunoinformatics
  - Machine Learning
- **Molecular biology assays**:
  - Western Blotting
  - PCR
  - Flow Cytometry
  - Gel Electrophoresis
  - CRISPR-Cas9 gene editing
  - Cloning transfection, transduction assays
  - Protein Expression
- **Non-technical**
  - Teamwork, Time management, organizational, critical thinking, quick learner, presentation, leadership, conflict resolution, stress management, problem solving.

Awards

- AACR Student and Early Career Investigator Scholarship (SECIS) 2021

  To support the attendance of the 14th AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved held on October 6-8, 2021

Leadership Services

- **President**: August 2018-May 2019
  Biological Sciences Students' Association of Ghana (BIOSSTAG), University of Cape Coast Chapter

Professional Development Training

- Epigenomics analysis, Canadian Bioinformatics Workshop (CBW), September 2021
- Ethical Conduct for Research Involving Humans (TCPS 2), Canadian Panel on Research Ethics, April 2021

Webinar Talks

- Immunological Society of Ghana 3rd Webinar on the current trends in COVID-19:
  "Immunoinformatics applications to SARS-CoV 2 epitope vaccine design"
  Kumasi-Ghana, September 2021

Volunteering Services

- **Outreach speaker**, February 2019-May 2019
  Toured high schools to discuss and excite the students' interests in biology related courses at the tertiary level.

Professional Association

- American Association of Cancer Reseach (AACR)
- Ghana Biochemistry Students Association (GHABSA)
- Biological Sciences Students Association of Ghana (BIOSSTAG)

Referees

Alexander Kwarteng (PhD)
Senior Lecturer
Department of Biochemistry and Biotechnology,
Kwame Nkrumah University of Science and Technology, Ghana
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Francis Abrokwah (PhD)
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University of Cape Coast, Ghana
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Paz Polak (PhD)
Vice President
Computational Biology
C2i Genomics
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