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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 <ul style="list-style-type: none">➤ Dissertation: Stabilization of ascorbic acid through liposomal encapsulation Supervisor: Francis Abrokwa (PhD): fabrokwa@ucc.edu.gh |

Research and Teaching Experience

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|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2022 - 2023 | Rotation Student
Van Andel Institute Graduate School <ul style="list-style-type: none">➤ Performed DNA methylation data analysis (at the Laird Lab).➤ Developed a cell sorting by FACS protocol (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 <ul style="list-style-type: none">➤ 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 <ul style="list-style-type: none">➤ 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. <ul style="list-style-type: none">➤ Conceptualized and designed research.➤ Isolated egg phospholipids.➤ Prepared liposome-encapsulated ascorbic acid.➤ Analyzed encapsulated ascorbic stability. Supervisor: Francis Abrokwa (PhD): senkwarteng@yahoo.co.uk |

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). **Gene Reports** 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: *Conceptualized study, performed all analysis, 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 Research (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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senkwarteng@yahoo.co.uk

Francis Abrokwa (PhD)

Senior Lecturer
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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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