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## EBENEZER ASIEDU

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### Education

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| 2022-Present | PhD Student<br>Van Andel Institute Graduate School<br>Grand Rapids, MI, USA  |
| 2015-2019    | Biochemistry (BSc)<br>University of Cape Coast,<br>Cape Coast, Ghana <ul style="list-style-type: none"><li>➤ Dissertation: Stabilization of ascorbic acid through liposomal encapsulation</li></ul> <b>Supervisor:</b> Francis Abrokwa (PhD): <a href="mailto:fabrokwa@ucc.edu.gh">fabrokwa@ucc.edu.gh</a> |

### Research and Teaching Experience

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| 2022 - 2023 | <b>Rotation Student</b><br>Van Andel Institute Graduate School <ul style="list-style-type: none"><li>➤ Performed DNA methylation data analysis (<b>at the Laird Lab</b>).</li><li>➤ Developed a cell sorting by FACS protocol (<b>at the Zhu Lab</b>).</li><li>➤ Cloned, transfected, and expressed KDM5C in T cells. Characterized transduction efficiency by flow cytometry and western blotting (<b>at Krawczyk Lab</b>).</li></ul> <b>Supervisors:</b> Peter Laird (PhD): <a href="mailto:peter.laird@vai.org">peter.laird@vai.org</a><br>Qiang Zhu (PhD): <a href="mailto:qiang.zhu@vai.org">qiang.zhu@vai.org</a><br>Connie Krawczyk (PhD): <a href="mailto:connie.krawczyk@vai.org">connie.krawczyk@vai.org</a> |
| 2020 - 2022 | <b>Research Assistant</b><br>Kumasi Center for Collaborative Research in Tropical Medicine (KCCR), Ghana <ul style="list-style-type: none"><li>➤ Performed bioinformatics and computational studies.</li><li>➤ Prepared manuscripts for journal publication.</li><li>➤ Assisted research on lymphatic filariasis stigmatization.</li></ul> <b>Supervisor:</b> Alexander Kwarteng (PhD): <a href="mailto:senkwarteng@yahoo.co.uk">senkwarteng@yahoo.co.uk</a>   |
| 2019-2020   | <b>Teaching Assistant</b><br>Department of Biochemistry, University of Cape Coast, Ghana <ul style="list-style-type: none"><li>➤ Taught undergraduates practical courses (microscopy, spectroscopy, and electrophoresis).</li><li>➤ Assisted lecturers with supervision and tutoring of undergraduates.</li><li>➤ Marked and graded undergraduate examinations.</li></ul>  |
| 2018-2019   | <b>Undergraduate Research</b><br>Stabilization of ascorbic acid through liposomal encapsulation. <ul style="list-style-type: none"><li>➤ Conceptualized and designed research.</li><li>➤ Isolated egg phospholipids.</li><li>➤ Prepared liposome-encapsulated ascorbic acid.</li><li>➤ Analyzed encapsulated ascorbic stability.</li></ul> <b>Supervisor:</b> Francis Abrokwa (PhD): <a href="mailto:fabrokwa@ucc.edu.gh">fabrokwa@ucc.edu.gh</a>  |

## 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:** *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**

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- **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**

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- 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**

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

## **Professional Development Training**

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- 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**

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

### **Volunteering Services**

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- **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**

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

### **Referees**

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#### **Alexander Kwarteng (PhD)**

Senior Lecturer  
Department of Biochemistry and  
Biotechnology,  
Kwame Nkrumah University of  
Science and Technology, Ghana  
E-mail:  
[senkwarteng@yahoo.co.uk](mailto:senkwarteng@yahoo.co.uk)

#### **Francis Abrokwa (PhD)**

Senior Lecturer  
Department of Biochemistry,  
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Ghana  
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#### **Paz Polak (PhD)**

Vice President  
Computational Biology  
C2i Genomics  
E-mail: [pazpolak@gmail.com](mailto:pazpolak@gmail.com)