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MAILING ADDRESS

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PROFILE

Passionate and motivated biochemistry graduate with a strong interest in bioinformatics, computational biology or chemistry, drug discovery and molecular dynamics. Possesses a Bachelor of Science (Hons) in Biochemistry from the University of Cape Coast and a track record of academic excellence. I have extensive research experience, laboratory work, and data analysis. Adept at conducting insilico studies of bioactive compounds of *Azadirachta indica* on phospholipase A2 as a potential target for snakebite treatment and compiling brain enhancers of *SHOX 2* using enhancer browser and published data. I have proven track record in teaching and leadership roles, with a background in educating students and fostering student leadership as a Teacher and Head of the Students Leadership Association at Divaid International School and also serving as the Program Representative for my Biochemistry class / group and Events Coordinator at Ghana Biochemistry Students Association (GHABSA). I have also gained valuable laboratory skills, through my internships and service experience at Kintampo Health Research Centre, and Tetteh Quarshie Memorial Hospital Laboratory. Demonstrated skills in research analysis, data analysis, and proficient in various programming, software applications, and bioinformatics tools. With a strong foundation in biochemistry, an excellent academic record, and a passion for advancing scientific knowledge, I am eager to pursue a MSc / PHD degree in biochemistry, bioinformatics, computational biology or chemistry, and dedicated to contributing to the knowledge, advancement and making a positive impact in the field of science and medicine through scientific research, education and innovation.

EDUCATION

BS University of Cape Coast, Biochemistry
Central Region, Cape Coast – Ghana
Graduated Cum Laude

March 2023

HONORS AND AWARDS

Program Representative of the year
Ghana Biochemistry Students Association (GHABSA)
University of Cape Coast, Cape Coast – Ghana

2019/2020

**Dissertation, UNIVERSITY OF CAPE COAST, SCHOOL OF BIOLOGICAL SCIENCES
DEPARTMENT OF BIOCHEMISTRY**

Advisor / Supervisor: Name: Professor Michael B. Adinotey

November 2022

Project: IN SILICO STUDIES OF BIOACTIVE COMPOUNDS OF AZADIRACHTA INDICA ON PHOSPHOLIPASE A2 AS A POTENTIAL TARGET FOR SNAKEBITE TREATMENT

ABSTRACT

Snakebites represent a significant global health issue, particularly in regions with a high incidence of venomous snake species. Phospholipase A2 (PLA2) enzymes found in snake venoms play a crucial role in envenomation by disrupting cell membranes and causing tissue damage. Developing effective treatments for snakebites is a priority, and natural products have long been explored as potential sources of antidotes. Azadirachta indica, commonly known as neem, is a tree with a rich history in traditional medicine, known for its diverse array of bioactive compounds. This thesis investigates the insilico interactions between bioactive compounds from Azadirachta indica and Phospholipase A2 enzymes from various snake species, with the aim of identifying potential inhibitors for snakebite treatment.

The research employs computational tools and molecular docking simulations to explore the binding affinities and interaction mechanisms of Azadirachta indica compounds with PLA2 enzymes. A comprehensive database of bioactive compounds from neem is curated, and their structural properties are analyzed to predict their potential as PLA2 inhibitors.

The findings of this study contribute to the growing body of research on snakebite treatment, offering insights into the potential use of natural compounds from Azadirachta indica as PLA2 inhibitors. By identifying compounds with promising binding affinities and interactions, this research paves the way for further experimental validation and the development of novel therapeutic strategies for snakebite management. Ultimately, this thesis highlights the importance of harnessing computational methods to expedite drug discovery processes and addresses a critical need for effective snakebite treatments in regions afflicted by venomous snake populations.

**Dissertation, UNIVERSITY OF CAPE COAST, SCHOOL OF BIOLOGICAL SCIENCES
DEPARTMENT OF BIOCHEMISTRY**

Advisor / Supervisor Name: Dr. Samuel Abassah Oppong

October 2021

Mini Project: COMPILING BRAIN ENHANCERS OF *SHOX 2* USING THE ENHANCER BROWSER AND PUBLISHED DATA.

ABSTRACT

Transcription factors (TFs) play a pivotal role in molecular biology by controlling the transcription of genetic information into messenger RNA through specific DNA binding. Homeobox genes, categorized into various groups, are vital for the regulation of morphogenesis and cell differentiation. *SHOX2* (short stature homeobox 2), a member of the PRD class of homeobox genes, has been extensively characterized as a transcriptional regulator involved in pattern formation in invertebrates and vertebrates. Notably, *SHOX2* is crucial for the expression of sonic hedgehog (*shh*) in dorsal-residing Purkinje cells and is essential for normal cerebellar development. The complex embryonic expression pattern of *SHOX2* suggests its involvement in craniofacial, limb, brain, and heart development.

Throughout the years, various laboratories and researchers have made predictions and proposals regarding the brain enhancers of *SHOX2*. However, there has been a lack of a systematic approach to consolidate these critical enhancers, and statistical records of yearly discoveries remain challenging. In this study, we aim to address this gap by compiling all known brain enhancers of *SHOX2*, utilizing the VISTA Enhancers Browser (VEB) and Published Data (PD). Our objective is to facilitate research efforts, reduce costs, and minimize labor-intensive processes related to *SHOX2* enhancer studies. By providing a comprehensive compilation, we hope to enhance our understanding of the role of *SHOX2* in brain development and related processes.

TEACHING EXPERIENCE

Divaid International School

April 2017 – July 2018

Ashanti Region, Ghana.

Postal Area: Bohyen-Ampabame 1636

Post Code: AF1636

Teacher and Head of Students Leadership Association

- Taught the Pupil of Class five (5) as well as Junior High School
- averaging 43 students per semester / term, covering the following topics: Integrated science, Mathematics
- Developed quizzes, exams, and homework
- Revised the syllabus to meet accreditation standards
- Coordinated grading with a team of 3 teaching assistants

WORK EXPERIENCE

Laboratory Scientist (Student / Internship)

Kintampo Health Research Centre
Bono East Region, Kintampo North, Ghana

May 2021 – June 2021

Medical Laboratory Scientist (Student / Internship)

Tetteh Quarshie Memorial Hospital Laboratory
Eastern Region, Akuapem North, Ghana

November 2022 – October 2023

EXTRACURRICULAR ACTIVITIES

Program Representative

Biochemistry
University of Cape Coast

August 2018 – November 2022

Events Coordinator

Ghana Biochemistry Students Association (GHABSA)
University of Cape Coast

2021 – 2022

Service Personals Representative

Tetteh Quarshie Memorial Hospital Laboratory

2022 – 2023

PROFESSIONAL TRAINING AND SERVICE

Field Officer (Enumerator)

Population and Housing Census (PHC) 2021
Ghana Statistical Service (GSS)
Suame Municipal, Ghana.

July 2021

COMMUNITY SERVICE

Tetteh Quarshie Memorial Hospital (TQMH) Laboratory

Blood Screening and Donations

J. G. Knol Technical Institute, Adukrom, Eastern - Ghana

August 2023

Blood Screening and Donations

International Central Gospel Church (ICGC), Akropong, Eastern - Ghana

June 2023

Screening and Education on Diabetes, Hepatitis B and C and HIV

Tinkong, Eastern – Ghana

August 2023

Women Organizer, New Patriotic Party (NPP)

Blood Glucose, Hepatitis B and C, Malaria and HIV Screening
Tinkong, Eastern – Ghana

July 2023

LANGUAGES

Ghanaian Language (Twi): Native Language

English: Intermediate Listener, Intermediate Speaker, Advanced Reading and Writing

French: Intermediate Listener, Novice Speaker, Intermediate Reading and Writing

Spanish: Novice Listener, Novice Speaker, Novice Reading and Writing

SKILLS

General Skills:

- Communication
- Data Analysis
- Research Assistance / Research Analysis
- Media preparation for bacteria culture
- Tissue Processing for Diagnosis
- Molecular Diagnosis using ELISA and PCR
- Sample preparation, collection and processing
- Quality control and assurance
- Tissue and Microbial Microscopy
- Drug discovery / Molecular docking and Molecular Dynamics
- Database Management System (DBMS) and Web Development (Full stack)

Computer Skills:

Programming: Python, C++, R, JavaScript, PHP, MySQL (SQL), HTML, CSS, SCSS

Applications: Microsoft Word, Excel, PowerPoint, Pyrx, Rasmol, Pymol, Cytoscape, VMD, Avogadro, Chems sketch, Lig Plot Plus

Platforms: PDB, EMBL, Blast, GenBank, Swiss-model, PubChem, Swiss-Port

OTHER

Interest / Hobbies: Coding and Programming, UI, UX and Graphic Designing, Reading and Writing, Culture and Languages Learning, Community Service, Sports (Football and Basketball)

Ethnicity / Citizenship: Ghanaian (African)

REFERENCES

General Office

Department of Biochemistry

University of Cape Coast

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