LUTIMBA STUART

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OBJECTIVE STATEMENT: My long-term goal is to gain a detailed understanding how biomolecules (i.e. Proteins, DNA/RNA, Lipids) work interactively in complex biological systems, so as to take part in the development of new or improve on the existing disease prophylactic strategies through the integration of Omic approaches.

RELEVANT EDUCATION AND WORK EXPERIENCE

1. Bioinformatician (Present) – Top Science Biotechnologies, Inc. Research Department, New Taipei, Shiding District, Taiwan.
2. Research Assistant – August 2019 - 2021, National Tsing Hua University, Institute of Bioinformatics and Structural Biology, Computation Theoretical Lab, Hsinchu, Taiwan, R.O.C.
3. Master of Science in Molecular Biotechnology – August 2016 to May 2018 - University of Skövde, Skövde, Sweden. With support from the **Swedish Institute Study Scholarships (SISS)** for the academic year 2016/2018. studyinsweden.se
4. Research assistant – July 2017 to May 2018 – Science for Life Laboratory, Theoretical and Computational Biophysics Lab (TCBLAB), Stockholm, Sweden
5. Computer Laboratory assistant (Visualization Molecular Dynamics program) – February 2018, KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden
6. Research Officer – August 2014 to July 2016 – Uganda Virus Research Institute, (UVRI), Plot No: 51 -59 Nakiwogo Road, P.O. Box 49 Entebbe Uganda (Department of Entomology).
7. Bachelor of Science in Biotechnology – August 2011 to June 2014 (Graduated) – Makerere University, P.O. BOX 7062 Kampala, Uganda. www.mak.ac.ug
8. Research Assistant – June to August 2013 - National Crops Resources Research Institute (NACRRI), Department of Biosciences, P.O Box 7084, Kampala, Uganda, www.nacrri.go.ug

TECHNIQUES AND CAPABILITIES

1. Computer Skills
   a. Programming Languages –Scripting with python, R, AWK and Tcl/Tk.
   b. Parallel Computing: Kebnekaise, Beskow (CRAY-XC40-MPI) supercomputer at PDC (KTH Royal Institute of Technology), Sweden, TAIWANIA 2 supercomputer, Taiwan
   c. Operating systems – MS-DOS, Windows, Unix and Linux | Cloud computing: AWS/Azure/Google cloud/DigitalOceans
   d. Databases management: SQL, MySQL –RDBM and non RDBM (MongoDB).
   e. Bioinformatics - Public protein and DNA databases such as EMBL-EBI, SWISS-PROT, Genbank, Interpro, ClustalW, PDB, TMPRED among others as well as several commercial databases; Bioinformatics algorithms such as BLAST, FASTA, gene finding algorithms (GLIMMER and GENESCAN), primer designing and data mining. Evolutionary analysis with MEGA and BIO-EDIT.
   f. Molecular Modeling and Structural Biology – Modeller9, Molecular Simulations (QM, QM/MM) and Molecular Dynamics | (NAMD and Gromacs, OpenMM, Amber19), PMV/ADT, VMD, Tinker, PyMOL | CADD and Schrodinger.
   g. Computational Chemistry: Lead Optimisation with QSAR, Virtual Screening (Structure and Ligand based Docking), ADME modelling.
   h. Gene Expression analysis- GEO, ArrayExpress, R/Bioconductor, Classification (WEKA and RWEKA) and Clustering
   i. Network analysis- Meta-databases (BioGRID, BIND and DIP) and Cytoscape tools.
   j. Statistical analysis – Fluent with R and familiar with SPSS and Epi-info.
   k. Experience in Deep Learning (DL) and Statistical Machine Learning (ML) | deep learning frame work (TensorFlow)
   l. NGS data analysis (GWA, WGA), Exploratory data analysis, Design and Develop bioinformatics pipelines/workflows to analyse genomic data (Netflow), Galaxy, Cyverse, GATK, Tuxedo Suit with CummeRbound

2. Selected Publications:

   1. **Genome sequencing and application for Taiwanese macaque Macaca cyclopis**
   Kuo-Ping Chiu*, **Lutimba Stuart**, Hong Sain Ooi, Yu-Tai Wang, John Yu, David Glenn Smith and Kurtis Jai-Chyi Pei. **Submitted.**

   2. **Secondary Structure Motifs Made Searchable to Facilitate the Functional Peptide Design**
   Nature Communications | volume 13, Article number: 102 (2022)
   Cheng-Yu Tsai, Emmanuel Oluwatobi Salawu, Hongchun Li, Guan-Yu Lin, Ting-Yu Kuo, Liyin Voon, Adarsh Sharma, Kai-Di Hu, Yi-Yun Cheng, Sobha Sahoo, **Lutimba Stuart**, Chih-Wei Chen, Yuan-Yu Chang, Yu-Lin Lu, Ximai Ke, Chung-Yu Lan, Hua-Wen Fu, Lee-Wei Yang.

   3. **Substrate Interactions in the LacY Membrane Protein Transporter**
   Biophysical Journal, Volume 114, Issue 3, Supplement 1, 2 February 2018, Page 240a.
   Lutimba Stuart[1], Stephen H. White[2], Ronald H. Kaback[3], Magnus Andersson[1]
   [1]KTH Royal Institute of Technology, Solna, Sweden, [2]UCI, Irvine, CA, USA, [3]UCLA, Los Angeles, CA, USA.

3. TRAINING COURSES AND WORSHOPS

1. 2021 (April 09 – 24) Next Gen Drug Discovery Software for Lead Optimization. Zastra Innovations, Bengaluru, India.
2. 2020 (6-8, December) in situ Structural Biology: From Cryo-EM to Integrative Modelling. EMBO Courses & Workshops, Heidelberg
3. 2020 (30-31, July) Computational Biology Workshop, Life Science Building II, National Tsing Hua University, Taiwan, R.O.C
4. 2018 (January to March) Biophysics course held at KTH Royal Institute of Technology, SE-100 44, Stockholm, Sweden (www.kth.se).
5. 2018 (January, 15th) Uppsala-Stockholm workshop on Biomolecular simulation: -Determination of specificity and affinity of the Lactose Permease protein by Lutimba Stuart. Organized by Christian Blau (PhD) & Laura Orellana (PhD) http://www.tcblab.org
6. 2017 (October, 14th) Macro Molecular Builder (MMB) workshop Held at Science for Life Laboratory, Solna campus, Sweden, Organized by Samuel Flores (PhD) and Christian Blau (PhD) http://www.tcblab.org
7. 2015 (March to May) Global Biorisk Management Curriculum (GBRMC) Courses, held at UVRI Entebbe Uganda
8. 2015 (May 28) Statement of accomplishment from Emory University online course in Ebola virus Disease: An Evolving Epidemic through Coursera. www.coursera.org.Disease prevention management and treatment, response to the epidemic, ethical consideration, and the post-Ebola global health landscape.

4. CONFERENCES ATTENDED

1. 2019 (December 12th) - Taiwan-Japan Workshop on Theoretical Chemistry, Dr. Poe Lecture Hall, Institute of Atomic and Molecular Sciences, Academia Sinica, Taiwan, R.O.C
2. 2017 (December, 9th) - International Symposium on Cryo-EM- Past and future challenges, Held at G-Salen, Arrhenius Laboratory, Svante Arrhenius väg 20C, 106 91 Stockholm, Sweden
3. 2015 (April 5th) COMESA policies and guidelines for handling of GM crops and products, By Arthur Makara Executive Director |SCIFODE & COMESA Consultant **-** Policies and Guidelines
4. 2015 (July, 7th) - Setting up a genomic laboratory in Africa by Professor Tulio.De Oliveira, organized by the welcome trust center and the university of Kwazulu Natal South Africa. Took place at the Uganda Virus Research Institute, Uganda
5. 2013 (August, 27th) - Development of RNAi virus resistance cassava by Titus Alicai, PHD principle research officer National Crop Research Institute, Uganda
6. 2013 (July, 30th) - Basic molecular techniques in plant GM research and their relevance to GMO regulation, 1st Biennial National Biosafety Kampala (NABIO-Uganda 2013)

5. PRESENTATIONS

1. 2019 (October 2nd) - Taipei International Workshop for Soft Matter and Biophysic, The Auditorium on 1F, Institute of Physics, Academia Sinica, Taiwan, R.O.C
2. 2019 (March 19th) – Protonation dependent sugar binding in Lactose permease (LacY), held at the Umeå Plant Science Center, Umeå university, Sweden.
3. 2018 (February 20th) – Substrate interactions in the LacY membrane protein transporter, Biophysical Journal, DOI: https://doi.org/10.1016/j.bpj.2017.11.1338, Lutimba Stuart, Stephen H. White, Ronald H. Kaback, Magnus Andersson.
4. 2018(June 19th) – Protonation dependent sugar binding in Lactose Permease (LacY), held at the Max Planck Institute of Colloids and Interfaces, University of Potsdam, Germany.
5. 2013 (June) – Presentation of laboratory-based practices on diagnosis of cassava Brown Streak Virus and Cassava Mosaic virus in

6. HONOURS AND AWARDS

1. (2020-15th01 to 15th-02-2021) National Tsing Hua University International Scholarship for a PhD program in Bioinformatics and Structural Biology at the Institute of in Bioinformatics and Structural Biology.
2. 2019 (March) A travel grant to present at the Umeå Plant Science Center (UPSC), Umeå University, Sweden.
3. 2018 (June) A travel grant to present at the Max Planck Institute of Colloids and Interfaces, University of Potsdam, Germany.
4. 2016-2018 Swedish Institute study scholarship award for studies in molecular biotechnology at a master's level at the University of Skövde.

7. THESIS RESEARCH

1. July 2017 to May 2018 – *Master Thesis – Registered at University of Skövde, Sweden and project work carried out at Science for Life Laboratory, Stockholm, Sweden- Determination of molecular factors that govern the specificity and affinity of lactose permease from Escherichia coli through the application of molecular dynamics. Supervisor: Magnus Andersson PhD, KTH Royal Institute of Technology, Sweden.*
2. October 2013 to April 1204 – *Bachelor Thesis – Registered at Makerere University Kampala Uganda- Functional characterization and bioinformatics analysis of Dihydroflavonal 4-reductase from Rosa Hydrida. Supervisor: Masembe Charles PhD, Makerere University, Uganda*

8. LANGUAGE PROFICIENCY

English: Full professional proficiency; **Luganda**: Native / Bilingual Proficiency; **Swedish**: Limited Working Proficiency; **Chinese**: Elementary Proficiency