



THE TECHNICAL UNIVERSITY OF KENYA

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Faculty:	Applied Sciences and Technology
School:	Biological and Life Sciences
Department:	Biochemistry and Biotechnology
Current Designation:	Lecturer, BIOCHEMISTRY AND BIOTECHNOLOGY
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Consultation Hours:	



EDUCATION

LEVEL	QUALIFICATION NAME	INSTITUTION	YEAR
Doctor of Philosophy (PhD)	Bioinformatics	University of the Western Cape(South Africa)	2015
Masters of Science (M.Sc.)	Cell and Molecular Biology	Maseno University(Kenya)	2011
Bachelor of Science (BSc)	Agricultural Education and Extension	Egerton University(Kenya)	2001
Diploma	Human Resource Management	Kenya Institute of Management(Kenya)	2007
Certificate	Kenya Certificate of Primary Education	Sihay Primary School(Kenya)	1990
O level/Equivalent	Kenya Certificate of Secondary Education	Ambira High School(Kenya)	1994

WORK EXPERIENCE

PERIOD	INSTITUTION	POSITION
2012 - Todate	JKUAT	Adjunct Lecturer
2016 - 2018	Max Planck Institute for Chemical Ecology	Post Doctoral Research
2011 - 2014	ICIPE	ARPPIS PhD Scholar
2002 - 2011	High School	Graduate Science Teacher I
2009 - 2010	International Livestock Research Institute (ILRI)	Graduate Research Scholar

GENERAL STATEMENT ON RESEARCH AREAS

Genomics and Neurogenetics. Livelihood in Africa is dictated by insects, which destroy crops, vector tropical infectious and neglected diseases to both humans and animals, and are key pollinators and direct food sources. Studying the genes encoded in the DNA of insects, in particular, the chemosensory active genes helps understand the behavior and ecology of insects. This involves both wet lab molecular manipulations and bioinformatic analysis of both DNA and proteins.

CURRENT RESEARCH PROJECTS

The Chemoreception and Ecology of Insects

Genomics and Neurogenetics of insect brains.

SELECTED PUBLICATIONS

TITLE	LINK TO PULICATION
(2018) Expression Levels of Odorant Receptor Genes in the Savanna Tsetse Fly, <i>Glossina morsitans morsitans</i> . Journal of Medical Entomology, 55(4), 855-861	https://doi.org/10.1093/jme/tjy018
(2019) Rotavirus prevalence and seasonal distribution post vaccine introduction in Nairobi county Kenya. The Pan African Medical Journal; 33:269.	http://www.panafrican-med-journal.com/content/article/33/269/full
(2018) In silico structural and functional prediction of African swine fever virus protein-B263R reveals features of a TATA-binding protein. PeerJ 6:e4396, 1-18.	https://doi.org/10.7717/peerj.4396
(2019) Inverse resource allocation between vision and olfaction across the genus <i>Drosophila</i> . Nature Communications, 10:1162, 1-16.	https://doi.org/10.1038/s41467-019-09087-z
(2019) Evolution of a pest: towards the complete neuroethology of <i>Drosophila suzukii</i> and the subgenus <i>Sophophora</i> . bioRxiv preprint	http://dx.doi.org/10.1101/717322
(2019) The olfactory coreceptor IR8a governs larval feces-mediated competition avoidance in a hawkmoth. PNAS Latest articles 1-6.	http://www.pnas.org/cgi/doi/10.1073/pnas.1913485116
(2014) Odorant and Gustatory Receptors in tsetse fly <i>Glossina morsitans morsitans</i> . PLoS Negl Trop Dis 8:e2663. DOI:10.1371/journal.pntd.0002663	http://www.plosntds.org
(2014) Chemosensory receptors in tsetse flies provide link between chemical and behavioural ecology. Trends in Parasitology. DOI:10.1016/j.pt.2014.06.007.	http://www.sciencedirect.com/science/article/pii/S147149221400110X
(2014) Genome Sequence of the Tsetse Fly (<i>Glossina morsitans</i>): Vector of African Trypanosomiasis. *George FO Obiero co-authored the chemosensory section of the article. Science 344 (6282): 380-386. DOI:10.1126/science.1249656.	http://www.sciencemag.org/cgi/collection/genetics
(2015, Thesis) Genome-wide annotation of chemosensory and glutamate-gated receptors, and related genes in <i>Glossina morsitans morsitans</i> tsetse fly. Published Doctoral thesis, University of the Western Cape.	http://www.uwc.ac.za

NAME	PROJECT TITLE	PERIOD
Kennedy K. BTech, TUK	Prediction of the 3-D structure of the P. falciparum membrane transport protein	graduated
Kipkirui, BSc. Kenya	Glossina ACPs	graduated
TOM MSc	Insect Neuroreceptor genes	graduated
Maruch K. MSc.	Evolution of Vitamin And Co-enzyme genes.	graduated
Gikonyo, MSc.	Molecular traits of insect speciation.	graduated

COURSES TAUGHT

NAME	DESCRIPTION	PERIOD
Internet Technology and Applications in Bioinformatics	Genomic DNA and Proteins are studied using computer systems, via online linkages to various databases that host bioinformatic tools and molecular data. The students need to understand the underlying principles of internet functioning as a research tool in biological sciences.	2012 - 2016
Introduction to Bioinformatics	Gives the students the link between molecular biology and computational biology. Also, it provides a link from wet lab techniques of generating molecular data to use of computer systems to store, analyze and transfer the data to other computer systems. It covers databases and various bioinformatic analyses and their programs/tools.	September 2015 - TO-DATE
Molecular Immunology	Introduces the molecular mechanisms of how immune cells generate the diverse antibodies, cytokines, and receptors. It also examines how autoimmune disorders arise.	September 2015 - TO-DATE
Molecular Biology	Introduces undergraduate students to the organization of DNA in various organisms; recombinant DNA technologies of manipulating DNA to produce various products, and gene expression mechanisms.	September 2015 - TO-DATE