

Academic Staff Profile

Personal Profile

Personal Details

<p>Name: THOMMAS MUTEMI MUSYOKA Title/Qualification: PhD, Pr. Sci Nat. Department: Biochemistry, Microbiology and Biotechnology Designation/Position: Lecturer Email: mutemibiochemistry@gmail.com; musyoka.thommas@ku.ac.ke Contact Address: P.O BOX 25997-00100, Nairobi, Kenya Area of Specialization: Bioinformatics Cheminformatics Protein dynamics Molecular biology Research Interests: Drug discovery and development Protein structure, function and dynamics Machine learning Google Scholar: Thommas M. Musyoka ORCID ID: 0000-0001-8906-9482</p>	
---	--

Academic & Professional Qualifications

2021: Certificate in vaccinology, Oxford University, United Kingdom
2013-2016: PhD Science (Bioinformatics), Rhodes University, South Africa
2010-2012: MSc (Pharmacology of infectious diseases), Nagasaki University, Japan
2011: Diploma (R & D of pharmaceuticals), Nagasaki University, Japan
2005-2009: BSc (Biochemistry – First class Hons), Kenyatta University

Employment History

2021 -: Lecturer, Kenyatta University
2017 -: Postdoctoral research associate, Rhodes University, South Africa
2015: Part-time software developer, Human Heredity and Health in Africa (H3Africa)
2013-2015: Undergraduate teaching assistant, Rhodes University, South Africa
2012-2013: Part-time lecturer, Technical University of Kenya, Kenya
2008: Intern, National government chemistry laboratories, Kenya

Publications

Referred Journals

- 1) Chiamaka Jessica Okeke, **Thommas Mutemi Musyoka**, Olivier Sheik Amamuddy, Victor Barozi, Özlem Tastan Bishop. Allosteric pockets and dynamic residue network hubs of

- falcipain 2 in mutations including those linked to artemisinin resistance, Computational and Structural Biotechnology Journal, (2021).
- 2) Amamuddy, O.S, **Musyoka, T.M**, Boateng, R. A, Zabo. S. and Özlem Tastan Bishop. Determining the unbinding events and conserved motions associated with pyrazinamide release due resistance mutations of Mycobacterium tuberculosis pyrazinamidase. Computational and Structural Biotechnology Journal.* DOI: <https://doi.org/10.1016/j.csbj.2020.05.009>
 - 3) **Musyoka, T.**; Bishop, Ö.T. South African Abietane Diterpenoids and Their Analogs as Potential Antimalarials: Novel Insights from Hybrid Computational Approaches. *Molecules* 2019, 24, 4036.
 - 4) **Musyoka, T. M.** and Tastan Bishop, Ö. *In silico* Identification of Inhibitors of Escherichia coli Dihydrofolate Reductase from the South African Natural Compounds Database (Under review).
 - 5) **Musyoka, T. M.**; Njuguna, J. N.; Tastan Bishop, Ö. Comparing sequence and structure of falcipains and human homologs at prodomain and catalytic active site for malarial peptide based inhibitor design. *Malar. J.* **2019**, 18, 159.
 - 6) Siwe-Noundou, X.; **Musyoka, T. M.**; Moses, V.; Ndinteh, D. T.; Mnkandhla, D.; Hoppe, H.; Tastan Bishop, Ö.; Krause, R. W. M. Anti-HIV-1 integrase potency of methylgallate from Alchornea cordifolia using in vitro and in silico approaches. *Sci. Rep.* **2019**, 9, 4718.
 - 7) The determination of CHARMM force field parameters for the Mg²⁺ containing HIV-1 integrase. **Musyoka TM**, Tastan Bishop Ö, Lobb KA and Moses V. *Chemical Physics Letters*. 2018; 711: 1-7
 - 8) Structure Based Docking and Molecular Dynamic Studies of Plasmodial Cysteine Proteases against a South African Natural Compound and its Analogs. **Musyoka TM**, Kanzi AM, Lobb KA, Tastan Bishop Ö. *Scientific reports*. 2016; 6:23690.
 - 9) In Vivo Antianaemic Effect and Safety of Aqueous Extracts of *Erythrina abyssinica* and *Zanthoxylum usambarensis* in Mice Models. **Musyoka TM**, Nyamai WD, Arika MW, Juma KK, Mutua DN, David M, Stanely KW, Mathew PN, George OO, Geoffrey MK, Eliud NM. *Journal of Hematology & Thromboembolic Diseases*. 2016; (4):1000242.
 - 10) Analysis of non-peptidic compounds as potential malarial inhibitors against plasmodial cysteine proteases via integrated virtual screening workflow. **Musyoka TM**, Kanzi AM, Lobb KA, Tastan Bishop Ö. *Journal of biomolecular structure & dynamics*. 2016; 34(10):2084-101.
 - 11) SANCDB: a South African natural compound database. Hatherley R, Brown DK, **Musyoka TM**, Penkler DL, Faya N, Lobb KA, Tastan Bishop Ö. *Journal of cheminformatics*. 2015; 7:29.
 - 12) JMS: An Open Source Workflow Management System and Web-Based Cluster Front-End for High Performance Computing. Brown DK, Penkler DL, **Musyoka TM**, Bishop ÖT. *PloS one*. 2015; 10(8):e0134273.
 - 13) Evaluation of antiviral activity of Oligonol, an extract of *Litchi chinensis*, against betanodavirus. Ichinose T, **Musyoka TM**, Watanabe K, Kobayashi N. *Drug discoveries & therapeutics*. 2013; 7(6):254-60.

Research

Drug discovery (Infectious diseases) using computational approaches

Conferenced/Workshops/Seminars Attended

Conferences Attended

- 1) July 2015: 23rd Annual International Conference on Intelligent Systems for Molecular Biology (ISMB) / 14th European Conference on Computational Biology (ECCB) – Ireland (Poster presentation).
- 2) November 2014: Pan Africa Chemistry Network Congress - Ethiopia (Poster presentation).

- 3) September 2014: South Africa Genetics Society (SAGS) and South Africa Society for Bioinformatics (SASBi) Joint Congress - South Africa (Oral presentation).
- 4) August 2012: Japanese Society of Virology and Bacteriology congress – Japan (Oral presentation).

Workshops Attended

- 1) August 2019: SA MRC symposium for East Cape – East London, South Africa (Presenter)
- 2) July 2018: DELGEME midterm general meeting – Bamako, Mali (Mentor/Supervisor)
- 3) September 2017: Homology modelling and docking - University of Limpopo, South Africa (Facilitator).
- 4) July 2017: Homology modelling and docking - University of Fort Hare, South Africa (Facilitator).
- 5) July 2010: East African Regional Workshop on Immunology of Parasitic Diseases – Tanzania (Trainee).
- 6) July 2009: Science, Ethics and Technological Responsibility in Developing and Emerging Countries workshop – Kenya.

Supervision of Postgraduate Students

Masters

- 3 MSc (Bioinformatics – completed, Rhodes University, South Africa)
- 4 BSc Honours (Biochemistry -completed, Rhodes University, South Africa)

Ph. D

- 2 PhD (Bioinformatics – ongoing, Rhodes University, South Africa)

Professional/ Consultancy (Editor/ Peer review in journals, Networks/ Collaborations, External Examiner, Patents)

- 1) Journal of Molecules – Reviewer (Bioinformatics)
- 2) Experimental parasitology – Reviewer (Pathogen bioinformatics)
- 3) Journal of Biomolecular Structure and Dynamics – Reviewer (Bioinformatics)
- 4) BioTechnologia
- 5) RSC Advances

Affiliation of Professional Bodies

- 1) South African Council for Natural Scientific Professions – SACNASP (Professional Natural Scientist)
- 2) International Society for Computational Biology – ISCB (Member)
- 3) South African Society for Bioinformatics - SASBi – (Member)

National and International awards and Recognitions

- 1) 2019 – 2021: Grand Challenges Africa postdoctoral fellowship – Drug design and discovery, Drug resistance mechanism (Malaria and Tuberculosis)
- 2) 2017 – 2018: Rhodes University postdoctoral research fellowship
- 3) 2015: ISMB/ECCB travel fellowship
- 4) 2013 – 2015: Rhodes University doctoral research fellowship
- 5) 2010 – 2012: Japanese Government graduate research fellowship
- 6) 2010: National Institute of Health travel fellowship

Administrative Positions Held

Recognized university administrative positions

Academic advisor BSc Biochemistry (2nd Year – Kenyatta University)

Kindly use this format for your online CV submission and send it to: webmaster@ku.ac.ke to enable updates to your web page.