

CURRICULUM VITAE



Name: Mark Wamalwa (PhD)
Position: Lecturer
Contact Address: Department of Biochemistry & Biotechnology
P. O. Box 43844-00100,
NAIROBI,
KENYA.
Tel: +254 (20) 422 3881
Fax: +254 (20) 422 3001
E-Mail: mwamal@gmail.com
wamalwa.mark@ku.ac.ke

Research Interests:

My research interests focuses on conducting research for improved food and nutritional security; and environmental sustainability. In addition, I have special interest in elucidating host-pathogen interactions where I have been developing high throughput bioinformatics protocols including next generation sequencing data analysis to study diseases such as Maize Lethal Necrotic Disease (MLND) and sleeping sickness. Ongoing research is aimed at prediction of cross-species molecular interactions between *Theileria parva* and its bovine host (*Bos taurus*).

Academic Background

2007-2011	PhD. Bioinformatics, University of Western Cape, South Africa.
2002-April, 2004	Master of Bioinformatics (MBF), Wageningen University Research, Netherlands.
1993 - 1998	Bachelor of Veterinary Medicine (BVM), University of Nairobi.

Professional affiliation:

International Society for Computational Biology (ISCB)
International Society for Computational Biology Africa (ASBCB)
The International Glossina Genome Initiative (IGGI)
Biochemical Society of Kenya (BSK)
Kenya Veterinary Association (KVA)

Msc. Thesis Title: Discovery of *cis*-regulatory elements, for amino acid metabolism, in *Sulfolobus solfataricus*, through a comparative genomics approach.

PhD. Thesis Title: Development of a comprehensive annotation and curation framework for analysis of *Glossina morsitans morsitans* Expressed Sequence Tags.

Specialization/Skills:

Programming: JAVA, Perl, Python, HTML, PHP and R.
Database Management
Linux and Windows operating systems.

Work Experience

1999-2002 Veterinary Surgeon, Highlands Vet. Clinic, Nairobi, Kenya.
2002-2004 Graduate Student (Msc.), Wageningen University Research, Wageningen, Netherlands.
2003-2004 Research Fellow, Solvay Pharmaceuticals BV, Netherlands.
2005-2007 Assitant Lecturer, Kenyatta University, Nairobi Kenya.
2008-2011 Post-graduate Student (Ph.D.), University of Western Cape, Cape Town, South Africa.
2012-present Lecturer, Department of Biochemistry and Biotechnology, Kenyatta University, Nairobi, Kenya.

Awards & Honors

2002-2004 WOTRO Science for Global Development. Msc. Training Fellowship.
2006-2007 WHO/NIH/TDR Travel Award to attend and facilitate at the African Center for Training in Functional genomics of insect vectors of human diseases (AFRO VECTGEN).
2009 Cold Spring Harbor Bursary, New York, USA. National Research Foundation (NRF), South Africa Travel Award to attend and present at the Genome Informatics Conference, Cold Spring Harbor. New York, USA.

- 2009 NRF Travel Award to attend and present at the International Society for Computational Biology Africa ASBCB: Joint Conference on Bioinformatics of Infectious Diseases. Bamako, Mali.
- 2007-2011 National Research Foundation (NRF), South Africa Ph.D. Training Fellowship.

Conference Presentations:

Mark Wamalwa, Francesca Stomeo, Jagger Harvey, Miano Douglas, Neil Boonham, Ian Adams, Dora Kilalo, Appolinaire Djikeng (2014). A Computational Framework for High-throughput Virus Detection and Pathogen Discovery. International Plant and Animal Genome Conference XXII 2014, San Diego, USA.

Francesca Stomeo, Mark Wamalwa, Jagger Harvey, Miano Douglas, Neil Boonham, Ian Adams, Dora Kilalo, Appolinaire Djikeng (2014). Pathogen Diversity in African Small Farming Systems for the Assessment of Food Security and the Improvement of African Agricultural Productivity. International Plant and Animal Genome Conference XXII 2014, San Diego, USA.

Mark Wamalwa and Appolinaire Djikeng (2013). Enhancing Capacity of National Cassava Research Programs to Manage Viruses Effectively. Fourth Annual Meeting, Nampula, Mozambique, 23-25 October 2013.

Francesca Stomeo, Mark Wamalwa, Jagger Harvey, Douglas W. Miano, Neil Boonham, Dora Kilalo, Ian Adams, Appolinaire Djikeng (2013). Plant virome ecology in African farming systems: A genomics and bioinformatics framework for high-throughput Virus detection and Pathogen Discovery. Regional workshop to develop a strategy for Maize lethal Necrosis Disease (MLND) in Eastern and Central Africa. 21-23 August 2013, Nairobi, Kenya.

Mark Wamalwa and Alan Christoffels, (2010). The transcriptome profile of *Glossina morsitans morsitans*: a vector for sleeping sickness. 22nd International CODATA Conference on Scientific Data and Sustainable Development. 24-27 October 2010, Cape Town, South Africa.

Mark Wamalwa and Alan Christoffels, (2009). Comparative genome analysis of *Glossina morsitans* transcriptome: a vector for sleeping sickness. Genome Informatics. Cold Spring Harbor. New York, USA.

Mark Wamalwa and Alan Christoffels, (2009). Comparative genomics analysis of *Glossina morsitans* transcriptome: vector for sleeping sickness. International Society for Computational Biology Africa ASBCB: Joint Conference on Bioinformatics of Infectious Diseases. 30 Nov – 05 Dec 2009, Bamako, Mali.

Workshop Presentations:

Resource person and presenter in the following Bioinformatics workshops:

Mark Wamalwa *et al.*, (2014). The eBioKit Bioinformatics Workshop, Commission for Biotechnology & Genetic Engineering, National Center for Research, Sudan, December 1 - 6, 2014

Mark Wamalwa *et al.*, (2014). The eBioKit Bioinformatics Workshop University of Buea; Cameroon, October 27 - 31, 2014.

Mark Wamalwa *et al.*, (2014). Next generation sequencing Advanced Bioinformatics Workshop. August 18th-29th, 2014, International Livestock Research Institute (ILRI), Nairobi, Kenya.

Mark Wamalwa *et al.*, (2014). Introduction to molecular Biology and Bioinformatics Training Workshop BecA-ILRI Hub, Nairobi, Kenya May 5-16, 2014.

Mark Wamalwa *et al.*, (2013). Metagenomics and Next generation sequencing Advanced Bioinformatics Workshop. 7th-18th October, 2013, International Livestock Research Institute (ILRI), Nairobi, Kenya.

Mark Wamalwa *et al.*, (2013). Genotyping by Sequencing (GBS) workshop. A collaboration between Cornell University's Institute for Genomic Diversity and ICRISAT Funded by BREAD (Basic Research to Enable Agriculture Development). 6th-9th August, 2013. BecA-ILRI Hub, Nairobi, Kenya

Mark Wamalwa *et al.*, (2013). Next Generation Sequencing Technologies and Application to Infectious Diseases, BecA-ILRI Hub/JCVI/NIAID Training Workshop. 22nd-28th August 2013, International Livestock Research Institute (ILRI), Nairobi, Kenya.

Mark Wamalwa *et al.*, (2013). Introduction to Molecular Biology and Bioinformatics Workshop. 6th-17th May 2013, International Livestock Research Institute (ILRI), Nairobi, Kenya.

Mark Wamalwa *et al.*, (2005). The second WHO/NIH/TDR training course on Functional Genomics of Insect Vectors of Human Diseases. October 26 - November 10, 2005, the African Center for Training in Functional genomics of insect vectors of human diseases (AFRO VECTGEN), Bamako, Mali.

Mark Wamalwa *et al.*, (2004). Facilitator for the Bioinformatics workshop held under the Biochemical Society of Kenya (BSK) umbrella and sponsored by the Third World Academy of Sciences (TWAS) held at the Computer Science Department, Egerton University, Njoro Campus, Nakuru Kenya from 6-8 September 2004.

Peer-reviewed Publications

Watanabe J, Hattori M, Berriman M, Lehane MJ, Hall N, Solano P, Aksoy S, Hide W, Touré Y, Attardo GM, Darby AC, Toyoda A, Hertz-Fowler C, Larkin DM, Cotton JA, Watanabe J, Sanders MJ, Swain MT, Hattori M, Berriman M, Quail MA, Inoue N, Ravel S, Taylor TD, Srivastava TP, Sharma V, Warren W, Wilson RK, Suzuki Y, Lawson D, Hughes DS, Megy K, Masiga DK, Mireji PO, Attardo GM, Hansen IA, Van Den Abbeele J, Benoit JB, Bourtzis K, Lehane MJ, Aksoy S, Masiga DK, Obiero GF, Robertson HM, Jones JW, Zhou JJ, Field LM, Friedrich M, Mireji PO, Nyanjom SR, Telleria EL, Caljon G, Van Den Abbeele J, Ribeiro JM, Acosta-Serrano A, Benoit JB, Ooi CP, Rose C, Price DP, Haines LR, Lehane MJ, Christoffels A, Sim C, Pham DQ, Denlinger DL, Geiser L, Omedo IA, Benoit JB, Winzerling JJ, Peyton JT, Marucha KK, Jonas M, Meuti ME, Rawlings ND, Mireji PO, Zhang Q, Macharia RW, Michalkova V, Dashti ZJ, Baumann AA, Gäde G, Marco HG, Hansen IA, Caers J, Schoofs L, Riehle MA, Hu W, Tu Z, Tarone AM, Malacrida AR, Kibet CK, Benoit JB, Scolari F, Attardo GM, Koekemoer JJ, Willis J, Gomulski LM, Falchetto M, Scott MJ, Fu S, Sze SH, Luiz T, Weiss B, Walshe DP, Wang J, Benoit JB, Attardo GM, **Wamalwa M**, Mwangi S, Aksoy S, Ramphul UN, Snyder AK, Brelsfoard CL, Thomas GH, Tsiamis G, Bourtzis K, Arensburger P, Rio RV, Macdonald SJ, Panji S, Kruger A, Christoffels A, Benkahla A, Balyeidhusa AS, Msangi A, Ooi CP, Okoro CK, Masiga DK, Stephens D, Walshe DP, Stanley EJ, Mpondo F, Wamwiri F, Mramba F, Attardo GM, Siwo G, Obiero GF, Githinji G, Harkins G, Murilla G, Lehväsliho H, Malele I, Koekemoer JJ, Auma JE, Kinyua JK, Ouma J, Watanabe J, Megy K, Okedi L, Manga L, Jonas M, Wamalwa M, Aslett M, Koffi M, Berriman M, Lehane MJ, Gaunt MW, Makgamathe M, Hall N, Mulder N, Manangwa O, Abila PP, Wincker P, Mireji PO, Gregory R, Rio RV, Bateta R, Sakate R, Aksoy S, Ommeh S, Lehane S, Nyanjom SR, Imanishi T, Taylor TD, Osamor VC, Sharma V, Hide W, Kawahara Y, Benoit JB. (2014). Genome sequence of the tsetse fly (*Glossina morsitans*): vector of African trypanosomiasis. *Science*. 2014 Apr 25; 344(6182): 380-6.

Hawkins E, Kock R, McKeever D, Gakuya F, Musyoki C, Chege SM, Mutinda M, Kariuki E, Davidson Z, Low B, Skilton RA, Njahira MN, **Wamalwa M**, Maina E. (2015). Prevalence of *Theileria Equi* and *Babesia Caballi* as well as the Identification of associated Ticks in Sympatric Grevy's Zebras (*Equus Grevyi*) and Donkeys (*Equus Africanus Asiaticus*) in Northern Kenya. *J Wildl Dis*. 2015 Jan; 51(1): 137-47. PMID: 25380362.

Desta AF, Assefa F, Leta S, Stomeo F, **Wamalwa M**, Njahira M, Appolinaire D. (2014) Microbial Community Structure and Diversity in an Integrated System of Anaerobic-Aerobic Reactors and a Constructed Wetland for the Treatment of Tannery Wastewater in Modjo, Ethiopia. *PLoS ONE* 9(12): e115576. PMID: 25541981.

Otieno OD, Onguso JM, Matazyoh LG, Onyango C, **Wamalwa M**, Wanjala BW, Jagger H. Genetic diversity of Kenyan native oyster mushroom (*Pleurotus*). *Mycologia* 2014 13-186. PMID: 25344263

T.C. Keambou, B.A. Hako, S. Ommeh, C. Bembide, E.P. Ngonu, Y. Manjeli, F. Wamonje, Nzuki, B. Wanjala, **M. Wamalwa**, C.Y. Cho, R.A. Skilton and A. Djikeng, 2014. Genetic Diversity of the Cameroon Indigenous Chicken Ecotypes. *International Journal of Poultry Science*, 13: 279-291.

Semegni, J. Y., **Wamalwa, M.**, Gaujoux, R., Harkins, G. W., Gray, A., & Martin, D. P. (2011). NASP: a parallel program for identifying evolutionarily conserved nucleic acid secondary structures from nucleotide sequence alignments. *Bioinformatics*, 27(17), 2443-2445.

Pretorius A., Mandeep K., **Wamalwa M.**, Moegamat F. F., Magbubah E., Vladimir B. and Jasper R. (2011). Functional analysis and characterization of the human RBBP6 promoters using molecular biology and in silico approaches. *J.bio.*