

## CURRICULUM VITAE

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### PERSONAL DETAILS

Date of Birth: 1979

Nationality: Kenyan

Sex: Female

### SYNOPSIS

A professional researcher and lecturer in livestock and human sciences with a sound background in theoretical, technical and practical aspects of molecular biology applied to research. Accumulated over eight years' local and international research experience in biotechnology, molecular genetics and immunology of human and animal health. Proficient in training and development of training programmes for biosciences.

### TECHNICAL COMPETENCIES

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|---|---|
| <ul style="list-style-type: none"><li>• Molecular biology</li><li>• Molecular genetics</li><li>• PCR</li><li>• Real time PCR</li><li>• Quantitative PCR</li></ul> | <ul style="list-style-type: none"><li>• Sequencing and Genotyping</li><li>• Cell culture (animal/parasite)</li><li>• Immunological assays (ELISA, multiplex ELISA)</li><li>• Bioinformatics</li></ul> |
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### EDUCATION

#### **Universita' degli Studi della Toscana (Italy)**

Nov 2006 – Feb 2011

Course: PhD Ecology and Management of Natural Resources

#### **Leeds University (United Kingdom)**

Sep 2005 – Sep 2006

Course: MSc. Advanced Genetic Analysis

**Egerton University (Kenya)**

Sep 1999 – Dec 2004

Course: BSc. Biomedical Science and Technology

**RELEVANT WORK EXPERIENCE****University of Nairobi, School of Biological Sciences**

Lecturer

(April 2010 – date)

Roles:

- Teaching undergraduate and postgraduate courses in Molecular biology, Bioinformatics, Parasitology and Immunology
- Resource mobilization for research projects.
- Training and supervision of postgraduate students
- Preparation of lecture material, practical manuals for the taught courses above
- Review of curriculum to internationally acceptable standards.

**Leeds University, UK**

Masters Research Fellow

(Sept 2005 - Sept 2006)

Roles:

Preparation and demonstrations of laboratory sessions for undergraduate students Laboratory techniques taught spun across biochemistry, molecular biology and microbiology.

**International Livestock Research Institute (ILRI, Kenya)**

Database developer

(Aug 2004 – Aug 2005)

Roles:

Successfully participated in the development of a robust SQL web-based relational database for Domestic Animal Genetic Resources (DAGRIS). This is an open access information resource utilized widely by scientists.

**RESEARCH ACTIVITIES**

**Project title:** Bovine Malignant Catarrhal Fever: Using next generation molecular tools to understand prevalence and genetic diversity of an old livestock virus.

Duration: Nov 2011 – Nov 2013

Project funding: National Council for Science and Technology (NCST) and African Women in Agricultural Research and Development (AWARD)

Project synopsis: The research study aims to: i) Investigate the prevalence and distribution of Bovine malignant catarrhal fever (BMCF) disease in cattle in Kenya by using reliable molecular tools thereby availing empirical evidence of the burden of BMCF disease in the country ii) Identify the important reservoirs of BMCF viruses in Kenya, by analyzing the repertoire of BMCF viruses present in both

cattle and potential reservoirs and iii) Decipher genetic diversity and evolutionary relationship of the BMCF viruses in Kenya relative to other global isolates of the virus.

**Project title:** Characterization of macrophage activation by *Trypanosoma congolense* variant surface glycoprotein in mouse models of Animal Trypanosomiasis

Duration: Nov 2006 – Nov 2010

Project funding: International Livestock Research Institute/Italian government

Project synopsis: The objective was to understand the genetic basis of Trypanosomiasis resistance, by characterizing the immune responses at the gene-level, in tolerant and susceptible laboratory models of Bovine Trypanosomiasis. The outputs of these investigations will be useful in breeding for animals with improved immunological capacity against Trypanosomiasis, in addition to integrated management of Trypanosomiasis.

**Project title:** Discovery of novel drug targets against Theileria, Babesia, Trypanosoma and other pathogenic protozoa of veterinary importance

Duration: Sept 2005 to Aug 2006

Project funding: European Union Marie Curie fellowship for early stage researchers

Project synopsis: This project involved mining the genomes of the causative parasites for Trypanosomiasis, Theileriosis, Babesiosis and Coccidiosis for unique metabolic pathways that may potentially feed into the pipeline of novel drug development. The main approaches were metabolic reconstruction of the parasite genomes using bioinformatics tools, database searches and toxicity trials with putative synthetic compounds.

**Project title:** Phylogenetic analysis of African Sheep based on mitochondrial d-loop DNA sequence polymorphisms

Duration: Sept 2003 – April 2004

Project funding: International Livestock Research Institute (ILRI)

Project synopsis: The project involved characterizing the genetic diversity of sheep in Africa in order to inform and harness genetic conservation of indigenous small ruminants in Africa.

#### **PUBLICATIONS AND CONFERENCE PRESENTATIONS**

Wambua, L. Bovine Malignant Catarrhal Fever: **Using next generation molecular tools to understand prevalence and genetic diversity of an old virus** (2011) *African Journal of Health Sciences*, 20(1-2) Supplementary.

Pinney J.W., Papp B., Hyland C., Wambua L., Westhead D.R., McConkey G.A. **Metabolic reconstruction and analysis of parasite genomes** (2007) *Trends in Parasitology*, 23(11), pp. 548-554.

Wambua L., McConkey, G.A., Westhead, D.R. **Discovery of novel drug targets against pathogenic protozoa: The promise of metabolic reconstruction** (2009) *Infection, genetics and Evolution*, 9(3), pp. 375-376.

McConkey, G.A., Pinney, J.W., Gaskell, E.A., Wambua, L., Hyland, C., Shirley, M.W., Westhead, D.R. Predicting parasite metabolic networks: A fisherman's nightmare? 11th International Congress of Parasitology (ICOPA XI), 133-140, 2006

Wambua L, Agaba M, Valentini A, Kemp SJ & members of the Wellcome Trust consortium. **Using mouse models to decipher endotoxic shock during Trypanosoma congolense infection in cattle** (2007) Poster presented at The John Vercoe Conference, Nairobi, Kenya.  
<http://www.genomics.liv.ac.uk/tryps/publications.php>

Wambua, L., Agaba M., Valentini, A., Kemp, S.J. **Endotoxic Shock during acute phase Trypanosomiasis** (2011). An oral presentation at the European Science Foundation Conference on Cutting edge Immunology (1<sup>st</sup> – 6<sup>th</sup> March 2011, The Netherlands).

Wambua, L., Agaba M., Valentini, A., Kemp, S.J. **Macrophage activation by Trypanosoma congolense variant surface glycoprotein** (2011). An oral presentation at the International Society for Computational Biologists conference (9<sup>th</sup> – 11<sup>th</sup> March 2011, South Africa).

#### **PROFESSIONAL DEVELOPMENT**

##### **African Women in Agricultural Research and Development (AWARD) fellowship**

(August 2011 – August 2013)

Summary: Obtained the AWARD fellowship for professional development in Agricultural research. The fellowship will boost scientific research skills and enhance capacity in scientific communication, resource mobilization, strategic partnerships, leadership, team building and mentorship.

#### **PEER REVIEW**

##### **National Council for Science and Technology**

Member, scientific review committee

(2009 – 2010)

Role: Critical review of concept notes and research proposals in the field of agricultural and biological sciences, with the ultimate objective of selecting outstanding proposals in science, technology and innovation for funding.

#### **PROFESSIONAL ASSOCIATIONS**

- Member, Association Society for Microbiology
- Member, Society for General Microbiology
- Member, the International Society for Computational Biologists

#### **LANGUAGES**

English and Kiswahili: Fluently written and spoken. German: Elementary knowledge

