

## CURRICULUM VITAE

**Susan Musembi, Ph.D.**

Kenyatta University  
Department of Biochemistry and Biotechnology  
School of Pure and Applied Sciences  
Tel: Office (254)-20-8703711  
Email: [musembi.susan@ku.ac.ke](mailto:musembi.susan@ku.ac.ke)

---

### **PROFESSIONAL SUMMARY**

As a cellular and molecular immunologist my research interests are in understanding the basis of protective immunity and how this information can be exploited to develop new and improved vaccination strategies. Also of interest is the development of safe and potent immunologic adjuvants and delivery systems that can enhance and direct vaccine-specific immunity. I also have interests in advancing life sciences to address challenges and improve the quality of life in human and animal health and agriculture with emphasis on innovations and entrepreneurship. Through lecturing I am ardent about nurturing and facilitating the development of young people to realize their full potential as individuals and transform into the next generation of scientists and leaders.

### **Education:**

<b>DEGREE</b>	<b>DATE</b>	<b>CONFERRING INSTITUTION</b>	<b>FIELD</b>
Ph.D.	2013	Brunel University, UK	Immunology
M.Sc.	2000	University of Nairobi, Kenya	Parasitology/Immunology
B.Sc.	1996	University of Nairobi, Kenya	Zoology/Chemistry

### **Professional Experience:**

2013-present Lecturer, Department of Biochemistry and Biotechnology, Kenyatta University

2004-2013 Tutorial Fellow, Kenyatta University, Department of Biochemistry and Biotechnology

2001-2004 Graduate Assistant, Kenyatta University, Department of Biochemistry

2000-2004     Research Assistant, Institute of Molecular and Cell Biology-Africa

**Awards and Honors:**

Travel Award to attend Challenges in Malaria Research Conference, 2013, University of Basel, Switzerland.

Best presentation at the 7<sup>th</sup> Annual East African Regional Training Workshop on Research Methods in Protozoan Parasites held on 6<sup>th</sup>-19<sup>th</sup> July, 2008 at Sokoine University of Agriculture, Morogoro, Tanzania.

Travel Award, American Society of Cell Biology for the 7<sup>th</sup> East African Regional Training Workshop on Research Methods in Protozoology, Tanzania, 2008

ILRI PhD Graduate Training and Outreach Program Fellowship, 2004-2008

ILRI MSc Graduate Training and Outreach Program Fellowship, 1998-1999

German Academic Exchange Program (DAAD) Fellowship, 1997-1999

**Professional Organizations:**

Biochemical Society of Kenya

**RESEARCH AND SCHOLARLY ACTIVITIES**

Current research activity is on identification of novel antigens to improve current diagnostics and vaccines against contagious caprine pleuropneumonia, a highly fatal disease that occurs in goats.

Characterization of the CD8 T cell response against *Theileria parva* in cattle (2000-2008)

Identification and characterization of secretory pathway proteins of *Theileria parva*-infected lymphocytes by generation of tick expressed sequence tags (EST) database (2000-2004)

Identification of *Theileria parva* antigens (1998-1999)

**Publications**

**Musembi, S.,** Janoo, R., Sohanpal, B., Ochanda, H., ole-MoiYoi, O., Bishop, R. and Nene, V. (2000) Screening for *Theileria parva* secretory gene products by functional analysis in *Saccharomyces cerevisiae*. *Molecular and Biochemical Parasitology*, 109, 81-87

The Biotechnology Promise: Capacity-building for Participation of Developing Countries in the Bioeconomy. 2004. (UNCTAD/ITE/IPC/2004/2). (Reviewer)

### **Manuscripts in preparation**

**Musembi S., et al.,** Bovine class I MHC tetramers- New tools for understanding CD8 T cell responses in cattle.

**Musembi S., et al.,** Characterization of bovine perforin – markers of cytotoxic CD8 T cells.

### **Thesis**

**Musembi S. (2012).** Immunological assays relevant to definition of bovine *Theileria parva*-specific cytotoxic CD8<sup>+</sup> T cell responses. PhD thesis. Brunel University (Supervisors: Dr. Vish Nene and Dr. Su-Ling Li)

**Musembi S. (2000).** The ability of *Theileria parva* secretion signal sequences to restore secretion of the invertase enzyme by *Saccharomyces cerevisiae*. MSc thesis. University of Nairobi (Supervisors: Dr. Vish Nene and Dr. H. Ochanda)

### **Oral Presentations at International/National Meetings**

‘Evaluation of CD8<sup>+</sup> CTL responses in cattle immunized with *T. parva* specific antigens.’ Presented at the 7<sup>th</sup> Annual East African Regional Training Workshop on Research Methods in Protozoan Parasites held on 6<sup>th</sup>-19<sup>th</sup> July, 2008 at Sokoine University of Agriculture, Morogoro, Tanzania

‘SST? A short-cut to cloning important genes.’ Paper presented at the DAAD/University of Nairobi Scholars Annual Scientific Seminar **Musembi, S.,** Ochanda, H., Nene, V. (2000).

### **Other presentations as invited guest speaker**

Title: Vision 2030 and Women in Science – Goals, Challenges and Way Forward. Presented at The Lions of Science Women's workshop held on 20<sup>th</sup> February, 2015. The theme of the workshop was "The role of women in science, technology and innovation: Goals, challenges and the way forward towards achieving vision 2030".

Title: African Driven Solutions for African Challenges. Presented at Technical University of Kenya on 26<sup>th</sup> February, 2015. The theme of the meeting was 'Innovation and Creativity in Engineering'

### **Posters at International/Regional and National meetings**

'Researching improved vaccines against *T. parva* infection in cattle: working towards development of correlates-of-immunity'. Presented at the 4th All Africa Conference on Animal Agriculture and the 31<sup>st</sup> Annual Meeting of the Tanzania Society for Animal Production. **Musembi, S.**, Honda, Y., Pelle, R., Chuma F., and Taracha E.L.N. **(2005)**.

### **TEACHING ACTIVITIES**

#### **Courses taught**

##### **Undergraduate Courses**

Basic Immunology, Fundamentals of Microbiology, Advanced Cell Biology Laboratory Techniques, Microbial and Animal Biotechnology

##### **Post-Graduate Courses**

Immunochemistry and Immunotechnology

#### **Student Evaluations**

<b>YEAR</b>	<b>UNIT CODE AND TITLE</b>	<b>% SCORE</b>	<b>GRADE</b>
2014	SBC222: Introduction to Immunology	91%	A
2014	SBC303: Introduction to Immunology	92%	A

#### **Student supervision**

1. Tobias Kinara (2014-present) MSc Student, Kenyatta University  
Project Title: Evaluation of renal functionality and urinary tract infection pathogens in asymptomatic teenagers in Wajir Town

#### **Graduate Student Examination Committees**

<b>STUDENT</b>	<b>DEGREE</b>	<b>SCHOOL</b>	<b>DATES</b>
1. Daisy Karimi	MSc	SPAS	2015
2. Richard Gitimu	MSc	SPAS	2014
3. Bernard Musera	MSc	SPAS	2014

## **CAREER ENHANCEMENT TRAINING WORKSHOPS**

Center of Education Innovations Evaluation Training Workshop: Evaluating your education program from start-up to scale, 2015. Conducted by Shape AfriKa

Organization Development Workshop, 2013. Conducted by Center of Education Innovations

Innovative Teaching Methodologies and Clinical Mentorship Workshop, 2013. Conducted by Kenyatta University in collaboration with Partnership for Advanced Clinical Education (PACE)

Teaching Methodology and Setting of Examinations, 2013. Conducted by Centre for Teaching Excellence and Evaluation – Kenyatta University

Research Methods in Protozoan Pathogens, 2008. Conducted by Seattle Biomedical Research Institute, Malaria Research Training Program.

Fundamentals of Radiation, Chemical and Biological Safety, 2006. Conducted by International Livestock Research Institute in collaboration with Dupont

BSK-BiONET Africa Bioinformatics Training Workshop, 2002. Conducted by Biochemical Society of Kenya in collaboration with International Livestock Research Institute

Basic Biometric Techniques in Experimental Design and Analysis, 2001. International Livestock Research Institute

## **Appointments and Community Service Activities**

### **Kenyatta University**

Chairperson: Kenyatta University Institutional Biosafety Committee. 2014-present

Professional Mentor: Chandaria Business Innovation and Incubation Center. 2014 - present

Coordinator: Forensic Science Program, School of Pure and Applied Sciences, Kenyatta University. 2014 - present

Member: School of Pure and Applied Sciences Committee. 2015

Member: Biochemistry and Biotechnology, Departmental ISO Committee. 2015

Member: Biochemistry and Biotechnology Departmental Anti-corruption Committee. 2013-present

Member: Biochemistry and Biotechnology Departmental Post-Graduate Committee. 2013-present

### **Editorial Boards**

Biochemical Society of Kenya Newsletter, Editorial Board, Assistant Editor. 2001-2004

### **Others**

STEM Africa (Science, Technology, Engineering and Math), Board Member and Programs Director. 2012-present

Nation Media Group, Business Daily, The Next Big Thing – Judge. 2015

Biochemical Society of Kenya, Executive Committee Member. 2001 – 2004