



# KENYA MEDICAL RESEARCH INSTITUTE

DOCUMENT TITLE: **FACULTY MEMBER'S PROFILE**

REF NO: **KEMRI/KGSH/DOC/FMP/02**

ISSUE NO: **1**

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## DR. MARTIN BUNDI

### PERSONAL PROFILE



**ADDRESS:**

**P. O. Box 9111-00200 Nairobi, Kenya**

**CURRENT POSITION:**

**Assistant Principal Research Scientist & Ag. Director, Research Capacity Building**

**EMAIL ADDRESS:**

**mbundi@kemri.go.ke / bundimartin@gmail.com**

### BIO

My background is in Medical Science, with a specialization in Microbiology at the PhD level. I hold a Bachelor's degree in Biochemistry and an MSc in Biotechnology. I work at the Kenya Medical Research Institute (KEMRI) as an Assistant Principal Research Scientist and the Acting Director of the Directorate of Research Capacity Building. Additionally, I am a visiting scientist at the Institute of Tropical Medicine, Nagasaki University and a Postdoctoral Fellow, International Centre for Diarrhoeal Disease Research, Bangladesh.

In my management roles, I offer oversight and coordination of the capacity-building directorate and provide strategic leadership in the development and delivery of capacity-building initiatives at KEMRI Graduate School.

My research interests have focused mainly on characterizing food-borne pathogens and enteric bacteria associated with diarrheal disease in Kenya, identifying comprehensive approaches for the early detection of potential TB patients in the community, infection prevention and control, healthcare-associated infections, and capacity building in biosafety and biosecurity. Over the last 16 years, I have conducted research on acute enteric disease pathogens of public health importance, utilizing molecular and phenotypic methods to understand their ecology, pathogenic mechanisms, and antimicrobial resistance. Some of the pathogens I have studied include *Vibrio cholerae*, *E. coli*, and rotavirus.

I am a certified Biosafety Professional and a Global Biosafety mentor in Biorisk Management and Biosecurity by the International Federation of Biosafety Associations (IFBA). Since 2010, I have supported KEMRI in training new BSL-3 laboratory users, conducting biosecurity and biosafety trainings, and collaborating with the Africa Centres for Disease Control (Africa CDC) in developing a training curriculum on Laboratory Leadership. I have also worked with Health Security Partners (HSP) to enhance cyberbiosecurity capacities across the Africa region. Currently, I serve as the President of the African Biological Safety Association (AfBSA), having previously served as a Council member representing the Eastern Africa region.

### EDUCATION QUALIFICATION

Institution and Location	Degree	Start Date	Completion Date	Field of Study
Kenyatta University, Nairobi, Kenya	BSc.	09/2004	12/2007	Biochemistry
Kenyatta University, Nairobi, Kenya	MSc.	09/2009	06/2013	Biotechnology
Nagasaki University, Nagasaki, Japan	Ph.D.	04/2015	12/2019	Medical Science

### FIELD OR AREA OF SPECIALIZATION

1. Enteric Diseases and Food-Borne Diseases
2. Antimicrobial Resistance
3. Infection Prevention and Control
4. Biorisk Management (Biosafety and Biosecurity)

### SELECTED PUBLICATIONS

1. Betty Muriithi, **Martin Bundi**, Taeko Moriyasu, Aabid Ahmed, Mussa Mwamzuka, Mohamed Karama, Satoshi Kaneko. Evaluation of TB-LAMP Diagnosis for Mycobacterium tuberculosis Infection: Clinical Study, focusing on the context of HIV Infection. Clinical Infectious Diseases. **InPress**
2. Mohammad Shah, **Martin Bundi**, Cyrus Kathiiko , Sora Guyo , Amina Galata , Gabriel Miringu , Yoshio Ichinose, Dr. Lay-Myint Yoshida (2023). Antibiotic Resistant Vibrio cholerae O1 and its SXT elements associated with cholera outbreaks in Kenya between 2007 and 2016. Microbiology Spectrum. <https://doi.org/10.1128/spectrum.04140-22>



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3. **Martin Bundi**, Mohammad Shah, Erick Odoyo, Cyrus Kathiiko, Ernest Wandera, Gabriel Miring'u, Sora Guyo, Daniel Langat, Kouichi Morita, and Yoshio Ichinose (2019). Characterization of *Vibrio cholerae* O1 isolates responsible for cholera outbreaks in Kenya between 1975 and 2017. *Microbiology and Immunology*. 2019;63:350-358. <https://doi.org/10.1111/1348-0421.12731>
4. Wandera, E. A., Komoto, S., Mohammad, S., Ide, T., **Bundi, M.**, Nyangao, J., ... & Fukuda, S. (2019). Genomic characterization of uncommon human G3P [6] rotavirus strains that have emerged in Kenya after rotavirus vaccine introduction, and pre-vaccine human G8P [4] rotavirus strains. *Infection, Genetics and Evolution*, 68, 231-248 <https://doi.org/10.1016/j.meegid.2018.12.004>
5. Betty Muriithi, **Martin Bundi**, Amina Galata, Gabriel Miring'u, Ernest Wandera, Cyrus Kathiiko, Erick Odoyo, Martha Kamemba, Evans Amukoye, Sora Huka, Mohammad Shah, Shingo Inoue and Yoshio Ichinose (2018). Biosafety and Biosecurity capacity building: Insights from implementation of the NUITM-KEMRI Biosafety training model. *Tropical Medicine and Health*, 46:30. <https://doi.org/10.1186/s41182-018-0108-7>
6. Wandera, E. A., Mohammad, S., **Bundi, M.**, Nyangao, J., Galata, A., Kathiiko, C., ... & Ichinose, Y. (2018). Impact of rotavirus vaccination on rotavirus hospitalisation rates among a resource-limited rural population in Mbita, Western Kenya. *Tropical Medicine & International Health* <https://doi.org/10.1111/tmi.13040>
7. Wandera, E. A., Mohammad, S., **Bundi, M.**, Komoto, S., Nyangao, J., Kathiiko, C., ... & Ichinose, Y. (2017). Impact of rotavirus vaccination on rotavirus and all-cause gastroenteritis in peri-urban Kenyan children. *Vaccine*. 35(38):5217-5223 <https://doi.org/10.1016/j.vaccine.2017.07.096>
8. Shah, M., Odoyo, E., Wandera, E., Kathiiko, C., **Bundi, M.**, Miringu, G., ... & Tsuji, T. (2017). Burden of Rotavirus and Enteric Bacterial Pathogens among Children under 5 Years of Age Hospitalized with Diarrhea in Suburban and Rural Areas in Kenya. *Japanese journal of infectious diseases*, 70(4), 442-447 <https://doi.org/10.7883/yoken.JJID.2016.398>
9. Gabriel Miring'u, **Martin Bundi**, Betty Muriithi, Ernest Wandera, Amina Galata, Cyrus Kathiiko, Erick Odoyo, Sora Huka & Yoshio Ichinose (2017). Knowledge and practices regarding usage of

Biological Safety Cabinets. Applied Biosafety. DOI: 10.1177/1535676016685790  
<https://doi.org/10.1177/1535676016685790>

10. Ochi, S., Shah, M., Odoyo, E., **Bundi, M.**, Miringu, G., Guyo, S., Wandera, E., Kathiiko, C., Kariuki, S., Karama, M. and Tsuji, T. (2016). An Outbreak of Diarrhea in Mandera, Kenya, Due to Escherichia coli Serogroup O-Nontypable Strain That Had a Coding Gene for Enteroaggregative E. coli Heat-Stable Enterotoxin 1. The American Journal of Tropical Medicine and Hygiene, 96(2):457-464. <https://doi.org/10.4269/ajtmh.16-0310>
11. Shah, M., Kathiiko, C., Wada, A., Odoyo, E., **Bundi, M.**, Miringu, G., Guyo, S., Karama, M. and Ichinose, Y., (2016). Prevalence, seasonal variation, and antibiotic resistance pattern of enteric bacterial pathogens among hospitalized diarrheic children in suburban regions of central Kenya. Tropical Medicine and Health, 44(1), 39. <https://doi.org/10.1186/s41182-016-0038-1>
12. Shingo Inoue, **Martin Bundi**, Gabriel Miring'u, Betty Muriithi, Salame Ashur, Ernest Wandera, Cyrus Kathiiko, Erick Odoyo, Allan ole Kwallah, Amina Galata, Sora Huka, Mohammad Shah, Mohamed Karama, Samuel Kariuki and Yoshio Ichinose (2015). Evaluation of a BSL-3 laboratory biosafety training program in Kenya. Journal of Biotechnology and Biosafety. 3(4): 288-296. [http://jobb.co.in/docs/vol3\\_issue4/paper4.pdf](http://jobb.co.in/docs/vol3_issue4/paper4.pdf)
13. **Bundi, M.**, Miring'u, G., Inoue, S., Muriithi, B., Ashur, S., Wandera, E., Kathiiko, C., Odoyo, E., Narita, C., Kwalla, A. Galata, A., and Yoshio, I. (2014). BSL-3 Laboratory User Training Program at NUITM-KEMRI. Tropical medicine and health, 42(4), 171. <https://doi.org/10.2149/tmh.2014-08>
14. Ichinose Y, Inoue S, Shimada M, Miring'u G, Muriithi B, Makumi A, Wandera E, **Bundi M**, Narita C, Ashur S, Kwalla A. (2013). Operations at Biosafety Level III: The P3 Laboratory. Epidemiology II - Theory, Research and Practice. iConcept Press. <https://pdfs.semanticscholar.org/6ea5/5893a6fbd688b8bbe8814a6113d3d57415aa.pdf>
15. Inoue, S., Wandera, E., Miringu, G., **Bundi, M.**, Narita, C., Ashur, S., Kwallah, A., Galata, A., Abubakar, Suka, S., Mohamed, S., and Yoshio, I. (2013). The Nuitm-Kemri P3 laboratory in Kenya: Establishment, features, operation and maintenance. Tropical Medicine and Health, 41(1), 27-37. <https://doi.org/10.2149/tmh.2013-01>
16. **Mwebia, M. Bundi.** (2013). Characterization of Toxigenic Vibrio cholerae Isolates from Kenya, 2007-2010. MSc Dissertation. Kenyatta University.
17. <http://ir-library.ku.ac.ke/handle/123456789/6975>
18. Taniguchi, K., Apondi, E. W., Ogino, M., Nyangao, J., Suka, S., **Bundi, M.**, Komoto, S., Wakuda, M., Maeno, Y., Shimizu, T., Tsuji, T., and Yoshio, I. (2012). Study on the distribution of G Type



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and P type of human rotavirus associated with acute gastroenteritis in Kenya. *Journal of Gastroenterology and Hepatology*, 27, 68-68.

<https://www.researchgate.net/publication/296925303>

19. Ichinose, Y., **Bundi, M.**, Makumi, A., Miringu, G., Karama, M., Suka, S., Abubakar, M., Ager, V., Kariuki, S., Ochi, S. and Tsuji, T. (2011). Etiological investigation of diarrheal diseases in the suburbs of Nairobi, Kenya. *Tropical Medicine & International Health*, 16, 258-258. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1365-3156.2011.02861.x>

### RESEARCH PROJECTS AND INTERESTS

1. Surveillance and Molecular Characterization of Middle East Respiratory Syndrome (MERS- CoV) Strains Circulating in Pastoral Communities in Mandera County, Kenya.
1. Bacterial spectrum, Antimicrobial Resistance Profiles, and associated risk factors among Cancer Patients in Kenya.
2. Establishment of a *Caenorhabditis elegans* based animal model for investigating pathogenic effects of Shiga toxin-producing *Escherichia coli* (STEC).
3. Assessment of Infection Prevention and Control programmes and activities in healthcare facilities in Kenya.
4. Identification of Comprehensive Approach to Improve Early Detection of Potential TB
5. Patients in the Community in Mombasa County, Kenya.
6. Study of diarrheagic agents as intestinal and Invasive infections in Nairobi and western Kenya.

### RELEVANT LINKS

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