

SHEHU SHAGARI AWANDU CV

Jaramogi Oginga Odinga University of Science and Technology
Department of Biomedical Sciences
P.O Box 210- 40601 Bondo, Kenya
Telephone: +254 741 911 577

E-Mail: sawandu@jooust.ac.ke / Shehuawandu@gmail.com

A research scientist who has designed, coordinated and conducted studies across diverse transmission settings in Africa to better understand the malaria transmission biology focusing on parasites, vectors and humans. To this end, I have been involved in studies that have unravelled the contribution of asymptomatic infections to the infectious reservoir. I am a grounded academician with excellent mentorship skills and track record of successful supervision of international and national postgraduate students. I am an early career researcher with strong progressive laboratory skills, research experience, technical expertise, analytical insights and grant writing skills. I am passionate about communicating research findings to a non-specialist audience, have edited magazines and regularly act as conferences correspondent and provide radio talk interviews. I have acquired an impressive track record of publications on malaria control and elimination, epidemiology, immunology and genetics in world leading and peer-reviewed journals and/or scientific reports.

EDUCATION

PhD Biochemistry, University of Pretoria, South Africa **2014-2019**

- PhD thesis (2018): ‘Understanding the contribution of malaria parasites to continued residual malaria in pre-elimination settings of South Africa; implications for elimination strategies’

Masters of Science, Immunology, Kenyatta University, Kenya **2009-2012**

- MSc thesis: ‘Evaluation of malaria transmission intensity using antibody responses to *Plasmodium falciparum* merozoite surface protein-1₁₉ after vector control in western Kenya’

Bachelor of Science (Botany and Zoology), Moi University, Kenya **2000-2004**

MAJOR ACHIEVEMENTS

AS CHAIR/HEAD OF DEPARTMENT BIOMEDICAL SCIENCES

October 2020-to date

- Academic and administrative head of Biomedical Sciences Department
- Development of BSc Biotechnology programme
- Development of BSc Biomedical Sciences programme
- Development of BSc Epidemiology and Biostatistics programme
- Development of Masters in Bioinformatics programme
- Development of PhD in Epidemiology and Biostatistics programme
- Examination management at the departmental level
- Coordination of students fieldwork activities
- Reorganized and re-engineered the academic programmes in the department
- Created linkages and partnerships with Indiana University (US), Radboud University (Netherlands), London School of Hygiene and Tropical Medicine (UK), Gulu University (Uganda), Maseno University, Technical University of Mombasa, and Masinde Muliro University of Science and Technology in Kenya.
- Established an MOU with Kenya Medical Research Institute -Center for Global Health Research for enhanced collaborative activities
- Led the implementation of an EDCTP funded 3 year research training grant together with APHRC and AMREF Kenya, that is training 15 epidemiologists from Eastern Africa.

EXTERNAL EXAMINATIONS

- November 2020: Appointed as External Examiner for Microbiology in the School of Medicine for the Bachelors of Medicine and Bachelors of Surgery for 3 academic years beginning 2019/2020 for Uzima University in Kenya.

TEACHING EXPERIENCE

Jaramogi Oginga Odinga University of Science and Technology **November 2019- to-date**
Lecturer- Departments of Biomedical Sciences and Biological Sciences

Responsibilities

- Teaching both undergraduate and post graduate students
- Supervising both undergraduate and post graduate student's research work.
- Curriculum Development and Review of courses
- Internal Examiner (Masters and PhD thesis)

Development and Review of curricula

- **January 2020:** Lead person in the development of the of Master of Science in Immunology and Master of Science in Bioinformatics curriculum of Jaramogi Oginga Odinga University of Science and Technology for submission to the regulatory, Commission of University Education (CUE) for approval.

Postgraduate teaching courses

- Biochemical and Molecular Genetics; Epidemiological Methods and Principles of Epidemiology;

Undergraduate teaching courses

- Introductory Biochemistry and Genetics; Molecular Biology; Cell Biology; Bioinformatics and Computational Biology; Parasitology; Arthropod Biology and Research Methods

Radboud University Medical Centre, The Netherlands **September 2017 to August 2019**
Tutorial Fellow, Department of Medical Microbiology

- Taught students on the molecular and biological approaches to fundamental research in infectious diseases research mainly on malaria in low-income countries.
- Delivered lectures on malaria, entomology and general laboratory techniques.
- Practicals demonstrator to the Medical Students on Global Health and Infectious Diseases Minor elective.

University of Pretoria **August 2014 to June 2017**
Tutorial Fellow, Department of Biochemistry

- Provided tutorials for postgraduate and undergraduate Biochemistry students course averaging 120 students per semester covering the following core modules;
 - Introduction to proteins and enzymes 251 (BCM 251)
 - Macromolecules of life: Structure-function and Bioinformatics 356 (BCM 356)
 - Biocatalysis and integration of metabolism 357 (BCM 357)
 - Cell structure and function 367 (BCM 367)
- Coordinated grading, laboratory demonstrations and in-class assistance with a team of 2 teaching assistants for 3 hours per week up to 45 hours per week for assistance and up to 150 hours per semester for grading.

POSTDOCTORAL RESEARCH EXPERIENCE AND CONSULTANCIES

Kenya Medical Research Institute – Center for Global Health Research October 2019-to-date
Visiting Scientist

KEMRI/Indiana University (USA) collaborative projects

- Local project lead for the highlands entomology project in Nandi North district involving surveillance for the African malaria vectors and human behaviour surveys
- Aligning the ongoing project to the National Malaria Control Programme elimination agenda of subnational malaria elimination.

Radboud University Medical Centre, The Netherlands September 2017 to August 2019
Post-doctoral Fellow, Department of Medical Microbiology

Teun Bousema and Chris Drakeley (LSHTM) Research Groups

- Unravalled the role of enhanced community case management in reducing malaria transmission by eliminating the infectious reservoir in Burkina Faso.
- Assessed the *Plasmodium falciparum* genetic diversity and differences between acute and chronic parasite infections
- Demonstrated absence of gametocyte sequestration using direct skin feeding compared to membrane feeding using *Anopheles coluzzii* mosquitoes.
- Pioneered a novel methodology to enhance gametocyte enrichment through reuse of magnetic columns without contamination and reduced costs.
- Revealed that subclinical *P. falciparum* malaria infection is associated with sustained haemolysis and the induction of the haem oxygenase-1 enzyme in Burkinabe children.
- Designed, planned and executed both the laboratory & field entomological assessments in Burkina Faso & Netherlands in support of several large scale epidemiological trials.
- Performed periodic monitoring and evaluation of malaria vector field surveillance.
- Supervised and taught BSc and MSc students in Biomedical Sciences.
- Undertook molecular analysis of human and mosquito samples for human haemoglobinopathies, infection status, parasite stage composition and profiling of mosquito blood meals.
- Presented findings at international conferences, institute-wide meetings and with collaborators to discuss research efforts.

PROVEN AREAS OF EXPERTISE

- Proposal writing and Fundraising	- Development & optimizations of PCR, qPCR and RT-PCR
- Strategic leadership and management	- ELISA, Luminex and protein microarrays
- Laboratory management QA/QC and oversight	- MSP2 Capillary electrophoresis genotyping & RFLPs
- Research Ethics	- Sequencing and Bioinformatics
- Science, Technology and Innovation (STI)	- Manual and automated nucleic acid extractions
- Flow cytometry	- Drug resistance genotyping
- General Laboratory trouble shooting skills	- SOP development and review
- Cell and Parasite cultures	- STATA, SPSS, GraphPad Prism data analyses
- Good clinical Practice/Good Laboratory Practice (GCP/GLP)	- Mosquito trapping, vector identification and incrimination assays

LEADERSHIP ROLES AND RESPONSIBILITIES

- Member JOOUST Institutional Ethics Review Committee
- Editor- Microbial Times Newsletter of the Department of Medical Microbiology at the Radboud University Medical Centre, Nijmegen, The Netherlands.
- Malaria Eradication Scientific Alliance (MESA) MIM 2018 conference correspondent.
- Co-Chaired the Malaria Control and Elimination session at MIM Pan African Conference 2018.
- Radio Interviewed for the University of Pretoria Institute of Sustainable Malaria Control on World Malaria Day, Community engagement activities and outreach programmes.

AWARDS AND HONOURS

2021: Inducted into the membership of the Kenya National Academy of Sciences
 2019: Global Health Travel Award- Keystone Symposium supported by Bill and Melinda Gates Foundation: The Malaria Endgame: Innovation in Therapeutics, Vector Control and Public Health Tools in Addis Ababa, Ethiopia
 2018: Multilateral Initiative on Malaria (MIM) Travel Grant, Dakar, Senegal
 2017: Global Health Travel Award - Keystone Symposium in collaboration with malaria eradication Scientific Alliance (MESA): Malaria from Innovation to Eradication, Kampala Uganda.
 2016: American Society of Tropical Medicine and Hygiene (ASTMH) Annual Meeting Travel Award. Atlanta Georgia, USA
 2015: Science of Eradication: Malaria Course, Sao Paulo, Brazil, Travel fellowship award. Organizers: Swiss TPH, ISGlobal, Harvard University & the University of Sao Paulo.
 2015: Best Presenter, Limpopo Department of Health Research Day, South Africa
 2013: Multilateral Initiatives on Malaria Travel Grant, Durban, South Africa.
 2012: Immunology in the Tropics training (Makerere/UVRI) Kampala, Uganda.

GRANTS

Role	Title	Collaborators	Amount/ Funder	Status
Principal Investigator	IgG antibody responses to gSG6 as a biomarker of pediatric exposure to malaria mosquitoes in low and unstable transmission settings of western Kenya	1. JOOUST 2. Indiana University (US) 3. Kenya Medical Research Institute	– USD 10,000 – NPHG Fogarty Global Health Programme	Submitted
Co-Principal Investigator	Towards COVID-19 containment: Serological, Faecal and wastewater Epidemiological Surveillance of SARS-CoV-2 in Support of Home-Based Isolation and Care in Kenya	4. JOOUST 5. KEMRI 6. KIRDI 7. MMUST	– USD \$100,000. – Medical Research Council of South Africa	Awarded
Principal Investigator	Malaria infection and transmission dynamics in western Kenya highlands; the role of novel Anopheline species in ongoing transmission and characterization of natural <i>Wolbachia</i> strains.	1. JOOUST 2. London School of Hygiene and Tropical Medicine 3. Kenya Medical Research Institute- Center for Global Health Research	– Pounds £7,800 – Medical Research Council (MRC) UK	Awarded
Co-applicant	Capacity Building in Biostatistics and Epidemiology in Eastern Africa (CDEA)	1. JOOUST 2. Lund University Sweden. 3. AMREF, Kenya 4. APHRC, Kenya	– Euros €750,000 – European & Developing Countries Clinical Trials Partnerships (EDCTP)	Awarded

PROFESSIONAL AFFILIATIONS

- Member, American Society of Tropical Medicine and Hygiene (ASTMH).
- Member, South Africa Society of Biochemistry and Molecular Biology (SASSBMB).
- Member, Kenya Society of Immunology (KSI).
- Member, Pan African Malaria Control Association (PAMCA).

SHORT COURSES/TRAININGS

- 2021: National Research Fund Training on Research Capacity (Kisumu Hotel), 11th -13th May 2021.
- 2021: 6th African Research Excellence Fund Essential Grant Writing Skills Workshop (15th Jan 2021)
- 2020: Research Methods Certificate Course -Kenya Medical Research Institute, 11th -15th May 2020, Nairobi Kenya
- 2019: Medical Entomology Massive Online Open Course - Institute Pasteur
- 2019: Media Skills for Scientists online course by Script SciDev.Net training
- 2019: The Art of Presenting Science- Radboud University Medical Centre, Nijmegen, The Netherlands
- 2015: Science of Malaria Eradication Regional Course. Sao Paulo, Brazil. MESA, ISGlobal, Swiss Tropical Institute of Health, Harvard University and the University of Sao Paulo.
- 2013: Immunology in the Tropics, Makerere University/Uganda Virus Research Institute Infection and Immunity Research Training Programme, Entebbe, Uganda.
- 2010 August: Translational Research in Malaria Immunity, by KEMRI/CDC program and University of Minnesota (KEMRI/CDC/UMN), Kisumu Kenya.
- 2010 March: Good Clinical Laboratory Practices (GCLP), Quality System Standard for by GlaxoSmithKline (GSK) for (MAL-058) vaccine trial KEMRI/CDC Kisumu, Kenya.

RELEVANT WORK EXPERIENCE

2013-2014: Research Assistant - International Centre for Insect Physiology and Ecology (ICIPE), Mbita, Kenya.

- Carried out laboratory techniques including nucleic acid extraction from whole blood, blood spots and mosquitoes.
- Optimised extraction and amplification procedures for high throughput epidemiological studies and developed standard operating procedures (SOPs).
- Developed appropriate quality control and troubleshooting approaches.
- Performed mosquito membrane feeding assays, mosquito colony maintenance, and dissections for oocysts detection
- Assisted in the curation and archiving of blood/mosquito samples and DNA
- Provided training in these procedures to collaborators staff, students and visitors as appropriate including practical classes
- Ordered and maintained supplies essential for the project and related research work.
- Organized meetings to discuss procedures and results

2012-2013: Assistant Research Officer- Kenya Medical Research Institute, Centers for Disease Control and Prevention (KEMRI/CDC/LSHTM), Kisumu, Kenya.

- In charge of the lab in terms of running evaluative assays, quality assurance and management of supplies and logistics.
- Carried out ELISA's on plasma samples and filter paper bloodspots for antibodies against AMA-1, MSP-1₁₉, gSG7 and glurp antigens.
- Performed PCRs assays on field samples to check on the presence of *Plasmodium* parasites
- Performed PCR for genotyping of various malaria molecular resistance markers for single nucleotide polymorphisms (SNP) analysis.
- Participated in the development, reviews, training and implementation of malaria laboratory immunology and molecular biology SOPs.
- Ensured adequate quality assurance procedures were maintained with respect to the processing of blood samples, reagent preparations and equipment use.
- Supervised laboratory lab technologist/technicians and ensured proper operational procedures and laboratory safety precautions were maintained
- Participated in regular training such as good clinical and laboratory practice (GCLP),

laboratory safety, quality control, and other relevant rainings to maintain acceptable standards in laboratory operations.

OTHER WORK EXPERIENCE

- **Polling/Counting Clerk.** Electoral Commission of Kenya (ECK). Compiled and verified voter lists, distributed ballot papers, counted valid votes and tallied results - **December 2007**
- **Field Research Assistant,** Kenya Medical Research Institute-University of California San Francisco (KEMRI_UCSF) Program, Kisumu, Kenya July to Decmebr 2006.
- **Research Assisitant (Community Interviewer).** Ministry of Planning and National Development, Kenya National Bureau os Statistics April 2005 to May 2006
- **Volunteer Laboratory Research Assistant.** KEMRI/CGHR Laboratories
 - Acquired skills in blood morphology and haemocytometry, malaria diagnosis and immunology, general diagnostic and special techniques in intestinal and tissue helminthes and protozoa.
 - Mosquito collection, preservation and dissection.
 - Morphology of different vectors of schistosomiasis, DNA extraction and Polymerase chain reaction.
 - Collection, processing and Examination of of research specimens.
 - Stool and urine sample processing to determine parasite infecticions including helminthes, nematodes and enteric bacteria.August 2004 - March 2005.
- **Enumerator,** Kenya Nationa lPopulation Census. Administered questionnaires to households and participated in data collection. August 1999.

INTERNATIONAL CONFERENCE PROCEEDINGS

- American Society of Tropical Medicine and Hygiene. Virtual Meeting 15-19 November 2020. Virtual Meeting. **Oral Presentation.** Anemia and inflammation in children below 5 years living in areas of high and low malaria transmission in western Kenya
- Keystone Symposium The Malaria Endgame: Innovation in Therapeutics, Vector Control and Public Health Tools in Addis Ababa, Ethiopia November 2019. Poster presentation on Detectability of *Plasmodium falciparum* clones in Acute and chronic infections in Burkina Faso
- LSHTM Malaria Center meeting April 2019 Oxford, United Kingdom. Oral presentation.
- Radboud Center for Infectious Diseases meeting. December 2018, Nijmegen, the Netherlands. **Oral** presentation and shortlisted for best presentation.
- MIM Multilateral Initiatives on Malaria April 2018 Dakar, Senegal: **Oral** presentation
- Malaria: From Innovation to Eradication (B5) February 2017, Speke Resort & Conference Centre, Kampala, Uganda. Poster presenter
- American Society of Tropical Medicine and Hygiene (ASTMH 65th Annual Meeting November 13-17, 2016, Atlanta Marriott Marquis, Atlanta, Georgia, United States. Poster
- São Paulo Schools of Advanced Science – Science of Malaria Eradication: October 2015. School of Public Health, University of São Paulo, São Paulo, Brazil. Poster presenter.
- 2nd South African Malaria Research Conference. Towards Malaria elimination: Research, Innovation and Education. August 2016. Pretoria, South Africa. **Oral** presentation.
- 1st South African Malaria Research Conference. Investing in elimination. August 2015. Durban, South Africa. **Oral** presentation.

POSTGRADUATE STUDENT SUPERVISION AND MENTORSHIP

ONGOING

- 1) **Eric Omoi Mayaka.** *“Effective service delivery for cervical cancer patients in resource limited settings: Bridging the gaps on screening and treatment”*. PhD degree in Public Health of the Jaramogi Oginga Odinga University of Science and Technology
- 2) **Wilfred Obwaya Obwocha.** *“Strengthening utilization of quality health information for implementation of strategic health plans to reduce maternal morbidity and mortality”*. PhD degree in Public Health of Jaramogi Oginga Odinga University of Science and Technology
- 3) **Paul Mathews Otieno** *‘Strengthening community based interventions for hypertension and related morbidities in resource limited settings’*. PhD Degree in Public Health of the Jaramogi Oginga Odinga University of Science and Technology
- 4) **Mercy Nanjala Lutukai:** *“The Knowledge on the prevention of cervical cancer among community health volunteers in rural setting in Siaya County, Kenya”*. Masters Degree in Epidemiology and Disease Control of Jaramogi Oginga Odinga University of Science and Technology.
- 5) **Linnet Bonareri Nyasende.** *“Determinants of unmet need in family planning uptake in Jepkoyai ward in Hamisi sub county, Vihiga County, Kenya”*. Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 6) **Macxine Oguta.** *“Knowledge and practice of breast self-examination among women of reproductive age attending maternal clinic at JOOTRH Kisumu County, Kenya.”* Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 7) **Elizabeth Mmbone:** *“Factors affecting adherence to post exposure prophylaxis in Defilement and Rape cases in Vihiga County, Kenya ”* Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 8) **Collince Odhiambo –** *“Uptake of the Scan form technology in Homa Bay County-Kenya”* Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 9) **Daniel Otieno Ong’onge** *“Vector Control Personnels Knowledge, Perceptions and Practices towards insecticides used for indoor residual spraying in Homa bay County, Kenya”* Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 10) **Evelyn Delylah Kwamboka** *“Knowledge, attitude and practice of covid 19 preventive measures among pregnant women attending antenatal clinics in Kisumu and Siaya counties, Kenya”*. Masters of Public Health Degree of Jaramogi Oginga Odinga University of Science and Technology
- 11) **Dollycate Njagi Wanja.** *“Evaluating the predictive value of Schistosoma mansoni prevalence in School-age children in estimating community-wide prevalence in Siaya county, western Kenya’* Master of Science Degree in Epidemiology and Biostatistics of Jaramogi Oginga Odinga University of Science and Technology.

COMPLETED

- 12) **Anita Siebler, 2018** Masters thesis, Lund University, Sweden: *‘Xenosurveillance of the malaria parasite Plasmodium falciparum through mosquito blood meal monitoring’*. -
- 13) **Kim Hafmans, 2017.** Biomedical Science BGK, Bachelor Thesis, University of Maastricht, Netherlands. *“Multiplicity of Plasmodium infections in patients seeking tests in Tzaneen Malaria Research Institute and Vhembe District in Limpopo Province, South Africa”*.
- 14) **Takalani Makhantisa, 2016.** University of Pretoria, South Africa. Biochemistry Honours student. *“Evaluation of the prevalence of CYP 2D6 mutations in the population of Vhembe District, Limpopo Province”*.
- 15) **Pernilla Olsson, 2015.** Programme of Medicine. University of Gothenburg, Sweden *“Evaluation of rapid diagnostic test compared to molecular methods and determination of resistance markers”*. Master thesis in Medicine.
- 16) **Naomi C. A. Juliana, 2015.** Biomedical Science BGK, Bachelor Thesis, University of Maastricht, Netherlands *“Determination of molecular markers associated with*

Plasmodium falciparum drug resistance in South Africa”.

- 17) **Ianthe M. V. de Jong, 2015**. B.Sc Biomedical Sciences, University of Maastricht, Netherlands. “*Evaluation of rapid diagnostic tests, microscopy and polymerase chain reaction to validate malaria status in low transmission settings in South Africa*”.

INTERNAL EXAMINATION OF THESES

Geoffrey, Andrew Otieno - H152/4294/2016- MSc Epidemiology and Biostatistics 2020.

Title: *Maternal Health Care Choices among Women in Lunga Lunga Sub-County in Kwale County-Kenya*

Otieno, Michael Omondi - H152/4432/2014. MSc Epidemiology and Biostatistics 2021.

Title: *Effects of inadvertent use of artemisinin-based combination therapy-Act(AL) for the treatment of malaria in the first trimester of pregnancy and neonatal outcomes among women attending ANC clinic at selected hospitals in Siaya County*

PEER REVIEWER

- Nature Scientific Reports
- Malaria Journal
- American Journal of Tropical Medicine and Hygiene
- KEMRI-CGHR grants committee

H-Index

Google 4; Scopus 4

PUBLICATIONS LIST

1. Barry A, Bradley J, Stone W, Guelbeogo MW, Lanke K, Ouedraogo A, Soulama I, Ouedraogi IN, Serme S, Grignard L, Patterson K, **Awandu SS**, Ouedraogo M, Tarama C, Kargougou D, Zoumanaba Z, Sirima SB, Marti M, Drakeley C, Tiono AB, Bousema T. Increased gametocyte production and mosquito infectivity in chronic versus incident *Plasmodium falciparum* infections. Preprint <https://doi.org/10.1101/2020.04.08.20057927>
2. Meibalan E, Barry A, Gibbins MP, **Awandu S**, Meerstein-Kessel L, Achcar F, Bopp Selina, Moxon C, Diara A, Ouedraogo N, Barry-Some I, Badoum E, Fagnima T, Lanke K, Goncalve BP, Bradley J, Wirth D, Drakeley C, Guelbeogo MW, Tiono AB, Marti M, Bousema T. *P. falciparum* gametocyte density and infectivity in peripheral blood and skin tissue of naturally infected parasite carriers in Burkina Faso. Accepted, Journal of Infectious Diseases 2019. doi:<https://doi.org/10/1101/803296>
3. Collins KA, Ouedraogo A, Guelbeogo WM, **Awandu SS**, Stone W, Soulama I, Ouattara MS, Apollinaire Nombre A, Diarra A, Bradley J, Selvaraj P, Gerardin J, Drakeley C, Bousema T, Tiono AB. Investigating the impact of enhanced community case management and monthly screening and treatment on the transmissibility of malaria infections in Burkina Faso: A study protocol for a cluster randomised trial. BMJ Open 2019;9:e030598. doi:10.1136/ bmjopen-2019-030598
4. Graumans W, Andolina C, **Awandu SS**, Grignard L, Lanke K, Bousema T. *Plasmodium falciparum* Gametocyte Enrichment in Peripheral Blood Samples by Magnetic Fractionation: Gametocyte Yields and Possibilities to Reuse Columns. Am J Trop Med Hyg. 2019 Mar;100(3):572-577. doi: 10.4269/ajtmh.18-0773. PubMed PMID: 30608048.
5. **Awandu SS**, Raman J, Bousema T, Birkholtz LM. Ultra-low-density *Plasmodium falciparum* infections in African settings. Clin Infect Dis. 2019 Feb 15;. doi: 10.1093/cid/ciz147. [Epub ahead of print] PubMed PMID: 30763434.
6. Mooney JP, Barry A, Gonçalves BP, Tiono AB, **Awandu SS**, Grignard L, Drakeley CJ, Bottomley C, Bousema T, Riley EM. Haemolysis and haem oxygenase-1 induction during persistent "asymptomatic" malaria infection in Burkinabé children. Malar J. 2018 Jul 6;17(1):253. doi: 10.1186/s12936-018-2402-6. PubMed PMID: 29980206; PubMed Central PMCID: PMC6035425.
7. **Awandu SS**, Raman J, Makhanthisa TI, Kruger P, Frean J, Bousema T, Niemand J, Birkholtz LM. Understanding human genetic factors influencing primaquine safety and efficacy to guide primaquine roll-out in a pre-elimination setting in southern Africa. Malar J. 2018 Mar

- 20;17(1):120. doi: 10.1186/s12936-018-2271-z. PubMed PMID: 29558929; PubMed Central PMCID: PMC5859786.
8. Stresman GH, Giorgi E, Baidjoe A, Knight P, Odongo W, Owaga C, **Shagari S**, Makori E, Stevenson J, Drakeley C, Cox J, Bousema T, Diggle PJ. Impact of metric and sample size on determining malaria hotspot boundaries. *Sci Rep.* 2017 Apr 12;7:45849. doi: 10.1038/srep45849. PubMed PMID: 28401903; PubMed Central PMCID: PMC5388846.
 9. Baidjoe AY, Stevenson J, Knight P, Stone W, Stresman G, Osoti V, Makori E, Owaga C, Odongo W, China P, **Shagari S**, Kariuki S, Drakeley C, Cox J, Bousema T. Factors associated with high heterogeneity of malaria at fine spatial scale in the Western Kenyan highlands. *Malar J.* 2016 Jun 4;15:307. doi: 10.1186/s12936-016-1362-y. PubMed PMID: 27259286; PubMed Central PMCID: PMC4893231.
 10. Bousema T, Stresman G, Baidjoe AY, Bradley J, Knight P, Stone W, Osoti V, Makori E, Owaga C, Odongo W, China P, **Shagari S**, Doumbo OK, Sauerwein RW, Kariuki S, Drakeley C, Stevenson J, Cox J. The Impact of Hotspot-Targeted Interventions on Malaria Transmission in Rachuonyo South District in the Western Kenyan Highlands: A Cluster-Randomized Controlled Trial. *PLoS Med.* 2016 Apr;13(4):e1001993. doi: 10.1371/journal.pmed.1001993. collection 2016 Apr. PubMed PMID: 27071072; PubMed Central PMCID: PMC4829260.
 11. Stresman GH, Baidjoe AY, Stevenson J, Grignard L, Odongo W, Owaga C, Osoti V, Makori E, **Shagari S**, Marube E, Cox J, Drakeley C, Bousema T. Focal Screening to Identify the Subpatent Parasite Reservoir in an Area of Low and Heterogeneous Transmission in the Kenya Highlands. *J Infect Dis.* 2015 Dec 1;212(11):1768-77. doi: 10.1093/infdis/jiv302. Epub 2015 May 27. PubMed PMID: 26019285.
 12. Baidjoe A, Stone W, Ploemen I, **Shagari S**, Grignard L, Osoti V, Makori E, Stevenson J, Kariuki S, Sutherland C, Sauerwein R, Cox J, Drakeley C, Bousema T. Combined DNA extraction and antibody elution from filter papers for the assessment of malaria transmission intensity in epidemiological studies. *Malar J.* 2013 Aug 2;12:272. doi: 10.1186/1475-2875-12-272. PubMed PMID: 23914905; PubMed Central PMCID: PMC3750228.
 13. **Awandu SS**, Gicheru MM and Kariuki SK (2013). Evaluation of malaria transmission intensity using antibody responses to Plasmodium falciparum merozoite surface protein-119 after vector control in western Kenya. *Front. Immunol. Conference Abstract: 15th International Congress of Immunology (ICI)*. doi: 10.3389/conf.fimmu.2013.02.00277
-

REFEREES

Chandy C. John, MD

Ryan White Professor of Pediatrics
Phone (317) 274-8940
Address 1044 W. Walnut Street
R4 402D
Indianapolis, IN 46202
United States of America
Email: chjohn@iu.edu

George Ayodo, PhD

Dean, School of Health Sciences
Jaramogi Oginga Odinga University of Science and Technology
P.O Box 210-40601
Bondo, Kenya
Telephone: + 254 721465969
Email: gayodo@gmail.com

Teun Bousema, PhD

Professor – Epidemiology of Tropical Infectious Diseases
Radboud University Medical Centre
Department of Medical Microbiology (268)
POBox 9101,6500 HB Nijmegen
The Netherlands
Telephone: +31 243617574/+31612198451
Email: teun.bousema@radboudmc.nl

Chris Drakeley, PhD

Professor of Infection and Immunity
London School of Hygiene & Tropical Medicine
Keppel Street, WC1E 7H , London, United Kingdom
Telephone: +44 7443364907
Email: Chris.Drakeley@lshtm.ac.uk

Lyn-Marie Birkholtz, PhD

DST/NRF SARCHI Chair in Sustainable Malaria Control
Professor: Biochemistry
Faculty of Natural and Agricultural Sciences
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa
Email: lbirkholtz@up.ac.za