JULIUS MULINDWA, PH.D

Department of Biochemistry, School of Biological sciences,
College of Natural Sciences, Makerere University.
P.O. Box 7062, Kampala, Uganda.
Email: mujuls@gmail.com, julius.mulindwa@mak.ac.ug
ORCID: 0000-0002-5419-2760

EDUCATION

PhD	Heidelberg University, Germany, Molecular Biology	2010 - 2013
MSc	Heidelberg University, Germany, Cell biology	2008 - 2010
MSc	Makerere University, Uganda, Molecular biology	2004 - 2008
BSc	Makerere University, Uganda, Biochemistry and Chemistry	2000 - 2003

HONOURS AND AWARDS

Developing Country Award (ASHG) - NHGRI/H3Africa	2020
Senior Post-doc fellowship – TrypanoGEN+ (Wellcome Trust-H3Africa)	2019 – 2022
Post-doc fellowship – TrypanoGEN (Wellcome Trust-H3Africa)	2014 - 2018
ASTMH annual meeting travel award	2016
PhD fellowship (DFG – Germany)	2010 - 2013
MSc fellowship (HBIGS – Germany)	2008 – 2000
BSc Scholarship (Government of Uganda)	2000 – 2003

GRANTS/ RESEARCH FUNDING

1. **DFG (German Research Fund),** Project No. 444811942: Understanding cell to cell heterogeneity in African trypanosome field isolates (2023 to 2025). Role: **Co-PI**
2. **ACENTDFB Workshop Grant**: Parasite Genetics of Neglected Tropical Diseases, 9th – 13th May 2022. Role: **PI**
3. **Mak-Rif3**: Influence of Gut Microbiome on Nutritional and Disease status of children in Schistosomiasis endemic region of Albert Nile, Pakwach district, Uganda (2021-2022). Role: **PI**
4. **Presidential Initiative on Epidemics - PRESIDE**: Subunit vaccine against Covid-19 in Uganda. (2020 To 2023). Role**: Research Scientist**
5. **Mak-Rif**: Identification of the Genetic Markers of Trypanotolerance in Indigenous cattle (2020 To 2022). Role: **Co-PI**
6. **TrypanoGEN+ (AESA-Wellcome Trust)**: The genetic determinants of two neglected tropical diseases, reference No. H3AFull/17/004 (2019-2022). Role: **Senior post doc**

7. **TrypanoGEN (Wellcome trust)**: an integrated approach to the identification of genetic determinants of susceptibility to trypanosomiasis (2014-2019). Role: **Post doc**
8. **DFG (German Research Fund)**: CL112/28-1: Differentiation of *Trypanosoma brucei*: the master regulator RBP10 and its targets (2016-2019). Role: **Co-PI**
9. **DFG (German Research Fund)**: CL112/15: Transcriptome of Human Sleeping sickness (2010-2016). Role: **PhD student, Junior post doc**

RESEARCH EXPERIENCE

Vaccine research and development, Makerere University 2020 to date

- Subunit based vaccine design using Covid19 model
- Recombinant Protein expression in prokaryotic and Eukaryotic models
- Mouse model pre-clinal trial

Post-doc bioinformatician, Makerere University 2014 to 2022

- Bioinformatics and programming skilling
- Human population genetics analysis: Admixture, structure, signatures of selection
- Candidate gene and genome wide association studies analysis
- Microbiome analysis

MSc-PhD Dissertation, Heidelberg University, Germany 2008 to 2013

- Cell biology and molecular biology experiments
- Functional genomics (RNAi, Knockout, Expression, Imaging)
- Trypanosome and Human transcriptomics analysis
- Study design for field work on Human and Animal subjects

MSc Dissertation, Makerere University 2004 to 2007

- Recombinant cloning and protein expression experiments
- Immunology and Serology assays
- Experimental animal infection and immune response

TEACHING EXPERIENCE

Appointment into Makerere University service

- Senior Lecturer: 2023 – to date
- Lecturer: 2014 – 2023
- Assistant Lecture: 2012 – 2014

Teaching: 2012 to date

Major fields: Biochemistry, Molecular Biology, Bioinformatics

- Department of Biochemistry, College of Natural Sciences,
- College of Veterinary Medicine, animal resources and biosecurity,
- College of Health Sciences,
- Bioinformatics training, BReCA, EANBIT
  - Teaching Cell biology, Metabolism, Molecular biology, Bioinformatics, comparative biochemistry and Parasitology to undergraduate and post graduate students
  - Developing and accessing practical experiments and internship programs

- Involved in curriculum development of new programs
- Supervision of under- and post- graduate student research projects

Student supervision

- ***PhD study projects:***
  i. Kiconco Jocelyn, CONAS, Makerere University. Viral and Bacterial co-infections in COVID19 patients in Uganda (Proposal submitted 2024)
  ii. Joyce Namulondo, COVAB, Makerere University. Differential gene expression in *S. mansoni* infected children along L. Albert. (In progress)
  iii. Peter Nambala, CONAS, Makerere. Mechanisms of Trypanosome host gene expression and genotype variation in determining phenotype of *T. b. rhodesiense* HAT in Malawi (Thesis submitted 2024)
  iv. Geoffrey Sentamu, CONAS, Makerere. Understanding cell to cell heterogeneity in Animal African Trypanosome field isolates, (In progress)
  v. Okol Moses, CHS, Makerere University. Association between transport related pollution (TRAP) and lung function among motorcyclists in Kampala city (In progress).
  vi. Muwonge Kizito, Nasal Carriage of Methicillin resistant S. aureus among selected livestock species in Uganda, Kyambogo University (In progress)
  vii. Ndagire Hellen, Characterization of bacterial communities in blood and rectal swabs among goats and cattle in Uganda, Kyambogo University (In progress)
  viii. Emmanuel Banzubaze, KIU, Kampala International University. Molecular characterization and effect of Antioxidant therapy on cardiovascular disease in mice (Graduated May 2023)

- ***MSc Study projects:***
  i. Caroline Musiime (2020/HD07/20625U), MSc. Bioinformatics, CHS, Makerere University. Investigation of the gut microbiome diversity of children infected with schistosomiasis in endemic regions of Albert Nile, Pakwach district (In progress).
  ii. Joan Nabwire (2019/HD13/777U), MSc. Biochemistry, CONAS, Makerere University. Effect f drought stress on biochemical rooting traits of robusta coffee hybrid cuttings (In progress).
  iii. Ibra Lujumba (2019/HD07/27842U), MSc. Bioinformatics, CHS, Makerere University. Identification of expression quantitative loci associated with Trypanotolerance by paired whole-genome and RNA sequencing of indigenous cattle in the tsetse-infected belt in Uganda (In progress).
  iv. Eva Akurut (2019/HD07/24850U), MSc. Bioinformatics, CHS, Makerere University. Reverse Vaccinology and Molecular Docking as a tool to identify Potential Vaccine Candidates against Mycobacterium Tuberculosis (Graduated 2022).
  v. Geofrey Ssentamu (2017/HD17/2203U), MSc. Molecular Biology, COAVB, Makerere University. Differentiation patterns of *T. brucei* field isolates (Graduated 2021).
  vi. Tushabe Phiona (2015/HD17/334U), MSc. Molecular Biology, COVAB, Makerere University. Molecular epidemiology of non-polio enteroviruses associated with

residual paralysis among acute flaccid paralysis patients in Uganda (Graduated 2019)

vii. Thaddeus Bwesigye (2016/HD17/583U), MSc. Molecular Biology, COVAB, Makerere University. Genetic diversity of Pumpkins from Uganda using repeat DNA markers (Graduated 2019).

PUBLICATIONS

Journal Publications

1. Zass L, Mwapagha ML, Louis-Jacques AF, Allali I, **Mulindwa J**, Kiran A, Hanachi M, Souiai O, Mulder N, Oduaran OH. Advancing microbiome research through standardized data and metadata collection: introducing the Microbiome Research Data Toolkit, *Database*, Volume 2024, 2024, baae062, https://doi.org/10.1093/database/baae062
2. Nambala P, Noyes H, Namulondo J, Nyangiri O, Alibu VP, Nerima B, MacLeod A, Matovu E, Musaya J, **Mulindwa J**; TrypanoGEN+ Research Group as Members of the H3Africa Consortium. Transcriptome profiles of Trypanosoma brucei rhodesiense in Malawi reveal focus specific gene expression profiles associated with pathology. PLoS Negl Trop Dis. 2024 May 3;18(5):e0011516. doi: 10.1371/journal.pntd.0011516. PMID: 38701067; PMCID: PMC11095692.
3. Rutaro K, Hawumba J, Nakimuli J, **Mulindwa J**, Malinga GM, Baingana R. Value chain hygiene practices and microbial contamination of street and market vended ready-to-eat grasshopper, *Ruspolia differens* in Uganda: Implications for food safety and public health. Heliyon. 2024 Feb 8;10(4):e25614. doi: 10.1016/j.heliyon.2024.e25614. PMID: 38375279; PMCID: PMC10875366.
4. Nambala P, **Mulindwa J**, Noyes H, Alibu VP, Nerima B, Namulondo J, Nyangiri O, Matovu E, MacLeod A, Musaya J; TrypanoGEN+ Research Group as Members of the H3Africa Consortium. Differences in gene expression profiles in early and late stage rhodesiense HAT individuals in Malawi. PLoS Negl Trop Dis. 2023 Dec 6;17(12):e0011803. doi: 10.1371/journal.pntd.0011803. PMID: 38055777; PMCID: PMC10727365.
5. Nyangiri OA, **Mulindwa J**, Namulondo J, Kitibwa A, Nassuuna J, Elliott A, Kimuda MP, Boobo A, Nerima B, Adriko M, Dunton NJ, Madhan GK, Kristiansen M, Casacuberta-Partal M, Noyes H, Matovu E; TrypanoGEN+ Research group of the H3Africa consortium. Variants of IL6, IL10, FCN2, RNASE3, IL12B and IL17B loci are associated with Schistosoma mansoni worm burden in the Albert Nile region of Uganda. PLoS Negl Trop Dis. 2023 Nov 30;17(11):e0011796. doi: 10.1371/journal.pntd.0011796. PMID: 38033168; PMCID: PMC10715658.
6. Namulondo J, Nyangiri OA, Kimuda MP, Nambala P, Nassuuna J, Egesa M, Nerima B, Biryomumaisho S, Mugasa CM, Nabukenya I, Kato D, Elliott A, Noyes H, Tweyongyere R, Matovu E, **Mulindwa J**; TrypanoGEN+ research group of the H3Africa consortium. Transcriptome analysis of peripheral blood of Schistosoma mansoni infected children from the Albert Nile region in Uganda reveals genes implicated in fibrosis pathology. PLoS Negl Trop Dis. 2023 Nov 15;17(11):e0011455. doi: 10.1371/journal.pntd.0011455. PMID: 37967122; PMCID: PMC10686515.
7. **Mulindwa J**, Namulondo J, Kitibwa A, Nassuuna J, Nyangiri OA, Kimuda MP, Boobo A, Nerima B, Businge F, Candia R, Namukuta A, Ssenyonga R, Ukumu N, Ajal P, Adriko M, Noyes H, de Dood CJ, Corstjens PLAM, van Dam GJ, Elliott AM, Matovu E; TrypanoGEN+ Research group. High prevalence of Schistosoma mansoni infection and stunting among school age children in communities along the Albert-Nile, Northern Uganda: A cross sectional study. PLoS Negl Trop Dis. 2022 Jul 27;16(7):e0010570. doi: 10.1371/journal.pntd.0010570.

8. Nambala P, **Mulindwa J**, Chammudzi P, Senga E, Lemelani M, Zgambo D, Matovu E, MacLeod A and Musaya J (2022) Persistently High Incidences of *Trypanosoma brucei rhodesiense* Sleeping Sickness With Contrasting Focus-Dependent Clinical Phenotypes in Malawi. *Front. Trop. Dis* 3:824484. doi: 10.3389/fitd.2022.824484
9. Kazibwe A., Bwesigye T., **Mulindwa J** (2022) Diversity of Pumpkins from Uganda Based on Phenotypic and Repeat DNA Markers. Arch Crop Sci 5(2):175-184
10. Banzubaze E., **Mulindwa J**., Wampande E. and Silver Ochwo S. (2022). Enhancing Effect of Epigallocatechin- 3-Gallate (EGCG) on Liver Antioxidant Activity in Mice Exposed to Cardiovascular Disease Risk. Int J Diabetes MetabDisord, 7(3), 79-92.
11. Banzubaze E., **Mulindwa J**., Wampande E. and Silver Ochwo S. (2022). Epigallocatechin-3-gallate (EGCG) as a potential therapeutic against cardiovascular disease risk in mice. J Anesth & Pain Med. Volume 7/Issue 3/87, 79-90.
12. Rutaro, K., **Mulindwa, J**., Ampeire, K., Ssegawa, F., Isanga, J., Gumisiriza, R., Kyambadde, J., Vuzi, P., & Baingana, R. (2022). An Undergraduate Biosciences Internship Program in a Low-Resource Setting: Opportunities and Challenges. East African Journal of Education Studies, 5(1), 126-143. https://doi.org/10.37284/eajes.5.1.598
13. Nyangiri OA, Edwige SA, Koffi M, Mewamba E, Simo G, Namulondo J, **Mulindwa J**, Nassuuna J, Elliott A, Karume K, Mumba D, Corstjens PLAM, Casacuberta-Partal M, van Dam GJ, Bucheton B, Noyes H, Matovu E; TrypanoGEN+ Research Group of the H3Africa Consortium. Candidate gene family-based and case-control studies of susceptibility to high *Schistosoma mansoni* worm burden in African children: a protocol. AAS Open Res. 2021 Dec 15;4:36. doi: 10.12688/aasopenres.13203.2. PMID: 35252746; PMCID: PMC8861467.
14. **Mulindwa J**, Ssentamu G, Matovu E, Marucha KK, Aresta-Branco F, Helbig C, Clayton C. In vitro culture of freshly isolated Trypanosoma brucei brucei bloodstream forms results in gene copy-number changes. 2021, September. PLoS NTD. https://doi.org/10.1371/journal.pntd.0009738
15. Mwesigwa S, Williams L, Retshabile G, Katagirya E, Mboowa G, Mlotshwa B, Kyobe S, Kateete DP, Wampande EM, Wayengera M, Mpoloka SW, Mirembe AN, Kasvosve I, Morapedi K, Kisitu GP, Kekitiinwa AR, Anabwani G, Joloba ML, Matovu E, **Mulindwa J**, Noyes H, Botha G; Collaborative African Genomics Network (CAfGEN); TrypanoGEN Research Group, Brown CW, Mardon G, Matshaba M, Hanchard NA. Unmapped exome reads implicate a role for Anelloviridae in childhood HIV-1 long-term non-progression. NPJ Genom Med. 2021 Mar 19;6(1):24. doi: 10.1038/s41525-021-00185-w. PMID: 3374199
16. Tushabe P, Howard W, Bwogi J, Birungi M, Eliku JP, Kakooza P, Bukenya H, Namuwulya P, Gaizi J, Tibanagwa M, Kabaliisa T, **Mulindwa J**, Muhanguzi D, Suchard M, Gumede N, Bakamutumaho B. Molecular Characterization of Non-Polio Enteroviruses Isolated from Acute Flaccid Paralysis Patients in Uganda. J Med Virol. 2021 Jan 17. doi: 10.1002/jmv.26804. Epub ahead of print. PMID: 33458840.
17. **Mulindwa, J**., Noyes H., Ilboudo, H., Pagani, L., Nyangiri O, Kimuda MP, Kabore JW, Ahouty B, Asina OF, Ofon E, Kamoto K, Koffi M, Mumba D, Simo G, Chisi J, Simuunza M, Alibu VP, Enyaru J, Jamonneau V, Camara M, Sidibe I, MacLeod A, Bucheton B, Tait A, Hall N, Hertz-Fowler C, Matovu E. (2020). High Levels of Genetic Diversity within Nilo-Saharan Populations: Implications for Human Adaptation and disease. The American Journal of Human Genetics. Published: August, 10 2020. doi: https://doi.org/10.1016/j.ajhg.2020.07.007
18. Nyangiri OA, Noyes H, **Mulindwa J**, Ilboudo H, Kabore JW, Ahouty B, Koffi M, Asina OF, Mumba D, Ofon E, Simo G, Kimuda MP, Enyaru J, Alibu VP, Kamoto K, Chisi J, Simuunza M, Camara M, Sidibe I, MacLeod A, Bucheton B, Hall N, Hertz-Fowler C, Matovu E; TrypanoGEN Research Group, as members of The H3Africa Consortium. (2020). Copy number variation in

human genomes from three major ethno-linguistic groups in Africa. BMC Genomics. 2020 Apr 10;21(1):289. doi: 10.1186/s12864-020-6669-y.
19. **Mulindwa J**, Matovu E, Enyaru J, Clayton C. (2020). Blood signatures for second stage human African trypanosomiasis: a transcriptomic approach. *BMC Med Genomics*.;13(1):14. Published 2020 Jan 30. doi:10.1186/s12920-020-0666-5.
20. Olal S, Bitalo DN, Olango ND, **Mulindwa J**, Ochwo S, Opiyo SO, Arinaitwe G, Ogwok E. (2019). *De Novo* Genome Sequence of a *Fusarium xylarioides* Race Pathogenic to Robusta Coffee (*Coffea canephora*) in Uganda. *Microbiol Resour Announc*.;8(31):e00520-19. Published 2019 Aug 1. doi:10.1128/MRA.00520-19
21. **Mulindwa, J**., Leiss, K., Ibberson, D., Kamanyi Marucha, K., Helbig, C., Melo do Nascimento, L., et al. (2018). Transcriptomes of Trypanosoma brucei rhodesiense from sleeping sickness patients, rodents and culture: Effects of strain, growth conditions and RNA preparation methods. *PLoS Neglected Tropical Diseases*, *12*(2), e0006280. http://doi.org/10.1371/journal.pntd.0006280
22. Kimuda, M. P., Noyes, H., **Mulindwa, J**., Enyaru, J., Alibu, V. P., Sidibe, I., et al. (2018). No evidence for association between APOL1 kidney disease risk alleles and Human African Trypanosomiasis in two Ugandan populations. *PLoS Neglected Tropical Diseases*, *12*(2), e0006300. http://doi.org/10.1371/journal.pntd.0006300
23. Ahouty, B., Koffi, M., Ilboudo, H., Simo, G., Matovu, E., **Mulindwa, J**., et al. (2017). Candidate genes-based investigation of susceptibility to Human African Trypanosomiasis in Cote d'Ivoire. *PLoS Neglected Tropical Diseases*, *11*(10), e0005992.
24. Ofon, E., Noyes, H., **Mulindwa, J**., Ilboudo, H., Simuunza, M., Ebo'o, V., et al. (2017). A polymorphism in the haptoglobin, haptoglobin related protein locus is associated with risk of human sleeping sickness within Cameroonian populations. *PLoS Neglected Tropical Diseases*, *11*(10), e0005979.
25. Ilboudo, H., Noyes, H., **Mulindwa, J**., Kimuda, M. P., Koffi, M., Kaboré, J. W., et al. (2017). Introducing the TrypanoGEN biobank: A valuable resource for the elimination of human African trypanosomiasis. *PLoS Neglected Tropical Diseases*, *11*(6), e0005438. http://doi.org/10.1371/journal.pntd.0005438
26. Sente C, Erume J, Naigaga I, **Mulindwa J**, Ochwo S, Magambo PK, Namara BG, Kato CD, Sebyatika G, Muwonge K, Ocaido M. (2016) Prevalence of pathogenic free-living amoeba and other protozoa in natural and communal piped tap water from Queen Elizabeth protected area, Uganda. *Infect Dis Poverty* 2016.. 5(1):68.
27. Sente C, Erume J, Naigaga I, Magambo PK, Ochwo S, **Mulindwa J**, Namara BG, Kato CD, Sebyatika G, Muwonge K, Ocaido M. (2016). Occurrence and genetic characterisation of Acanthamoeba spp. from environmental and domestic water sources in Queen Elizabeth Protected Area, Uganda. *Parasit Vectors*. 9:127
28. **Mulindwa J**, Merce C, Matovu E, Enyaru J, Clayton C. (2015). Transcriptomes of newly-isolated Trypanosome brucei rhodesiense reveal hundreds of mRNAs that are co-regulated with stumpy form markers. BMC Genomics;16(1):1118.
29. **Mulindwa J**, Fadda A, Merce C, Matovu E, Enyaru J, Clayton C. (2014). Methods to determine the transcriptomes of trypanosomes in mixtures with mammalian cells: the effects of parasite purification and selective cDNA amplification; *PLoS Negl Trop Dis*. 17;8(4)
30. Benz C, **Mulindwa J**, Ouna B, Clayton C. (2011). The *Trypanosoma brucei* zinc finger protein ZC3H18 is involved in differentiation. *Mol Biochem Parasitol*. 177(2): 148-51
31. Manful T, **Mulindwa J**, Frank FM, Clayton CE, Matovu E. (2010). A Search for *Trypanosoma brucei rhodesiense* Diagnostic Antigens by Proteomic Screening and Targeted Cloning. *PLoS ONE* 5(3): e9630.

Book chapter

Mulindwa J., Leiss K., Clayton C. (2020). High-Throughput Sequencing for Trypanosome Transcriptome Characterization. In: Michels P., Ginger M., Zilberstein D. (eds) Trypanosomatids. Methods in Molecular Biology, vol 2116. Humana, New York, NY, https://doi.org/10.1007/978-1-0716-0294-2_6

International press

Global Health Network, GHN Exclusive | Neglected Diseases: An Unpleasant Sleep: Q&A with Julius Mulindwa, 2017.
https://www.globalhealthnow.org/2017-01/unpleasant-sleep-qa-julius-mulindwa

PRESENTATIONS AND INVITED LECTURES

International Conference Presentations

"The Transcriptome of *Tbrhodesiense* Human African Trypanosomiasis", DFG funded German African Cooperation projects in Infectology annual conference, **Accra Ghana 2011 (Talk**), **Bonn Germany 2012 (Talk**), **Daressalaam Tanzania 2014 (Talk).**

"The Transcriptome of *Tbrhodesiense* parasites in sleeping sickness patients", (Poster), Kinetoplastid Molecular cell biology meeting, Woods Hole, **USA, 2013**

"Genetic variation between the Nilo-Saharan and Niger-Congo sub-Saharan populations in Africa" H3Africa Consortium Meetings in **Uganda:2018 (Talk), Senegal:2016 (Poster), Mauritius:2016 (Talk**), **Zambia:2015 (Poster**).
ASTMH annual meeting, **2016, USA (Poster**)

"High levels of genetic diversity within Nilo-Saharan populations: Implications for Human adaptation" **ASHG Virtual Meeting 2020, (Talk and Poster)**

Training facilitator

"East African Network for Bioinformatics training (EANBIT) workshop", Facilitator trainer on Transcriptomics July 2018 – Kilifi, Kenya.

PROFESSIONAL DEVELOPMENT TRAINING

- "H3ABioNet 16SrRNA Microbiome Intermediate Bioinformatics training 2020", 16th September – 22nd November 2020, Kampala, Uganda.
- "H3ABioNet H3Africa Genotyping Chip Data Analysis and GWAS", 8th – 12th October 2018, Cape Town, South Africa.
- "From GWAS to Function summer school", 9th – 13th July 2018, Sardinia, Italy.
- "TrpanoGEN training workshop series on bioinformatics" September 2015 - Burkina Faso; July 2017 – Uganda; June 2018 – Guinea.
- "H3ABioNet H3Africa Data Catalogue Jamboree", 28th August – 1st September 2017, Cape Town, South Africa.
- "Bioinformatics in the Tropics: Viral Next Generation Sequencing Analysis", 6th - 10th May 2015, Uganda virus research Institute (UVRI), Uganda.

- "Advanced Genomics and Bioinformatics", 7th to 18th September 2015, BecA-ILRI Hub, Nairobi, Kenya.
- "H3ABioNet Course Introduction to Biostatistics for Genome Wide Association testing", 16th to 26th March, 2015, Institut Pasteur de Tunis, Tunisia.
- "H3ABioNet Course Computational Metagenomics", 1st to 5th December 2014, University of Mauritius, Mauritius.
- "H3ABioNet Postgraduate Bioinformatics", 21st April to 26th May 2014, Covenant University, Nigeria.
- "Next generation sequencing course", 2012, European Bioinformatics institute, Cambridge, UK
- "Basic Immunology course" at the 60th annual meeting American Society of Tropical Medicine and Hygiene, 2011, Philadelphia, USA
- "Scientific writing, project management and communication skills", HBIGS course, 2010, Heidelberg University, Germany
- "Basic training in flow cytometry – FACSCanto II/Diva software", HBIGS course, 2010, Becton Dickinson (BD), Heidelberg Germany.
- "Drug research and development" HBIGS course, 2009, Roche, Basel Switzerland.

REFEREES

Dr. Agnes Nandutu,
Head of Department,
Department of Biochemistry,
College of Natural Sciences,
Makerere University,
P.O. Box 7062, Kampala, Uganda
Email: agnes.nandutu@mak.ac.ug

Associate Prof. Enock Matovu,
College of Veterinary Medicine, animal resources and bio-security,
Makerere University,
P.O. Box 7062, Kampala, Uganda
Email: enock.matovu@mak.ac.ug