

# JULIUS MULINDWA, PH.D

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## EDUCATION

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

## HONOURS AND AWARDS

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| 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

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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, 9<sup>th</sup> – 13<sup>th</sup> 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

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- 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

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### Appointment into Makerere University service

- Assistant Lecture: 1<sup>st</sup> August 2012
- Lecturer: 1<sup>st</sup> July 2014
- Senior Lecturer: 1<sup>st</sup> August 2023

### 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

## PUBLICATIONS

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### *Journal Publications*

1. **Mulindwa J**, Namulondo J, Kitibwa A, Nassuuna J, Nyangiri OA, Kimuda MP, Boobo A, Nerima B, Busingye 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.
2. 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/ftd.2022.824484
3. 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
4. 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.
5. 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.
6. 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>
7. 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.
8. **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>
9. Mwesigwa S, Williams L, Retshabile G, Katagiryra 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

10. Tushabe P, Howard W, Bwogi J, Birungi M, Eliku JP, Kakooza P, Bukonya 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.
11. **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>
12. 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.
13. **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.
14. 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
15. **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>
16. 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>
17. 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.
18. 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.
19. 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>
20. 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.

21. 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
22. **Mulindwa J**, Merce C, Matovu E, Enyaru J, Clayton C. (2015). Transcriptomes of newly-isolated *Trypanosoma brucei rhodesiense* reveal hundreds of mRNAs that are co-regulated with stumpy form markers. *BMC Genomics*;16(1):1118.
23. **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)
24. 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
25. 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](https://doi.org/10.1007/978-1-0716-0294-2_6)

### **Preprints**

1. Transcriptome profiles of *T.b. rhodesiense* in Malawi reveal focus specific gene expression Profiles associated with pathology. Peter Nambala, Harry Noyes, Joyce Namulondo, Oscar Nyangiri, Enock Matovu, Vincent Pius Alibu, Barbara Nerima, Annette MacLeod, Janelisa Musaya, **Julius Mulindwa** bioRxiv 2023.07.11.548495; doi: <https://doi.org/10.1101/2023.07.11.548495>
2. Distinct Differences in Gene Expression Profiles in Early and Late Stage *Rhodesiense* HAT Individuals in Malawi. Peter Nambala, **Julius Mulindwa**, Harry Noyes, Joyce Namulondo, Oscar Nyangiri, Enock Matovu, Annette MacLeod, Janelisa Musaya. bioRxiv 2022.11.28.518140; doi: <https://doi.org/10.1101/2022.11.28.518140>
3. Transcriptome analysis of peripheral blood of *Schistosoma mansoni* infected children from the Albert Nile region in Uganda reveals genes implicated in fibrosis pathology. Joyce Namulondo, Oscar Asanya Nyangiri, Magambo Phillip Kimuda, Peter Nambala, Jacent Nassuuna, Moses Egesa, Barbara Nerima, Savino Biryomumaisho, Claire Mack Mugasa, Immaculate Nabukenya, Kato Drago, Alison Elliott, Harry Noyes, Robert Tweyongyere, Enock Matovu, **Julius Mulindwa**, TrypanoGEN+ research group of the H3Africa consortium. bioRxiv 2023.06.13.544714; doi: <https://doi.org/10.1101/2023.06.13.544714>

### **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

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### ***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

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- “H3ABioNet 16SrRNA Microbiome Intermediate Bioinformatics training 2020”, 16<sup>th</sup> September – 22<sup>nd</sup> November 2020, Kampala, Uganda.
- “H3ABioNet H3Africa Genotyping Chip Data Analysis and GWAS”, 8<sup>th</sup> – 12<sup>th</sup> October 2018, Cape Town, South Africa.
- “From GWAS to Function summer school”, 9<sup>th</sup> – 13<sup>th</sup> 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”, 28<sup>th</sup> August – 1<sup>st</sup> September 2017, Cape Town, South Africa.
- “Bioinformatics in the Tropics: Viral Next Generation Sequencing Analysis”, 6<sup>th</sup> - 10<sup>th</sup> May 2015, Uganda virus research Institute (UVRI), Uganda.
- “Advanced Genomics and Bioinformatics”, 7<sup>th</sup> to 18<sup>th</sup> September 2015, BecA-ILRI Hub, Nairobi, Kenya.
- “H3ABioNet Course Introduction to Biostatistics for Genome Wide Association testing”, 16<sup>th</sup> to 26<sup>th</sup> March, 2015, Institut Pasteur de Tunis, Tunisia.
- “H3ABioNet Course Computational Metagenomics”, 1<sup>st</sup> to 5<sup>th</sup> December 2014, University of Mauritius, Mauritius.
- “H3ABioNet Postgraduate Bioinformatics”, 21<sup>st</sup> April to 26<sup>th</sup> May 2014, Covenant University, Nigeria.

- “Next generation sequencing course”, 2012, European Bioinformatics institute, Cambridge, UK
- “Basic Immunology course” at the 60<sup>th</sup> 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**

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 Makerere University,  
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