



NG'WENA ASHA GIDEON MAGAK (PhD)
CURRICULUM VITAE

ADDRESSES:

Department of Medical Physiology
School of Medicine
Maseno University
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CURRENT DESIGNATION

Associate Professor and Chairman of the Department of Medical Physiology, Maseno University School of Medicine, Kenya

ACADEMIC FIELD

Medical physiology and cell and molecular biology

EDUCATION

OCT 2011-JUNE 2012; Additional undergraduate training: Year One MBChB-Moi University, College of Health

Sciences: Anatomy, Immunology, Introduction to Biomedical Sciences, Microbiology, Nursing Skills, Community Based Education and Service (COBES), Biochemistry, Communication Skills and Behavioral Sciences

November 2005- December 2009: Postdoctoral Training:

In a Malaria immunology Laboratory under the University of Minnesota/KEMRI Highland Malaria project based at Kisian KEMRI station.

Research area: Determination of Antibodies and cytokine levels during low and high transmission periods in the highlands of western Kenya.

Jan 2000-Jan 2004:Ph.D in Cell and Molecular Biology

Maseno University, Kenya

Programme: Coursework and Thesis

1994-March 1997: M.Sc in Medical Physiology

Department of Medical Physiology, School of Medicine, University of Nairobi, Nairobi-Kenya

Programme: Coursework and Thesis

NOV 1988-May 1991 :

B.Sc. (Hon) **Subject: Biological Sciences (Zoology Major)**

Moi University, Eldoret-Kenya

TEACHING EXPERIENCE AND POSITIONS

June 2017-Present:

Associate Professor: Department of Medical Physiology, School of Medicine, Maseno University

June 2012-May 2017

Senior Lecturer: Department of Medical Physiology, School of Medicine, Maseno University

Jan 2004- May 2012

Lecturer: Department of Medical Physiology, School of Medicine, Moi University

Sept 1999-Dec 2004

Tutorial Fellow: Department of Medical Physiology, Faculty of Health Sciences, Moi University

RESEARCH INTEREST

- Mechanisms of endocrine and metabolic disorders in HIV positive individuals
- Molecular oncology
- Malaria, Trypanosomiasis and TB transmission and Immunity

CURRENT RESEARCH ACTIVITIES

1. Profiling of cancer types in Kisumu County
2. Mechanisms underlying the endocrine and metabolic disorders in HIV patients on HAART (Both Experimental using animal models and actual studies using patients attending Comprehensive care clinics)

RESEARCH PROPOSALS UNDER REVIEW FOR FUNDING:

1. Clinical Validity and Utility Evaluation of Cell Surface and Serological Biomarkers for Early Diagnosis, Monitoring and Improved Management of Prostate Cancer; Submitted in March 2018 with Colleagues from Maseno University, Moi University School of Medicine and Alexandria Cancer Hospital in Eldoret in response to the NRF 2017/2018 call for **MULTIDISCIPLINARY RESEARCH GRANT PROGRAMME 2017/2018 - FINANCIAL YEAR**
2. Malaria Transmission Dynamics and Host Immune Responses before and After Treatment With Artemisinin Combination Therapy (Act) in Three Different Transmission Sites in Western Kenya; Submitted in 2017 with Moi University team in response to the RFA titled “**International Center of Excellence for Malaria Research (U19) FOA RFA-AI-15-056**”

RESEARCH TECHNIQUES SPECIALIZATION

- Electrocardiography (ECG)
- Extraction of DNA
- Polymerase Chain Reaction (PCR)-DNA amplification for species identification
- Microsatellite Polymerase Chain Reaction (PCR) for determination of genetic polymorphism
- Sporozoite and blood meal ELISAs
- Cytokines and Antibody ELISAs (need more training in this area)
- *Plasmodium falciparum* cultures (need more training in this area and more particularly with respect to gene sequencing)
- Radioimmunoassay/Enzymeimmunoassay for Hormones
- Histological sectioning and staining techniques
- Clinical chemistry
- Automated and manual hemoanalysis

RESPONSIBILITIES

June 2017-Present

Chairman of the Department of Medical Physiology, School of Medicine, Maseno University, Kenya

Sept 2014-Present

Coordinator of the Department of Medical Physiology Postgraduate program.

May 2012-Present

Chairman, the Maseno University School of Medicine Postgraduate committee **Representative**, of the School of Medicine to the University AIDS Control Unit Committee (MUACU), **Maseno University**

Jan 2018 to Present

Reviewer- **National Research Fund (NRF)/NACOSTI**

Jan 2017 to Present

Reviewer-BMJ Open Sports and Exercise Medicine

Jan 2013 to Present

Reviewer-African Journal of Health Sciences (AJHS)

Jan 2000 to Present

Reviewer- Institutional Research and Ethics Committee IREC- based at the MTRH and Moi University School of Medicine

ORGANIZATION MEMBERSHIP:

1. A member of the Society of Neuroscience in Africa (SONA)
2. A member of the International Society of Neuroscience (ISN)
3. A member of the International Brain Research Organization (IBRO)

TRAINING WORKSHOPS AND SEMINARS

6TH JUNE, 2018:

Organizer of “The Nyanza Region National Research Fund (NRF) Proposal Workshop” Held at Maseno University Board Room

5-9 March 2018:

HRH Kenya Mechanisms of Mentorship: Training of Master Trainers of Trainers
Workshop by Intra Health: Merica Hotel, Nakuru

18-23 February 2018:

HRH Kenya Mechanisms of Mentorship: Training of Master Trainers of Trainers
Workshop by Intra Health: MMUST, Kakamega

21 September, 2017:

Awareness Raising on Biosecurity in Universities for Biological Threat Reduction

Venue: Maseno University City Campus

Organizers: The National Commission for Science, Technology and Innovation (NACOSTI); The Commission for University Education (CUE); Center for Biosecurity and Biopreparedness (CBB), Denmark; Maseno University, Kenya

CONFERENCE/WORKSHOP/SEMINAR PRESENTATIONS

13th -16th Sept 2016.

Profiling cancer types in Kisumu County: A case study of histopathology Laboratory reports from Aga Khan Hospital. 11th Annual International Conference of Moi University. **13th -16th Sept 2016. Moi University, Margaret Thatcher Library, Main Campus Eldoret, Kenya.**

Awareness status and associated risk factors for hypertension among adult patients attending Yala Sub-County Hospital, Siaya County, Kenya. 11th Annual International Conference of Moi University. **13th -16th Sept 2016. Moi University, Margaret Thatcher Library, Main Campus Eldoret, Kenya.**

2nd -4th August 2016

"Human and animal Trypanosomiasis insights from Lambwe Valley Foci, Kenya:

Assessment of re-emergence potency and potential trypanotolerance"

Medical and Nurses Education Partnership Initiative (MEPI and NEPI) 2016 Symposium at the Laico Regency Hotel, Nairobi, Kenya **Theme: Tackling Africa's Health Challenges: Promoting Health Professions' Education, Practice, Research and Retention of Health Workers "**

EXTERNAL MODERATOR OF EXAMINATIONS IN OTHER UNIVERSITIES

Nov 2017 – Present External Examiner at Alupe University College

Nov 2017-Present External Examiner at Egerton University

POSTGRADUATE STUDENTS' SUPERVISION (PHD)

1. Effects of *Allium Sativum* Extract Treatment on Cardiac and Renal Regulation of Blood Pressure in Hypertension-induced Laboratory Rats (*Rattus Norvigecus*)
Willian Munyikombo; University of Eldoret
2. Efficacy and safety of two hypoglycemic herbal medicines, used in the management of Diabetes Mellitus in Baringo County, Kenya
Alex Chebor; University of Eldoret
3. Effects of Garlic Extract on the Plasma Levels of Glucose, Insulin and Electrolytes in Male Goats Treated With Protease Inhibitors
Nyariki Joseph; University of Eldoret
4. Use of molecular markers for Clinical Diagnosis and management of Prostate Cancer among Kenyan Adult
Fredrick O. Oginga; Maseno University
5. Evaluation of Antidiabetic Activity Of *Achyranthes Aspera* and *Bidens Pilosa* Leaf Extracts and Glibenclamide in Alloxan Induced Diabetic Wistar Rats
John Kipkemboi Lagat; University of Eldoret
6. Characterization of Trypanosome, Vector Borne Parasites and Gastrointestinal Co-Infectious Parasites affecting Livestock in Upper Kerio Valley, Kenya
Emily Chepchumba Ng'etich; University of Eldoret

POSTGRADUATE STUDENTS' SUPERVISION (MSc/MMED/MPH)

1. Prevalence of Metabolic Syndrome Components by age and Gender among Maseno University Students, Kenya
Sheila Malesi Jaika (MSc. Medical Physiology); Maseno University
2. Effects of Prescribed Physical Therapy Exercises on Blood Glucose, Metabolic and HbA1C Profiles in Prediabetes At MTRH in Uasin Gishu County
Henry Muroki (MSc. Medical Physiology); Maseno University
3. Quality of Medical Care at the Emergency Departments in Public Hospitals of Bungoma County, Kenya
David Wanikina (MMED Family and Emergency Medicine); Maseno University

4. Serum Levels of Adrenocorticotrophic Hormone and Cortisol in HIV and TB co-infected Patients on Highly Active Antiretroviral Therapy at the Nyabondo Hospital comprehensive care clinic
Jackton Yaralima (MSc. Medical Physiology); Maseno University
5. Influence of thyroid function on dyslipidemia among patients on Highly Active Antiretroviral Therapy Attending Comprehensive Care Clinical at Nyabondo Hospital
Alfred Juma (MSc. Medical Physiology); Maseno University
6. Effects of Low Intensity Resistance Training Anaerobic Exercise on Prehypertension
Moses Konje Eliakim (MSc. Medical Physiology); Maseno University
7. Prevalence of hypertension and its risk factors among adults attending Homa-Bay teaching and referral Hospital
Ayub Odeny (MSc. Medical Physiology); Maseno University
8. The Effect of Diosmin + Hesperidin Combination on Hiv-Protease Inhibitor-Induced Hyperglycaemia In *Rattus Norvegicus* [Laboratory Wistar Rats]
Nahashon G. Akunga (MSc. Medical Physiology); Maseno University
9. Investigation of haemostatic effects and the mechanism of action of *Croton megalocarpus*
Irungu D. Mwangi (MSc. Medical Physiology); Maseno University
10. Interleukin-6 Receptor Expression Levels and Testicular Androgen Receptor Density in Prostate Cancer Patients Attending Treatment at The Jooth Kisumu
Charles Mutai (MSc. Medical Physiology); Maseno University
11. Assessment of Infection Prevention and Control Practices in Uasin Gishu County, Kenya
William Migosi (MPH); Maseno University

AWARDS:

- **(2014):** Research Grant-PRIME-K: Survey of trypanosomiasis in Lambwe Valley: 5000USD. Administered through Maseno University school of Medicine.
- **(2011):** Research grant from National Council for Science and Technology, The Ministry of Higher Education Science and Technology; **NCST/5/003/3rdCALL PhD/183: Dec, 2011**, KSh 900,000. Administered through Chepkoilel University College
- **(2009): Research Leadership Grants, June, 2009:** 400,000USD. Administered through, KEMRI, Busia station (ALUPE)
- **(2000-2004):** PhD Research Grant 30,000USD, By WHO through the Multilateral Initiative on Malaria (MIM) administered through Kenya Medical Research Institute (KEMRI) and Maseno University. *Anopheles gambiae* and *Anopheles funestus*: Population Structure and Temporal Gene Flow in Western Kenya.

PUBLICATIONS:

Conference Abstracts:

1. **Ng'wena G. Magak (2016):** Profiling cancer types in Kisumu County: A case study of histopathology Laboratory reports from Aga Khan Hospital. 11th Annual International Conference of Moi University. **13th -16th Sept 2016. Moi University, Margaret Thatcher Library, Main Campus Eldoret, Kenya.**
2. **Ng'wena G. Magak (2016):** Awareness status and associated risk factors for hypertension among adult patients attending Yala Sub-County Hospital, Siaya County, Kenya. 11th Annual International Conference of Moi University. **13th -16th Sept 2016. Moi University, Margaret Thatcher Library, Main Campus Eldoret, Kenya.**
3. **Ng'wena Gideon Magak (2016):** Human and animal Trypanosomiasis insights from Lambwe Valley Foci, Kenya: Assessment of re-emergence potency and potential trypanotolerance. *Medical and Nurses Education Partnership Initiative (MEPI and NEPI) 2016 Symposium At the Laico Regency Hotel, Nairobi, Kenya*

Journal Papers:

1. Maina, C. I. and **Ng'wena, G. M. (2017):** Lateral Geniculate Nucleus Histopathology in the Rat Experimental Model of African Trypanosomiasis. *Afr. J. Clin. Exper. Microbiol.* 18 (2): 115 - 119.
2. Cyrus Ayieko, Bilha S. Ogola, Lyticia Ochola, **Gideon A.M. Ng'wena**, George Ayodo, James S. Hodges, Gregory S. Noland and Chandu C. John **(2017):** Interferon-responses to *Plasmodium falciparum* vaccine candidate antigens decrease in the absence of malaria transmission. *PeerJ* 5:e2855; DOI10.7717/peerj.2855
3. Iddah Maulid Ali, Benard Guyah, **Gideon Ng'wena**, Kennedy Mutai and Wilfred Emonyi **(2016):** Gene Xpert MTB/RIF Specificity and Sensitivity in Tuberculosis Diagnosis using Urine Samples from HIV Patients with Signs of Tuberculosis at The Moi Teaching and Referral Hospital in Western Kenya. [*Journal of Disease and Global Health*](#).

4. Bob O. Awino, Lilian A. Ogonda, Grace C. Barno and **Ng'wena G. Magak (2016)**: Awareness Status and Associated Risk Factors for Hypertension among Adult Patients Attending Yala Sub-County Hospital, Siaya County, Kenya. [*Journal of Public Health Research* 6\(4\): 99-105](#)
5. W. O. Opiyo, **A. G. M. Ng'wena** and A. V. O. Ofula (2015): Kidney Function Predictors and Associated Serum Electrolytes Changes in HIV out Patients Attending Jaramogi Oginga Odinga Teaching and Referral Hospital, Kisumu County, Kenya. *East African Medical Journal Vol. 92 No. 12 Pg442-453*
6. Iddah. M. Ali, **Gideon A. Ng'wena**, Benard. O. Guyah, Kennedy K. Mutai and Benard. O. Abong'o (2015): Optimal parameters for Gene Xpert MTB/RIF and LAM Strip determine Test for Diagnosis of Tuberculosis using urine from HIV patients at Moi Teaching and Referral Hospital, Kenya. *Journal of Medical Science and Clinical Research Volume 03 Issue 08 6997-7004*.
7. Joan M. Tenge, John K. Lusweti and **Ng'wena G. A. Magak (2015)**: Assessment of Drinking water quality from the Malakisi River in western Kenya. *International Journal of Innovative Research and development Vol. 4 No4:154-161*.
8. Joan Mwiluka Tenge, John Kituyi Lusweti and **Gideon Ng'wena Magak (2015)**: Municipal wastewater treatment using arrowroots. *American Journal of Environmental Protection*. ISSN: 2328-5680 (Print); ISSN: 2328-5699 (Online).
9. D. M. Mwaniki, K. J. Lagat, W. Oyieko, M. Ndiema, L. K. Chemwolo, M. J. Nyariki, W. O. Opiyo and **M. G. Ng'wena (2014)**: Effects of *Catha Edulis*' Leaf Extract on Blood Chemistry and Kidney Tissues in Small East African Male Goats From Rift Valley Province Of Kenya. *East African Medical Journal Vol. 91 No. 6:1-7*
10. Lyticia A. Ochola, Cyrus Ayieko, Lily Kisia, **Ng'wena G. Magak**, Estela Shabani, Collins Ouma and Chandy C. John (2014): Changes in antigen-specific cytokine and chemokine responses to *Plasmodium falciparum* antigens in a highland area of Kenya after prolonged absence of malaria exposure. *Infection and Immunity* doi: 10.1128/IAI.01924-14 23 June 2014.
11. Bartholomew N. Ondigo, James S. Hodges, Kathleen F. Ireland, **Ng'wena G. Magak**, David E. Lanar, Sheetij Dutta, David L. Narum, Gregory S. Park, Ayub V. Ofula and Chandy C. John (2014): Estimation of recent and long-term malaria transmission in a population by antibody testing to multiple *Plasmodium falciparum* antigens. *J Infect Dis.* (2014) doi: 10.1093/infdis/jiu225 First published online: April 15, 2014
12. Joseph K Choge, **Magak A G Ng'wena**, Willis Akhwale, Julius Koech, Moses M Ngeiywa, Elijah Oyoo Okoth, Fabian Esamai, Odipo Osano, Christopher Khayeka-Wandabwa and Eliningaya J Kweka (2014): Symptomatic malaria diagnosis overestimate malaria prevalence, but underestimate anaemia burdens in children: results of a follow up study in Kenya. *BMC Public Health*, 14:332 doi:10.1186/1471-2458-14-332
13. Lagat J. K., Mwaniki M. D., Ndiema M., Chemwolo K. L., Wanyonyi G. M., Nyariki J. M., **Ng'wena G. M. (2014)**: Effects of intravenously administered khat (*catha edulis*) leaf extract on the liver functions of the small East African male goats. *Afr J Health Sci.* 2014; 27(1):71-78]
14. W. O. Opiyo, **A. G. M. Ng'wena** And A. V. O. Ofula (2013): Liver Function Markers And Associated Serum Electrolytes Changes In Hiv Patients Attending Patient Support Center Of Jaramogi Oginga Odinga Teaching And Referral Hospital, Kisumu County, Kenya. *East African Medical Journal Vol. 90 No. 10:181-192*
15. Ochola LA, **Ng'wena GM**, Noland GS, Ondigo BN, Ayodo G, John CC (2013): The Plasmodium falciparum Antigen MB2 Induces Interferon- γ and Interleukin-10 Responses in Adults in Malaria Endemic Areas of Western Kenya. *J Global Infect Dis* 2013;5:131-7.
16. Maina C. I., **Ng'wena G. M.**, Mwaniki D. M. and Oucho A. O. (2013): Histopathological effects of Trypanosoma brucei brucei infection on the master circadian rhythm pacemaker in rats. *Egerton J. Sci. & Technol. Volume 13: 95-114 ISSN No. 2073 - 8277*
17. Makokha George Wanyonyi, Ngeiywa Moses, Luka Kiprop Chemwolo and **Ng'wena Gideon Magak (2013)**: Roles of Rodent Species, Age, and Sex in Determining The Prevalence and Intensity Of *Trypanosoma* and *Plasmodium* Parasites in Rodents of Kakamega Forest Area in Western Kenya. [*Afr J Health Sci.* 24:158-166].
18. M. A. Iddah, B. N. Macharia, **A. G. Ng'wena**, A. Keter, and A.V.O.Ofula (2013): Thyroid Hormones and Hematological Indices Levels in Thyroid Disorders Patients at Moi Teaching and Referral Hospital, Western Kenya. Hindawi Publishing Corporation ISRN Endocrinology Volume 2013, Article ID 385940, Pg 1-6 <http://dx.doi.org/10.1155/2013/385940>
19. Andrew A. Obala, Helen L. Kutima, Henry D. N. Nyamogoba, Anne W. Mwangi, Chrispinus J. Simiyu, **Gideon N. Magak**, Barasa O. Khwa-Otsyula and John H. Ouma (2012): *Anopheles gambiae* and *Anopheles arabiensis* population densities and infectivity in Kopere village, western Kenya. *J. Infect. Dev Cries.* 6 (8) 637-643
20. Melissa A.R. Rolfes, Matthew McCarra, **Ng'wena G. Magak**, Kacey C. Ernst, Arlene E. Dent, Kim A. Lindblade and Chandy C. John (2012): Development of clinical immunity to malaria in highland areas of low

and unstable transmission. *Am J Trop Med Hyg* Published online September 17, 2012; doi:10.4269/ajtmh.2012.11-0530

21. Mwaniki D. M., **Ng'wena A. G. M.**, Chemwolo L. K., Nyariki J. M., and Ndiema M. K. (2012): *Trypanosoma congolense* infection causes testicular degeneration and reduction in sperm quality in goats (*Capra aegagrus hircus*); *J. agric. pure appl. sci. technol.* **15**, 1-15.
22. N. J. Masimba, **N. G. Magak**, M Ndiema, R. Odera, L. Chemwolo, M. D. Minjire, D. K. Ndungu (2012): Disruption of reproductive cycles in rats (*Rattus norvegicus*) acutely infected with *Trypanosoma brucei brucei*(*T.b.b*) is associated with Hyperthermia and, ovarian and pituitary gland tissue degenerations. *African Journal of Health Sciences* **22:232-237**
23. Chemwolo L. Kiprop, **Ng'wena Magak**, Ngeiywa Moses, Mwaniki Dickson, Ndiema Moses and Nyariki J. Masimba (2012). Effects of Protein diet on Kerio Valley Male Goats infected with *Trypanosoma congolense*. *Journal of Agriculture, Pure and Applied Science and Technology* **Volume 12:1-16**
24. Ndede I, Mining S. K., Were E. O., **Ng'wena A. G. M.** and Emonyi W. I. (2012). Immune profile of HIV-1 discordant couples attending AMPATH clinic in Western Kenya. *African Journal of Health Sciences* **21:113-120**
25. **Ng'wena Gideon Magak.**, Mwaniki Dickson Minjire, Chemwolo Luka Kiprop and Ndiema Moses (2011). Effects of *T. Congolense* Infection on Hematological Indices, Liver, Spleen and Lymph nodes of Male Goats from Kerio Valley District in the Rift Valley Province of Kenya. *Journal of Agriculture, Pure and Applied Science and Technology* **Volume 9, 1-15**
26. **Ng'wena G. M.**, Mwaniki D. M., Chemwolo, L. K. and Lusweti J. (2011). Hyperthermia and Cellular Changes in the Pineal Gland are a Possible Cause of Reproductive Dysfunctions in the Small East African Male Goats Infected with *Trypanosoma Congolense*. *Journal of Agriculture, Pure and Applied Science and Technology* **Volume 8, 15-28**
27. W. O. OPIYO, **A. G. M. Ng'wena** and A. V. O. OFULLA (2011): Urine Markers of Kidney Disorders and their Risk Associations in Hiv-Infected Patients Attending Nyanza Provincial General Hospital in Kisumu, Western Kenya. *East Africa Medical Journal* **Vol. 87 No 3**
28. Makokha G. Wanyonyi, **Ng'wena A. G. Magak** and Ngeiywa M. Moses (2011): Prevalence of *Trypanosoma* and *Plasmodium* species' Parasites in Small Rodents of Kakamega Forest in Western Kenya. *Afr J. Health Sci.* **19: 67-74**
29. Chandy C. John, Melissa A. Riedesel, **Ng'wena G. Magak**, Kim A. Lindblade, David M. Menge, James S. Hodges, John M. Vulule, and Willis Akhwale (2009): Possible Interruption of Malaria Transmission, Highland Kenya, 2007–2008. *Emerg Infect Dis* 2009; **15 (12): 1917-1924.**
30. **Ng'wena, A.G.M.**, Patel, N.B., Wango, E. O. (1998): Plasma Luteinizing Hormone (LH) levels in *Trypanosoma Congolense* infected female goats Challenged with Gonadotropin Releasing Hormone (GnRH)-agonist and Clonidine. *Proceedings of the First Pan-African Conference on Biochemistry and Molecular Biology: 145-148.*
31. **Ng'wena, A.G.M.**, Patel, N.B., Wango, E. O. (1997): Plasma Luteinizing Hormone (LH) levels in response to Gonadotropin Releasing Hormone (GnRH)-agonist and Clonidine in *Trypanosoma Congolense* infected female goats. *Brain Research Bulletin* **44: 591-595.**