



# Newsletter

December, 2023 Edition



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# Editorial

## THE HEALTH AND SAFETY PROGRAMME AT THE NMIMR

Recent global health emergencies have prompted interventions such as the Global Health Security Agenda (GHSA) and the International Health Regulations (IHR) with the main objective of enhancing public health systems' capacity to prevent, detect and respond to infectious diseases. The effectiveness of these interventions across many African countries has been hampered by poor implementation and weak health systems. Amidst these challenges, biosafety and biosecurity emerge as critical gateways to strengthen health security systems in Africa. Noguchi Memorial Institute for Medical Research (NMIMR) stands as a beacon of excellence, providing advanced diagnostic, disease monitoring and surveillance services crucial to national and global health. The Institute's broad research scope covers a diverse range of pathogens including bacteria, viruses and parasites, each requiring a unique handling approach. Consequently, the Institute is equipped with laboratories with varying biosafety

levels, ranging from basic BSL-1 laboratories to the more sophisticated BSL-3 system. This notwithstanding, the mandate and vision of NMIMR perpetually exposes staff and visitors of the Institute to biorisk. The Institute, also being a training centre for various biomedical professionals and a centre of excellence for biomedical research and diagnosis, is committed to providing a safe working environment for all staff and incorporates best practices in biosafety and biosecurity in all its training programmes. The safety policy of the Institute complies with regulations of the Ministry of Health and other applicable legislation as a minimum standard with acceptable risks to health workers, providing and maintaining equipment and systems of work that are safe for staff and the surrounding community. It also provides information, instruction, training and supervision necessary to ensure the health and safety of employees and visitors at the workplace. The Institute is also committed to ensuring

the safety and absence or reduction of risks to health in connection with the use, handling, storage and transport of specimens and other articles and substances used in NMIMR. NMIMR maintains all places of work under its control in a condition that is safe and with reduced risks to the health of workers and volunteers, and monitors the effectiveness of health and safety programmes, in consultation with the appointed Safety Representatives.

Safety measures, implemented without compromise, aim to reduce the risk of accidental biological agent exposure and infection (biosafety), and prevent the acquisition, loss, theft, misuse, or unauthorized release of these agents (biosecurity). Management of the Institute has two working committees that have the responsibility of advising safety working teams on activities and making recommendations to the Director on safety measures where appropriate. The Institute determines its risk reduction measures from information gathered through rigorous biorisk assessments. Laboratories dealing with infectious agents apply stringent containment measures which include the use of personal protective equipment (PPE) and adherence to strict protocols to mitigate risks. Chemical hazards are addressed by proper labelling, storage, and handling of hazardous chemicals according to safety guidelines. Departments and their laboratories maintain detailed chemical inventories, with readily

available safety data sheets. To prevent physical hazards, staff receive comprehensive training on equipment usage, and regular medical checks to ensure their health. Vaccinations are administered to guard against diseases associated with the dangerous pathogens they handle, and Post-Exposure Prophylaxis is available around the clock in case of exposure.

The establishment of the Safety Office has enabled the coordination and maximization of all efforts addressing biosafety and biosecurity challenges at NMIMR. The operations of the Safety Office centre around capacity building of staff and students, which encompasses general fire safety, first aid, laboratory and occupational safety practices, incident reporting, safety audits, and assessments. The Safety Office also manages the Institute's safety related activities with organizations such as Africa CDC, WHO, and West Africa Biosafety Network (WABNET) of WAHO.

In the face of emerging infections and pandemics, NMIMR remains optimistic that a well-coordinated biosafety and biosecurity programme can serve as a prototype for similar establishments in Ghana and other African countries. Leveraging its experience, the Institute aims to set a benchmark for adhering to global and national health safety and security standards.



## RESEARCH HIGHLIGHTS

### Development of rapid test for the diagnosis of Buruli ulcer disease

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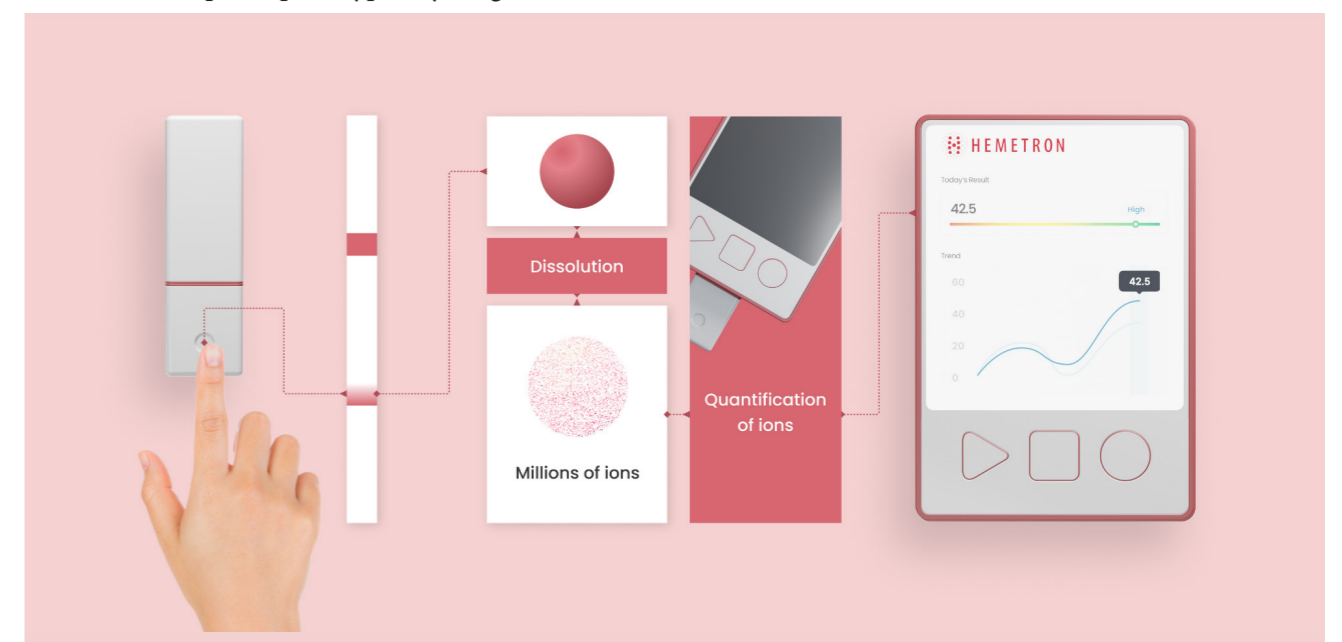
<sup>6</sup>University of Tennessee, UNITED STATES

<sup>7</sup>Foundation for Innovative New Diagnostics, Switzerland

**E**arly diagnosis by PCR and antibiotic treatment is the recommended strategy for the control of Buruli ulcer (BU). BU patients however do not have access to PCR diagnosis in endemic areas which are often remote and lack basic healthcare services. Hence, there is the need for a rapid test of comparable sensitivity and specificity to PCR that can easily be deployed and accessed in endemic areas.

We identified the IS2404 Loop Mediated isothermal Amplification procedure as a promising alternative to PCR. In collaboration with the Department of Infectious Diseases and Tropical Medicine/Klinikum der Universität München (DITM/KUM) and the Foundation for Innovative New Diagnostics (FIND), we have developed a prototype dry reagent-based IS

2404 LAMP test for the rapid confirmation of Buruli ulcer disease. The test reagents are lyophilized and, therefore, do not require cool storage and can be stored under ambient temperature of 25°C for up to one year. We found the test to be 100% sensitive and 100% specific compared to the reference IS2404 PCR in our laboratory evaluation. These features make the test ideal for deployment in Buruli ulcer endemic areas. The Bacteriology Department is conducting a prospective evaluation of the test in two district hospitals in Ghana to assess whether it can contribute to filling the diagnostic gap between the confirmatory testing conducted in reference centres and the endemic foci in rural areas.



# In silico identification of potential PvFKBP35 inhibitors from *Entadrophragma angolense* Limonoids extracts as antimalarial agents

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## Abstract

*Plasmodium* species, which are spread by female *Anopheles* mosquitoes, are responsible for malaria. Out of the five major *Plasmodium* species, *Plasmodium falciparum* and *Plasmodium vivax* are the most deadly and invasive species responsible for 99.7% and 75% of malaria cases in Africa and America respectively. Despite the invasive nature of malaria, the *Plasmodium* parasite continues to develop resistance to current drugs. It is therefore imperative to come up with new therapeutics to combat malaria. Previous studies have reported that Limonoids from the *Meliaceae* family possess antimalarial properties. This study therefore aims at employing computational approaches to identify potential antimalarial Limonoids by targeting PvFKBP35. PvFKBP35 has been reported to be a suitable target for antimalarial therapeutics as it is involved in various physiological activities including transcription, protein stability and folding. Molecular docking, Molecular Dynamics simulation and Molecular Mechanics-Poisson Boltzmann Surface Area calculation were employed to identify the potential leads. Sixteen [16] Limonoids extracted from the bark of the stem of *Entadrophragma angolense* were virtually screened against PvFKBP35. The top hit compounds were subjected to 500 ns Molecular Dynamics simulation and Molecular Mechanics – Poisson Boltzmann Surface Area calculations to examine their stability and

free binding energy. Two potential leads, compounds **1** and **11** with binding energies 6.3 and 5.4 kcal/mol respectively were identified. The potential leads in complexed with PvFKBP35 had an average root mean square deviation of  $1.18 \pm 0.19 \text{ \AA}$  and  $3.12 \pm 0.60 \text{ \AA}$ , indicating their stability. Solvent Accessible Surface Area was utilized to predict the penetrative ability of the compounds into the binding pocket. Average Solvent Accessible Surface Area values of  $327.88 \pm 47.54 \text{ \AA}^2$ ,  $402.18 \pm 39.81 \text{ \AA}^2$  were obtained for compounds **1** and **11** respectively. ADMET estimations of compounds **1** and **11** predicted them to be druglike and do not violate Lipinski's rule of five. Compounds **1** and **11** need to be tested *in vitro* to validate their antimalarial activity although they were predicted to be antiprotozoal with Pa values 0.207 and 0.162. These compounds can then serve as the scaffold for the design of novel antimalarial therapeutics.

# Occurrence of *Rickettsia* spp. and *Coxiella burnetii* in ixodid ticks in Kassena-Nankana, Ghana

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Ticks and tick-borne pathogens have recently emerged as one of the major public health concerns globally. These ticks negatively affect livestock production and transmit diseases that affect animals and humans. The ticks attach themselves to livestock, especially cattle and as the cattle are imported into the country, these ticks invade new communities, multiply and spread diseases. People in Kassena-Nankana depend so much on livestock either to sell or use on their farms. Frequent contact with these livestock increases the risk of tick bites and the spread of pathogens to the owners. In this study, we collected ticks from livestock in Kassena-Nankana and screened them for zoonotic pathogens. These zoonotic pathogens are germs that move from animals to cause infections in humans. We identified different tick species mostly infesting cattle compared to sheep and goats. Some of these ticks are known to bite humans if given the opportunity and could potentially transmit infections. We also identified zoonotic pathogens

*Rickettsia africae*, *Rickettsia aeschlimannii* and *Coxiella burnetii*. *Rickettsia africae*, which was the most abundant pathogen identified causes the disease African tick-bite fever. African tick-bite fever is a neglected disease that has mostly been identified in tourists who have been bitten by ticks while visiting regions where the disease is prevalent. The other pathogens *R. aeschlimannii* and *C. burnetii* cause mild to severe infections in humans worldwide if left untreated. It was also seen in this study that while *R. africae* and *C. burnetii* infections occurred in ticks collected in the wet season, *R. aeschlimannii* occurred mostly in the dry season. The results of this study show that coming into contact with livestock that could be infested with ticks increases the risk of being infected with tick-borne diseases. There is a need to educate livestock handlers to protect themselves and prevent tick bites. Furthermore, tick populations need to be controlled nationwide to prevent the spread of infections and reduce the negative effects on livestock production.

## PERSONALITY PROFILE

### Mr. Jacob Asmarh Arthur-Quarm, FELTP, BOPM, MIScT\_UK,

**M**r. Jacob Asmarh Arthur-Quarm was employed at NMIMR in February 1991, with a City and Guilds Science Laboratory Technician certificate and was assigned to the Department of Virology as a Senior Technician.

He was selected together with other African scientists to be trained in laboratory diagnosis of poliomyelitis, hosted by the Institute and sponsored by the World Health Organization (WHO) and the Japan International Cooperation Agency (JICA).

In 1994, he was awarded a JICA Fellowship to profess in viral disease diagnosis and research methods for a year under the Infectious diseases project.

Mr. Arthur-Quarm obtained a Higher Diploma in Microbiological Techniques from the Institute of Science and Technology, UK, in 1999, and became a member of the prestigious Institute of Science and Technology, UK (MIScT\_UK).

His quest for knowledge led him to pursue a degree in Operations and Project Management in 2009 at the Ghana

Institute of Management and Public Administration (GIMPA). He participated in international courses and trainings including the Department of Safety and Security and Safe and Secure Approaches in Field Environments (DSS SSAFE) of the United Nations; Stop Transmission of Polio Training (STOP) course at the CDC, Atlanta and the Creative Solutions to Complex Problems (CSTOP) Training at the CDC, Atlanta.

He later enrolled at the School of Public Health, University of Ghana, Legon, for a Master of Philosophy in Applied Epidemiology and Disease Control and came out with a competency in Field Epidemiology and Laboratory Training Program (FELTP) and a laboratory and disease specialist. Currently, he underwent a two-year training in Applied/Field Epidemiology and Disease Control (2010-2012) with core competences in epidemiology,



outbreak investigation, biostatistics, surveillance, research methods, scientific communication, and a host of public health competences. Prior to this, he held a degree in Operations and Projects Management (Greenhill College, 2009).

Mr. Arthur-Quarm has worked as a WHO STOP Consultant in the capacity of Acting Area Coordinator for the Polio Eradication Initiative, Mirpurkhas Division, WHO Pakistan. He oversaw the implementation, monitoring and evaluation of the 2013 Strategic Plan for Polio eradication in Sindh Province with a target population of 25 million inhabitants in 2014. He has 25 years' experience in conducting field and laboratory-based medical research in polio, hemorrhagic fevers, HIV demographic and epidemiological studies, public health research and a vast expertise in designing epidemiological

research, disease surveillance systems evaluation and data analysis using both quantitative and qualitative statistical software. His knowledge in this area qualified him as an Emergency Response Team (ERT) member for Africa-CDC. His ability to work in teams is a skill that he has used extensively to serve on the Africa CDC ERT. As a field epidemiologist, he led teams that investigated disease outbreaks including polio, influenza, cholera, Buruli ulcer, viral haemorrhagic fevers (yellow fever, Ebola, Lassa fever amongst others), and zoonotic diseases surveillance including human, animal, and vector studies. The objectives of these investigations were to verify the rumors of outbreaks and describe the disease event by person, place and time and to initiate public health interventions

Mr. Arthur-Quarm was appointed as the Facilities Manager for the Noguchi Advanced Research Laboratories, the work description of which included facility and grounds maintenance, cleaning, health and safety, procurement and contract management, security, space management, utilities and communications infrastructure management. He coordinated the procurement and installation of the most recent incinerator with a capacity for 200 kilograms of waste per hour. He also compiled a comprehensive budget for spare parts and maintenance of the Noguchi Advance Research Laboratories. Due to his hard work and competence, the Institute appointed him as its equipment Champion for QMS. He oversaw the retraining of lab users who needed

refresher training and ensured that the laboratories were cleaned/sanitized and kept in an orderly manner, that all instrumentation/equipment were functioning properly and when instruments/equipment needed maintenance/repairs, that he contacted the appropriate Equipment Engineers to have them repaired.

Mr. Arthur-Quarm is a member of several national committees including Logistics Management Committee for the National Network for COVID-19 Testing Laboratories, National Polio Expert Committee which is responsible for the final classification of Acute Flaccid Paralysis cases for the country, National Polio Containment Committee, He is also a member of the Laboratory Technical Committee of the Ghana Health Service, whose work is to establish clear criteria and standards for the establishment, maintenance, running and improvement of health laboratories in Ghana with respect to infrastructure, finance, equipment, location, accessibility, human resource, expertise and quality management systems. The Committee's work also includes providing national standardized accreditation criteria for health laboratories in Ghana as well as providing the framework that allows for all laboratories in Ghana to obtain and maintain national and relevant international accreditation. The Institute congratulates Mr. Jacob Asmarh Arthur-Quarm for his selfless service to the Institute and the Nation. We say Ayekoo to him for his excellent service to the Institute, University, Ghana and the global health system over the years.



## AWARDS

### Prof. Abraham Kwabena Anang honoured with Order of the Rising Sun by Japan



Ambassador Hisanobu Mochizuki (left) conferring the Order of the Rising Sun, Gold Rays upon Prof. Abraham Kwabena Anang (middle) Photo credit: Stephanie Birikorang

Prof. Abraham Kwabena Anang, former Director of the Institute, was honoured with the esteemed Order of the Rising Sun by the Government of Japan at a ceremony held at the Japanese Embassy in Accra on 9th November, 2023.

The conferment was delivered by the Japanese Ambassador to Ghana, His Excellency Mochizuki Hisanobu, on behalf of His Majesty Naruhito, the Emperor of Japan. It was in honour of Prof. Anang's leadership and commitment towards the advancement of biomedical research and infectious disease management at NMIMR. He was also recognized for his distinguished contribution to the promotion of mutual understanding between Japan and Ghana.

The Order of the Rising Sun, otherwise called "Kyokujitsu sho", a symbol of significant international contributions, culture, and field advancements, was established in 1875 by Emperor Meiji. While this recognition is traditionally reserved for Japanese nationals, the award was extended to non-Japanese recipients in 1981.

At the ceremony, His Excellency Hisanobu commended Prof. Anang for his invaluable role in fostering collaboration between Japan and Ghana. He emphasized the importance of such partnerships in addressing global health challenges and advancing scientific knowledge.

He explained that the Order of the Rising Sun stands as Japan's most distinguished accolade. According to him, its design, featuring sun-rays emanating from the ascending sun, embodies a relentless momentum reaching for the heavens.

The illustrious honour, he said, is now bestowed upon both Japanese and foreign nationals who have exhibited exceptional service to the state across various fields.

"Tonight, the Order of the Rising Sun, Gold Rays with Rosette, is to be given to a remarkable Ghanaian personality, Prof Anang, who has dedicated over four decades of his life to serve Noguchi Memorial Institute for Medical Research," H.E Hisanobu added.

His Excellency Hisanobu revealed that Prof. Anang immersed himself in research within the Institute's

walls in the year 1985 and moved on to assume the role of Director from 2017 until his retirement in 2021. He spearheaded significant studies and fostered a climate of mutual understanding between Japan and Ghana during his term as Director.

"We all acknowledge his unwavering commitment to research, exemplary leadership, and tireless efforts in the development of the Institute. Owing to his leadership and with support from his colleagues, NMIMR is now widely known as the successful example symbolizing the relationship between Japan and Ghana," he added.

Prof. Anang expressed his gratitude for the honour, stating, "The conferment of the Japanese National Decoration, 'The Order of the Rising Sun, Gold Rays with Rosette,' by the Emperor of Japan on me is a testament to the hard work and dedication I put into building partnerships and strengthening relationships between Ghana and Japan during my term as the Director of NMIMR."

"This recognition is of exceptional importance to me, as it validates my efforts and inspires me to continue working towards fostering stronger ties between the two nations," he added.

He also mentioned that, "The conferment of this honour on me is a stimulant for further strengthening of the relationship between NMIMR and Japan. The conferment should also benefit the initiation of more collaborative research between Ghanaian and Japanese scientists, and the training of young Ghanaian scientists from NMIMR and University of Ghana, in Japan."

He believes the honour will further enhance collaboration between NMIMR, University of Ghana and Japanese industry partners for sponsoring medical research in Ghana.

The award ceremony was attended by representatives from the Japanese government, local dignitaries and colleagues from the medical and research community.



# ARM 2023

## Strengthening research capacity is key to mitigate current and future disease threats



At the 8th Annual Research Meeting of Noguchi Memorial Institute for Medical Research (NMIMR), researchers of the Institute revealed that capacity building is essential to eradicating current and future disease threats.

The three-day scientific research meeting organized by the Institute from November 22–24, 2023, under the theme “Strengthening Research Capacity to Mitigate Current and Future Disease Threats: Bridging the Research-Policy Divide”, highlighted the crucial intersection between capacity building, scientific research, and public policy in addressing global health challenges.



Some students at the Department of Electron Microscopy and Histopathology during the Open Day

The three-day event began with an “Open Day” on November 22, 2023, which formed part of the activities marking the 2023 research meeting.

About 2,700 students from 27 basic, secondary and tertiary institutions attended the Open Day and this signified the convergence of educational, scientific and community engagement while highlighting the Institute’s commitment to fostering a culture of scientific inquiry among students at different levels of education.



A group of students in a lab at the Advanced Research Laboratories



Prof. Dorothy Yeboah-Manu, Director, NMIMR

In her welcome address at the opening ceremony, Prof. Dorothy Yeboah-Manu, Director, NMIMR, explained that the theme for the year’s research meeting resonates well with the African Union’s Vision 2040 to be self-sufficient in terms of vaccines and other tools development to respond appropriately to health threats.

According to Prof. Yeboah-Manu, “Africa is home to about 18% of the world’s population, with 25% of the global disease burden, whereas Africa constitutes only 1.1% of the global scientific research community. This threatens the AU’s New Public Health Order, which aims to enhance the continent’s health and economic security. There is therefore a need for targeted skill and researcher development frameworks with sustained support for doctoral and postdoctoral training that will contribute to bridging these gaps.”

She indicated that the Institute’s commitment to capacity building is evident at all levels of the academic ladder. “Since 2019, more than 3,000 individuals, including 38 Masters and 54 PhDs from different African countries, have been trained at the Institute. This is testament to the Institute’s mandate as a centre for professional training.” She reiterated.

The Special Guest of Honour, Dr. Yaw Osei Adutwum, Minister for Education, in his address, emphasized the importance of having relevant research outputs, which are essential to transforming society. “I believe that research must produce tangible outcomes for the benefit of humanity.”



Dr. Yaw Osei Adutwum, Minister for Education

Dr. Adutwum used the occasion to commend the government and people of Japan for their continuous support since the establishment of the Institute. “We are grateful to the Japanese Government for the investment they have made in this Institute,” he reiterated.

Prof. Julius Fobil, who represented the Vice-Chancellor as Chairperson, stressed the need for the global community to work together to avoid being caught unawares, as was the case of COVID-19.



Prof. Julius Fobil, Provost, College of Health Sciences, University of Ghana

According to him, the theme of the meeting aligns with the vision of the University and the Vice Chancellor's own vision to build capacity that will ensure the sustainable development of the University.

“As the entire world prepares for future pandemics and conducts research that will aid the rapid development of interventions against emerging and re-emerging infectious as well as non-communicable diseases, building capacity in terms of human resources and the relevant infrastructure are crucial steps,” he added.



*Prof. Sir Tumani Corrah, Director, Africa Research Excellence Fund*

Prof. Sir Tumani Corrah, Director, Africa Research Excellence Fund, delivered the keynote address on the topic “Training the Next Generation of African Leaders” on the first day. He highlighted the need for Africans to develop the requisite skills to take charge of their health surveillance systems.

According to Prof. Corrah, 25% of the global disease burden resides in Africa. He further indicated that there is a double whammy of infectious and non-communicable diseases, with seven (7) epidemics currently happening in Africa.

“Our health systems are under-resourced. We have weak research systems. The key to these problems is funding. We need to provide funding. Africa needs a community

of talented emerging health researchers, providing them with the knowledge and skills to carry out groundbreaking research on our continent. We also need to equip them with the knowledge and skills to sit at the table and talk about equitable partnerships.”



*Prof. Moses Bockarie, Associate Editor, International Journal of Infectious Diseases*

Prof. Moses Bockarie, Associate Editor, International Journal of Infectious Diseases, delivered his keynote address on “Opportunities and Strategies for Capacity Building in Africa” on the second day of the meeting. He disclosed that the Ebola virus outbreak in 2014–2016 exposed the limited capacity for biomedical research and clinical trials in Africa.

According to Prof. Bockarie, the virus, which mostly affected Guinea, Liberia, and Sierra Leone, showed a low level of capacity. “In Sierra Leone, we did not even have any functional lab with a PCR facility in terms of diagnosing viruses. To tackle this huge epidemic, British forces were deployed to Sierra Leone to salvage the situation. They had to come immediately to build testing sites, facilities, and treatment centres. The same can be said for Liberia and Guinea, where Operation United Assistance from the United States and the French military forces equally stepped in to take control of the situation”.

H.E Mochizuki Hisanobu, Japanese Ambassador to Ghana, Dr. Guya Guracha, Team Lead, Emergency Preparedness and Response, WHO and Ms. Suzuki Momoko, Chief Representative of JICA, were among other important guests who graced the occasion.

Other speakers included senior research fellows of the Institute who presented on research topics such as molecular epidemiology-related research, anaemia prevention research, malaria research and policy, as well as viral research and policy.

Researchers, health practitioners, policymakers, students and the public attended the three-day meeting, and this afforded NMIMR the opportunity to receive valuable feedback from stakeholders in evaluating its research programs and activities.

The ARM was climaxed with an interesting debate on the topic ‘*Clinical trials are not needed in Africa to mitigate current and future disease threats*’.

The ARM was attended by over 800 local and international research scientists.



*A cross-section of participants at the scientific meeting*



## EVENTS IN PICTURES

### NMIMR-VISA jointly organise a four-day STEM fair for JHS Students – July 4 -7, 2023

NMIMR collaborated with Vacation Initiatives Science, Africa (VISA), to organise a four-day Science, Technology, Engineering and Mathematics (STEM) fair under the theme “Science in Tents” from July 4 to 7, 2023, for Junior High School (JHS) students from thirteen (13) public schools.



### Hepatitis Awareness Health Quiz for Junior High Schools – July 21, 2023

The Hepatitis-Malaria (HEPMAL) Project of the Institute collaborated with the Pan African Health Advocacy Centre to organise the 2nd edition of the Hepatitis Awareness Health Quiz for Junior High Schools in the Ayawaso District of the Greater Accra Region. Espo Best International School from East Legon emerged the overall winners after three weeks of display of academic prowess.



### One Life, One Liver – NMIMR Celebrates World Hepatitis Day with Screening and Vaccination Exercise at Madina – July 28, 2023

As part of the activities marking the celebration of World Hepatitis Day, the HEPMAL Project at the Institute in collaboration with the Okyeame Kwame (O.K) Foundation, MDS Lancet Laboratories Ghana Limited and the Madina Health Directorate of the Ghana Health Service organised free hepatitis B and C screening, hepatitis B vaccination, haemoglobin check and malaria screening at the Madina STC Yard within the La-Nkwantanang Madina Municipal District.



### United Kingdom Secretary of State for Foreign, Commonwealth and Development Affairs visits NMIMR – August 1, 2023

Rt. Hon. James Cleverly, Secretary of State for Foreign, Commonwealth and Development Affairs of the United Kingdom, paid a working visit to the Institute.



## NMIMR-Africa CDC jointly organised a two-week Bacterial Genomics and Bioinformatics Workshop – August 7, 2023

The Genomics Core Facility at the Institute collaborated with Africa Pathogen Genomics Initiative of the Africa CDC to organise a two-week Bacterial Genomics and Bioinformatics workshop for 20 participants from 14 different African countries.



## Dr. Jerome Hahn Kim, Director General of the International Vaccine Institute (IVI) visited NMIMR – August 29, 2023

Dr. Jerome Hahn Kim, Director, IVI, together with some officials paid a working visit to NMIMR to explore opportunities for collaborations.



## NMIMR organised a four-day lecture on Introduction to the Science and Business of Biotechnology – October 2 to 5, 2023

The Institute held a four-day lecture series on Introduction to the Science and Business of Biotechnology with Prof. Harvey Lodish, a Renowned Molecular and Cell Biologist as the speaker.



## NMIMR collaborated with JICA to organise the 5th Third-Country Training Course in infectious disease diagnosis, October 2 to November 24, 2023

The Institute, in collaboration with the Japan International Cooperation Agency (JICA), rolled out the 5th Third Country Training Course on Enhancing Laboratory Skills for Diagnosis of Infectious Diseases. Fifteen scientists from nine West African Countries were trained over a period of 8 weeks.



closing ceremony to climax the Third Country Training Course with presentation of certificates was held on November 21, 2023.



### The JICA-Noguchi QMS Project organised a two-day training workshop on Operation and Maintenance of Chillers and Air Handling Units – October 9, 2023

The JICA-Noguchi QMS Project at the Institute organised a two-day training workshop on Operation and Maintenance of Chillers and Air Handling Units facilitated by Daikin (a leading innovator and worldwide provider of advanced, high-quality air-conditioning and heating solutions) aimed at providing engineers of the Facilities Management Unit at the Institute with preventive maintenance and troubleshooting skills.



### NMIMR participated in #WEAR UG DAY – October 11, 2023

Staff of the Institute joined the university to celebrate #WEAR UG DAY, showcasing the UG pride.



## NMIMR collaborated with BU-LABNET to organize the 5<sup>th</sup> Annual Meeting of the Network of Buruli Ulcer PCR Laboratories – October 23 – 25, 2023

The Institute collaborated with the PCR laboratories (BU-LABNET) in the WHO African Region to organise its 5th Annual Meeting.



## NMIMR supported victims of the Akosombo Dam spillage with free health screening – October 30 – November 3, 2023

The Institute supported victims resident in the South Tongu and Anloga Districts with a week-long free health screening following the Akosombo Dam spillage.



## NMIMR 2022/23 NSPs donated to Nsawam Prisons – November 3, 2023

The 2022/23 Year Group of National Service Personnel of the Institute ended their one-year national service with a donation of 60 boxes of sanitary pads, 11 bags of thrift clothes and toiletries to the Nsawam Medium Security Female Prison and the Nsawam Camp Prison.



## Special Institutional Seminars

Prof. Ottar N. Bjornstad, Distinguished Professor of Entomology and Biology at the Pennsylvania State University, gave an insightful presentation on outbreaks of measles as well as childhood infections during our Special Institutional Seminar on November 14 2023.





NMIMR also hosted Prof. Charlotte Menné Bonfeld, Head, Department of Immunology and Microbiology (ISIM), Faculty of Health and Medical Sciences (SUND), University of Copenhagen, Denmark, on November 20 2023. She shed light on identifying and characterising novel pathways and molecules in T cell activation and differentiation associated with inflammatory skin diseases at our Special Institutional Seminar.



## NMIMR organised an Open Day – November 22, 2023

The Institute organised an Open Day for the general public (schools, institutions and individuals) to explore the Institute, meet researchers, scientists, build networks and get first-hand information about NMIMR.



## NMIMR partnered Cambridge University and Action on Preeclampsia Ghana to organise a 3-day collaborative workshop– December 4-6, 2023

The PLACAP Project, based at NMIMR, partnered with Cambridge University and Action on Preeclampsia Ghana to organise a 3-day collaborative workshop on placental research capacity building.



## Grants Awarded in 2023

	Project Title	Funding Agency	Duration
1	Implementing Cervical Cancer Screening Among Women Living with HIV in Ghana (I-CERV)	5% Initiative	2023-2025
2	Longitudinal tracking of B cell and functional antibody responses to SARS-CoV-2 and other human coronaviruses in Ghana (COROVIA)	Swiss National Science Foundation	07/Mar/2023 - 30/Jun/2026
3	WHO immune evasion working group: proposed action plan for XBB.1 assessment	WHO	01/Apr/2023 - 31/Jul/2023
4	Collection of PF field isolates in Ghana for CHMI studies	Bill and Melinda Gates Foundation	05/Apr/2023 - 14/Apr/2024
5	Research Excellence for African Challenges in Health, Afrique One-REACH	Science for Africa Foundation (SFA)	01/May/2023 - 14/Apr/2027
6	Training on integrated 33 clinic-chemical analysis for exploring aflatoxin poison and mitigation strategies towards building a Food Security Program at the Noguchi Memorial Institute for Medical Research	AREF Fund	01/Jun/2023 - 30/Jul/2024
7	NR Aedes Study	University of California (UC) California (UC)	01/Jun/2023 - 30/Sep/2025
8	The Pan-African network for genomics surveillance of poverty related diseases and emerging pathogens (PANGenS)	EU/EDCTP3	23/Jun/2023 - 31/May/2027
9	Gamma delta T cells and naturally acquired immunity to malaria in neonates	German Research Foundation (DFG)	04/Apr/2023 - 03/Apr/2025
10	Viral and latent HIV reservoir characteristics in HIV patients with persistent low-level viremia (Stop LLV)	NIH	01/Jul/2023 - 30/Jun/2025
11	Support for NMIMR to detect and characterize cases of Lassa fever in Ghana	WHO	30/Jul/2023 - 30/Sep/2023
12	Comprehensive Multi-Country Field Evaluation of Clinical Performance, Feasibility & Ease-of-Use of Novel Onchocerciasis Diagnostics	Taskforce for Global Health	01/Aug/2023 - 30/Mar/2024

## PUBLICATIONS JULY - DECEMBER, 2023

13	Etiology of Acute Febrile Illnesses among children under 12 years in urban and peri-rural communities in Ghana: A step in the development of differential diagnosis tools (AFI PROJECT)	Noguchi ORS Fund	01/Aug/2023 - 31/Jul/2024
14	Monitoring and Surveillance Data for Effective Malaria Control in Ghana	USAID	02/Aug/2023 - 31/Jul/2028
15	Comprehensive evaluation of the effectiveness of Rotavac vaccine rollout in Ghana	GAVI	14/Aug/2023 - 13/Aug/2025
16	Enhance Diagnostic Acute Febrile Illness Surveillance in Ghana	NAMRU	29/Sep/2023 - 31/Aug/2024
17	Africa Pathogen Genomic Initiative, Africa (PGI)	ASLM	01/Oct/2023 - 30/Sep/2024
18	Investigating the role and impact of nano-sized extracellular vesicles and drug resistance in protozoan diseases (i-NEVER REST)	CIHR/IDRC	01/Nov/2023 - 31/Oct/2027
19	A Phase 2 Randomized, Double-blinded, Placebo-controlled Clinical Trial to Evaluate the Safety, Tolerability and Immunogenicity of rVSVΔG-LASV-GPC Vaccine in Adults and Children Residing in West Africa”	IAVI/ CEPI	01/Nov/2023 - 31/Oct/2026
21	Sentinel surveillance for multiple infectious cutaneous ulcers in cutaneous leishmaniasis endemic communities of the Oti Region, Ghana (Multi-CU)	Foundation for Innovative New Diagnostics (FIND)	01/Dec/2023 - 31/May/2024

1. **Boakye, D.**, Mackenzie, C., Tallant, J., Heggen, A., Leff, S., Nadjilar, L. & Sow, M. (2023). Enhancing onchocerciasis elimination program management: A biological approach to deciding when to begin Stop Mass Drug Administration activities. *PLOS Neglected Tropical Diseases*, 17(7): e0011348. <https://doi.org/10.1371/journal.pntd.0011348>.
2. Chama, M. A., Dziwornu, G. A., Popli, E., Mas-Claret, E., **Egyir, B.**, Ayine-Tora, D. M., **Owusu, K. B.-A.**, Reid, D. G., Osei-Safo, D., Duer, M. & Mulholland, D. (2023). Antimicrobial and in silico studies of the triterpenoids of *Dichapetalum albidum*. *Heliyon*, 9: e18299. <https://doi.org/10.1016/j.heliyon.2023.e18299>.
3. Nditanchou, R., Dixon, R., Atekem, K., Biholong, B., Wilhelm, A., Selby, R., Oye, J., Kamgno, J., **Boakye, D.**, Schmidt, E. & Senyonjo, L. (2023). Ivermectin and doxycycline treatments against Onchocerciasis: Adaptations and impact among semi-nomadic population in Massangam Health District, Cameroon. *PLOS Neglected Tropical Diseases*, 17(7): e0011463. <https://doi.org/10.1371/journal.pntd.0011463>.
4. Asante-Kwatia, E., Gyimah, L., Forkuo, A. D., **Anyan, W. K.**, Gbemu, M. A., Armah, F.A. & Mensah, A. Y. (2023). Ethnobotanical Survey and Cercaricidal Activity Screening of Medicinal Plants Used for Schistosomiasis Treatment in Atwima-Nwabiagya District, Ashanti Region, Ghana. *Journal of Parasitology Research*, 2023: 6707157. <https://doi.org/10.1155/2023/6707157>.
5. **Seidu, Z.**, **Lamprey, H.**, Lopez-Perez, M., **Whittle, N. O.**, **Oppong, S. K.**, **Kyei-Baafour, E.**, **Pobee, A. N. A.**, Adjei, G. O., Hviid, L. & **Ofori, M. F.** (2023). Plasmodium falciparum infection and naturally acquired immunity to malaria antigens among Ghanaian children in northern Ghana. *Parasite Epidemiology and Control*, 22: e00317. <https://doi.org/10.1016/j.parepi.2023.e00317>.
6. Ofori, E. A., Garcia-Senosaiin, A., Naghizadeh, M., Kana, I. H., Dziegiel, M. H., **Adu, B.**, Singh, S. & Theisen, M. (2023). Human blood neutrophils generate ROS through FcγR-signaling to mediate protection against febrile *P. falciparum* malaria. *Communications Biology*, 6(1): 743. <https://doi.org/10.1038/s42003-023-05118-0>.
7. Lamprey, R., **Amoakoh-Coleman, M.**, Djobalar, B., Grobbee, D. E., Adjei, G. O. & Klipstein-Grobusch, K. (2023). Diabetes self-management education interventions and self-management in low-resource settings; a mixed methods study. *Plos one*, 18 (7): e0286974. <https://doi.org/10.1371/journal.pone.0286974>.
8. **Appiah-Twum, F.**, Akorli, J., Okyere, L., **Sagoe, K.**, **Osabutey, D.**, Cappello, M. & **Wilson, M. D.** (2023). The effect of single dose albendazole (400 mg) treatment on the human gut microbiome of hookworm-infected Ghanaian individuals. *Scientific Reports*, 13: 11302. <https://doi.org/10.1038/s41598-023-38376-3>.
9. **Ahorlu, C. S.** & Ainuson-Quampah, J. (2023). Sleep quality and psychological well-being of university students. *Health Sciences Investigations Journal*, 4(1): 417-418. <https://doi.org/10.46829/hsijournal.2023.6.4.1.417-418>.

10. Tapela, K., Oporum, P. C., Nuokpem, F. Y., Tetteh, B., Siaw, G. K., Humbert, M. V., Tawiah-Eshun, S., Barakisu, A. I., Asiedu, K., Arhin, S. K., Manu, A. A., Appiedu-Addo, S. N. A., Obeng, L., Quansah, D., Languon, S., Anyigba, C., Dosoo, D., Edu, N. K. O., Oduro-Mensah, D., **Ampofo, W.**, Tagoe, E., Quaye, O., **Donkor, I. O.**, **Akorli, J.**, Aniweh, Y., Christodoulides, M., Mutungl, J., Bediako, Y., Rayner, J. C., Awandare, G. A., McCormick, C. J. & Quashie, P. K. (2023). Development of an Affordable ELISA Targeting the SARS-CoV-2 Nucleocapsid and Its Application to Samples from the Ongoing COVID-19 Epidemic in Ghana. *Molecular Diagnosis & Therapy*. <https://doi.org/10.1007/s40291-023-00655-0>.
11. Moyo, P., Maharaj, V., Mutombo, S. M., Andayi, W. A., **Amoah, L.**, Kalili, K. M., & Kumi, K. (2023). Discovery and Development of Antimalarial Drug-Resistance Reversal Agents. *Frontiers in Anti-Infective Drug Discovery*, 10: 1-00.
12. Osei-Wusu, S., Tetteh, J. K., Musah, A. B., Ntiamoah, D. O., Arthur, N., Adjei, A., Arbués, A., **Ofori, E. A.**, **Akyea-Mensah, K.**, **Galevo, S. E.**, **Frempong, A. F.**, **Asare, P.**, **Asante-Poku, A.**, **Otchere, I. D.**, **Kusi, K. A.**, Lenz, T. L., Gagneux, S., Portevin, D. & **Yeboah-Manu, D.** (2023). Macrophage susceptibility to infection by Ghanaian Mycobacterium tuberculosis complex lineages 4 and 5 varies with self-reported ethnicity. *Frontiers in Cellular and Infection Microbiology*, 13: 1163993. <https://doi.org/10.3389/fcimb.2023.1163993>.
13. Obeng-Aboagye, E., Frimpong, A., **Amponsah, J. A.**, Danso, S. E., Owusu, E. D. & **Ofori, M. F.** (2023). Inflammatory cytokines as potential biomarkers for early diagnosis of severe malaria in children in Ghana. *Malaria Journal*, 22: 220. <https://doi.org/10.1186/s12936-023-04652-w>.
14. Adams, L., Issahaku, A. R., Agoni, C., **Afiadenyo, M.**, **Kusi, K. A.**, Moane, S., Obiri- Yeboah, D. & Bennett, M. M. (2023). In silico identification of potential PvFKBP35 inhibitors from Entadrophragma angolense Limonoids extracts as antimalarial agents. *Informatics in Medicine Unlocked*, 41: 101319. <https://doi.org/10.1016/j.imu.2023.101319>.
15. Owusu, R., Mvundura, M., Nonvignon, J., **Armah, G.**, Bawa, J., Antwi-Agyei, K. O., Amponsa-Achiano, K., Dadzie, F., Bonsu, G., Clark, A., Pecenka, C. & Debelle, F. (2023). Rotavirus vaccine product switch in Ghana: An assessment of service delivery costs, switching costs, and cost-effectiveness. *PLOS Global Public Health*, 3(8):0001328. <https://doi.org/10.1371/journal.pgph.0001328>.
16. Zhyldyz, A., Aitakin, K., Atabek, B., Elmurat, J., Rysbek, N., Jailobek, O., **Ahedor, B.**, Otgonsuren, D., Mumbi, N.N.M., Guswanto, A., Sivakumar, T. & Yokoyama, N. (2023). An epidemiological survey of vector-borne pathogens infecting cattle in Kyrgyzstan. *Parasitology International*, 97: 102791. <https://doi.org/10.1016/j.parint.2023.102791>.
17. Farley, E., Okeibunor, J., Balde, T., **Donkor, I.O.**, Kleynhans, J., Wamala, J., Kaboré, N., Balam, S., Chamla, D., Braka, F., Subissi, L., Herring, B., Whelan, M. G., Bergeri, I. & Lewis, H. C. (2023). Lessons learnt during the implementation of Unity-aligned SARS-CoV-2 seroprevalence studies in Africa. *Influenza and Other Respiratory Viruses*, 17(8): 13170. <https://doi.org/10.1111/irv.13170>.
18. Atekem, K., Nwane, P., Nditanchou, R., Jeyam, A., Wilhelm, A., Selby, R., Hamill, L., Schmidt, E., Dixon, R. & **Boakye, D.** (2023). Comparison of standard and modified human landing catching techniques for blackfly collection. *International Health*, 0: 1–6. <https://doi.org/10.1093/inthealth/ihad066>.
19. **Amoah, L. E.** & Lo, E. (2023). Editorial: Evolution and mechanisms of anti-malarial and insecticide resistance. *Frontiers in Cellular and Infection Microbiology*, 13:1274741. <https://doi.org/10.3389/fcimb.2023.1274741>.
20. Gibbs, H., Musah, A., Seidu, O., **Ampofo, W.**, Asiedu-Bekoe, F., Gray, J., Adewole, W.A., Cheshire, J., Marks, M. & Eggo, R.M. (2023). Call detail record aggregation methodology impacts infectious disease models informed by human mobility. *PLOS Computational Biology*, 19(8): 1011368. <https://doi.org/10.1371/journal.pcbi.1011368>.
21. **Addo, S. O.**, **Bentil, R. E.**, Baako, B. O. A., **Addae, C. A.**, **Behene, E.**, Asoala, V., Mate, S., Oduro, D., Dunford, J. C., Larbi, J. A., Baidoo, P. K., **Wilson, M. D.**, Diclario II, J. W. & **Dadzie, S. K.** (2023). First record of Babesia and Theileria parasites in ticks from Kassena Nankana, Ghana. *Medical and Veterinary Entomology*, 2023: 1–5. <https://doi.org/10.1111/mve.12688>.
22. Beyuo, T. K., Lawrence, E. R., Oppong, S. A., Kobernik, E. K., **Amoakoh-Coleman, M.**, Grobbee, D. E., Browne, J. L. & Bloemenkamp, K. W. M. (2023). Impact of antenatal care on severe maternal and neonatal outcomes in pregnancies complicated by preeclampsia and eclampsia in Ghana. *Pregnancy Hypertension*, 33: 46-51. <https://doi.org/10.1016/j.preghy.2023.07.177>.
23. **Bentil, R. E.**, **Addo, S.O.**, **Mosore, M.T.**, **Kumordjie, S.**, **Yeboah, C.**, **Agbodzi, B.**, **Behene, E.**, **Tagoe, J.**, Baako, B.O.A., Asoala, V., Ampadu, R.O., Mingle, D. L., Nyarko, E. O., Fox, A. T., Letizia, A. G., Diclario II, J. W., Sanders, T., Oduro, D., Nimo- Paintsil, S. C., Harwood, J. & **Dadzie, S. K.** (2023). First Whole Genome Sequencing of Crimean–Congo Hemorrhagic Fever Virus (CCHFV) in Tick Species within Ghana. *Transboundary and Emerging Diseases*, 2023: 2063317. <https://doi.org/10.1155/2023/2063317>.
24. Nyblade, C., Zhou, P., Frazier, M., Frazier, A., Hensley, C., Fantasia-Davis, A., Shahrudin, S., Hoffer, M., **Agbemabiese, C. A.**, LaRue, L., Barro, M., Patton, J. T., Parreño, V. & Yuan, L. (2023). Human Rotavirus Replicates in Salivary Glands and Primes Immune Responses in Facial and Intestinal Lymphoid Tissues of Gnotobiotic Pigs. *Viruses*, 15(9):1864. <https://doi.org/10.3390/v15091864>.
25. Wallau, G. L., Abanda, N. N., Abbud, A., Abdella, S., Abera, A., Ahuka-Mundeke, S., Falconi-Agapito, F., Alagarasu, K., Ariën, K. K., Ayres, C. F. J., Barzon, L., Bonney, J. H. F.,...Wallau, G. L. (2023). Arbovirus researchers unite: expanding genomic surveillance for an urgent global need. *The Lancet Global Health*, [https://doi.org/10.1016/S2214-109X\(23\)00325-X](https://doi.org/10.1016/S2214-109X(23)00325-X).
26. **Bonney, J. H. F.**, Sanders, T., **Pratt, D.**, Agbodzi, B., Laryea, D., Agyeman, N.K.F., Kumordjie, S., **Attiku, K.**, **Adams, P. L.**, **Boateng, G. A.**, Ohene, S. A. Tamal, C., **Mawuli, G.**, **Yeboah, C.**, **Dadzie, S.**, Kubio, C., Asiedu-Bekoe, F. & **Odoom, J. K.** (2023). Molecular Characterization of Circulating Yellow Fever Viruses from Outbreak in Ghana, 2021–2022. *Emerging Infectious Disease*, 29(9):1818-1826. <https://doi.org/10.3201/eid2909.221671>
27. Ahenkorah, B., Sakyi, S. A., Fondjo, L. A., Helegbe, G., Owiredu, E. W., Der, E. M., **Amoah, L. E.**, **Kusi, K. A.**, **Obiri, D.**, Amoani, B., Bimpong, S., Ofofu, W., Obirikorang, C., Odame, E., Larbie, C., Arthur-Johnson, P., **Quaye, I.**, Ametefe, E. M., Okai, B. K., Anormah, R., Akorli, E., Charadan, A. M. S., Aboubacar, R. M., Amesewu, E. & **Gyan, B.** (2023). Evaluating circulating soluble markers of endothelial dysfunction and risk factors associated with PE: A multicentre longitudinal case control study in northern Ghana. *Heliyon*, 9(9):e19096. <https://doi.org/10.1016/j.heliyon.2023.e19096>.



28. Otgonsuren, D., Myagmarsuren, P., Zoljargal, M., **Ahedor, B.**, Sivakumar, T., Battur, B., Battsetseg, B., & Yokoyama, N. (2023). The First Survey of Bovine Babesia Species Infecting Yaks (Bos Grunniens) in Mongolia. *The Journal of Parasitology*, 109(5): 480–485. <https://doi.org/10.1645/22-93>.
29. **Addo, S. O., Amoako, E. K., Bentil, R. E., Agbodzi, B., Mosore, M. T., Yeboah, C., Attram, N., Larbi, J. A., Kwakye-Nuako, G., de Souza, D. K., Wilson, M. D. & Boakye, D. A.** (2023). Detection of Leishmania DNA in Phlebotomine Sand Flies in Tsatee, a Community in the Volta Region, Ghana. *BioMed Research International*, 2023:1963050. <https://doi.org/10.1155/2023/1963050>.
30. **Akuffo, R. A., Sanchez, C., Amanor, I., Amedior, J. S., Kotey, N. K., Anto, F., Azurago, T., Ablordey, A., Owusu-Antwi, F., Beshah, A., Amoako, Y. A., Phillips, R. O., Wilson, M., Asiedu, K., Ruiz-Postigo, J., Moreno, J. & Mokni, M.** (2023). Endemic infectious cutaneous ulcers syndrome in the Oti Region of Ghana: Study of cutaneous leishmaniasis, yaws and Haemophilus ducreyi cutaneous ulcers. *Plos one*, 18(9): e0292034. <https://doi.org/10.1371/journal.pone.0292034>.
31. Dwomoh, D., Wurie, I., Harding, Y., Sedzro, K. M., Kandeh, J., Tagoe, H., Addo, C., **Arhinful, D. K., Sessay, A. R. C., Kamara, J. L., Mansaray, K. & Ampofo, W. K.** (2023). Estimating prevalence and modelling correlates of HIV test positivity among Female Sex Workers, Men who have Sex with Men, People who Inject Drugs, Transgender People and Prison Inmates in Sierra Leone, 2021. *AIDS Research and Therapy*, 20: 70. <https://doi.org/10.1186/s12981-023-00566-4>.
32. Nuvey, F.S., Hanley, N., Simpson, K., Haydon, D.T., Hattendorf, J., **Mensah, G. I., Addo, K. K., Bonfoh, B., Zinsstag, J. & Fink, G.**, (2023). Farmers' valuation and willingness to pay for vaccines to protect livestock resources against priority infectious diseases in Ghana. *Preventive Veterinary Medicine*, 219 (2023): 106028. <https://doi.org/10.1016/j.prevetmed.2023.106028>.
33. Danso, S. E., Frimpong, A., Seneadza, N. A. H. & **Ofori, M. F.** (2023). Knowledge, attitudes, and practices of caregivers on childhood immunization in Okaikoi sub-metro of Accra, Ghana. *Frontiers in Public Health*, 11:1230492. <https://doi.org/10.3389/fpubh.2023.1230492>.
34. **Frempong, N. A., Ahiabor, C., Anyan, W. K., Mama, A., Kusi, K. A., Ofori, M. F., Adu, B., Debrah, A. Y., Anang, A. K., Ndam, N. T. & Courtin, D.**, (2023). Malaria, Urogenital Schistosomiasis, and Anaemia in Pregnant Ghanaian Women. *Journal of Parasitology Research*, 2023: 7500676. <https://doi.org/10.1155/2023/7500676>.
35. **Bonney, J. H. K., Sanders, T., Pratt, D., Agbodzi, B., Laryea, D., Agyeman, N.K.F., Kumordjie, S., Attiku, K., Adams, P.L., Boateng, G.A., Ohene, S.A., Tamal, C., Mawuli, G., Yeboah, C., Dadzie, S., Kubio, C., Asiedu-Bekoe, F., Odoom, J. K.** (2023). Molecular Characterization of Circulating Yellow Fever Viruses from Outbreak in Ghana, 2021–2022. *Emerging Infectious Diseases*, 29(9): 1818- 1826. <https://doi.org/10.3201/eid2909.221671>.
36. Boachie-Ansah, P., Anto, B. P., Marfo, A. F. A., Dassah, E. T., Cobbold, C. C. & **Asiamah, M.** (2023). Prevalence, Awareness, and Control of Hypertensive Disorders amongst Pregnant Women Seeking Healthcare in Ghana. *Journal of Pregnancy*, 2023: 4194443. <https://doi.org/10.1155/2023/4194443>.
37. **Danquah, K. O., Adankwah, E., Dadzie, H. E., Gyamfi, D., Adjei, E. A., Sampene, P. P. O. & Morhe, E.** (2023). Prolonged Duration of Air-Dry Fixation of Cervical Smears Produces Superior Cytomorphological Staining Quality over Conventional Wet-Fixed Smears. *Acta Cytologica*, 67 (5): 528–532. <https://doi.org/10.1159/000530924>.
38. **Opoku, M., Obeng-Aboagye, E., Boamah, G.Y.K., Adu-Asamoah, D., Ismail, R.b.Y., Akpo, M. S., Dogbatse, E. E., Abraham, J., Odoom, J. K., Donkor, I. O. & Akorli, J.** (2023) Assessing the performance of regular surgical nose masks as a sampling method for SARS-CoV-2 detection in a cross-sectional study. *PLoS ONE*, 18(10): e0293001. <https://doi.org/10.1371/journal.pone.0293001>.
39. Bell, G. J., Gyaase, S., Goel, V., **Adu, B., Mensah, B.**, Essone, P., Dosoo, D., Osei, M., Niare, K., Wiru, K., Brandt, K., Emch, M., **Ghansah, A.**, Asante, K. P., Mvalo, T., Agnandji, S. T., Juliano, J. J. & Bailey, J. A. (2023). Background malaria incidence and parasitemia during the three-dose RTS,S/AS01 vaccination series do not reduce magnitude of antibody response nor efficacy against the first case of malaria. *BMC Infectious Diseases*, 23:716. <https://doi.org/10.1186/s12879-023-08699-7>.
40. Sartelli, M., Barie, P.S., Coccolini, F., Abbas, M., **Egyir, B.** & Worldwide Antimicrobial Resistance National/International Network Group (WARNING) Collaborators. (2023). Ten golden rules for optimal antibiotic use in hospital settings: the WARNING call to action. *World Journal of Emergency Surgery*, 18:50. <https://doi.org/10.1186/s13017-023-00518-3>.
41. **Odurowah Duah-Quashie, N. & Tandoh, K. Z.** (2023). Fixed prevalence of sulfadoxine-pyrimethamine resistance markers after 3 years of drug pressure. *The Lancet Global Health*, 11(11): e1676-e1677. [https://doi.org/10.1016/S2214-109X\(23\)00435-7](https://doi.org/10.1016/S2214-109X(23)00435-7).
42. Kumatia, E. K., **Zoiku, F. K.**, Asase, A. & Tung, N. H. (2023). In vitro and in silico anti-malarial activity and cytotoxicity of n-hexyl 1-O-rutinoside (a glycoside) isolated from *Annickia polycarpa* (DC.) Setten and Maas ex I.M. Turner (Annonaceae). *Journal of Ethnopharmacology*, 319: 117287. <https://doi.org/10.1016/j.jep.2023.117287>.
43. **Hamidu, S., Adams, L., Oduro, P. K., Zoiku, F. K., Aning, A., Ampem-Danso, E., Ampofo, J. A., Afiadenyo, M., Moane, S., Bennett, M. M., Kusi, K. A. & Obiri-Yeboah, D.** (2023). In vitro antiplasmodial activity, LC-MS analysis, and molecular docking studies of bioactive compounds from *Tetrapleura tetraptera* (Fabaceae) fruits. *Scientific African*, 22: e01944. <https://doi.org/10.1016/j.sciaf.2023.e01944>.
44. Willis, A., Chatio, S., Darko, N., Nonterah, E. A., **Zakariah-Akoto, S.**, Alale, J., Jones, C. R., Curtis, F., Kunutsor, S., Ansah, P. O. & Seidu, S. (2023) Cardiovascular disease prevention: Community Based Asset Mapping within religious networks in a rural Sub-Saharan African neighbourhood. *PLOS Glob Public Health* 3(10): e0002201. <https://doi.org/10.1371/journal.pgph.0002201>.
45. Londono-Renteria, B., Seidu, Z., **Lampsey, H., Ofori, M. F.**, Hviid, L. & Lopez-Perez, M. (2023). Biomarker of Anopheles exposure in Ghanaian children with hemoglobin S and C. *Acta Tropica*, 249 (2024) 107043. <https://doi.org/10.1016/j.actatropica.2023.107043>
46. Segbefia, C., Amponsah, S. K., Afrane, A. K. A., Nyarko, M. Y., Brew, Y., Salifu, N., Ahorhorlu, S. Y., Sulley, A. M., Hviid, L., **Ofori, M. F.** & Adjei, G. O. (2023). Clinical and laboratory characteristics of children with sickle cell disease on hydroxyurea treated with artemether-lumefantrine for acute uncomplicated malaria. *Frontiers in Medicine*, 10:1291330. <https://doi.org/10.3389/fmed.2023.1291330>.
47. **Afiadenyo, M., Adams, L., Agoni, C., Moane, S., Mckeeon-Bennett, M., Obiri-Yeboah, D. & Singh, J.** (2023). Computational Screening of Neupilin-1 Unveils Novel Potential Anti-SARS-CoV-2 Therapeutics. *Chemistry and Biodiversity*, e202301227. <https://doi.org/10.1002/cbdv.202301227>.

48. **Ahedor, B.**, Otgonsuren, D., Zhyldyz, A., Guswanto, A., Ngigi, N. M. M., Valinotti, M. F. R., Kothalawala, H., Kalaichelvan, N., Silva, S. S. P., Kothalawala, H., Acosta, T. J., Sivakumar, T. & Yokoyama, N. (2023). Development and evaluation of specific polymerase chain reaction assays for detecting *Theileria equi* genotypes. *Parasites & Vectors*, 16:435. <https://doi.org/10.1186/s13071-023-06045-z>
49. Baker, K. S., Jauneikaite, E., Nunn, J. G., Midega, J. T., Atun, R., Holt, K. E., Walia, K., Howden, B. P., Tate, H., Okeke, I. N., Carattoli, A., Hsu, L. Y., Hopkins, K. L., Muloi, D. M., Wheeler, N. E., Aanensen, D. M., Mason, L. C. E., Rodgus, J., Hendriksen, R. S., Essack, S. Y., **Egyir, B.**, Halpin, A. L., MacCannell, D. R., Campos, J., Srikantiah, P., Feasey, N. A. & Peacock, S. J. (2023). Evidence reviews and recommendations for the implementation of genomics for antimicrobial resistance surveillance: reports from an international expert group. *The Lancet Microbe*, 2023. [https://doi.org/10.1016/S2666-5247\(23\)00281-1](https://doi.org/10.1016/S2666-5247(23)00281-1).
50. Muloi, D. M., Jauneikaite, E., Anjum, M. F., Essack, S. Y., Singleton, D. A., Kasudi, M. R., Wade, M. J., **Egyir, B.**, Nunn, J. G., Midega, J. T. & Peacock, S. J. (2023). Exploiting genomics for antimicrobial resistance surveillance at One Health interfaces. *The Lancet Microbe*. [https://doi.org/10.1016/S2666-5247\(23\)00284-7](https://doi.org/10.1016/S2666-5247(23)00284-7).
51. Abel, A. A., Koffi, A. P., **Quaye, C.**, Gyamfi, E., Dogbe, M. A., Kyei- Baffour, E., Sarpong-Duah, M. & Mosi, L. (2023). Female Catholic religious congregations in the fight against Buruli ulcer in Côte d'Ivoire: identification, level of intervention and logic of construction of care centers. *African Review of Migration and Environment*, 7 (2):69- 96. <https://doi.org/10.5281/zenodo.10064285>.
52. Osei-mensah, B., Boakye, Y. D., **Anyan, W. K.**, Agana, T. A., Aboagye, E. A. , Bentil, I., Lomotey, E. S., Adu, F. & Agyare, C. (2023). In Vitro Cercaricidal Activity, Acute Toxicity, and GC/MS Analysis of Some Selected Ghanaian Medicinal Plants. *Journal of Parasitology Research*, 2023 (4589424). <https://doi.org/10.1155/2023/4589424>
53. Suzuki, T., Boonyaleka, K., Okano, T., Iida, T., Yoshida, M., Fukano, H., Hoshino, Y., Iwakura, Y., **Ablordey, A. S.** & Ashida, H. (2023). Inflammasome-triggered IL-18 controls skin inflammation in the progression of Buruli ulcer. *PLoS Pathogens*, 19 (11): e1011747. <https://doi.org/10.1371/journal.ppat.1011747>
54. Nuvey, F. S., **Mensah, G. I.**, Zinsstag, J., Hattendorf, J., Fink, G., Bonfoh, B. & **Addo, K. K.** (2023). Management of diseases in a ruminant livestock production system: a participatory appraisal of the performance of veterinary services delivery, and utilization in Ghana. *BMC Veterinary Research*, 19:237. <https://doi.org/10.1186/s12917-023-03793-z>
55. **Agbemelo-Tsomafo, C.**, **Adjei, S.**, **Kusi, K. A.**, Deitsch, K. W., **Amoah, D.**, **Obeng- Kyeremeh, R.**, **Sumabe, A. M.** & Aniwah, Y. (2023). Prevalence of Leucocytozoon infection in domestic birds in Ghana. *PLoS one*, 18(11): e0294066. <https://doi.org/10.1371/journal.pone.0294066>.
56. Dolo, H., Coulibaly, M., Sow, M., Coulibaly, Y., Doumbia, M., Sanogo, M. S. A., Dembele, B., Guindo, B., Coulibaly, M., Keita, M., Soumaoro, L., Diarra D., Dicko, B., Hamill, L., Doumbia, S., Sangho, H., Sangare, Y., Zhang, Y., Tallant, J., Yaro, A., Mackenzie, C., Nutman, T. B. & **Boakye, D.** (2023). Progress towards elimination of onchocerciasis transmission in Mali: A “pre-stop MDA” survey in 18 transmission zones. *PLoS Neglected Tropical Diseases*, 17(11): e0011632. <https://doi.org/10.1371/journal.pntd.0011632>
57. Antoni, S., Nakamura, T., Cohen, A. L., Mwenda, J. M., Weldegebriel, G., Biey, J. N. M., Shaba, K., Rey-Benito, G., de Oliveira, L. H. , Oliveira, M. T. D., Ortiz, C., Ghoniem, A., Fahmy, K., Ashmony, H. A., Videbaek, D., Daniels, D., Pastore, R., Singh, S., Tondo, E., Liyanage, J. B. L., Sharifuzzaman, M., Grabovac, V., Batmunkh, N., Logronio, J., **Armah, G.**, **Dennis, F. E.**, Seheri, M., Magagula, N., Mphahlele, J., Leite, J. P. G., Araujo, I. T., Fumian, T. M., Mohammady, H. E. L., Semeiko, G., Samoilovich, E., Giri, S., Kang, G., Thomas, S., Bines, J., Kirkwood, C. D., Liu, N., Lee, D-Y., Iturriza-Gomara, M., Page, N. A., Esona, M. D., M. Ward, L., Wright, C. N., Mijatovic- Rustempasic, S., Tate, J. E., Parashar, U. D., Gentsch, J., Bowen, M. D. & Serhan, F. (2023). Rotavirus genotypes in children under five years hospitalized with diarrhea in low and middleincome countries: Results from the WHO coordinated Global Rotavirus Surveillance Network. *PLOS Glob Public Health*, 3(11): e0001358. <https://doi.org/10.1371/journal.pgph.0001358>
58. Philip, A. A., **Agbemabiese, C. A.**, Yi, G., & Patton, J. T. (2023). T7 expression plasmids for producing a recombinant human G1P [8] rotavirus comprising RIX4414 sequences of the RV1 (Rotarix, GSK) vaccine strain. *Microbiology Resource Announcements*, 12 (ii): e00603. <https://doi.org/10.1128/MRA.00603.23>
59. Agbodzi, B., Yousseu, F.B.S., Simo, F.B.N., Kumordjie, S., Yeboah, C., Mosore, M.T., Bentil, R.E., Coatsworth, H.G., Attram, N., Nimo-Paintsil, S., Fox, A.T., **Bonney, J. H. K.**, **Ampofo, W.**, Dinglasan, R. R., Sanders, T., Wiley, M. R., Demanou, M. & Letizia, A. G. (2023). Whole genome sequencing of outbreak strains from 2017 to 2018 reveals an endemic clade of dengue 1 virus in Cameroon. *Emerging Microbes & Infections*, 12 (2): 2281352, <https://doi.org/10.1080/22221751.2023.2281352>
60. Jephcott, F. L., Wood, J. L., Cunningham, A. A., **Bonney, J. K.**, Nyarko Ameyaw, S., Maier, U., & Geissler, P. W. (2023). Ineffective responses to unlikely outbreaks: Hypothesis building in newly emerging infectious disease outbreaks. *Medical Anthropology Quarterly*: 1–17. <https://doi.org/10.1111/maq.12827>.
61. Kawamura, T., Prah, I., Mahazu, S., **Ablordey, A.**, & Saito, R. (2023). Types A and F *Clostridium perfringens* in healthcare wastewater from Ghana. *Applied and Environmental Microbiology*, e01619-23. <https://doi.org/10.1128/aem.01619-23>.
62. **Lamprey, H.**, Pasternak, A.O., **Bonney, E.Y.**, **Aboagye, J. O.**, **Boateng, A.T.**, **Abana, C. Z. Y.**, Adams, P., Cicilionyte, A., Berkhout, B., **Adu, B.** & **Kyei, G. B.** (2023). PA- 305 FC gamma receptor gene polymorphisms and reservoir size in HIV patients in Ghana. *BMJ Global Health*, 8 (10): A62. <https://doi.org/10.1136/bmjgh-2023-EDC.152>.
63. **Yeboah-Manu, D.**, **Danso, E.K.**, **Asare-Boadu, A.**, **Asare, P.**, **Lamprey, I. N.**, **Osei-Wusu, S.**, **Tetteh, P.**, **Tetteh, A.**, **Yeboah, A.**, **Darkwahene-Boateng, S.**, Adjei, A. Klinogo, Y., Mensah, J. A., Atiase, Y., **Koram, K.**, **Asante-Poku, A.** & Forson, A. (2023). PA-224 Impact of diabetes mellitus on tuberculosis treatment outcome. *BMJ Global Health*, 8 (10): A51. <https://doi.org/10.1136/bmjgh-2023-EDC.124>.
64. **Kyei, G.**, **Bonney, E.**, **Lamprey, H.**, **Abana, C.** & **Twumasi, A.** (2023). OA-189 Building capacity for HIV cure research in Ghana–The H-CRIS experience. *BMJ Global Health*, 8. <https://doi.org/10.1136/bmjgh-2023-EDC.13>.
65. Thomford, N. E., Kellerman, T., Debrah, O., Anyanful, A., Biney, R. P., Boadi, D., Yahaya, E. S., Ekor, M. & **Kyei, G. B.** (2023). PA-113 Pharmacogenomics of drug-drug interactions in malaria-HIV coinfections: effects on generic artemether-lumefantrine therapy used in Ghana for malaria treatment. *BMJ Global Health*, 8. <https://doi.org/10.1136/bmjgh-2023-EDC.88>.
66. Zeukeng, F., Bigoga, J., **Yeboah-Manu, D.**, Mbigba, S.G., Mbacham, W. & **Ablordey, A.**, 2023. PA-604 Whole genome sequencing confirmed contamination of mycobacterium ulcerans-infected lesions by rhodococcus erythropolis. *BMJ Global Health*, 8: A101-A102. <https://doi.org/10.1136/bmjgh-2023-EDC.248>.
67. Amuasi, G. R., Dsani, E., Owusu-Nyantakyi, C., Owusu, F. A., Mohktar, Q., Nilsson, P., **Adu, B.**, Hendriksen, R. S. & **Egyir, B.** (2023). Enterococcus species: insights into antimicrobial resistance and whole-genome features of isolates recovered from livestock and raw meat in Ghana. *Frontiers in Microbiology*, 14:1254896. <https://doi.org/10.3389/fmicb.2023.1254896>.
68. Doan, Y. H., **Dennis, F. E.**, Takemae, N., Haga, K., Shimizu, H., **Appiah, M. G.**, **Lartey, B. L.**, **Damanka, S. A.**, Hayashi, T., Suzuki, T., Kageyama, T., **Armah, G. E.** & Katayama, K. (2023). Emergence of Intergenogroup Reassortant G9P [4] Strains Following Rotavirus Vaccine Introduction in Ghana. *Viruses*, 15(12): 2453. <https://doi.org/10.3390/v15122453>.
69. **Akyea-Bobi, N. E.**, **Akorli, J.**, **Opoku, M.**, **Akporh, S. S.**, **Amlalo, G. K.**, **Osei, J. H. N.**, **Frempong, K. K.**, **Pi-Bansa, S.**, **Boakye, H. A.**, **Abudu, M.**, **Akorli, E. A.**, **Acquah-Baidoo, D.**, **Pwalia, R.**, **Bonney, J. H. K.**, **Quansah, R.** & **Dadzie, S. K.** (2023). Entomological risk assessment for transmission of arboviral diseases by *Aedes* mosquitoes in a domestic and forest site in Accra, Ghana. *Plos one*, 18(12): e0295390. <https://doi.org/10.1371/journal.pone.0295390>

70. Oppong, S. S., Naab, F., **Akuffo, R. A.** & Donkor, E. S. (2023) Functional status and quality of life of women with infertility in Southern Ghana: A cross-sectional study. *Health Sciences Investigations Journal*, 4 (2): 550 -559. <https://doi.org/10.46829/hsijournal.2023.12.4.2.550-559>.
71. **Ahorlu, C. S.**, Atinbire, S. A., **Sedzro, K. M.**, Alomatu, B., **de Souza, D. K.**, Asamenyi- Mensah, K., Opare, J., Saunderson, P. & Weiland, S. (2023). Improving access to lymphatic filariasis MMDP services through an enhanced evidence-based, cascaded training model for health worker capacity strengthening in Ghana: an evaluation study. *Frontiers in Tropical Diseases*, 4:1282218. <https://doi.org/10.3389/fitd.2023.1282218>.
72. **Hamidu, S.**, Adams, L., Oduro, P. K., **Zoiku, F. K.**, **Aning, A.**, **Ampem-Danso, E.**, **Ampofo, J. A.**, **Afiadenyo, M.**, **Moane, S.**, **Bennett, M. M.**, **Kusi, K. A.** & Obiri – Yeboah, D. (2023). In vitro antiplasmodial activity, LC-MS analysis, and molecular docking studies of bioactive compounds from *Tetrapleura tetrapleura* (Fabaceae) fruits. *Scientific African*, 22: e01944. <https://doi.org/10.1016/j.sciaf.2023.e01944>.
73. Dofuor, A. K., Quartey, N. K., Osabutey, A. F., Boateng, B. O., Lutuf, H., **Osei, J. H. N.**, Ayivi-Tosuh, S. M., Aiduenu, A. F., Ekloh, W., Loh, S. K., Opoku, M. J., & Aidoo, O. F. (2023). The Global Impact of COVID-19: Historical Development, Molecular Characterization, Drug Discovery and Future Directions. *Clinical Pathology*, 16. <https://doi.org/10.1177/2632010X231218075>.

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