5th Africa International Biotechnology & Biomedical Conference

(*Advancing Science & Technology for Sustainable Development in Africa*)

8 – 13 November, 2021

Acacia Premier Hotel,
Kisumu, Kenya

Report

by

AIBBC Organizing Committee (2021)

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Prof. Drew Weissman
University of Pennsylvania, USA

Prof. Akira Kaneko
Osaka City University, Japan & Karolinska Institute, Sweden

Prof. Evans Chidi Egwim
Federal University of Technology Minna, Nigeria

Prof. Roderic I. Pettigrew
Texas A&M University, USA

Prof. Shingo Inoue
Nagasaki University, Japan

Prof. Phillip Low
Purdue University, USA

Prof. J. Paul Robinson
Purdue University, USA

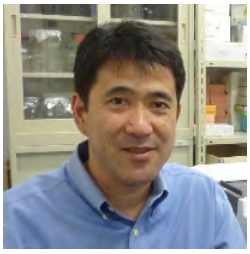
Prof. Nicole Pamme
Stockholm University, Sweden

Prof. Aman Russom
Royal Institute of Technology, Sweden

Dr. Hiroko Hanzawa
Research & Development Group, Hitachi Ltd

Prof. Masood Kamali-Moghaddam
Uppsala University, Sweden

Prof. Chuck Henry
Colorado State University, USA



Prof. Masahiro Hiratsuka
Tohoku University, Japan

Prof. Douglas J. Perkins
Center for Global Health, University of New Mexico, USA

Dr. Wataru Kagaya
Osaka City University, Japan

Dr. Christopher K. Kariuki
Katholieke Universiteit Leuven, Belgium

Dr. Jacqueline C. Linnes
Purdue University, USA

Dr. Daisuke Kawashima
Chiba University, Japan

Dr. Sara Suliman
UCSF, San Francisco General Hospital, USA

Dr. Josiah Kuja
Mount Kenya University, Kenya

Dr. Jesse Gitaka
Mount Kenya University, Kenya

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AIBBC acknowledges support by International AIDS Research and Training Program at the University of Washington, through a grant from the Fogarty International Center, National Institutes of Health **D43 TW009783**

Executive Summary

This event was the fifth in a series of workshops and conferences organized under the Africa International Biotechnology and Biomedical Conference (AIBBC). The 5th AIBBC aimed to promote capacity building and knowledge sharing, interaction and networking among researchers in the fields of biotechnology and biomedicine. The conference brought together close to 200 participants from fourteen (14) different countries in Africa and beyond, and was attended by students, leading scientists from different disciplines, clinicians as well as local government officials. The participants sought to share research findings particularly with respect to solving problems related to health, environment and agriculture in Africa. The purpose of this report is to summarize the main points presented and transacted during the 5th Africa International Biotechnology & Biomedical Conference (AIBBC), 2021.

Summary of the opening remarks

The opening remarks were made by the chairman, Prof. Collins Ouma, who reviewed pertinent facts about AIBBC. Since the first event in 2014 at SAFARI Park Hotel, Nairobi, Kenya, the conference has experienced gradual and steady growth. Most notable expansion is the incorporation of a 3-day pre-conference workshops from 2017. The chairman noted that the workshops which aim to promote biomedical education and practical skill acquisition among young African scientists are now highly popular event organized by AIBBC.

Prof. Collins Ouma (right) delivering his opening remarks

Students working on the bench at the 5th AIBBC workshops

This year's pre-conference workshops took place from 8th to 10th November, 2021, and included six (6) different courses: Flow cytometry, Point of care diagnostics for resource limited settings, Molecular diagnostics, New insights into HIV and COVID-19 infections, Malaria control and elimination, and Genomics and bioinformatics. These courses were organized by different facilitators and in collaboration with Maseno University, Town Campus and KEMRI-USAMRU. The chairman thanked all the facilitators, local and international organizing committees, sponsors and the participants.

Representative of the Kisumu County Governor's remarks

The remarks of the Kisumu County Governor was delivered by Dr. George Rae, the chief executive officer of Jaramogi Oginga Odinga Teaching and Referral Hospital, Kenya. He stated that the AIBBC conference was very relevant and welcomed because its objectives are geared towards developing diagnostics tools that are useful in solving human health problems, among others, and also finding novel treatment / management strategies for the health related issues. He gave a brief background of Kisumu and emphasized that the county is a major center in East Africa because of its strategic position, intellectual capacity and love for biotechnology. In addition, he also stated that the county government has created an enabling environment for research and research application. He urged researchers to incorporate people with indigenous knowledge in biotechnology and also partner up with industries.

Deputy Vice Chancellor; Partnerships, Research and Innovations, Maseno University remarks

The DVC, Partnerships, Research and Innovations, Maseno University; Prof. Joseph Sarima Chacha represented the vice chancellor, Prof. Julius O. Nyabundi. His speech emphasized the active role that Maseno University is playing in research geared towards food security, solving health related as well as environmental problems. He stated that multi-disciplinary projects, partnerships and students-exchange programs are important for open science and technological advancement. He challenged the participants to aim at gaining knowledge and experience that

will contribute to capacity development. Prof. Chacha declared the conference opened at 9:35 am, East African Time.

Remarks by Dr. Shinji Nishimura, Center for Exploratory Research, Hitachi, Ltd., Japan

Representing Hitachi Ltd, a major sponsor of AIBBC since the birth of the organization in 2014, Dr. Nishimura, in his recorded video address to the audience, congratulated the organizers for working hard to realize the 5th Africa International Biotechnology and Biomedical Conference (5th AIBBC) in the midst of a global pandemic.

He also congratulated the participants for braving the pandemic to gather for the 5th AIBBC. Touching on the importance of the meeting, Dr. Nishimura elaborated that AIBBC is a unique meeting which not only offers a platform for academic discussions on cutting-edge technologies in the important fields of biotechnology and biomedicine, but also provides a rare education opportunity. He noted that young people in Africa are highly talented and self-motivated to learn advanced technologies, and he regards very highly the ambition of AIBBC to make a difference in Africa technologically.

Explaining about Hitachi to the audience, Dr. Nishimura said that Hitachi is inspiring social and industrial innovation, and is actively involved in innovating environment-friendly, safe, and secure social infrastructures that are resistant to disasters for which the company is focused on developing cutting-edge technologies in a wide range of fields. Dr. Nishimura reiterated that Hitachi will continue to support the AIBBC going into the future and wished participants an exciting and fruitful conference.

Dr Nishimura's video presentation at the 5th AIBBC conference

Sessions in progress at the 5th AIBBC conference

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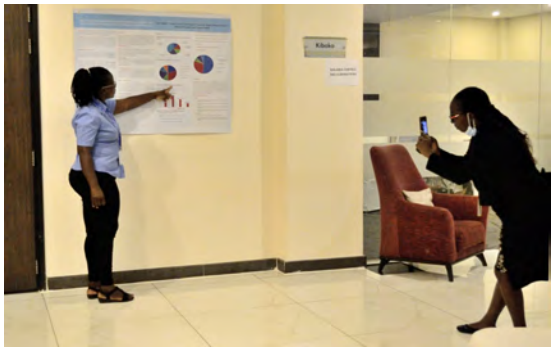


Poster sessions in progress at the 5th AIBBC conference

Conference Day 1: 11th November, 2021

Session I: Invited Talks

Prof. Douglas J. Perkins, Center for Global Health, University of New Mexico, USA

Prof. Perkins and team studied the relationship between race / ethnicity with increased COVID-19 disease severity, in New Mexico, USA. The study sought to understand host immunity responses with regard to severe / non-severe COVID-19 infections. Their demographic data showed that more American Asians / Alaskan Natives (AI/AN) suffered highest hospitalization and deaths. Based on their viral load dynamics data, presence of SARS-Cov-2 virus in peripheral blood was a strong indicator of severe disease in this study population. They went further to describe the pathway map for SARS-Cov-2 and among their key findings was the

fact that furin expression was upregulated, facilitating viral entry into cells, while the cytokines, especially those of the alpha lineage, known to protect the cells against viral attacks, were downregulated. These findings point to the fact that some populations may be more predisposed to severe COVID-19 disease.

Prof. Akira Kaneko – Osaka City University, Japan & Karolinska Institute, Sweden

The research focused on integrated strategy for sustainable freedom from malaria. They studied different populations in Malaria endemic regions and they reported high transmission rates in Homabay County, Kenya mainly attributed to high entomological inoculation rates and also species shift from *Anopheles gambiae* to *A. arabiensis,* which bites outdoors. However, he pointed out that intervention for human behavior was important to achieve integrated control strategies.

Dr. Sara Suliman – UCSF at Zuckerberg San Francisco General Hospital, USA

Dr. Suliman and her colleagues integrated the genetic and transcriptional profiles of innate cells to understand mechanisms of TB susceptibility. The study was conducted in a Peruvian population and their results suggested that TB progression has a strong genetic basis and that early TB progression was associated with non- coding variants located in a putative enhancer region on chromosome 3q23.

Dr. Daisuke Kawashima, Chiba University, Japan

Dr. Kawashima developed a Low-frequency impedance-based (LFI) cell discrimination tool for cell analysis. This is a novel non-destructive and non-invasive cell discrimination system which discriminates the cell type by considering an ion transport model in cell suspension. Ion transport model in cell suspension is constructed on the basis of Fick's laws of diffusion in the extracellular region under ion permeability based on the characteristics of cell type. The different transmembrane images are generated and are further subjected to analysis. The developed tool enables the use of cells for diagnosis without the need for cell cultures. This would really revolutionize diagnosis of different conditions.

Dr. Josiah Kuja – Jomo Kenyatta University, Kenya

Dr. Kujah's study focused on genomics as a resilient approach to climate change, disease epidemiology and conservation of threatened biodiversity. He noted that microbes are often not considered when it comes to response to climate change and intense global warming, however, they play an important role. His approach was based on 16S metagenomics and he identified relative abundance of microbial populations with respect to different mountain ecosystems. From his computational analysis, different microorganisms from different ecological zones clustered together, a strong indicator that these microbial populations are unique. Thus, loss of ecological zones would lead to loss of microbial populations and biodiversity. This work is part of the African BioGenome Project whose main objective is conservation of African natural ecosystems.

Session II: Invited Talks

Dr. Hiroko Hanzawa – Hitachi Kobe Laboratory, Center for Exploratory Research, Hitachi, Ltd., Japan

Dr. Hanzawa and the team developed a cell culture system as an innovative strategy for treatment of regenerative diseases. She stated that most cells for regenerative medicine are currently cultured manually. However, with the predicted increase in global burden of regenerative diseases, it is necessary to develop automated culture techniques to enhance production of greater quantities at lower cost and with more stable quality. The team developed the world's first ever automated cell culture technology to promote the widespread use of regenerative medicine. The system uses exosomes as cell culture monitoring indicator.

Prof. Masood Kamali-Moghaddam – Uppsala University, Sweden

Prof. Masood and colleagues developed advanced molecular tools for detection and characterization of exosomes and viruses. The team develops proximity ligation assays, affinity-based technologies enabling sensitive and specific detection of proteins biomarkers for diagnosis and prognosis of diseases. The assays can involves barcoding to enhance multiplexing. The team

is currently working on a Proximity ligation assay for SARS-Cov-2 antibody detection, which will enable exosome MiRNA profiling in mild and severe cases of COVID-19.

Dr. Christopher K. Kariuki – Katholieke Universiteit Leuven, Belgium

Dr. Kariuki's focus is on building systems geared towards self-sufficiency in molecular biology research and training in Africa. He advocated for open science and bridging the gap between theoretical and practical biotechnology in Africa. Dr. Kariuki and colleagues developed protocols that greatly improved the yield of recalcitrant nanobodies, which have various molecular biology applications on assays that require a protein affinity-based approach.

Prof. Evans Chidi Egwim – Federal University of Technology Minna, Nigeria

Prof. Chidi explored the biodiversity of Wetland ecology for sustainable African bioeconomy, and urged that bioeconomy is a great opportunity for Africa. He noted that African Wetland ecology is one of the most productive ecosystems in the world and controlled utilization can boost African economy. He pointed out case studies in Nigeria, where the typha grass is currently being utilized to produce biodegradable packaging materials. Other opportunities include utilization of water hyacinth in production of furniture, biogas, cellulose nanofibril gels. This is a clear sign that African bioeconomy could increase significantly with proper and controlled utilization of natural reseources.

Prof. Prof. Masood Kamali-Moghaddam (Uppsala University, Sweden) giving a lecture at the AIBBC 2021 workshop on Molecular Diagnostics

Prof. Wataru Kagaya (Osaka City University) giving an invited talk on malaria at the AIBBC 2021

Session IV: Plenary Lectures

Prof. Shingo Inoue – Institute of Tropical Medicine, Nagasaki University, Japan

Prof. Shingo and colleagues developed and evaluated a point of care tests for Rift Valley Fever diagnosis. He gave a preview of the disease in Kenya with limitations of the current management practices thus early detection is key to successful control. The developed rapid test kit was based on IgM with selective coating to enhance sensitivity. The kit has already been patented with the Kenya Industrial Property Institute (KIPI); however, more tests on long term storage are still on going.

Prof. Philip Low – Purdue University, USA

Prof. Low and colleagues developed a new therapy for *Plasmodium falciparum* malaria based on prevention of infected RBC lysis. From their findings, the parasite activates an erythrocyte enzyme (SYK), which induces band 3 tyrosine phosphorylation, breaking the connection

between the lipid bilayer and proteins in the cytoskeleton. The study revealed that the inhibitors prevented egress of the parasites from the infected RBCs were SYK was inhibited. However, the clinical trials data indicated that the inhibitor (imatinib) works in combination with other drugs. The team proceeded to find a new therapy for sickle-cell disease based on the same SYK inhibitors. However, imatinib is also a growth factor inhibitor, hence it is not recommended for treatment of sickle-cell disease in children. The team has also focused on the design of highly targeted drugs for cancer management. The team was awarded Breakthrough status for the Lu-PSMA-617 (an investigational PSMA-targeted radioligand therapy for metastatic castration-resistant prostate cancer) in 2021.

Session V– Invited Talks

Prof. Charles Henry – Colorado State University, USA

Prof. Henry and colleagues developed microfluidic paper-based analytical device for on-site detection of bacteria and viruses. The devices are the newest generation of lab-on-a-chip devices and are a useful analytical technique for medical point-of-care. The team recently developed a capillary driven immune assay (CaDI) on the fast-flow paper-based analytical devices that is capable of performing all the steps of a traditional ELISA in a disposable format. Detection can be achieved using either colorimetric or electrochemical modes. CaDI is an alternative to the laboratory based assay for COVID-19.

Prof. Michael R. Moreno – Texas A&M University, USA

Prof. Moreno created an innovative engineering medical school with the aim of bridging the engineering and medicine research interests. The program paradigm could be achieved through blending the curriculum such that medical course are taught together with relevant technologies. The program can also focus on top-notch applicants with a specific mindset of physicianeer. This will improve how health care is delivered.

Prof. Dickson A. Musa – Trans-Saharan Disease Research Centre, IBB University, Nigeria

Prof. Musa presented preliminary findings on virucidal activities of extracts of selected Nigerian vegetables with potentials for use as Covid-19 therapy. The study was based on sequential extractions of the phytochemicals and on a model viral. However, more validation work needs to be done.

Conference session in progess at the AIBBC 2021, Acacia Hotel, Kisumu, Kenya

All smiles at the AIBBC conference

Prof. Robinson is happy to receive a certificate of participation from Prof. Ouma

Conference Day 2: 12th November, 2021

Prof. Aman Russom – Royal Institute of Technology KTH, Sweden

Prof Aman and his team a Point of care Isothermal Nucleic Acid amplification Platform for Covid-19 Diagnostics designed to meet the needs at resource limited settings. The research was driven by the ongoing SARS-CoV-2 pandemic which demands for scalable, rapid and sensitive viral diagnostics. The team developed an integrated modular centrifugal microfluidic platform linked to loop-mediated isothermal amplification (LAMP) of viral RNA directly from heat-inactivated nasopharyngeal swab samples. This sample-to-answer analysis occurs within 1 hour of sample collection thus short turn-around time. This is significant towards bringing routine point-of-care COVID-19 diagnostics to resource-limited settings.

Prof. Masahiro Hiratsuka – Tohoku University, Japan

Prof. Hiratsuka and colleagues conducted CYP2D6 genotyping analysis and functional characterization of novel allelic variants in a Kenyan and Ni-Vanuatu population. This was driven by the fact that CYP2D6 allele and phenotype frequencies information with regard to ethnicity is limited. The team performed a pharmacogenomic analysis and characterized the enzymatic properties of eight novel CYP2D6 variant proteins. Their data revealed a prevalence of functional alleles in both populations a low frequency for decreased function defining genotypes these populations. This information is important in the development of ethnic-specific strategies.

Dr. Jesse Gitaka – Mount Kenya University, Kenya

Dr. Gitaka and his team are focused on developing a point of care end game diagnostics for Africa. This research has been necessitated by the fact that asymptomatic infections provide a continuous reservoir. Thus, elimination of malaria should aim at addressing asymptomatic infections. Their approach is to develop as sensitive and specific test and they proposed Identical Multi-Repeat Sequences PCR. This allows amplification of multiple regions in the genomes hence increased pool of amplicons. Because of the limitations of PCR based assays (thermal

cycling required), the team is advancing to Isothermal - Identical Multi-Repeat Sequences PCR. They also tested non-invasive samples (saliva) which will be more adaptable for field use as a proof of concept.

Prof. Nicole Pamme – Stockholm University, Sweden

Prof. Pamme and team have focused on development of microfluidic devices for analysis in resource-limited settings. Since the current gold standard nucleic acid tests require many separate steps that need trained personnel to operate specialized instrumentation in laboratory environments, the turnaround time and test accessibility, especially in low-resource settings, is limited. Thus, the team developed an integrated on-chip platform coupling extraction based on immiscible filtration assisted by surface tension (IFAST), amplification and detection via colorimetric reverse-transcription loop mediated isothermal amplification (RT-LAMP).

Prof. Roderic I. Pettigrew (Texas A&M University, USA) delivering a keynote talk at the IABBC 2021

Session VII- Early Career investigators

Pablo Rodriguez-Mateos: IFAST and LAMP detection of gonorrhea

Bongkot Ngamsom: A lab-on-a-chip platform for integrated extraction and detection of SARS-CoV-2 RNA in resource-limited settings

Clinton Onyango: IL-5 Signaling via JAK/STAT top ranked differentially expressed pathway in children with severe malarial anemia

Emeka Nwanochie: Smartphone based real time HIV detection

Kesega Tapelo: Immune responses to SARS-Cov-2 among Ghanaians patients

Husein Abkallo: Rapid CRISPR/Cas editing of genotype IX African Swine Fever Virus circulating in Central Africa

Atish Rameshchandra Shah: Leveraging 3D-Printing Technology in the Fabrication of Myoelectric Prosthetic Hands: A Panacea to Upper Limb Amputations in Sub-Saharan Africa

Nyabuti Mainye: Machine learning meets microscopy: Cell explorer tool for the diagnostic laboratory

Sanchita Bhadra: Producing molecular biology reagents without purification

Students viewing a poster at the AIBBC 2021

Young scientist setting up to give a talk

Prof. Dr. Drew Weissman, the inventor of RNA vaccine now used against the Corona virus delivering his online talk at the 5th AIBBC (Nov. 12th, Kisumu, Kenya)

Session IX– Plenary Lectures

Prof. Drew Weissman– University of Pennsylvania, USA

Being the pioneer of Nucleoside-modified mRNA-LNP therapeutics, Prof. Weissman gave pertinent review facts regarding the development journey of these vaccines. He explained the role of LNPs as a delivery vehicle for the mRNA since it encapsulates the mRNA, protecting it from extracellular degradation, and facilitates endosomal release of the mRNA into the cytoplasm. The Lipid Nanoparticles (LNPs) of mRNA vaccines also act as adjuvant, because they activate the T follicular helper cells that generate long-lived antibody responses. These cells lead to germinal centers (GCs) where B cells are activated. The success of nucleoside modified mRNAs in lipid nanoparticles has lead to development of different vaccines including the universal influenza vaccine, HSV-2 vaccine and COVID-19 vaccines.

Prof. Roderic I. Pettigrew, Texas A&M University, USA

With his background in both medical and engineering fields, Prof. Pettigrew spoke passionately about integrating engineering into all health-related disciplines. He explained the many tools that have been developed to enhance diagnosis and treatment of specific health related problems. Among these are: SMART COVID-19 face masks with ability to detect SARS-Cov-2 virus, Cuffless BP monitoring, and wearable technologies for breast cancer detection. Medicine-engineering integration will enhance treatment and better management of diseases.

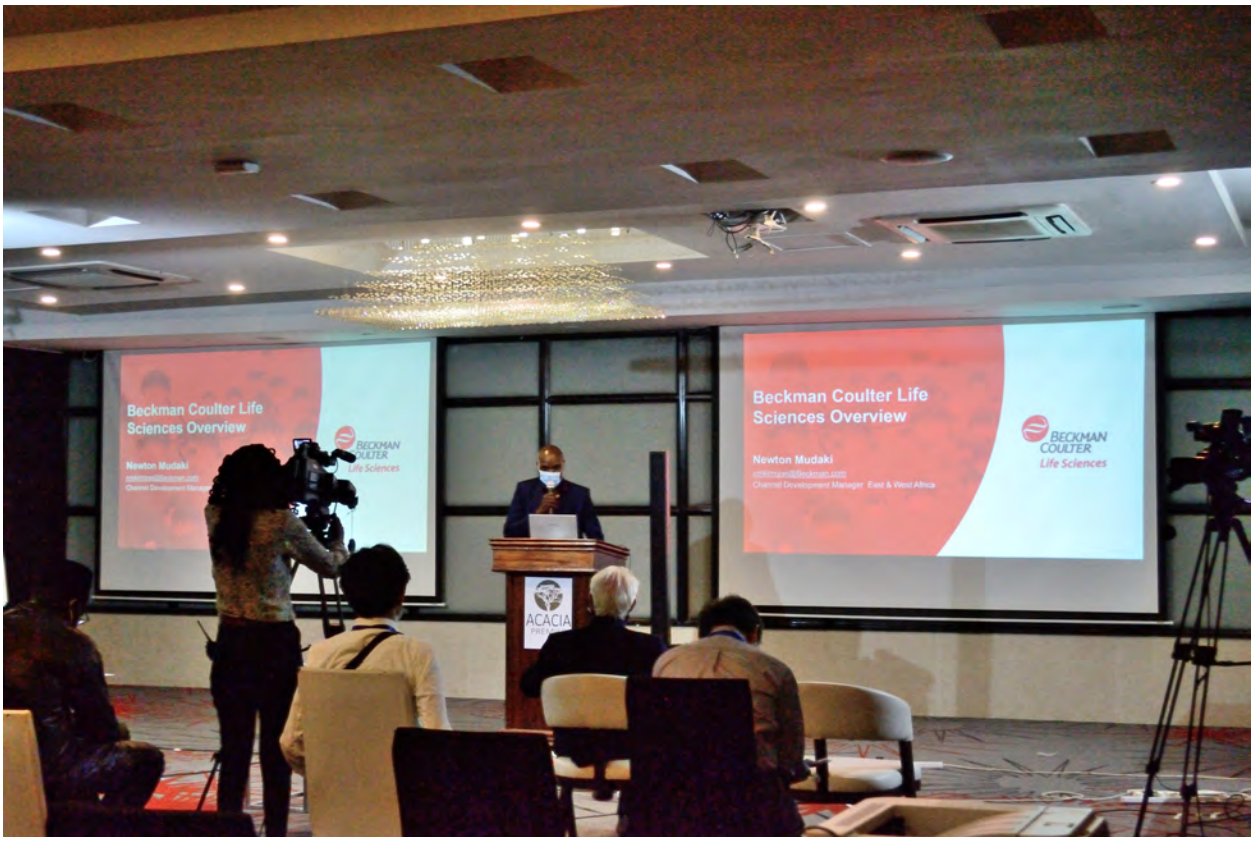
Session X – Invited Talks

Dr. Jacqueline C. Linnes, Purdue University, USA

Dr. Linnes research focused on finding real-time detection technologies to prevent, diagnose, and better understand the pathogenesis of diseases. The team has also focused on non-invasive sampling, microfluidic sample preparation, automated detection of biomolecules and electrophysiologic signals to efficiently diagnose and monitor both infectious and non-communicable diseases. The team developed nanoparticle-based point-of-care molecular diagnosis for different parasites.

Dr. Wataru Kagaya – Osaka City University, Japan

Dr. Wataru has been studying the impact of indoor residual spraying (IRS) on malaria prevalence in the Lake Victoria basin, Homa Bay, Kenya, and his results suggest that IRS is effective in reducing prevalence but it is not sustainable. He stated that IRS is further limited by changes in mosquito biting behavior and resistance. Therefore, he proposed ceiling net approach which seems sustainable in the local set-up. Dr. Wataru and his team have also developed a novel malaria diagnostics system, which is intended to improve early detection.



A sponsor giving a talk at the AIBBC 2021

Prof. J. Paul Robinson – Purdue University, USA

Prof. Robinson gave the closing lectures for the 5th AIBBC conference and his talk focused on Advancing Portable Detection Approaches: Complex Solutions versus Point of Detection. In his talk, he highlighted the advancement in technology for diagnostics, especially at the point of detection. In this respect, Prof. Robinson introduced the Laser Induced Breakdown Spectroscopy (LIBS), a rapid chemical analysis technology that uses a short laser pulse to create a micro-plasma on the sample surface. This analytical technique offers many compelling advantages compared to other elemental analytical techniques. The technique uses lighter atoms such as lanthanides, which are attached to antibodies to enable pathogen detection. LIBS also allow multiplexing for detection of more than one pathogen.

Closing remarks

The closing remarks were made by the chairman, Prof. Collins Ouma, who thanked all the facilitators, local and international organizing committees, the sponsors and the participants for making the 5th Africa International Biotechnology & Biomedical Conference a success. The conference was declared officially closed at 8:00 pm East African Time.

Happy to receive a certificate. A student showing off his certificate of participation.

Students were awarded certificates of participation as well as Poster Presentation Awards at the 5th AIBBC (Kisumu, Kenya)

THANK YOU VERY MUCH FOR YOUR SUPPORT

AIBBC 2021 Summary Budget

Amount in USD

Item	Quantity	Unit price	Total amount
Meeting convention and management	1	10,500	10,500
Venue & Equipment (conference hall, seminar rooms, AV equipment rental, stationaries, poster boards etc)	1	30,000	30,000
Invitation fee (travel support for invited speakers)	10	1, 200	12,000
Students' travel support (accommodation & transport)	50	500	25,000
Abstract printing	300	10	3,000
Development of web registration portal and management	1	1	6,000
Miscellaneous expenditures (wages, logistics, etcs)	1	1	5,000
Grand total			91,500

PROGRAM

Day 1 – Thursday , 11 November , 2021

08:00 – 09:00	**Welcome remarks and announcements** Vice Cancellor, Maseno University, other guests
	Session I – INVITED TALKS
09:00 – 09:25	Elevated SARS-CoV-2 viremia in different ethnic groups: relationship with increased COVID-19 disease severity **Prof. Douglas J. Perkins** – Center for Global Health, University of New Mexico, USA
09:25 – 09:50	An integrated strategy for sustainable freedom from malaria **Prof. Akira Kaneko** – Osaka City University, Japan & Karolinska Institute, Sweden
09:50 – 10:05	Integration of genetic and transcriptional profiles of innate cells to decipher mechanisms of TB susceptibility **Dr. Sara Suliman** – UCSF at Zuckerberg San Francisco General Hospital, USA
10:05 – 10:20	Genomics: a resilient approach to climate change, disease epidemiology and conservation of threatened biodiversity **Dr. Josiah Kuja** – Jomo Kenyatta University, Kenya
10:20 – 10:35	Application of Electrical Impedance Spectroscopy and Tomography to Cell Measurement and Evaluation **Dr. Daisuke Kawashima**, Chiba University, Japan
10:35 – 11:05	Coffee break – Meet the exhibitors (30 min)
	Session II – INVITED TALKS
11:05 – 11:30	Advanced molecular tools for detection and characterization of exosomes and viruses **Masood Kamali-Moghaddam** – Uppsala University, Sweden
11:30 – 11:55	Biohacking for the Global South: toward self-sufficiency in molecular biology research and training in Africa **Christopher K. Kariuki** – Katholieke Universiteit Leuven, Belgium
11:55 – 11:20	Exploring the biodiversity of Wetland ecology for sustainable African bioeconomy **Evans Chidi Egwim** – Federal University of Technology Minna, Nigeria
12:20 – 12:45	Cell culture innovation for regenerative medicine **Hiroko Hanzawa** – Hitachi Kobe Laboratory, Center for Exploratory Research, Hitachi, Ltd., Japan
12:45 – 13:00	Sponsor Presentation: **Africa Biosystems Ltd** (15 min)
12:45 – 13:45	Lunch break / Meet the exhibitors

Day 1 – Thursday , 11 November , 2021

	Session III– POSTER SESSION
13:45 – 15:00	**POSTER SESSION (Day 1 posters)**
	Session IV– PLENARY LECTURES
15:00 – 16:00	Development and evaluation of point of care tests for Rift Valley Fever diagnosis **Shingo Inoue** – Institute of Tropical Medicine, Nagasaki University, Japan
16:00 – 16:30	Coffee break – Meet the exibitors (30 min)
16:30 – 17:30	Development of a new therapy for P. falciparum malaria **Philip Low** – Purdue University, USA
	Session V– INVITED TALKS
17:30 – 17:55	Recent advances in microfluidic paper-based analytical devices **Charles Henry** – Colorado State University, USA
17:55 – 18:20	Preliminary findings on virucidal activities of extracts of selected Nigerian vegetables with potentials for use as Covid-19 therapy **Dickson A. Musa** – Trans-Saharan Disease Research Centre, IBB University, Nigeria
18:20 – 18:55	ENMED: shifting the paradigm in medical education through blending of engineering and medicine **Michael R. Moreno** – Texas A&M University, USA
19:00 – 21:00	Dinner – Panel discussion
	END OF DAY 1

Note: Program may change without notice.

Time indicated is EAST AFRICAN TIME (EAT=UTC+3)

Day 2 – Friday , 12 November , 2021

08:00 – 09:00	**Announcements**
	Session VI – INVITED TALKS
09:00 – 09:25	Point of care Isothermal Nucleic Acid amplification Platform for Covid-19 Diagnostics designed to meet the needs at resource limited settings **Prof. Aman Russom** – Royal Institute of Technology KTH, Sweden
09:25 – 09:50	CYP2D6 genotyping analysis and functional characterization of novel allelic variants in a Kenyan and Ni-Vanuatu population **Prof. Masahiro Hiratsuka** – Tohoku University, Japan
09:50 – 10:15	Impact of IRS on malaria prevalence in the Lake Victoria basin, Homa Bay, Kenya **Dr. Wataru Kagaya** – Osaka City University, Japan
10:15 – 10:40	Development of point of care end game diagnostics for Africa **Dr. Jesse Gitaka** – Mount Kenya University, Kenya
10:40 – 11:05	Coffee break – Meet the exibitors (25 min)
11:05 – 11:20	Sponsor presentation **– HITACHI LTD.** **Dr. Shinji Nishimura**, Center for Exploratory Research, Hitachi, Ltd., Japan
	Session VII– Early career investigators
11:20 – 13:10	**9 speakers selected from outstanding abstracts** (10 min presentation + 2 min Q&A)
13:10 – 13:55	Lunch break / Meet the exhibitors
	Session VIII– POSTER SESSION
13:55 – 15:00	**POSTER SESSION (Day 2 Posters)**

Day 2 – Friday , 12 November , 2021

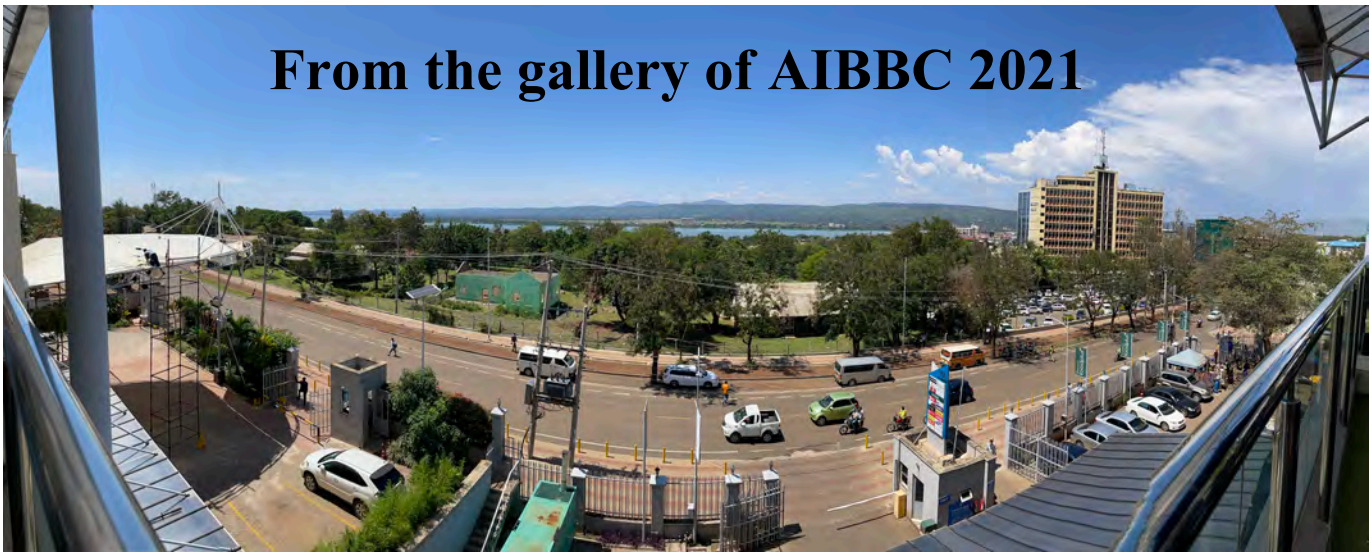
	Session IX– PLENARY LECTURES
15:00 – 16:00	Nucleoside-modified mRNA-LNP therapeutics **Drew Weissman** – University of Pennsylvania, USA
16:00 – 16:30	Coffee break – Meet the exibitors
16:30 – 17:30	Engineering medicine for a global society **Roderic I. Pettigrew** – Texas A&M University, USA
	Session X – INVITED TALKS
17:30 – 17:55	Microfluidic devices for analysis in resource-limited settings **Nicole Pamme** – Stockholm University, Sweden
17:55 – 18:20	Nanoparticle-based point-of-care molecular diagnostics **Jacqueline C. Linnes** – Purdue University, USA
18:20 – 19:00	Cytometry for Life: engaging and enabling science – CLOSING REMARKS **J. Paul Robinson** – Purdue University, USA
19:00 – 21:00	**AWARD CEREMONY / Banquet**
	END OF DAY 2

Day 3 – Saturday , 13 November , 2021

8:00 – 17:00	**BIODIVERSITY TOUR** **(tba)**
	END OF AIBBC 2021 PROGRAM

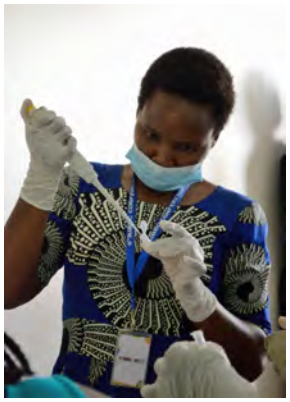
Thank you for your participation and see you at the next AIBBC.

From the gallery of AIBBC 2021



The city of Kisumu viewed from Acacia Hotel

Students viewing posters



Busy at experiment

Prof. Paul Robinson keenly listening to Prof. Weissman's lecture

Participants serving lunch by the pool side

Prof. Evans Egwins (Nigeria) enjoying a meal

End