# Keynote Forum
# November 01, 2017

## *Global Vaccination 2017*

# Global Vaccines & Vaccination Summit & B2B

November 01-02, 2017 | Toronto, Canada

# Ali Fattom

*Nano Bio Corp., USA*

## Can mucosal immunity succeed where other systemic immune responses failed? Intranasal immunization using a Nanostat™ platform technology protected against respiratory and sexually transmitted diseases in the appropriate animal challenge models

The list of failed vaccines against respiratory and sexually transmitted diseases in late clinical development is growing. Recent failures include parenterally administered vaccines against RSV and genital herpes (HSV2). Further, the emerging pertussis infections and outbreaks on the background of a well-established acellular pertussis vaccine is also alarming. Mucosal surfaces are the port of entry for respiratory and sexually transmitted diseases. Yet most vaccines evaluated or licensed to date are parenterally administered and target systemic responses. Targeting and triggering mucosal immunity may bring to the table another efficient arm of the immune response that may prove essential in preventing or treating sexually transited or respiratory infections. Nano Bio is developing an intranasal nanoemulsion adjuvant/delivery (NE) that induces mucosal Th17 responses and enhances homing of IgG and IgA -secreting B-cells to localize in the mucosal tissues. Evaluation of intranasal NE-RSV and NE-HSV2 vaccines in primary animal models demonstrated that the vaccinated animals were protected against disease, colonization, shedding, as well as chronic infection in the case of HSV2 challenge. These data suggest that mucosal immunity may be essential for successful development of efficacious vaccines against these mucosal pathogens and maybe improvement and expanding coverage of existing vaccines such as pertussis and flu vaccines. Mucosal Immunization and protection data from HSV2 in guinea pigs, RSV in monkeys, and flu in ferrets will be shared.

### Speaker Biography

For more than 25 years Dr. Fattom led research in vaccine discovery and development against infectious diseases and addiction. After a 5 years tenure in vaccine research at the NIH, under Dr. John Robbins, Dr. Fattom moved to the biotech industry, he joined Nabi Biopharmaceuticals, to lead bacterial vaccines development. His work on *Staphylococcus aureus* pathogenesis, determination of virulence factors, and identifying protective antigens for developing a protective vaccine against this pathogen are well recognized in the field. Nicotine vaccine, a second lead vaccine developed by Dr. Fattom for smoking cessation was also developed through phase II clinical trials. In 2010, Dr. Fattom joined NanoBio Corp. as a Sr. VP of vaccine research and development. For the last 6 years, his efforts were focused on developing intranasal vaccines against respiratory (Flu, RSV, Anthrax, and Pertussis), and sexually transmitted diseases (Genital herpes HSV2, Chlamydia, and HIV). Target indication for these vaccines is to protect against disease, carriage, shedding/transmission. Dr. Fattom holds an Adjunct professor at the University of Michigan since 2012. He authored >70 publications and >20 issued patents. He is a reviewer for NIAID and NIDA grant applications and a reviewer for several journals including Vaccine, Infection and Immunity, Human Vaccines & Immunotherapeutics, and NPJ Vaccine.

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**Pearay L Ogra**

*State University of New York, USA*

## Recent progress in human mucosal vaccine development: Role of mucosal immunity and mucosal microbiome in the outcome of vaccine effectiveness

One of the most successful and enduring accomplishments of mankind to date is the prevention or effective control of many infectious diseases through the use of vaccines. Most vaccines have been administered via the systemic (intramuscular/intracutaneous/subcutaneous) route. Such vaccines have resulted in significant decline in the disease burden of systemic infections associated with blood stream involvement, such as diphtheria, tetanus, pertussis, hemophilus influenzae, mumps, measles, rubella, and in the complete eradication of smallpox, Poliovirus type2 infection, and virtual elimination of other poliovirus types in most parts of the world. Systemic immunization has been highly effective in inducing systemic innate and adaptive immune responses, but limited or variable degree of immunity in the mucosal sites. Most human infections are acquired via the external mucosal surfaces of the respiratory, gastrointestinal, urogenital tracts. Human and other mammalian mucosal surfaces are in continuous contact with external environment and exposed to an overwhelming spectrum of microorganisms, dietary agents and other environmental macromolecules. It is estimated that the human intestinal mucosa alone contains > bacterial organisms representing as many as 2000 species, and over virus -like particles/gm of feces, of nearly 1,000 viral species. In addition to the bacteria and viruses, human mucosal surfaces are the primary portals of entry and sites of initial colonization with many fungi and parasitic agents. However, pathogenic agents represent a very tiny fraction of the entire mucosal microbial repertoire. The mucosal surfaces of the human neonate begin to be colonized with components of maternal microbiome shortly before, during the process of birth and, subsequently within the first 2-3 weeks after birth from maternal and other environmental exposures. Studies over the past 5 decades have demonstrated an extensive and intercommunicative network of innate and adaptive immune mechanisms in the mucosa associated lymphoid tissue(MALT) distributed in the gut (GALT), upper Respiratory and bronchial epithelium (BALT), nose-nasopharynx-waldyers ring(NALT), Sublingual tissue(SLT),Urogenital tissue and mammary glands, and Skin(SALT). These lymphoid elements are collectively referred as the common mucosal Immune system. There is now increasing evidence to suggest that induction of protective immune response in the specific mucosal portals of entry is the most effective approach to regulate local colonization and subsequent disease outcome. Currently available mucosal vaccines include vaccines against, polioviruses,(live attenuated- oral) rotavirus (live attenuated–oral) *influenza virus* (live attenuated–nasal), *vibrio cholera* (inactivated-oral) and *salmonella typhi* (live attenuated-oral). Several other candidate mucosal vaccines are currently undergoing evaluations in human trials. These include, enterotoxigenic *E.coli* (ETEC), *Shigella*, *Helicobacter*, *Campylobacter*, *Salmonella paratyphi*, and *Norovirus*. The composition and the diversity of mucosal microbiome have been shown to have a profound influence on the induction of immune response and efficacy of mucosally introduced vaccines, especially in tropics. Other possible factors which influence the effectiveness of mucosal vaccines include, methods delivery of the infant (vaginal vs C-section), postnatal feeding practices, malnutrition and carbohydrate consumption, use of antibiotics, and mucosal inflammation. Currently, mucosally delivered vaccines comprise of non- replicating whole organisms, synthetic peptides, inactivated toxins, and recombinant subunit proteins. In order to improve their immunogenicity and protective efficacy, the use of adjuvants has been explored in several clinical trials. These include, adjuvants which facilitate effective delivery of vaccine antigens (liposomes, nanogels, oil-in-water emulsions); adjuvants directed at targeting vaccine antigens to professional antigen presenting cells (APC) (Virosomes). Finally, several

adjuvants which stimulate the immune system itself are being explored currently in different settings. These include molecules binding to specific cellular receptors such as TLR, NOD and RIG1 like receptors, and DNA sensors.

## Speaker Biography

Dr. Ogra's scientific contributions include ; characterization of Mucosa associated lymphoid tissue, and mucosal Immune responses in natural or vaccine induced infections with poliovirus, rubella, mumps, hepatitis B virus and enteroviruses; maternal-neonatal interactions of human milk and breast feeding; analysis of host-pathogen interactions underlying the pathogenesis of respiratory syncytial virus infection and demonstration of virus specific IgE; pathogenesis of Rotavirus enteritis; and immunologic aspects of Otitis media. He served as the chief of Pediatric infectious diseases and Professor of Pediatrics and Microbiology at State University of New York, and subsequently as the John Sealy Distinguished Chair Professor and Chairman of Pediatrics at the University of Texas Medical Branch. He has been a member of many national and international scientific societies, NIH study sections, advisory panels of WHO, National academy of Sciences, European union and other global health organizations. He has trained over 78 post-doctoral scholars and has contributed over 440 peer reviewed scientific publications, and 20 full-length books and monographs and has served as the founding editor of the first comprehensive textbook of Mucosal Immunology.

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# Jun Dou

*Southeast University, China*


## Colon cancer stem cell-based vaccine reduces efficiently both tumour growth and cancer stem cell subpopulation in a mouse colon carcinoma model


Colon cancer is the most common malignant gastrointestinal cancers that are still the most frequent cause of cancer-related mortality in China. Colon cancer stem cells (CCSCs) are the main reasons that result in the drug and radiation resistance, invasive growth, metastasis, and cancer relapse. Though many factors involving immunosurveillance and immunosuppression were recently validated as important for patient prognosis, a lot of experimental immunotherapies to fight unresectable metastatic colorectal cancer, only few cases have successfully induced antitumor immune response against malignancies. The goal of this work was to investigate the effects on the inhibition of colon cancer growth by vaccination of CCSC vaccines. The $CD133^+$CSCs were isolated from human LOVO and mouse CT26 cell lines by using a magnetic-activated cell sorting system, respectively. The xenograft or syngeneic mice were subcutaneously inoculated with the LOVO or CT26 $CD133^+$CSC vaccine inactivated with again and again freeze thawing three times before the mice were challenged subcutaneously with LOVO or CT26 cells. The inhibition tumor efficacy was assessed by the tumorigenicity, immune efficient analysis by flow cytometer, and enzyme-linked immunosorbent assays, respectively. The results showed that, compared with the non-CSC vaccine, the inhibition tumor growth efficacy of LOVO or CT26 CSC vaccine was significantly increased in the xenograft or syngeneic mice. Vaccination of LOVO or CT26 $CD133^+$CSC vaccine resulted in increasing cytotoxic activity of natural killer cells, enhancing serum IFN-γ, and decreasing TGF-β levels in the mice. The LOVO and CT26 $CD133^+$CSC vaccines significantly reduced the CSC subpopulations in the colon cancer tissues. The data provided the first evidence that the human LOVO or mouse CT26 $CD133^+$CSC-based vaccine may be an attractive therapeutic approach to excitation of anti-tumor immunity for treatment of colon cancer.


### Speaker Biography

Jun Dou now is a Director, Professor of Department of Pathogenic Biology and Immunology, School of Medicine, Southeast University. He got his Medicine Doctor degree (MD, PhD) in 1997 at Zhejiang University of China. He has visited the Ulm University School of Medicine, Germany as a Visiting Scholar from Jun 1999 to Sept. 1999, and then visited the CDC, USA as a Senior Visiting Fellow from Oct. 2001 to Feb. 2004. Also, he visited the Georgia State University, USA as a Visiting Fellow from Sept. 2006 to Dec. 2006. Recently, he visited the Yale University School of Medicine, USA twice as a Senior Visiting Fellow in 2014 and in 2015. Currently his research has focused on the cancer stem cells (CSCs), the targeted CSCs by manipulation of nc-RNAs to treat breast, ovarian, colon cancers, and melanoma, as well as the CSC vaccines and CSC nanotheranostics.

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# Felix Fernandez Madrid

*Wayne State University, USA*

## Autoimmunity in breast carcinogenesis: Implications for vaccination in solid tumors

Our findings of anti-mitochondrial and anti-centrosome antibodies as well as autoantibodies targeting, RNA and RNA-protein complexes, histones, idiotypes and molecules involved in remodeling of the microenvironment in breast cancer [BC] sera, support our proposal that autoimmunity to tumor associated [TAA] and stromal associated antigens [SAA] is involved in breast carcinogenesis. Autoimmunity is mechanistically involved in the pathogenesis of rheumatic autoimmune and organ-specific autoimmune diseases by triggering chronic inflammation with consequent end-organ tissue damage. It is generally accepted that chronic inflammation may lead to the development of cancer. The most effective anti-tumor immune responses in animal models as well as in humans have relied on the efficient generation of TH1-cell immunity that promotes CTL responses that would favor tumor regression, while TH2 responses, i.e., autoantibodies and cytokines have failed to provide a vigorous anti-tumor effect. In this context, efforts to prevent and/or eradicate solid tumors with the use of vaccination, although promising have been largely disappointing. We have proposed that autoimmunity to TAAs and SAAs is responsible for autoimmune breast tissue damage, fueling chronic inflammation with generation of tumorigenic signals providing the rationale for the reported paradoxical association of B-cell hyperactivity and BC progression. The proposed model of cancer progression based on mitochondrial autoimmunity implies a vicious cycle of mitochondria/ER stress, immune recognition of accumulated unfolded or misfolded mitochondrial, centrosome and other proteins by auto-reactive immune cells, autoimmune damage of the target organ and chronic inflammation with generation of tumorigenic signals. Autoantibodies in BC do identify autoantigens participating in breast carcinogenesis. Some autoantibodies and cytokines involved in immune surveillance may have anti-tumor effects while others may be tumorigenic and promote cancer progression. This model has the potential ability of identifying protective and tumorigenic responses as well as new candidate biomarkers for targeted immunotherapy and for cancer vaccination in solid tumors.

### Speaker Biography

Félix Fernández Madrid is a Professor of Internal Medicine at Wayne State University in Detroit Michigan. His affiliations are Department of Internal Medicine, Center for Molecular Medicine and Genetics, Karmanos Cancer Institute. Based on the established role of autoantibodies as diagnostic and prognostic biomarkers in the rheumatic autoimmune diseases [RADs] and on their involvement in disease pathogenesis he became interested on a novel biomarker discovery approach which may contribute to the diagnosis of BC and other solid tumors. Along with his team, they demonstrated that autoantibodies in BC are not epiphenomena and that anti-mitochondrial antibodies targeting subunits of mitochondrial electron transfer chain complexes I, IV and V encoded by mtDNA are BC autoantigens, suggesting that these autoantibodies are the expression of mitochondrial autoimmunity in BC. A major goal of his research program is to establish the role of tissue damage produced by autoimmunity to breast antigens as contributors to creating a chronic inflammatory milieu promoting the progression of BC, and other solid tumors.

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# November 02, 2017

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# Chil-Yong Kang

*The University of Western Ontario, Canada*


## Universal viral vectors for prophylactic vaccines against infectious diseases and for therapeutic vaccines against persistent viral infections

Vaccination against infectious agents has proven to be the best way to prevent infectious diseases. We have created genetically modified recombinant M gene mutants of the Indiana serotype of vesicular stomatitis virus (VSVInd) and of the New Jersey serotype of VSV (VSVNJ) as universal vectors for the development of recombinant virus vaccines. The priming vaccine vector should be antigenically distinct from the boost vaccine vector in order to maximize the boost effects. rVSVInd with the mutations of G21E/M51R/L111A in the M protein (VSVIndGML) and rVSVNJ with the mutations of G22E/M48R+M51R in the M protein (rVSVNJGMM) was attenuated to a degree that mice injected with one million of these genetically modified infectious viruses directly into the brain showed no neurological signs or any other adverse effects. In contrast, 1,000 infectious wild-type VSV kills mouse within 4 days. Foreign genes inserted into these VSV vectors elicit strong B cell and T cell immune responses against the inserted gene products when we prime animals with rVSVInd(GML) followed by boost immunization with rVSVNJ(GMM) carrying the same genes of interest. Animals can tolerate over 109 PFU of recombinant infectious VSVInd(GML) and recombinant infectious rVSVNJ(GMM) and showed high levels of gene expression and adaptive immune responses. Our results show clearly that rVSVInd (GML) priming and rVSVNJ (GMM) boosting is the best way to induce ultimate humoral and cellular immune responses. I will describe the advantages of these dual serotype VSV vectors for future vaccine development against infectious diseases. This is a platform technology applicable for many types of vaccine development.

### Speaker Biography

C Yong Kang has received his PhD from McMaster University in Canada in 1971 and his DSc degrees from McMaster University and from Carleton University. He took his three-year Postdoctoral training at the University of Wisconsin, Madison, USA. He has served as a Professor of Microbiology at the University of Texas, Southwestern Medical School in Dallas, Professor and Chairman of the Department of Microbiology and Immunology at University of Ottawa, Faculty of Medicine, Dean of Science at the University of Western Ontario, and currently is serving as Professor of Virology in the Department of Microbiology and Immunology, Schulich School of Medicine and Dentistry at the University of Western Ontario. His research in molecular virology includes the development of antiviral therapeutic agents and efficacious vaccines against various human viral diseases. He has published 297 scientific papers in fields of virology, medicine, and molecular biology. He holds nine international patents. He has received numerous prizes including Ho-Am Prize in Medicine in 1999 and Queen Elizabeth II Diamond Jubilee Medal of the Governor General of Canada in 2012. He is an elected Life-time Fellow of the Royal Society of Canada, Academy of Science and an elected Life-time Member of the Korean Academy of Science and Technology.

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# Magdalena Tary-Lehmann

*Cellular Technology Limited, USA*

## Feasibility of monitoring cell mediated immunity during vaccine trials

An increasing number of new vaccines aim to elicit a response from the cellular components of the immune system, in addition to the classical establishment of an antibody-based immunity. T cell immunity is critically involved in combating infections and cancer, and plays a pathogenic role in autoimmune diseases and allergies. Therefore, monitoring antigen-specific T cells and their effector functions is crucial for the understanding of these diseases and for proper assessments of the efficacy of specific immune therapies such as vaccines in preclinical and clinical trials. Yet, unlike the detection of antibodies, reliable measurement of T cell-mediated immunity has remained a major challenge, due to several factors. One such factor is that the antigen-specific T cells of interest typically occur at very low frequencies in test samples, such as peripheral blood. Another factor is that for the reliable measurement of T cell function(s) it is necessary that the test conditions don't change the functionality of T cells in vitro as compared to the one in vivo. The many variables that can affect T cell functionality have earned T cell assays the reputation of being rather fragile, with even minor changes of test conditions potentially having a major impact on the test results. A major breakthrough in the field of T cell monitoring has been the introduction of protocols that facilitate cryopreservation of PBMC such that, upon thawing, the cells retain their full functionality. This has enabled the generation of "reference PBMC" as ideal tools for assay development and standardization. Examples of successful T cell monitoring using the ELISPOT assay will be presented.

### Speaker Biography

Magdalena Tary-Lehmann is a Co-Founding Scientist and Chief Scientific Officer for Cellular Technology Limited (CTL) and an Adjunct Associate Professor of Case Western Reserve University (CASE) Department of Pathology. She has published more than 75 papers in peer-reviewed journals. She provides guidance and oversees technical operations of the performance of immunology assays in CTL's GLP- and CLIA compliant contract laboratory for various pharmaceutical and biotechnology clients, ensuring the ongoing scientific excellence of CTL. Over the past decade, she has worked with clients and regulatory agencies to develop and validate reference samples and controls for use in regulated immune monitoring assays.

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# S Louise Cosby

*Queen's University Belfast, UK*


## Measles vaccination: Threat from related veterinary viruses and need for continued vaccination post measles eradication

Measles virus (MV) is the only human virus within the morbillivirus genus of the *Paramyxoviridae*. The virus can cause severe complications such as measles giant cell pneumonia and acute post measles encephalitis. More rarely fatal infections of the CNS, subacute sclerosing panencephalitis (SSPE) and in immunosuppressed individual's measles inclusion body encephalitis (MIBE) occur. The World Health Organization (WHO) has set goals towards the complete eradication of MV in at least five WHO regions by 2020 raising the risk of zoonotic infection. MV is thought to have evolved from the now eradicated cattle morbillivirus, rinderpest, and to have entered the human population during cattle domestication. Lessons have also been learned from other animal to human virus transmission i.e. human immunodeficiency virus (HIV) and more recently avian influenza, severe acute respiratory syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS). This highlights the potential consequences of complete withdrawal of MV vaccination after eradication. This may present presents problems as the closely related veterinary members in the genus share common cell entry receptors. Therefore, novel cross reacting vaccines will be required. The current measles vaccine is live attenuated and has very low risk of reversion but is still unlikely to be acceptable in a MV free world raising the need for alternative approaches. A formalin fixed MV vaccine was used for a period in the 1960's but provided short lived and non-complete immunity with an altered immune response and death of some children following later infection. This has encouraged research into recombinant vaccines for MV and the closely related veterinary viruses using other virus vector systems. The potential for zoonotic infection and approached to vaccination will be discussed.

### Speaker Biography

S Louise Cosby was appointed as Head of Virology Branch at the Agri-Food and Biosciences institute, UK in 2015. She was Chair of Microbiology in Queen's University Belfast from 2002 and remains an Emeritus Professor. She is a Fellow of Royal College of Pathologists (London) and Fellow of the Royal Society of Biology, UK. She has served/currently serves on grant/editorial boards: BBSRC, UK; Chair/member, Science Foundation Ireland; Deputy Chair Professional Development Committee, Microbiology Society, UK; Associate Editor, *Journal of Neurovirology*, USA; Review Editor, Frontiers in Microbiology; External Assessor for Appointments and Promotions in Medical Microbiology, University of Malaysia. Her research interests are in virus pathogenesis including virus-receptor interactions, virus-induced immunosuppression and vaccine development. Her work has focused on paramyxoviruses of both human and veterinary interest, with publications/grant funding in this area.

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# Ricardo Bordinhao

*BRL-Distribuidora de Vacinas LTDA, Brazil*

## The Brazilian national immunization program and its challenges for modernization and improvement

**Statement of the Problem:** Although the decision making for vaccination strategies is done individually, it is influenced by social and public policies. Over the last years, the Brazilian National Immunization Program (PNI) has registered a 95% rate of national vaccination coverage, which is similar to the rates observed in developed countries. The current challenges to be overcome by the program in order to preserve its excellence are to maintain its high rates of vaccination coverage, access equality, vaccination coverage monitoring, and safety, among others. The aim of this work is to analyze the development of the PNI program over the last decades along with its challenges and prospects for modernization and improvement.

**Methodology & Theoretical Orientation:** The research methodology used in this work was of descriptive and bibliographical survey based on the Brazilian population data. The collection of data occurred between May and June of 2017 in the city of Rio de Janeiro - RJ - Brazil. Over the last years there has been a decrease in the rate of hospital admissions for the following diseases: measles, meningitis, tetanus, influenzas, pneumonia and others. Nevertheless, the access to information remains fragmented due to low informatization levels of the processes.

**Conclusions:** The investments made in immunization generates countless benefits to the healthcare system and, consequently, to the health of Brazilians. Despite the high vaccination rates, the PNI program still needs improvements, especially in terms of modernization and informatization of the healthcare system. Nevertheless, its effective implementation demands investments for the acquisition and maintenance of new technologies, training of professionals, an organizational change, certification criteria and interoperability standards. Additionally, one of the main challenges for the PNI program is to align the strategies of verification and monitoring of disease risk perception and adverse events following vaccination (AEFV) among the different agents involved.

### Speaker Biography

Ricardo Bordinhao has received his Bachelor's degree in Pharmacy from the Universidade do Grande Rio - Unigranrio in 2001 and is currently obtaining a degree in Logistics Management and Pharmaceutical Distribution from the Institute of Science, Technology and Quality - ICTQ. He has worked in the pharmaceutical department of a number of renowned hospitals in Rio de Janeiro, developing great expertise in integration and consultancy for ANVISA regulatory matters. He is a Member of the Ethics Committee and of the Technical Chamber for Pharmaceutical Logistics of the Regional Pharmacy Council of Rio de Janeiro. He currently works at BRL-Distribuidora De Vacinas Ltda, a Pharmaceutical and Drug distributor where he holds the position of Logistics Manager and Head Pharmacy Technician.

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# Kelvin Owange Otieno

*AmortiMORE Africa, Kenya*

## Community engagement in HIV vaccine research as a treatment strategy among men who have sex with men (MSM)

**Introduction:** One of the challenges HIV vaccine researchers face is the grapple with the practical need to recruit, engage and sustain the research participants in the HIV vaccine trials and a broader social good regarding the safety of the participants and community perception on clinical research. Understanding the disjunction between the study concepts and participants level of clinical research literacy will pave the way for a successful HIV vaccine research. A meaningful and extensive engagement of the community is not only dependent on how researchers address the challenges associated with the participants' protection and involvement but also their engagement in the research process. Community engagement on HIV vaccine unearths salient implication of the research, with the potential to inform HIV prevention and treatment policy frameworks.

**Purpose:** This study aims to identify how the meaningful community engagement in HIV vaccine research affects the vaccine trial outcomes among the MSM in Kenya.

**Methodology:** The study was qualitative. Kenya Medical Research Institute (KEMRI) researchers were engaged as key informants. The MSM, who are volunteers to the trials, also responded to questionnaires.

**Findings:** The study established that men who have sex with men (MSM) and those living with HIV in particular, face rampant discrimination and high levels of social stigma. For a long time, such situations compounded the challenges of the disclosure which have significant effects on their participation in the HIV vaccine trials. However, there was a gradual realization of some change in perception among the trial participants after research literacy training by the KEMRI.

**Conclusion & Significance:** Research on HIV vaccine is, therefore, an investment whose benefits transcends a promise of prevention and should uphold community engagement strategies. In Kenya, the vaccine science contributes to an array of research driven discoveries; and such breakthrough incrementally empowers the HIV affected communities to a new narrative, which allows their voices to influence health care policies. Recommendations are made to researchers to engage the community.

### Speaker Biography

S Louise Cosby was appointed as Head of Virology Branch at the Agri-Food and Kelvin Owange Otieno is a Community Healthcare Consultant with inclination on Social Research. He has extensive experience in conducting research and training on organizational capacity, particularly on tuberculosis and HIV/AIDS. His experience in psychosocial development has positioned him to work in multisectoral setups including mental hospitals, rehabilitation centers and leading social research institutions in Kenya. He is passionate about creating a nexus between medical research and social research and further making medical research language more palatable to the end-user. He is currently developing curriculum guiding food producers on the production of healthy foods in Kenya.

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