

Keynote Forum
July 26, 2017

STDs & HIV/AIDS 2017

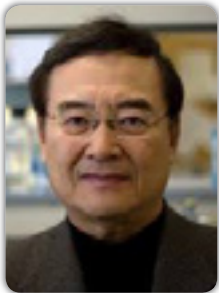


WORLD CONFERENCE ON STDs, STIs & HIV/AIDS

July 26-27, 2017 | Executive Hotels & Resorts
Vancouver, Canada

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C Yong Kang

The University of Western Ontario, Canada

Matrix protein gene variants of two serotypes of vesicular stomatitis virus are ideal viral vectors for prime-boost therapeutic HIV vaccines


There have been numerous attempts to develop therapeutic vaccines to clear virus-infected cells by activating viral protein-specific cytotoxic T lymphocytes using many different recombinant viral vectors. The vesicular stomatitis virus (VSV), one of the rhabdoviruses, offers an ideal system for prime-boost vaccine vectors. In order to induce the maximum immune responses, the priming recombinant viral vector should be antigenically distinct from the boosting vector to maximize the boost effect since a priming vaccine vector will induce neutralizing antibodies which will neutralize the boosting vaccine vector should one uses the same vector for the prime-boost vaccinations. Here, we report robust T-cell immune responses and humoral immune responses when two antigenically distinct genetically modified VSV vectors are used for prime-boost immunization. To examine the CD8⁺ T cell and B cell adaptive immune responses against the proteins expressed from the genetically modified *M* gene variants of rVSV vectors, we generated rVSVs with HIV-1 *gag*, *env* and *pol* genes. From the various vaccination regimens tested in animals, priming with rVSV_{ind}(GML)-*gag*, rVSV_{ind}(GML)-*pol*, and rVSV_{ind}(GML)-*env* followed with rVSV_{NJ}(GMM)-*gag*, rVSV_{NJ}(GMM)-*pol*, and rVSV_{NJ}(GMM)-*env* boosting induced the strongest CD8⁺ cytotoxic T cell immune responses against the HIV-1 Gag, Pol, and Env proteins. The same vaccination regimen also induced strong humoral immune responses against the HIV-1 Gag protein and Env protein. Increasing vaccine doses up to 10⁹ PFU induced stronger humoral immune responses against the HIV-1 Gag protein and Env protein. Our results demonstrated that rVSV_{ind}(GML) priming following with

rVSV_{NJ}(GMM) boosting is the best for optimum adaptive CD8⁺ T cell as well as humoral immune responses. Our results showed that genetically modified dual serotype VSV vectors with HIV gene inserts are safe and highly efficient in inducing robust adaptive immune responses. This rVSV-HIV vaccine is an excellent candidate as therapeutic vaccine to treat HIV-positive patients.

Speaker Biography

C Yong Kang, PhD, DSc, FRSC, is a Molecular Virologist and Professor of Virology in the Department of Microbiology and Immunology, Schulich School of Medicine and Dentistry at the University of Western Ontario in Canada (1992-Present). He carried out his Postgraduate studies at McMaster University where he received a PhD in Virology under the supervision of Professor Ludvik Prevec (1968-1971) and his Post-doctoral training under Professor Howard Temin at the University of Wisconsin-Madison (1971-1974). He went on to serve as a Professor of Virology in the Department of Microbiology at the University of Texas, Southwestern Medical School in Dallas, Texas (1974-1982), Professor and Chairman of the Department of Microbiology and Immunology at the University of Ottawa, Faculty of Medicine (1982-1992), and Dean of Science at the University of Western Ontario (1992-1999). He has received numerous prizes such as the Award of Excellence of the University of Ottawa (1991), Gold Medal for Ilchun Lecture (1998), Ho-Am Prize in Medicine (1999), the Order of Korea in Science and Technology (2002), the McMaster University Distinguished Alumni Award for 2007, the Lifetime Achievement Award from University of Western Ontario (2009), the Queen Elizabeth II Diamond Jubilee Medal (2012), selected as a Korean-Canadian Diaspora to Canadian Society by Canadian Government (2013) and the Scientist of the Year Award from the Korean Federation of Science and Technology (2013). Dr. Kang was elected as a Life-time Fellow of the Royal Society of Canada Academy of Science (1993) and an elected Life-time Member of the Korean Academy of Science and Technology (1997). He continues to serve as a Grant Selection Committee Member for various federal granting agencies in Canada and the United States. He is a member of the Board of Directors of numerous research institutions and foundations. He also serves as a Reviewer for the *Journal of Virology*, *Journal of Infectious Diseases*, *Virus Research*, *Virology*, *Journal of Biological Chemistry*, *Journal of Human Virology and Retrovirology*, and *Canadian Medical Association Journal*.

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Mee Lian Wong

National University of Singapore, Singapore

HIV/STI prevention interventions for sex workers in different settings in Singapore: Impact, challenges and lessons learned from two decades of research

Male patronage of female sex workers has been reported as the main mode of transmission of HIV and Sexually Transmitted Infections (STIs) in Asia. In Singapore, sex workers operate from diverse settings ranging from licensed brothels, to streets and entertainment establishments. A survey of licensed brothel-based sex workers in Singapore in 1992 found that 40% tested positive for STIs. Only 45% used condoms consistently with their clients because they could not persuade them to use condoms. I collaborated with the Department of STI Control (DSC), and we developed an intervention, using behavioral and work environment strategies to get health staff to motivate the sex workers to use condoms, develop their condom negotiation skills and mobilize support from brothel owners for condom use. Evaluation of the intervention, using a quasi-experimental design, showed a statistically significant increase in condom use with a corresponding decline in STIs. The intervention program was scaled up to all brothel-based sex workers in which they were required to attend STIs/HIV talks and skills development sessions on condom use and negotiation at the DSC Clinic. Program activities for brothel management included HIV/STI talks and mandatory display of posters on 100% condom use. Free condoms were given to all clients in the brothels. The program led to a sustained increase in condom use to more than 90% with a corresponding decline in STIs from 40 per 1000 person months to less than 1 per 1000 person-months among the sex workers. In recent years, globalization and wide income disparities across countries in Asia led to an influx of women from the region to work in entertainment establishments in Singapore. Our survey on entertainment establishments in Singapore in 2008 found that 70% of entertainment establishments provided sexual services. Almost all (>90%) of the female entertainment workers came from Asia and some came on short term social visit passes. Condom use with clients was low (<50%) among them. We faced more challenges in designing interventions for this group than for brothel-based workers because of their geographic mobility, illegal and hidden nature of their work, their lack of access to STI/

HIV screening and treatment, and the influence of alcohol on condom use. We collaborated with non-governmental organizations and developed outreach peer-led sessions on condom negotiation and alcohol consumption. Free condoms and STI screening were also provided. At 6-week follow-up, the intervention group was more likely than the control group to report consistent condom use with paid partners (75% vs. 42%; adjusted risk ratio [aRR] 1.78; 95% CI: 1.73 – 1.84). There was also a corresponding significant decline in STI incidence (8.2 % vs. 13.5%, $p < 0.05$). Given the heterogeneity of sex work, we need to develop context-specific and culturally appropriate multilevel interventions that address structural and behavioral barriers to condom use. It is crucial to address the social and structural influences on condom use among foreign sex workers in Singapore by working with relevant stakeholders and by using community empowerment strategies.

Speaker Biography

Mee-Lian Wong is Associate Professor of Public Health at the National University of Singapore - Saw Swee Hock School of Public Health. She received her MBBS and MPH from the University of Malaya and her Doctor of Medicine from the National University of Singapore. Her current research interests include health promotion, behavioral change and prevention of sexually-transmitted infections (STIs) and HIV among adolescents, heterosexual men and sex workers in Singapore and Cambodia. She has devoted 24 years to research in the development and evaluation of STI/HIV/AIDS programs and behavioral interventions for sex workers. She has published more than 100 papers on STI/prevention and health promotion. Her research on HIV/STI prevention has earned her many awards, including (i) the Wilf Howe Memorial Prize 2008, Faculty of Occupational Health Physicians, United Kingdom, for outstanding intervention/research project on STI prevention among sex workers with demonstrable health benefits, (ii) Red Ribbon Award, Singapore 2014 for her invaluable research contributions in HIV prevention and control (iii) National Skin Centre (NSC) Distinguished Friend Award 2009, for significant contributions to the Department of STI Control, NSC in translational research in HIV/STI prevention and control (iv) SEAMEO-JASPER award, second best research on women and health for her research study, Women and Sexually transmitted Diseases: A Sustainable Intervention to Increase Condom Use and Reduce Gonorrhoea among Sex Workers in Singapore, 1996 and (v) the Rockefeller Foundation's (US) Reflections on Development Fellowship award, 1989 for her research on Women in Health and Community Development. She is also Visiting Consultant to the Department of STI Control, National Skin Center, Singapore. She has previously served as Assistant Dean of Preclinical Education at the Yong Loo School of Medicine, National University of Singapore; and Program Director of the National Preventive Medicine Residency Program, Singapore.

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Rex Stockton

Indiana University, USA

Botswana HIV/AIDS counselor's perceptions of their role, and Client's Perceptions of the counseling experience; results from a programmatic effort

This presentation reports on a study of counselor's perceptions of HIV/AIDS in Botswana, as well as clients who have received HIV/AIDS counseling. HIV/AIDS has presented one of the greatest global health challenges in recent history. Mental health concerns can exacerbate the progression and transmission of HIV/AIDS. Thus counseling can play an important role in addressing these issues. Due to the hyper-geometric increased of AIDS, countries including Botswana, had been hard-pressed to provide well-trained counselors for AIDS clients. Results of a programmatic effort to examine the utilization of Botswana HIV/AIDS counselors and their perceptions of professional identity, practice and training issues, as well as the perceptions of clients who have received counseling are discussed.

Speaker Biography

Dr. Rex Stockton is the Class of 1969 Chancellor's Professor in the Department of Counseling and Educational Psychology, affiliate faculty member in African studies and Research Fellow, Rural Center for AIDS/STD Prevention at Indiana University. He has held a wide variety of academic, administrative and professional responsibilities. For over a decade in collaboration with African colleagues, he has lead a project related to the social emotional aspects of having HIV/AIDS. He has focused on counselor training and research related to the prevention of HIV/AIDS and counselling interventions in Sub-Saharan Africa. Dr. Stockton has received several major research awards for his work. For example, he is a recipient of the American Counseling Association's Extended Research Award and the Association for Specialists in Group Work Eminent Career Award. Most recently, he received APA's Division 49, the Arthur Teicher Award. Dr. Stockton is a recipient of the Burton W. Gorman Teaching Award at Indiana University. In addition to his research efforts, Dr. Stockton has conducted many workshops, nationally and internationally. As well as his consulting, instructional and research activities, Dr. Stockton has held numerous offices and committee assignments in professional societies. He is a Fellow of both the American Psychological Association and American Counselling Association and Diplomate of the American Board of Professional Psychology

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Reza Nassiri

Michigan State University, USA

Gaps in HIV epidemic, prevention and control: The role of academic centers

AIDS remains a public health and social problems threatening global population. There are approximately 36.7 million people currently living with HIV and tens of millions of people have died of AIDS-related complications since the beginning of the epidemic. The greatest prevalence and incidence remains in Eastern and southern Africa with 19 million (52%) affected. While new cases have been reported in all regions of the world, approximately two-thirds are in sub-Saharan Africa, with 46% of new cases in Eastern and Southern Africa.

The number of people newly infected with HIV, especially children, and the number of AIDS-related deaths have declined over the years. The number of people with HIV receiving treatment increased to more than 18 million in 2016. However, gaps exist. While studies show declines in new infections among adults observed earlier in the epidemic, incidence is now rising in some areas of the world particularly in China and India. HIV epidemic has led to a resurgence of tuberculosis (TB), particularly in Africa. TB is a leading cause of death for people with HIV worldwide. In 2015, approximately 11% of new TB cases occurred in people living with HIV. From our experience of HIV preventive work in the Dominican Republic, effective prevention strategies include behavior change programs, condom use, HIV testing, blood supply safety, harm reduction efforts for injecting drug users, and male circumcision (WHO and CDC recommendations). Additionally, recent research has shown that providing HIV treatment to people with HIV significantly reduces the risk of transmission to their HIV-negative partners. Pre-exposure antiretroviral prophylaxis (PrEP) has also been shown to be an effective HIV prevention strategy in individuals at high risk for HIV infection.

On World AIDS Day 2014, UNAIDS set targets for 2020 aimed at ending the epidemic by 2030. These goals and targets were reiterated in UNAIDS' 2016-2021 strategy, which also aligns with the Sustainable Development Goals (SDGs). The U.N.

charter members pledged committed to ending the AIDS epidemic by 2030. To reach this target within the SDGs is the central challenge facing the United Nations General Assembly High-Level Meeting on Ending AIDS which was held from 8 to 10 June 2016. In the United States, new HIV infections are becoming rare. When they do occur, every person, regardless of age, gender, race/ethnicity, sexual orientation, gender identity, or socio-economic circumstance, will have access to quality, life-extending care, free from stigma and discrimination. The Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia has dramatically impacted the regional response to the epidemic. The collaboration between government and civil society has proven to be essential element of sustainable response to HIV epidemic, monitoring, prevention and control (European Center for Disease Prevention and Control, Dublin Declaration Monitoring – 2016 progress).

In conclusion, while numerous socioeconomic and policy making factors play crucial role in understanding HIV epidemic, prevention and control, the key stakeholders are encouraged to work together as a team. Community-academic partnerships will gain increasing prominence in solving HIV-related matters

Speaker Biography

Dr. Reza Nassiri is a Professor of Clinical Pharmacology, Professor of Family and Community Medicine, and lecturer in Global Health, Infectious Diseases and Tropical Medicine at Michigan State University College of Osteopathic Medicine. His research interests focuses on Clinical Pharmacology of HIV/AIDS & TB, prevention and control of infectious diseases, neglected tropical diseases, community health, global health, and socio-ethical determinants of health. Prof. Nassiri works on international public health issues and has expertise in global health education, research, policy and governance. He has made contributions in various fields of medical sciences including clinical investigation and health education. One the basis of his extensive experience and expertise in HIV/AIDS and TB, he developed Clinical Research Programs in Brazil, South Africa, Haiti, Dominican Republic and Mexico. The core foci of such programs are socio-cultural, bio-ethical determinant of HIV/AIDS and TB prevention, control and intervention.

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Linda Serra Hagedorn

Lowa State University, USA

Combatting HIV/AIDS at the school level: Lessons learned from a pilot in Ugandan schools

It is commonly agreed that to annihilate the level of HIV infection, prevention instruction must take place at an early age. Schools are the obvious and easy target when designing to reach young people. However, while many countries have adopted an education series and support initiatives, the problem persists. This presentation will highlight a study within Uganda specifically targeting Head Teachers. Using ordinal logistic and Rasch scaling, this study utilized *the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ)* data to predict the strength and direction of the associations between school and community-based initiatives and the perceived risk of HIV infection reported by headteachers. Findings indicate community and school-based HIV/AIDS awareness and school based HIV/AIDS support significantly predict the odds of perceived risk of HIV/AIDS infection. Socio-demographic

and contextual factors confound some of the associations. The presentation will explore the ways that the education sector can play a bigger role through the education of its faculty and administrators in addition to students.

Speaker Biography

Linda Serra Hagedorn is Associate Dean of Undergraduate Programs, International Programs, Student Services, Diversity, and Community in the College of Human Sciences and Professor in the School of Education at Iowa State University. She is a prominent researcher in the area of community college student success with over 200 publications and presentations. As the Director of International Programs at Iowa State, she is also highly involved in international education. Dr. Hagedorn has extensive international experience beginning with her initial work in Vietnam as a Fulbright Specialist at AnGiang University (2003). She subsequently has been a researcher and collaborator in China, Indonesia, Russia, Korea, Spain and Vietnam. She is on the advisory board of international universities in both China and Iran. As the past president of the Association for the Study of Higher Education (ASHE) and Vice President of the American Educational Research Association (AERA), Dr. Hagedorn has a rich history of leadership.

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Patricia Miller

Mount Royal University, Canada

Generative dialogues regarding the couples experience of living with HIV

The research project is grounded in post-modern feminist theory in order to rigorously investigate the politics of interpretation, representation and language that has given meaning to the social-relational experiences of couples living with HIV.

It was completed through qualitative research, specifically a participatory action research methodology. As per a PAR methodology, a series of initial gatherings did focus on inviting diverse couples that have identified themselves as living with HIV and wanting to create a new understanding of the needs of the HIV couples community. These initial gathering did allow couples to dialectically develop their agenda and story for further action. These dialogues were documented in field notes and facilitated through a semi-structured group format.

The second phase will consist of constructing and developing a community of support while engaging actions, agreed upon by the couples themselves for the worthwhile purpose of empowerment of the persons and community itself.

The final phase of the research project is an on going action component that allows for full immersion and engagement in action research that has significant heuristic value as it formats a diverse and concise process for a couple peer

support model of engagement and community building. This validates the initial needs of the couples that sought to identify issues of concern and develop practice solutions from within their community.

Methods: It will be completed through qualitative research, specifically a participatory action research methodology. As per a PAR methodology, a series of initial gatherings will focus on inviting diverse couples that have identified themselves as living with HIV and wanting to create a new understanding of the needs of the HIV couples community.

Results: A thorough discussion of the emerging themes for couples living with HIV, will be presented and discussed regarding living well with the HIV virus. The results will bring forth a better understanding of a peer support model of support for the HIV community.

Speaker Biography

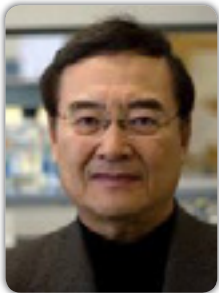
Patricia Miller is an Assistant Professor at Mount Royal University, within the faculty of Child & Youth Studies and Social Work. She continues to consult and research within the larger HIV community, within the province of Alberta. She is dually registered as a Social Worker and Psychologist, while running a private practice within the city of Calgary, Alberta.

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C Yong Kang

The University of Western Ontario, Canada

Genetically modified and killed whole-HIV vaccine is safe and stimulates anti-HIV antibody responses in human


Development of efficacious vaccine to prevent HIV infection has been one of major tasks in the last three decades. We report here an evaluation of the safety and the immunogenicity of a genetically modified and killed whole-HIV-1 vaccine designated as SAV001. HIV-1 Clade B NL4-3 was genetically modified by deleting the *nef* and *vpu* genes and substituted the coding sequence for the Env signal peptide with that of honeybee melittin signal peptide in order to generate a replication efficient and attenuated HIV-1. This genetically modified virus (*gmHIV-1NL4-3*) was propagated in the human T cell line, A3.01, followed by virus purification and inactivation by aldrithiol-2 and γ -irradiation. Thirty-three HIV-1 positive volunteers receiving cART were recruited for this observer-blinded, placebo-controlled phase I human clinical trial to assess the safety and immunogenicity. The humoral immune responses were assessed by standard antibody ELISA and by neutralization assay of HIV-1. We found SAV001 was well tolerated with no serious adverse events. HIV-1_{NL4-3} specific PCR showed no evidence of vaccine virus replication *in vitro* and in the participants receiving SAV001 vaccine. Furthermore, SAV001 with adjuvant significantly increased the pre-existing antibody response to HIV-1 proteins. Antibodies in the plasma from these vaccinations were also found to recognize HIV-1 envelope protein on the surface of infected cells as well as showed an enhancement of broadly neutralizing antibodies inhibiting tier I and II of HIV-1 A, B, and D subtypes. Our results indicate that the

killed whole-HIV vaccine is completely safe and may trigger appropriate immune responses to prevent HIV infection. This killed whole-HIV vaccine strategy may pave the way to develop an effective HIV vaccine.

Speaker Biography

C Yong Kang, PhD, DSc, FRSC, is a Molecular Virologist and Professor of Virology in the Department of Microbiology and Immunology, Schulich School of Medicine and Dentistry at the University of Western Ontario in Canada (1992-Present). He carried out his Postgraduate studies at McMaster University where he received a PhD in Virology under the supervision of Professor Ludvik Prevec (1968-1971) and his Post-doctoral training under Professor Howard Temin at the University of Wisconsin-Madison (1971-1974). He went on to serve as a Professor of Virology in the Department of Microbiology at the University of Texas, Southwestern Medical School in Dallas, Texas (1974-1982), Professor and Chairman of the Department of Microbiology and Immunology at the University of Ottawa, Faculty of Medicine (1982-1992), and Dean of Science at the University of Western Ontario (1992-1999). He has received numerous prizes such as the Award of Excellence of the University of Ottawa (1991), Gold Medal for Ilchun Lecture (1998), Ho-Am Prize in Medicine (1999), the Order of Korea in Science and Technology (2002), the McMaster University Distinguished Alumni Award for 2007, the Lifetime Achievement Award from University of Western Ontario (2009), the Queen Elizabeth II Diamond Jubilee Medal (2012), selected as a Korean-Canadian Diaspora to Canadian Society by Canadian Government (2013) and the Scientist of the Year Award from the Korean Federation of Science and Technology (2013). Dr. Kang was elected as a Life-time Fellow of the Royal Society of Canada Academy of Science (1993) and an elected Life-time Member of the Korean Academy of Science and Technology (1997). He continues to serve as a Grant Selection Committee Member for various federal granting agencies in Canada and the United States. He is a member of the Board of Directors of numerous research institutions and foundations. He also serves as a Reviewer for the *Journal of Virology*, *Journal of Infectious Diseases*, *Virus Research*, *Virology*, *Journal of Biological Chemistry*, *Journal of Human Virology and Retrovirology*, and *Canadian Medical Association Journal*.

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