

MALARIA VACCINES FOR THE WORLD

2-4 May 2016, Leiden University Medical Center LUMC, Leiden, The Netherlands



FINAL ORAL PROGRAMME & POSTER PROGRAMME MVW 2016

SCIENTIFIC STEERING COMMITTEE

Shahid Khan (*LUMC, Leiden University, Leiden, The Netherlands*)

Rick King (*MVI-PATH, Washington DC, USA*)

Adrian V.S. Hill (*University of Oxford, Oxford, UK*)

Stephen L. Hoffman (*Sanaria Inc., Rockville, Maryland, USA*)

SCIENTIFIC SESSION LEADERS

Ogobara Doumbo (*University of Bamako, Bamako, Mali*)

Chris Ockenhouse (*PATH, Seattle, Washington, USA*)

Simon Draper (*University of Oxford, Oxford, UK*)

Bob Seder (*NIH, Bethesda, Maryland, USA*)

Odile Leroy (*European Vaccine Initiative, Heidelberg, Germany*)

Salim Abdulla (*Ifakara Health Institute, Dar Es Salaam, United Republic of Tanzania*)

Rana Chattopadhyay (*CEBR, USFDA, Silver Spring, Maryland, USA*)

Vasee Moorthy (*WHO, Geneva, Switzerland*)

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07.45 Onwards
Registration & Coffee

08.45-09.00

Welcome Address

Dean of LUMC, Leiden

**SESSION 1:
GENERAL PLENARY SESSION I**

Session Leader: Ogobara Doumbo (*University of Bamako, Bamako, Mali*)

09.00-09.40

'Multi-component malaria vaccines: Challenges and new solutions'

Adrian Hill (*The Jenner Institute, University of Oxford, Oxford, UK*)

09.40-10.20

'PfSPZ Vaccine: The March Toward Licensure'

Steve Hoffman (*Sanaria Inc., Rockville, Maryland, USA*)

10.20-11.00

'PATH Malaria Vaccine Initiative transmission-blocking vaccine strategy: Challenges and recent progress'

C. Richter King (*PATH Malaria Vaccine Initiative, Washington DC, USA*)

11.00-11.30

Coffee Break & Poster Set-Up

**SESSION 2:
RTS,S**

Session Leader: Chris Ockenhouse (*PATH, Seattle, Washington, USA*)

11.30-11.40

'Session Introduction'

Chris Ockenhouse (*PATH, Seattle, Washington, USA*)

11.40-11.55

'Designing epidemiological studies for the post approval plan of the RTS,S/AS01 malaria vaccine in sub-Saharan African countries'

Laurence Baril¹, Jean-Yves Pirçon¹, Marie-Cécile Bozonnat², Valérie Haine³, Effua Usuf⁴, Elodie Garric¹ and Yolanda Guerra¹ on behalf of the RTS,S Safety Post Approval Plan Partnership Committee

(¹ GSK Vaccines, Wavre, Belgium; ² 4 Clinics, Paris, France, ³ Keyrus Biopharma, Lasne, Belgium; ⁴ Consultant for GSK Vaccines)

11.55-12.10

'Addressing the methodological and logistical challenges of performing malaria vaccine effectiveness studies in sub-Saharan African countries'

Jean-Yves Pirçon and Laurence Baril (*GSK Vaccines, Wavre, Belgium*)

12.10-12.25

'Mathematical modelling to prioritize second generation malaria vaccines: Insights following from mathematical modelling prior to RTS,S recommendation'

Melissa A. Penny and Thomas A. Smith (*Swiss Tropical and Public Health Institute, Basel, Switzerland and University of Basel, Basel, Switzerland*)

12.25-12.40

'Decreasing RTS,S vaccine efficacy with increase in genetic mismatch of malaria, yet some efficacy remains against highly mismatched malaria'

Michal Juraska¹, Daniel E. Neafsey², Trevor Bedford¹, David Benkeser¹, Marc Lievens³, Bronwyn MacLinnis², Sarah K. Volkman^{2,4}, Christian F. Ockenhouse⁵, Peter B. Gilbert¹ and Dyann F. Wirth^{2,4} (¹ Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center; ² Broad Institute of MIT and Harvard;

³ GlaxoSmithKline Vaccines; ⁴ Harvard T.H. Chan School of Public Health;

⁵ PATH Malaria Vaccine Initiative, Washington DC, USA)

12.40-12.55

'Benefit-risk balance of the RTS,S/AS01 malaria vaccine candidate and plans to address remaining questions'

Lode Schuerman, Elodie Garric, Pascale Vandoolaeghe and Yolanda Guerra Mendoza (*GSK Vaccines, Wavre, Belgium*)

12.55-13.15

Session Discussion

13.15-14.00

Lunch Break & Posters

**SESSION 3:
PRE-ERYTHROCYTIC VACCINES I**

Session Leader: Steve Hoffman (*Sanaria Inc., Rockville, Maryland, USA*)

14.00-14.10

Session Introduction

Steve Hoffman (*Sanaria Inc., Rockville, Maryland, USA*)

14.10-14.30

'A unique collaborative approach to successful malaria vaccine development: Lessons from the international PfSPZ Consortium'

Peter F. Billingsley for the International PfSPZ Consortium

14.30-14.45

'Long term heterologous protection: The pot of gold at the end of the malaria vaccine rainbow'

Kirsten E. Lyke and Thomas L. Richie for the International PfSPZ Consortium

14.45-15.00

'Successful establishment of a PfSPZ vaccine immunization regimen that protects non-immune, short-term travellers against Pf malaria'

J.E. Epstein for the International PfSPZ Consortium (Presented by Kirsten E. Lyke)

15.00-15.15

'Manufacturing PfSPZ vaccines for malaria elimination'

B.K.L. Sim, A. Manoj, A. Eappen, T. Li, E.R. James, S. Chakravarty, M. Li, R. Stafford, A. Ruben, Y. Wu, P.F. Billingsley and S.L. Hoffman (*Sanaria Inc., Rockville, Maryland, USA and Protein Potential LLC, Rockville, Maryland USA*)

15.15-15.30

'Identification of protection associated HLA-allele specific epitopes within standard and novel Plasmodium falciparum antigens in human research subjects immunized with radiation attenuated sporozoites'

Martha Sedegah¹, Santiago Carmona², Maria Belmonte¹, Arnel Belmonte¹, Harini Ganeshan¹, Jun Huang¹, Sandra Inoue¹, Rachael Velasco¹, Bradley Hickey¹, Nimfa Teneza-Mora¹, Joanne Lumsden¹, Bjoern Peters² and Eileen Villasante¹

(¹ Naval Medical Research Center, Silver Spring, Maryland, USA; ² La Jolla Institute for Allergy and Immunology, La Jolla, California, USA)

15.30-15.45

'Safety and efficacy of immunization by mosquito bite with radiation attenuated sporozoites evaluated in a phase 1 clinical trial: Final results'

Nimfa Teneza-Mora¹, Bradley Hickey¹, Sharina Reyes², Joanne Lumsden², Jo Glenna Banania², Charlotte Fedders², Yolanda Alcorta², Anatalio Reyes², Carlos Vasquez², Santina Maiolatesi², Harini Ganeshan², Jun Huang², Maria Belmonte², Arnel Belmonte², Esteban Abot², Alexandra Singer¹, Cindy Tamminga², James Moon³, Michelle Spring³, Patrick Twomey³, Megan Dowler³, Lindsay Garver³, Silas Davidson³, Martha Sedegah¹, Thomas Richie¹, Eileen Villasante¹ and Judith Epstein¹ (¹ Naval Medical Research Center, Silver Spring, Maryland, USA; ² Henry M. Jackson Foundation, Bethesda, Maryland, USA; ³ Walter Reed Army Institute of Research, Silver Spring, Maryland, USA)

15.45-15.50

Session Discussion

15.50-16.10

Tea Break & Posters

Continued

SESSION 4: PRE-ERYTHROCYTIC VACCINES II

Session Leader: Adrian Hill (*University of Oxford, Oxford, UK*)

16.10-16.20

Session Introduction

Adrian Hill (*University of Oxford, Oxford, UK*)

16.20-16.40

'Viral vector malaria vaccines induce potent T cell and antibody responses in West African infants'

Katie Ewer (*University of Oxford, Oxford, UK*)

16.40-16.55

'Induction of high levels of liver-resident CD8+ T-cells that protect against liver-stage malaria'

Anita Gola¹, Adam A. Walters¹, Benedict R. Halbroth¹, Ahmed M. Salman^{1,2}, Shahid M. Khan², Chris J. Janse², Alexandra J. Spencer¹ and Adrian VS Hill¹
(¹ *Jenner Institute, University of Oxford, Oxford, UK*; ² *Leiden University Medical Center, Leiden, The Netherlands*)

16.55-17.10

'Clinical evaluation of the cell-traversal protein for ookinetes and sporozoites from *Plasmodium falciparum* (pfcelts) vaccine in a phase 1 trial with controlled human malaria infection'

Jason W. Bennett¹, Donna Tosh¹, Elke S. Bergmann-Leitner¹, Kristopher Paolino¹, Jason A. Regules¹, Elizabeth Duncan¹, Patrick Twomey¹, James E. Moon¹, April Kathcart¹, Heather E. Hosie¹, Casey K. Storme¹, Michele D. Spring¹, Kevin Hauns¹, Jack Komisar¹, Aziz Qabar¹, Silas Davidson¹, Christian F. Ockenhouse⁴, Johan Vekemans², Lorraine Soisson³, Ripley Ballou², Carter Diggs³, Norman C. Waters¹, Robert M. Paris¹ and Evelina Angov¹
(¹ *Walter Reed Army Institute of Research, Silver Spring, Maryland, USA*; ² *GSK Vaccines, Rixensart, Belgium*; ³ *United States Agency for International Development, Washington DC, USA*; ⁴ *PATH Malaria Vaccine Initiative (MVI), Washington DC, USA*)

17.10-17.25

'Why high numbers of CD8+ T cells are required to mediate protection against liver-stage malaria'

Alexandra J. Spencer, Rhea J. Longley, Anita Gola, Teresa Lambe and Adrian V.S. Hill (*The Jenner Institute, University of Oxford, Oxford, UK*)

17.25-17.40

'Evaluation of *Plasmodium falciparum* SPECT-1 as a novel pre-erythrocytic vaccine candidate'

Ahmed M. Salman^{1,2}, Ana Rodríguez-Galán¹, Naif Khalaf Alharbi¹, Florian Brod¹, Aadil El Turabi¹, Paulo Bettencourt¹, Alexandra J. Spencer¹, Chris J. Janse², Shahid M. Khan² and Adrian V.S. Hill¹
(¹ *The Jenner Institute, University of Oxford, Oxford, Oxfordshire, UK*; ² *Leiden Malaria Research Group, LUMC, Leiden, The Netherlands*)

17.40-17.50

Session Discussion

17.50-19.00

MVW 2016 Poster Session & Welcome Drinks

**SESSION 5:
TRANSMISSION BLOCKING VACCINES**

Session Leader: C. Richter King

(PATH Malaria Vaccine Initiative, Washington DC, USA)

09.00-09.15

Session Introduction

C. Richter King (PATH Malaria Vaccine Initiative, Washington DC, USA)

09.15-09.30

'Pre-clinical and clinical development of novel virus-like-particles for induction of high titre functional antibody responses against the transmission-blocking candidate antigen, Pfs25'

Yuanyuan Li¹, Darren Leneghan¹, Karl D. Brune², Jing Jin¹, Iona Brian¹, Kazutoyo Miura³, Carole A. Long³, Simon J. Draper¹, Adrian V.S. Hill¹, Mark Howarth², Fergal Hill⁴ and Sumi Biswas¹

(¹ The Jenner Institute, University of Oxford, Oxford, UK; ² Department of Biochemistry, University of Oxford, Oxford, UK; ³ NIAID/NIH, MD 20852, USA; ⁴ Imaxio SA, Lyons, France)

09.30-09.45

'Clinical development of a Pfs48/45-based transmission blocking malaria vaccine'

Robert Sauerwein¹, Will Roeffen¹, Susheel Kumar Sing², Sanjay Singh³ and M. Theisen²

(¹ Radboud University Medical Center, Nijmegen, The Netherlands; ² SSI, Copenhagen, Denmark; ³ Gennova, Pune, India)

09.45-10.15

'Assessment of the potential effectiveness of transmission blocking vaccines by the use of an experimental lab-based transmission population model'

Andrew Blagborough (Imperial College, London, UK)

10.15-10.45

'Analysing TBV vaccine efficacy in the field'

Sara Healy (NIAID/NIH, Bethesda, Maryland, USA)

10.45-11.00

Session Discussion

11.00-11.20

Coffee Break

**SESSION 6:
BLOOD STAGE AND COMBINATION VACCINES**

Session Leader: Simon Draper (University of Oxford, Oxford, UK)

11.20-11.30

Session Introduction

Simon Draper (University of Oxford, Oxford, UK)

11.30-11.45

'Development of a PfrH5-based vaccine against the Plasmodium falciparum merozoite'

Simon Draper (University of Oxford, Oxford, UK)

11.45-12.00

'Development of a semi-synthetic whole parasite vaccine'

Ashwin Kumar Giddam¹, Jennifer M. Reiman², Mehruz Zaman², Mariusz Skwarczynski¹, Istvan Toth^{1,3,4} and Michael F. Good²

(¹ The University of Queensland, School of Chemistry and Molecular Biosciences, Australia; ² Griffith University, Institute for Glycomics, Australia; ³ The University of Queensland, School of Pharmacy, Australia; ⁴ The University of Queensland, Institute for Molecular Bioscience, Australia)

12.00-12.15

'DEKnull: A rational design for a strain-transcending vaccine against vivax malaria'

Francis B. Ntumngia¹, Edwin Chen², Miriam T. George¹, Camilla Valente Pires¹, Lenore Carias³, Nichole D. Salinas², Samantha J. Barnes¹, Christopher L. King³, Niraj H. Tolia² and John H. Adams¹

(¹ Center for Global Health & Infectious Diseases Research, College of Public Health, University of South Florida, Tampa, USA; ² Departments of Molecular Microbiology & Microbial Pathogenesis, and Biochemistry & Molecular Biophysics, Washington University School of Medicine, Saint Louis, USA; ³ Center for Global Health and Diseases, Case Western Reserve University, Cleveland, USA)

12.15-12.30

'Development of efficacious targeted DNA vaccines against malaria'

Ganesh Ram Visweswaran¹, Ranveig Braathen¹, Louise Bjerkan¹, Genevieve Labbe², Simon J. Draper² and Bjarne Bogen¹

(¹ University of Oslo, Oslo, Norway; ² University of Oxford, Oxford, United Kingdom)

12.30-12.45

'Plasmodium falciparum virulence genes (var) expressed in severe pediatric malaria characteristically encode EPCR-binding PfEMP1'

Thomas Lavstsen (University of Copenhagen and Department of Infectious Diseases, Rigshospitalet, Copenhagen, Denmark)

12.45-12.50

Session Discussion

12.50-13.30

Lunch Break & Posters

**SESSION 7:
VACCINE IMMUNOLOGY**

Session Leader: Robert A. Seder (NIH, Bethesda, Maryland, USA)

13.30-13.40

Session Introduction

Robert A. Seder (NIH, Bethesda, Maryland, USA)

13.40-14.00

'Immune correlates of durable protection'

Robert A. Seder for the International PfSPZ Consortium (NIH, Bethesda, Maryland, USA)

14.00-14.15

'Establishing Luminex assay for measuring human serum anti-malarial IgG subclasses'

Christian Darko, Aziz Qabar, Christina McCray, Kingsley Jarret, Nancy Richie, Tanmaya Atre, Sheetij Dutta, Norman Walters and James Moon (Walter Reed Army Institute of Research, Silver Spring, Maryland, USA)

14.15-14.30

'Protection and immune responses after whole sporozoite immunization in humans'

Robert Sauerwein (Radboud University Medical Center, Nijmegen, The Netherlands)

14.30-14.45

'Decoding the immunological basis of protective efficacy with PfSPZ vaccines against malaria'

Sumana Chakravarty and Stephen L. Hoffman (Sanaria Inc., Rockville, Maryland, USA)

Continued

14.45-15.00

'Cellular immune correlates induced by RTS,S/AS01E in children and infants from a phase III trial in Africa'

G. Moncunill^{1,2}, M. Mpina³, A.J. Nhabomba², R. Aguilar¹, A. Ayestaran¹, H. Sanz¹, J.J. Campo^{1,2}, C. Jairoce², D. Barrios¹, Y. Dong⁴, N. Díez-Padrís¹, J.S. Fernandes⁵, S. Abdulla³, J. Sacarlal², P.L. Alonso^{1,2}, N.A. Williams¹, J. Harezlak⁴, B. Mordmüller^{6,5}, S.T. Agnandji^{5,6}, J.J. Aponte^{1,2}, C. Daubenberger^{3,7}, C. Valim⁸ and C. Dobaño^{1,2}

(¹ ISGlobal, ² CISM, ³ IHI, ⁴ IUPUI, ⁵ CERMEC, ⁶ UKT, ⁷ SwissTPH, ⁸ HSPH-MSU)

15.00-15.30

Tea Break & Posters

SESSION 8: NEW VACCINE TECHNOLOGIES

Session Leader: Shahid Khan (*LUMC, Leiden University, Leiden, The Netherlands*)

15.30-15.40

Session Introduction

Shahid Khan (*LUMC, Leiden University, Leiden, The Netherlands*)

15.40-16.00

'The use of transgenic parasites in malaria vaccine research'

Shahid Khan (*LUMC, Leiden University, Leiden, The Netherlands*)

16.00-16.15

'A human immune system (HIS) mouse model for a malaria vaccine research'

Moriya Tsuji (*Aaron Diamond AIDS Research Center, The Rockefeller University, New York, USA*)

16.15-16.30

'A rodent Plasmodium platform for immunization against human malaria'

Miguel Prudencio (*Instituto de Medicina Molecular, Lisbon, Portugal*)

16.30-16.45

'Vaccination approaches that protect humanized HLA transgenic mice against Plasmodium falciparum'

Sai Majji¹, Wathsala Wijayalath¹, Luis Pow Sang², Soumya Shashikumar¹, Timothy King¹, Eileen Villasante¹, Teodor-Doru Brumeanu² and Sofia Casares¹
(¹ Naval Medical Research Center / Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ² Uniformed Services University of Health Sciences, Bethesda, Maryland, USA)

16.45-17.00

'Inference of parasite genetic determinants of PfSPZ Vaccine efficacy from field trial samples'

J.C. Silva¹, K.A. Moser¹, A. Ouattara², A. Dara², E.F. Drábek¹, M. Adams², B.K. Sim³, K.E. Lyke², M.A. Travassos², M.B. Laurens², S. Takala-Harrison², S.L. Hoffman³ and C.V. Plowe²

(¹ Institute for Genome Sciences, University of Maryland School of Medicine, Baltimore, Maryland, USA; ² Institute for Global Health, University of Maryland School of Medicine, Baltimore, Maryland, USA; ³ Sanaria Inc., Rockville, Maryland, USA)

17.00-17.15

'Plasmodium falciparum infections in humanized DRAG mice upon challenge with sporozoites delivered by the intravenous route or by mosquito bites'

Wathsala Wijayalath¹, Sai Majji¹, Timothy King¹, Soumya Sashikumar¹, Megan Dowler², Eileen Villasante¹, Teodor D Brumeanu³ and Sofia Casares¹
(¹ Naval Medical Research Center / Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ² Entomology Branch, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ³ Uniformed Services University of Health Sciences, Bethesda, Maryland, USA)

17.15-17.30

Session Discussion

**SESSION 9:
GENERAL PLENARY SESSION II**

Session Leader: Odile Leroy (*European Vaccine Initiative, Heidelberg, Germany*)

09.00-09.10

Session Introduction

Odile Leroy (*European Vaccine Initiative, Heidelberg, Germany*)

09.10-09.25

'Development of a placental malaria vaccine'

Anaud Chêne¹, Stéphane Gangnard¹, Sebastien Dechavanne¹, Anand Srivastava¹, Nicola K. Viebig², Nicolas Havelange², Sophia Hundt², Odile Leroy² and Benoît Gamain¹

(¹ *Institut National de la Santé et de la Recherche Médicale, Paris, France;*

² *European Vaccine Initiative, UniversitätsKlinikum, Heidelberg, Germany*)

09.25-09.40

'Controlled Human Malaria Infection (CHMI) in Malaria Vaccine Development: A U.S. Food & Drug Administration (FDA) Perspective'

Rana Chattopadhyay and Douglas Pratt (*Center for Biologics Evaluation & Research, US FDA, Silver Spring, Maryland, USA*)

09.40-09.55

'A Phase 1 trial to assess the safety, attenuation and immunogenicity of triple gene deletion-attenuated *Plasmodium falciparum* (PfGAP3KO) strain'

Brandon K. Sack¹, James G. Kublin^{1,2}, Sebastian A. Mikolajczak¹, Matt Fishbauger¹, Annette Seilie³, Lisa Shelton¹, Tracie VonGoederdt¹, Melike Firat¹, Sara Magee¹, Emma Fritzen¹, Will Betz¹, Heather S. Kain¹, Ryan Steel¹, Dorender A. Dankwa¹, Ashley M. Vaughan¹, D. Noah Sather¹, Sean C. Murphy^{1,3,4,5}, and Stefan H.I. Kappe^{1,2}

(¹ *Center for Infectious Disease Research, formerly Seattle Biomedical Research Institute, Seattle, Washington, USA;* ² *University of Washington, Seattle, Washington, USA;* ³ *Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington, USA;* ⁴ *Department of Laboratory Medicine, Seattle, Washington, USA;* ⁵ *University of Washington, Seattle, Washington, USA*)

09.55-10.10

'Developing a malaria vaccine for the military: A multi-disciplinary collaborative effort'

Eileen Franke Villasante (*Naval Medical Research Center, Silver Spring, Maryland, USA*) and Norman C. Waters (*Walter Reed Army Institute of Research, Silver Spring, Maryland, USA*)

10.10-10.30

Session Discussion

10.30-11.10

Coffee Break & Posters

**SESSION 10:
LATE BREAKER PRESENTATIONS**

Session Leader: Salim Abdulla (*Ifakara Health Institute, Dar Es Salaam, United Republic of Tanzania*)

11.10-11.25

'Transcriptome and antibody analysis of Immunization with Radiation Attenuated Sporozoites'

Ken Stuart et al. (*Center for Infectious Disease Research, Seattle, Washington, USA/NMRC/WRAIR IMRAS Team, USA*)

11.25-11.50

'Proteomic antibody profiling of U.S. and African volunteers in multiple clinical trials of PfSPZ vaccine'

Joseph J. Campo¹, Sumana Chakravarty², Jozelyn Pablo¹, Andy Teng¹, Adam Shandling¹, Tim Le¹, Cassidy Walker¹, Minglin Li³, Natasha KC³, Neville Kisalu⁴, Barbara Flynn⁴, Azza Idris⁴, Ogobara Doumbo⁵, Mahamadou Soumana Sissoko⁵, Sara Healy⁶, Patrick Duffy⁶, Preston Church², Said Jongo⁷, Seif Shekalaghe⁷, Salim Abdulla⁷, Claudia Daubenberger^{8,9}, Judith E. Epstein¹⁰, Robert Seder⁴, Philip L. Felgner¹, Xiaowu Liang¹ and Stephen L. Hoffman²

(¹ *Antigen Discovery Inc., Irvine, California, USA;* ² *Sanaria, Inc., Rockville, Maryland, USA;* ³ *Protein Potential, LLC, Rockville, Maryland, USA;* ⁴ *National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, USA;* ⁵ *Malaria Research and Training Center, Mali-NIAID ICER, University of Science, Techniques and Technologies of Bamako, Mali;* ⁶ *National Institute of Allergy and Infectious Diseases, National Institutes of Health, Rockville, Maryland, USA;* ⁷ *Ifakara Health Institute, Bagamoyo Research and Training Centre, Bagamoyo, Tanzania;* ⁸ *Swiss Tropical and Public Health Institute, Basel, Switzerland;* ⁹ *University of Basel, Basel, Switzerland;* ¹⁰ *Naval Medical Research Center Malaria Department, Silver Spring, Maryland, USA*)

11.50-12.05

'Discovery of a novel, highly protective pre-erythrocytic *Plasmodium* vaccine antigen candidate'

Joao Aguiar, Keith Limbach, Elena Curti, Nonenipha Rangel, Andrea Renner, Sharvari Sonawane, Kalpana Gowda, Jessica Bolton, Rebecca Danner, Noelle B. Patterson, Thomas L. Richie, Eileen D. Villasante and Emily Smith (*NMRC, Silver Spring, Maryland, USA*)

12.05-12.25

'Targeting malaria infection with antibodies against the pre-erythrocytic stage of malaria'

Brandon K. Sack¹, James G. Kublin^{1,2}, Sebastian A. Mikolajczak¹, Matt Fishbauger¹, Annette Seilie³, Lisa Shelton¹, Tracie VonGoederdt¹, Melike Firat¹, Sara Magee¹, Emma Fritzen¹, Will Betz¹, Heather S. Kain¹, Ryan Steel¹, Dorender A. Dankwa¹, Ashley M. Vaughan¹, Vladimir Vigdorovich¹, Sara Carbonetti¹, Joshua Obiero⁴, Philip L. Felgner⁴, D. Noah Sather¹, Sean C. Murphy^{1,2,3} and Stefan H.I. Kappe^{1,2}

(¹ *Center for Infectious Disease Research, Seattle, Washington, USA;* ² *University of Washington, Seattle, Washington, USA;* ³ *Fred Hutchinson Cancer Research Center, USA;* ⁴ *University of California, Irvine, California, USA*)

12.25-12.40

Session Discussion

12.40-14.00

Lunch Break & Poster Breakdown

**SESSION 11:
PANEL DISCUSSION**

Strategy and Future Directions

Moderated by Vasee Moorthy (*WHO, Geneva, Switzerland*) and Rana Chattopadhyay (*CEBR, USFDA, Silver Spring, Maryland, USA*)

14.00-14.15

'Malaria vaccines: A update from WHO'

Vasee Moorthy (*WHO, Geneva, Switzerland*)

Continued

14.15-14.40

'Target populations and Indications: In what populations and for what indications is the vaccine you are developing expected to be tested and deployed?'

RTS,S

Cynthia Lee; PATH-MVI

PE 1 Sporozoite-based approaches

Tom Richie; Sanaria

PE 2 Antigen-based approaches

Adrian Hill; Jenner Institute

TBV

Sara Healy; NIAID/NIH

Blood Stage Vaccines

Simon Draper; Jenner Institute

14.40-15.00

Questions & Answers

15.00-15.15

'The next phase 3 trials: What trials? What lessons have we learnt and are there new approaches that facilitate acquisition of the required data?'

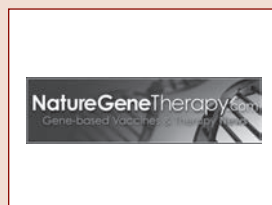
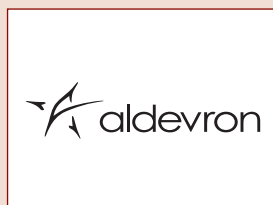
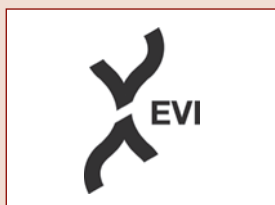
Adrian Hill, Steve Hoffman, Vasee Moorthy and Doug Pratt

15.15-15.30

Questions & Answers

** This final programme is correct at the time of publication. However the organizers reserve the right to make any alterations that may be required in the interests and integrity of the conference programme.*

The MVW 2016 Scientific Steering Committee and the organizers would like to acknowledge the support of the following sponsors:



Poster 101

'How to achieve pre-defined objectives for reducing malaria burden at the lowest budget? Application of an outcome optimization approach to Ghana'

Christophe Sauboin¹, N. Van de Velde¹, I. Van Vlaenderen² and L.-A. Van Bellinghen²
(¹ GSK Vaccines, Wavre, Belgium; ² CHES in Health, Bonheiden, Belgium)

Poster 102

'Functional cross-reactive antibody responses to heterologous PvDBP-II variants: Implication for vivax malaria development'

Vahideh Valizadeh, Sedigheh Zakeri, Akram Abouie Mehrizi and Navid Dinparast Djadid (Malaria and Vector Research Group, Pasteur Institute of Iran, Tehran, Iran)

Poster 103

'Functional assays for characterization and evaluation of potential vaccine candidates targeting *Plasmodium vivax* and *P. falciparum* pre-erythrocytic stages'

Alison Roth¹, Steven P. Maher¹, Swamy Rakesh Adapa¹, Rays H.Y. Jiang¹, Ratawan Ubalee², Nicole Salinas³, John Jimah³, Niraj Tolia³, Amy Conaway¹, Friedrich Frischknecht⁴, Dennis E. Kyle¹, Silas Davidson² and John H. Adams¹
(¹ College of Public Health, University of South Florida, Tampa, Florida, USA; ² Armed Forces Research Institute of Medical Sciences (AFRIMS), Bangkok, Thailand; ³ Washington University, St. Louis, Missouri, USA; ⁴ Heidelberg University, Heidelberg, Germany)

Poster 104

'Protection against malaria at 1 year and immune correlates following PfSPZ vaccination'

Andrew S Ishizuka¹, Kirsten E Lyke², Adam DeZure¹, Andrea Berry², Thomas L. Richie³, Floreliz H Mendoza¹, Mary E Enama¹, Ingelise J. Gordon¹, Eric R. James³, Peter F Billingsley³, Sumana Chakravarty³, Anita Manoj³, Adam J. Ruben³, Tao Li³, Barbara Flynn¹, Brandon K Sack⁴, Stefan HJ Kappe⁴, Martha C. Nason⁵, Barney S Graham¹, Mario Roederer¹, B Kim Lee Sim³, Stephen L. Hoffman³, Julie E Ledgerwood¹ and Robert A Seder¹
(¹ VRC, NIAID, NIH, Bethesda, Maryland, USA; ² Institute for Global Health, UMD SOM, Baltimore, Maryland, USA; ³ Sanaria, Inc., Rockville, Maryland, USA; ⁴ Center for Infectious Disease Research, Seattle, Washington, USA; ⁵ NIAID, NIH, Bethesda, Maryland, USA)

Poster 105

'Development of a platform for assessment of protective antibody responses for pre-erythrocytic vaccine immunogens'

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'Designing TRAP-CSP fusion antigens as malaria vaccines'

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'Evaluation of DNA prime-ChAd63 boost malaria vaccine candidates in BALB/c mice'

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'Novel malaria vaccines by Vaccibody DNA immunization'

Louise Bjerkan^{1,2}, Ganesh Ram Visveswaran^{1,2}, Ranveig Braathen^{1,2}, Genevieve Labbe³, Simon J Draper³, Bjarne Bogen^{1,2}
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'Identification of protective regions of *Plasmodium falciparum* circumsporozoite protein using the inhibition of liver stage development assay (ILSDA)'

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'Evaluation of the first WHO anti-malaria (*Plasmodium falciparum*) human serum reference reagent as a standard for competitive ELISA and growth inhibition assay'

Bhagwati Khatri, Adéla Nacer, Peggy Riese, Ed Remarque, Carlos A. Guzmán, Paul Bowyer and Mei Mei Ho (MHRA-NIBSC, South Mimms, Potters Bar, UK)

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Chuang Ilin (Naval Medical Research Center, Silver Spring, Maryland, USA)

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'Assessing the effector functions of peripheral blood *Plasmodium falciparum* antigen-specific T lymphocytes in human subjects immunized by radiation attenuated sporozoites'

Emily C. Smith^{1,2}, Jessica S. Bolton^{1,2}, Rebecca Danner^{1,2}, Nonenipha Rangel^{2,3}, Kyosuke Oda², Andrea K. Renner^{2,3}, Sharvari Sonawane^{1,2}, Martha Sedegah², Keith Limbach^{1,2}, Eileen D. Villasante², Joao C. Aguiar^{2,3} and the NMRC Clinical Trials Team²
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'Using controlled human malaria infection to assess transmission blocking interventions'

Katharine A. Collins¹, Matthew Adams¹, Hayley Mitchell¹, Romal Stewart¹, Claire Wang², Caroline Dobbin¹, Teun Bousema³, Robert Sauerwein³, Stephan Chalou⁴, Joerg Moehrle⁴ and James McCarthy^{1,5}
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'Discussion of meningitis, cerebral malaria and all-cause mortality following immunization of children with the RTS,S/AS01 malaria vaccine in the phase III efficacy trial'

Yolanda Guerra Mendoza, Elodie Garric, Lode Schuerman, Marc Lievens, Pascale Vandoolaeghe and Opokua Ofori-Anyinam (GSK Vaccines, Wavre, Belgium)