

TB VACCINES FOR THE WORLD

23-25 May 2012, Buena Vista Palace Hotel, Orlando, Florida, USA

FINAL ORAL PROGRAMME TBV 2012

One in every three people on earth is believed to be infected with *Mycobacterium tuberculosis*, leading to seven to eight million cases of active tuberculosis (TB) per year and approximately three million deaths annually. This epidemic, like those of most infectious diseases, creates scientific challenges and opportunities as it raises the demand for public health solutions. The currently available weapons for fighting TB are inadequate. The ultimate goal of biomedical TB research is to lessen the public health burden of this disease by developing improved diagnostic, therapeutic, and intervention strategies. Achieving this goal requires a base of knowledge about the biology of *M. tuberculosis* and related mycobacteria, their interactions with human and animal hosts, and the nature of an effective host-protective immune response. TB researchers are applying this accumulating base of knowledge to developing rapid, easy-to-use diagnostic assays appropriate for low- as well as high-income countries, improving the current complicated therapeutic regimen, identifying potential new drugs to combat multidrug-resistant TB, and **creating more effective vaccines**.

TBV 2012, the follow-up to the previous successful TBV meetings in 2003, 2006 and 2008, will focus attention on **'Vaccine Issues'** in relation to TB worldwide. TB vaccines is a developing area of activity and TBV 2012 will once again allow researchers to come together to discuss the latest findings and trends associated with the research and development of TB vaccines – science, policy, strategy, delivery and economics.

SCIENTIFIC ADVISORY PANEL

Patrick Brennan (*Colorado State University, USA*)Steve Reed (*IDRI, Seattle, USA*)Peter Andersen (*Statens Serum Institut, Copenhagen, Denmark*)Tom Ottenhoff (*Leiden University, The Netherlands*)Alexander von Gabain (*Intercell AG, Vienna, Austria*)Ian Orme (*Colorado State University, USA*)Andrew Vernon (*CDC, Atlanta, Georgia, USA*)Joe Cohen (*GSK Biologicals, Rixensart, Belgium*)Sheldon Morris (*CBER/FDA, Rockville, Maryland, USA*)Leander Grode (*Vakzine Projekt Management GmbH, Hannover, Germany*)Willem Hanekom (*University of Cape Town, South Africa*)Michael Iademarco (*CDC, Atlanta, Georgia, USA*)Jeffrey Ulmer (*Novartis Vaccines, Cambridge, Massachusetts, USA*)Helen McShane (*University of Oxford, UK*)

'NEW VACCINE STRATEGIES'

TBV Vaccines Overview · BCG – “Myths and Realities” · The Immune Response

'Would the Real TB Strain Please Stand Up' · Non-Living Vaccines and Adjuvants · Live Attenuated Vaccines

Biomarkers/Metabolomics · The Ghost in the Machine: Regulatory T Cell Responses

Clinical Issues · New Models/Testing Strategies



09.00-09.10

Welcome & Opening Remarks

Ian M. Orme (*Colorado State University, Colorado, USA*)

**SESSION 1:
OPENING PLENARY SESSION I**

Moderator: Helen McShane (*University of Oxford, Oxford, UK*)

09.10-09.40

KEYNOTE LECTURE:

'BCG myths and realities'

David N. McMurray (*Texas A&M University, College Station, Texas, USA*)

09.40-10.10

'Current TB vaccine trial status'

Ann Ginsberg (*AERAS, Rockville, Maryland, USA*)

10.10-10.40

'The immune response to TB'

Andrea M. Cooper (*Trudeau Institute, Saranac Lake, New York, USA*)

10.40-11.00

Coffee Break

**SESSION 2:
PLENARY SESSION II**

Moderator: Ian M. Orme (*Colorado State University, Colorado, USA*)

11.00-11.30

'Status report of VPM1002, a novel recombinant BCG vaccine against tuberculosis'

Leander Grode

(*Vakzine Projekt Management GmbH (VPM), Hannover, Germany*)

11.30-12.00

'Live TB vaccines'

William R. Jacobs (*AECOM, Bronx, New York, USA*)

12.00-12.30

'Non-live TB vaccines'

Else Marie Agger and Peter Andersen (*SSI, Copenhagen, Denmark*)

12.30-14.00

Lunch Break

**SESSION 3:
LESSONS LEARNED FROM ANIMAL MODELS**

Moderator: Ann Rawkins (*Health Protection Agency, Porton Down, Wiltshire, UK*)

14.00-14.30

'New TB vaccine models/testing strategies'

Ann Rawkins (*Health Protection Agency, Porton Down, Wiltshire, UK*)

14.30-15.00

'Regulatory T cell responses: The ghost in the machine'

Diane Ordway (*Colorado State University, Fort Collins, Colorado, USA*)

15.00-15.30

Tea Break

**SESSION 3:
CONTINUED**

15.30-16.00

'Refinement of the Macaque model of human tuberculosis through characterisation of the rhesus and cynomolgus Macaque species'

Sally Sharpe, Laura Sibley, Andrew White, Karen Gooch, Simon Clark, Alice Marriott, Randall Basaraba, Fergus Gleeson, Helen McShane, Ann Williams, Phillip Marsh and Mike Dennis (*Health Protection Agency, Porton Down, Wiltshire, UK*)

16.00-16.20

'Post-exposure vaccines: are they even feasible?'

Ian M. Orme (*Colorado State University, Colorado, USA*)

16.20-16.50

'TB vaccine testing in animals: Should risk factors be considered?'

Randall Basaraba (*Colorado State University, Colorado, USA*)

**SESSION 4:
LATE BREAKERS**

Moderator: To be confirmed

16.50-17.10

'Modulation of protection against *Mycobacterium tuberculosis* by different adjuvanted vaccines'

Rhea N. Coler (*IDRI, Seattle, Washington, USA*)

17.10-17.30

'*Mycobacterium bovis* and BCG induce different patterns of cytokine and chemokine production in dendritic cells that affect the differentiation of CD4+ T cells'

Aizhen Guo et al. (*Huazhong Agricultural University, Wuhan, China*)

17.30-17.45

'Intradermal device for simplified Mantoux test and BCG vaccination'

Zach Marks (*West Pharmaceutical Services, Exton, Pennsylvania, USA*)

17.45-18.00

'Glycosylation of *Mycobacterium tuberculosis* alanine-proline-rich antigen (Apa) and its effect on antigenicity, immunogenicity and protective efficacy'

Suraj Sable et al. (*CDC, Atlanta, Georgia, USA*)

18.00-18.15

'*Mycobacterium tuberculosis* protein Rv1324, an immunodominant vaccine candidate against tuberculosis'

Subhadra Nanakumar, Sunil Kannanganath, Mani Cheruvu, Bonnie Plikaytis, James Posey, Rama Rao Amara and Suraj Sable (*CDC, Atlanta, Georgia, USA*)

18.15-18.30

'A novel particulate vaccine utilising polyester nanoparticles (Bio-Beads) shows efficacy against tuberculosis'

Natalie A. Parlane, Bernd H.A. Rehm, D. Neil Wedlock and Bryce M. Buddle (*AgResearch, Hopkirk Research Institute, Palmerston North, New Zealand*)

TBV 2012 Welcome Drinks Reception

**SESSION 5:
BIOMARKERS**

Moderator: Hazel Dockrell

(London School of Hygiene & Tropical Medicine, London, UK)

08.30-09.00

'Towards correlates of protection for use in TB vaccine trials'

Hazel Dockrell *(London School of Hygiene & Tropical Medicine, London, UK)*

09.00-09.25

'Are we measuring the right immune markers in vaccine trials'

Willem Hanekom

(South African TB Vaccine Initiative, University of Cape Town, South Africa)

09.25-09.50

'TB antigen discovery and TB biomarker discovery'

Tom H.M. Ottenhoff *(Leiden University, Leiden, The Netherlands)*

09.50-10.15

'Host correlates of risk of TB disease, following routine vaccination of infants with BCG'

Helen Fletcher *(University of Oxford, Oxford, UK)*

10.15-10.45

'Metabolomics in TB'

Delphi Chatterjee *(Colorado State University, Fort Collins, Colorado, USA)*

10.45-11.15

Coffee Break

**SESSION 6:
ADJUVANTS**

Moderator: Ian M. Orme *(Colorado State University, Colorado, USA)*

11.15-11.45

'Non-living TB vaccines and TB adjuvants'

Steve Reed *(IDRI, Seattle, Washington, USA)*

11.45-12.15

'High mobility group box 1 (HMGB1) as an adjuvant for tuberculosis subunit vaccines'

Ajay Grover, Jolynn Troutt and Angelo A. Izzo

(Colorado State University, Fort Collins, Colorado, USA)

12.15-13.30

Lunch Break

**SESSION 7:
TB VACCINES**

Moderator: Jeff Ulmer

(Novartis Vaccines & Diagnostics, Cambridge, Massachusetts, USA)

13.30-13.50

'Technologies for the discovery and development of new and improved vaccines'

Jeff Ulmer *(Novartis Vaccines & Diagnostics, Cambridge, Massachusetts, USA)*

13.50-14.10

'Novel BCG vaccine studies'

Sheldon Morris *(CBER/FDA, Rockville, Maryland, USA)*

14.10-14.30

'A spoonful of BCG: Determining the immune response to oral BCG vaccination'

Lindsay Ancelet, Frank Aldwell, Fenella Rich and Joanna Kirman

(Malaghan Institute of Medical Research, Wellington, New Zealand)

14.30-14.50

'A novel therapeutic vaccine (HVJ-Envelope/HSP65 DNA+IL-12 DNA) against tuberculosis using the cynomolgus monkey model'

M. Okada, Y. Kita, N. Kanamaru, S. Hashimoto, H. Nakatani, S. Nishimatsu,

Y. Ishida, H. Hayashi, T. Nakajima, Y. Kaneda, P. Saunderson, E.V. Tan,

E. Dela Cruz and D. McMurray *(National Hospital Organization, Osaka, Japan)*

14.50-15.10

'Evaluation of an *in silico* derived RD protein based multi-epitope therapeutic vaccine in mouse model of tuberculosis'

Indu Verma, Javaid Ahmad Sheikh and Dheeraj Gupta *(PGIMER, Chandigarh, India)*

15.10-15.40

Tea Break

**SESSION 7:
CONTINUED**

15.40-16.00

'Safety and immunogenicity of novel tuberculosis vaccine AERAS-402 in healthy infants previously vaccinated with BCG'

Michele Tameris et al.

(South African TB Vaccine Initiative, University of Cape Town, South Africa)

16.00-16.20

'Increasing the vaccine potential of *M. bovis* BCG using a combination with plasmid DNA encoding the mycolyl-transferase AG85A'

Kris Huygen, Nicolas Bruffaerts and Marta Romano *(WIV-ISP, Brussels, Belgium)*

16.20-16.40

'Evaluating the impact of intradermal, intramuscular, and inhaled delivery of a new TB vaccine, MVA85A'

Joel Meyer, I. Satti, S. Harris, H. Bettinson, R. Antorbus, R. Lopez Ramon

and H. McShane *(University of Oxford, Oxford, UK)*

**SESSION 8:
ALL YOU NEED TO KNOW ABOUT BCG**

Moderator: David N. McMurray

(Texas A&M University, College Station, Texas, USA)

16.40-16.55

'BCG Yesterday: Introduction & BCG history viewpoint'

Micha Roumiantzeff *(Independent Consultant, Lyon, France)*

16.55-17.10

'Practical challenges in today's and tomorrow's BCG production'

Peter Hubrechts *(SSI, Copenhagen, Denmark)*

17.10-17.25

'BCG Today: Immune responses to different BCG vaccine strains'

Nigel Curtis *(The University of Melbourne, Parkville, Victoria, Australia)*

17.25-17.40

'BCG Today: WHO Recommendations to assure the quality, safety and efficacy of BCG vaccines'

Mei Mei Ho *(NIBSC-HPA, South Mimms, Potters Bar, UK)*

17.40-17.50

'BCG Today: Comparative tuberculosis (TB) prevention effectiveness in children of Bacillus Calmette-Guerin (BCG) vaccines from different sources'

Speaker to be confirmed

17.50-18.15

'BCG Tomorrow: Future developments for BCG vaccines'

Leander Grode *(Vakzine Projekt Management GmbH (VPM), Hannover, Germany)*

SESSION 9: CLINICAL ASPECTS

Moderator: Willem Hanekom

(South African TB Vaccine Initiative, University of Cape Town, South Africa)

09.00-09.30

'Clinical TB Strains: Would the real TB strain please stand up?'

Midori Kato-Maeda *(University of California at San Francisco, California, USA)*

09.30-10.00

'Insights from TB vaccine trials'

Helen McShane *(University of Oxford, Oxford, UK)*

10.00-10.20

'Clinical, radiographic, and bacteriologic phenotypes of TB disease in an ongoing South African TB vaccine trial: a preliminary analysis'

Mark Hatherill, H. Mulenga, M. Tameris, K.K. Luabeya, H. Geldenhuys, B. McClain, B. Landry, S. Lockhart, W.H. Hanekom, H. McShane and H. Mahomed

(South African TB Vaccine Initiative, University of Cape Town, South Africa)

10.20-10.35

'Estimating incidence rates for adults/adolescents from routine health system data for TB vaccine efficacy trials'

H. Mahomed

(South African TB Vaccine Initiative, University of Cape Town, South Africa)

10.35-11.00

Coffee Break

SESSION 10: LATE BREAKERS II

Moderator: Ian M. Orme *(Colorado State University, Colorado, USA)*

11.00-11.15

'Strategies for the development of stable, unmarked, integrated and episomal recombinant BCG vaccine strains'

Joanna Manoranjan et al. *(Aeras, Rockville, Maryland, USA)*

11.15-11.30

'A mouse model of reinfection TB'

Marcela Henao-Tamayo et al.

(Colorado State University, Fort Collins, Colorado, USA)

11.30-11.45

'Long-term persistence of BCG Pasteur in lungs of C57BL/6 mice following intranasal infection'

Nils Anders Leversen *(University of Bergen, Bergen, Norway)*

SESSION 11: GENERAL DISCUSSION

Leader & Moderator: Ian M. Orme *(Colorado State University, Colorado, USA)*

11.45-12.45

Discussion

12.45

Conference Close & Lunch

POSTER

'Mycobacterial protein extracts and their potential in serodiagnosis of TB'

Tina Softland et al. *(University of Bergen, Bergen, Norway)*