2nd Human Challenge Trials in Vaccine Development

September 28-30, 2017

Hilton Washington DC / Rockville Hotel
Rockville, Maryland
Provisional Agenda as of July 5, 2017

Our world needs safer, more effective drugs and vaccines to prevent and treat infectious diseases. Controlled human infections (CHIs) have served as an effective tool to promote this objective. For example, CHIs have led to progress in developing interventions against respiratory pathogens, enteric pathogens, and parasites. The most frequent application is the conduct of human challenge trials (HCTs), which can safely assess the value of novel or improved drugs and vaccines much more rapidly and efficiently than field trials, particularly if efficacy against CHI bridges to the field. Progress against an infectious threat is greatly hampered when the field lacks a supporting human challenge model, such as is the case for human immunodeficiency virus and Mycobacterium tuberculosis.

Based on the premise that optimal use of CHIs is one of the best, most efficient ways to achieve rapid progress against infectious diseases, IABS is hosting a conference to review the use of HCTs to promote the development of new drugs and vaccines, the benefits and risks of this approach, the regulatory framework within which HCTs are conducted, and novel CHI applications that could open new translational pathways. This conference follows two and a half years after the first such meeting hosted by IABS in Strasbourg, France, September 2014.

Scientific Committee

Tom Richie	The Sanaria Institute for Global Health & Tropical Medicine (SIGHTM)
Pieter Neels	IABS Human Vaccine Committee
Ana Older Aguilar	Bill & Melinda Gates Foundation
Christina Cassetti	National Institutes of Health
Beth Kirkpatrick	University of Vermont
Ivana Knezevic	World Health Organization
Matthew Laurens	University of Maryland
Mark Riddle	US Army Medical Research and Materiel Command
Meta Roestenberg	Leiden University Medical Center
Taryn Rogalski	Takeda Vaccines, Inc.
Zoe Seager	Wellcome Trust
Rebecca Sheets	Grimalkin Partners
Charlie Weller	Wellcome Trust
Adrian Wildfire	SGS - Life Sciences, United Kingdom

Day 1 – Thursday, September 28, 2017

8:00am **Registration & Welcome Coffee**

Introduction

8:20am Welcome
Pieter Neels, Chair, IABS Human Vaccine Committee

8:30am Meeting objectives
Tom Richie, The Sanaria Institute for Global Health & Tropical Medicine (SIGHTM)

8:40am **Keynote**
The scope of Human Challenge Trials - historical perspectives & current issues
Myron Levine, University of Maryland School of Medicine

Session 1 –Human Challenge Trials to Support Licensure

Chair: Ivana Knezevic, World Health Organization, Geneva**; Marco Cavaleri,** European Medicines Agency

9:10am The story of Vaxchora® cholera vaccine
Marc Gurwith, PaxVax

9:30am Clinical perspective on accepting HCT data as pivotal
Roshan Ramanathan, FDA

9:50am Whole sporozoite malaria vaccine – proposed pivotal role for HCT
Tom Richie, The Sanaria Institute for Global Health & Tropical Medicine (SIGHTM), U.S.A.

10:10am Discussion

10:30am Coffee break

11:00am TAK-214 norovirus vaccine – proposed pivotal role for HCT
Paul Mendelman, Takeda Vaccines (Montana), Inc., U.S.A.

11:20am Bioconjugate vaccine preventing shigellosis: bridge from HCT to field studies
Mark S. Riddle, , Uniformed Services University of the Health Sciences' F. Edward Hebert School of Medicine

11:40am Use of CHMI efficacy data to support the licensure of malaria vaccines
Rana Chattopadhyay, CBER / FDA; **Douglas Pratt**, CBER / FDA

12:00noon **Panel: Human Challenge Trials to support vaccine licensure**
Chair: Marco Cavaleri, European Medicines Agency

Perspectives
Marc Gurwith, PaxVax; **Stephen Hoffman**, Sanaria; **Michael Pfleiderer**, Biopharma Excellence; **Taryn Rogalski-Salter**, Takeda Vaccines, Inc., U.S.A.

Discussion

12:40pm Lunch

Session 2 – Development of Challenge Strains

Chair: Robert Sauerwein, Radboud University, The Netherlands**; TBD**

1:40 pm Developing new *Plasmodium* strains as injectable products
TBD

2:00 pm Using genomics to define *Plasmodium* diversity
Joana Carneiro da Silva, University of Maryland

2:20 pm Developing wild type influenza strains for HCT
Matthew Memoli, National Institutes of Health, U.S.A.

2:50 pm FDA Perspective on CMC section for challenge strain
Scott Stibitz, FDA **/** OVRR / DBPAP / LESTD

3:10 pm Developing dengue virus strains for HCT
Steve Whitehead, National Institutes of Health, U.S.A

3:30 pm Coffee Break

3:50 pm Linking CHIM studies to fit-for-purpose animal models
Paul Kellam, Kymab, United Kingdom

Session 3 – Quality Standards for Challenge Strains

Chair: Robert Johnson, National Institutes of Health / DMID**; Adrian Wildfire,** SGS Belgium NV

4:10 pm The status of challenging material within the EU regulatory framework
Alan Fauconnier, Federal. Agency for Medicines and Health Products. (FAMHP), Belgium

4:30 pm TBD

4:50 pm Title of talk
Michael Pfleiderer, Biopharma Excellence, Munich, Germany

Session 4 - Regulatory framework for Human Challenge Trials

Chair: Ivana Knezevic, World Health Organization, Geneva**; Pieter Neels,** IABS

5:10 pm Perspectives from WHO, CBER, EMA, and from the field: Tanzania
Ivana Knezevic, World Health Organization, Geneva
Scott Stibitz, CBER / FDA, U.S.A.
Marco Cavaleri, EMA, United Kingdom
Alambo Mssusa, Tanzania Food and Drug Authority

Discussion

6:00 pm End of Day 1

7:00 pm Dinner debate (hosted)
Point Counterpoint - What level of development and qualification should be required for the challenge strains?
Moderator: **Jean-Hugues Trouvin**, IABS

8:00 pm Introduction to Point Counterpoint
8:05 pm Quality standards for challenge strains: the case for full GMP
8:15 pm Quality standards for challenge strains: the case for GMP light/partial compliance
8:25 pm Discussion

Day 2 – Friday, September 29, 2017

8:00 am **Registration & Coffee**

Introduction

8:20 am Announcements
Pieter Neels, Chair, IABS Human Vaccine Committee

8:25 am Objectives for Day 2
Tom Richie, The Sanaria Institute for Global Health & Tropical Medicine (SIGHTM)

8:30 am **Keynote**
Advancing the frontiers of human challenge research: the typhoid example
Thomas Darton, University of Oxford, United Kingdom

Session 5 – What can we learn about human immunity from Human Challenge Trials

Chair: TBD

9:00 am Insights into human immunology from challenge models: examples from Dengue and Campylobacter
Beth Kirkpatrick, University of Vermont College of Medicine, U.S.A.

9:20 am Dissecting immunity to influenza using HCTI

9:40 am Predicting susceptibility to norovirus by use of HCM
Robert Frenck, Cincinnati Children's Hospital Medical Center

10:00 am Changes in the gut microbiota after challenge with ETEC

10:20 am Discussion

10:30 am Coffee break

11:00 am First Human Challenge Testing of a Pneumococcal Vaccine
Daniela Ferreira, Liverpool School of Tropical Medicine, United Kingdom

11:20 am Correlates of protection in malaria revealed by HCT

11:40 am Correlates of protection typhoid revealed by HCT

12:00 HCT of Adults With Wild-Type Human Metapneumovirus
Kawsar Talaat, Johns Hopkins Bloomberg School of Public Health, U.S.A.

12:20 pm **Discussion**
12:30 pm Group photo
12:40 pm Lunch

Point Counterpoint - Dengue HCT: a model of infection or disease?
Moderator: Cristina Cassetti, NIH

1:40 pm Introduction to Point Counterpoint
1:45 pm Dengue infection model – **Beth Kirkpatrick**, University of Vermont School of Medicine
1:55 pm Dengue disease model – **Tim Endy,** State University of New York
2:05 pm Discussion

Session 6 – Development of New Challenge Models

Chair: Beth Kirkpatrick, University of Vermont**; Helen McShane,** University of Oxford

2:20 pm Schistosomiasis
Meta Roestenberg, Leiden University, The Netherlands

2:40 pm Zika
Anna Durbin, Johns Hopkins Bloomberg School of Public Health

3:00 pm Tuberculosis
Helen McShane, Nuffield Department of Medicine, University of Oxford, United Kingdom Oxford

3:20 pm Coffee Break

3:50 pm TBD

Session 7 – Refining and Optimizing Existing Models

Chair: Mark Riddle, US Army Medical Research and Materiel Command**; David Diemert,** George Washington University

4:20 pm Establishing hookworm inoculum size
David Diemert, George Washington University

4:40 pm Establishing PCR as primary endpoint for Controlled Human Malaria Infection
Sean Murphy, University of Washington, Seattle

5:00 pm Improving ETEC models
Chad Porter, Naval Medical Research Center

5:20 pm Panel discussion – Key issues in improving challenge models
Chair: **Mark Riddle,** US Army Medical Research and Materiel Command

5:40 pm **Perspectives:**
Anna Durbin, Johns Hopkins Bloomberg School of Public Health; **Steven Thomas** / **Tim Endy,** State University of New York; **Ivana Knezevic,** World Health Organization; **Robert Sauerwein**, Radboud University, The Netherlands

Discussion

6:00 pm End of Day 2

Day 3 – Saturday, September 30, 2017

8:00 am **Registration & Coffee**

Introduction

8:20 am Announcements
Pieter Neels, Chair, IABS Human Vaccine Committee

8:25 am Objectives for Day 3
Tom Richie, The Sanaria Institute for Global Health & Tropical Medicine (SIGHTM), U.S.A.

Session 8 – Human Challenge Trials Guidelines

Chair: Anastazia Older Aguilar, Bill & Melinda Gates Foundation**; Ivana Knezevic,** World Health Organization, Geneva

8:30 am World Health Organization Guidelines
Ivana Knezevic, World Health Organization, Geneva

8:45 am Bill & Melinda Gates Foundation Guidelines
Selected by Anastazia Older Aguilar, Bill & Melinda Gates Foundation

Session 9 – Safety in Human Challenge Trials

Chair: Matthew Laurens, University of Maryland**; David Tribble,** Uniformed Services University of the Health Sciences

9:00 am Q fever and other HCT conducted by US military in 1950's
TBD

9:20 am Enteric Human Challenge Trial safety considerations
David Tribble, Uniformed Services University of the Health Sciences, Bethesda, Maryland

9:40 am Future development of HCT with Bordatella pertussis
Tod Merkel, CBER / FDA, U.S.A.

10:00 am Managing safety issues arising with controlled human malaria infection,
Robert Sauerwein, Radboud University, The Netherlands

10:20 am TBD

10:30 am Coffee break

11:00 am TBD

Ethical perspectives

Chair: Matt Laurens, University of Maryland**; David Tribble,** Uniformed Services University of the Health Sciences

11:20 am Ethical framework for HCT
TBD

11:40am Ethical issues in HCT
TBD

12:00 Discussion
Patricia Njuguna, Chair of Clinical Research, Kenya Medical Research Institute–Wellcome Trust Research Programme, Kenya
Joseph Mfutso-Bengo, University of Malawi, College of Medicine, Health Systems & Policy, Malawi
Michael Parker, University of Oxford

12:30pm Lunch

1:30 pm Point Counterpoint – The safe use of HCT
Introduction – Meta Roestenberg, Leiden University Medical Center, The Netherlands

1:35 pm Lessons learned from HCT – TBD
1:45 pm Assuring safety in HCT - **Michael Pfleiderer**, Biopharma Excellence, Germany
1:55 pm Discussion

Session 10 – Use of Human Challenge Trials in Developing Countries

Chair: Beth Kirkpatrick, University of Vermont**;** TBD

2:10 pm TBD

2:30 pm Ethics of HCT in Africa
Joseph Mfutso-Bengo, University of Malawi, College of Medicine, Health Systems & Policy, Malawi

2:50 pm Controlled human malaria infection in Africa
Said Jongo, Ifakara Health Institute, Tanzania

3:10 pm Pneumococcal carriage in Malawi
Jamie Rylance, Liverpool School of Tropical Medicine, United Kingdom

3:30 pm Dengue model in Vietnam
Bridget Wills, Oxford University Clinical Research Unit, United Kingdom

3:50 pm Coffee break

Session 11 – Use of Human Challenge Trials in Vulnerable Populations

Chair: TBD

4:20 pm Historical use of HCT in vulnerable populations
TBD

4:40 pm Imperative to develop vaccines for children, pregnant women, immunocompromised
TBD

5:00 pm Testing Vaccines in an Early HIV Infection Model
Frances Priddy, The International AIDS Vaccine Initiative (IAVI)

5:20 pm Panel discussion – Expanding the boundaries of HCT
TBD

5:30 pm Discussion
Joseph Mfutso-Bengo, University of Malawi, College of Medicine, Health Systems & Policy, Malawi

6:00 pm End of the meeting