

**Enabling the Evaluation of COVID-19 Vaccines with  
Correlates of Protection  
Vaccinopolis, University of Antwerp, Belgium  
February 16 -17, 2023**

**Scientific Committee**

**Cristina Cassetti**

National Institute of Allergy and Infectious Diseases, NIH, U.S.A.

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European Plotkin Institute for Vaccinology (EPIV); Vaccine & Infectious Disease Institute,  
University of Antwerp, Belgium

**Joris Vandeputte**

International Alliance for Biological Standardization (IABS), Belgium

The aim of the workshop is to review current evidence regarding correlates of protection against COVID-19, identify gaps in knowledge and define research strategies to advance vaccine-induced protection against beta coronaviruses. The meeting will also discuss the role of controlled human infection model studies for the identification of correlates of protection and evaluation of novel vaccines. A multidisciplinary panel of experts will participate in the meeting. Ample time will be given to discussions to generate a common understanding of the topic and define guidelines for the way forward.

## Agenda

**Day 1 - February 16, 2023**

**8.00 – 17.50**

**8.00-9:00**                      **Registration**

**9.00-9.25**                      **Opening: welcome by Pierre Van Damme and Stanley Plotkin**

IABS, NIH, CEPI and WT to introduce the importance of the topic for their institution.

### **SESSION 1**

**9.25-10.25**                      **Introduction: Why do we need correlates of protection against SARS-CoV-2?**  
*Chair: Stanley Plotkin, Department of Pediatrics, University of Pennsylvania, U.S.A.*

9.25-9.45                      Immune effectors controlling SARS-CoV-2 infection, disease and transmission.  
**Dan Barouch**, Beth Israel Deaconess Medical Center, U.S.A. (Remote)

9.45-10.00                      Using CoP to license future SARS-COV-2 vaccines.  
**Marion Gruber**, IAVI, U.S.A.

10.00-10.15                      Using CoP to guide the use of current SARS-COV-2 vaccines.  
**Hanna Nohynek**, Finnish Institute for Health and Welfare, Finland

**10.15-10.35**                      **Break**

### **SESSION 2**

**10.35-12.30**                      Serum antibodies.  
*Chair: David Goldblatt, Great Ormond Street Institute of Child Health  
University College London, United Kingdom*

10:35-10:50                      Measurement of serum antibodies  
**David Montefiori**, Duke University, U.S.A (Remote)

10:50- 11:05                      Antibody correlates I  
**Miles Davenport**, Kirby Institute, Australia

11:05-11:20                      Antibody correlates II  
**Merryn Voysey**, Oxford Vaccine Group, Department of Paediatrics,  
University of Oxford

11.20-11:35                      Knowledge gaps and future research for antibody CoP  
**Peter Gilbert**, Fred Hutchinson Cancer Research Center, University of  
Washington, U.S.A.

11.35-12.30 Panel discussion sessions 1 and 2: Do we have a consensus on the purpose of correlates of protection for COVID-19 vaccines? Do we make the best use of available antibody data? Do we need additional data and for which purpose? Can we define correlates of protection against infection/shedding?

Discussants

**Margaret Ackerman**, Dartmouth College, U.S.A.

**Cristina Cassetti**, NIAID, U.S.A.

**Marco Cavaleri**, EMA, The Netherlands

**Adam Hacker**, CEPI, United Kingdom

**Liz Miller**, London School of Hygiene & Tropical Medicine, United Kingdom

**Pieter Neels**, Vaccine Advice, Belgium

**Dean Smith**, Health Canada

**Jerry Weir**, CBER-FDA, U.S.A.

**12.30-13.15**

Lunch

### SESSION 3

**13.15-14.45**

Circulating T lymphocytes.

*Chair:* **Arnaud Marchant**, Institute for Medical Immunology (IMI)  
Université Libre de Bruxelles

13.15-13.35

The role of T lymphocytes in COVID-19

**John Wherry**, University of Pennsylvania Institute for Immunology, U.S.A.

13.35-13.55

T cell correlates of protection against SARS-CoV-2

**Arnaud Marchant**, Institute for Medical Immunology (IMI)  
Université Libre de Bruxelles

13.55-14.15

How to measure T lymphocyte response to SARS-CoV-2 and what performance to expect?

**Robbert van der Most**, BioNTech SE, Germany

14.15-14.45

Panel discussion: Are T cells important to protection against diverse clinical outcomes? Link with Ab? What do available data tell us? Can we use them? What other data do we need and for which purpose? How can other vaccine-preventable disease models inform identification of COVID CoP?

All Speakers

Discussants

**Miles Davenport**, Kirby Institute, Australia

**Martina Sester**, Universität des Saarlande, Germany

**John Tsang**, Yale Center for Systems and Engineering Immunology (CSEI), U.S.A.

## SESSION 4

### 14.45-16.10

Mucosal immunity

*Chair: Cristina Cassetti, NIAID, U.S.A.*

14.45-15.05 What are the components of mucosal immunity to SARS-CoV-2  
**Yongjun Sui**, National Cancer Institute, U.S.A.

15.05-15.25 Mucosal correlates of protection against SARS-CoV-2  
**Ryan Thwaites**, Imperial College, United Kingdom (Remote)

15.25-15.50 How to induce mucosal immunity to SARS-CoV-2  
**Mark Connors**, NIAID / Laboratory of Immunoregulation (LIR), U.S.A.

15.50-16.20 Panel discussion: Can we use available data? What other data do we need and for which purpose?  
All Speakers  
Discussant  
**Peter Wright**, Dartmouth College, U.S.A.

### 16.20-16.40

Break

## SESSION 5

### 16.40-17.50

T and B Cell Memory.

*Chair: Jakob Cramer, CEPI, United Kingdom*

16.40-17.00 Cellular basis for immunological memory to SARS-CoV-2  
**Mehul Suthar**, Emory University, U.S.A.

17.00-17.20 How to measure immunological memory to SARS-CoV-2?  
**Alessandro Sette**, LaJolla Institute for Immunology, U.S.A.

17.20-18.00 Panel discussion: Could we use immunological memory as a correlate of protection against SARS-CoV-2?  
All speakers  
Discussants  
**Antonio Bertoletti**, Duke University, Singapore  
**Merryn Voysey**, Oxford Vaccine Group, Department of Paediatrics, University of Oxford

**Day 2 – February 17, 2023**

**8:30-12.00**

**8:30-9:00**                      **Registration**

**SESSION 6**

**9.00-10.30**                      What are the correlates of protection against beta coronavirus/sarbecovirus vaccines?

*Chair:* **Deborah King**, Wellcome Trust, United Kingdom

9.00-9.20                      Engineered immunogens to elicit antibodies with broad reactivity against coronaviruses

**Mihai Azoitei**, Duke Human Vaccine Institute, U.S.A.

9.20-9.40                      Shall we induce a broad T cell response

**Antonio Bertoletti**, Duke University, Singapore

9.40-10:00                      Towards a COVID-19 vaccine to protect against SARS-CoV-2 variants and animal sarbecoviruses without updating

**Pamela Bjorkman**, California Institute of Technology, U.S.A.

10.00-10.30                      Panel discussion: What is the path to broadly protective beta coronavirus vaccines? Imprinting and diversity of T and B cell repertoires.

All speakers

Discussant

**Christian Gaebler**, Charité – Universitätsmedizin Berlin, Germany

**10.30-10.50**                      Break

**SESSION 7**

**10.50-12.30**                      SARS-CoV-2 human challenge studies

*Chair* **Andrew Pollard**, University of Oxford, United Kingdom

10.50-11.10                      Current experience

**Chris Chiu**, Imperial College London, United Kingdom

11.10-11.30                      Establishing a SARS CoV2 human challenge model in previously infected subjects to identify immune correlates of protection

**Helen McShane**, University of Oxford, United Kingdom

11.30-11.50                      Access to SARS-CoV-2 strains

**Chris Chiu**, Imperial College London, United Kingdom

11.50-12.30 Panel discussion: Using human challenge studies for identification and of correlates of protection. Creating a network for COVID-19 human challenge studies (objectives of a network, sites, lab, standardization, agencies, ...).

All Speakers

Discussants

**Gagandeep Kang**, Christian Medical College, Vellore, India (Remote)

**Pierre Van Damme**, Vaccine & Infectious Disease Institute,  
University of Antwerp, Belgium

**12.30-13.15**

Lunch

**13.15-14.00**

Closing remarks, Conclusions and the Way Forward.