Timely Topics
In HIV Vaccines

Global HIV Vaccine Enterprise

Antibody Durability in HIV Vaccine Development Think Tank

23 September 2013

Location

IAVI Headquarters
9th Floor – Board Room
125 Broad Street
New York, NY 10004

Agenda

9:00 – 9:15 **Welcome, Introductions and Meeting Objectives** (Amapola Manrique)

9:15 – 10:55 **Session 1: Vaccine durability and deployment**
(Moderators: Ripley Ballou, Neal Nathanson)

Objective: Provide context for understanding the performance of HIV vaccines in relation to established vaccine examples.

Description: Durability of protection is a key element in the performance characteristics of vaccines already licensed or under development. Understanding peak and plateau immune responses, along with the characteristics and required interval of protection for individual viral diseases, predicts the public health impact after vaccine deployment. In several cases, durability of protection was studied extensively during the progress to licensure or post-marketing vaccine studies, and this knowledge base is essential for evaluating the current status of HIV vaccine durability and deciding on realistic and achievable performance targets for an optimal vaccine with high value as a public health tool.

Speakers:

- Ripley Ballou – Real World case studies on vaccine durability
- Mark Slifka – Evaluating long-term immune memory after vaccination
- Georgia Tomaras – Evaluating antibody durability in human HIV-1 vaccine clinical trials
- Gunilla Karlsson Hedestam – Protective antibody responses to HIV vaccines NHP trials

10:55 – 11:15 ***Coffee break****

11:15 – 12:50 **Session 2: Vaccine design, formulation and adjuvants**
(Moderators: Dennis Burton, Chris Wilson)

Objectives: Describe the scope of practical research efforts to extend vaccine durability, focusing on immunogen design, formulation, delivery and the roles for approved or experimental adjuvants.

Description: Vaccine research and development is striving to transition from mostly empirical to mostly rational approaches. This transition depends on the growing body of knowledge about modifications to the vaccine composition and how this impacts durability of response. To date, HIV vaccine development programs overwhelmingly focused on immunogen design and produced a tremendous array of immunogens incorporating large and growing databases on antibody or T cell epitopes. The extent to which any individual product will prove superior to others depends greatly on how it is formulated, the methods for delivery and

the selection of adjuvants. In this session, we ask which of the current vaccine compositions are leading to increased durability of response for vaccines, how can we derive general understanding from these findings and how do we apply them to solving the problem of vaccine durability for HIV.

Speakers:

- Chris Wilson – Brief introduction: immunological pathways by which vaccine composition may influence antibody responses
- Susan Barnett – The role of vaccine composition in the induction of durable antibody mediated protective immunity
- Steve Reed - The role and mechanisms by which vaccine composition affect the durability and nature of the antibody response
- Damien Chaussabel – Systems biology to unravel the determinants of durable vaccine-induced antibody responses

13:00 – 14:00 Lunch break*

14:00 – 15:30 Session 3: Antigen trafficking, B – T cell interaction and induction of durable responses (Moderators: David Pauza, Rick Koup)

Objectives: Evaluate current research directions in vaccine research focusing on antigen stability/trafficking, distribution within lymph nodes, activating T follicular helper cell responses and stimulating naive B cells. Identify high priority areas likely to provide solutions for the HIV vaccine durability problem.

Background: Defining the fundamental steps in immune responses and how they are affected by vaccine composition, is an exciting trend in current research. Studies to identify germ-line antibodies and how they recognize HIV envelope glycoprotein, or defining MHC Class I haplotypes associated with slower disease progression are contributing to a general understanding of the immune response to established infection, but are only now being applied to understanding vaccine design and outcomes. This session will evaluate these and other areas of research in order to select key areas of emphasis likely to be most impactful on HIV vaccine durability.

Speakers:

- Ron Germain – Lymph node micro-anatomy and cell dynamics: Relevance for vaccine strategies
- Michael McHeyzer-Williams –Remodeling B cell memory in secondary germinal centers
- Michel Nussenzweig – Antibody selection in the germinal center as it relates to anti-HIV responses
- Rick Koup – Can we detect T follicular helper responses or a surrogate marker, in blood?

15:30 – 16:00 Coffee break*

16:00 – 17:30 Wrap-up and closing discussion (Ripley Ballou, Stanley Plotkin, Chris Wilson)

Objectives: Summarize the discussion, identify major issues and define next steps and recommendations.

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