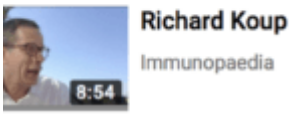
IDA Highlights: HIV Immunity



The lymph nodes has shown to be one compartment with highest rates of HIV replication and yet has a restrictive trafficking of cytotoxic CD8 T-cells into the tissues (Michael Betts). However, trafficking of non-HIV specific follicular T cells (Tfh) has been observed in response to the cytokine/inflammatory state of the lymphatic during viral replication (Richard Koup, see video). Though not HIV specific, these Tfh have been shown to have effector functions when presented with HIV bispecific antibodies.

In addition to induction of cellular mediated immunity, the induction of HIV-1-specific antibodies that can neutralize a broad number of HIV isolates is a major goal of HIV-1 vaccination strategies. However, to date no candidate HIV-1 vaccine has successfully elicited broadly neutralizing antibodies (bNaBs) of sufficient quality and breadth for protection. The HIV Env protein forms the probable target for bNaBs and yet the antibody maturation and development takes years and is not clearly understood. Antibody are multitasking molecules that are able to mediate a number of effector function that include complement activation and ADCC. The IgG3 antibody was shown to the most polyfunctionality and was associated with reduced risk of infection in the RV144 vaccine trial (Simone Richardson, see video).

However, the specific humoral profiles that associate with antibody-mediated viral containment in the setting of durable

control of infection are unknown and subject to current studies. The pathway to an effective vaccine will probably be a series of immunization steps involving bNaB activation and maturation steps, induction of HIV-specific T-cell responses and finally the induction of general antiviral antibodies (Guido Ferrari). These steps will be needed if a long lasting, HIV Env target response is to be achieved by a vaccine.

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