



Cutting-edge developments in HIV vaccine research: New insights and implications

A Global HIV Vaccine Enterprise and Scripps Research Institute timely topic webinar

Background

Following the early termination of three HIV vaccine efficacy trials in the last three years for lack of efficacy, HIV vaccine research has pivoted towards discovery with new preclinical studies already yielding promising results. Several recent publications on HIV vaccine research and development (R&D) feature innovative strategies. These use germline-targeting immunogens to prime and mature bnAb-precursor B cells and overcome one of the key challenges in HIV vaccine development: the elicitation of broadly neutralizing antibodies (bnAbs).

This novel approach leverages the natural evolution of the immune response, aimed at guiding precursor B cells through a meticulously designed affinity maturation process. The goal is to develop potent bnAbs capable of neutralizing diverse HIV strains to provide broad and effective protection. Researchers are optimistic that these advancements in understanding and manipulating the immune system will pave the way for a successful HIV vaccine in the future.

The webinar organized by the Global HIV Vaccine Enterprise at IAS – the International AIDS Society – and The Scripps Research Institute, will provide an overview for a lay audience of recent advances addressing the challenges of inducing bnAbs, the development of germline targeting epitope scaffolds and the use of innovative vaccination regimens. In a fast-changing prevention research environment, the webinar also aims to raise awareness of ongoing HIV vaccine R&D and highlight the commitment of the scientific community to developing an HIV vaccine as an additional prevention tool.

Programme

Time (CEST)	Activity
0:00 – 0:01	Words of welcome - Asli Heitzer, Global HIV Vaccine Enterprise, IAS
0:01 – 0:03	Words of welcome - Bill Schief, Scripps
0:03 – 0:13	Presentation 1 - "Germline targeting: The basics" - Bill Schief, Scripps
0:13 – 0:23	Presentation 2 - VRC01: Chris Cottrell, Scripps Research Institute
0:23 – 0:30	<i>Interactive Q&A</i>
0:30 – 0:40	Presentation 3 - VRC01: Xuesong Wang, Ragon Institute
0:40 – 0:47	<i>Interactive Q&A</i>
0:47 – 0:57	Presentation 4 - BG18: Jon Steichen, Scripps Research Institute
0:57 – 1:04	<i>Interactive Q&A</i>
1:04 – 1:14	Presentation 5 - BG18 : Zhenfei Xie, Ragon Institute
1:14 – 1:21	<i>Interactive Q&A</i>
1:21 – 1:31	Presentation 6 - 10E8: Torben Schiffner, Scripps Research Institute
1:31 -1:38	<i>Interactive Q&A</i>



1:38 – 1:43	Summary & next steps - Bill Schief, Scripps Research Institute
1:43 – 1:45	Closing words - Asli Heitzer, Global HIV Vaccine Enterprise, IAS

References

1. Ray, R. et al. Affinity gaps among B cells in germinal centers drive the selection of MPER precursors. *Nat Immunol* (2024) doi:10.1038/s41590-024-01844-7.
2. Schiffner, T. et al. Vaccination induces broadly neutralizing antibody precursors to HIV gp41. *Nat Immunol* 1–10 (2024) doi:10.1038/s41590-024-01833-w.
3. Wang, X. et al. mRNA-LNP prime boost evolves precursors toward VRC01-like broadly neutralizing antibodies in preclinical humanized mouse models. *Science Immunology* 9, eadn0622 (2024).
4. Xie, Z. et al. mRNA-LNP HIV-1 trimer boosters elicit precursors to broad neutralizing antibodies. *Science* 384, eadk0582 (2024).
5. Cottrell, C. A. et al. Heterologous prime-boost vaccination drives early maturation of HIV broadly neutralizing antibody precursors in humanized mice. *Science Translational Medicine* 16, eadn0223 (2024).
6. Steichen, J. M. et al. Vaccine priming of rare HIV broadly neutralizing antibody precursors in nonhuman primates. *Science* 384, eadj8321 (2024). 6.

[Global HIV Vaccine Enterprise | International AIDS Society \(IAS\) \(iasociety.org\)](https://iasociety.org)