Progress towards the development of an HIV vaccine: Discussion

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Why is so difficult to make an HIV vaccine?

1. Genetic and immunological hyper-variability of HIV
2. Lack of an appropriate animal model
3. Natural immunity fails to clear HIV infection
4. Integration of HIV genome into the host genome
5. Additional challenge of inducing mucosal immunity
6. HIV targets cells of the immune system
7. Broadly neutralizing antibodies are rare and difficult to induce
8. Short durability of vaccine-induced immune responses
More than 200 clinical trials of HIV vaccine (mostly phase I) have been conducted since 1988.

Vaccine efficacy trials have been critical in changing paradigms
What has 30 years of HIV vaccine research taught us?

- The development of an HIV vaccine is an extremely difficult challenge
- The temptation of just following the fashion should be avoided
- Clinical trials are critical, especially large-scale efficacy trials
- HIV vaccine research requires long-term commitment and funding
- Sustainable collaborations are needed to accelerate the development of an HIV vaccine

Esparza J. What has 30 years of HIV vaccine research taught us? Vaccines 1:513-526, 2013
Recommendations to accelerate the development of an HIV vaccine

1. Innovative research with protected funding to explore out-of-the-paradigm approaches (perhaps not less than 10% of the total investment);
2. Basic research, exploring novel opportunities to conduct translational research, including the implementation of small Experimental Medicine (EM) trials;
3. Conduct several efficacy trials (planning for these trials would help structuring the discussion around scientific questions, vaccine manufacturing capacity, access to and preparation of trial populations, and funding issues);
4. Answer questions regarding protective efficacy of vaccines against different HIV clades and routes of transmission;
5. Strengthen the global HIV vaccine architecture, supporting the role that different national, regional and global organizations that have different audiences;
6. Bring new partners to the HIV vaccine field and strengthen interactions with other organizations that work in the HIV prevention arena.

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