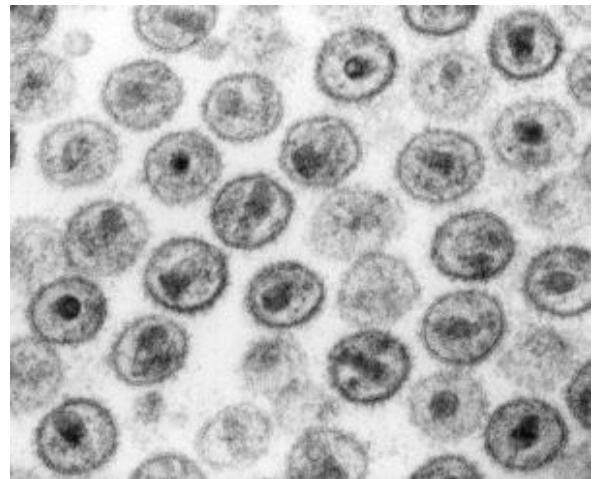
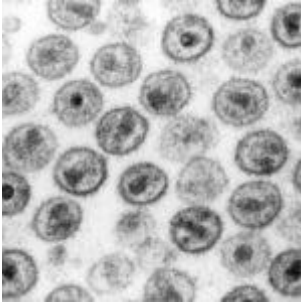


HIV vaccine induces similar responses in humans and rhesus macaques.



Transmission electron micrograph of HIV (CDC, Wikimedia Commons)

One of the major challenges of developing a vaccine against HIV, is the extensive HIV strain diversity. One approach being tested to address this is the development of global mosaic HIV-1 Envelope (Env) and Gag-Pol immunogens that aim at expanding the breadth of immune responses to HIV-1 M group viruses. Barouch and colleagues aimed to evaluate the safety and immunogenicity of different combinations of the adenovirus serotype 26 (Ad26) or modified vaccinia ankara (MVA) vectors expressing HIV Env- and Gag Pol-mosaics (Mos.HIV) immunogens with or without high-dose or low-dose aluminium adjuvanted

gp140 (clade C envelope protein) in a phase 1/2b clinical trial. In addition to this, Barouch *et al.*, also performed a similarly designed pre-clinical study in rhesus macaques, with the aim of directly comparing these results to those obtained in the clinical trial.

Barouch *et al.*, observed that of the 7 vaccine regimens tested, the two dose Ad26-HIV mosaic prime followed by high dose gp140 vaccine was the most immunogenic in both humans and rhesus macaques. In humans, this vaccination regime resulted in induction of Env-specific antibody responses in all vaccinated individuals, with approximately 80% of individuals inducing T cell and antibody-dependent cellular phagocytosis responses. Using the pre-clinical model, researchers were able to show that similar vaccine-induced responses were observed in rhesus macaques and resulted in 67% protection against acquisition of Simian-HIV following repeated exposure. Using the immunogenicity data generated from the clinical trial, researchers were able to inform the vaccine regime that is currently being tested in a phase 2b efficacy trial in Southern Africa ([Imbokodo \(HPX2008/HVTN 705; NCT03060629\)](#)).

This large study represents one of the first studies, if not the first study that directly compares results from a pre-clinical study and clinical trial, where the same vaccine regimens and immunological assays were used.

Article: Barouch *et al.*, 2018. [Evaluation of a mosaic HIV-1 vaccine in a multicentre, randomised, double-blind, placebo-controlled, phase 1/2a clinical trial \(APPROACH\) and in rhesus monkeys \(NHP 13-19\)](#). the Lancet

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