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Another potential obstacle to developing an HIV vaccine

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A clinical trial testing a candidate HIV vaccine known as the STEP study was halted in September 2007 after interim analysis indicated that the vaccine did not work.

Moreover, subsequent analyses indicated that the vaccine made some individuals more susceptible to HIV, in particular individuals who had pre-existing immune effectors (antibodies) that recognized a component of the vaccine (adenovirus serotype 5 [Ad5]).

A team of researchers led by Juliana McElrath, at the Fred Hutchinson Cancer Research Center, Seattle, has now determined that individuals from the STEP study in whom they could detect large numbers of immune cells (T cells) responsive to Ad5 generated a less robust immune response to HIV than those who had few Ad5-responsive T cells prior to vaccination.

More worryingly, the Ad5-responsive T cells were found to also respond to other adenoviruses that are being considered as vaccine components in place of Ad5.

This finding implies that vaccines based on adenoviruses other than Ad5 might not be effective in individuals with large numbers of Ad5-responsive T cells.

As noted by McElrath and colleagues, this is something that will have to be carefully evaluated in any future clinical trial of any adenovirus-based

vaccine, not just Ad5-based vaccines and not just adenovirus-based vaccines for HIV.

More information: Human adenovirus-specific T cells modulate HIV-specific T cell responses to an Ad5-vectored HIV-1 vaccine, *Journal of Clinical Investigation.*

Provided by Journal of Clinical Investigation