

Researchers discuss challenges to developing broadly protective HIV vaccines

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The human body can produce powerful antibodies that shield cells in the laboratory against infection by an array of HIV strains. In people, however, recent research shows that these broadly neutralizing antibodies are not produced in an efficient or timely enough fashion in HIV-infected individuals to effectively block progression of infection, appearing only after a person has been infected with HIV for at least one year -- by which time the virus has fully established itself within the body. In a Perspective article appearing this week in the *New England Journal of Medicine*, scientists at the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health, assert that a key research goal is to develop HIV vaccines that prevent HIV infection by inducing more effective immune responses than those that occur naturally.

In their article, the authors examine the challenges of developing HIV vaccines that can effectively induce these broadly neutralizing antibodies. Specifically, they describe work under way to design structure-based HIV vaccines, as well as efforts to gain a better understanding of the evolutionary processes that human B cells undergo to produce broadly neutralizing [HIV antibodies](#). The authors conclude that the availability of new research tools, together with the increased understanding of the human immune response to HIV, make them optimistic that an HIV vaccine that provides significant protection against acquisition of HIV infection can be achieved.

More information: MI Johnston and AS Fauci. HIV Vaccine Development - Improving on Natural Immunity. *New England Journal of Medicine* [DOI: 10.1056/NEJMp1107621](https://doi.org/10.1056/NEJMp1107621) (2011).

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