NIH scientists outline steps toward Epstein-Barr virus vaccine

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Epstein-Barr virus (EBV) infects nine out of ten people worldwide at some point during their lifetimes. Infections in early childhood often cause no disease symptoms, but people infected during adolescence or young adulthood may develop infectious mononucleosis, a disease characterized by swollen lymph nodes, fever and severe fatigue. EBV also is associated with several kinds of cancer, including Hodgkin lymphoma and stomach and nasal cancers. Organ transplant recipients and people infected with HIV (who become infected with or who already are infected with EBV) also may develop EBV-associated cancers. There is no vaccine to prevent EBV infection and no way for doctors to predict whether an EBV-infected person will develop virus-associated cancer.

In a new article from the National Institutes of Health (NIH), Anthony S. Fauci, M.D., director of the National Institute of Allergy and Infectious Diseases (NIAID), and Harold Varmus, M.D., director of the National Cancer Institute (NCI), join Gary Nabel, M.D., Ph.D., director of NIAID's Vaccine Research Center, and Jeffrey Cohen, M.D., chief of NIAID's Laboratory of Infectious Diseases, in summarizing a recent meeting of experts who gathered to map directions toward an EBV vaccine. Although it may not be possible to create a vaccine that completely prevents EBV infection, the authors note, clinical observations and results from clinical trials of an experimental EBV vaccine suggest that it may be possible to create an EBV vaccine capable of preventing the diseases that sometimes follow EBV infection.

Priorities for future research include determining which immune system responses to vaccination correlate with protection from infection or disease; identifying biological markers that would enable clinicians to predict development of EBV-related cancers; and establishing collaborations among government, academic and industry scientists to further improve an experimental EBV vaccine and to spur development of second-generation EBV vaccines.

More information: JI Cohen et al. Epstein-Barr virus: An important vaccine target for cancer prevention. *Science Translational Medicine* DOI: 10.1126/scitranslmed.3002878 (2011).

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