





Short communication

## Induction of HIV-specific functional immune responses by a multiclade HIV-1 DNA vaccine candidate in healthy Ugandans

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### Abstract

A phase I randomized, double blind, placebo-controlled trial to assess the immunogenicity of a multiclade HIV-1 DNA plasmid vaccine was conducted in 31 HIV-1-negative Ugandans. Following immunization with DNA at 0, 1, and 2 months, the frequency of HIV-specific immune responses was assessed up to 10 months using a standard chromium release assay (CRA), lymphoproliferative assay (LPA), and antibody dependent cell-mediated cytotoxicity assay (ADCC). Seven of 15 (47%) vaccinees demonstrated CTL activity using the CRA to HIV-1 Env B with responses observed 1 month following the second vaccination and as late as 7 months following complete immunization. Additionally, lymphoproliferative responses were observed in 14/15 vaccinees against p24. No CTL or LPA responses were observed at baseline or in the placebo group. ADCC activity was minimally induced by DNA vaccination. This study demonstrates that immunization with DNA alone induces CTL and lymphoproliferative responses in a population that will participate in a phase IIb study evaluating HIV-1 DNA priming followed by boosting with a replication-defective recombinant adenovirus vector.



### Keywords

DNA vaccine; HIV-1; CTL; LPA; ADCC

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2014, Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases

## Long-lasting humoral and cellular immune responses and mucosal dissemination after intramuscular DNA immunization

2010, Vaccine

*Citation Excerpt :*

...Increased immune responses may provide a critical step in improving DNA vaccination efficiency in humans. Human trials indicate that the magnitude of immune responses after DNA vaccination remains low [4,34–39,51,74–77] compared to levels reported in macaques. Therefore, the availability of more efficient DNA delivery methods, such as the method described here, may increase the efficiency of DNA vaccination and provide a critical advantage for future plasmid DNA vaccine studies in humans [78]...

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2010, Vaccine

*Citation Excerpt :*

...DNA-based immunization is an attractive vaccination approach because its production is simple and cost effective, it can be repeatedly administered and it can be combined with other vaccine modalities and molecular adjuvants. Although several trials of DNA vaccination in humans have shown encouraging, though variable results [53–62,23], it appears that naked DNA delivery and expression is inefficient in primates compared non-human primates and rodents, which is one key drawback for using DNA vaccination. Different strategies are being developed to improve the efficiency of DNA gene delivery include the combination of antigen expressing plasmids with vectors producing cytokines, or the use of DNA as prime in combination with recombinant virus or protein boost [12,1,61–79]...

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2019, Muscle Gene Therapy, Second Edition

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2016, Expert Review of Vaccines

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