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Oral presentation

A multiclade DNA/Ad vaccines for AIDS: the present and next generation

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Development of an effective vaccine against HIV has proven to be particularly challenging to the scientific community in the absence of naturally occurring, protective immune responses. Current vaccine candidates target multiple internal and external gene product. Next generation vaccines will need to enhance the immunogenicity of the envelope (Env), with the goal of improving the breadth of the neutralizing antibody response while concurrently stimulating cell-mediated immunity. However, the envelope's genetic diversity and multiple mechanisms for evading the human immune system have made it difficult to design successful candidates. Efforts at the Vaccine Research Center have centered on the use of genetic and structural biological information to improve Env immunogen design. The genetic approach has focused on the conserved regions and conserved subdomains of variable regions. To target such conserved domains, site-specific mutagenesis has been employed to generate and analyze variant and chimeric Env proteins. Immunization studies suggest that the V3 region plays a dominant role in eliciting neutralization of viruses from different clades, and some breadth of reactivity among V3 regions is observed. The status of the structure-based immunogen design effort and the status of the current human multiclade and multigene vaccine candidate will be reviewed.