"Novel Vectors and Antigens for a Next Generation HIV-1 Vaccine"

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Abstract
Alternative serotype Ad vectors such as rAd26 and rAd35 are biologically substantially different than rAd5 vectors. We have evaluated rAd26 and rAd35 vectors expressing SIV antigens in immunogenicity and challenge studies in rhesus monkeys, and we have shown that rAd35/rAd26 as well as rAd26/MVA prime-boost regimens afford partial protection against both acquisition of infection as well as vireologic control following fully heterologous, intrarectal SIVmac251 challenges. We have also advanced prototype rAd26 and rAd35 vectors expressing HIV-1 Env into phase 1 clinical trials. These vectors have proven safe and immunogenic in humans at doses of $10^9$, $10^{10}$, and $10^{11}$ vp. In addition, we have demonstrated that computationally optimized “mosaic” HIV-1 Gag/Pol/Env antigens substantially expand cellular immune breadth and depth and induce noninferior antibody responses as compared with consensus or natural sequence antigens in rhesus monkeys. Taken together, these data suggest that adenovirus and poxvirus prime-boost vector regimens expressing mosaic HIV-1 antigens should be evaluated in clinical studies.

Selected Publications