Nuclear Delivery of Biomolecules using Lentiviral Integrase

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Technology description

Summary

Lentiviruses, such as HIV-1, the etiologic agent for AIDS, infect the host organism by fusing and entering the host cell to eventually deliver its genetic material to the host nucleus. The viral genetic material is integrated into the host genome to be replicated and ensure the survival of the virus. Our researchers have discovered a potent and transferable nuclear localization sequence (NLS) in the HIV-1 integrase that is required for nuclear import of viral DNA. They have also developed an optimized expression vector to deliver DNA into the nucleus by fusing the integrase NLS to a DNA sequence, such as that used in a DNA-based vaccine. The DNA vaccine would be delivered to the nucleus, expressed, and the gene product(s) would provide an antigen capable of stimulating an immune response. It is also possible to target the integrase to prevent nuclear entry of the virus in question, thus preventing infection.

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