A Shuttle Plasmid, Recombinant MVA/HIV1 Clinical Vaccine Constructs and a Mechanism for Enhanced Stability of Foreign Gene Inserts by Codon Alternation and for Insertion of the Foreign Gene Between Two Vaccinia Virus Essential Genes

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Technology description

Summary

Since the onset of the AIDS epidemic more than two decades ago, enormous efforts have been directed to making a vaccine that will protect against human immunodeficiency virus-1 (HIV); an effective vaccine is thought to require the induction of cellular and humoral responses. Vaccine candidates have included a variety of HIV immunogens delivered as DNA, attenuated poxviruses, adenoviruses, vesicular stomatitis virus, proteins, and various combinations thereof. The inventors' efforts to design an HIV vaccine have focused on modified vaccinia virus Ankara (MVA) as a vector. The patent application describes (1) the shuttle plasmid, pLW73, used for insertion of a foreign gene between two essential vaccinia virus genes (in this case, I8R, G1L), (2) an MVA/Ugandan Clade D (UGD) construct, and (3) an MVA/HIV 75 AG construct using pLW73 as a vector. Additionally, the invention provides two methods: (1) a method useful for large-scale production of recombinant vaccinia viruses, and (2) a method for stabilizing foreign gene inserts that undergo mutation after repeated passages, again useful in large-scale production of recombinant vaccinia viruses.

Application area

Immunization against HIV

Institution

NIH - National Institutes of Health

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