Title: ENHANCEMENT OF VACCINE-INDUCED IMMUNE RESPONSES AND PROTECTION BY HETEROLOGOUS BOOSTING WITH ALPHAVIRUS REPLICON VACCINES

Abstract: The inventive subject matter relates to an immunogenic composition and method of enhancing immunogenicity and protective immunity induced by any subunit or whole organism vaccine or combination of vaccines comprising administering to the subject a priming immunization preparation containing an antigen or fragment thereof, said preparation being selected from the group consisting of a recombinant virus expression system; a recombinant protein antigen or a recombinant polypeptide; a synthetic peptide; a polynucleotide vector; a whole organism or extract and combinations thereof; and a boosting immunization of at least one alphavirus replicon containing an antigen or fragment thereof. The inventive subject matter further relates to an immunogenic composition and method of inducing an immune response that activates both cellular and humoral arms of the immune system.
INTERNATIONAL SEARCH REPORT

INTERNATIONAL APPLICATION No.
PCT/US04/38569

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(7) : A61K 48/00
   US CL : 514/44; 435/455; 424/199.1
   According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
   U.S. : 514/44; 435/455; 424/199.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
   Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
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</table>

See patent family annex.

Date of the actual completion of the international search

Name and mailing address of the ISA/US
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Form PCT/ISA/210 (second sheet) (April 2005)
Continuation of B. FIELDS SEARCHED Item 3:
EAST, medline, biosis, caplus, scisearch, caba,

search terms: prime-boost, PyCSP, PyHEP17, PISCIP, replicon, pox virus,