

Peptides for Stimulating an Immune Response Against Melanoma

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Summary:

Provided in the invention are recombinant peptides and a method for using the peptides in stimulating an immune response against human high molecular weight-melanoma associated antigen (HMW-MAA). The peptides were designed from the identification of regions of structural and amino acid sequence homology between HMW-MAA and the mouse anti-idiotypic monoclonal antibody MK2-23. The method comprises the step of administering to an individual a peptide of the invention in an amount effective to elicit an immune response against HMW-MAA.

Detail:

The invention provides recombinant peptides for use in stimulating an immune response against melanoma. The peptides were designed from regions of structural and amino acid sequence homology identified herein between HMW-MAA and the mouse anti-idiotypic monoclonal antibody (anti-id mAb) MK2-23, which mimics an HMW-MAA epitope. In particular, X-ray crystallography analysis of the Fab' portion of MK2-23 was used to identify regions of the heavy and light chains of the MK2-23 anti-idiotypic antibody which displayed similar folding patterns as the region of the HMW-MAA comprising the epitope mimicked by MK2-23. These studies indicated that the complementarity determining region 3 (CDR3) of its heavy chain (also referred to herein as "H3") and the complementarity determining region 1 (CDR1) of its light chain (also referred to herein as "L1") display partial amino acid sequence homology and a similar structural folding as a portion of the HMW-MAA protein that comprises the epitope which is mimicked by MK2-23. Based on these data, three peptides are provided--one each from the H3 and the L1 region of MK2-23 and one from the HMW-MAA. The invention also provides a method for using the peptides identified herein for stimulating an immune response in an individual against melanoma. The method comprises administering to the individual an amount of a composition comprising one or more peptides of the invention in an amount effective to stimulate an immune response against HMW-MAA.