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(54) **RECOMBINANT ADENYLATE CYCLASE TOXIN OF *BORDETELLA* INDUCES T CELL RESPONSES AGAINST TUMORAL ANTIGENS**

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CPC ***C12N 9/88*** (2013.01); ***A61K 38/164*** (2013.01); ***A61K 39/0011*** (2013.01); ***A61K 39/39*** (2013.01); ***A61K 47/4833*** (2013.01); ***A61K 47/48261*** (2013.01); ***C12Y 406/01001*** (2013.01); *A61K 2039/6037* (2013.01); *A61K 2039/6068* (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

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(57) **ABSTRACT**

An immunogenic composition comprising a recombinant protein comprising a *Bordetella* CyaA, or a fragment thereof, and a peptide that corresponds to a tumor antigen is provided as a cancer treatment. Methods of treatment with this immunogenic composition are also provided. In an embodiment, the therapeutic composition is a treatment for melanoma, and comprises epitopes from the HLA*0201 epitope. These epitopes include Tyr or GnT-V, and are present in the recombinant proteins CyaA-E5-Tyr and CyaA-E5-GnT-V.

5 Claims, 4 Drawing Sheets