Enhancing Preventative and Therapeutic Vaccines (in vivo dendritic cell activation)

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Technology description

Preventive vaccines, usually composed of priming and booster doses, have proven effective in controlling multiple infectious diseases. In contrast, the efficacy of current therapeutic vaccines remains low. Two long-recognized but poorly understood phenomena in vaccine biology include the requirement for delayed application of booster doses of vaccines in order to achieve effective secondary T cell expansion. The requirement for delayed second exposure to antigen is difficult to meet in the settings of therapeutic vaccination, where in contrast to the preventive vaccines, the pathogen-relevant antigens are already present within the host. The current invention targets a key mechanism of the inability of vaccines to act in the therapeutic settings and proposes to use small molecule approach to restore the effectiveness of vaccines in therapeutic settings, in cancer and established infectious diseases, including AIDS, tuberculosis, leprosy, cytomegalia, herpes simplex, herpes zoster, EBV, Hepatis B and C or established HPV infections, that often constitute premalignant conditions, or to develop effective therapeutic vaccines to such global threats as influenza, SARS, malaria, of leishmaniasis. The proposed invention allows not only the development of new therapeutic vaccines against cancer and established infections, but can also allow the conversion of the existing protective vaccines into therapeutic ones, minimizing the R&D costs of prospective licensees. Applications 1. immunotherapy of cancer 2. immunotherapy of chronic infections (including HIV, tuberculosis, leprosy, leishmaniasis, hepatitis B and C, cytomegalia, EBV, Herpes simplex infections, established HPV infections and related premalignant states, influenza and related diseases, SARS, leishmaniasis, tuberculosis, leprosy, malaria)

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