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ACTION

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(54) Title: PACKAGED VIRUS-LIKE PARTICLES FOR USE AS ADJUVANTS: METHOD OF PREPARATION AND USE

(57) Abstract: The invention relates to the finding that virus like particles (VLPs) can be loaded and packaged, respectively, with DNA oligonucleotides rich in non methylated C and G (CpGs). If such CpG-VLPs are mixed with antigens, the immunogenicity of these antigens are dramatically enhanced. In addition, the T cell responses against the antigens are especially directed to the Th1 type. Surprisingly, no covalent linkage of the antigen to the VLP is required; it is sufficient to simply mix the VLPs with the adjuvants for co-administration. In addition, it was found that VLPs did not enhance immune responses unless they were loaded and packaged, respectively, with CpGs. Antigens mixed with CpG-packaged VLPs may therefore be ideal vaccines for prophylactic or therapeutic vaccination against allergies, tumors and other self- molecules and chronic viral diseases.