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RNAdjuvant®: A novel, highly-potent, RNA-based adjuvant for prophylactic and therapeutic vaccines

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Given the important role of adjuvants in prophylactic vaccines as well as tumor immunotherapy, identification and development of new adjuvants with enhanced efficacy and safety is necessary. CureVac has recently developed a novel RNA-based adjuvant with strong immunostimulatory properties. RNAdjuvant® is physically and chemically well-defined and exhibits a very good safety profile. RNAdjuvant® is well tolerated even at high doses and does not induce splenomegaly in mice as described for standard adjuvants such as CpG-DNA. *In vitro*, RNAdjuvant® induced activation of APC leading to an increased expression of specific activation markers and secretion of cytokines driving a pronounced Th1 response.

In vivo, RNAdjuvant® boosted even very immunogenic influenza vaccines inducing balanced Th1/Th2 T cell responses. Vaccination with RNAdjuvant® accelerated onset of protective antibody responses to approved influenza vaccines, enhanced vaccine specific T cell responses and enabled significant dose sparing.

In addition, RNAdjuvant® combined with human papillomavirus (HPV)-derived recombinant peptides elicited strong antigen-specific cytotoxic T-cell responses, which are barely induced by vaccination with peptide alone. Vaccination with RNAdjuvant® with HPV-derived peptides mediated complete tumor protection in a prophylactic setting, as well as significant growth inhibition of already established tumors after therapeutic vaccination.

Taken together our data demonstrate that RNAdjuvant® represents a novel breakthrough technology that can be combined with almost any type of antigen that requires safe and potent adjuvants.

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