A heterologous prime-boost vaccination strategy combining a listeria and DNA-based vaccine encoding prostatic acid phosphatase (PAP) elicits a strong antigen-specific, anti-tumor response.

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RESULTS

BACKGROUND

Listeria monocytogenes strain LADD and DNA vaccines. Lm strains were constructed as the live attenuated double deleted (LADD) vaccine or DNA-based vaccine. LADD vaccine was constructed for expression from cloned Lm plasmid in Lm strain. The DNA vaccines encoding PAP were constructed with a Gal4 transcription activator (GTAA) as a fusion tag at the N-terminus. Figure 1 and 3 show differences in tumor volume (mm3) in 6-10 wk, male A2/DR1 mice injected with DNA vaccine encoding PAP (pTVG-HP) elicits long-term T-cell responses in mice. pTVG-HP LADD-PA.tumor was measured three times a week and the tumor volume was calculated according to the following equation: (π/6)(long axis)(short axis)

MATERIALS AND METHODS

Listeria monocytogenes strain LADD and DNA vaccines. Lm strains were constructed as the live attenuated double deleted (LADD) vaccine or DNA-based vaccine. LADD vaccine was constructed for expression from cloned Lm plasmid in Lm strain. The DNA vaccines encoding PAP were constructed with a Gal4 transcription activator (GTAA) as a fusion tag at the N-terminus. Figure 1 and 3 show differences in tumor volume (mm3) in 6-10 wk, male A2/DR1 mice injected with DNA vaccine encoding PAP (pTVG-HP) elicits long-term T-cell responses in mice. pTVG-HP LADD-PA.tumor was measured three times a week and the tumor volume was calculated according to the following equation: (π/6)(long axis)(short axis)

CONCLUSIONS

PAP-specific cellular immunity and anti-tumor activity were elicited in mice after immunization with DNA- or listeria-based vaccines. Greater CD4+ and CD8+ responses, and anti-tumor activity were elicited than when mice were immunized first with a DNA vaccine and boosted with a listeria-based vaccine but when not vaccinated were administered in the opposite order.

Anti-tumor response elicited by DNA Listeria prime/boost is dependent on CD4+ T cells but not due to inflammatory signals by Listeria itself or to B cells serving as antigen-presenting cells for DNA priming.

REFERENCES


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