

POSTER PRESENTATION

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# Local administration of granulocyte macrophage colony-stimulating factor induces local accumulation of dendritic cells and antigen-specific CD8<sup>+</sup> T cells and enhances the efficacy of therapeutic vaccine in cervicovaginal tumor

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Immunotherapy has emerged as a promising treatment strategy for the control of HPV-associated malignancies. Various therapeutic HPV vaccines have elicited potent antigen-specific CD8<sup>+</sup> T cell mediated antitumor immune responses in preclinical models and are currently being tested in several clinical trials. Recent evidence has reported the importance of local immune activation, and higher number of immune cells in the site of lesion correlates with positive prognosis. Granulocyte macrophage colony-stimulating factor (GM-CSF) has been reported to possess the ability to induce migration of antigen presentation cells and CD8<sup>+</sup> T cells. Therefore, in the current study, we employed a combination of systemic therapeutic HPV DNA vaccination with local GM-CSF application in the TC-1 tumor. We show that intramuscular vaccination with CRT/E7 DNA followed by GM-CSF intravaginal administration effectively controls TC-1 tumor in mice. Furthermore, we observe an increase in the accumulation of E7-specific CD8<sup>+</sup> T cells and dendritic cells in the vaginal tumor following the combination treatment. In addition, we show that GM-CSF induces activation and maturation in dendritic cells and promote antigen cross-presentation. Our results support the clinical translation of the combination treatment of systemic therapeutic vaccination followed by local GM-CSF administration as an effective strategy for tumor treatment.

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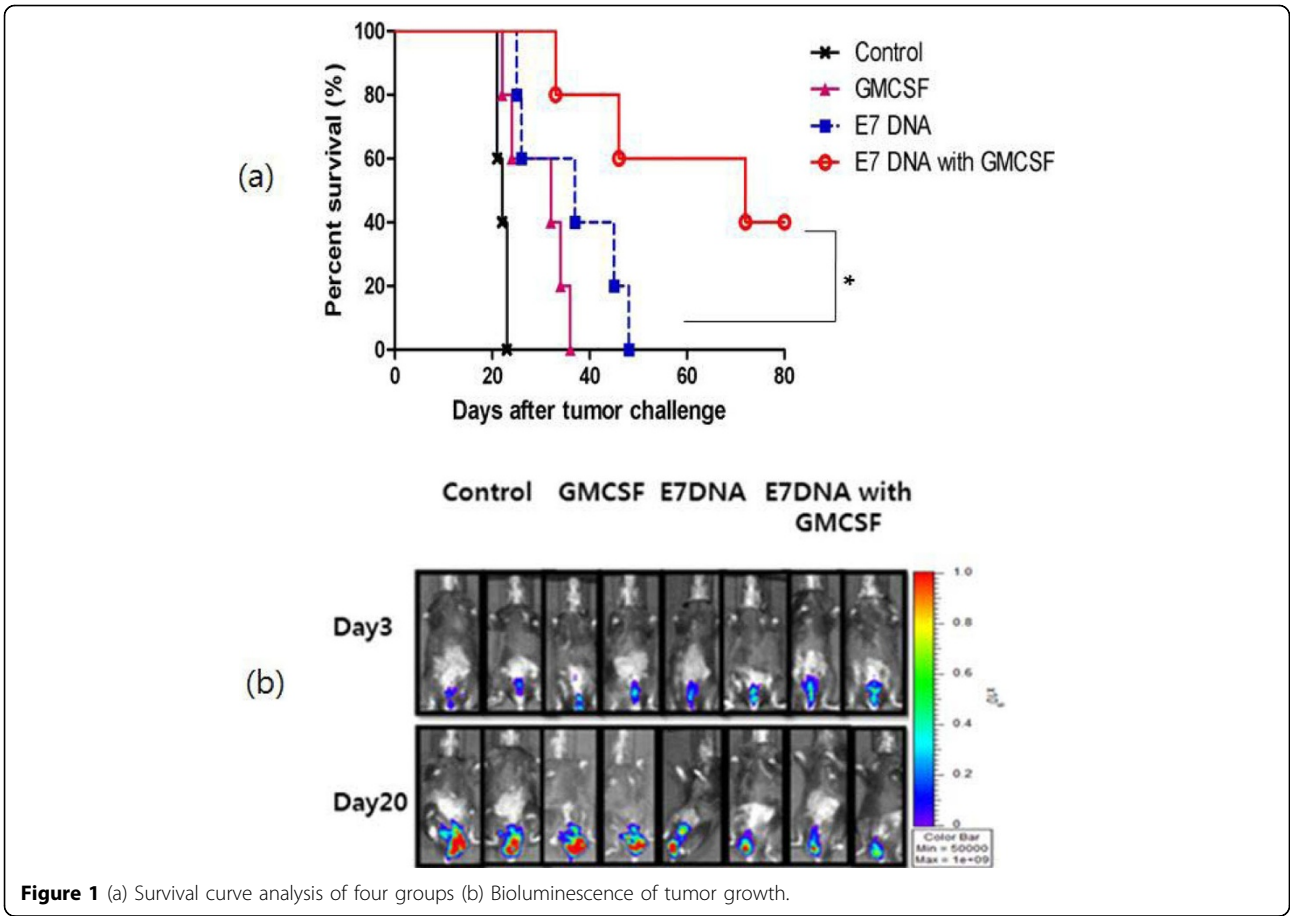
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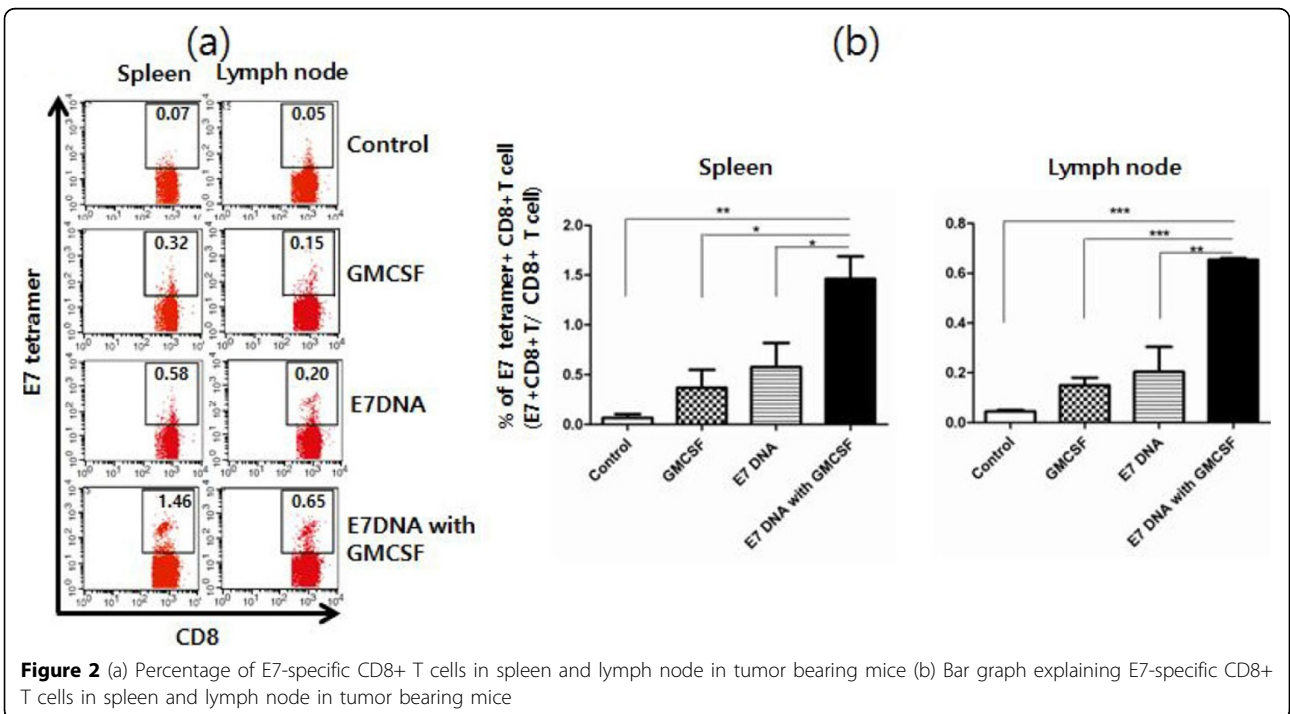
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**Figure 1** (a) Survival curve analysis of four groups (b) Bioluminescence of tumor growth.



**Figure 2** (a) Percentage of E7-specific CD8+ T cells in spleen and lymph node in tumor bearing mice (b) Bar graph explaining E7-specific CD8+ T cells in spleen and lymph node in tumor bearing mice

