

# Supplementary Materials for

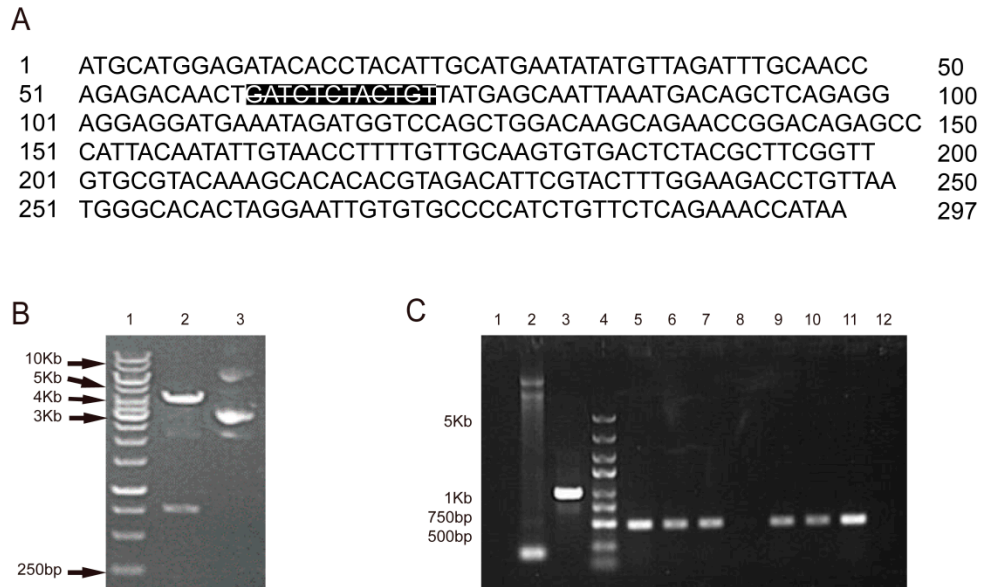
## A Therapeutic DNA Vaccine Targeting HPV16 E7 in Combination with Anti-PD-1/PD-L1 Enhanced Tumor Regression and Cytotoxic Immune Responses

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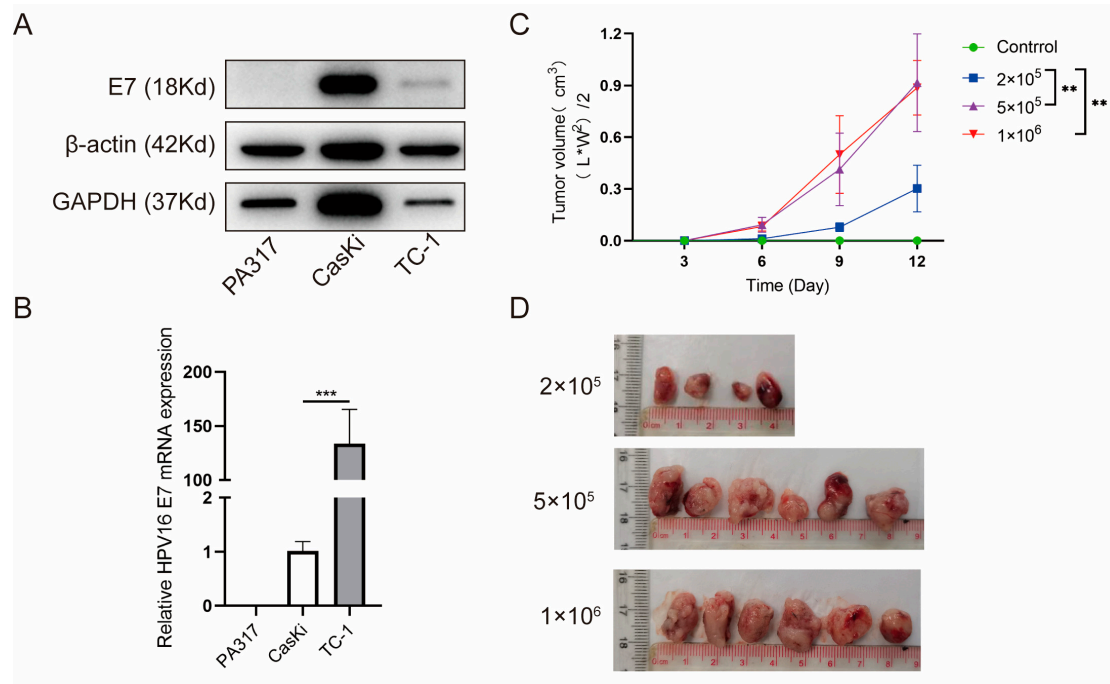
**This file includes:**

Figures S1 to S2



**Figure S1. Construction of Ad-E7 vaccine.**

(A) The DNA sequence of the HPV16 E7 (deID21-C24). (B) The enzyme cut assay of the GV269 vector (picture provided by Shanghai Genechem Co., Ltd.). Lane 1 is the DNA marker, which shows 10Kb, 8Kb, 6Kb, 5Kb, 4Kb, 3.5Kb, 3Kb, 2.5Kb, 2Kb, 1.5Kb, 1Kb, 750bp, 500bp and 250bp from top to bottom, lane 2 shows the enzyme-digested products, and lane 3 is the vector that was not digested by endonuclease. (C) The identification of positive transformants. Lane 1 is the negative control (ddH<sub>2</sub>O), lane 2 is the negative control (empty vector), lane 3 is the positive control (GAPDH), lane 4 is the DNA marker, which is 5Kb, 3Kb, 2Kb, 1.5Kb, 1Kb, 750bp, 500bp, 250bp, 100bp from top to bottom, and lanes 5-12 are 8 transformants.



**Figure S2. Identification of E7 expression and tumorigenic ability of TC-1 cells.**

(A) Western blot was used to detect the protein expression of E7 in PA317 (HPV negative cells), CasKi (HPV positive cells) and TC-1 cells. (B) qRT-PCR was used to detect the mRNA level of E7 in PA317, CasKi and TC-1 cells. (C) The tumor growth curve of mice injected with TC-1 cells in three groups. (D) The tumors of the mice in three groups were isolated and photographed. \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .