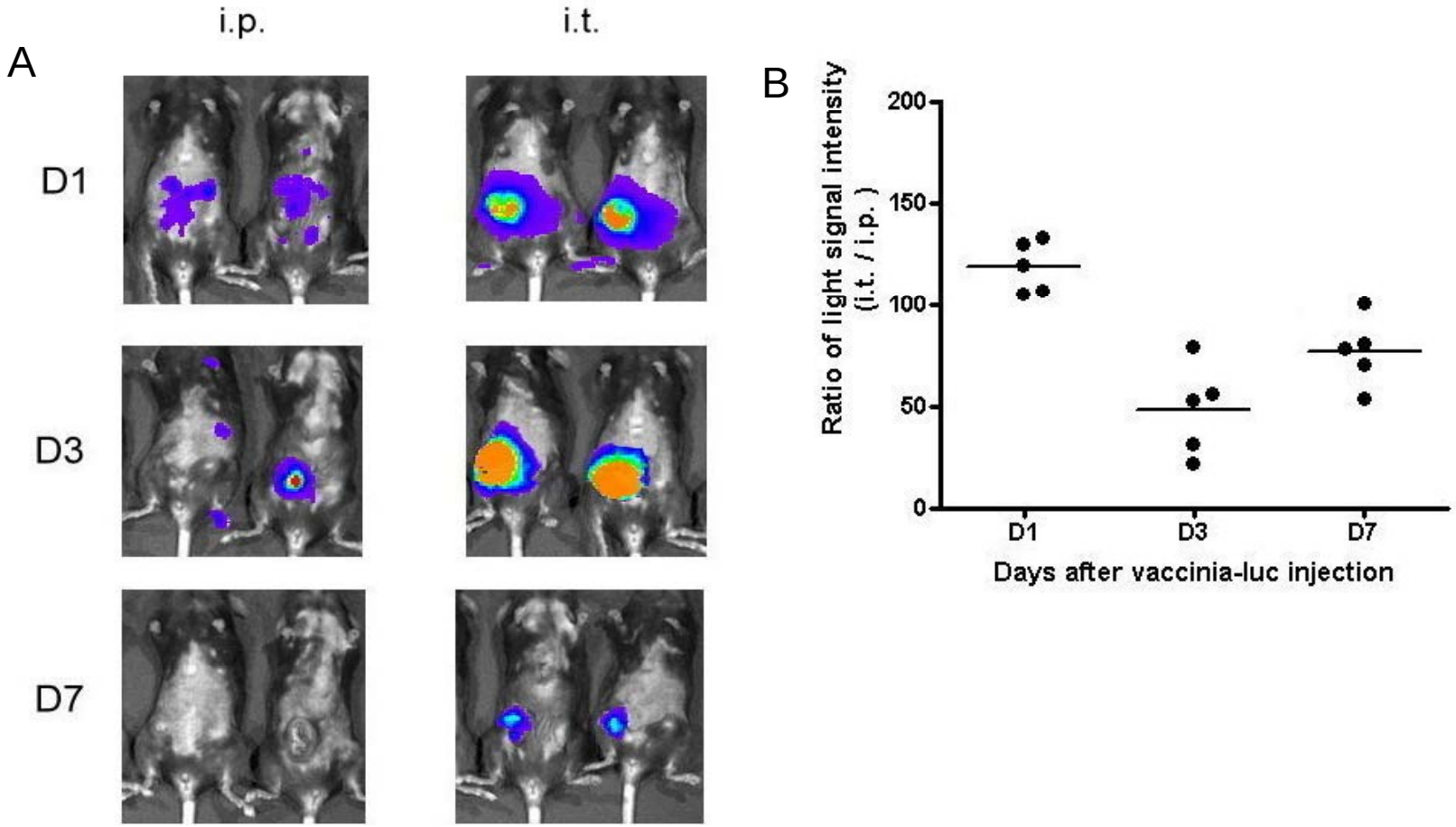
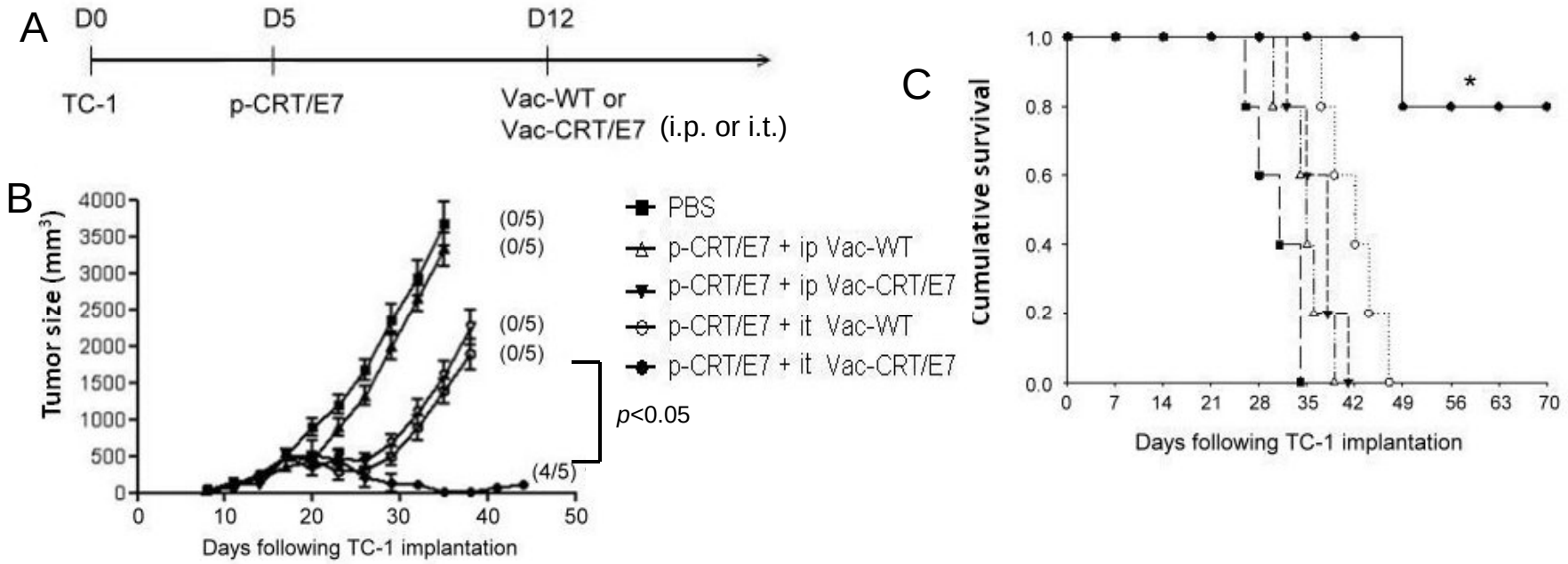
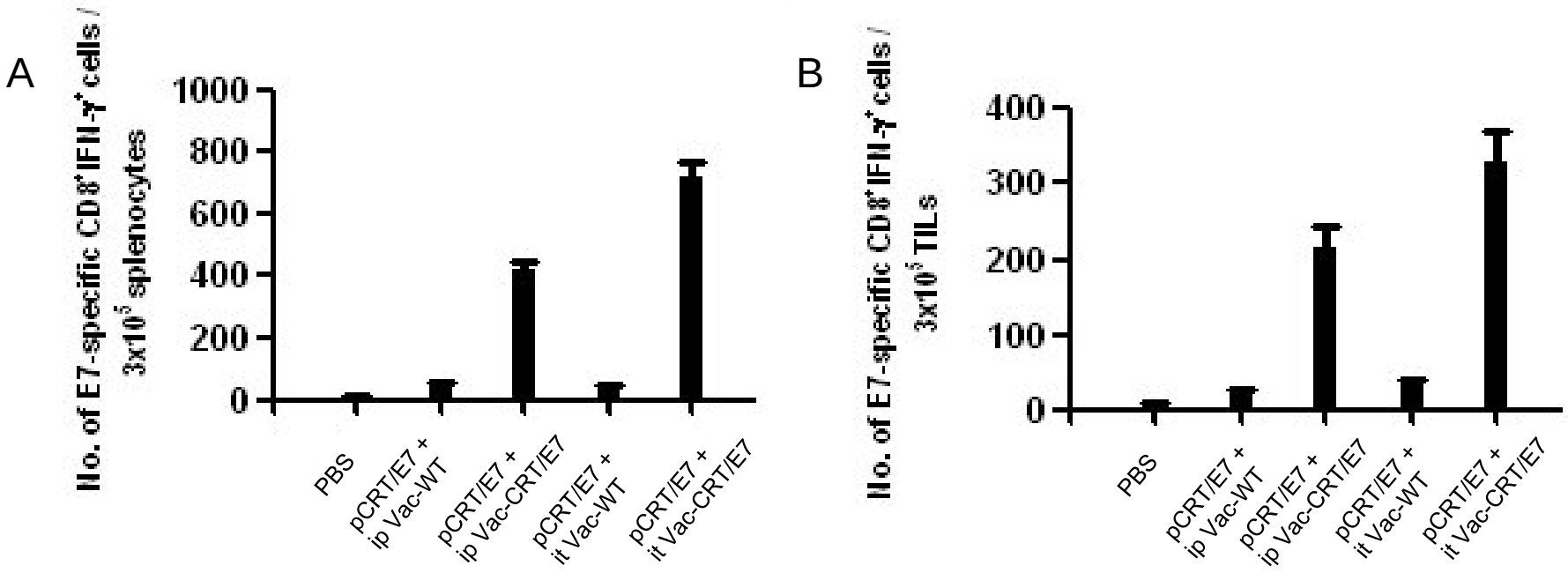


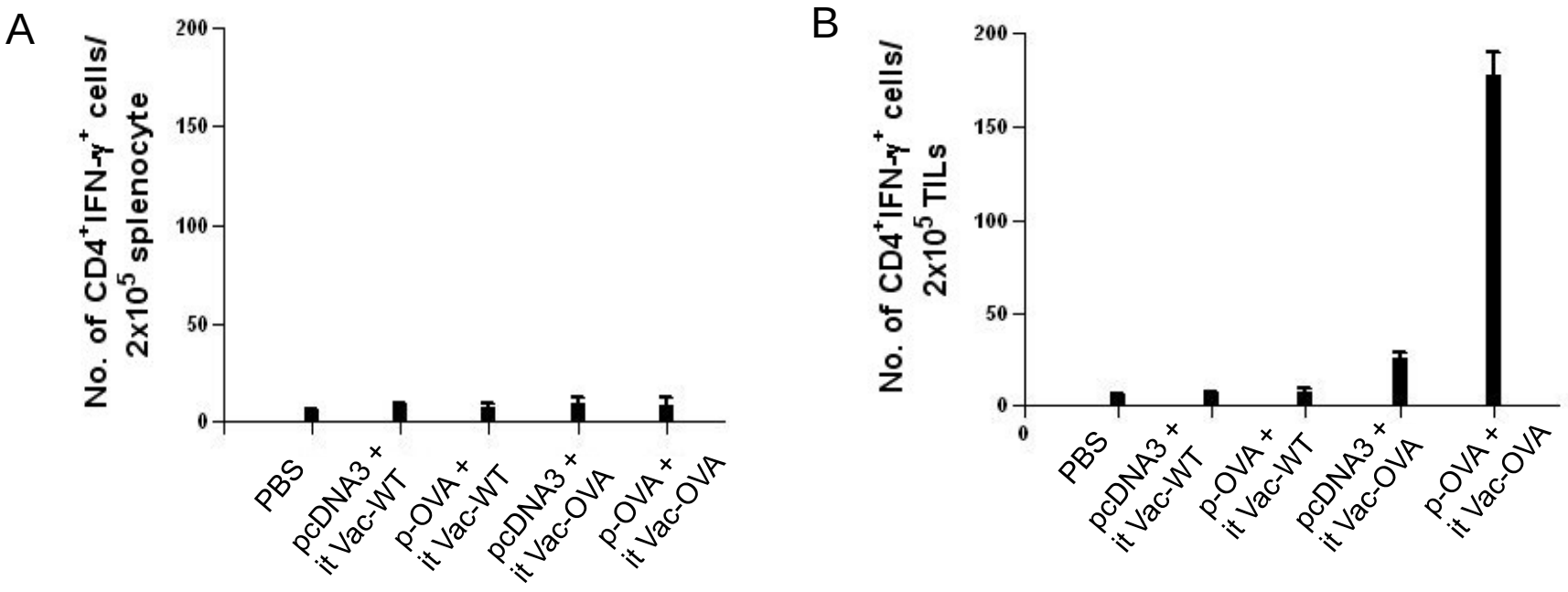
Supplementary Figure 1. Luminescence imaging demonstrating vaccinia infection in mice. Groups of C57BL/6 mice (5 per group) were subcutaneously challenged with $5x10^4$/mouse of TC-1 tumor cells. When tumor size reached about 8~10 mm, mice were treated with either i.t. or i.p. injection of Vac-luc at $1x10^7$ pfu/mouse**. (A)** Representative bioluminescence signal for each group over time. **(B)** Bar graph depicting the ratios of signal intensity of i.t. over i.p. in mice treated with Vac-luc over time.



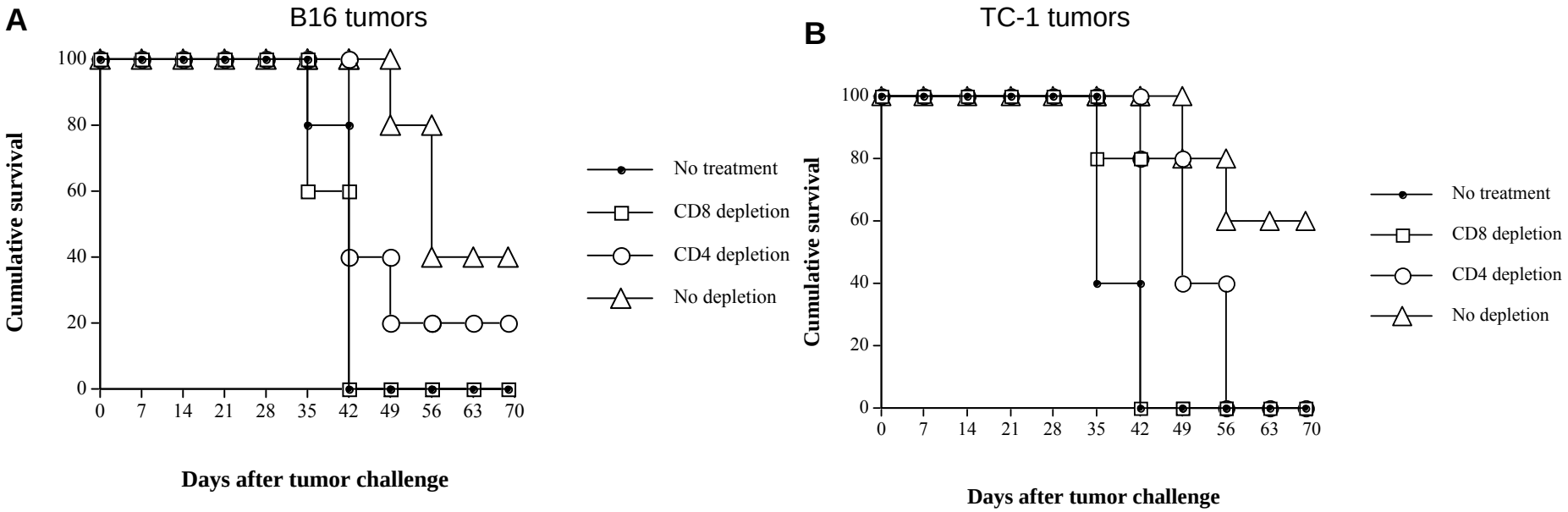
Supplementary Figure 2. In vivo tumor treatment experiments. Groups of C57BL/6 mice (5 per group) were subcutaneously challenged with $5x10^4$/mouse of TC-1 tumor cells. 5 days after tumor challenge, mice were immunized with 2 μg/mouse of pcDNA3 expressing CRT/E7 (p-CRT/E7) by gene gun. On day 12, mice were boosted by intraperitoneal or intratumoral injection of $1x10^7$ pfu/mouse of either wild-type vaccinia (Vac-WT) or vaccinia encoding CRT/E7 (Vac-CRT/E7). TC-1 tumor-bearing mice treated with 1X PBS were used as a control. **(A)** Diagrammatic representation of the prime-boost treatment regimen. **(B)** Line graph depicting the tumor volume in TC-1 tumor bearing mice treated with the different prime-boost regimens. Numbers in parentheses indicate complete tumor rejection rates. **(C)** Kaplan & Meier survival analysis of TC-1 tumor challenged mice treated with the different treatment regimens. * indicates $p<0.05$. Data shown are representative of two experiments performed (mean+SD).



Supplementary Figure 3. Intracellular cytokine staining followed by flow cytometry analysis to determine the number of E7-specific CD8+ T cells in tumor-bearing mice treated with the different prime-boost regimens. Groups of C57BL/6 mice (5 per group) were subcutaneously challenged with $5x10^4$/mouse of TC-1 tumor cells. 5 days after tumor challenge, mice were immunized with 2μg/mouse of pcDNA3 expressing CRT/E7 (p-CRT/E7) by gene gun. On day 12, mice were boosted by intraperitoneal or intratumoral injection of $1x10^7$ pfu/mouse of either wild-type vaccinia (Vac-WT) or vaccinia encoding CRT/E7 (Vac-CRT/E7). TC-1 tumor-bearing mice treated with PBS were used as a control. 7 days after vaccinia infection, cells from the spleens **(A)** and tumors **(B)** of mice were harvested and stained for CD8 and intracellular IFN-γ and then characterized for E7-specific CD8+ T cells using intracellular IFN-γ staining followed by flow cytometry analysis. Bar graph depicting the numbers of OVA-specific IFN-γ-secreting CD8+ T cells per $2x10^5$ pooled cells in the **(A)** spleens and **(B)** tumors of treated mice. Data shown are representative of two experiments performed (mean+SD).



Supplementary Figure 4. Intracellular cytokine staining followed by flow cytometry analysis to determine the number of OVA-specific CD4$^+$ T cells in tumor-bearing mice treated with the different prime-boost regimens. Groups of C57BL/6 mice (5 per group) were challenged subcutaneously with 5x10^4/mouse of B16/F10 tumor cells. 5 days after tumor challenge, mice were immunized with either pcDNA3 or p-OVA DNA by gene gun and boosted by intratumoral injection of either Vac-WT or Vac-OVA as shown in **Figure 1**. TC-1 tumor-bearing mice treated with 1X PBS were used as a control. 7 days after vaccinia infection, cells from the spleens **(A)** and tumors **(B)** of mice were harvested and stained for CD8 and intracellular IFN-γ and then characterized for OVA-specific CD4$^+$ T cells using intracellular IFN-γ staining followed by flow cytometry analysis. Bar graph depicting the numbers of OVA-specific IFN-γ-secreting CD4$^+$ T cells per 2x10^5 pooled cells in the **(A)** spleens and **(B)** tumors of treated mice. Data shown are representative of two experiments performed (mean$\pm$SD).



Supplementary Figure 5. In vivo antibody depletion experiments. C57BL/6 mice (5 per group) were subcutaneously challenged with $5x10^4$/mouse of B16/F10 or TC-1 tumor cells. 5 days after tumor challenge, mice were immunized with 2µg/mouse of pcDNA3 expressing ovalbumin (p-OVA) by gene gun. On day 12, mice were boosted by intratumoral injection of $1x10^7$ pfu/mouse of vaccinia encoding ovalbumin (Vac-OVA). Mice were depleted of CD4 or CD8+ T cells using antibodies every alternate day starting from D5 for 3 doses followed by once a week till the end of the experiment. Tumor-bearing mice treated with 1X PBS were used as a control. Kaplan & Meier survival analysis of **(A)** B16 or **(B)** TC-1 tumor bearing mice treated with the different treatment regimens.