

Supplementary Figure Legends

Supplementary Figure 1. Heat map of microarray data demonstrating increased apoptotic protein expression on low avidity T cells. Apoptosis associated genes identified as having increased low avidity T cell expression greater than two-fold are labeled on the right. High and low avidity T cells were isolated from the tumor-draining node of tumor bearing, Cy-treated, vaccinated, *neu*-N mice three days after adoptive transfer. RNA was extracted from these cells and checked for integrity before the microarray was performed.

Supplementary Figure 3. Protein expression of DR5, FasL, and CD24 as compared between naïve low avidity T cells and low avidity T cells stimulated *in vivo* or *in vitro*. Naïve low avidity T cells were isolated from the spleen of low avidity transgenic mice and stimulated *in vivo* by adoptively transferring them into a Cy-treated, vaccinated, *neu*-N mouse. Cells were stimulated *in vitro* using CD3/CD28 beads. Naïve low avidity T cells were put into FACS buffer directly after extraction and all cells were stained and analyzed by flow cytometry at the same time.

Supplementary Figure 3. Treatment of established tumors using OX40 and 41BB agonists. Tumor was given seven days before mice received adoptive transfer of low avidity T cells leading to all of the mice having palpable tumors at the beginning of tumor measurement. Mice were treated with Cy+vaccine+OX40, Cy+vaccine+IgG, Cy+vaccine+41BB, vaccine+OX40, and Cy+vaccine+OX40 without low avidity T cell adoptive transfer.

Supplementary Figure 4. Percent of adoptively transferred low avidity T cells in untreated tumor-bearing mice is higher than Cy+vaccine treated mice but lower than OX40+Cy+vaccine treated mice 5 and 7 days after adoptive transfer. Low avidity T cells adoptively transferred into tumor bearing mice were compared between untreated, Cy+vaccine treated, and Cy+vaccine+OX40 treated mice 1, 3, 5, and 7 days after adoptive transfer. T cells were isolated from the tumor-draining node before being stained for the adoptive transfer T cell marker, Thy1.2.