



Supplementary Figure 4. A model for ICAM1-CAR T and anti-PD1 antibody activities in advanced thyroid cancers.

Advanced thyroid cancers, including ATC, have prevalent expression of ICAM1 and PD-L1 molecules on the surface. ICAM1-CAR T cell activities on target tumor antigen ICAM1 leads to secretion of $IFN\gamma$ in the microenvironment, activating $IFN\gamma$ -signaling pathway in tumor and CAR T cells. $IFN\gamma$ -signaling pathway and downstream transcription factor IRF1 leads to further induction of ICAM1 and PD-L1 in the tumor cells and PD1 in CAR-T cells, respectively. Administration of anti-PD1 antibody helps relieving the inhibitory interaction between PD1 and PD-L1, thereby enhances ICAM1-CAR T effector function.