

S1

Figure S1: Splenocytes and intrahepatic leukocytes of the tumor-bearing mice from the orthotopic hepatocellular carcinoma model were collected 7 days after tumor injection. Splenocytes and intrahepatic leukocytes were processed for FACS analysis. A. Representative Histology of the mice liver 7 days after MC plasmids (IL-33 and MC control) hydrodynamical injection is shown (H&E, original magnification $\times 40$). B. The numbers of lymphoid cells in spleens and livers are shown. C. The percentages

of CD8⁺ T cells in spleens and livers are shown. D. The percentages of CD4⁺ T cells in spleens and livers are shown. E. The percentages of CD4⁺IL-9⁺ cells and CD8⁺IL-9⁺ cells in spleens and livers are shown. F. The percentages of CD27⁺ and KLRG1⁺ CD3⁺ T cells in spleens and livers are shown. G. The percentages of CD107a⁺, Granzyme B⁺ and Perforin⁺ CD3⁺ T cells in spleens and livers are shown. H. The percentages of NK cells in spleens and livers are shown. I. The percentages of NKG2D⁺ NK cells in spleens and livers are shown. J. The percentages of IFN- γ ⁺ and TNF- α ⁺ NK cells in spleens and livers are shown. K. The percentage of CD107a, Granzyme B and Perforin of NK cells in spleens and livers is shown. L. The percentages of Foxp3⁺ Treg cells in spleens and livers are shown. M. The percentages of CD11b⁺ myeloid cells in spleens and livers are shown. Data are representatives of at least three independent experiments. Values are presented as means \pm SD. **, $P < 0.01$, ***, $P < 0.001$ analyzed by two-tailed unpaired Student t test.

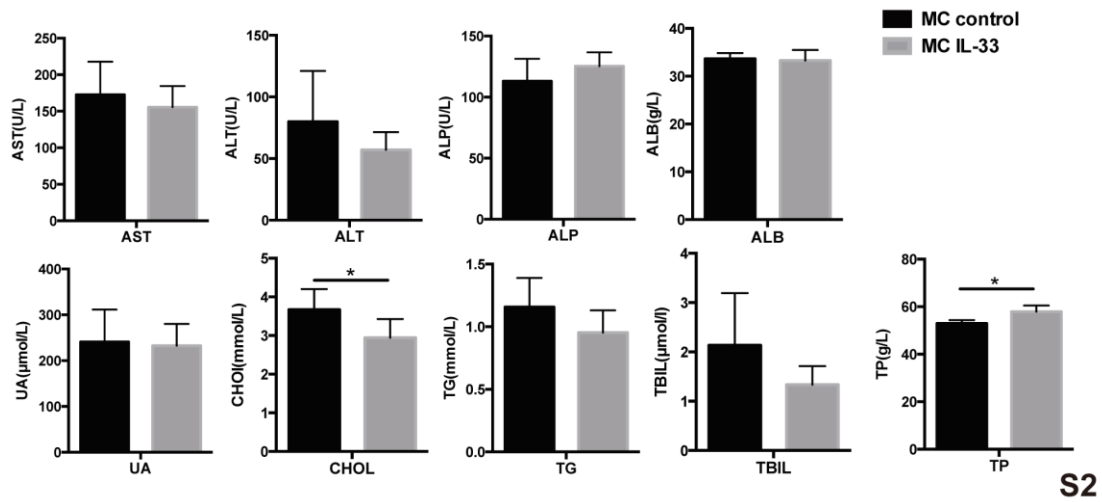
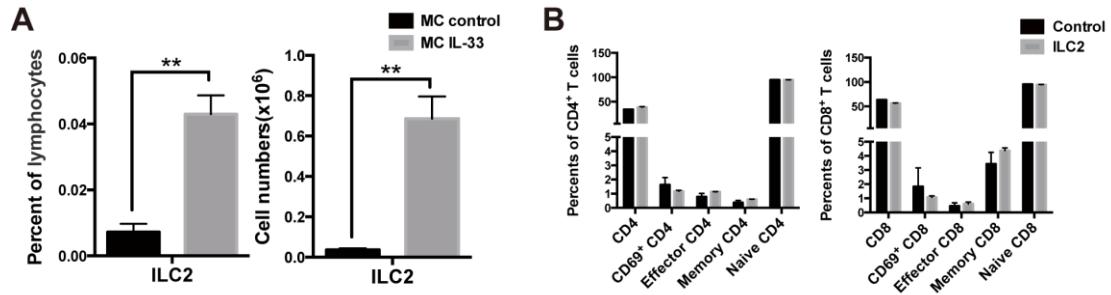


Figure S2. Serum was collected 7 days after tumor injection from tumor-bearing mice of the orthotopic hepatocellular carcinoma model. Serum levels of aspartate aminotransferase (AST), alanine aminotransferase (ALT), alkaline phosphatase (ALP), albumin (ALB), uric acid (UA), cholesterol (CHOL), triglyceride (TG), total bilirubin (TBIL), and total protein (TP) were detected by automatic biochemical analyzer. Data are representatives of at least three independent experiments. Values are presented as means \pm SD. *, $P < 0.05$ analyzed by two-tailed unpaired Student t test.



S3

Figure S3: Intrahepatic leukocytes from tumor-bearing mice of the orthotopic hepatocellular carcinoma model were collected 7 days after tumor injection. Intrahepatic leukocytes were used for FACS analysis. A. ILC2s were stained with $\text{lin}^{-}\text{CD127}^{+}\text{c-Kit}^{+}\text{Sca-1}^{+}\text{ST2}^{+}$. Percentages and total numbers of ILC2 are shown. B. $\text{lin}^{-}\text{CD127}^{+}\text{c-Kit}^{+}\text{Sca-1}^{+}\text{ST2}^{+}$ ILC2s (1×10^4) were sorted and cocultured with naïve T cells (1×10^5) in 96-well plate. Subsets and activation of CD4^{+} T cells and CD8^{+} T cells were assessed by flow cytometry 48 hours after culture. Values are presented as means \pm SD. **, $P < 0.01$ analyzed by two-tailed unpaired Student t test.