

Supplemental Table 1. *AST and creatinine are not altered by CAR T cell injection*

Tumor	Treatment	Day <sup>‡</sup>	10 <sup>7</sup> T cells				5 x 10 <sup>6</sup> T cells			
			AST <sup>§</sup>	±SD	CREA <sup>  </sup>	±SD	AST <sup>§</sup>	±SD	CREA <sup>  </sup>	±SD
<b>RMA-RG</b>	<b>wt*</b>	8	54.0	5.3	0.3	0.1	58.0	11.6	0.3	0.1
	<b>wt*</b>	12	97.1	35.1	0.4	0.1	111.6	55.1	0.3	0.1
	<b>ch<sup>†</sup></b>	8	71.7*	22.9	0.3	0.1	77.0*	32.5	0.3	0.1
	<b>ch<sup>†</sup></b>	12	88.6	37.7	0.4	0.1	85.9	27.2	0.4	0.1
	<b>HBSS</b>	8	67.0*	12.0	0.3	0.1	66.2	7.9	0.3	0.1
	<b>HBSS</b>	12	70.0	18.0	0.3	0.1	87.9	33.3	0.3	0.1
<b>No Tumor</b>	<b>wt*</b>	3	74.8	14.2	0.3	0.1	95.1	45.3	0.4	0.1
	<b>wt*</b>	8	62.8	8.2	0.3	0.1	83.0	34.8	0.3	0.1
	<b>ch<sup>†</sup></b>	3	68.0	10.3	0.4	0.1	95.2	42.0	0.3	0.1
	<b>ch<sup>†</sup></b>	8	64.8	11.0	0.4	0.1	68.8	9.9	0.2	0.1
	<b>HBSS</b>	3	79.6	19.6	0.4	0.1	67.5	6.9	0.3	0.1
	<b>HBSS</b>	8	67.2	19.6	0.4	0.1	83.1	31.2	0.3	0.1

\* wt= wild type NKG2D T cells, † ch= NKG2D CAR T cells

‡ Day= Day sample was collected after RMA-RG tumor injection (T cells given on day 5), and day sample was collected after T cell injection in mice without tumors.

§ Values reported as U/L

|| Values reported as mg/dL

ANOVA compared to wt at the same day and dose, \* p<0.05

Supplemental Table 2. Serum cytokines are not changed 3 to 12 days after CAR T cell injection.

Tumor	Treatment	Day <sup>‡</sup>	10 <sup>7</sup> T cells						5 x 10 <sup>6</sup> T cells									
			IL-6 <sup>§</sup>	±SD	IFN-γ <sup>§</sup>	±SD	MCP-1 <sup>§</sup>	±SD	TNF-α <sup>§</sup>	±SD	IL-6 <sup>§</sup>	±SD	IFN-γ <sup>§</sup>	±SD	MCP-1 <sup>§</sup>	±SD	TNF-α <sup>§</sup>	±SD
<b>RMA-RG</b>	<b>wt*</b>	8	2.6	1.5	4.2	2.9	167.5	41.8	15.2	7.3	2.0	1.1	3.0	3.2	162.8	49.0	27.0	11.6
	<b>wt*</b>	12	2.7	0.9	2.4	3.1	451.5*	219.8	9.7	11.3	2.9	1.4	0.9	1.3	239.7	101.3	10.8	11.3
	<b>ch<sup>†</sup></b>	8	8.4	9.1	3.2	3.4	177.8	86.0	19.3	10.7	4.2	7.0	3.1	3.2	200.3	121.8	26.2	14.4
	<b>ch<sup>†</sup></b>	12	5.5	7.4	0.4	0.8	277.2	145.0	9.5	9.3	2.8	2.1	1.9	1.7	169.7	89.2	14.4	11.4
	<b>HBSS</b>	8									5.4	6.7	3.0	3.9	197.4	119.1	19.1	11.1
	<b>HBSS</b>	12									4.9	5.4	1.0	1.8	201.4	112.3	10.6	12.6
<b>No Tumor</b>	<b>wt*</b>	3	3.5	5.2	1.6	2.5	143.2	100.6	15.3	11.7	2.7	1.4	1.0	2.1	95.5	50.4	56.1	87.7
	<b>wt*</b>	8	2.8	1.7	0.9	2.0	161.5	80.8	34.2	42.6	2.8	1.3	0.7	1.9	154.8	41.4	49.4	54.3
	<b>ch<sup>†</sup></b>	3	2.1	1.4	2.8	4.3	149.0	39.4	11.8	20.7	3.3	3.7	1.7	3.3	104.1	41.2	36.5	72.4
	<b>ch<sup>†</sup></b>	8	2.8	2.0	1.3	2.6	143.9	40.1	17.5	16.2	5.3	6.3	0.9	0.0	268.2	200.0	25.3	15.8
	<b>HBSS</b>	3									2.5	1.7	2.5	4.4	168.3	43.7	12.5	15.4
	<b>HBSS</b>	8									4.4	7.1	2.1	2.9	182.9	160.7	17.6	14.6

\* wt= wild type NKG2D T cells, † ch= NKG2D CAR T cells

‡ Day= Day sample was collected after T cell injection

§ Values reported as pg/mL

ANOVA compared to HBSS at the same day and dose, \* p<0.05

Table 3 *Histological analysis of tissues harvested after a dose of  $2 \times 10^7$  CAR T cells.*

Tissue/diagnosis		RMA-RG tumor bearing mice						Non tumor bearing mice							
		WT NKG2D T cells		NKG2D CAR T cells		HBSS		WT NKG2D T cells			NKG2D CAR T cells			HBSS	
		expt 1	expt 2	expt 1	expt 2	expt 1	expt 2	expt 1	expt 2	expt 3	expt 1	expt 2	expt 3	expt 1	expt 2
<b>Heart</b>	normal	4/4	5/5	5/5	5/5	5/5	4/4	5/5	5/5	6/6	5/5	5/5	6/6	5/5	4/5
<b>Kidney</b>	normal	4/4	5/5	5/5	5/5	5/5	4/4	5/5	5/5	6/6	5/5	5/5	6/6	5/5	4/5
	tumor, undifferentiated round cell														
<b>Liver</b>	normal	3/5		4/5	4/4	2/5	3/5	4/5	3/5	5/6	4/5	5/5	6/6	2/5	2/5
	infiltration, mixed cell	2/5	5/5	1/5			2/5		2/5	1/6	1/5			3/5	2/5
	depletion, glycogen					3/5									
<b>Lung</b>	Normal	5/5	5/5	5/5	3/5	5/5	5/5	5/5	5/5	6/6	5/5	5/5	6/6	5/5	3/5
	infiltration, neutrophilic, alveolar wall				2/5										
	Hemorrhage, alveolar														1/5
<b>Large intestine</b>	normal	5/5	5/5	5/5	3/3	5/5	5/5	5/5	5/5	6/6	5/5	5/5	6/6	5/5	4/5
<b>Small intestine</b>	normal	4/4	5/5	4/4	5/5	5/5	4/4	5/5	5/5	6/6	5/5	5/5	6/6	5/5	4/5
<b>Pancreas</b>	normal	4/5	5/5	4/5	4/5	5/5	4/5	5/5	5/5	6/6	4/5	5/5	6/6	5/5	4/5
	Few/no islets in section	1/5		1/5	1/5		1/5				1/5				
<b>Spleen</b>	normal	5/5	5/5	4/5		5/5	5/5	5/5	5/5			5/5	6/6	5/5	4/5
	necrosis, single cell; white pulp			1/5	5/5					6/6	5/5				
	hematopoietic activity, increased														
	tumor, undifferentiated round cell														

note: pathology was scored mild (1), but 2 single cell necrosis, spleen were scored moderate in expt 2.

Table 4 *Histological analysis of tissues harvested after three doses 10<sup>7</sup> CAR T cells.*

Tissue/diagnosis		RMA-RG tumor bearing mice						Non tumor bearing mice					
		WT NKG2D T cells		NKG2D CAR T cells		HBSS		WT NKG2D T cells		NKG2D CAR T cells		HBSS	
		expt 1	expt 2	expt 1	expt 2	expt 1	expt 2	expt 1	expt 2	expt 1	expt 2	expt 1	expt 2
<b>Heart</b>	normal	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
<b>Kidney</b>	normal	3/5	5/5	3/5	3/5	5/5	2/5	5/5	5/5	5/5	5/5	5/5	5/5
	tumor, undifferentiated round cell						3/5						
<b>Liver</b>	normal			2/5	1/5	1/5		4/5	4/5	4/5	2/5	3/5	5/5
	infiltration, mixed cell	2/5	2/5			2/5	1/5	1/5	1/5	1/5	3/5	2/5	
	tumor, undifferentiated round cell	3/5	5/5	3/5	4/5	3/5	4/5						
<b>Lung</b>	Normal	5/5	3/5	2/5		4/5	5/5	4/5	5/5	5/5	4/5	5/5	4/4
	Hemorrhage, alveolar							1/5			1/5		
	tumor, undifferentiated round cell		2/5	3/5	5/5	1/5							
<b>Large intestine</b>	normal	5/5	5/5	5/5	5/5	5/5	5/5	4/4	5/5	5/5	5/5	5/5	5/5
<b>Small intestine</b>	normal	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
<b>Pancreas</b>	normal	5/5	5/5	5/5	3/5	5/5	4/5	5/5	5/5	5/5	5/5	5/5	5/5
	Depletion, Zymogen granules				2/5		1/5						
<b>Spleen</b>	normal	5/5	5/5		2/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5	5/5
	necrosis, single cell; white pulp			1/5	2/5								
	hematopoietic activity, increased			3/5									
	tumor, undifferentiated round cell			2/5	1/5								