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Supplemental Information

**An Immune System-Modified Rat Model for Human Stem Cell
Transplantation Research**

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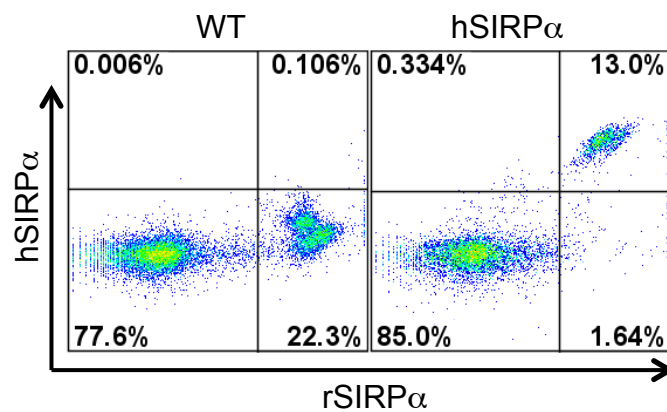


Figure S1. Characterization of *hSIRPα*⁺ transgenic rats. Related to Figure 1. *hSIRPα* and *rSIRPα* were co-expressed on the leukocytes of *hSIRPα*⁺ transgenic rats.

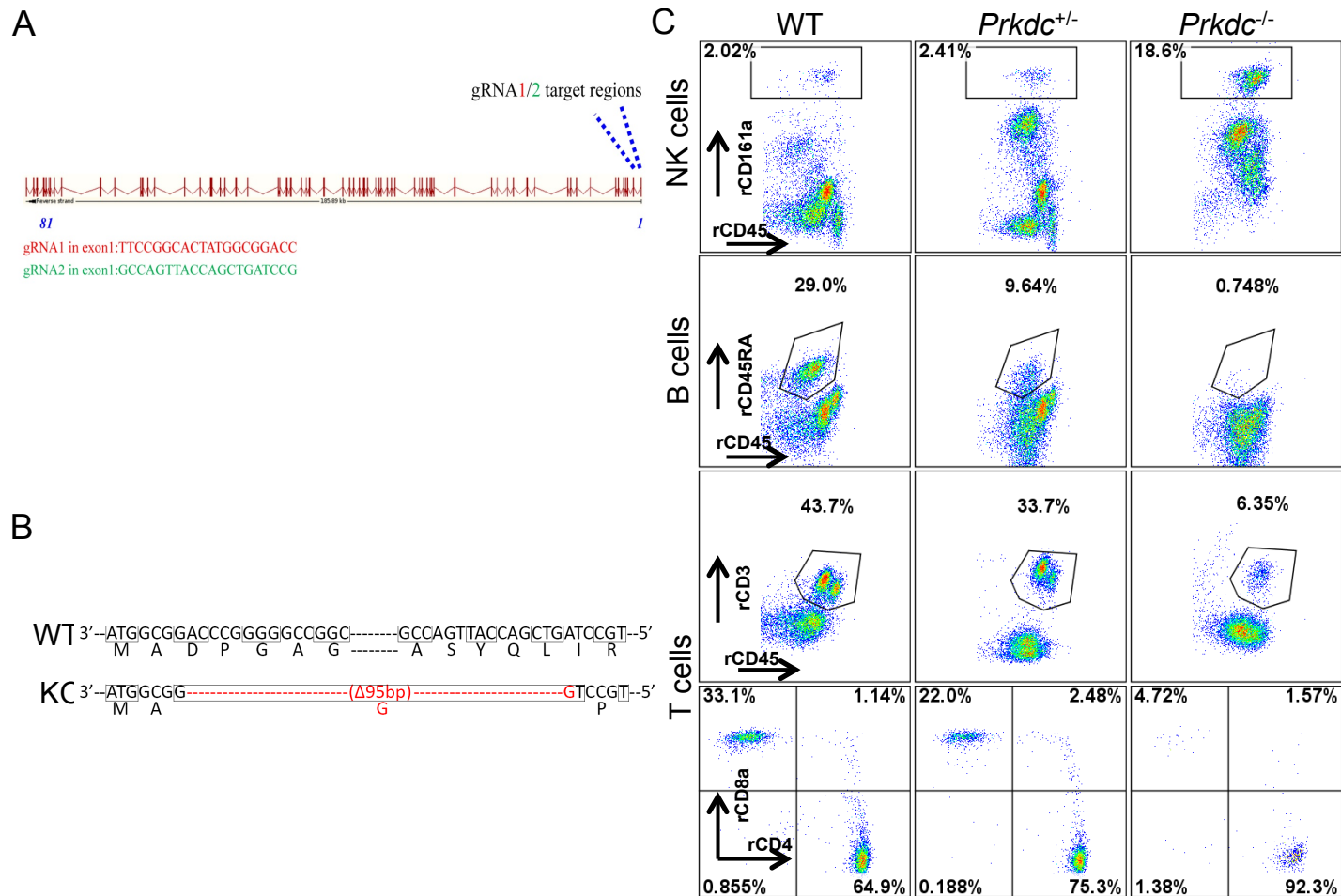


Figure S2. Generation and characterization of *Prkdc*^{-/-} rats. Related Figure 1. (A) The genomic locus of the rat *Prkdc* gene and the locations of gRNA are indicated. (B) The sequence of the disrupted *Prkdc* gene is shown. (C) The development of B cells and T cells are defective in *Prkdc*^{-/-} rats. PBMCs of WT, *Prkdc*^{+/-}, and *Prkdc*^{-/-} rats were analyzed by flow cytometry for B cells, T cells and NK cells.

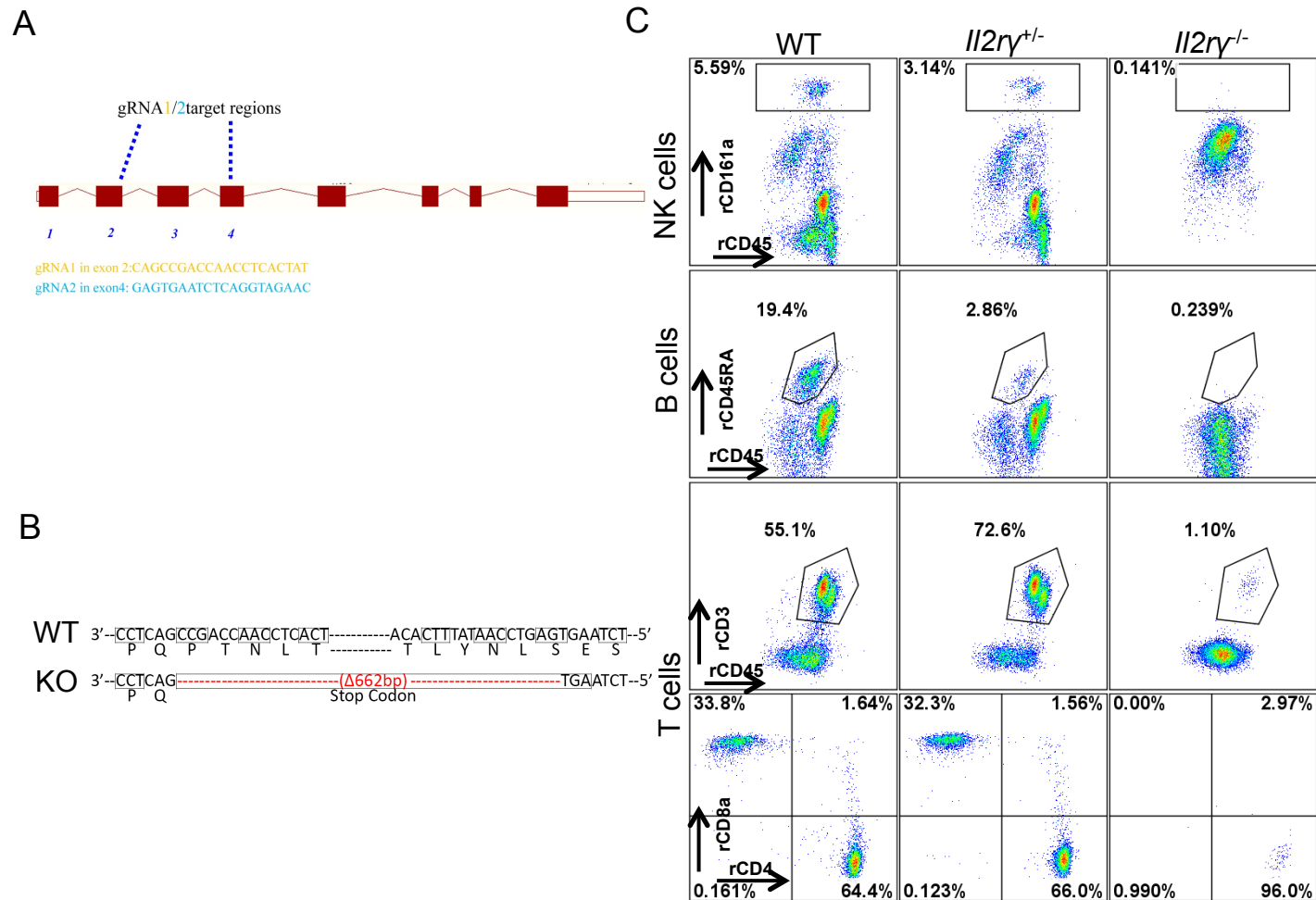


Figure S3. Generation and characterization of *Il2ry*^{-/-} Rats. Related to Figure 1. (A) The genomic locus of rat *Il2ry* gene and locations of gRNA are indicated. (B) The sequence of the disrupted *Il2ry* gene is shown. (C) The development of NK cells, B cells and T cells are defective in *Il2ry*^{-/-} rats. PBMCs of WT, *Il2ry*^{+/-}, and *Il2ry*^{-/-} rats were analyzed by flow cytometry for B cells, T cells and NK cells.

Cell origin	PBMC			Spleen			Bone Marrow		
Surface marker (%)	CD45/Total	CD3/CD45	CD19/CD45	CD45/Total	CD3/CD45	CD19/CD45	CD45/Total	CD3/CD45	CD19/CD45
Rat#1	6.00	95.50	0.00	2.70	98.10	1.30	4.30	86.30	0.80
Rat#2	7.89	2.49	11.10	17.40	10.40	24.30	24.40	1.54	46.90
Rat#3	62.60	92.90	0.20	58.60	90.20	0.60	71.60	94.70	0.40
Rat#4	0.05	0.00	0.00	4.79	47.40	48.70	0.94	27.60	47.10
Rat#5	0.60	11.10	0.00	4.10	31.10	5.70	16.40	3.20	13.00
Rat#6	25.30	30.10	2.58	N/A	N/A	N/A	43.80	66.10	8.11

Figure S4. The percentage of immune cells in NSGL rats reconstituted with human CD34⁺ fetal liver cells and fetal thymus. Related to Figure 4. The spleen sample of reconstituted Rat #6 was lost during processing.