

Supplementary Table 1

Target	Direction	Sequence 5'-3'
Psi	Forward	CAGGACTCGGCTTGCTGAAG
Psi	Reverse	TCCCCGCTTAATACTGACG
Psi	Probe	[FAM]-CGCACGGCAAGAGGCGAGG
Alb	Forward	GCTGTCATCTCTTGTTGGGCTG
Alb	Reverse	ACTCATGGGAGCTGCTGGTTC
Alb	Probe	[VIC]-CCTGTCATGCCCACACAAATCTCTCC

Supplementary Table 1. Sequences of primers and probes used to determine the Vector Copy Number. Psi = packaging sequence of the provirus, Alb = human albumin gene, used as normalizer.

Supplementary Table 2

Grade	Weight Loss	Diarrhea	Posture	Activity	Fur Texture	Skin Integrity
0	< 10%	No	Normal	Normal	Normal	Normal
1	> 10% to < 25%	Yes	Hunching at rest	Mild to moderate decrease	Mild to moderate rufflings	Scaling of paw and tails
2	> 25%	Yes	Severely hunching	Severe decrease	Severe rufflings	Obviously denuded

Supplementary Table 2. GvHD clinical signs scoring parameters. GvHD score was established using a grading scale of 0 (non-GvHD) to 2 (severe GVHD) for each parameter listed in the table. Total GvHD grade of each mouse was the sum of degrees obtained in each parameter.

Supplementary Table 3

Human Hematopoietic Lineage Characterization					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Human	APC	BioLegend	368518	HI30
CD3	Human	PE-Cy5	BioLegend	300410	UCHT1
CD19	Human	PE	Beckman Coulter	IM1285U	J4.119
CD14	Human	BV711	BioLegend	301838	M5E2
CD15	Human	PE-Cy7	BD Bioscience	560827	HI98
CD56	Human	APC-Cy7	BioLegend	318332	HDC56

Human T cell Characterization					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Human	BV711	BioLegend	304050	HI31
CD3	Human	PE-Cy7	BioLegend	300420	UCHT1
CD4	Human	PE-Cy5	BioLegend	317412	OKT4
CD8	Human	PE	BioLegend	344706	B9.11
CD45RA	Human	APC-FIRE	BioLegend	304151	HI100
CD27	Human	PerCP-Cy5.5	BioLegend	393210	QA17A18
CD62L	Human	FITC	Beckman Coulter	IM1231	Dreg 56

Supplementary Table 3. Monoclonal antibodies used for the characterization of the human hematopoietic lineage and human T cell population in peripheral blood and spleen of NSG mice.

Supplementary Table 4

Human T cell activation markers					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Human	BV711	BioLegend	304050	HI31
CD3	Human	APC-Cy7	BioLegend	100222	17A2
CD4	Human	APC	Miltenyi Biotec	130-091-232	MT466
CD8	Human	PE	BioLegend	344706	B9.11
CD69	Human	PE-Cy7	BD Bioscience	335792	L78
CD25	Human	PE-Cy5	BD Bioscience	555433	M-A252
HLA-DR	Human	FITC	BD Bioscience	555558	TÜ39
CD45	Human	BV711	BioLegend	304050	HI31
CD3	Human	FITC	Inmunotech	A07746	UCHT1
CD4	Human	PE-Cy5	BioLegend	317412	OKT4
CD8	Human	PE	BioLegend	344706	B9.11
4-IBB (CD137)	Human	APC	BioLegend	309809	4B4-1
ICOS (CD278)	Human	PerCP-Cy5.5	BioLegend	313518	C398.4A

Human T cell exhaustion markers					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Human	BV711	BioLegend	304050	HI31
CD3	Human	FITC	Inmunotech	A07746	UCHT1
CD4	Human	PE-Cy5	BioLegend	317412	OKT4
CD8	Human	PE	BioLegend	344706	B9.11
CTLA4 (CD152)	Human	APC	BioLegend	349908	L3D10
PD1 (CD279)	Human	PerCP-Cy5.5	BioLegend	329913	EH12.2H 7
TIGIT	Human	PE-Cy7	BioLegend	372713	A15153G
TIM3 (CD366)	Human	APC-Cy7	BioLegend	345025	F38-2E2

Supplementary Table 4. Monoclonal antibodies used for the analysis of human T cell activation and exhaustion markers in peripheral blood and spleen of NSG mice.

Supplementary Table 5

Human T cell polarization					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Humano	APC-Cy7	BioLegend	304014	HI30
CD3	Humano	FITC	Inmunotech	A07746	UCHT1
IFN γ	Humano	PE-Cy7	BD Bioscience	557643	4SB3
CD45	Humano	APC-Cy7	BioLegend	304014	HI30
CD3	Humano	FITC	Inmunotech	A07746	UCHT1
IL10	Humano	PE-Cy7	BioLegend	557643	JES3-9D7

Human B cell characterization					
Antigen	Reactivity	Fluorophore	Vendor	Catalog	Clone
CD45	Humano	BV711	BioLegend	304050	HI31
CD19	Humano	PE-Cy5	BioLegend	302210	HIB19
CD27	Humano	PerCP-Cy5.5	BioLegend	393210	QA17A18
CD24	Humano	PE	BD Bioscience	302210	ML5
CD38	Humano	FITC	BD Bioscience	555459	HIT2
IL10	Humano	PE-Cy7	BioLegend	557643	JES3-9D7

Supplementary Table 5. Surface and intracellular monoclonal antibodies used for the analysis of human T cell polarization and human B cell characterization in the spleen of NSG mice.

Supplementary Table 6

Primary Antibodies					
Antigen	Reactivity	Vendor	Catalog	Clone	Dilution
CD3	Human in rabbit	Dako Agilent	GA503	Policlonal	-
CD8	Human in mouse	Dako Agilent	M7103	C8/144B	1:50
Secondary Antibodies					
Rabbit IgG	Rabbit in donkey	Jackson	715-065-151	-	1:1000
Mouse IgG	Mouse in donkey	Jackson	711-065-152	-	1:1000

Supplementary Table 6. Primary and secondary antibodies used in immunohistochemistry performed on skin, small intestine, lungs and liver, typical GvHD target organs.