Supplemental methods

B cell panel

Fluorochrome	Target	Clone	Dilution
BV421	CD3	SK7	1:100
PerCyP-Cy5.5	CD19	HIB198	1:100
APC-H7	CD20	2H7	1:100
PE	CD24	ML5	1:50
Pe-Cy7	CD27	M-T271	1:100
APC	CD38	HIT2	1:100
FITC	IgM	G20-127	1:100
BV510	IgD	IA6-2	1:100

T/NK cell panel

BV421	CD3	SK7	1:100
PerCyP-Cy5.5	CD4	RTA-T4	1:100
APC-H7	CD8	SK1	1:100
APC	CD56	B159	1:50
Pe-Cy7	CD45RA	HI100	1:100
PE	CD62L	DREG-56	1:100
FITC	CD45RO	UCHL1	1:100
APC-R700	CD28	CD28.2	1:100
BV510	CD31	WM59	1:100

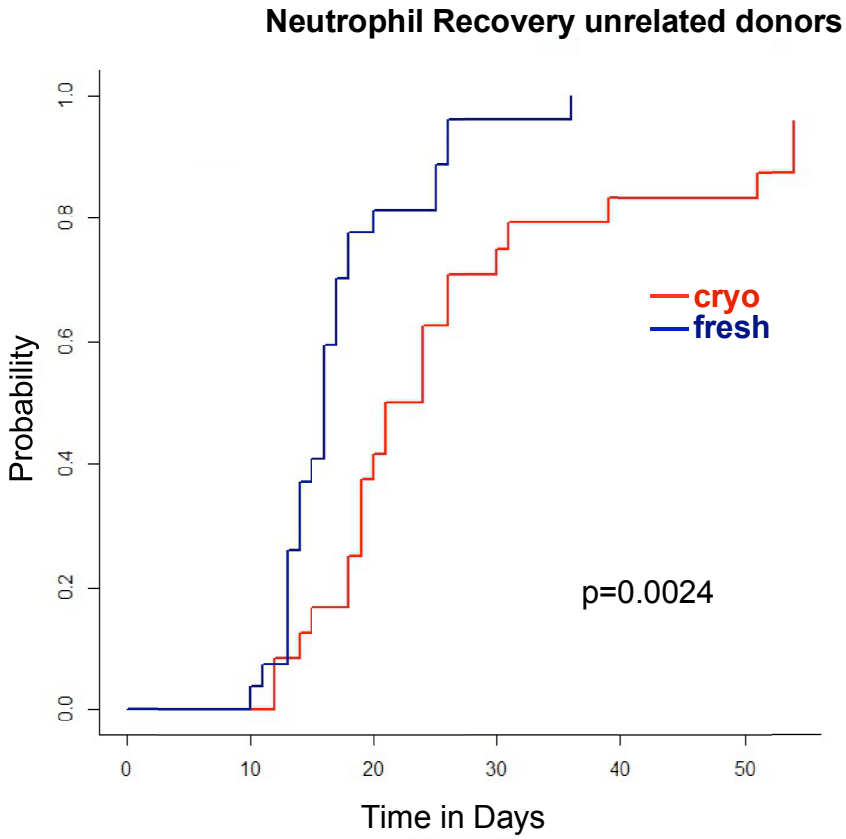
Treg panel

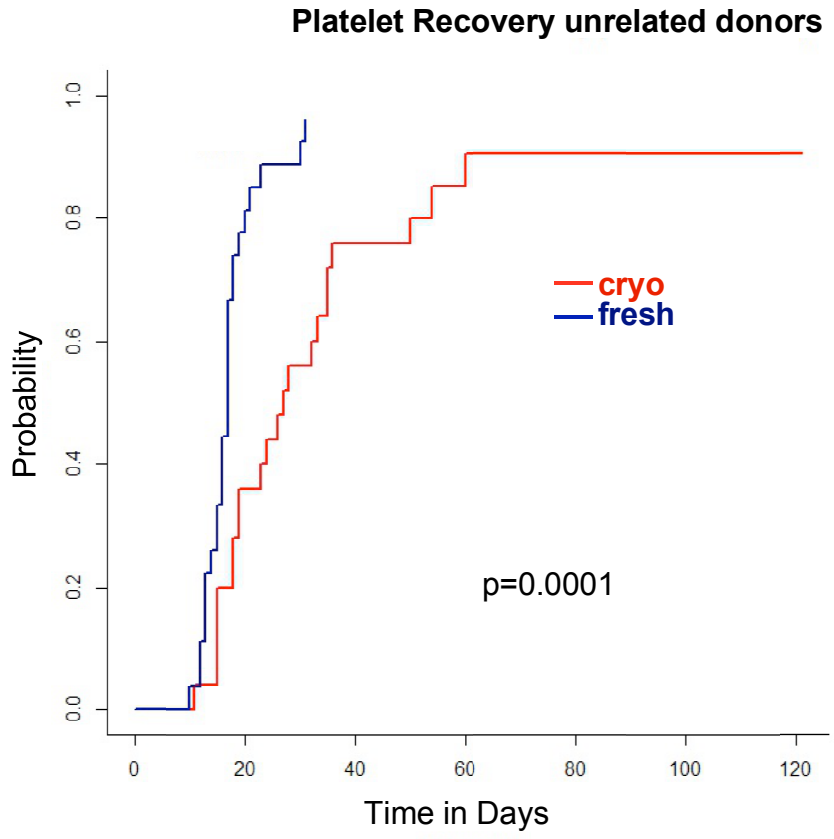
AF488 (FITC)	CD3	SK7	1:100
PerCyP-Cy5.5	Dump (CD14/CD19/CD8)		1:100
AF647 (APC)	LAG3	11C3C65	1:100
AF700	CD4	SK3	1:100
APC-Cy7	CD45RA	HI100	1:100
PE	CD127	A019D5	1:100
PE-Texas Red	CD62L	DREG-56	1:100
PE-Cy7	CD39	A1	1:100
BV421	CD25	BC96	1:100
BV510	Live/dead		1:100
BV605	CCR7	G043H7	1:100

HSPC panel

FITC	CD45RA	HI100	1:100
PE	CD90	PR13	1:10
APC-Cy7	CD123	6H6	1:100
APC	CD34	561	1:100
PE-Cy7	CD38	HIT2	1:100
BV510	CD10	HI10a	1:100
Pac Blue	CD117	104D2	1:100
PerCP-Cy5.5	CD19	HIB19	1:100

Supplemental Figure 1



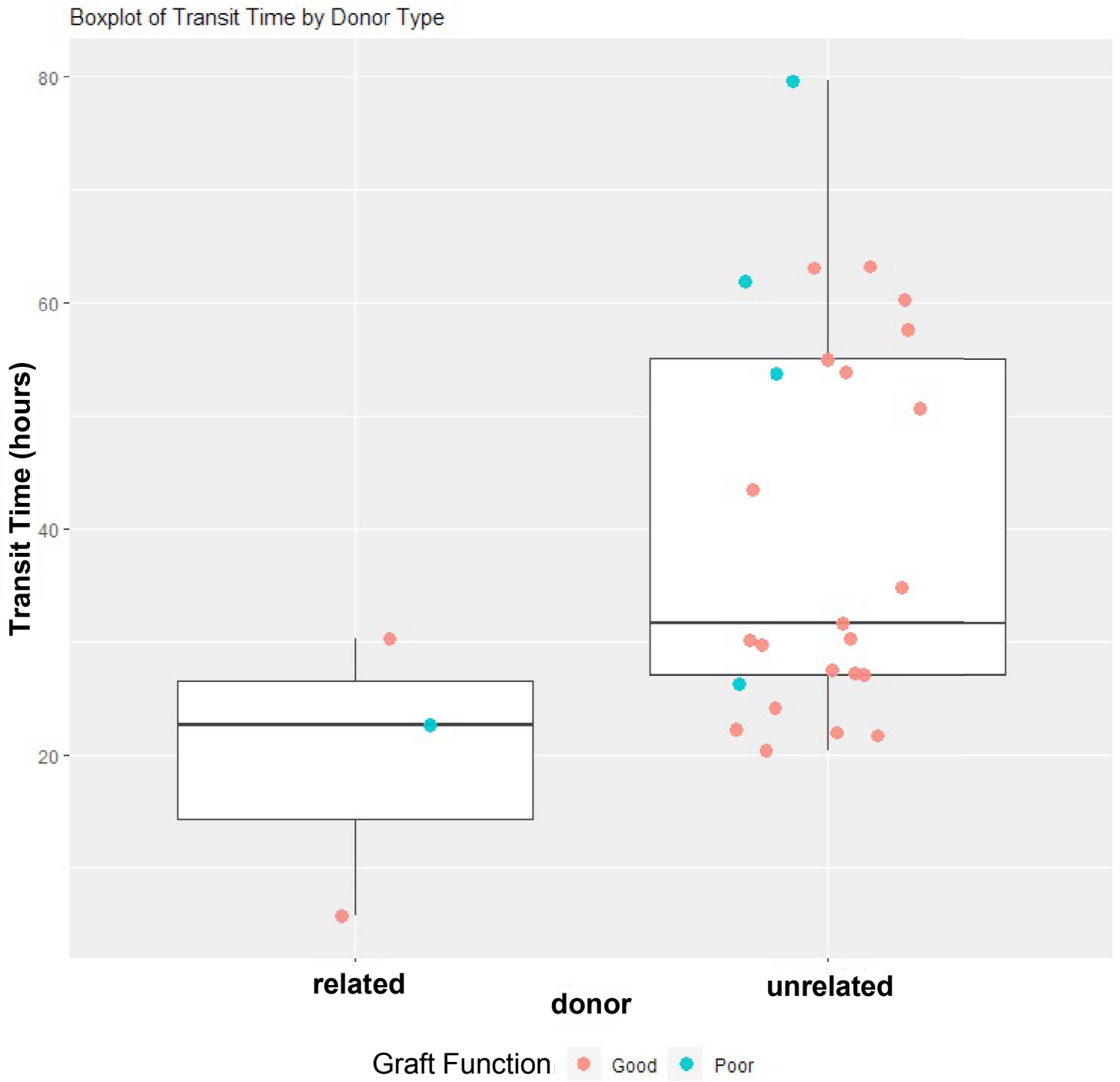


Supplemental Figure 2

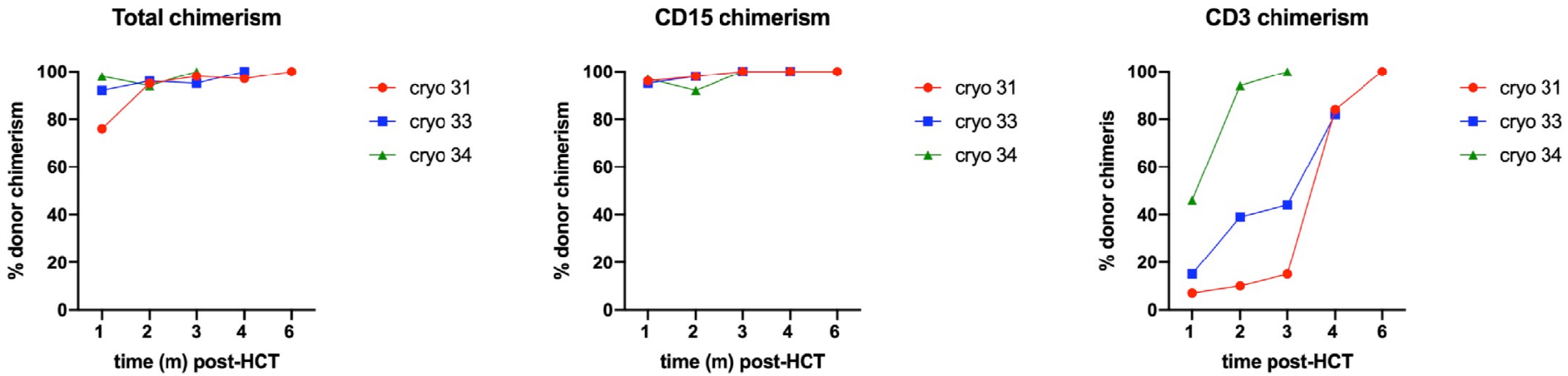
A

Supplemental Figure 2

B

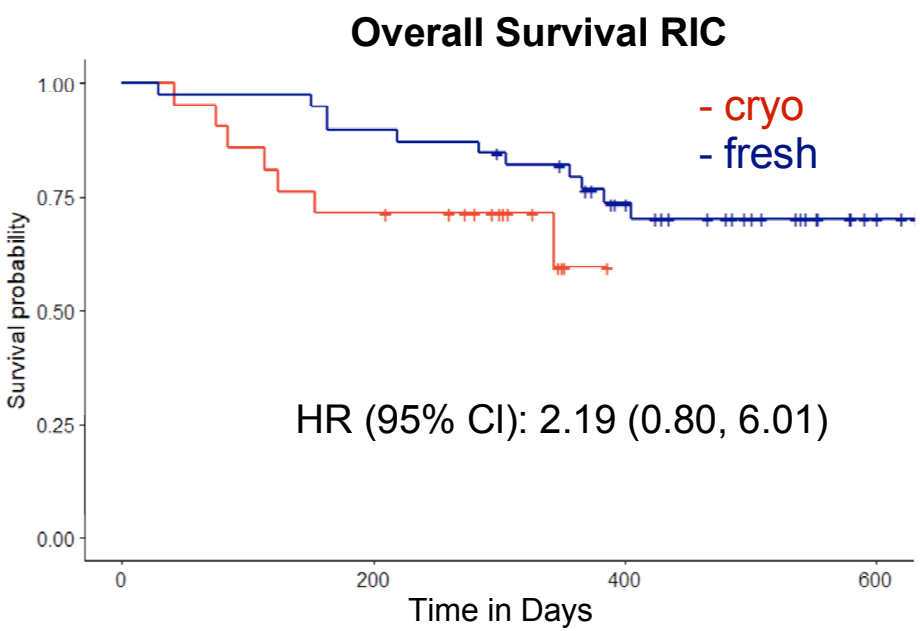


Supplemental Figure 3



Supplemental Figure 4

A



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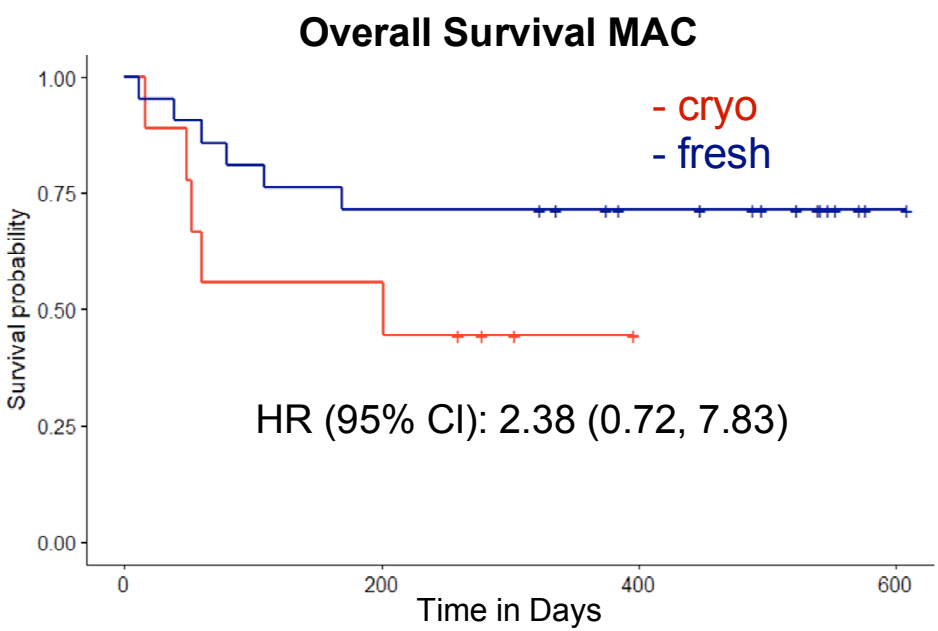
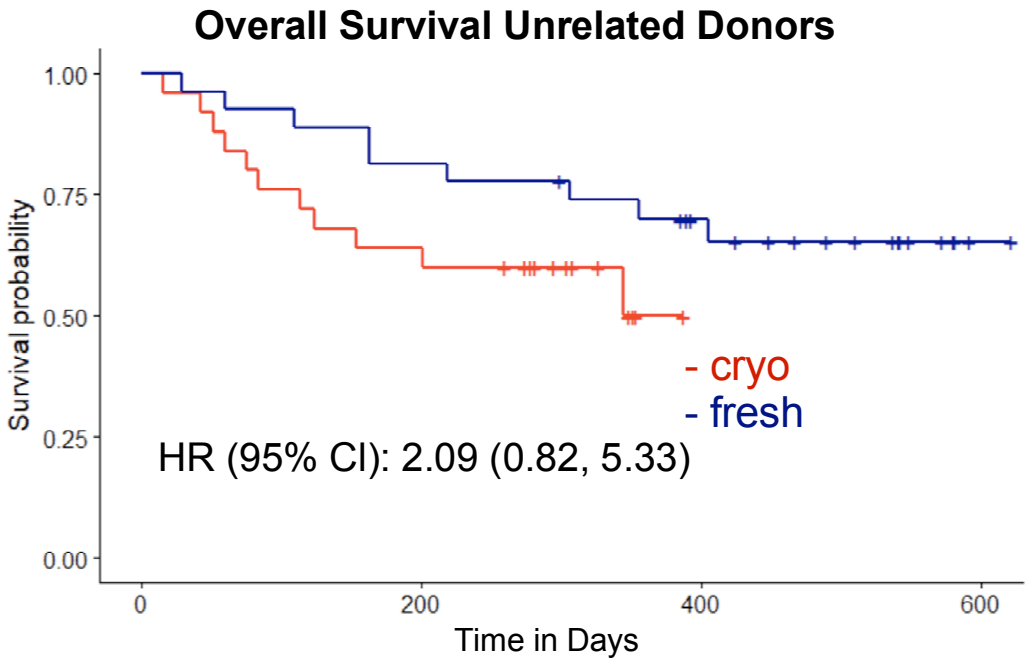
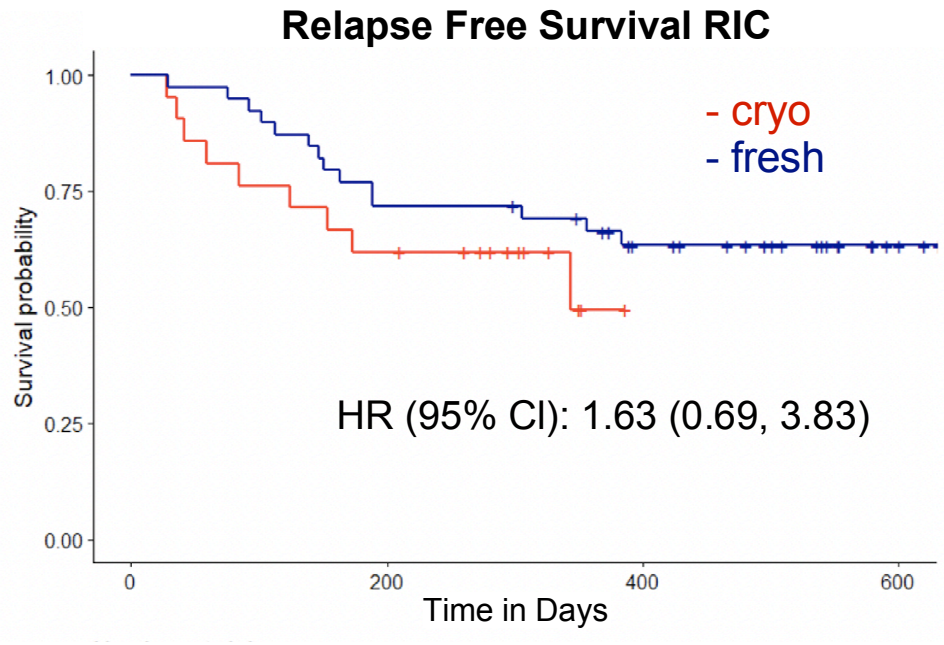


C



Supplemental Figure 5

A



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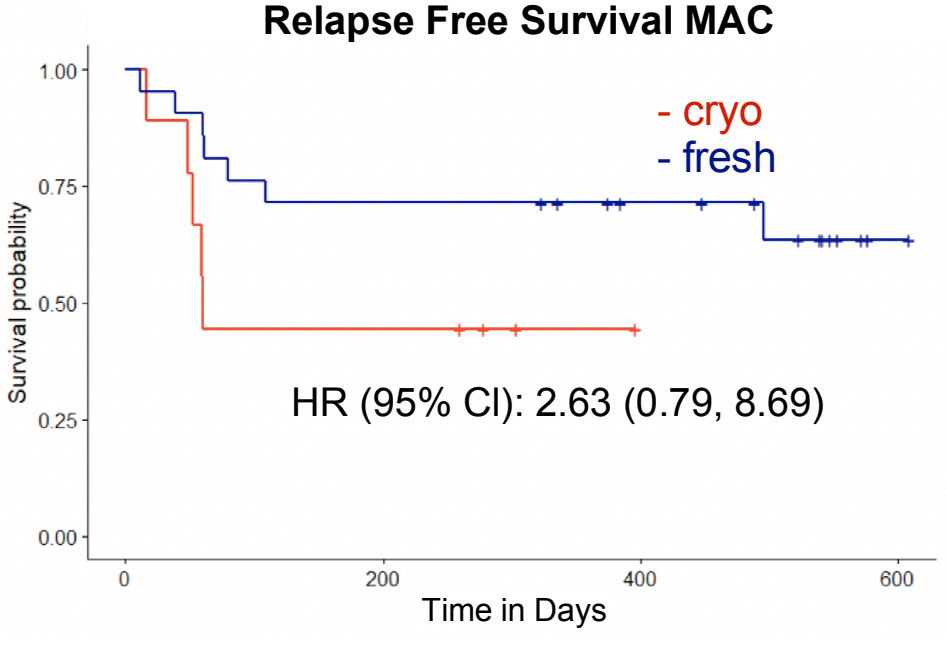
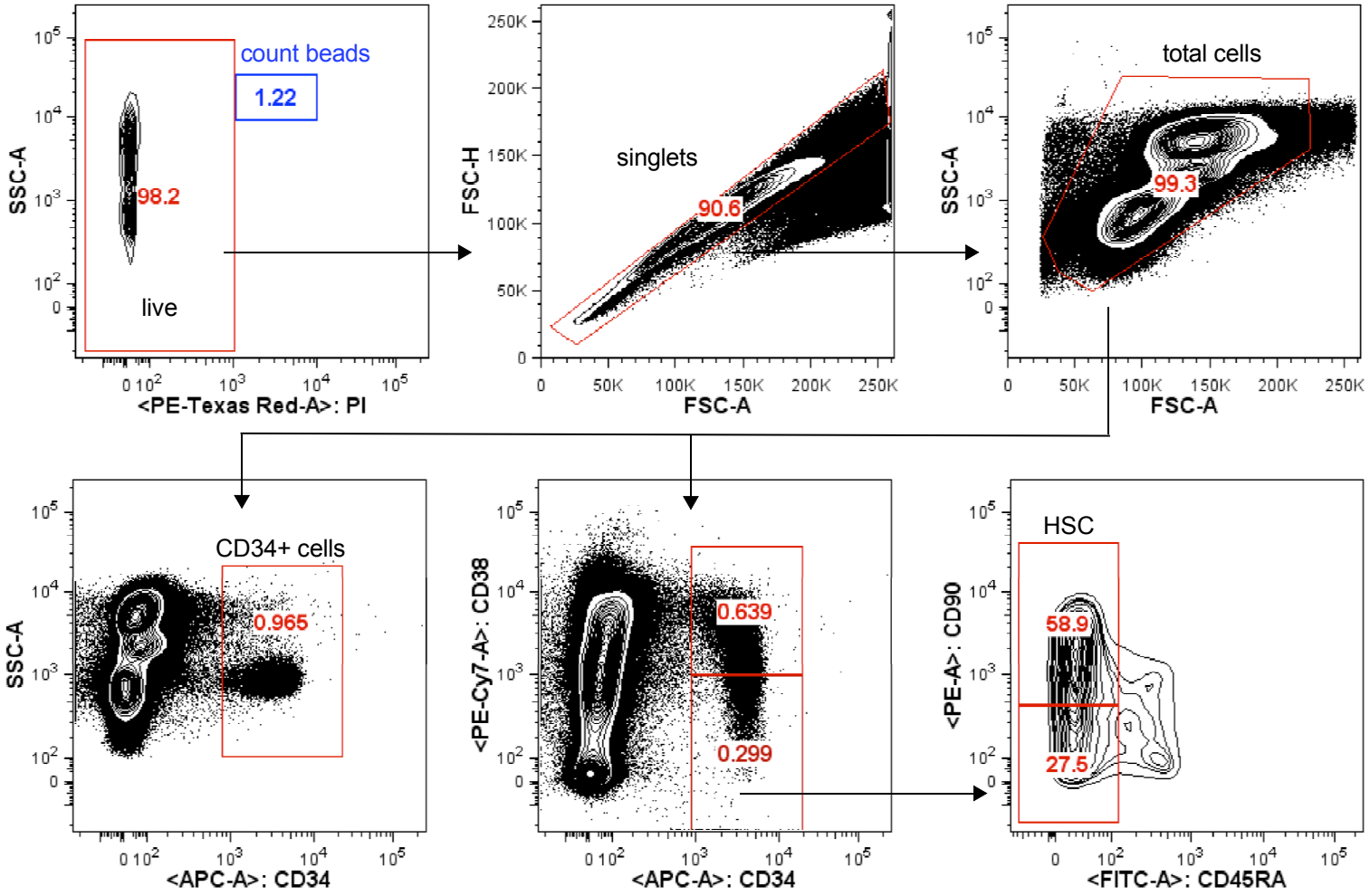
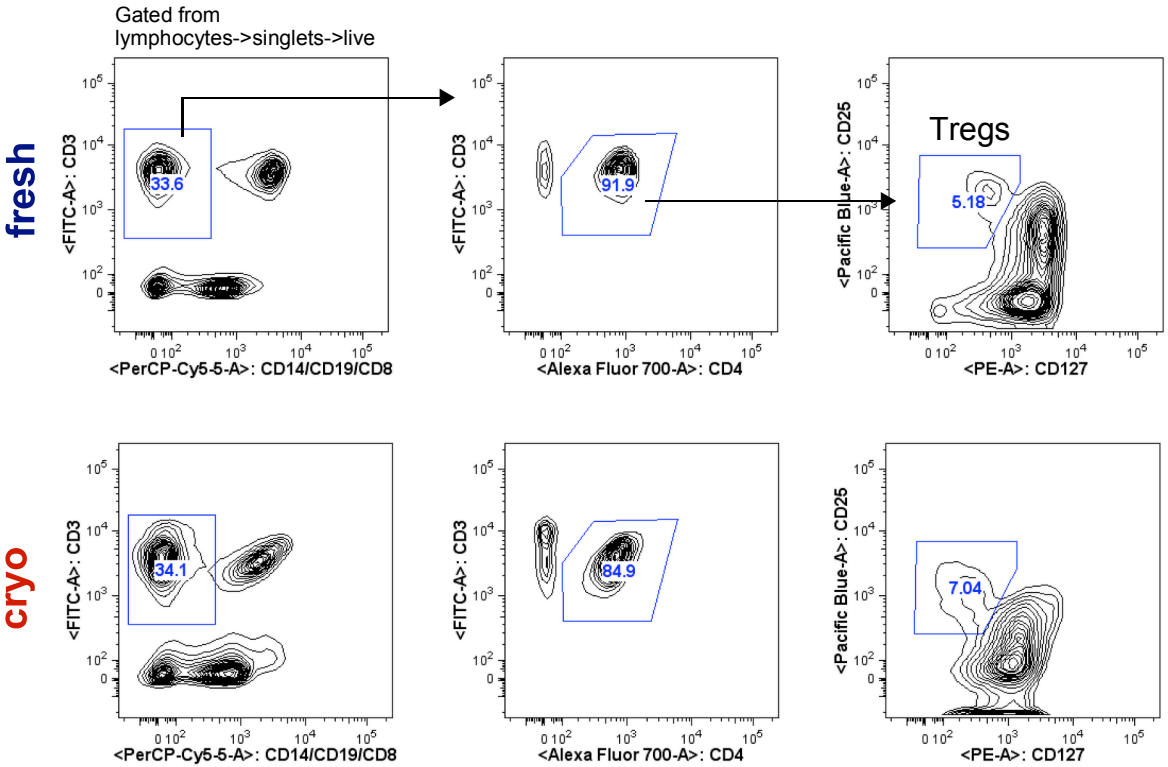


Supplemental Figure 6



Supplemental Figure 7

A



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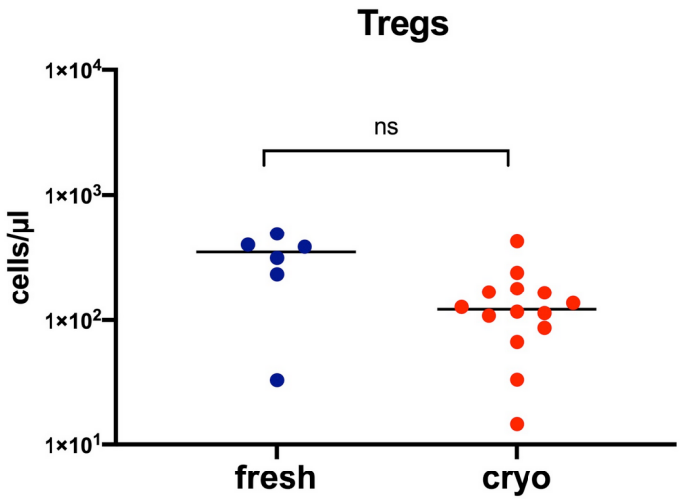

Supplemental Figures

Supplemental Figure 1. Hematopoietic recovery in recipients of cryopreserved versus fresh URD grafts. (A) Neutrophil recovery (B) Platelet recovery.

Supplemental Figure 2. Transit time for cryopreserved grafts. (A) Boxplot of transit time by donor type indicating patients with GF (blue dots) and patients without GF (orange dots). (B) Boxplot of transit time by donor type indicating patients with poor graft function (blue dots) and patients without poor graft function (orange dots).

Supplemental Figure 3. Dynamic of total, myeloid (CD15) and T cell (CD3) donor chimerism at different timepoints post-HCT (1, 2, 3, 4 and 6 months) for 3 patients, who underwent cryopreserved RIC allo-HCT.

Supplemental Figure 4. Kaplan Meier curves in cryopreserved versus fresh allo-HCT recipients. (A) OS in RIC patients. (B) OS in MAC patients. (C) OS in patients with URD grafts.

Supplemental Figure 5. Kaplan Meier curves in cryopreserved versus fresh allo-HCT recipients. (A) RFS in RIC patients. (B) RFS in MAC patients.

Supplemental Figure 6. Representative FACS plots in one apheresis sample from allogeneic donor demonstrating gating strategy to identify viable (live) cells, $CD34^+$ cells and HSC (CD34+CD38-CD90+CD45RA-).

Supplemental Figure 7. (A) Representative flow cytometry plots in one fresh and one cryopreserved apheresis sample from allogeneic donor demonstrating gating strategy for Tregs ($CD3^+CD4^+CD25^+CD127^-$). (B) Absolute counts (cells/µl) of Tregs as assessed by flow cytometry in fresh as compared to cryopreserved apheresis samples.