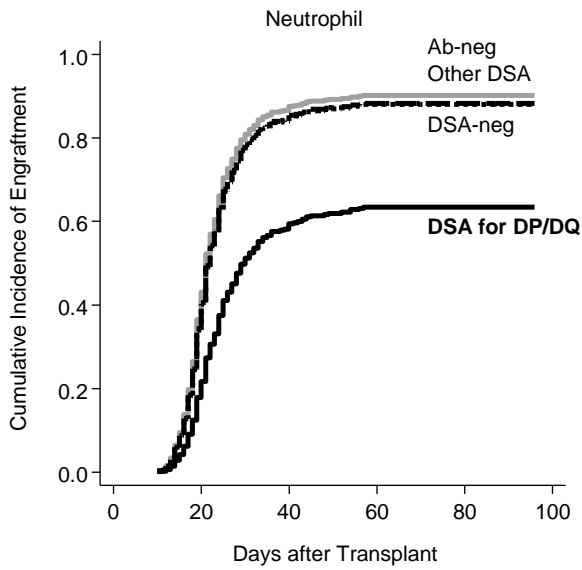


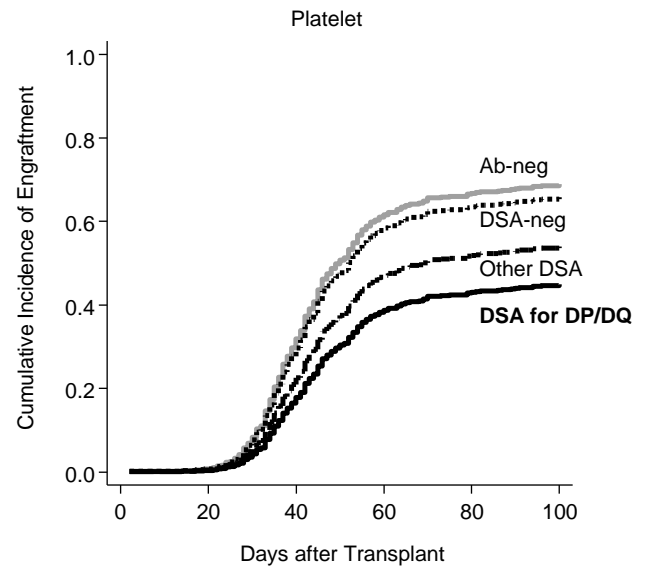
## **Supplemental Information**

### **Adverse effect of donor-specific anti-HLA antibodies directed at HLA-DP/-DQ on engraftment in cord blood transplantation**

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**a**

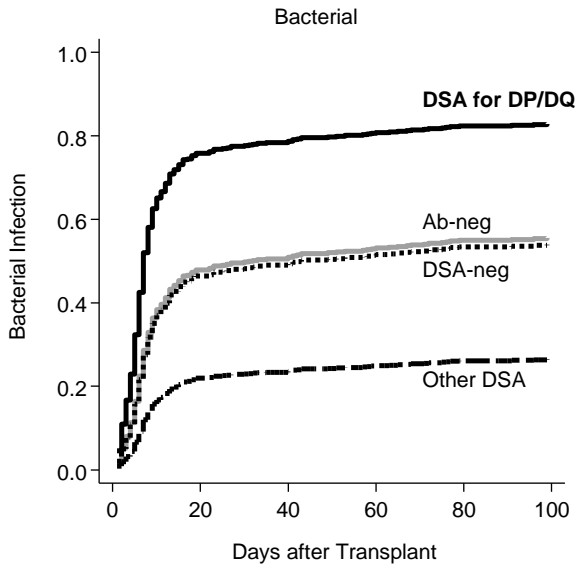
	HR	95% CI	p
Anti-HLA antibody			
Ab-neg		Reference	
DSA-neg	0.912	0.732–1.137	0.416
<b>DSA for DP/DQ</b>	<b>0.434</b>	<b>0.161–1.166</b>	<b>0.098</b>
Other DSA	0.924	0.508–1.681	0.796
TNC infused			
per $1.0 \times 10^7/\text{kg}$	1.201	1.084–1.331	<0.001*

**b**

	HR	95% CI	p
Anti-HLA antibody			
Ab-neg		Reference	
DSA-neg	0.916	0.724–1.158	0.462
<b>DSA for DP/DQ</b>	<b>0.511</b>	<b>0.184–1.420</b>	<b>0.098</b>
Other DSA	0.664	0.289–1.528	0.336
TNC infused			
per $1.0 \times 10^7/\text{kg}$	1.170	1.041–1.317	0.009*

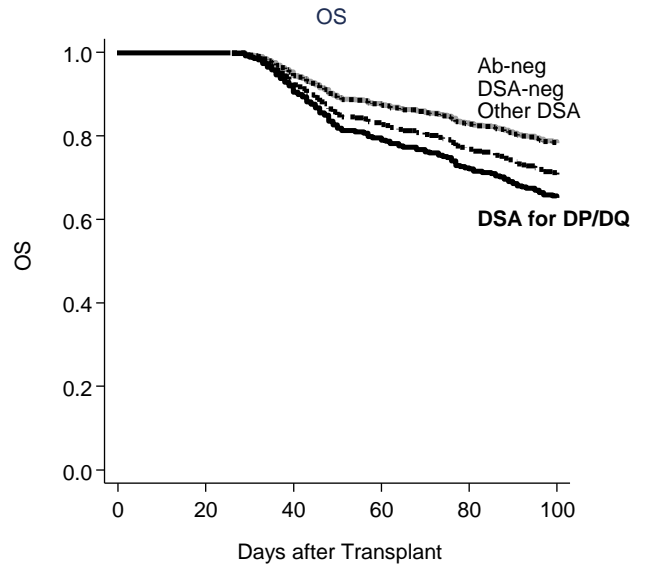
**Supplemental Figure 1. Cumulative incidence of neutrophil and platelet engraftment after adjusting for number of total nucleated cells infused. (a) Neutrophil engraftment stratified according to the presence of DSAs. (b) Platelet engraftment stratified according to the presence of DSAs.**

**a**



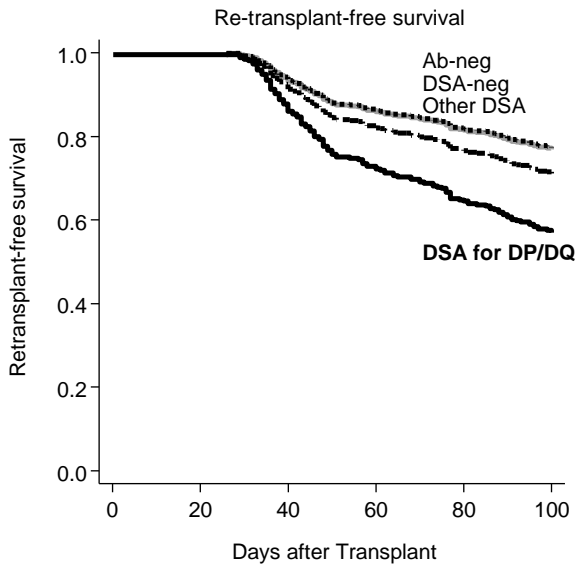
	HR	95% CI	p
Anti-HLA antibody			
Ab-neg		Reference	
DSA-neg	0.956	0.726–1.261	0.752
<b>DSA for DP/DQ</b>	<b>2.177</b>	<b>1.202–3.943</b>	<b>0.010*</b>
Other DSA	0.379	0.128–1.127	0.081
TNC infused			
per $1.0 \times 10^7/\text{kg}$	1.000	0.872–1.147	0.997

**b**



	HR	95% CI	p
Anti-HLA antibody			
Ab-neg		Reference	
DSA-neg	1.011	0.657–1.555	0.962
<b>DSA for DP/DQ</b>	<b>1.751</b>	<b>0.554–5.536</b>	<b>0.340</b>
Other DSA	1.412	0.447–4.464	0.557
TNC infused			
per $1.0 \times 10^7/\text{kg}$	0.844	0.674–1.057	0.140

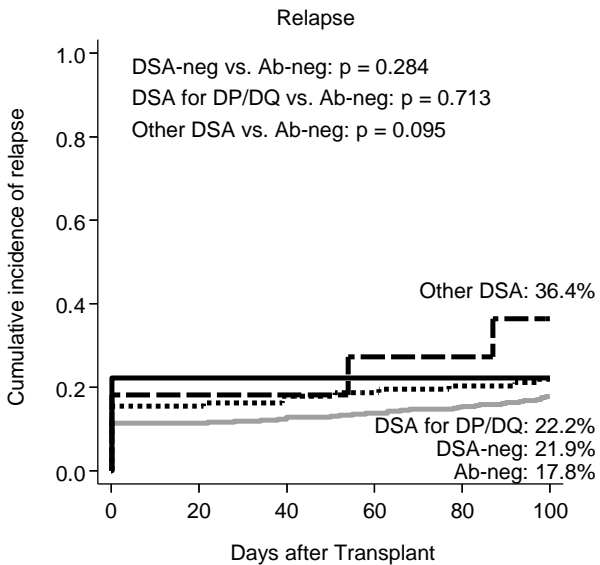
**c**



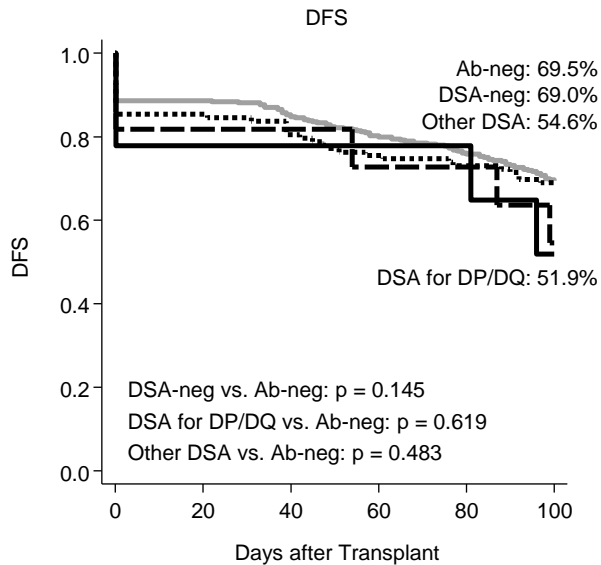
	HR	95% CI	p
Anti-HLA antibody			
Ab-neg		Reference	
DSA-neg	0.976	0.641–1.488	0.912
<b>DSA for DP/DQ</b>	<b>2.136</b>	<b>0.785–5.809</b>	<b>0.137</b>
Other DSA	1.297	0.411–4.095	0.658
TNC infused			
per $1.0 \times 10^7/\text{kg}$	0.871	0.702–1.080	0.209

**Supplemental Figure 2. Cumulative incidence of bacterial infection, and overall survival (OS) and re-transplant-free survival after adjusting for number of total nucleated cells infused. (a) Incidence of bacterial infection stratified according to the presence of DSAs. (b) OS stratified according to the presence of DSAs. (c) Re-transplant-free survival stratified according to the presence of DSAs.**

**a**



**b**



**Supplemental Figure 3. Cumulative incidence of relapse and disease-free survival (DFS) after cord blood transplantation, stratified according to the presence of DSAs. (a) Cumulative incidence of relapse. (b) DFS.** DFS was defined as the periods of time between the day of transplantation and either disease relapse or any death, where re-transplantation was treated as a censor. p values were calculated using Fine & Gray’s tests (a) and log-rank test (b).

# Supplemental Table 1

Supplemental Table 1 Characteristics of DSA positive patients

PT #	DSAs	Age	Sex	Disease	Intensity of DSAs (MFI)	Disease risk	PS	Time from Dx to SCT, mo	Number of transfusions		HLA mis, HVG, ag	MAC/RIC	TBI	GVHD prophylaxis	Cell dose		Outcomes after CBT			
									RBC	Plt					TNC, 10 <sup>7</sup> /kg	CD34 <sup>+</sup> cells, 10 <sup>5</sup> /kg	Neut.	Bacterial infection	Re-transplant at day100	Survival
1	DP/DQ	46	F	MDS	3,338	High	1	3.4	10-19	0	1	MAC	Yes	CyA + sMTX	3.2	0.59	Yes	Yes	No	Alive
2	DP/DQ	51	F	NHL	14,521	High	1	4.4	10-19	≥20	2	RIC	Yes	Tac	3.22	1.08	Yes	Yes	No	Alive
3	DP/DQ	47	F	ALL	1,603	High	1	2.8	1-9	1-9	1	MAC	Yes	Tac + MMF	3.25	0.83	Yes	Yes	No	Alive
4	DP/DQ	65	F	AML	6,420	Standard	0	4.9	1-9	10-19	1	RIC	Yes	Tac + sMTX	3.47	1.58	Yes	Yes	No	Alive
5	DP/DQ	58	F	MM	2,019	High	1	not available	1-9	0	1	MAC	Yes	CyA + sMTX	3.48	0.83	Yes	Yes	No	Dead
6	DP/DQ	52	F	not available	9,811	not available	1	5.6	not available	not available	1	MAC	Yes	Tac + MMF	2.26	0.84	No	Yes	Yes	Dead
7	DP/DQ	33	F	ALL	23,206	High	0	4.9	1-9	1-9	1	MAC	Yes	Tac + sMTX	2.36	0.41	No	Yes	Yes	Dead
8	DP/DQ	41	F	CML	14,393	High	1	4.7	≥20	≥20	0	MAC	Yes	Tac + sMTX	2.2	0.62	No	Yes	Yes	Alive
9	DP/DQ	58	F	MDS	20,113	High	3	16.9	≥20	≥20	1	RIC	Yes	Tac + sMTX	2.68	0.6	No	No	No	Alive
10	Other	41	F	ALL	3,099	High	3	4.8	1-9	1-9	2	RIC	No	Tac + sMTX	7.15	2.17	Yes	No	No	Alive
11	Other	45	F	MDS	1,270	High	1	97.7	10-19	0	2	RIC	Yes	Tac	2.12	0.7	Yes	No	No	Alive
12	Other	60	F	AML	1,196	High	0	24.0	not available	not available	2	RIC	Yes	Tac + sMTX	4.37	1.81	Yes	No	No	Alive
13	Other	51	F	NHL	8,693	High	0	12.7	≥20	≥20	2	RIC	Yes	CyA + sMTX	2.3	0.43	Yes	No	No	Dead
14	Other	64	F	MDS	2,105	High	0	11.4	0	0	2	RIC	Yes	CyA + MMF	3.35	1.1	Yes	Yes	No	Alive
15	Other	64	F	NHL	2,578	High	1	122.2	1-9	1-9	2	MAC	Yes	CyA + sMTX	3.09	1.86	Yes	No	No	Alive
16	Other	59	F	AML	3,454	High	1	1.4	1-9	10-19	1	MAC	Yes	Tac + MMF	2.22	1.1	Yes	No	No	Alive
17	Other	50	M	AML	5,425	Standard	0	18.7	10-19	≥20	2	MAC	Yes	Tac + sMTX	2.33	0.49	Yes	Yes	No	Dead
18	Other	54	F	AML	2,759	High	3	2.4	≥20	≥20	2	MAC	No	Tac + MMF	2.03	0.88	Yes	No	No	Alive
19	Other	60	F	ALL	1,738	High	2	4.4	≥20	≥20	2	MAC	Yes	CyA + sMTX	3.69	0.85	Yes	Yes	No	Alive
20	Other	63	F	AML	3,765	Standard	1	14.3	≥20	≥20	1	RIC	Yes	Tac + sMTX	3.79	0.67	No	No	Yes	Alive

Abbreviations: ALL; acute lymphoblastic leukemia, AML; acute myeloid leukemia, CBT; cord blood transplantation, CML; chronic myeloid leukemia, CyA; cyclosporine A, DSA; donor-specific anti-HLA antibody, Dx; diagnosis, GVHD; graft-versus-host disease, HLA; human leukocyte antigen, HVG; host-versus-graft, MAC; myeloablative conditioning, MDS; myelodysplastic syndrome, MM; multiple myeloma, MMF; mycophenolate mofetil, NHL; non-Hodgkin lymphoma, Plt; platelet, PS; performance status, RBC; red blood cell, RIC; reduced-intensity conditioning, SCT; stem cell transplantation, sMTX; short methotrexate, Tac; tacrolimus, TBI; total body irradiation, TNC; total nucleated cells.