

Supplemental table 1. Multiple regression analysis excluding dUCB transplants

	GRFS *		CRFS*		aGVHD III-IV **		cGVHD		Relapse ***		LFS ****		OS *	
Factor	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Donor/graft type														
Single unit UCB	1		1		1		1		1		1		1	
7/8-BM	1.13 (0.87-1.46)	NS	1.08 (0.83-1.40)	NS	1.67 (1.14-2.46)	0.009	6.15 (2.13-17.74) #	0.0008	1.48 (1.06-2.08)	0.02	2.24 (1.27-3.93) #	0.005	1.08 (0.80,1.45)	NS
Disease status														
Early	1		1		-	-	-	-	1		-	-	-	-
Intermediate	1.17 (1.02-1.35)	0.03	1.12 (0.97-1.29)	NS	-	-	-	-	1.19 (0.96-1.48)	NS	-	-	-	-
ATG/Alemtuzumab used														
Yes	1		1		-	-	1		-	-	-	-	-	-
No	1.19 (1.02-1.38)	0.03	1.12 (0.96-1.31)	NS	-	-	1.56 (1.25-1.94)	0.0001	-	-	-	-	-	-
Recipient race, ethnicity														
White, Non-Hispanic	1		1		1		1		-	-	1		1	
White, Hispanic	1.33 (1.10-1.61)	0.003	1.38 (1.13-1.67)	0.001	1.17 (0.83-1.67)	NS	1.37 (1.04-1.83)	0.03	-	-	1.16 (0.93-1.46)	NS	1.19 (0.94-1.50)	NS

Non-white, Non-Hispanic	1.37 (1.14-1.64)	0.0009	1.36 (1.13-1.65)	0.001	1.74 (1.28-2.37)	0.0004	1.39 (1.04-1.86)	0.03	-	-	1.34 (1.10-1.64)	0.004	1.42 (1.15-1.75)	0.0009
Non-white, Hispanic	1.78 (1.03-3.06)	0.04	1.62 (0.93-2.83)	NS	2.73 (1.27-5.87)	0.01	0.35 (0.05-2.47)	NS	-	-	1.99 (1.10-3.59)	0.02	2.15 (1.21-3.79)	0.009
Missing	1.22 (0.93-1.60)	NS	1.33 (1.01-1.75)	0.05	0.82 (0.46-1.45)	NS	1.32 (0.86-2.03)	NS	-	-	1.08 (0.79-1.47)	NS	1.03 (0.75-1.43)	NS
Karnofsky/Lansky score														
< 90	-	-	1		-	-	-	-	-	-	1		1	
>= 90	-	-	0.78 (0.65-0.94)	0.01	-	-	-	-	-	-	0.68 (0.56-0.82)	0.0001	0.65 (0.53-0.80)	<0.0001
Missing	-	-	0.80 (0.54-1.18)	NS	-	-	-	-	-	-	0.78 (0.51-1.18)	NS	0.80 (0.52-1.21)	NS
Donor-recipient CMV status														
-/-	-	-	-	-					-	-	1		1	
-/+	-	-	-	-	1.09 (0.84-1.40)	NS	-	-	-	-	1.34 (1.15-1.57)	0.0002	1.46 (1.24-1.71)	<0.0001
Missing	-	-	-	-	1.80 (0.97-3.32)	NS	-	-	-	-	1.11 (0.66-1.83)	NS	1.32 (0.80-2.17)	NS
Year of HCT														
2000 - 2003	1				-	-	-	-	1		1		1	
2004 - 2007	0.92 (0.76-	NS	-	-	-	-	-	-	0.88 (0.67-	NS	0.84 (0.68-	NS	0.83 (0.67-1.02)	NS

	1.10)								1.15)		1.02)			
2008 - 2011	0.77 (0.63-0.94)	0.01	-	-	-	-	-	-	0.77 (0.58-1.02)	NS	0.69 (0.55-0.87)	0.002	0.67 (0.53-0.85)	0.001
2012 - 2014	1.03 (0.80-1.32)	NS	-	-	-	-	-	-	1.48 (1.08-2.03)	0.014	1.12 (0.85-1.48)	NS	0.99 (0.74-1.33)	NS

* Stratified variables: GVHD prophylaxis.

** Stratified variables: Patient age.

*** Stratified variables: Disease, patient age.

**** Stratified variables: Disease, GVHD prophylaxis.

- Not applicable

Beyond 14 months after HCT

Values in bold signify statistically significant p-values (<0.01)

N.S.; p-value > 0.05

Abbreviations: aGVHD III-IV; Acute GVHD grade III-IV; ATG, antithymocyte globulin; BM: bone marrow; cGVHD, chronic GVHD; CI: confidence interval; CMV: cytomegalovirus; CRFS: chronic GVHD-free relapse-free survival; GRFS: GVHD-free relapse-free survival; GVHD: graft versus host disease; HCT, hematopoietic cell transplantation; HR: hazards ratio; LFS, leukemia free survival; NRM, non-relapse mortality; OS, overall survival; UCB: umbilical cord blood.

Supplemental table 2. Multiple regression analysis excluding 6/6-HLA matched UCB transplants

	GRFS *		CRFS*		aGVHD III-IV **		cGVHD		Relapse ***		LFS ****		OS *	
Factor	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value	HR (95% CI)	P value
Donor/graft type														
4-5/6 UCB	1		1		1		1		1		1		1	
7/8-BM	1.13 (0.86- 1.48)	NS	1.06 (0.81- 1.40)	NS	1.61 (1.09- 2.38)	0.017	6.78# (2.15- 21.41)	0.0011	1.59 (1.12- 2.25)	0.009	2.20# (1.22- 3.95)	0.009	1.12 (0.83- 1.53)	NS
Disease status														
Early	1		1		-	-	-	-	1		-	-	-	-
Intermediate	1.10 (0.93- 1.29)	NS	1.04 (0.88- 1.23)	NS	-	-	-	-	1.08 (0.84- 1.38)	NS	-	-	-	-
ATG/Alemtuzumab used														
Yes	1		1		-	-	1		-	-	-	-	-	-
No	1.20 (1.01 - 1.43)	0.04	1.12 (0.93- 1.33)	NS	-	-	1.63 (1.27- 2.09)	0.0001	-	-	-	-	-	-
Recipient race, ethnicity														
White, Non-Hispanic	1		1		1		1		-	-	1		1	
White, Hispanic	1.25 (1.01- 1.54)	0.04	1.31 (1.05- 1.62)	0.02	1.17 (0.80- 1.70)	NS	1.30 (0.95- 1.79)	NS	-	-	1.19 (0.93- 1.53)	NS	1.16 (0.90- 1.51)	NS
Non-white, Non- Hispanic	1.20 (0.97- 1.48)	NS	1.22 (0.98- 1.52)	NS	1.57 (1.11- 2.20)	0.009	1.38 (1.00- 1.90)	0.05	-	-	1.31 (1.04- 1.65)	0.02	1.33 (1.05- 1.69)	0.02

Non-white, Hispanic	1.36 (0.72- 2.60)	NS	1.23 (0.63- 2.39)	NS	2.33 (0.94- 5.74)	NS	0.37 (0.05- 2.64)	NS	-	-	1.62 (0.79- 3.34)	NS	1.79 (0.90- 3.56)	NS
Missing	1.31 (0.95- 1.81)	NS	1.63 (1.18- 2.25)	0.003	0.79 (0.40- 1.57)	NS	1.34 (0.78- 2.28)	NS	-	-	1.24 (0.86- 1.78)	NS	1.09 (0.74- 1.60)	NS
Karnofsky/Lansky score														
< 90	-	-	1		-	-	-	-	-	-	1		1	
>= 90	-	-	0.76 (0.61- 0.95)	0.01	-	-	-	-	-	-	0.67 (0.54- 0.85)	0.0007	0.66 (0.52- 0.83)	0.0004
Missing	-	-	0.97 (0.63- 1.50)	NS	-	-	-	-	-	-	0.81 (0.49- 1.32)	NS	0.83 (0.51- 1.36)	NS
Donor-recipient CMV status														
-/-	-	-	-	-	1		-	-	-	-	1		1	
-/+	-	-	-	-	0.99 (0.75- 1.31)	NS	-	-	-	-	1.33 (1.11- 1.59)	0.002	1.46 (1.21- 1.75)	0.0001
Missing	-	-	-	-	1.27 (0.61- 2.67)	NS	-	-	-	-	0.99 (0.54- 1.80)	NS	1.11 (0.61- 2.01)	NS
Year of HCT														
2000 - 2003	1		-	-	-	-	-	-	1		1		1	
2004 - 2007	0.96 (0.78- 1.19)	NS	-	-	-	-	-	-	0.84 (0.60- 1.16)	NS	0.83 (0.65- 1.05)	NS	0.82 (0.64- 1.04)	NS
2008 - 2011	0.79 (0.62- 1.01)	NS	-	-	-	-	-	-	0.83 (0.60- 1.17)	NS	0.72 (0.55- 0.95)	0.02	0.70 (0.53- 0.92)	0.01

2012 - 2014	1.19 (0.89- 1.59)	NS			-	-	-	-	1.62 (1.12- 2.34)	0.01	1.25 (0.91- 1.73)	NS	1.12 (0.80- 1.57)	NS
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* Stratified variables: GVHD prophylaxis.

** Stratified variables: Patient age.

*** Stratified variables: Disease, patient age.

**** Stratified variables: Disease, GVHD prophylaxis.

- Not applicable

Beyond 14 months after HCT

N.S.; p-value > 0.05

Abbreviations: aGVHD III-IV; Acute GVHD grade III-IV; ATG, antithymocyte globulin; BM: bone marrow; cGVHD, chronic GVHD; CI: confidence interval; CMV: cytomegalovirus; CRFS: chronic GVHD-free relapse-free survival; GRFS: GVHD-free relapse-free survival; GVHD: graft versus host disease; HCT, hematopoietic cell transplantation; HR: hazards ratio; LFS, leukemia free survival; NRM, non-relapse mortality; OS, overall survival; UCB: umbilical cord blood.

Supplemental table 3. Causes of death

	UCB (N =1441)	7/8 BM (N =172)	p-value
Number of deaths, n (%)	678 (47)	98 (57)	0.01
Cause of death, n (%)			0.01
Primary disease	291 (43)	42 (43)	
GVHD	83 (12)	20 (20)	
Infection	85 (13)	4 (4)	
Organ failure	83 (12)	17 (17)	
IPS/ARDS	43 (6)	10 (10)	
Graft failure	15 (2)	0	
Hemorrhage	21 (3)	1 (1)	
Other	57 (8)	4 (4)	

Abbreviations: ARDS, acute respiratory distress syndrome; BM = Bone marrow, GVHD, graft versus host disease; IPS, idiopathic pneumonia syndrome; UCB = Umbilical cord blood

** “Other” causes of death include: secondary malignancy (n=7 and n=1), vascular (n=3 and n=0), accident/suicide (n=2 and n=0), other (n=34 and n=1) and missing (n=11 and n=2).*