Supplemental Table 1: Covariates Included in Multivariable Regression Analysis

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Patient- and disease-specific characteristics, including:

- Age 18-59 vs. >=60
- KPS: 90-100 vs. <90 vs. missing
- Hematopoietic cell transplantation-comorbidity index: 0-2 vs. ≥3 vs. missing
- High risk fish abnormalities: 17p +/- others vs. 11q deletion +/- others except 17p vs. Trisomy 12 (+12) +/- others except 17p and/or 11q vs. Normal Fish vs. Deletion of 13q alone vs. others vs. missing
- Received novel agents before HCT: Yes vs. No
- Number of prior therapy regimens received for RS : 1 vs. 2 vs. 3+
- Time from RS diagnosis to transplant (months) : <12 months vs. >=12 months
- Remission status (at HCT): CR vs. PR vs. Resistant vs. Unknown

Transplantation-specific characteristics, including:

- Donor type: HLA-matched vs. matched URD vs. others (HLA mismatched, mismatched URD, CB)
- Conditioning intensity: NMA/RIC vs. MAC
- Year of transplant: <=2013 vs. >2013
- Transplant center

Allo indicates allogeneic, HCT indicates hematopoietic cell transplantation, KPS indicates Karnofsky performance status, RS indicates Richter syndrome, CR indicates complete response, PR indicates partial response, URD indicates unrelated donor, HLA indicates human leukocyte antigen, CB indicates cord blood, NMA indicates non-myeloablative conditioning, RIC indicates reduced intensity conditioning, MAC indicates myeloablative conditioning

Supplemental Table 2: Adjusted Outcomes After Allo-HCT According to Presence of 17p Abnormality

Outcomes	N	17p +/- others (N = 39) Prob (95% CI)	N	Others (N = 55) Prob (95% CI)	P value
Adjusted Relapse	37		54		
1-year		30 (16-44)%		22 (11-33)%	0.37
3-year		37 (22-51)%		32 (19-44)%	0.62
Adjusted NRM	37		54		
1-year		21 (9-32)%		22 (11-33)%	0.88
3-year		25 (11-38)%		26 (15-37)%	0.90
Adjusted PFS	37		54		
1-year		47 (33-61)%		59 (47-71)%	0.20
3-year		38 (24-52)%		45 (32-57)%	0.45
Adjusted OS	39		55		
1-year		67 (55-80)%		74 (63-84)%	0.44
3-year		50 (36-65)%		54 (42-66)%	0.71

Allo indicates allogeneic, HCT indicates hematopoietic cell transplantation, CR indicates complete response, PR indicates partial response, NRM indicates non-relapse mortality, PFS indicates progression-free survival, OS indicates overall survival

Supplemental Table 3: Multivariate Regression Analysis of Outcomes After Allo-HCT According to Receipt of Novel Agents Prior to Allo-HCT

	N	HR	95% CI Lower Limit	95% CI Upper Limit	p-value	Overall p-value
NRM						
Received novel agents before allo-HCT						
No	68	1				0.7233
Yes	43	0.871	0.406	1.87	0.7233	
Relapse						
Received novel agents before allo-HCT						
No	68	1				0.4013
Yes	43	1.345	0.673	2.686	0.4013	
PFS						
Received novel agents before allo-HCT						
No	68	1				0.3097
Yes	43	1.298	0.785	2.145	0.3097	
OS						
Received novel agents before allo-HCT						
No	69	1				0.1045
Yes	46	1.552	0.913	2.639	0.1045	

Allo indicates allogeneic, HCT indicates hematopoietic cell transplantation, HR indicates hazard ratio, CI indicates confidence interval, NRM indicates non-relapse mortality, PFS indicates progression-free survival, OS indicates overall survival

Supplemental Table 4: Causes of Death After HCT

Characteristic	Allo-HCT	Auto-HCT
No. of patients	118	53
Overall survival - no. (%)		
Alive	57 (48)	30 (57)
Dead	61 (52)	23 (43)
Cause of death - no. (%)		
Primary disease	24 (39)	11 (48)
Graft-versus-host disease	13 (21)	2 (9)[1]
Infection	7 (11)	1 (4)
Idiopathic pneumonia syndrome	1 (2)	0
Acute respiratory distress syndrome	2 (3)	0
Organ failure	6 (10)	2 (9)
Second malignancy	1 (2)	1 (4)
Hemorrhage	1 (2)	1 (4)
Accident/suicide	1 (2)	0
Vascular	1 (2)	0
Other	4 (6)	5 (22)

Allo indicates allogeneic, Auto indicates autologous, HCT indicates hematopoietic cell transplantation

[1] Two patients who underwent auto-HCT relapsed and subsequently underwent allo-HCT and developed GVHD thereafter

Supplemental Figure: Outcomes After Allo-HCT According to Presence of 17p Abnormality; (A) Non-Relapse Mortality, (B) Relapse/Progression, (C) Progression-Free Survival, (D) Overall Survival