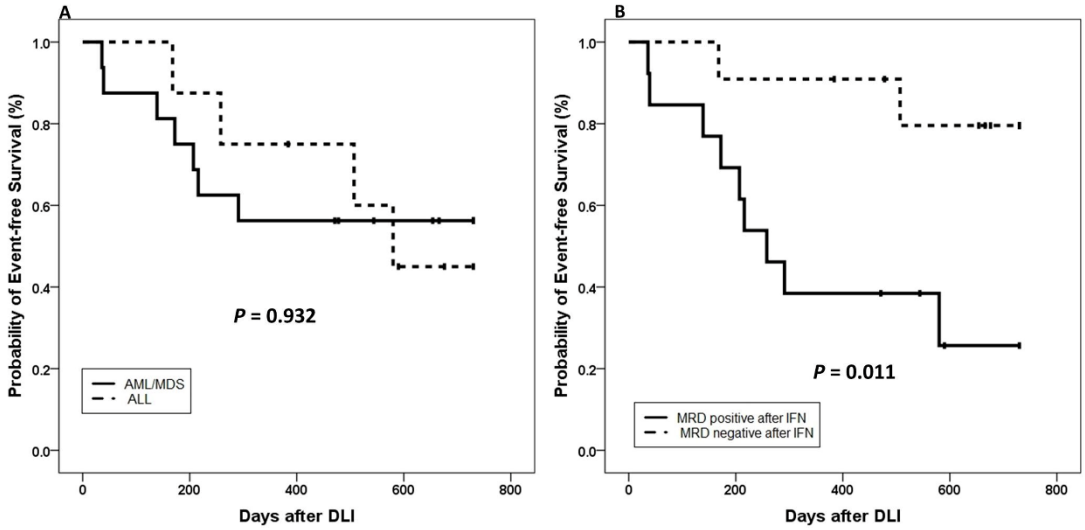
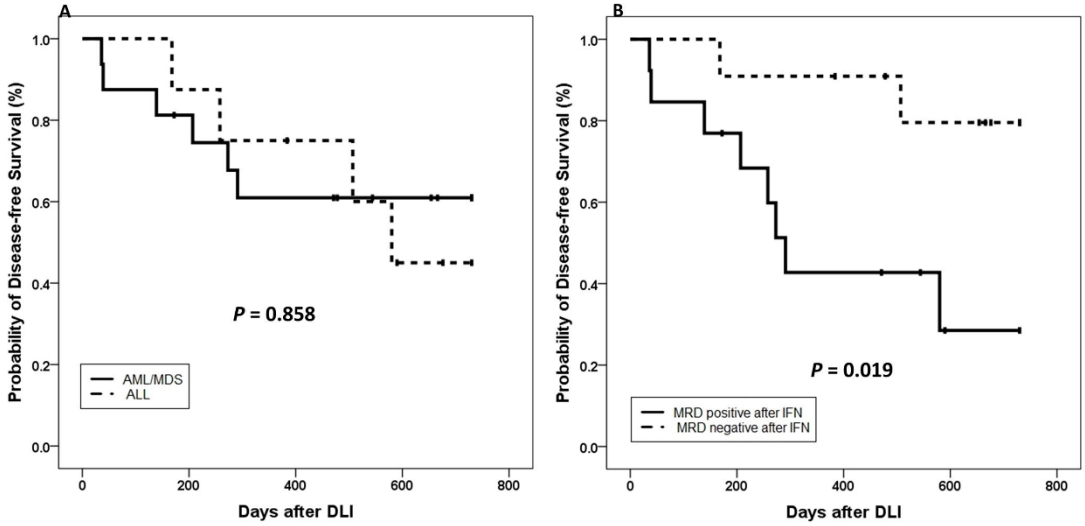
I Supplementary Figures

Supplementary Figure 1



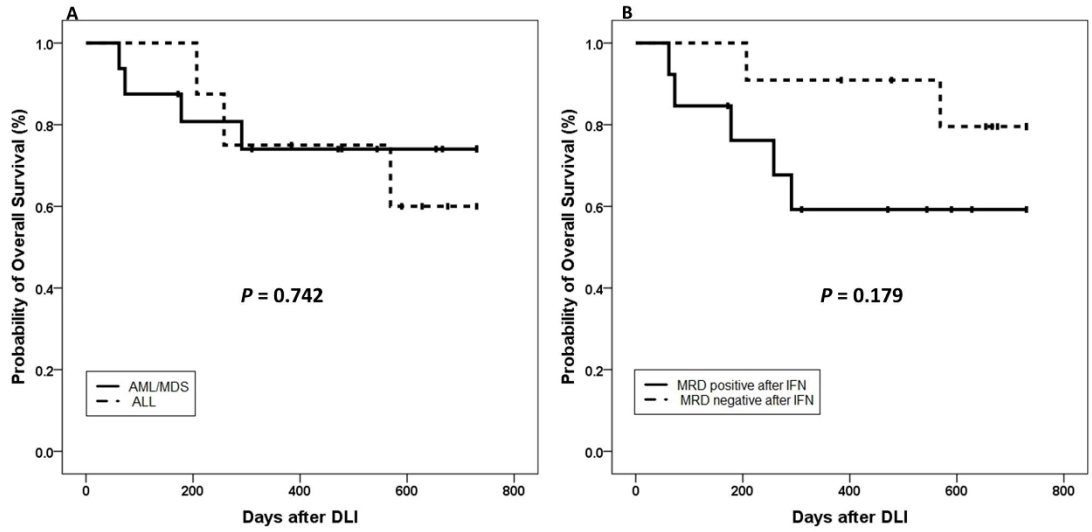
Supplementary Figure 1. Probability of EFS at 2 years (A) Based on the underlying disease (45.0% vs. 56.3%, *P* = 0.932) and (B) based on the MRD status after salvage treatment with IFN-α (79.5% vs. 25.6%, *P* = 0.011)

Supplementary Figure 2



Supplementary Figure 2. Probability of DFS at 2 years (A) Based on the underlying diseases (45.0% vs. 60.9%, *P* = 0.858) and (B) based on the MRD status after salvage treatment with IFN-α (79.5% vs. 28.5%, *P* = 0.019)

Supplementary Figure 3



Supplementary Figure 3. Probability of OS at 2 years (A) Based on the underlying diseases (60.0% vs. 74.0%, *P* = 0.742) and (B) based on the MRD status after salvage treatment with IFN-α (79.5% vs. 59.2%, *P* = 0.179)

II Supplementary Method

Preconditioning regimen

Preconditioning consisted of cytarabine (Ara-C), busulfan (3.2 $mg \cdot kg^{-1} \cdot day^{-1}$ intravenously administered on days −8 to −6), cyclophosphamide (CY, 1.8 $g \cdot m^{-2} \cdot day^{-1}$, days −5 to −4), and simustine (250 $mg \cdot m^{-2}$, day −3). Ara-C was administered at 4 $g \cdot m^{-2} \cdot day^{-1}$ (days −10 to −9) to the human leukocyte antigen (HLA)-haploidentical related donor (haplo-RD) group, at 2 $g \cdot m^{-2} \cdot day^{-1}$ (days −10 to −9) to the HLA unrelated donor (URD) group, and at 2 $g \cdot m^{-2} \cdot day^{-1}$ (day −9) to the HLA-identical sibling donor (ISD) group. Rabbit antithymocyte globulin (thymoglobulin, 2.5 $mg \cdot kg^{-1} \cdot day^{-1}$, days −5 to −2; Sanofi, France) was administered to the haplo-RD and URD groups.

Chemotherapy prior to DLI

Chemotherapy regimens included HAA (harringtonine 2 $mg \cdot m^{-2} \cdot day^{-1}$ for 5 days, aclacinomycin 10

mg·m^{-2}·day^{-1} for 5 days, and cytarabine 100 mg·m^{-2}·day^{-1} for 5 days), AA (aclacinomycin 10 mg·m^{-2}·day^{-1} for 5 days and cytarabine 100 mg·m^{-2}·day^{-1} for 5 days), HA (harringtonine 2 mg·m^{-2}·day^{-1} for 5 days and cytarabine 100 mg·m^{-2}·day^{-1} for 5 days), or IA (idarubicin 8 mg·m^{-2}·day^{-1} for 3 days and cytarabine 100 mg·m^{-2}·day^{-1} for 5 days) for patients with AML or MDS; and MTX (1.0 g·m^{-2}·day^{-1} for 1 day) or CODP (cyclophosphamide 750 mg·m^{-2}·day^{-1} for 1 days, vincristine 1 mg·m^{-2}·day^{-1} for 1 day, daunorubicin 40 mg·m^{-2}·day^{-1} for 3 days, and prednisone 60 mg·day^{-1} for 7 days) for patients with ALL.

III Supplementary Table

Supplementary table 1. Patient characteristics among different donors

Characteristics	ISD group (n=20)	Haplo-RD group (*n* =45)	URD group (n=2)	*P* value
Discontinuing immunosuppressions before DLI, n (%)	9 (45.0)	23 (51.1)	2 (100.0)	0.481
GVHD prophylaxis, n (%)				
Cyclosporine A	18 (90.0)	45 (100.0)	2 (100.0)	0.145
Methotrexate	2 (10.0)	0 (0.0)	0 (0.0)	
Subtypes of cells for DLI				
Median mononuclear cells, $\times 10^8$/kg (range)	1.0 (0.8–1.5)	1.0 (0.9–2.3)	0.98 (0.96–1.00)	0.190
Median $CD3^+$ counts, $\times 10^7$/kg (range)	3.8 (1.2–5.9)	3.4 (0.2–7.7)	1.40 (1.38–1.42)	0.098
Median $CD34^+$ counts, $\times 10^6$/kg (range)	0.3 (0.1–0.6)	0.4 (0.1–1.5)	0.29 (0.10–0.49)	0.245
Acute GVHD after DLI, *n* (%)				
Grade I to II	3 (15.0)	7 (15.6)	0 (0.0)	1.000
Grade III to IV	0 (0.0)	6 (13.3)	1 (50.0)	0.061
Chronic GVHD after DLI, *n* (%)				
Mild to moderate	6 (30.0)	11 (24.4)	0 (0.0)	0.868
Severe	2 (10.0)	16 (35.6)	0 (0.0)	0.058

DLI, donor lymphocyte infusion; GVHD, graft-versus-host disease; ISD, HLA identical sibling donor; haplo-RD, HLA-haploidentical related donor; URD, HLA-unrelated donor