

Supplemental Table 1: Participating Sites

	Clinical Trial (n=30)*	Control (n=90)
City of Hope National Medical Center	15	12
Massachusetts General Hospital	2	11
Mount Sinai Hospital	7	2
Ohio State University	5	3
Vanderbilt University	1	2
Columbia University	-	6
Mayo Clinic	-	20
University of Pennsylvania	-	6
Bambino Gesu Hospital	-	1
King Chulalongkorn Hospital	-	1
University of Erlangen	-	8
University of Hamburg	-	11
University of Regensburg	-	7

*The pre-emption trial was open at five centers: City of Hope Comprehensive Cancer Center, Massachusetts General Hospital, Mount Sinai Hospital, Ohio State University, and Vanderbilt University. The controls were obtained from the MAGIC database and biorepository.

Supplemental Table 2: Adverse Events.

Type of AE		CTCAE Grade 3	CTCAE Grade 4	CTCAE Grade 5
Cardiac Disorder		1	0	0
Engraftment Syndrome		2	0	0
Gastrointestinal Disorder		1	0	0
Headache		1	0	0
Hypertension		1	0	0
Infection	Bacterial	2	1	0
	Fungal/PCP	0	1	1
Infusion reactions		2	0	0
Pulmonary Event		2	2	2
Thrombotic microangiopathy		1	0	0
Weakness/Fatigue		1	0	0

Supplemental Table 3: Causes of Six-Month Non-Relapse Mortality

	AAT (n=30)	Control (n=90)
aGVHD	1 (3.3%)	6 (6.7%)
Infection ^A	1 (3.3%)	3 (3.3%)
Other ^B	1 (3.3%)	5 (5.6%)

^A**Infection: AAT:** Pneumocystis jirovecii pneumonia/aspergillus pneumonia (1). **Control:** Disseminated candidemia (2), septic shock (1).

^B**Other causes of death: AAT:** Idiopathic pneumonia syndrome (1). **Control:** Myocardial infarction (1), intracranial hemorrhage (1), veno-occlusive disease (1), multi-organ failure (1), unknown (1).

Supplemental Figure 1: Graft-versus-host-disease (GVHD)-related outcomes. Percent of stage 3-4 lower GI GVHD in AAT-treated patients (blue: 13%) and controls (magenta: 9%) by day one hundred.

