



## The 65th ASH Annual Meeting Abstracts

## POSTER ABSTRACTS

## 904. OUTCOMES RESEARCH-NON-MALIGNANT CONDITIONS

**Analysis of 3,843 Unrelated Donors (URD) for 455 Allograft Candidates Reveals Low URD Availability with Marked Racial/ Ethnic Disparities: Major Implications for Transplant Center & Registry Operations**

Warren B Fingrut, MD<sup>1,2</sup>, Eric Davis, MPH, CHTC<sup>3,4,2</sup>, Anne Archer<sup>3,4</sup>, Samantha Brown<sup>5</sup>, Sean M. Devlin, PhD<sup>5</sup>, Melissa Nhaissi<sup>1</sup>, Candice Rapoport<sup>4</sup>, Stephanie Chinapen<sup>4</sup>, Amanda Kelly<sup>4</sup>, Deborah Wells<sup>1</sup>, Andromachi Scaradavou, MD<sup>6</sup>, Boglarka Gyurkocza, MD<sup>1,7</sup>, Esperanza B. Papadopoulos, MD<sup>1,7</sup>, Ioannis Politikos, MD<sup>8,4</sup>, Brian C. Shaffer, MD<sup>4,8</sup>, Juliet N Barker, MBBS<sup>8</sup>

<sup>1</sup>Adult Bone Marrow Transplantation Service, Department of Medicine, Memorial Sloan Kettering Cancer Center, New York, NY

<sup>2</sup>Equal contribution, New York

<sup>3</sup>Pediatric Transplantation and Cellular Therapies Service, Department of Pediatrics, Memorial Sloan Kettering Cancer Center, New York, NY

<sup>4</sup>Adult Bone Marrow Transplantation Service, Department of Medicine, Memorial Sloan Kettering Cancer Center, New York

<sup>5</sup>Department of Biostatistics and Epidemiology, Memorial Sloan Kettering Cancer Center, New York, NY

<sup>6</sup>Pediatrics, Memorial Sloan Kettering Cancer Center, New York, NY

<sup>7</sup>Department of Medicine, Weill Cornell Medical College, New York, NY

<sup>8</sup>Department of Medicine, Weill Cornell Medicine, New York

**Introduction:** Although hematologic malignancies patients (pts) often require urgent transplants, the degree to which unrelated donor (URD) availability is a barrier to prompt allografting is not established.

**Methods:** We evaluated availability of requested URDs 1/2020-12/2022, overall & by pt ancestry, in 455 consecutive adults with acute leukemia, MDS or MPN who had a formal URD search & for whom  $\geq 1$  URDs were pursued for confirmatory typing (CT). We also examined donor location & Donor Readiness Score (DRS; the prediction of a donor's likelihood of availability for CT) by pt ancestry. We hypothesized that URD availability is a major barrier to transplant for underserved racial/ ethnic groups & this has not improved in the post-pandemic era.

**Results:** Of 455 pts [median age 63 yrs, range 21-81; 250/455 (55%) with acute leukemia], 74% (335/455) had European (EURO) & 26% (120/455) non-European (non-EURO) ancestry. For these 455 pts, 3,843 URDs (median age 27 yrs, range 17-61; 1,951/3,843 [51%] male) were requested for CT or simultaneous CT-workup; 71% (2,730/3,843) of URDs were for EURO & 29% (1,113/3,843) for non-EURO pts; & 56% (2,140/3,843) were from domestic & 44% (1,703/3,843) international registries. Of 2,775 URDs with an assigned DRS, the median score was 63% (range 16-94%). URDs requested for non-EURO pts were more likely to be domestic [EUROs: 1,411/2,730 (52%) vs non-EUROs: 729/1,113 (65%),  $p < .001$ ]. Also, URDs for non-EUROs had markedly lower median DRS (EUROs: 71% vs non-EUROs: 52%) with over 15x the proportion with DRS  $\leq 30\%$  [EUROs: 30/2,073 (1.5%) vs non-EUROs: 160/702 (23%),  $p < .001$ ].

Table 1A-C outlines URD availability at CT & workup, overall & by pt ancestry. In summary:

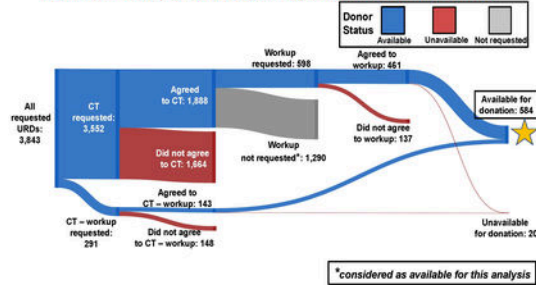
- At CT, per pt: More non-EURO pts had greater than 10 URDs requested ( $p = .045$ ), less than 5 URDs that agreed to CT ( $p < .001$ ), & at least 5 URDs unavailable ( $p < .001$ ), compared with EUROs.
- At workup, per pt: For over one-quarter (134/455, 29%), 3-5 URDs were requested. More non-EURO pts had less than 2 URDs that agreed to workup ( $p = .007$ ) & at least 2 URDs unavailable ( $p = .017$ ), compared with EUROs.
- At CT: Only half (2,036/3,843, 53%) of requested URDs were available for CT or CT-workup. URDs were less likely to agree to CT if requested for non-EURO pts (vs EUROs), if domestic (vs international), or if lower DRS ( $p < .001$  for each).
- At workup: Of URDs requested for workup after CT, while 461/598 (77%) agreed, URDs requested for non-EURO pts were less likely to agree ( $p < .001$ ).
- Overall: Availability of the 3,843 URDs requested for the 455 pts was low, with less than half available (Fig. 1A). Notably, URDs requested for non-EURO pts had lower availability ( $p < .001$ ).
- By ancestry sub-type: African & non-Black Hispanic pts had the lowest URD availability.

- Over time: When examining 2020-2022, the worse URD availability for non-EURO pts is not improving in the post-pandemic era (Fig. 1B).
- URD provision: Of pts with  $\geq 1$  URD who agreed to workup, 12% did not have an URD available within 14 days of the 1st proposed collection date, & of 263 5-8/8 URD recipients for whom a *primary* URD was selected, over one third (103/263, 39%) were not transplanted with that donor. Of transplanted pts, as expected, non-EURO pts were less likely to receive 8/8 URDs ( $p < .001$ ) & for those who did, their URDs were older ( $p = .018$ ), & 5-7/8 URDs requested for non-EUROs were more HLA-mismatched ( $p < .001$ ).

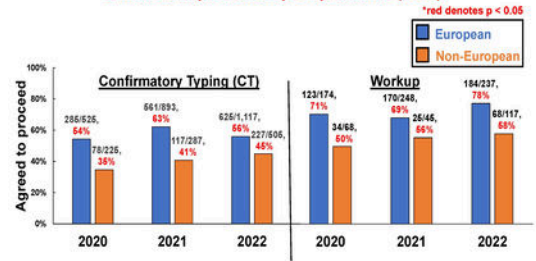
**Conclusions:** We demonstrate significant ongoing disparities in URD access that have major implications for transplant center & registry operations. Incorporating careful assessment of pt ancestry, transplant centers should pursue, & registries should permit, simultaneous pursuit of multiple URDs, especially for non-EURO pts, deciding at the outset what degree of HLA-mismatch will be accepted if an URD is desired but an 8/8 URD is unlikely (Davis et al, TCT 2023). Moreover, centers are ethically obliged to inform pts if timely URD procurement is unlikely, especially as these pts are commonly from underserved racial/ ethnic groups. Registries need to address high URD attrition, & prospective investigation of efforts to speed donor identification are needed. Finally, utilization of all alternative donors (5-7/8 URD, haploidentical & cord blood) is needed to facilitate donors for all in the time required for optimized transplantation.

**Disclosures Gyurkocza:** *Actinium Pharmaceuticals, Inc:* Research Funding. **Politikos:** *Merck:* Research Funding; *ExcellThera:* Other: Membership on Data and Safety Monitoring Board. **Shaffer:** *Hansa Biopharma:* Consultancy; *Gamida Cell:* Consultancy, Research Funding. **Barker:** *Merck:* Research Funding; *Gamida Cell:* Consultancy; *New York Blood Center:* Consultancy.

**Figure 1A:** Analysis of 3,843 donors requested for 455 pts.  
 Less than 50% (1,873/ 3,843) of requested URDs are available.



**Figure 1B:** Disparities in availability over time of 3,843 URDs for 455 pts.  
 Donors for non-European pts: more likely to be unavailable\*  
 & without improvement post-pandemic (2022).



**Table 1A.** Availability of requested unrelated donors (URDs) for CT per patient, overall and by patient ancestral group (n = 3,843 donors, n = 455 patients)

		All patients			P value <sup>1</sup>
		Total patients (n = 455)	European patients (n = 335)	Non-European patients* (n = 120)	
URDs requested for CT	N (%) patients with > 10 URDs requested	93/455 (21%)	63/335 (19%)	33/120 (28%)	0.045
Patients with ≥ 1 URDs requested for CT <sup>2</sup>					
URDs that agreed to CT	N (%) patients with ≥ 1 URDs that agreed	252/445 (57%)	173/331 (52%)	79/114 (69%)	p < .001
URDs unavailable for CT	N (%) patients with ≥ 1 URDs unavailable	136/445 (31%)	82/331 (25%)	54/114 (47%)	p < .001

**Table 1B.** Availability of requested unrelated donors (URDs) for workup per patient, overall and by patient ancestral group (n = 889 donors, n = 455 patients)

		Patients with ≥ 1 URD requested for workup after CT <sup>2</sup>			P value <sup>1</sup>
		Total patients (n = 289)	European patients (n = 217)	Non-European patients (n = 63)	
URDs that agreed to workup after CT <sup>3</sup>	N (%) patients with < 2 URDs that agreed	125/280 (45%)	88/217 (41%)	37/63 (59%)	0.007
URDs unavailable for workup after CT	N (%) patients with ≥ 1 URD unavailable	98/280 (35%)	69/217 (32%)	29/63 (46%)	0.017
	N (%) patients with ≥ 2 URDs unavailable	25/280 (10%)	19/217 (7%)	10/63 (16%)	

**Table 1C.** Availability of 3,843 donors for 455 patients, overall and by patient ancestral group

	Total donors (n = 3,843)	Donors for European patients (n = 2,708)	Donors for non-European patients (n = 1,135) <sup>4</sup>	P value <sup>1</sup>
Agreed to CT, of donors requested for CT	1,888/3,552 (53%)	1,466/2,535 (58%)	422/1,017 (41%)	p < .001
Agreed to workup, of CT's donors requested for workup	461/598 (77%)	373/464 (80%)	88/134 (66%)	p < .001
Agreed to workup, of donors requested for CT - workup	143/291 (49%)	104/196 (53%)	39/96 (41%)	0.041
Overall donor availability <sup>5,6</sup>	1,873/3,843 (49%)	1,462/2,730 (54%)	411/1,113 (37%)	p < .001

URD - unrelated donors; CT - confirmatory typing  
<sup>1</sup>Including 40 African, 33 non-Black Hispanic, 31 Asian, 10 Middle Eastern, 6 mixed non-European patients.  
<sup>2</sup>P values determined by Chi-Squared Tests.  
<sup>3</sup>10 pts (4 Europeans and 6 non-Europeans) only had donors requested for simultaneous CT - workup.  
<sup>4</sup>P values determined by Wilcoxon Rank-Sum Test.  
<sup>5</sup>165 pts (114 Europeans and 51 non-Europeans) did not have any URDs requested for workup after CT.  
<sup>6</sup>Including 458 URDs for African, 294 for non-Black Hispanic & 270 for Asian pts.  
 \*\*Notably, 20 URDs (16 for European pts and 4 for non-European pts) became unavailable for donation after workup.  
 †URDs who agreed to CT but were not requested for workup were considered as available for this analysis.

**Figure 1**

<https://doi.org/10.1182/blood-2023-180439>