

Supplementary Table S1. TCE group assignment of 100 DPB1 alleles.

DPB1*^a	CWD^b	TCE-X^c	TCE-FD^d
01:01	Yes	3	3
02:01	Yes	3	3
02:02	Yes	3	3
03:01	Yes	2	2
04:01	Yes	3	3
04:02	Yes	3	3
05:01	Yes	3	3
06:01 ^e	Yes	3	2
08:01	Yes	3	3
09:01	Yes	1	1
10:01	Yes	1	1
11:01	Yes	3	3
13:01	Yes	3	3
14:01	Yes	2	2
15:01	Yes	3	3
16:01	Yes	3	3
17:01	Yes	1	1
18:01 ^f	Yes		3
19:01 ^e	Yes	3	2
20:01	Yes	3	3
21:01 ^f	Yes		2
22:01	Yes	3	3
23:01	Yes	3	3
24:01	Yes	3	3
25:01	Yes		2
26:01 ^f	Yes		3
27:01 ^f	Yes		3
28:01	Yes	3	3
29:01 ^f	Yes		2
30:01 ^f	Yes		1
31:01	Yes	3	3
32:01	Yes	3	3
33:01	Yes	3	3
34:01	Yes	3	3
35:01 ^f	Yes		2
38:01		3	3
39:01	Yes	3	3
40:01	Yes	3	3
41:01	Yes	3	3
45:01	Yes	2	2
46:01	Yes	3	3
47:01	Yes	3	3
48:01	Yes	3	3
49:01		3	3
50:01	Yes		3
51:01	Yes	3	3

Supplementary Table S1 (cont).

DPB1*^a	CWD^b	TCE-X^c	TCE-FD^d
53:01		3	3
55:01	Yes		2
57:01		3	3
59:01	Yes	3	3
60:01		3	3
62:01		3	3
63:01	Yes	3	3
65:01	Yes	3	3
66:01	Yes		3
67:01	Yes		2
68:01	Yes	3	3
71:01	Yes	3	3
72:01	Yes	3	3
73:01		3	3
75:01	Yes	3	3
76:01	Yes		2
77:01	Yes	3	3
78:01	Yes		2
79:01	Yes		2
80:01	Yes	3	3
81:01	Yes	3	3
82:01	Yes	3	3
83:01	Yes	3	3
84:01		3	3
85:01 ^f	Yes		3
86:01		2	2
94:01		3	3
95:01		3	3
96:01		3	3
97:01		3	3
99:01		3	3
100:01		3	3
101:01		3	3
102:01		3	3
103:01		3	3
104:01		2	2
105:01	Yes	3	3
106:01	Yes	3	2
107:01	Yes		3
108:01	Yes	3	3
109:01	Yes		3
112:01		3	3
113:01	Yes		2
115:01	Yes	3	3
116:01	Yes	3	3
121:01	Yes		3

Supplementary Table S1 (cont).

DPB1*	CWD	TCE-X	TCE-FD
122:01	Yes		3
123:01	Yes		3
124:01	Yes		3
126:01	Yes		3
127:01	Yes		3
128:01	Yes		3
129:01	Yes		3
130:01 ^f	Yes		3

^alisted are 100 DPB1 alleles covering those reported as common/well documented (CWD) in the EFI or ASHI catalogue^{1,2} and analyzed for alloreactive T-cell cross-reactivity underlying the TCE-X classification (N=52), those reported as CWD but not tested by TCE-X (N=28), and those tested by TCE-X but not reported as CWD (N=20).

^b“Yes” indicates that the DPB1 allele was reported as CWD in the EFI or ASHI catalogue (Sanchez-Mazas, Mack) (N=80); blank indicates that the DPB1 allele was not reported as CWD in these catalogues (N=20).

^cTCE group as assigned by the TCE-X model (N=72); blank indicates that the DPB1 allele could not be assigned by TCE-X because it was not experimentally tested by alloreactive T-cell effectors (N=28).

^dTCE group as assigned by the TCE-FD model. Note the absence of blanks since all DPB1 alleles can be assigned by TCE-FD (N=100).

^eDifferent TCE assignment by TCE-X (TCE group 3) and TCE-FD (TCE group 2). Analysis of cross-reactivity by additional T-cell effectors alloreactive to DPB1*09:01 confirmed TCE group 2 assignment as in TCE-FD (Crivello).

^fDPB1 allele amongst a total of nine alleles that could not be assigned by TCE-X but were found at least once in 33/2730 donor-recipient pairs analyzed in this study.

Supplementary Table S2. Multivariable outcome associations for 210 pairs assigned discordantly by TCE-X and TCE-FD.

	HR	p-value	95% CI Lower	95% CI Higher	N
OS					
N-N	1,171	0,0028	1,056	1,298	1118
N-P	1,053	0,7787	0,733	1,514	49
P-N	0,951	0,6687	0,755	1,198	161
TRM					
N-N	1,355	<.0001	1,178	1,558	1105
N-P	1,185	0,4763	0,743	1,888	48
P-N	1,028	0,8587	0,756	1,4	159
DFS					
N-N	1,12	0,0278	1,012	1,239	1105
N-P	0,976	0,8952	0,68	1,401	48
P-N	0,902	0,3717	0,719	1,131	159
Relapse					
N-N	0,922	0,2781	0,795	1,068	1105
N-P	0,726	0,2756	0,409	1,291	48
P-N	0,785	0,1536	0,563	1,095	159
aGvHD II-IV					
N-N	1,211	0,0021	1,072	1,367	1013
N-P	1,442	0,0741	0,965	2,155	45
P-N	1,533	0,0003	1,217	1,933	147
aGvHD III-IV					
N-N	1,051	0,6106	0,868	1,273	1016
N-P	1,582	0,1098	0,902	2,776	45
P-N	1,01	0,9594	0,677	1,507	147
cGvHD					
N-N	1,211	0,0013	1,077	1,362	1072
N-P	1,087	0,6925	0,72	1,64	45
P-N	1,22	0,0881	0,971	1,534	159

Data are shown using concordantly permissive mismatches as reference (N= 1402). HR: hazard ratio; N-N: concordantly non-permissive mismatches; N-P: non-permissive by TCE-X but permissive by TCE-FD; P-N: permissive by TCE-X but non-permissive by TCE-FD.

Supplementary Table S3. Multivariable regression models for association between dFD DPB1 mismatches and clinical outcome.

	dFD>2.665 High Risk		dFD>1.64 High Risk	
	N=827 >2.665		N=1296 >1.64	
	N=1903 ≤2.665		N=1434 ≤1.64	
	HR (95% CI)	p-value	HR (95% CI)	p-value
OS	1.10 (0.99-1.23)	0.074	1.16 (1.01-1.27)	0.003
DFS	1.09 (0.98-1.21)	0.099	1.12 (1.02-1.24)	0.019
TRM	1.19 (1.03-1.37)	0.019	1.24 (1.08-1.41)	0.002
Relapse	1.01 (0.87-1.18)	0.854	1.03 (0.89-1.18)	0.691
cGVHD	1.11 (0.99-1.26)	0.079	1.09 (0.98-1.22)	0.144
aGVHD II-IV	1.08 (0.95-1.22)	0.255	1.13 (1.01-1.27)	0.038
aGVHD III-IV	1.07 (0.88-1.30)	0.499	1.02 (0.89-1.22)	0.872

Data are shown using Low Risk mismatches as reference (N= for dFD >2.665 and N= for dFD >1.64). HR, hazard ratio.

References:

1. Sanchez-Mazas A, Nunes JM, Middleton D, et al. Common and well-documented HLA alleles over all of Europe and within European sub-regions: A catalogue from the European Federation for Immunogenetics. *HLA*. 2017;89(2):104-113.
2. Mack SJ, Cano P, Hollenbach JA, et al. Common and well-documented HLA alleles: 2012 update to the CWD catalogue. *Tissue Antigens*. 2013;81(4):194-203.