

Supplementary Information S04

Table S04-1: Global linkage disequilibrium between the 8 HLA loci.

Both parametric and non-parametric tests have been used with the GENE[RATE] computer tools. Significant values are in bold ($p < 0.05$).

P-values for parametric test								
	HLA-A	HLA-B	HLA-C	HLA-DRB1	HLA-DQA1	HLA-DQB1	HLA-DPA1	HLA-DPB1
HLA-A	—	1	1	1	1	0.99	0.99	1
HLA-B	1	—	1	1	1	1	1	1
HLA-C	1	1	—	0.99	0.99	0.99	0.99	1
HLA-DRB1	1	1	0.37	—	0.002	0.07	0.99	1
HLA-DQA1	1	1	0.6	<0.01	—	<0.01	0.99	1
HLA-DQB1	0.48	1	0.27	<0.01	<0.01	—	0.99	1
HLA-DPA1	0.79	1	0.56	0.05	0.12	0.17	—	0.00081
HLA-DPB1	1	1	1	1	1	1	<0.01	—
	HLA-A	HLA-B	HLA-C	HLA-DRB1	HLA-DQA1	HLA-DQB1	HLA-DPA1	HLA-DPB1
P-values for non-parametric test								

Both parametric and non-parametric tests have been used with the GENE[RATE] computer tools. Significant values are in bold ($p < 0.05$).

Table S04-2: Haplotype frequencies and linkage disequilibrium

Only haplotypes in positive significant linkage disequilibrium (i.e. standardized residuals > 1.96, and observed frequency > 5%) are listed, in decreasing order of the standardized residuals. D is the value of the linkage disequilibrium coefficient, corresponding of the difference between the observed and expected frequencies. Test were performed with the GENE[RATE] computer tools.

Haplotypes	Observed frequencies	Expected frequencies	Linkage disequilibrium coefficient D	Standardized Residuals
DQA1*04:01:01~DQB1*04:02:01	0,053	0,003	0,050	10,101
DQA1*02:01~DRB1*07:01:01	0,057	0,004	0,053	9,732
DQB1*06:02:01~DRB1*08:06	0,060	0,004	0,056	9,354
DQA1*05:01:01~DQB1*02:01:01	0,088	0,008	0,079	9,157
DQA1*05:01:01~DRB1*03:01:01	0,081	0,008	0,073	9,095
DQB1*02:01:01~DRB1*03:01:01	0,078	0,009	0,069	7,801
DQA1*01:05:01~DQB1*05:01:01	0,053	0,005	0,048	7,104
DQA1*01:02:01~DQB1*06:02:01	0,070	0,009	0,062	7,051
DPA1*03:01~DPB1*105:01	0,108	0,017	0,091	6,998
DQA1*01:02:01~DRB1*08:06	0,057	0,007	0,050	6,666
DPA1*02:01:08~DPB1*01:01:01	0,078	0,011	0,068	6,548
DQB1*02:02:01~DRB1*07:01:01	0,052	0,006	0,046	6,307
DPA1*03:01~DRB1*08:06	0,073	0,012	0,061	5,366
DPA1*01:03:01~DPB1*02:01:02	0,108	0,026	0,082	5,125
A*30:02:01~DQA1*01:02:01	0,068	0,015	0,053	4,873
DPB1*131:01~DRB1*13:04	0,152	0,056	0,096	4,500
A*30:02:01~DPA1*03:01	0,069	0,015	0,053	4,301
DQB1*03:19~DRB1*13:04	0,259	0,119	0,140	4,092
DQA1*05:05:01~DQB1*03:19	0,430	0,228	0,202	3,963
DPA1*03:01~DQB1*06:02:01	0,065	0,015	0,050	3,875
DQA1*05:05:01~DRB1*13:04	0,282	0,148	0,135	3,609
DPA1*01:03:01~DRB1*03:01:01	0,052	0,012	0,039	3,426
DPA1*02:01:01~DPB1*131:01	0,201	0,097	0,104	3,198
DPA1*02:01:01~DPB1*17:01	0,201	0,097	0,104	3,198
C*16:01:01~DPB1*01:01:01	0,065	0,020	0,044	3,198
DPB1*131:01~DQA1*05:05:01	0,171	0,097	0,074	2,616
A*30:02:01~C*04:01:01	0,055	0,020	0,035	2,565
A*33:03:01~DRB1*13:04	0,069	0,031	0,039	2,454
A*33:03:01~DPB1*17:01	0,057	0,024	0,032	2,428
DPA1*02:01:01~DRB1*13:04	0,206	0,117	0,090	2,418
A*23:01:01~B*35:01:01	0,065	0,029	0,036	2,409
DPA1*03:01~DQA1*01:02:01	0,061	0,025	0,036	2,238
B*35:01:01~C*16:01:01	0,065	0,028	0,037	2,237
DQA1*05:05:01~DRB1*11:01:02	0,089	0,045	0,044	2,236
C*04:01:01~DPB1*105:01	0,052	0,021	0,031	2,217
B*35:01:01~DPB1*131:01	0,067	0,032	0,035	2,195
DPB1*131:01~DQB1*03:19	0,148	0,086	0,061	2,177
DQB1*03:19~DRB1*11:02:01	0,069	0,033	0,036	2,059
B*52:01:02~DQB1*03:19	0,052	0,023	0,029	2,046