

**Supplemental Table 1. Hazard ratios and 95% confidence intervals of HLA alleles, carried by more than one subject, for HIV-1 superinfection risk.**

HLA Allele	n	Cox Regression	
		HR (95% CI)	p-value
HLA_A*01	25	0.78 (0.12-3.14)	0.751
HLA_A*02	28	0.58 (0.09-2.34)	0.475
HLA_A*03	27	1.27 (0.27-4.58)	0.732
HLA_A*11	17	0.22 (0.00-1.68)	0.177
HLA_A*23	5	2.75 (0.15-14.71)	0.401
HLA_A*24	18	1.71 (0.26-6.87)	0.520
HLA_A*25	3	2.12 (0.02-16.49)	0.642
HLA_A*26	6	2.02 (0.11-10.92)	0.544
HLA_A*29	10	4.10 (0.88-14.76)	0.069
HLA_A*30	9	0.37 (0.00-2.92)	0.429
HLA_A*31	4	1.51 (0.08-8.16)	0.713
HLA_A*32	7	3.69 (0.55-15.13)	0.153
HLA_A*33	5	0.83 (0.01-6.55)	0.898
HLA_A*68	17	0.88 (0.13-3.54)	0.874
HLA_B*07	21	0.42 (0.02-2.22)	0.351
HLA_B*08	14	0.90 (0.05-4.81)	0.917
HLA_B*13	10	0.47 (0.00-3.65)	0.558
HLA_B*14	6	0.67 (0.01-5.24)	0.772
HLA_B*15	7	0.43 (0.00-3.32)	0.502
HLA_B*18	11	0.32 (0.00-2.47)	0.343
HLA_B*27	9	0.38 (0.00-2.98)	0.443
HLA_B*35	24	4.64 (1.33-18.17)	0.017
HLA_B*38	4	3.13 (0.17-17.75)	0.355
HLA_B*39	3	1.17 (0.01-9.08)	0.918
HLA_B*40	10	1.06 (0.06-5.64)	0.958
HLA_B*44	32	0.88 (0.19-3.16)	0.848
HLA_B*49	2	1.33 (0.01-10.43)	0.852
HLA_B*51	10	0.98 (0.05-5.21)	0.982
HLA_B*52	2	3.99 (0.03-35.35)	0.435
HLA_B*53	2	1.71 (0.01-13.32)	0.732
HLA_B*55	2	3.13 (0.02-25.75)	0.505
HLA_B*57	13	1.65 (0.25-6.60)	0.549
HLA_C*01	9	0.35 (0.00-2.76)	0.399
HLA_C*02	5	0.80 (0.01-6.25)	0.877
HLA_C*03	16	0.60 (0.03-3.17)	0.598
HLA_C*04	26	5.30 (1.51-20.77)	0.010
HLA_C*05	23	0.33 (0.02-1.75)	0.221
HLA_C*06	18	0.24 (0.00-1.89)	0.221
HLA_C*07	45	0.74 (0.19-2.60)	0.640
HLA_C*08	6	0.67 (0.01-5.24)	0.772
HLA_C*12	14	0.68 (0.04-3.64)	0.703
HLA_C*15	5	1.78 (0.10-9.50)	0.613
HLA_C*16	12	4.05 (0.87-14.62)	0.071

HLA Allele	n	Cox Regression	
		HR (95% CI)	p-value
HLA_C*18	2	4.96 (0.27-26.52)	0.215
HLA-DRB1*01	19	1.82 (0.39-6.54)	0.408
HLA-DRB1*03	18	0.66 (0.04-3.53)	0.676
HLA-DRB1*04	36	0.76 (0.16-2.72)	0.679
HLA-DRB1*07	34	3.29 (0.94-12.90)	0.062
HLA-DRB1*08	4	15.37 (2.11-79.80)	0.011
HLA-DRB1*09	4	1.87 (0.10-9.99)	0.585
HLA-DRB1*11	24	0.13 (0.00-1.03)	0.054
HLA-DRB1*13	24	0.29 (0.02-1.57)	0.173
HLA-DRB1*14	2	2.12 (0.02-16.49)	0.642
HLA-DRB1*15	15	1.17 (0.18-4.68)	0.847
HLA-DRB1*16	4	2.51 (0.14-13.42)	0.439

n = number of subjects with a given allele; HR = hazard ratio; CI = confidence interval.

**Supplemental Table 2. Homozygosity of HLA loci as a risk factor for HIV-1 superinfection.**

<b>Cox Regression</b>		
<b>HLA Locus</b>	<b>HR (95% CI)</b>	<b>p-value</b>
<b>HLA-A</b>	0.23 (0.002 – 1.80)	0.202
<b>HLA-B</b>	3.57 (0.54 – 14.29)	0.160
<b>HLA-C</b>	0.59 (0.03 – 3.17)	0.597
<b>HLA-DRB1</b>	0.36 (0.003 – 2.81)	0.409

HR = hazard ratio; CI = confidence interval.

**Supplemental Table 3. Distribution of low- and high-risk HLA alleles for HIV-1 superinfection in monoinfected and superinfected subjects.**

Contacts per Month Median (Range)	Infection Status	FU Months	HLA-A Allele 1	HLA-A Allele 2	HLA-B Allele 1	HLA-B Allele 2	HLA-C Allele 1	HLA-C Allele 2	HLA-DRB1 Allele 1	HLA-DRB1 Allele 2
0 <sup>1</sup>	MI	0.7	*03	*69	*35	*51	*04	*16	*01	*11
0 (0 - 0)	MI	7.5	*01	*02	*08	*13	*06	*07	*03	*07
0 (0 - 2)	MI	8.0	*02	*24	*35	*35	*03	*04	*04	*04
0 (0 - 7)	MI	8.4	*01	*24	*35	*37	*04	*06	*04	*11
0 (0 - 1)	MI	17.7	*01	*33	*08	*44	*07	*07	*04	*13
0 (0 - 1)	MI	25.8	*01	*30	*08	*40	*03	*07	*04	*15
0 (0 - 1)	MI	27.0	*03	*68	*07	*18	*07	*12	*11	*13
0 (0 - 4)	MI	28.8	*03	*31	*07	*40	*03	*07	*01	*14
0 (0 - 3)	MI	41.4	*11	*24	*35	*44	*05	*12	*11	*16
0 (0 - 60)	MI	44.3	*03	*03	*07	*35	*04	*07	*01	*04
0 (0 - 2)	MI	45.1	*03	*03	*07	*07	*07	*07	*07	*15
0 (0 - 0)	MI	58.4	*02	*03	*07	*18	*07	*07	*09	*13
0 (0 - 3)	MI	73.9	*03	*24	*07	*15	*03	*07	*04	*13
0.5 (0 - 1)	MI	18.7	*01	*24	*15	*18	*03	*12	*11	*13
0.5 (0 - 1)	MI	32.4	*02	*23	*44	*50	*05	*06	*04	*04
1 (0 - 2)	MI	0.7	*24	*30	*44	*44	*04	*05	*04	*13
1 <sup>1</sup>	MI	1.8	*24	*25	*07	*18	*07	*12	*07	*15
1 <sup>1</sup>	MI	2.3	*29	*68	*13	*44	*06	*16	*29	*68
1 <sup>1</sup>	MI	3.5	*02	*29	*44	*44	*05	*16	*04	*07
1 <sup>1</sup>	MI	4.4	*03	*11	*35	*44	*04	*04	*01	*07
1 <sup>1</sup>	MI	5.4	*02	*02	*07	*57	*06	*07	*01	*04
1 (1 - 5)	MI	8.8	*03	*11	*07	*14	*07	*08	*01	*13
1 (1 - 1)	MI	10.7	*01	*02	*13	*57	*06	*06	*07	*07
1 (1 - 1)	MI	12.6	*24	*30	*18	*55	*05	*12	*07	*11
1 (0 - 6)	MI	12.9	*02	*26	*07	*51	*07	*15	*13	*13
1 <sup>1</sup>	MI	15.6	*01	*11	*27	*57	*01	*06	*04	*07
1 (1 - 2)	MI	15.6	*01	*68	*35	*44	*04	*05	*01	*10
1 (0 - 1)	MI	18.0	*01	*32	*35	*44	*02	*05	*01	*13
1 (0 - 3)	MI	18.7	*11	*68	*35	*44	*04	*05	*04	*11
1 (0 - 2)	MI	22.9	*02	*68	*13	*15	*03	*03	*07	*15
1 (0 - 30)	MI	24.0	*02	*02	*44	*51	*05	*14	*04	*11
1 (1 - 4)	MI	27.9	*02	*03	*39	*57	*06	*07	*01	*07
1 (1 - 2)	MI	28.7	*01	*03	*08	*13	*06	*07	*03	*07
1 (0 - 2)	MI	32.8	*30	*30	*35	*57	*04	*18	*13	*15
1 (1 - 2)	MI	34.8	*02	*02	*40	*46	*01	*02	*09	*13
1 (1 - 1)	MI	36.1	*02	*02	*13	*14	*07	*08	*13	*15
1 (0 - 3)	MI	36.2	*11	*68	*39	*44	*05	*07	*04	*13
1 (0 - 1)	MI	37.4	*11	*68	*07	*51	*01	*07	*11	*15

Contacts per Month Median (Range)	Infection Status	FU Months	HLA-A Allele 1	HLA-A Allele 2	HLA-B Allele 1	HLA-B Allele 2	HLA-C Allele 1	HLA-C Allele 2	HLA-DRB1 Allele 1	HLA-DRB1 Allele 2
1 (0 - 10)	MI	38.2	*02	*24	*07	*18	*07	*07	*01	*11
1 (1 - 10)	MI	39.0	*11	*29	*44	*44	*05	*16	*04	*07
1 (1 - 2)	MI	40.3	*02	*11	*15	*27	*02	*03	*04	*04
1 (0 - 15)	MI	42.1	*32	*68	*40	*44	*03	*07	*11	*15
1 (0 - 5)	MI	59.2	*01	*01	*15	*49	*07	*12	*07	*13
1 (1 - 1)	MI	64.0	*26	*31	*07	*18	*07	*07	*01	*11
1.5 (1 - 2)	MI	8.2	*02	*03	*07	*44	*05	*07	*04	*04
1.5 (1 - 2)	MI	10.4	*23	*23	*52	*82	*03	*16	*07	*13
1.5 (1 - 2)	MI	17.8	*03	*23	*44	*51	*04	*04	*07	*09
1.5 (1 - 2)	MI	34.6	*02	*29	*35	*49	*04	*07	*04	*04
1.5 (0 - 20)	MI	65.3	*01	*03	*14	*57	*06	*08	*07	*13
2 <sup>1</sup>	MI	5.9	*03	*11	*07	*15	*04	*07	*04	*08
2 <sup>1</sup>	MI	14.2	*11	*32	*44	*51	*05	*15	*11	*12
2 (1 - 3)	MI	14.5	*01	*11	*08	*57	*06	*07	*03	*07
2 (0 - 12)	MI	17.1	*03	*26	*07	*38	*07	*12	*15	*15
2 (0 - 4)	MI	17.9	*30	*68	*44	*51	*07	*16	*07	*11
2 (1 - 3)	MI	20.0	*03	*11	*15	*35	*04	*04	*01	*03
2 (0 - 4)	MI	28.1	*30	*33	*14	*53	*08	*15	*03	*13
2 (1 - 5)	MI	28.8	*02	*68	*35	*44	*04	*05	*04	*11
2 (1 - 4)	MI	41.5	*11	*29	*27	*44	*01	*16	*01	*07
2 (0 - 5)	MI	42.1	*01	*68	*08	*44	*05	*07	*03	*16
3 <sup>1</sup>	MI	1.1	*03	*23	*07	*44	*04	*07	*01	*07
3 <sup>1</sup>	MI	3.4	*24	*24	*40	*56	*01	*03	*11	*16
3 <sup>1</sup>	MI	6.7	*02	*24	*35	*44	*04	*05	*03	*04
3 (0 - 6)	MI	6.7	*02	*32	*39	*40	*03	*12	*04	*13
3 <sup>1</sup>	MI	7.1	*01	*02	*08	*27	*01	*07	*03	*11
3 <sup>1</sup>	MI	7.8	*01	*11	*08	*57	*06	*07	*03	*07
3 (2 - 4)	MI	9.5	*25	*68	*40	*44	*03	*05	*04	*15
3 (3 - 5)	MI	24.1	*03	*03	*13	*35	*04	*06	*01	*15
3 (2 - 4)	MI	32.7	*30	*30	*18	*35	*04	*05	*03	*13
3 (1 - 5)	MI	53.7	*02	*68	*27	*44	*01	*05	*04	*11
3.5 (2 - 5)	MI	19.5	*01	*30	*08	*13	*06	*07	*03	*07
4 <sup>1</sup>	MI	2.6	*02	*03	*07	*13	*06	*07	*02	*03
4 (1 - 7)	MI	6.3	*32	*68	*44	*57	*07	*16	*03	*07
4 (3 - 9)	MI	10.8	*01	*02	*07	*40	*03	*07	*04	*15
4 (4 - 5)	MI	21.4	*01	*29	*27	*44	*01	*16	*04	*07
5 <sup>1</sup>	MI	0.7	*01	*03	*07	*08	*07	*07	*03	*13
5 (0 - 10)	MI	5.2	*01	*26	*08	*38	*07	*12	*03	*04
5 (0 - 50)	MI	41.5	*25	*68	*18	*57	*06	*12	*13	*13
5.5 (5 - 8)	MI	13.7	*30	*33	*53	*53	*04	*04	*11	*11
6 <sup>1</sup>	MI	2.9	*11	*24	*18	*35	*04	*05	*03	*13

Contacts per Month Median (Range)	Infection Status	FU Months	HLA-A Allele 1	HLA-A Allele 2	HLA-B Allele 1	HLA-B Allele 2	HLA-C Allele 1	HLA-C Allele 2	HLA-DRB1 Allele 1	HLA-DRB1 Allele 2
6.5 (3 - 10)	MI	7.4	*03	*03	*14	*27	*02	*08	*04	*13
7 <sup>1</sup>	MI	4.6	*03	*24	*40	*51	*03	*07	*04	*11
7 (2 - 12)	MI	8.8	*24	*29	*08	*27	*02	*07	*03	*04
12.5 (10 - 15)	MI	6.4	*01	*33	*14	*52	*08	*12	*01	*15
15 <sup>1</sup>	MI	2.3	*02	*26	*13	*44	*05	*06	*04	*07
30 <sup>1</sup>	MI	9.6	*01	*24	*18	*57	*06	*12	*07	*11
NA	MI	7.3	*03	*11	*51	*55	*03	*15	*03	*14
NA	MI	12.0	*24	*33	*35	*38	*07	*12	*04	*11
NA	MI	62.0	*02	*31	*27	*44	*01	*05	*04	*11
0 (0 - 1)	SI	11.2	*26	*32	*07	*38	*07	*12	*09	*15
1 (1 - 3)	SI	19.9	*01	*68	*35	*57	*07	*07	*04	*07
1 (1 - 4)	SI	21.1	*24	*31	*35	*51	*04	*15	*04	*07
2 <sup>1</sup>	SI	3.4	*24	*66	*35	*41	*04	*17	*13	*15
2 (1 - 3)	SI	16.9	*02	*29	*44	*44	*05	*16	*01	*07
4 <sup>1</sup>	SI	4.6	*23	*29	*44	*44	*04	*16	*04	*07
5 <sup>1</sup>	SI	3.8	*01	*03	*08	*35	*04	*07	*01	*03
6.5 (3 - 10)	SI	10.9	*02	*68	*35	*40	*03	*04	*08	*16
8 <sup>1</sup>	SI	5.5	*03	*29	*44	*57	*16	*18	*01	*07
NA	SI	9.8	*03	*32	*35	*47	*04	*07	*07	*08

FU, follow-up; MI, mono-infection; SI, superinfection; NA, not available; <sup>1</sup>only one data point available; blue, low-risk HLA allele; red, high-risk HLA allele. Contact numbers are median (range) values during the follow-up period.

**Supplemental Table 4. Linkage disequilibrium between HLA loci.**

<b>Locus 1</b>	<b>Locus 2</b>	<b>n</b>	<b>ChiSq</b>	<b>DF</b>	<b>p-value</b>
HLA-A	HLA-B	98	637.505	360	<0.0001
HLA-A	HLA-C	98	347.880	195	<0.0001
HLA-A	HLA-DRB1	98	229.068	225	0.412
HLA-B	HLA-C	98	768.775	312	<0.0001
HLA-B	HLA-DRB1	98	414.794	360	0.024
HLA-C	HLA-DRB1	98	212.030	195	0.192

n = number of subjects; ChiSq = Chi-square test; DF = degrees of freedom.