

Additional file 1.1. HLA-A*, B*, C*, DRB1* and DQB1* alleles frequencies in 202 patients with B leprosy and 478 healthy controls.

HLA allele	B leprosy (N=202)		Controls (N= 478)		p	HLA allele	B leprosy (N=202)		Controls (N= 478)		p
	n	Fa (%)	n	Fa (%)			n	Fa (%)	n	Fa (%)	
	A*01	32	15.84	82			17.15	0.736	A*31	13	
A*02	107	53.00	236	49.37	0.402	A*32	11	5.44	34	7.11	0.501
A*03	50	24.75	95	19.87	0.182	A*33	12	5.94	25	5.23	0.713
A*11	22	10.89	56	11.71	0.794	A*34	02	0.99	11	2.30	0.363
A*23	14	6.93	47	9.83	0.244	A*36	02	0.99	06	1.25	1.000
A*24	40	19.80	101	21.13	0.756	A*66	02	0.99	05	1.05	1.000
A*25	03	1.48	13	2.72	0.416	A*68	25	12.38	51	10.67	0.508
A*26	20	9.90	38	7.95	0.452	A*69	00	0.00	03	0.63	0.558
A*29	16	7.92	48	10.04	0.472	A*74	05	2.47	04	0.84	0.134
A*30	27	13.37	52	10.88	0.361	A*80	01	0.49	01	0.21	0.506
B*07	38	18.81	61	12.78	0.043	B*47	02	0.99	00	0.00	0.087
B*08	25	12.38	49	10.27	0.420	B*48	01	0.49	03	0.62	1.000
B*13	08	3.96	22	4.61	0.839	B*49	02	0.99	29	6.07	0.002
B*14	20	9.90	47	9.85	1.000	B*50	04	1.98	30	6.28	0.019
B*15	41	20.30	80	16.77	0.273	B*51	35	17.33	86	18.02	0.912
B*18	25	12.38	64	13.41	0.803	B*52	07	3.46	19	3.98	0.830
B*27	04	1.98	20	4.19	0.178	B*53	13	6.43	14	2.93	0.050
B*35	44	21.78	103	21.55	1.000	B*54	00	0.00	01	0.20	1.000
B*37	04	1.98	13	2.72	0.789	B*55	03	1.48	14	2.93	0.420
B*38	09	4.45	21	4.40	1.000	B*56	01	0.49	04	0.83	1.000
B*39	15	7.42	30	6.28	0.613	B*57	10	4.95	25	5.24	1.000
B*40	23	11.39	50	10.46	0.786	B*58	12	5.94	24	5.03	0.707
B*41	02	0.99	04	0.83	1.000	B*59	00	0.00	01	0.20	1.000
B*42	06	2.97	19	3.98	0.657	B*73	00	0.00	01	0.20	1.000
B*44	35	17.33	98	20.54	0.397	B*78	00	0.00	01	0.20	1.000
B*45	10	4.95	18	3.77	0.527	B*81	05	2.47	05	1.05	0.172
C*01	08	3.96	34	7.11	0.161	C*08	25	12.38	47	9.83	0.340
C*02	18	8.91	63	13.18	0.122	C*12	31	15.35	64	13.39	0.545
C*03	53	26.24	104	21.75	0.232	C*14	08	3.96	18	3.76	1.000
C*04	61	30.20	144	30.12	1.000	C*15	20	9.90	50	10.46	0.890
C*05	12	5.94	67	14.02	0.002	C*16	21	10.4	26	5.44	0.030
C*06	36	17.82	96	20.08	0.525	C*17	08	3.96	23	4.81	0.692
C*07	99	49.00	216	45.19	0.400	C*18	04	1.98	04	0.84	0.246
DRB1*01	38	18.81	94	19.66	0.832	DRB1*11	55	27.23	108	22.59	0.202
DRB1*03	41	20.30	85	17.78	0.450	DRB1*12	04	1.98	15	3.13	0.610
DRB1*04	38	18.81	87	18.20	0.913	DRB1*13	64	31.68	155	32.42	0.928
DRB1*07	33	16.34	128	26.77	0.003	DRB1*14	19	9.40	56	11.71	0.423
DRB1*08	20	9.90	36	7.53	0.359	DRB1*15	55	27.23	111	23.22	0.283
DRB1*09	06	2.97	20	4.18	0.519	DRB1*16	22	10.9	36	7.53	0.175
DRB1*10	09	4.45	25	5.23	0.847						
DQB1*02	67	33.17	189	39.53	0.120	DQB1*05	93	46.04	192	40.16	0.173
DQB1*03	119	58.91	298	62.34	0.438	DQB1*06	106	52.47	224	46.86	0.207
DQB1*04	19	9.40	53	11.08	0.586						

N: number of individuals, n: number of alleles (2n), %: allele frequency, p: Fisher's exact test (p ≤ 0.05).

Additional file 1.2. HLA-A*, B*, C*, DRB1* and DQB1* alleles frequencies in 88 BB leprosy and 478 healthy controls.

HLA allele	BB leprosy (N=88)		Controls (N=478)		p	HLA allele	BB leprosy (N=88)		Controls (N=478)		p
	n	Fa (%)	n	Fa (%)			n	Fa (%)	n	Fa (%)	
	A*01	17	19.31	82			17.15	0.647	A*31	07	
A*02	44	50.00	236	49.37	1.000	A*32	04	4.54	34	7.11	0.490
A*03	21	23.86	95	19.87	0.391	A*33	03	3.41	25	5.23	0.600
A*11	14	15.90	56	11.71	0.290	A*34	02	2.27	11	2.30	1.000
A*23	04	4.54	47	9.83	0.153	A*36	00	0.00	06	1.25	0.597
A*24	19	21.59	101	21.13	0.888	A*66	00	0.00	05	1.05	1.000
A*25	01	1.14	13	2.72	0.707	A*68	13	14.77	51	10.67	0.272
A*26	10	11.36	38	7.95	0.298	A*69	00	0.00	03	0.63	1.000
A*29	05	5.68	48	10.04	0.235	A*74	01	1.14	04	0.84	0.571
A*30	11	12.50	52	10.88	0.711	A*80	00	0.00	01	0.21	1.000
B*07	13	14.77	61	12.78	0.606	B*47	01	1.14	00	0.00	0.155
B*08	12	13.64	49	10.27	0.350	B*48	00	0.00	03	0.62	1.000
B*13	02	2.27	22	4.61	0.561	B*49	00	0.00	29	6.07	0.014
B*14	10	11.36	47	9.85	0.699	B*50	01	1.14	30	6.28	0.069
B*15	13	14.77	80	16.77	0.754	B*51	12	13.64	86	18.02	0.361
B*18	10	11.36	64	13.41	0.731	B*52	05	5.68	19	3.98	0.400
B*27	04	4.54	20	4.19	0.778	B*53	04	4.54	14	2.93	0.503
B*35	21	23.86	103	21.55	0.674	B*54	00	0.00	01	0.20	1.000
B*37	03	3.41	13	2.72	0.724	B*55	01	1.14	14	2.93	0.486
B*38	05	5.68	21	4.40	0.580	B*56	01	1.14	04	0.83	0.571
B*39	04	4.54	30	6.28	0.633	B*57	05	5.68	25	5.24	0.798
B*40	13	14.77	50	10.46	0.267	B*58	10	11.36	24	5.03	0.028
B*41	02	2.27	04	0.83	0.236	B*59	00	0.00	01	0.20	1.000
B*42	03	3.41	19	3.98	1.000	B*73	00	0.00	01	0.20	1.000
B*44	16	18.18	98	20.54	0.667	B*78	00	0.00	01	0.20	1.000
B*45	04	4.54	18	3.77	0.762	B*81	01	1.14	05	1.05	1.000
C*01	05	5.68	34	7.11	0.819	C*08	12	13.64	47	9.83	0.340
C*02	07	7.95	63	13.18	0.217	C*12	19	21.59	64	13.39	0.050
C*03	20	22.73	104	21.75	0.888	C*14	00	0.00	18	3.76	0.091
C*04	25	28.41	144	30.12	0.800	C*15	08	9.09	50	10.46	0.848
C*05	05	5.68	67	14.02	0.035	C*16	07	7.95	26	5.44	0.328
C*06	21	23.86	96	20.08	0.473	C*17	04	4.54	23	4.81	1.000
C*07	41	46.59	216	45.19	0.816	C*18	02	2.27	04	0.84	0.236
DRB1*01	14	15.91	94	19.66	0.463	DRB1*11	26	29.54	108	22.59	0.172
DRB1*03	17	19.32	85	17.78	0.762	DRB1*12	01	1.14	15	3.13	0.487
DRB1*04	18	20.45	87	18.20	0.769	DRB1*13	25	28.41	155	32.42	0.533
DRB1*07	16	18.18	128	26.77	0.109	DRB1*14	10	11.36	56	11.71	1.000
DRB1*08	06	6.82	36	7.53	1.000	DRB1*15	26	29.54	111	23.22	0.223
DRB1*09	01	1.14	20	4.18	0.226	DRB1*16	10	11.36	36	7.53	0.285
DRB1*10	06	6.82	25	5.23	0.608						
DQB1*02	29	32.95	189	39.53	0.283	DQB1*05	41	46.59	192	40.16	0.289
DQB1*03	54	61.36	298	62.34	0.904	DQB1*06	45	51.14	224	46.86	0.487
DQB1*04	07	7.95	53	11.08	0.454						

N: number of individuals, n: number of alleles (2n), %: allele frequency, p: Fisher's exact test (p ≤ 0.05).

Additional file 1.3. HLA-A*, B*, C*, DRB1* and DQB1* alleles frequencies in 70 BT leprosy and 478 healthy controls.

HLA allele	BT leprosy (N=70)		Controls (N=478)		p	HLA allele	BT leprosy (N=70)		Controls (N=478)		p
	n	Fa (%)	n	Fa (%)			n	Fa (%)	n	Fa (%)	
	A*01	13	18.57	82			17.15	0.737	A*31	04	
A*02	37	52.86	236	49.37	0.610	A*32	03	4.28	34	7.11	0.607
A*03	19	27.14	95	19.87	0.159	A*33	08	11.43	25	5.23	0.056
A*11	05	7.14	56	11.71	0.313	A*34	00	0.00	11	2.30	0.374
A*23	04	5.71	47	9.83	0.377	A*36	01	1.43	06	1.25	1.000
A*24	13	18.57	101	21.13	0.752	A*66	02	2.86	05	1.05	0.221
A*25	02	2.86	13	2.72	1.000	A*68	08	11.43	51	10.67	0.836
A*26	05	7.14	38	7.95	1.000	A*69	00	0.00	03	0.63	1.000
A*29	04	5.71	48	10.04	0.380	A*74	02	2.86	04	0.84	0.171
A*30	10	14.28	52	10.88	0.418	A*80	00	0.00	01	0.21	1.000
B*07	15	21.43	61	12.78	0.062	B*47	01	1.43	00	0.00	0.127
B*08	10	14.28	49	10.27	0.304	B*48	01	1.43	03	0.62	0.422
B*13	03	4.28	22	4.61	1.000	B*49	00	0.00	29	6.07	0.039
B*14	08	11.43	47	9.85	0.670	B*50	01	1.43	30	6.28	0.160
B*15	16	22.85	80	16.77	0.237	B*51	16	22.85	86	18.02	0.326
B*18	11	15.71	64	13.41	0.578	B*52	02	2.86	19	3.98	1.000
B*27	00	0.00	20	4.19	0.093	B*53	06	8.57	14	2.93	0.031
B*35	14	20.00	103	21.55	0.876	B*54	00	0.00	01	0.20	1.000
B*37	02	2.86	13	2.72	1.000	B*55	02	2.86	14	2.93	1.000
B*38	02	2.86	21	4.4	0.754	B*56	00	0.00	04	0.83	1.000
B*39	06	8.57	30	6.28	0.441	B*57	03	4.28	25	5.24	1.000
B*40	02	2.86	50	10.46	0.047	B*58	02	2.86	24	5.03	0.559
B*41	00	0.00	04	0.83	1.000	B*59	00	0.00	01	0.20	1.000
B*42	03	4.28	19	3.98	0.752	B*73	00	0.00	01	0.20	1.000
B*44	09	12.86	98	20.54	0.149	B*78	00	0.00	01	0.20	1.000
B*45	02	2.86	18	3.77	1.000	B*81	03	4.28	05	1.05	0.069
C*01	02	2.86	34	7.11	0.297	C*08	09	12.85	47	9.83	0.403
C*02	04	5.71	63	13.18	0.080	C*12	08	11.43	64	13.39	0.849
C*03	17	24.28	104	21.75	0.644	C*14	04	5.71	18	3.76	0.508
C*04	24	34.28	144	30.12	0.489	C*15	10	14.28	50	10.46	0.311
C*05	03	4.28	67	14.02	0.020	C*16	09	12.86	26	5.44	0.031
C*06	09	12.85	96	20.08	0.192	C*17	04	5.71	23	4.81	0.765
C*07	35	50.00	216	45.19	0.521	C*18	02	2.86	04	0.84	0.171
DRB1*01	11	15.71	94	19.66	0.516	DRB1*11	15	21.43	108	22.59	0.879
DRB1*03	20	28.57	85	17.78	0.049	DRB1*12	02	2.86	15	3.13	1.000
DRB1*04	11	15.71	87	18.20	0.738	DRB1*13	26	37.14	155	32.42	0.496
DRB1*07	12	17.14	128	26.77	0.105	DRB1*14	05	7.14	56	11.71	0.313
DRB1*08	07	10.00	36	7.53	0.474	DRB1*15	17	24.28	111	23.22	0.879
DRB1*09	04	5.71	20	4.18	0.531	DRB1*16	09	12.86	36	7.53	0.157
DRB1*10	01	1.43	25	5.23	0.231						
DQB1*02	30	42.85	189	39.53	0.603	DQB1*05	30	42.85	192	40.16	0.696
DQB1*03	36	51.43	298	62.34	0.088	DQB1*06	37	52.85	224	46.86	0.371
DQB1*04	07	10.00	53	11.08	1.000						

N: number of individuals, n: number of alleles (2n), %: allele frequency, p: Fisher's exact test (p ≤ 0.05).

Additional file 1.4. HLA-A*, B*, C*, DRB1* and DQB1* alleles frequencies in 44 BL leprosy and 478 healthy controls.

HLA allele	BL leprosy (N=44)		Controls (N=478)		p	HLA allele	BL leprosy (N=44)		Controls (N=478)		p
	n	Fa (%)	n	Fa (%)			n	Fa (%)	n	Fa (%)	
A*01	03	6.82	82	17.15	0.087	A*31	02	4.54	48	10.04	0.417
A*02	26	59.09	236	49.37	0.270	A*32	04	9.09	34	7.11	0.549
A*03	10	22.73	95	19.87	0.694	A*33	01	2.27	25	5.23	0.714
A*11	03	6.82	56	11.71	0.456	A*34	00	0.00	11	2.30	0.611
A*23	06	13.64	47	9.83	0.431	A*36	01	2.27	06	1.25	0.462
A*24	08	18.18	101	21.13	0.846	A*66	00	0.00	05	1.05	1.000
A*25	00	0.00	13	2.72	0.614	A*68	04	9.09	51	10.67	1.000
A*26	04	9.09	38	7.95	0.771	A*69	00	0.00	03	0.63	1.000
A*29	07	15.91	48	10.04	0.207	A*74	02	4.54	04	0.84	0.083
A*30	06	13.64	52	10.88	0.614	A*80	01	2.27	01	0.21	0.161
B*07	10	22.73	61	12.78	0.103	B*47	00	0.00	00	0.00	1.000
B*08	03	6.82	49	10.27	0.605	B*48	00	0.00	03	0.62	1.000
B*13	02	4.54	22	4.61	1.000	B*49	02	4.54	29	6.07	1.000
B*14	02	4.54	47	9.85	0.414	B*50	02	4.54	30	6.28	1.000
B*15	11	25.00	80	16.77	0.209	B*51	07	15.91	86	18.02	0.839
B*18	04	9.09	64	13.41	0.638	B*52	00	0.00	19	3.98	0.391
B*27	00	0.00	20	4.19	0.399	B*53	04	9.09	14	2.93	0.056
B*35	09	20.45	103	21.55	1.000	B*54	00	0.00	01	0.20	1.000
B*37	00	0.00	13	2.72	0.614	B*55	00	0.00	14	2.93	0.620
B*38	02	4.54	21	4.40	1.000	B*56	00	0.00	04	0.83	1.000
B*39	05	11.36	30	6.28	0.202	B*57	02	4.54	25	5.24	1.000
B*40	08	18.18	50	10.46	0.131	B*58	00	0.00	24	5.03	0.249
B*41	00	0.00	04	0.83	1.000	B*59	00	0.00	01	0.20	1.000
B*42	00	0.00	19	3.98	0.391	B*73	00	0.00	01	0.20	1.000
B*44	10	22.73	98	20.54	0.699	B*78	00	0.00	01	0.20	1.000
B*45	04	9.09	18	3.77	0.104	B*81	01	2.27	05	1.05	0.412
C*01	01	2.27	34	7.11	0.345	C*08	04	9.09	47	9.83	1.000
C*02	07	15.91	63	13.18	0.642	C*12	04	9.09	64	13.39	0.638
C*03	15	34.09	104	21.75	0.088	C*14	04	9.09	18	3.76	0.104
C*04	13	29.54	144	30.12	1.000	C*15	02	4.54	50	10.46	0.294
C*05	04	9.09	67	14.02	0.491	C*16	05	11.36	26	5.44	0.169
C*06	06	13.64	96	20.08	0.425	C*17	00	0.00	23	4.81	0.245
C*07	23	52.27	216	45.19	0.429	C*18	00	0.00	04	0.84	1.000
DRB1*01	12	27.27	94	19.66	0.241	DRB1*11	14	31.82	108	22.59	0.191
DRB1*03	04	9.09	85	17.78	0.206	DRB1*12	01	2.27	15	3.13	1.000
DRB1*04	08	18.18	87	18.20	1.000	DRB1*13	14	31.82	155	32.42	1.000
DRB1*07	05	11.36	128	26.77	0.028	DRB1*14	04	9.09	56	11.71	0.805
DRB1*08	07	15.91	36	7.53	0.077	DRB1*15	13	29.54	111	23.22	0.356
DRB1*09	01	2.27	20	4.18	1.000	DRB1*16	03	6.82	36	7.53	1.000
DRB1*10	02	4.54	25	5.23	1.000						
DQB1*02	8	18.18	189	39.53	0.005	DQB1*05	21	47.73	192	40.16	0.340
DQB1*03	28	63.64	298	62.34	1.000	DQB1*06	26	59.09	224	46.86	0.155
DQB1*04	5	11.36	53	11.08	1.000						

N: number of individuals, n: number of alleles (2n), %: allele frequency, p: Fisher's exact test ($p \leq 0.05$).

Additional file 1.5. HLA-A*, B*, C*, DRB1* and DQB1* alleles frequencies in 94 leprosy patients with reversal reaction and 94 no reaction leprosy.

HLA allele	Reversal reaction (N=94)		No reaction (N=94)		p	HLA allele	Reversal reaction (N=94)		No reaction (N=94)		p
	n	Fa (%)	n	Fa (%)			n	Fa (%)	N	Fa (%)	
A*01	19	20.21	13	13.83	0.332	A*31	05	5.32	07	7.45	0.766
A*02	52	55.32	43	45.74	0.243	A*32	05	5.32	04	4.25	1.000
A*03	25	26.59	21	22.34	0.611	A*33	04	4.25	06	6.38	0.747
A*11	07	7.45	14	14.89	0.163	A*34	01	1.06	01	1.06	1.000
A*23	06	6.38	07	7.45	1.000	A*36	02	2.13	00	0.00	0.497
A*24	19	20.21	19	20.21	1.000	A*66	02	2.13	00	0.00	0.497
A*25	01	1.06	02	2.13	1.000	A*68	10	10.64	15	15.96	0.390
A*26	10	10.64	09	9.57	1.000	A*69	00	0.00	00	0.00	1.000
A*29	04	4.25	11	11.70	0.103	A*74	03	3.19	02	2.13	1.000
A*30	12	12.76	14	14.89	0.833	A*80	01	1.06	00	0.00	1.000
B*07	19	20.21	16	17.02	0.708	B*47	00	0.00	01	1.06	0.474
B*08	17	18.08	08	8.51	0.084	B*48	01	1.06	00	0.00	1.000
B*13	04	4.25	04	4.25	1.000	B*49	00	0.00	02	2.13	0.497
B*14	09	9.57	10	10.64	1.000	B*50	01	1.06	02	2.13	1.000
B*15	27	28.72	12	12.76	0.011	B*51	17	18.08	15	15.96	1.000
B*18	07	7.45	15	15.96	0.070	B*52	04	4.25	03	3.19	1.000
B*27	02	2.13	02	2.13	1.000	B*53	07	7.45	06	6.38	1.000
B*35	18	19.15	23	24.47	0.480	B*54	00	0.00	00	0.00	1.000
B*37	01	1.06	03	3.19	0.621	B*55	02	2.13	01	1.06	1.000
B*38	03	3.19	05	5.32	0.720	B*56	00	0.00	01	1.06	1.000
B*39	08	8.51	06	6.38	0.782	B*57	05	5.32	05	5.32	1.000
B*40	06	6.38	13	13.83	0.145	B*58	06	6.38	06	6.38	1.000
B*41	02	2.13	00	0.00	0.497	B*59	00	0.00	00	0.00	1.000
B*42	04	4.25	02	2.13	0.682	B*73	00	0.00	00	0.00	1.000
B*44	11	11.70	21	22.34	0.079	B*78	00	0.00	00	0.00	1.000
B*45	04	4.25	04	4.25	1.000	B*81	03	3.19	02	2.13	1.000
C*01	04	4.25	04	4.25	1.000	C*08	11	11.70	13	13.83	0.827
C*02	08	8.51	07	7.45	1.000	C*12	10	10.64	17	18.08	0.211
C*03	28	29.79	20	21.28	0.241	C*14	04	4.25	02	2.13	0.682
C*04	27	28.72	31	32.98	0.635	C*15	10	10.64	10	10.64	1.000
C*05	03	3.19	09	9.57	0.133	C*16	08	8.51	12	12.76	0.478
C*06	16	17.02	16	17.02	1.000	C*17	06	6.38	02	2.13	0.278
C*07	51	54.25	43	45.74	1.000	C*18	02	2.13	02	2.13	1.000
DRB1*01	16	17.02	17	18.08	1.000	DRB1*11	22	23.40	29	30.85	0.325
DRB1*03	25	26.59	15	15.96	0.108	DRB1*12	01	1.06	03	3.19	0.621
DRB1*04	19	20.21	18	19.15	1.000	DRB1*13	26	27.66	34	36.17	0.273
DRB1*07	15	15.96	15	15.96	1.000	DRB1*14	09	9.57	09	9.57	1.000
DRB1*08	11	11.70	06	6.38	0.309	DRB1*15	28	29.79	23	24.47	0.512
DRB1*09	04	4.25	02	2.13	0.682	DRB1*16	10	10.64	10	10.64	1.000
DRB1*10	02	2.13	07	7.45	0.169						
DQB1*02	37	37.23	28	29.79	0.354	DQB1*05	38	40.42	45	47.87	0.378
DQB1*03	57	60.64	58	61.70	1.000	DQB1*06	46	48.94	52	55.32	0.465
DQB1*04	12	12.76	05	5.32	0.125						

N: number of individuals, n: number of alleles (2n), %: allele frequency, p: Fisher's exact test (p ≤ 0.05).