

Table S1. Class I allele frequencies in cases and controls for the 45 tested alleles.

Allele	frq-control	frq-case	CountryHet
A*01:01	0.14	0.11	0
A*02:01	0.28	0.28	1
A*03:01	0.22	0.20	0
A*11:01	0.05	0.07	0
A*24:02	0.10	0.10	1
A*25:01	0.03	0.04	1
A*26:01	0.02	0.02	0
A*29:02	0.02	0.02	1
A*30:02	0.01	0.01	0
A*31:01	0.03	0.02	0
A*32:01	0.03	0.03	0
A*68:01	0.03	0.03	0
B*07:02	0.34	0.32	0
B*08:01	0.08	0.06	1
B*13:02	0.02	0.01	0
B*14:01	0.00	0.00	0
B*14:02	0.01	0.01	0
B*15:01	0.05	0.04	1
B*18:01	0.05	0.06	1
B*27:05	0.02	0.02	0
B*35:01	0.05	0.06	0
B*35:03	0.01	0.02	0
B*39:01	0.01	0.02	0
B*40:01	0.05	0.04	1
B*44:02	0.06	0.06	1
B*44:03	0.03	0.03	0
B*50:01	0.01	0.01	0
B*51:01	0.05	0.06	1
B*55:01	0.02	0.02	0
B*56:01	0.01	0.01	0
C*01:02	0.02	0.03	0
C*02:02	0.04	0.04	0
C*03:03	0.04	0.04	1
C*03:04	0.07	0.06	1
C*04:01	0.08	0.10	0
C*05:01	0.06	0.06	1
C*06:02	0.07	0.06	0
C*07:01	0.12	0.10	0
C*07:02	0.35	0.33	0
C*07:04	0.01	0.01	0
C*08:02	0.01	0.02	0
C*12:03	0.05	0.06	1
C*14:02	0.01	0.02	0
C*15:02	0.02	0.03	0
C*16:01	0.02	0.02	1

Frq: frequency, alleles with significant between-country heterogeneity are indicated as 1.

Table S2. *DQB1*-uncorrected class I associations with narcolepsy.

Allele	OR-NL	OR-FR	OR-DE	OR-CH	OR-PL	OR-MH	CI95-MH	P-MH
<i>A*11:01</i>	1.30	2.13	1.25	1.73	1.43	1.46	1.263-1.686	2.88E-07
<i>B*08:01</i>	0.67	0.84	0.94	0.38	1.02	0.72	0.620-0.836	1.68E-05
<i>A*01:01</i>	0.79	0.74	0.84	0.63	1.45	0.79	0.704-0.884	4.46E-05
<i>C*04:01</i>	1.17	1.40	1.14	1.56	1.11	1.26	1.111-1.420	2.64E-04
<i>C*07:01</i>	0.76	0.89	0.87	0.61	1.03	0.81	0.720-0.916	7.23E-04
<i>B*13:02</i>	0.46	0.53	0.74	0.63	0.65	0.60	0.439-0.830	1.91E-03
<i>B*35:01</i>	1.24	1.72	1.21	1.22	1.16	1.26	1.081-1.479	3.36E-03
<i>B*35:03</i>	1.39	0.68	1.74	2.74	4.33	1.47	1.133-1.897	3.64E-03
<i>A*03:01</i>	0.98	0.81	0.85	1.04	0.70	0.89	0.810-0.969	8.15E-03
<i>C*12:03</i>	0.95	1.20	1.48	1.62	0.47	1.22	1.046-1.424	1.13E-02
<i>B*56:01</i>	1.25	5.33	1.68	1.43	0.56	1.69	1.122-2.555	1.21E-02
<i>B*39:01</i>	1.92	1.22	0.67	0.95	4.25	1.44	1.063-1.952	1.86E-02
<i>A*25:01</i>	1.13	1.27	1.59	0.48	0.73	1.28	1.041-1.572	1.90E-02
<i>B*51:01</i>	1.09	1.13	1.00	1.92	1.12	1.19	1.021-1.379	2.60E-02
<i>B*07:02</i>	1.02	0.85	0.95	0.91	0.73	0.92	0.849-0.991	2.80E-02
<i>A*29:02</i>	0.71	0.68	1.16	0.30	0.70	0.74	0.561-0.983	3.73E-02
<i>C*07:02</i>	1.05	0.85	0.96	0.86	0.73	0.92	0.856-0.998	4.40E-02
<i>B*15:01</i>	1.06	1.24	0.32	1.24	0.83	0.84	0.700-0.998	4.79E-02
<i>C*14:02</i>	1.23	1.02	1.68	0.71	11.43	1.35	0.989-1.839	5.90E-02
<i>C*01:02</i>	1.01	2.04	0.96	1.04	1.77	1.24	0.973-1.579	8.28E-02
<i>B*18:01</i>	0.75	1.58	1.16	0.72	0.69	1.15	0.979-1.345	8.90E-02
<i>C*06:02</i>	0.77	0.93	1.06	0.73	0.83	0.88	0.758-1.028	1.08E-01
<i>C*15:02</i>	1.20	0.90	1.38	1.91	0.69	1.18	0.945-1.479	1.43E-01
<i>A*30:02</i>	0.78	1.65	3.36	0.86	1.40	1.32	0.869-1.998	1.95E-01
<i>A*24:02</i>	1.26	1.02	0.80	1.13	1.30	1.08	0.956-1.218	2.20E-01
<i>B*55:01</i>	0.97	1.52	1.34	1.23	1.40	1.20	0.895-1.606	2.23E-01
<i>B*44:03</i>	0.92	1.37	1.64	0.69	0.46	1.15	0.918-1.433	2.28E-01
<i>A*32:01</i>	1.30	0.94	1.35	0.97	0.56	1.14	0.923-1.400	2.29E-01
<i>C*03:04</i>	0.91	0.84	1.10	1.06	1.42	0.92	0.792-1.076	3.05E-01
<i>B*50:01</i>	0.38	1.65	1.26	0.95	2.80	1.28	0.782-2.090	3.28E-01
<i>B*40:01</i>	0.74	0.59	1.54	0.95	2.52	0.91	0.755-1.103	3.45E-01
<i>C*07:04</i>	1.54	0.60	0.97	1.07	1.40	1.15	0.820-1.597	4.27E-01
<i>C*08:02</i>	1.40	0.85	0.94	0.78	2.83	1.13	0.822-1.559	4.46E-01
<i>A*02:01</i>	0.95	0.93	1.07	1.01	0.82	0.97	0.894-1.053	4.74E-01
<i>B*44:02</i>	1.33	0.62	0.62	0.92	3.46	0.95	0.807-1.112	5.07E-01
<i>A*26:01</i>	1.17	1.13	1.14	1.23	0.55	1.09	0.833-1.436	5.19E-01
<i>A*31:01</i>	0.95	0.70	1.00	1.50	2.12	0.94	0.718-1.224	6.35E-01
<i>A*68:01</i>	1.08	0.92	0.60	1.96	2.87	1.05	0.828-1.325	6.99E-01
<i>B*27:05</i>	1.05	0.87	0.75	0.95	2.27	0.97	0.715-1.318	8.49E-01
<i>C*05:01</i>	1.21	0.85	0.72	0.82	2.38	0.98	0.814-1.185	8.55E-01
<i>C*02:02</i>	1.12	0.87	1.07	0.73	1.41	1.02	0.805-1.286	8.86E-01
<i>C*16:01</i>	0.78	0.78	2.54	0.43	0.70	0.98	0.658-1.445	9.02E-01
<i>B*14:01</i>	1.29	0.32	1.25	1.43	2.80	0.99	0.553-1.758	9.61E-01
<i>B*14:02</i>	1.34	0.78	0.83	0.45	2.81	1.01	0.719-1.404	9.78E-01
<i>C*03:03</i>	1.07	1.34	0.51	1.57	2.24	1.00	0.087-11.623	9.97E-01

P values in bold survive Benjamini-Hochberg false discovery rate controlled at 5%. OD: Odds ratio, NL: Netherlands, FR: France, DE: Germany, CH: Switzerland, PL: Poland/ Slovakia. MH: Mantel-Haenszel, CI95: 95% confidence interval.

Table S3. DQB1-conditional HLA class I associations with narcolepsy.

Allele	X-NL	P-NL	X-FR	P-FR	X-DE	P-DE	X-CH	P-CH	X-PL	P-PL	X-all	P-all
A*11:01	0.24	0.19	0.73	0.00	0.24	0.35	0.74	0.07	0.64	0.15	0.35	6.95E-04
C*04:01	0.29	0.08	0.36	0.05	0.15	0.52	0.59	0.07	0.29	0.44	0.28	1.65E-03
B*08:01	-0.18	0.33	-0.32	0.15	-0.02	0.94	-1.05	0.05	0.23	0.65	-0.33	4.71E-03
B*35:01	0.38	0.03	0.52	0.04	0.21	0.46	0.29	0.51	0.53	0.33	0.30	7.56E-03
A*01:01	-0.12	0.36	-0.31	0.07	-0.13	0.44	-0.43	0.12	0.54	0.15	-0.21	1.02E-02
A*25:01	0.02	0.95	0.47	0.14	0.53	0.05	-0.69	0.21	-0.21	0.60	0.37	1.15E-02
C*12:03	-0.07	0.78	0.30	0.15	0.39	0.09	0.57	0.16	-0.68	0.08	0.27	1.36E-02
C*07:01	-0.16	0.30	-0.27	0.12	-0.14	0.47	-0.45	0.13	0.03	0.95	-0.21	1.95E-02
B*35:03	0.25	0.53	-0.30	0.37	0.54	0.20	0.96	0.06	1.56	0.02	0.39	3.16E-02
B*56:01	0.29	0.60	1.79	0.01	0.60	0.40	0.38	0.76	-0.23	0.83	0.57	4.53E-02
C*07:02	0.03	0.76	-0.06	0.63	-0.04	0.74	-0.20	0.37	-0.45	0.08	-0.11	6.50E-02
B*07:02	0.00	1.00	-0.06	0.63	-0.05	0.73	-0.12	0.60	-0.42	0.10	-0.12	6.57E-02
B*13:02	-0.42	0.27	-0.53	0.29	-0.23	0.55	-0.37	0.55	-0.13	0.83	-0.36	6.87E-02
B*18:01	-0.32	0.16	0.53	0.01	0.16	0.47	-0.38	0.35	-0.37	0.25	0.20	8.68E-02
A*03:01	0.00	0.96	-0.11	0.44	-0.19	0.19	0.02	0.92	-0.33	0.21	-0.10	1.07E-01
C*03:04	-0.22	0.14	-0.16	0.57	0.02	0.93	0.04	0.92	0.21	0.67	-0.16	1.09E-01
B*44:03	0.11	0.72	0.24	0.36	0.60	0.16	-0.32	0.56	-0.59	0.40	0.26	1.13E-01
B*15:01	0.06	0.73	0.18	0.57	-	-	0.32	0.50	-0.24	0.72	-0.18	1.31E-01
C*01:02	0.06	0.86	0.75	0.05	-0.05	0.89	0.03	0.96	0.96	0.14	0.27	1.39E-01
B*40:01	-0.46	0.03	-0.46	0.16	0.35	0.20	-0.11	0.84	0.99	0.12	-0.18	1.64E-01
B*51:01	0.01	0.97	0.08	0.69	0.00	1.00	0.62	0.03	-0.19	0.71	0.14	2.12E-01
B*39:01	0.60	0.09	0.21	0.68	-0.46	0.37	0.01	0.99	1.13	0.25	0.29	2.16E-01
B*50:01	-0.52	0.48	0.46	0.36	0.32	0.67	-0.03	0.98	1.89	0.29	0.41	2.29E-01
A*29:02	-0.29	0.37	-0.41	0.15	0.19	0.72	-0.78	0.22	-0.33	0.76	-0.22	2.34E-01
B*44:02	0.23	0.19	-0.52	0.05	-	.	-0.05	0.90	1.24	0.04	-0.12	2.53E-01
A*02:01	-0.12	0.20	-0.07	0.56	0.05	0.69	0.02	0.93	-0.31	0.21	-0.06	2.85E-01
A*30:02	-0.18	0.71	0.34	0.49	1.45	0.09	-0.30	0.76	0.35	0.75	0.31	2.91E-01
C*14:02	0.05	0.91	0.05	0.90	0.53	0.29	-0.31	0.65	2.44	0.05	0.24	3.03E-01
C*15:02	0.13	0.65	-0.18	0.55	0.35	0.36	0.95	0.07	-0.65	0.36	0.16	3.30E-01
C*08:02	0.40	0.37	-0.14	0.71	-0.05	0.91	-0.25	0.72	0.87	0.29	0.21	3.42E-01
C*06:02	-0.21	0.23	-0.10	0.65	0.12	0.61	-0.29	0.43	-0.08	0.84	-0.08	4.26E-01
A*31:01	-0.07	0.79	-0.41	0.23	0.02	0.96	0.43	0.46	0.66	0.45	-0.12	4.51E-01
A*24:02	0.21	0.16	-0.05	0.79	-0.20	0.28	0.18	0.52	0.24	0.52	0.05	5.47E-01
A*26:01	0.17	0.61	0.25	0.53	0.08	0.83	0.19	0.74	-0.49	0.41	0.11	5.49E-01
A*32:01	0.25	0.32	-0.14	0.64	0.33	0.34	0.05	0.92	-1.02	0.28	0.09	5.56E-01
C*16:01	-0.06	0.85	-0.38	0.17	-	-	-0.64	0.39	-0.14	0.90	0.11	5.80E-01
C*05:01	0.17	0.35	-0.21	0.36	-0.30	0.21	-0.25	0.55	1.00	0.16	-0.06	6.06E-01
B*55:01	-0.21	0.49	0.61	0.19	0.27	0.57	0.14	0.86	0.19	0.81	0.09	6.55E-01
B*14:02	0.35	0.49	-0.20	0.64	-0.19	0.71	-0.59	0.46	1.22	0.30	0.10	6.81E-01
C*07:04	0.39	0.26	-0.50	0.33	-0.09	0.84	0.15	0.89	0.21	0.83	0.06	8.00E-01
C*03:03	0.03	0.89	0.34	0.27	-	-	0.55	0.27	0.96	0.12	-0.03	8.02E-01
C*02:02	0.05	0.80	-0.15	0.55	0.10	0.72	-0.33	0.46	0.08	0.89	-0.02	8.74E-01
B*27:05	0.01	0.96	-0.18	0.58	-0.24	0.53	0.02	0.97	0.91	0.24	-0.02	8.86E-01
A*68:01	0.10	0.67	-0.09	0.78	-0.48	0.24	0.92	0.07	1.26	0.07	0.00	9.95E-01
B*14:01	0.55	0.47	-0.95	0.22	0.34	0.79	0.16	0.89	1.16	0.48	0.00	9.99E-01

P values in bold survive Benjamini-Hochberg false discovery rate controlled at 5%. X: effect size, NL: Netherlands, FR: France, DE: Germany, CH: Switzerland, PL: Poland/ Slovakia.

Table S4. *DQB1*-stratified HLA class I associations with narcolepsy.

Allele	X	P
<i>A*11:01</i>	0.38	5.58E-04
<i>C*04:01</i>	0.31	8.61E-04
<i>B*35:01</i>	0.34	4.59E-03
<i>B*08:01</i>	-0.31	4.67E-03
<i>A*01:01</i>	-0.20	1.02E-02
<i>C*12:03</i>	0.29	1.05E-02
<i>A*25:01</i>	0.39	1.09E-02
<i>C*07:01</i>	-0.21	1.99E-02
<i>B*35:03</i>	0.44	2.42E-02
<i>B*07:02</i>	-0.13	3.93E-02
<i>C*07:02</i>	-0.13	4.25E-02
<i>B*56:01</i>	0.65	4.62E-02
<i>B*18:01</i>	0.20	8.51E-02
<i>B*13:02</i>	-0.36	1.05E-01
<i>C*01:02</i>	0.28	1.13E-01
<i>A*03:01</i>	-0.10	1.34E-01
<i>B*44:03</i>	0.22	1.89E-01
<i>B*39:01</i>	0.30	1.92E-01
<i>B*51:01</i>	0.14	1.95E-01
<i>C*03:04</i>	-0.13	2.35E-01
<i>A*29:02</i>	-0.22	2.37E-01
<i>B*44:02</i>	-0.13	2.48E-01
<i>B*15:01</i>	-0.14	2.94E-01
<i>A*02:01</i>	-0.06	3.02E-01
<i>B*55:01</i>	0.22	3.11E-01
<i>C*14:02</i>	0.23	3.16E-01
<i>C*15:02</i>	0.16	3.35E-01
<i>B*40:01</i>	-0.13	3.39E-01
<i>C*08:02</i>	0.21	3.44E-01
<i>B*50:01</i>	0.32	3.52E-01
<i>A*30:02</i>	0.25	3.91E-01
<i>A*32:01</i>	0.11	4.71E-01
<i>A*24:02</i>	0.06	4.93E-01
<i>C*06:02</i>	-0.07	5.02E-01
<i>A*31:01</i>	-0.10	5.27E-01
<i>A*26:01</i>	0.11	5.57E-01
<i>C*16:01</i>	0.11	5.81E-01
<i>C*05:01</i>	-0.06	5.93E-01
<i>B*14:02</i>	0.10	6.94E-01
<i>C*03:03</i>	-0.03	7.98E-01
<i>C*07:04</i>	0.05	8.09E-01
<i>C*02:02</i>	-0.02	8.72E-01
<i>B*27:05</i>	-0.02	9.28E-01
<i>A*68:01</i>	0.00	9.78E-01
<i>B*14:01</i>	0.00	9.96E-01

P values in bold survive Benjamini-Hochberg false discovery rate controlled at 5%. X: effect size, NL: Netherlands, FR: France, DE: Germany, CH: Switzerland, PL: Poland/ Slovakia.