**Table S1.** HLA alleles identified in the MS patient cohort and their corresponding counts in the control group.

| HLA allele | PPMS | | RRMS | | SPMS | | Total MS patients (PPMS+RRMS+SPMS) | | Control | |
|---|---|---|---|---|---|---|---|---|---|---|
| | n | (%) | n | (%) | n | (%) | n | (%) | n | (%) |
| A*01:01:01:01 | 3 | 0.8 | 41 | 11.5 | 3 | 0.8 | 47 | 13.1 | 51 | 12.8 |
| A*01:01:01:03 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| A*02:01:01:01 | 2 | 0.6 | 73 | 20.4 | 5 | 1.4 | 80 | 22.3 | 110 | 27.5 |
| A*02:01:01:05 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| A*02:01:01:08 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| A*02:01:01:09 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| A*02:05:01:01 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 2 | 0.5 |
| A*02:08:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| A*02:17:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| A*03:01:01:01 | 0 | 0.0 | 30 | 8.4 | 3 | 0.8 | 33 | 9.2 | 29 | 7.3 |
| A*03:02:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| A*11:01:01:01 | 0 | 0.0 | 25 | 7.0 | 1 | 0.3 | 26 | 7.3 | 28 | 7.0 |
| A*23:01:01:01 | 1 | 0.3 | 9 | 2.5 | 2 | 0.6 | 12 | 3.4 | 10 | 2.5 |
| A*24:02:01:01 | 2 | 0.6 | 29 | 8.1 | 3 | 0.8 | 34 | 9.5 | 43 | 10.8 |
| A*24:02:01:04 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 3 | 0.8 |
| A*24:02:01:05 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 3 | 0.8 |
| A*24:03:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| A*25:01:01:01 | 1 | 0.3 | 7 | 2.0 | 0 | 0.0 | 8 | 2.2 | 14 | 3.5 |
| A*26:01:01:01 | 2 | 0.6 | 24 | 6.7 | 0 | 0.0 | 26 | 7.3 | 19 | 4.8 |
| A*29:02:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 3 | 0.8 |
| A*30:01:01:01 | 1 | 0.3 | 4 | 1.1 | 1 | 0.3 | 6 | 1.7 | 6 | 1.5 |
| A*30:02:01:01 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 |
| A*31:01:02:01 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 9 | 2.3 |
| A*31:01:02:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| A*32:01:01:01 | 3 | 0.8 | 19 | 5.3 | 2 | 0.6 | 24 | 6.7 | 14 | 3.5 |
| A*32:01:01:02 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| A*33:03:01:01 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 | 5 | 1.4 | 4 | 1.0 |
| A*66:01:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 |
| A*68:01:01:02 | 1 | 0.3 | 7 | 2.0 | 0 | 0.0 | 8 | 2.2 | 8 | 2.0 |
| A*68:01:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| A*68:01:02:02 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 6 | 1.5 |
| A*68:02:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| A*74:03:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*07:02:01:01 | 1 | 0.3 | 10 | 2.8 | 2 | 0.6 | 13 | 3.6 | 22 | 5.5 |
| B*07:02:01:11 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*08:01:01:01 | 1 | 0.3 | 18 | 5.0 | 2 | 0.6 | 21 | 5.9 | 30 | 7.5 |
| B*08:01:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*08:01:01:15 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*08:01:01:37 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |

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|---|---|---|---|---|---|---|---|---|---|---|
| B*13:02:01:01 | 2 | 0.6 | 11 | 3.1 | 1 | 0.3 | 14 | 3.9 | 10 | 2.5 |
| B*13:02:01:12 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| B*14:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*14:02:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 18 | 4.5 |
| B*15:01:01:01 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 16 | 4.0 |
| B*15:01:01:04 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| B*15:01:01:06 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*15:01:01:45 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*15:17:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*15:18:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*18:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*18:01:01:02 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 10 | 2.5 |
| B*18:01:01:06 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*18:01:01:10 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*18:01:01:11 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*18:01:01:12 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*18:01:01:16 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| B*18:01:01:22 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| B*18:01:01:26 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 6 | 1.5 |
| B*18:01:01:28 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| B*18:01:01:32 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*18:01:01:33 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| B*18:01:01:45 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| B*18:01:01:48 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*18:01:01:52 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 20 | 5.0 |
| B*18:01:01:69 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| B*18:01:01:74 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*18:01:01:76 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*18:05:01:02 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 |
| B*27:02:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 2 | 0.5 |
| B*27:02:01:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 3 | 0.8 |
| B*27:05:02:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| B*27:05:02:05 | 1 | 0.3 | 3 | 0.8 | 0 | 0.0 | 4 | 1.1 | 2 | 0.5 |
| B*35:01:01:05 | 0 | 0.0 | 15 | 4.2 | 1 | 0.3 | 16 | 4.5 | 27 | 6.8 |
| B*35:01:01:25 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*35:02:01:02 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 1 | 0.3 |
| B*35:03:01:01 | 0 | 0.0 | 11 | 3.1 | 0 | 0.0 | 11 | 3.1 | 6 | 1.5 |
| B*35:03:01:03 | 2 | 0.6 | 16 | 4.5 | 1 | 0.3 | 19 | 5.3 | 3 | 0.8 |
| B*35:03:01:09 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*35:03:01:15 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*35:08:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 10 | 2.5 |
| B*37:01:01:01 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 5 | 1.3 |
| B*38:01:01:01 | 1 | 0.3 | 12 | 3.4 | 1 | 0.3 | 14 | 3.9 | 15 | 3.8 |
| B*39:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*39:01:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 8 | 2.0 |

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|---|---|---|---|---|---|---|---|---|---|---|
| B*39:01:01:09 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*39:01:01:10 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*39:01:01:11 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*39:01:01:18 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| B*39:06:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 3 | 0.8 |
| B*40:01:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 6 | 1.5 |
| B*40:02:01:01 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 3 | 0.8 |
| B*40:02:01:08 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| B*40:02:01:18 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 4 | 1.1 | 1 | 0.3 |
| B*40:02:01:41 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*40:06:01:13 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*40:06:01:17 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*40:11:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*41:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 4 | 1.0 |
| B*41:02:01:01 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 4 | 1.1 | 0 | 0.0 |
| B*44:02:01:01 | 0 | 0.0 | 15 | 4.2 | 0 | 0.0 | 15 | 4.2 | 18 | 4.5 |
| B*44:02:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*44:03:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 4 | 1.0 |
| B*44:03:01:19 | 1 | 0.3 | 5 | 1.4 | 0 | 0.0 | 6 | 1.7 | 7 | 1.8 |
| B*44:03:01:29 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*44:03:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*44:27:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 3 | 0.8 |
| B*45:01:01:01 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| B*45:01:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*47:01:01:03 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 |
| B*49:01:01:01 | 0 | 0.0 | 6 | 1.7 | 2 | 0.6 | 8 | 2.2 | 13 | 3.3 |
| B*49:01:01:04 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| B*50:01:01:01 | 0 | 0.0 | 7 | 2.0 | 1 | 0.3 | 8 | 2.2 | 2 | 0.5 |
| B*51:01:01:01 | 0 | 0.0 | 9 | 2.5 | 1 | 0.3 | 10 | 2.8 | 6 | 1.5 |
| B*51:01:01:03 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 | 5 | 1.4 | 4 | 1.0 |
| B*51:01:01:04 | 1 | 0.3 | 10 | 2.8 | 2 | 0.6 | 13 | 3.6 | 14 | 3.5 |
| B*51:01:01:09 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*51:01:01:105 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*51:01:01:35 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| B*51:01:01:45 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 5 | 1.3 |
| B*51:01:01:59 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| B*51:01:01:65 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 4 | 1.0 |
| B*51:01:01:78 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*51:01:01:84 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| B*52:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| B*52:01:01:02 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 6 | 1.5 |
| B*53:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| B*55:01:01:01 | 1 | 0.3 | 8 | 2.2 | 0 | 0.0 | 9 | 2.5 | 9 | 2.3 |
| B*56:01:01:15 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| B*57:01:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 8 | 2.0 |

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| B*58:01:01:01 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 5 | 1.3 |
| B*58:01:01:17 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 0 | 0.0 |
| B*58:01:01:20 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*01:02:01:01 | 0 | 0.0 | 13 | 3.6 | 1 | 0.3 | 14 | 3.9 | 16 | 4.0 |
| C*02:02:02:01 | 1 | 0.3 | 10 | 2.8 | 0 | 0.0 | 11 | 3.1 | 20 | 5.0 |
| C*02:02:02:03 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 | 5 | 1.4 | 2 | 0.5 |
| C*02:02:02:08 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*02:02:02:79 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| C*02:02:02:83 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*03:02:02:05 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 0 | 0.0 |
| C*03:03:01:01 | 1 | 0.3 | 7 | 2.0 | 0 | 0.0 | 8 | 2.2 | 19 | 4.8 |
| C*03:03:01:37 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*03:04:01:01 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 13 | 3.3 |
| C*03:04:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| C*04:01:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 2 | 0.5 |
| C*04:01:01:06 | 0 | 0.0 | 12 | 3.4 | 1 | 0.3 | 13 | 3.6 | 14 | 3.5 |
| C*04:01:01:08 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| C*04:01:01:100 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*04:01:01:11 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 2 | 0.5 |
| C*04:01:01:14 | 3 | 0.8 | 31 | 8.7 | 1 | 0.3 | 35 | 9.8 | 12 | 3.0 |
| C*04:01:01:75 | 1 | 0.3 | 4 | 1.1 | 0 | 0.0 | 5 | 1.4 | 1 | 0.3 |
| C*04:01:01:79 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 |
| C*04:01:01:91 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*04:01:102 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*05:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| C*05:01:01:02 | 1 | 0.3 | 13 | 3.6 | 0 | 0.0 | 14 | 3.9 | 11 | 2.8 |
| C*06:02:01:01 | 2 | 0.6 | 27 | 7.5 | 3 | 0.8 | 32 | 8.9 | 19 | 4.8 |
| C*06:02:01:02 | 0 | 0.0 | 5 | 1.4 | 1 | 0.3 | 6 | 1.7 | 3 | 0.8 |
| C*06:02:01:03 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| C*06:02:01:97 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*07:01:01:01 | 1 | 0.3 | 17 | 4.7 | 2 | 0.6 | 20 | 5.6 | 26 | 6.5 |
| C*07:01:01:109 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*07:01:01:131 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*07:01:01:16 | 2 | 0.6 | 21 | 5.9 | 3 | 0.8 | 26 | 7.3 | 47 | 11.8 |
| C*07:01:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*07:02:01:01 | 0 | 0.0 | 9 | 2.5 | 1 | 0.3 | 10 | 2.8 | 10 | 2.5 |
| C*07:02:01:03 | 1 | 0.3 | 6 | 1.7 | 1 | 0.3 | 8 | 2.2 | 20 | 5.0 |
| C*07:02:01:136 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| C*07:04:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 3 | 0.8 |
| C*07:04:01:03 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| C*07:06:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*07:18:01:01 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 3 | 0.8 |
| C*08:02:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 16 | 4.0 |
| C*08:02:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| C*12:02:02:01 | 0 | 0.0 | 8 | 2.2 | 0 | 0.0 | 8 | 2.2 | 7 | 1.8 |

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|---|---|---|---|---|---|---|---|---|---|---|
| C*12:03:01:01 | 1 | 0.3 | 39 | 10.9 | 1 | 0.3 | 41 | 11.5 | 46 | 11.5 |
| C*12:03:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*12:03:01:13 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 |
| C*14:02:01:01 | 0 | 0.0 | 8 | 2.2 | 1 | 0.3 | 9 | 2.5 | 8 | 2.0 |
| C*15:02:01:01 | 0 | 0.0 | 12 | 3.4 | 2 | 0.6 | 14 | 3.9 | 19 | 4.8 |
| C*15:04:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| C*15:05:02:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*16:01:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 3 | 0.8 |
| C*16:02:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 4 | 1.0 |
| C*16:04:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 4 | 1.0 |
| C*17:01:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 3 | 0.8 |
| C*17:01:01:09 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| C*17:03:01:01 | 1 | 0.3 | 2 | 0.6 | 1 | 0.3 | 4 | 1.1 | 0 | 0.0 |
| DRB1*01:01:01:01 | 0 | 0.0 | 17 | 4.7 | 0 | 0.0 | 17 | 4.7 | 38 | 9.5 |
| DRB1*01:01:01:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*01:02:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 7 | 1.8 |
| DRB1*01:02:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*03:01:01:01 | 0 | 0.0 | 14 | 3.9 | 2 | 0.6 | 16 | 4.5 | 33 | 8.3 |
| DRB1*03:01:01:02 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 1 | 0.3 |
| DRB1*03:01:01:03 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 5 | 1.3 |
| DRB1*03:01:01:08 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*03:01:01:13 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DRB1*03:01:01:15 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DRB1*03:01:01:16 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*03:01:08 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*03:07:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*03:07:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*04:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 8 | 2.0 |
| DRB1*04:01:01:11 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*04:01:01:18 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*04:02:01:01 | 1 | 0.3 | 9 | 2.5 | 1 | 0.3 | 11 | 3.1 | 5 | 1.3 |
| DRB1*04:03:01:01 | 1 | 0.3 | 4 | 1.1 | 0 | 0.0 | 5 | 1.4 | 1 | 0.3 |
| DRB1*04:04:01:05 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 6 | 1.5 |
| DRB1*04:04:01:14 | 0 | 0.0 | 9 | 2.5 | 0 | 0.0 | 9 | 2.5 | 0 | 0.0 |
| DRB1*04:05:01:04 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 5 | 1.3 |
| DRB1*04:05:01:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*04:07:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 3 | 0.8 |
| DRB1*07:01:01:02 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 5 | 1.3 |
| DRB1*07:01:01:04 | 1 | 0.3 | 3 | 0.8 | 0 | 0.0 | 4 | 1.1 | 30 | 7.5 |
| DRB1*07:01:01:16 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DRB1*07:01:01:25 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*07:01:01:26 | 1 | 0.3 | 9 | 2.5 | 1 | 0.3 | 11 | 3.1 | 0 | 0.0 |
| DRB1*08:01:01:01 | 0 | 0.0 | 9 | 2.5 | 0 | 0.0 | 9 | 2.5 | 3 | 0.8 |
| DRB1*08:03:02:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*08:04:01:01 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |

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| DRB1*08:04:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*10:01:01:03 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 10 | 2.5 |
| DRB1*11:01:01:01 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 3 | 0.8 |
| DRB1*11:01:01:10 | 0 | 0.0 | 11 | 3.1 | 1 | 0.3 | 12 | 3.4 | 0 | 0.0 |
| DRB1*11:01:01:16 | 0 | 0.0 | 2 | 0.6 | 2 | 0.6 | 4 | 1.1 | 0 | 0.0 |
| DRB1*11:01:01:19 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*11:01:02:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*11:02:01:01 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| DRB1*11:03:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 7 | 1.8 |
| DRB1*11:04:01:01 | 1 | 0.3 | 19 | 5.3 | 0 | 0.0 | 20 | 5.6 | 47 | 11.8 |
| DRB1*11:04:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*11:04:01:03 | 0 | 0.0 | 11 | 3.1 | 0 | 0.0 | 11 | 3.1 | 0 | 0.0 |
| DRB1*11:04:01:06 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*11:04:01:09 | 1 | 0.3 | 7 | 2.0 | 1 | 0.3 | 9 | 2.5 | 0 | 0.0 |
| DRB1*11:11:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*11:12:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*12:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*12:01:01:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| DRB1*13:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 13 | 3.3 |
| DRB1*13:01:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:01:01:10 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| DRB1*13:01:01:18 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*13:01:01:19 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:01:01:20 | 2 | 0.6 | 7 | 2.0 | 0 | 0.0 | 9 | 2.5 | 0 | 0.0 |
| DRB1*13:01:01:23 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*13:02:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| DRB1*13:02:01:02 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 3 | 0.8 |
| DRB1*13:02:01:03 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.5 |
| DRB1*13:02:01:04 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| DRB1*13:02:01:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:02:01:07 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| DRB1*13:02:01:11 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:03:01:01 | 1 | 0.3 | 3 | 0.8 | 2 | 0.6 | 6 | 1.7 | 5 | 1.3 |
| DRB1*13:03:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:03:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*13:05:01:01 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 |
| DRB1*13:27:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*14:01:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DRB1*14:04:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DRB1*14:54:01:06 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*14:54:01:08 | 1 | 0.3 | 8 | 2.2 | 1 | 0.3 | 10 | 2.8 | 14 | 3.5 |
| DRB1*15:01:01:01 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 |
| DRB1*15:01:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 7 | 1.8 |
| DRB1*15:01:01:23 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*15:01:01:26 | 3 | 0.8 | 30 | 8.4 | 5 | 1.4 | 38 | 10.6 | 0 | 0.0 |

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| DRB1*15:02:01:03 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 7 | 1.8 |
| DRB1*15:02:02:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DRB1*16:01:01:01 | 0 | 0.0 | 24 | 6.7 | 0 | 0.0 | 24 | 6.7 | 25 | 6.3 |
| DRB1*16:01:01:02 | 0 | 0.0 | 9 | 2.5 | 0 | 0.0 | 9 | 2.5 | 12 | 3.0 |
| DRB1*16:02:01:02 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 | 5 | 1.4 | 2 | 0.5 |
| DRB1*16:02:01:04 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| DQB1*02:01:01:01 | 0 | 0.0 | 31 | 8.7 | 2 | 0.6 | 33 | 9.2 | 39 | 9.8 |
| DQB1*02:01:01:02 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DQB1*02:01:01:07 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQB1*02:01:01:12 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*02:02:01:01 | 2 | 0.6 | 12 | 3.4 | 2 | 0.6 | 16 | 4.5 | 29 | 7.3 |
| DQB1*02:02:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| DQB1*02:02:01:06 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQB1*03:01:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 8 | 2.0 |
| DQB1*03:01:01:02 | 1 | 0.3 | 9 | 2.5 | 0 | 0.0 | 10 | 2.8 | 9 | 2.3 |
| DQB1*03:01:01:03 | 1 | 0.3 | 39 | 10.9 | 7 | 2.0 | 47 | 13.1 | 54 | 13.5 |
| DQB1*03:01:01:04 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQB1*03:01:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 9 | 2.3 |
| DQB1*03:01:01:09 | 2 | 0.6 | 14 | 3.9 | 0 | 0.0 | 16 | 4.5 | 18 | 4.5 |
| DQB1*03:01:01:17 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQB1*03:01:01:18 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| DQB1*03:01:01:33 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*03:02:01:01 | 1 | 0.3 | 18 | 5.0 | 1 | 0.3 | 20 | 5.6 | 25 | 6.3 |
| DQB1*03:02:01:02 | 1 | 0.3 | 8 | 2.2 | 0 | 0.0 | 9 | 2.5 | 2 | 0.5 |
| DQB1*03:02:01:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*03:02:01:10 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DQB1*03:03:02:01 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 9 | 2.3 |
| DQB1*03:05:01 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DQB1*03:231 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*04:02:01:04 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 4 | 1.0 |
| DQB1*04:02:01:08 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| DQB1*05:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 7 | 1.8 |
| DQB1*05:01:01:03 | 0 | 0.0 | 16 | 4.5 | 0 | 0.0 | 16 | 4.5 | 35 | 8.8 |
| DQB1*05:01:01:05 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 11 | 2.8 |
| DQB1*05:02:01:01 | 1 | 0.3 | 35 | 9.8 | 2 | 0.6 | 38 | 10.6 | 43 | 10.8 |
| DQB1*05:02:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*05:02:01:03 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQB1*05:02:01:04 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 4 | 1.0 |
| DQB1*05:02:01:08 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*05:03:01:01 | 1 | 0.3 | 13 | 3.6 | 1 | 0.3 | 15 | 4.2 | 20 | 5.0 |
| DQB1*05:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 3 | 0.8 |
| DQB1*06:01:01:01 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 4 | 1.0 |
| DQB1*06:02:01:01 | 0 | 0.0 | 19 | 5.3 | 4 | 1.1 | 23 | 6.4 | 16 | 4.0 |
| DQB1*06:02:01:06 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*06:02:01:21 | 2 | 0.6 | 0 | 0.0 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |

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| DQB1*06:03:01:01 | 3 | 0.8 | 32 | 8.9 | 0 | 0.0 | 35 | 9.8 | 22 | 5.5 |
| DQB1*06:03:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQB1*06:03:01:05 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 2 | 0.5 |
| DQB1*06:04:01:01 | 0 | 0.0 | 6 | 1.7 | 1 | 0.3 | 7 | 2.0 | 8 | 2.0 |
| DQB1*06:09:01:01 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 2 | 0.5 |
| DQA1*01:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 2 | 0.5 |
| DQA1*01:01:01:05 | 0 | 0.0 | 16 | 4.5 | 0 | 0.0 | 16 | 4.5 | 33 | 8.3 |
| DQA1*01:01:02:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 5 | 1.3 |
| DQA1*01:02:01:01 | 1 | 0.3 | 7 | 2.0 | 3 | 0.8 | 11 | 3.1 | 3 | 0.8 |
| DQA1*01:02:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:02:01:03 | 1 | 0.3 | 23 | 6.4 | 2 | 0.6 | 26 | 7.3 | 19 | 4.8 |
| DQA1*01:02:01:04 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 8 | 2.0 |
| DQA1*01:02:01:05 | 1 | 0.3 | 5 | 1.4 | 1 | 0.3 | 7 | 2.0 | 2 | 0.5 |
| DQA1*01:02:01:11 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQA1*01:02:01:20 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:02:01:23 | 0 | 0.0 | 4 | 1.1 | 1 | 0.3 | 5 | 1.4 | 0 | 0.0 |
| DQA1*01:02:01:26 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQA1*01:02:01:28 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:02:02:01 | 0 | 0.0 | 19 | 5.3 | 0 | 0.0 | 19 | 5.3 | 38 | 9.5 |
| DQA1*01:02:02:02 | 0 | 0.0 | 7 | 2.0 | 1 | 0.3 | 8 | 2.2 | 0 | 0.0 |
| DQA1*01:02:02:04 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQA1*01:02:02:05 | 1 | 0.3 | 15 | 4.2 | 0 | 0.0 | 16 | 4.5 | 10 | 2.5 |
| DQA1*01:03:01:01 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 4 | 1.0 |
| DQA1*01:03:01:02 | 2 | 0.6 | 20 | 5.6 | 0 | 0.0 | 22 | 6.1 | 23 | 5.8 |
| DQA1*01:04:01:01 | 1 | 0.3 | 7 | 2.0 | 1 | 0.3 | 9 | 2.5 | 2 | 0.5 |
| DQA1*01:04:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DQA1*01:04:01:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:04:01:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:04:02:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 3 | 0.8 |
| DQA1*01:04:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*01:05:01:01 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 | 4 | 1.1 | 11 | 2.8 |
| DQA1*01:06 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*02:01:01:01 | 2 | 0.6 | 19 | 5.3 | 1 | 0.3 | 22 | 6.1 | 36 | 9.0 |
| DQA1*03:01:01:01 | 3 | 0.8 | 29 | 8.1 | 1 | 0.3 | 33 | 9.2 | 26 | 6.5 |
| DQA1*03:03:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 12 | 3.0 |
| DQA1*03:03:01:05 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 2 | 0.5 |
| DQA1*04:01:01:03 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 4 | 1.0 |
| DQA1*04:01:02:01 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| DQA1*04:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DQA1*05:01:01:01 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 2 | 0.5 |
| DQA1*05:01:01:02 | 0 | 0.0 | 17 | 4.7 | 2 | 0.6 | 19 | 5.3 | 31 | 7.8 |
| DQA1*05:01:01:03 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 7 | 1.8 |
| DQA1*05:01:01:06 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 | 6 | 1.7 | 0 | 0.0 |
| DQA1*05:05:01:02 | 1 | 0.3 | 55 | 15.4 | 7 | 2.0 | 63 | 17.6 | 29 | 7.3 |
| DQA1*05:05:01:05 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |

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| DQA1*05:05:01:20 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 12 | 3.0 |
| DQA1*05:05:01:28 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQA1*05:05:01:30 | 2 | 0.6 | 0 | 0.0 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DQA1*05:05:01:32 | 1 | 0.3 | 9 | 2.5 | 0 | 0.0 | 10 | 2.8 | 0 | 0.0 |
| DQA1*05:09:01:01 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 1 | 0.3 |
| DQA1*06:01:01:03 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DPB1*01:01:01:01 | 1 | 0.3 | 13 | 3.6 | 1 | 0.3 | 15 | 4.2 | 17 | 4.3 |
| DPB1*01:01:01:03 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*02:01:02:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DPB1*02:01:02:05 | 0 | 0.0 | 29 | 8.1 | 2 | 0.6 | 31 | 8.7 | 74 | 18.5 |
| DPB1*02:01:02:13 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 |
| DPB1*02:01:02:17 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 4 | 1.0 |
| DPB1*02:01:02:29 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| DPB1*02:01:02:32 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DPB1*02:01:02:77 | 0 | 0.0 | 16 | 4.5 | 1 | 0.3 | 17 | 4.7 | 0 | 0.0 |
| DPB1*03:01:01:01 | 2 | 0.6 | 10 | 2.8 | 4 | 1.1 | 16 | 4.5 | 26 | 6.5 |
| DPB1*03:01:01:04 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 | 4 | 1.1 | 0 | 0.0 |
| DPB1*03:01:01:09 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| DPB1*03:01:01:10 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*03:01:01:19 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DPB1*04:01:01:01 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 1 | 0.3 |
| DPB1*04:01:01:05 | 1 | 0.3 | 22 | 6.1 | 1 | 0.3 | 24 | 6.7 | 37 | 9.3 |
| DPB1*04:01:01:06 | 1 | 0.3 | 42 | 11.7 | 4 | 1.1 | 47 | 13.1 | 89 | 22.3 |
| DPB1*04:01:01:10 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 |
| DPB1*04:01:01:110 | 0 | 0.0 | 20 | 5.6 | 2 | 0.6 | 22 | 6.1 | 0 | 0.0 |
| DPB1*04:01:01:28 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*04:02:01:01 | 0 | 0.0 | 15 | 4.2 | 1 | 0.3 | 16 | 4.5 | 8 | 2.0 |
| DPB1*04:02:01:02 | 0 | 0.0 | 25 | 7.0 | 1 | 0.3 | 26 | 7.3 | 38 | 9.5 |
| DPB1*04:02:01:04 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DPB1*04:02:01:06 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 10 | 2.5 |
| DPB1*04:02:01:08 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 2 | 0.5 |
| DPB1*04:02:01:09 | 0 | 0.0 | 7 | 2.0 | 0 | 0.0 | 7 | 2.0 | 2 | 0.5 |
| DPB1*04:02:01:16 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 |
| DPB1*05:01:01:01 | 1 | 0.3 | 5 | 1.4 | 0 | 0.0 | 6 | 1.7 | 4 | 1.0 |
| DPB1*05:01:01:03 | 1 | 0.3 | 1 | 0.3 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 |
| DPB1*06:01:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 4 | 1.0 |
| DPB1*09:01:01:01 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*10:01:01:01 | 2 | 0.6 | 12 | 3.4 | 0 | 0.0 | 14 | 3.9 | 12 | 3.0 |
| DPB1*10:01:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*10:01:01:03 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*104:01:01:01 | 0 | 0.0 | 6 | 1.7 | 1 | 0.3 | 7 | 2.0 | 7 | 1.8 |
| DPB1*104:01:01:03 | 0 | 0.0 | 2 | 0.6 | 1 | 0.3 | 3 | 0.8 | 2 | 0.5 |
| DPB1*105:01:01:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DPB1*11:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 7 | 1.8 |
| DPB1*13:01:01:01 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 4 | 1.0 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DPB1*13:01:01:02 | 0 | 0.0 | 5 | 1.4 | 0 | 0.0 | 5 | 1.4 | 6 | 1.5 |
| DPB1*14:01:01:01 | 1 | 0.3 | 9 | 2.5 | 1 | 0.3 | 11 | 3.1 | 6 | 1.5 |
| DPB1*14:01:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*15:01:01:01 | 0 | 0.0 | 1 | 0.3 | 2 | 0.6 | 3 | 0.8 | 3 | 0.8 |
| DPB1*15:01:01:02 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |
| DPB1*17:01:01:01 | 1 | 0.3 | 7 | 2.0 | 0 | 0.0 | 8 | 2.2 | 6 | 1.5 |
| DPB1*17:01:01:02 | 0 | 0.0 | 3 | 0.8 | 0 | 0.0 | 3 | 0.8 | 1 | 0.3 |
| DPB1*18:01:01:01 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 2 | 0.6 | 0 | 0.0 |
| DPB1*19:01:01:01 | 1 | 0.3 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 |
| DPB1*23:01:01:01 | 0 | 0.0 | 0 | 0.0 | 1 | 0.3 | 1 | 0.3 | 11 | 2.8 |
| DPB1*23:01:01:02 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 | 1 | 0.3 | 0 | 0.0 |
| DPB1*88:01 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 | 2 | 0.6 | 0 | 0.0 |