| **Supplementary Table 1. Associations between HLA mismatch and diffuse large B-cell lymphoma among kidney transplant recipients (only)** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Antigen** | **Mismatch number** | **Transplant recipients with DLBCL** | **Transplant recipients without DLBCL** | **SIR** | **IRRa** | **95% CI** | **P for trend** | |
| **n (%)** | **n (%)** |
| **A** | 0 | 138 (25.05) | 30,236 (22.79) | 10.51 | 1.01 | (0.80-1.28) | 0.9222 | |
|  | 1 | 243 (44.10) | 56,650 (42.70) | 10.25 | 1.01 | (0.83-1.25) |  | |
|  | 2 | 169 (30.67) | 45,196 (34.06) | 9.29 | 1.00 | reference |  | |
| **B** | 0 | 110 (19.96) | 25,213 (19.00) | 9.52 | 0.94 | (0.74-1.19) | 0.6432 | |
|  | 1 | 243 (44.10) | 51,717 (38.98) | 10.75 | 1.01 | (0.82-1.23) |  | |
|  | 2 | 197 (35.75) | 55,153 (41.57) | 9.45 | 1.00 | reference |  | |
| **DR** | 0 | 132 (23.96) | 31,841 (24.00) | 9.28 | 0.77 | (0.60-0.97) | 0.0265 | |
|  | 1 | 254 (46.10) | 62,765 (47.31) | 9.66 | 0.78 | (0.64-0.96) |  | |
|  | 2 | 161 (29.22) | 37,187 (28.03) | 11.21 | 1.00 | reference |  | |
| **A+B+DR** | 0 | 60 (10.89) | 14,423 (10.87) | 9.65 | 0.75 | (0.51-1.08) | 0.2812 | |
|  | 1 | 36 (6.53) | 7,036 (5.30) | 10.83 | 0.77 | (0.50-1.18) |  | |
|  | 2 | 71 (12.89) | 15,329 (11.55) | 10.17 | 0.69 | (0.48-1.00) |  | |
|  | 3 | 120 (21.78) | 27,624 (20.82) | 9.90 | 0.72 | (0.52-1.01) |  | |
|  | 4 | 117 (21.23) | 26,616 (20.06) | 10.54 | 0.83 | (0.61-1.15) |  | |
|  | 5 | 88 (15.97) | 27,336 (20.60) | 8.47 | 0.72 | (0.52-1.01) |  | |
|  | 6 | 58 (10.53) | 13,749 (10.36) | 11.81 | 1.00 | reference |  | |
| SIR=Standardized incidence ratio; IRR=Incidence rate ratio | | | | | | | |
| aIRRs were calculated as the ratio of incidence rates between each category of mismatch and the reference mismatch category, and were adjusted for sex, age at transplant, race/ethnicity, year of transplant, transplanted organ, transplant number, panel reactive antibody score, and donor vital status. | | | | | | | |

| **Supplementary Table 2. Associations between HLA mismatch and early- and late-onset diffuse large B-cell lymphoma among kidney transplant recipients (only)** | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Early-onset DLBCL**  **(≤ 2 years after transplantation)** | | | | **Late-onset DLBCL**  **(> 2 years after transplantation)** | | | |
| **Antigen** | **Mismatch number** | **IRR\*** | **95%CI** |  | **P for trend** | **IRRa** | **95%CI** |  | **P for trend** | |
| **A** | 0 | 1.66 | (1.16-2.38) |  | 0.0058 | 0.70 | (0.56-0.87) |  | 0.0304 | |
|  | 1 | 1.22 | (0.88-1.71) |  |  | 0.89 | (0.75-1.07) |  |  | |
|  | 2 | 1.00 | reference |  |  | 1.00 | reference |  |  | |
| **B** | 0 | 1.52 | (1.06-2.17) |  | 0.0228 | 0.66 | (0.52-0.82) |  | 0.0144 | |
|  | 1 | 1.22 | (0.89-1.69) |  |  | 0.88 | (0.80-0.98) |  |  | |
|  | 2 | 1.00 | reference |  |  | 1.00 | reference |  |  | |
| **DR** | 0 | 1.09 | (0.76-1.56) |  | 0.6336 | -- |  |  | -- | |
|  | 1 | 0.86 | (0.62-1.19) |  |  | -- |  |  |  | |
|  | 2 | 1.00 | reference |  |  |  |  |  |  | |
| **A+B+DR** | 0 | 1.46 | (0.84-2.57) |  | 0.0202 | -- |  |  | -- | |
|  | 1 | 1.58 | (0.83-2.99) |  |  | -- |  |  |  | |
|  | 2 | 1.07 | (0.59-1.95) |  |  | -- |  |  |  | |
|  | 3 | 0.98 | (0.58-1.7) |  |  | -- |  |  |  | |
|  | 4 | 0.98 | (0.59-1.7) |  |  | -- |  |  |  | |
|  | 5 | 0.87 | (0.51-1.51) |  |  | -- |  |  |  | |
|  | 6 | 1.00 | reference |  |  | -- |  |  |  | |
| DLBCL=Diffuse large B-cell lymphoma; IRR=Incidence rate ratio  aIRRs were calculated as the ratio of incidence rates between each category of mismatch and the reference mismatch category, and were adjusted for sex, age at transplant, race/ethnicity, year of transplant, transplanted organ, transplant number, panel reactive antibody score, and donor vital status. | | | | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Table 3. Associations between HLA antigens and diffuse large B-cell lymphoma** | | | | | | |
| **Antigen** | **Transplant recipients with DLBCL** | **Transplant recipients without DLBCL** | **SIR** | **IRRa** | **95% CI** | **P value** |
| **n (%)** | **n (%)** |
| **HLA-A** |  |  |  |  |  |  |
| A3 | 232 (25.72) | 35,116 (20.50) | 14.10 | 1.22 | (1.05-1.42) | 0.0099 |
| A28 + A68 + A69 | 115 (12.75) | 20,160 (11.77) | 14.11 | 1.30 | (1.06-1.58) | 0.0099 |
| A32 | 36 (3.99) | 8,876 (5.18) | 8.43 | 0.68 | (0.48-0.94) | 0.0255 |
| A25 | 18 (2.00) | 4,491 (2.62) | 7.91 | 0.67 | (0.40-1.03) | 0.0911 |
| A33 | 32 (3.55) | 10,340 (6.04) | 8.52 | 0.74 | (0.51-1.04) | 0.1016 |
| A66 | 3 (0.33) | 1,857 (1.08) | 4.91 | 0.50 | (0.12-1.31) | 0.2324 |
| A2 | 417 (46.23) | 78,722 (45.95) | 11.75 | 0.93 | (0.82-1.06) | 0.2945 |
| A1 | 235 (26.05) | 37,938 (22.14) | 13.13 | 1.07 | (0.92-1.25) | 0.3652 |
| A23 | 46 (5.10) | 12,952 (7.56) | 9.60 | 0.87 | (0.63-1.16) | 0.3664 |
| A11 | 94 (10.42) | 17,906 (10.45) | 11.74 | 0.91 | (0.73-1.12) | 0.3859 |
| A36 | 4 (0.44) | 2,056 (1.20) | 6.21 | 0.66 | (0.20-1.56) | 0.4146 |
| A30 | 77 (8.54) | 17,258 (10.07) | 11.78 | 1.10 | (0.86-1.39) | 0.4385 |
| A74 | 8 (0.89) | 3,452 (2.01) | 7.77 | 0.82 | (0.37-1.56) | 0.5831 |
| A31 | 51 (5.65) | 9,155 (5.34) | 12.86 | 1.07 | (0.79-1.40) | 0.6567 |
| A29 | 65 (7.21) | 11,711 (6.84) | 12.73 | 1.05 | (0.81-1.34) | 0.7255 |
| A34 | 14 (1.55) | 4,133 (2.41) | 11.10 | 0.92 | (0.51-1.52) | 0.7609 |
| A24 | 162 (17.96) | 30,396 (17.74) | 12.31 | 0.98 | (0.82-1.16) | 0.7889 |
| A26 | 58 (6.43) | 10,140 (5.92) | 11.93 | 1.03 | (0.78-1.33) | 0.8152 |
|  |  |  |  |  |  |  |
| **HLA-B** |  |  |  |  |  |  |
| B38 | 53 (5.88) | 6,680 (3.90) | 16.67 | 1.48 | (1.10-1.93) | 0.0061 |
| B58 | 13 (1.44) | 7,405 (4.32) | 5.13 | 0.47 | (0.26-0.78) | 0.0071 |
| B18 | 100 (11.09) | 14,613 (8.53) | 14.87 | 1.28 | (1.03-1.57) | 0.021 |
| B48 | 2 (0.22) | 2,000 (1.17) | 2.79 | 0.23 | (0.04-0.72) | 0.0388 |
| B55 | 15 (1.66) | 4,177 (2.44) | 7.56 | 0.58 | (0.34-0.94) | 0.0396 |
| B41 | 10 (1.11) | 3,642 (2.13) | 5.99 | 0.53 | (0.27-0.94) | 0.0482 |
| B70 + B71 + B72 | 37 (4.10) | 8,343 (4.87) | 13.45 | 1.40 | (0.97-1.95) | 0.0584 |
| B63 | 7 (0.78) | 3,109 (1.81) | 5.45 | 0.52 | (0.22-1.01) | 0.087 |
| B7 | 195 (21.62) | 31,070 (18.13) | 13.54 | 1.15 | (0.97-1.34) | 0.0954 |
| B47 | 1 (0.11) | 744 (0.43) | 2.81 | 0.21 | (0.01-0.94) | 0.1214 |
| B46 | 8 (0.89) | 946 (0.55) | 26.42 | 1.79 | (0.79-3.56) | 0.1247 |
| B57 | 43 (4.77) | 10,685 (6.24) | 9.00 | 0.79 | (0.57-1.05) | 0.1251 |
| B42 | 8 (0.89) | 4,603 (2.69) | 5.72 | 0.58 | (0.26-1.10) | 0.1318 |
| B51 | 93 (10.31) | 15,441 (9.01) | 13.32 | 1.14 | (0.92-1.41) | 0.2238 |
| B75 | 3 (0.33) | 1,380 (0.81) | 6.88 | 0.50 | (0.12-1.33) | 0.2383 |
| B52 | 17 (1.88) | 4,743 (2.77) | 8.32 | 0.78 | (0.46-1.22) | 0.3135 |
| B39 | 38 (4.21) | 9,166 (5.35) | 10.54 | 0.85 | (0.60-1.17) | 0.3392 |
| B44 | 190 (21.06) | 34,926 (20.39) | 11.65 | 0.93 | (0.79-1.10) | 0.4111 |
| B8 | 184 (20.40) | 29,753 (17.37) | 13.82 | 1.06 | (0.90-1.25) | 0.4601 |
| B49 | 35 (3.88) | 6,678 (3.90) | 12.39 | 1.12 | (0.79-1.55) | 0.5011 |
| B13 | 33 (3.66) | 6,396 (3.73) | 11.10 | 0.89 | (0.62-1.24) | 0.519 |
| B78 | 1 (0.11) | 632 (0.37) | 5.68 | 0.57 | (0.03-2.53) | 0.5749 |
| B27 | 64 (7.10) | 10,104 (5.90) | 13.49 | 1.07 | (0.82-1.37) | 0.5955 |
| B56 | 11 (1.22) | 1,754 (1.02) | 14.30 | 1.16 | (0.60-1.99) | 0.6285 |
| B14 + B64 + B65 | 67 (7.43) | 11,692 (6.82) | 12.42 | 1.06 | (0.82-1.35) | 0.6314 |
| B45 | 24 (2.66) | 5,880 (3.43) | 11.76 | 1.08 | (0.70-1.59) | 0.7168 |
| B50 | 19 (2.11) | 4,090 (2.39) | 10.71 | 0.93 | (0.57-1.43) | 0.7704 |
| B35 | 160 (17.74) | 31,201 (18.21) | 11.16 | 0.98 | (0.82-1.16) | 0.8318 |
| B53 | 31 (3.44) | 9,941 (5.80) | 9.71 | 0.96 | (0.65-1.39) | 0.8538 |
| B61 | 28 (3.10) | 6,387 (3.73) | 11.59 | 0.97 | (0.65-1.39) | 0.8715 |
| B37 | 20 (2.22) | 3,364 (1.96) | 12.62 | 1.04 | (0.64-1.57) | 0.8729 |
| B60 | 86 (9.53) | 14,180 (8.28) | 13.16 | 0.99 | (0.79-1.23) | 0.9275 |
| B62 | 100 (11.09) | 16,903 (9.87) | 13.32 | 1.00 | (0.81-1.23) | 0.9939 |
| B81 | -- | 983 (0.57) | -- | -- | -- | -- |
|  |  |  |  |  |  |  |
| **HLA-C** |  |  |  |  |  |  |
| C8 | 21 (2.33) | 8,035 (4.69) | 6.49 | 0.56 | (0.35-0.85) | 0.0098 |
| C12 | 11 (1.22) | 2,245 (1.31) | 20.16 | 1.94 | (0.99-3.40) | 0.0337 |
| C3 + C9 + C10 | 125 (13.86) | 27,215 (15.88) | 10.60 | 0.81 | (0.66-0.98) | 0.034 |
| C7 | 251 (27.83) | 46,553 (27.17) | 12.42 | 1.15 | (0.97-1.36) | 0.1007 |
| C5 | 84 (9.31) | 13,196 (7.70) | 13.78 | 1.17 | (0.92-1.47) | 0.1884 |
| C6 | 70 (7.76) | 16,335 (9.53) | 9.96 | 0.88 | (0.68-1.13) | 0.3304 |
| C15 | 5 (0.55) | 1,396 (0.81) | 16.95 | 1.48 | (0.53-3.25) | 0.3837 |
| C4 | 146 (16.19) | 29,767 (17.37) | 11.34 | 1.06 | (0.87-1.28) | 0.5373 |
| C100 | 3 (0.33) | 1,627 (0.95) | 6.80 | 0.82 | (0.20-2.16) | 0.7293 |
| C2 | 58 (6.43) | 11,739 (6.85) | 11.48 | 1.03 | (0.78-1.35) | 0.8124 |
| C16 | 6 (0.67) | 2,476 (1.45) | 12.19 | 1.09 | (0.43-2.26) | 0.8298 |
| C1 | 41 (4.55) | 7,805 (4.56) | 11.76 | 0.98 | (0.70-1.33) | 0.9035 |
| C14 | -- | 785 (0.46) | -- | -- | -- | -- |
| C17 | -- | 1,656 (0.97) | -- | -- | -- | -- |
|  |  |  |  |  |  |  |
| **HLA-DQ** |  |  |  |  |  |  |
| DQ7b | 98 (15.86) | 29,725 (20.88) | 7.97 | 0.77 | (0.59-0.99) | 0.0481 |
| DQ8b | 64 (10.36) | 15,031 (10.56) | 12.78 | 1.33 | (0.97-1.78) | 0.0678 |
| DQ5b | 92 (14.89) | 22,526 (15.82) | 11.52 | 1.25 | (0.95-1.63) | 0.0968 |
| DQ2 | 281 (31.15) | 56,657 (33.07) | 11.51 | 0.92 | (0.79-1.07) | 0.3016 |
| DQ6b | 116 (18.77) | 32,607 (22.91) | 9.09 | 0.93 | (0.72-1.19) | 0.5784 |
| DQ9b | 19 (3.07) | 3,896 (2.74) | 13.35 | 1.15 | (0.59-2.00) | 0.656 |
| DQ4 | 51 (5.65) | 13,461 (7.86) | 10.02 | 0.96 | (0.71-1.26) | 0.7586 |
|  |  |  |  |  |  |  |
| **HLA-DR** |  |  |  |  |  |  |
| DR13b | 96 (15.53) | 29,321 (20.60) | 8.76 | 0.74 | (0.57-0.93) | 0.0144 |
| DR17b | 112 (18.12) | 22,562 (15.85) | 13.76 | 1.23 | (0.96-1.56) | 0.0947 |
| DR9 | 20 (2.22) | 6,208 (3.62) | 9.06 | 0.70 | (0.43-1.06) | 0.1158 |
| DR7 | 163 (18.07) | 33,210 (19.38) | 10.62 | 0.87 | (0.73-1.03) | 0.1206 |
| DR4 | 294 (32.59) | 54,989 (32.10) | 12.50 | 0.92 | (0.8-1.06) | 0.2599 |
| DR10 | 23 (2.55) | 4,170 (2.43) | 13.98 | 1.24 | (0.8-1.84) | 0.3047 |
| DR1 | 159 (17.63) | 26,250 (15.32) | 12.86 | 1.09 | (0.91-1.29) | 0.3332 |
| DR16b | 13 (2.10) | 4,327 (3.04) | 7.53 | 0.77 | (0.37-1.40) | 0.4354 |
| DR15b | 131 (21.20) | 29,482 (20.71) | 11.01 | 1.09 | (0.86-1.37) | 0.4778 |
| DR18b | 4 (0.65) | 3,093 (2.17) | 4.71 | 0.72 | (0.22-1.73) | 0.5243 |
| DR12b | 33 (3.89) | 8,098 (4.89) | 10.27 | 0.89 | (0.57-1.31) | 0.5712 |
| DR11b | 141 (16.63) | 29,680 (17.92) | 10.32 | 0.95 | (0.76-1.18) | 0.6443 |
| DR8 | 73 (8.09) | 16,037 (9.36) | 11.79 | 1.03 | (0.80-1.31) | 0.7973 |
| DR103 | 7 (0.78) | 1,492 (0.87) | 11.57 | 1.10 | (0.47-2.13) | 0.8079 |
| DR14b | 41 (6.63) | 9,048 (6.36) | 12.11 | 1.02 | (0.70-1.44) | 0.9032 |
| |  |  | | --- | --- | | |  | | --- | | DLBCL=Diffuse large B-cell lymphoma; SIR=Standardized incidence ratio; IRR=Incidence rate ratio | | | aIRRs were calculated as the ratio of incidence rates between each antigen category and all other antigens combined, and were adjusted for sex, age at transplant, race/ethnicity, year of transplant, transplanted organ, and transplant number. | | bThis category includes restricted transplant years reflecting when the split antigen category was in common use (described in supplementary materials). | | | | | | | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Supplementary Table 4. Associations between HLA antigens and diffuse large B-cell lymphoma among kidney transplant recipients (only)** | | | | | | |
| **Antigen** | **Transplant recipients with DLBCL** | **Transplant recipients without DLBCL** | **SIR** | **IRRa** | **95% CI** | **P value** |
| **n (%)** | **n (%)** |
| **HLA-A** |  |  |  |  |  |  |
| A28 + A68 + A69 | 79 (14.34) | 16,283 (12.27) | 12.53 | 1.42 | (1.10-1.80) | 0.0050 |
| A32 | 19 (3.45) | 6,625 (4.99) | 6.38 | 0.62 | (0.37-0.96) | 0.0454 |
| A25 | 10 (1.81) | 3,330 (2.51) | 6.37 | 0.59 | (0.28-1.06) | 0.1117 |
| A33 | 22 (3.99) | 8,658 (6.53) | 7.11 | 0.72 | (0.46-1.09) | 0.1459 |
| A3 | 125 (22.69) | 26,337 (19.85) | 10.63 | 1.10 | (0.89-1.34) | 0.3649 |
| A36 | 4 (0.73) | 1,806 (1.36) | 7.10 | 0.65 | (0.16-1.73) | 0.4657 |
| A2 | 252 (45.74) | 60,242 (45.40) | 9.73 | 0.95 | (0.80-1.12) | 0.5368 |
| A29 | 40 (7.26) | 8,858 (6.68) | 10.66 | 1.09 | (0.77-1.48) | 0.6174 |
| A34 | 12 (2.18) | 3,593 (2.71) | 11.18 | 0.86 | (0.42-1.54) | 0.6394 |
| A23 | 32 (5.81) | 10,694 (8.06) | 8.46 | 0.92 | (0.62-1.31) | 0.6512 |
| A66 | 3 (0.54) | 1,528 (1.15) | 6.12 | 0.77 | (0.19-2.03) | 0.6595 |
| A26 | 36 (6.53) | 7,890 (5.95) | 10.08 | 1.06 | (0.74-1.46) | 0.7436 |
| A11 | 68 (12.34) | 14,104 (10.63) | 11.42 | 1.04 | (0.79-1.34) | 0.7699 |
| A1 | 131 (23.77) | 27,743 (20.91) | 10.21 | 1.02 | (0.83-1.25) | 0.8273 |
| A74 | 7 (1.27) | 2,953 (2.23) | 7.86 | 0.95 | (0.40-1.90) | 0.9024 |
| A24 | 101 (18.33) | 23,647 (17.82) | 10.32 | 1.01 | (0.80-1.25) | 0.9439 |
| A31 | 30 (5.44) | 7,304 (5.50) | 9.95 | 1.01 | (0.68-1.43) | 0.9656 |
| A30 | 46 (8.35) | 14,054 (10.59) | 8.92 | 1.01 | (0.73-1.36) | 0.9730 |
| **HLA-B** |  |  |  |  |  |  |
| B38 | 36 (6.53) | 5,300 (3.99) | 15.04 | 1.60 | (1.12-2.22) | 0.0072 |
| B58 | 8 (1.45) | 6,209 (4.68) | 3.83 | 0.41 | (0.18-0.77) | 0.0124 |
| B46 | 8 (1.45) | 852 (0.64) | 29.23 | 2.16 | (0.94-4.36) | 0.0473 |
| B41 | 5 (0.91) | 2,854 (2.15) | 4.10 | 0.43 | (0.15-0.93) | 0.0614 |
| B63 | 3 (0.54) | 2,558 (1.93) | 2.94 | 0.34 | (0.08-0.89) | 0.0635 |
| B57 | 24 (4.36) | 8,368 (6.31) | 6.74 | 0.68 | (0.44-1.01) | 0.0725 |
| B55 | 8 (1.45) | 3,191 (2.41) | 5.80 | 0.54 | (0.25-1.01) | 0.0831 |
| B18 | 60 (10.89) | 10,954 (8.26) | 12.29 | 1.27 | (0.95-1.65) | 0.0905 |
| B48 | 2 (0.36) | 1,795 (1.35) | 3.18 | 0.30 | (0.05-0.95) | 0.0934 |
| B7 | 117 (21.23) | 23,659 (17.83) | 11.16 | 1.18 | (0.95-1.44) | 0.1206 |
| B70 + B71 + B72 | 26 (4.72) | 7,024 (5.29) | 11.39 | 1.39 | (0.89-2.07) | 0.1228 |
| B75 | 2 (0.36) | 1,272 (0.96) | 4.95 | 0.37 | (0.06-1.17) | 0.1619 |
| B49 | 25 (4.54) | 5,300 (3.99) | 11.59 | 1.29 | (0.84-1.88) | 0.2201 |
| B52 | 10 (1.81) | 3,957 (2.98) | 5.95 | 0.68 | (0.34-1.20) | 0.2225 |
| B56 | 9 (1.63) | 1,368 (1.03) | 15.78 | 1.50 | (0.72-2.72) | 0.2307 |
| B14 + B64 + B65 | 43 (7.80) | 9,037 (6.81) | 10.89 | 1.20 | (0.87-1.62) | 0.2485 |
| B42 | 7 (1.27) | 4,027 (3.04) | 5.72 | 0.66 | (0.28-1.32) | 0.2887 |
| B47 | 1 (0.18) | 514 (0.39) | 4.08 | 0.40 | (0.02-1.76) | 0.3567 |
| B8 | 107 (19.42) | 21,284 (16.04) | 11.27 | 1.10 | (0.88-1.37) | 0.3839 |
| B62 | 53 (9.62) | 12,366 (9.32) | 9.88 | 0.88 | (0.65-1.17) | 0.4088 |
| B60 | 46 (8.35) | 10,565 (7.96) | 10.06 | 0.88 | (0.64-1.19) | 0.4235 |
| B50 | 10 (1.81) | 3,141 (2.37) | 7.66 | 0.80 | (0.40-1.42) | 0.4887 |
| B27 | 37 (6.72) | 7,535 (5.68) | 11.22 | 1.11 | (0.78-1.53) | 0.5505 |
| B39 | 24 (4.36) | 7,288 (5.49) | 8.61 | 0.88 | (0.57-1.31) | 0.5583 |
| B35 | 107 (19.42) | 24,820 (18.71) | 9.95 | 1.06 | (0.85-1.31) | 0.5894 |
| B45 | 13 (2.36) | 4,855 (3.66) | 7.93 | 0.87 | (0.48-1.47) | 0.6393 |
| B44 | 116 (21.05) | 26,247 (19.78) | 10.05 | 0.97 | (0.78-1.19) | 0.7738 |
| B37 | 12 (2.18) | 2,524 (1.90) | 10.60 | 1.05 | (0.56-1.78) | 0.8638 |
| B61 | 19 (3.45) | 5,313 (4.00) | 9.81 | 0.97 | (0.59-1.50) | 0.8889 |
| B51 | 52 (9.44) | 12,043 (9.08) | 10.10 | 0.99 | (0.73-1.31) | 0.9239 |
| B13 | 22 (3.99) | 4,861 (3.66) | 10.21 | 0.98 | (0.62-1.47) | 0.9351 |
| B53 | 24 (4.36) | 8,563 (6.45) | 8.85 | 0.99 | (0.62-1.51) | 0.9532 |
| B78 | -- | 561 (0.42) | -- | -- | -- | -- |
| B81 | -- | 847 (0.64) | -- | -- | -- | -- |
| **HLA-C** |  |  |  |  |  |  |
| C12 | 8 (1.45) | 1,650 (1.24) | 19.41 | 2.67 | (1.19-5.16) | 0.0077 |
| C7 | 155 (28.13) | 35,420 (26.70) | 10.47 | 1.22 | (0.98-1.51) | 0.0745 |
| C3 + C9 + C10 | 74 (13.43) | 20,654 (15.57) | 8.67 | 0.80 | (0.61-1.03) | 0.0920 |
| C8 | 18 (3.27) | 6,463 (4.87) | 7.21 | 0.73 | (0.43-1.14) | 0.1979 |
| C16 | 1 (0.18) | 1,859 (1.40) | 2.71 | 0.33 | (0.02-1.46) | 0.2658 |
| C100 | 1 (0.18) | 1,430 (1.08) | 2.55 | 0.36 | (0.02-1.64) | 0.3162 |
| C15 | 1 (0.18) | 1,064 (0.80) | 4.53 | 0.50 | (0.03-2.22) | 0.4860 |
| C2 | 39 (7.08) | 9,251 (6.97) | 10.46 | 1.10 | (0.77-1.52) | 0.5830 |
| C6 | 45 (8.17) | 12,595 (9.49) | 8.58 | 0.92 | (0.67-1.25) | 0.6250 |
| C5 | 44 (7.99) | 9,614 (7.25) | 10.26 | 1.06 | (0.76-1.44) | 0.7220 |
| C4 | 91 (16.52) | 24,159 (18.21) | 9.27 | 0.97 | (0.75-1.23) | 0.7868 |
| C1 | 29 (5.26) | 6,206 (4.68) | 11.20 | 1.01 | (0.67-1.48) | 0.9421 |
| C14 | -- | 594 (0.45) | -- | -- | -- | -- |
| C17 | -- | 1,348 (1.02) | -- | -- | -- | -- |
| **HLA-DQ** |  |  |  |  |  |  |
| DQ7b | 63 (16.41) | 23,989 (21.69) | 6.57 | 0.77 | (0.58-1.01) | 0.0648 |
| DQ5b | 60 (15.63) | 17,705 (16.01) | 9.85 | 1.25 | (0.93-1.65) | 0.1294 |
| DQ8b | 38 (9.90) | 11,047 (9.99) | 10.22 | 1.28 | (0.89-1.78) | 0.1621 |
| DQ9b | 11 (2.86) | 2,969 (2.68) | 10.26 | 1.26 | (0.65-2.20) | 0.4560 |
| DQ2 | 169 (30.67) | 42,501 (32.03) | 9.46 | 0.94 | (0.78-1.14) | 0.5599 |
| DQ4 | 34 (6.17) | 11,184 (8.43) | 8.34 | 0.91 | (0.63-1.29) | 0.6191 |
| DQ6b | 78 (20.31) | 26,114 (23.61) | 7.92 | 0.97 | (0.74-1.25) | 0.8209 |
| **HLA-DR** |  |  |  |  |  |  |
| DR13b | 58 (15.10) | 23,247 (21.02) | 6.87 | 0.74 | (0.57-0.95) | 0.0225 |
| DR15b | 91 (23.70) | 23,720 (21.45) | 10.02 | 1.17 | (0.92-1.48) | 0.1862 |
| DR7 | 99 (17.97) | 25,509 (19.23) | 8.93 | 0.87 | (0.69-1.08) | 0.2128 |
| DR17b | 61 (15.89) | 16,262 (14.71) | 10.15 | 1.18 | (0.88-1.54) | 0.2487 |
| DR1 | 94 (17.06) | 19,828 (14.94) | 10.57 | 1.11 | (0.88-1.38) | 0.3663 |
| DR10 | 15 (2.72) | 3,441 (2.59) | 11.69 | 1.20 | (0.69-1.93) | 0.4875 |
| DR18 | 4 (1.04) | 2,695 (2.44) | 5.35 | 0.76 | (0.23-1.81) | 0.5850 |
| DR12b | 24 (4.58) | 6,809 (5.31) | 9.40 | 0.90 | (0.57-1.34) | 0.6130 |
| DR16b | 9 (2.34) | 3,428 (3.10) | 6.81 | 0.85 | (0.41-1.55) | 0.6353 |
| DR4 | 172 (31.22) | 40,623 (30.62) | 10.15 | 0.96 | (0.79-1.15) | 0.6532 |
| DR14b | 26 (6.77) | 7,525 (6.80) | 9.90 | 1.08 | (0.74-1.52) | 0.6732 |
| DR9 | 17 (3.09) | 4,931 (3.72) | 9.98 | 0.92 | (0.54-1.45) | 0.7366 |
| DR11 | 90 (17.18) | 23,815 (18.57) | 8.72 | 0.98 | (0.77-1.22) | 0.8302 |
| DR8 | 46 (8.35) | 13,176 (9.93) | 9.41 | 0.99 | (0.72-1.33) | 0.9622 |
| DR103 | 4 (0.73) | 1,153 (0.87) | 8.66 | 0.99 | (0.31-2.32) | 0.9857 |
| |  | | --- | | DLBCL=Diffuse large B-cell lymphoma; SIR=Standardized incidence ratio; IRR=Incidence rate ratio | | aIRRs were calculated as the ratio of incidence rates between each antigen category and all other antigens combined, and were adjusted for sex, age at transplant, race/ethnicity, year of transplant, transplanted organ, transplant number, panel reactive antibody score, and donor vital status. | | bThis category includes restricted transplant years reflecting when the split antigen category was in common use (described in supplementary materials). | | | | | | | |