**Supplementary material**

Frequency HLA-A, HLA-B and DRB1 locus in cryopreserved Umbilical Cord Blood Units in Cord Blood Bank from National Center of Blood Transfusion

|  |  |  |
| --- | --- | --- |
| HLA-A | HLA-B | HLA-DRB1 |
| Locus | *n* | Frequency | Locus | *n* | Frequency | Locus | *n* | Frequency |
| 0101 | 1 | 0.00187617 | 0707 | 2 | 0.00375235 | 0101 | 2 | 0.00375235 |
| 0102 | 19 | 0.03564728 | 0708 | 2 | 0.00375235 | 0103 | 4 | 0.00750469 |
| 0103 | 2 | 0.00375235 | 0714 | 2 | 0.00375235 | 0104 | 15 | 0.02814259 |
| 0111 | 3 | 0.00562852 | 0715 | 5 | 0.00938086 | 0107 | 7 | 0.01313321 |
| 0123 | 3 | 0.00562852 | 0718 | 1 | 0.00187617 | 0108 | 12 | 0.02251407 |
| 0124 | 7 | 0.01313321 | 0735 | 13 | 0.02439024 | 0109 | 1 | 0.00187617 |
| 0125 | 2 | 0.00375235 | 0738 | 1 | 0.00187617 | 0110 | 2 | 0.00375235 |
| 0126 | 1 | 0.00187617 | 0739 | 6 | 0.01125704 | 0111 | 9 | 0.01688555 |
| 0129 | 5 | 0.00938086 | 0740 | 6 | 0.01125704 | 0113 | 10 | 0.01876173 |
| 0130 | 5 | 0.00938086 | 0741 | 3 | 0.00562852 | 0114 | 5 | 0.00938086 |
| 0131 | 7 | 0.01313321 | 0744 | 2 | 0.00375235 | 0115 | 9 | 0.01688555 |
| 0132 | 3 | 0.00562852 | 0748 | 2 | 0.00375235 | 0116 | 4 | 0.00750469 |
| 0133 | 1 | 0.00187617 | 0749 | 3 | 0.00562852 | 0303 | 1 | 0.00187617 |
| 0168 | 5 | 0.00938086 | 0750 | 1 | 0.00187617 | 0304 | 22 | 0.0412758 |
| 0202 | 50 | 0.09380863 | 0751 | 4 | 0.00750469 | 0307 | 3 | 0.00562852 |
| 0203 | 15 | 0.02814259 | 0752 | 1 | 0.00187617 | 0308 | 12 | 0.02251407 |
| 0211 | 4 | 0.00750469 | 0753 | 1 | 0.00187617 | 0309 | 1 | 0.00187617 |
| 0223 | 9 | 0.01688555 | 0757 | 1 | 0.00187617 | 0310 | 1 | 0.00187617 |
| 0224 | 56 | 0.10506567 | 0814 | 2 | 0.00375235 | 0311 | 3 | 0.00562852 |
| 0225 | 2 | 0.00375235 | 0815 | 7 | 0.01313321 | 0313 | 5 | 0.00938086 |
| 0226 | 8 | 0.01500938 | 0835 | 8 | 0.01500938 | 0314 | 12 | 0.02251407 |
| 0229 | 17 | 0.03189493 | 0839 | 5 | 0.00938086 | 0315 | 3 | 0.00562852 |
| 0230 | 20 | 0.03752345 | 0840 | 2 | 0.00375235 | 0404 | 14 | 0.02626642 |
| 0231 | 19 | 0.03564728 | 0842 | 1 | 0.00187617 | 0407 | 25 | 0.04690432 |
| 0232 | 6 | 0.01125704 | 0844 | 3 | 0.00562852 | 0408 | 65 | 0.12195122 |
| 0233 | 5 | 0.00938086 | 0847 | 1 | 0.00187617 | 0409 | 6 | 0.01125704 |
| 0234 | 1 | 0.00187617 | 0848 | 2 | 0.00375235 | 0410 | 2 | 0.00375235 |
| 0236 | 1 | 0.00187617 | 0849 | 1 | 0.00187617 | 0411 | 19 | 0.03564728 |
| 0266 | 2 | 0.00375235 | 0850 | 1 | 0.00187617 | 0413 | 16 | 0.03001876 |
| 0268 | 53 | 0.09943715 | 0851 | 3 | 0.00562852 | 0414 | 21 | 0.03939962 |
| 0269 | 1 | 0.00187617 | 0856 | 1 | 0.00187617 | 0415 | 23 | 0.04315197 |
| 0274 | 1 | 0.00187617 | 1315 | 1 | 0.00187617 | 0416 | 22 | 0.0412758 |
| 0280 | 1 | 0.00187617 | 1335 | 1 | 0.00187617 | 0707 | 1 | 0.00187617 |
| 0303 | 1 | 0.00187617 | 1339 | 2 | 0.00375235 | 0708 | 9 | 0.01688555 |
| 0311 | 4 | 0.00750469 | 1340 | 1 | 0.00187617 | 0709 | 1 | 0.00187617 |
| 0323 | 2 | 0.00375235 | 1344 | 2 | 0.00375235 | 0710 | 1 | 0.00187617 |
| 0324 | 9 | 0.01688555 | 1348 | 2 | 0.00375235 | 0711 | 5 | 0.00938086 |
| 0326 | 1 | 0.00187617 | 1352 | 1 | 0.00187617 | 0713 | 3 | 0.00562852 |
| 0329 | 2 | 0.00375235 | 1381 | 1 | 0.00187617 | 0714 | 13 | 0.02439024 |
| 0331 | 6 | 0.01125704 | 1414 | 1 | 0.00187617 | 0715 | 1 | 0.00187617 |
| 0332 | 1 | 0.00187617 | 1415 | 3 | 0.00562852 | 0716 | 5 | 0.00938086 |
| 0368 | 6 | 0.01125704 | 1418 | 1 | 0.00187617 | 0808 | 6 | 0.01125704 |
| 1111 | 1 | 0.00187617 | 1427 | 2 | 0.00375235 | 0809 | 1 | 0.00187617 |
| 1124 | 6 | 0.01125704 | 1435 | 9 | 0.01688555 | 0810 | 1 | 0.00187617 |
| 1125 | 2 | 0.00375235 | 1437 | 1 | 0.00187617 | 0811 | 11 | 0.0206379 |
| 1129 | 1 | 0.00187617 | 1439 | 4 | 0.00750469 | 0813 | 10 | 0.01876173 |
| 1130 | 2 | 0.00375235 | 1440 | 5 | 0.00938086 | 0814 | 13 | 0.02439024 |
| 1131 | 1 | 0.00187617 | 1444 | 1 | 0.00187617 | 0815 | 13 | 0.02439024 |
| 1132 | 1 | 0.00187617 | 1445 | 1 | 0.00187617 | 0816 | 9 | 0.01688555 |
| 1166 | 1 | 0.00187617 | 1451 | 2 | 0.00375235 | 0911 | 1 | 0.00187617 |
| 1168 | 3 | 0.00562852 | 1452 | 2 | 0.00375235 | 0913 | 2 | 0.00375235 |
| 1174 | 1 | 0.00187617 | 1457 | 1 | 0.00187617 | 0914 | 1 | 0.00187617 |
| 2323 | 1 | 0.00187617 | 1518 | 1 | 0.00187617 | 0916 | 2 | 0.00375235 |
| 2324 | 4 | 0.00750469 | 1535 | 25 | 0.04690432 | 1011 | 3 | 0.00562852 |
| 2325 | 1 | 0.00187617 | 1538 | 2 | 0.00375235 | 1014 | 3 | 0.00562852 |
| 2330 | 2 | 0.00375235 | 1539 | 11 | 0.0206379 | 1111 | 4 | 0.00750469 |
| 2333 | 1 | 0.00187617 | 1540 | 10 | 0.01876173 | 1113 | 3 | 0.00562852 |
| 2368 | 3 | 0.00562852 | 1541 | 2 | 0.00375235 | 1114 | 8 | 0.01500938 |
| 2424 | 8 | 0.01500938 | 1544 | 3 | 0.00562852 | 1115 | 4 | 0.00750469 |
| 2425 | 2 | 0.00375235 | 1545 | 3 | 0.00562852 | 1116 | 1 | 0.00187617 |
| 2426 | 1 | 0.00187617 | 1548 | 3 | 0.00562852 | 1313 | 1 | 0.00187617 |
| 2429 | 6 | 0.01125704 | 1549 | 4 | 0.00750469 | 1314 | 6 | 0.01125704 |
| 2430 | 9 | 0.01688555 | 1550 | 1 | 0.00187617 | 1315 | 4 | 0.00750469 |
| 2431 | 11 | 0.0206379 | 1551 | 3 | 0.00562852 | 1316 | 3 | 0.00562852 |
| 2432 | 4 | 0.00750469 | 1552 | 2 | 0.00375235 | 1414 | 2 | 0.00375235 |
| 2433 | 3 | 0.00562852 | 1557 | 1 | 0.00187617 | 1415 | 8 | 0.01500938 |
| 2468 | 12 | 0.02251407 | 1581 | 1 | 0.00187617 | 1416 | 15 | 0.02814259 |
| 2474 | 1 | 0.00187617 | 1835 | 9 | 0.01688555 | 1515 | 1 | 0.00187617 |
| 2529 | 1 | 0.00187617 | 1839 | 7 | 0.01313321 | 1516 | 2 | 0.00375235 |
| 2568 | 2 | 0.00375235 | 1840 | 5 | 0.00938086 |  |  |  |
| 2629 | 1 | 0.00187617 | 1844 | 1 | 0.00187617 |  |  |  |
| 2630 | 1 | 0.00187617 | 1845 | 3 | 0.00562852 |  |  |  |
| 2631 | 1 | 0.00187617 | 1849 | 1 | 0.00187617 |  |  |  |
| 2668 | 2 | 0.00375235 | 1851 | 4 | 0.00750469 |  |  |  |
| 2931 | 3 | 0.00562852 | 1852 | 1 | 0.00187617 |  |  |  |
| 2933 | 1 | 0.00187617 | 1855 | 1 | 0.00187617 |  |  |  |
| 2936 | 1 | 0.00187617 | 2735 | 2 | 0.00375235 |  |  |  |
| 2966 | 1 | 0.00187617 | 2739 | 3 | 0.00562852 |  |  |  |
| 2968 | 8 | 0.01500938 | 2740 | 2 | 0.00375235 |  |  |  |
| 3031 | 4 | 0.00750469 | 2741 | 1 | 0.00187617 |  |  |  |
| 3032 | 1 | 0.00187617 | 2744 | 2 | 0.00375235 |  |  |  |
| 3033 | 1 | 0.00187617 | 2751 | 3 | 0.00562852 |  |  |  |
| 3068 | 9 | 0.01688555 | 2752 | 4 | 0.00750469 |  |  |  |
| 3131 | 3 | 0.00562852 | 3535 | 8 | 0.01500938 |  |  |  |
| 3132 | 1 | 0.00187617 | 3537 | 2 | 0.00375235 |  |  |  |
| 3133 | 4 | 0.00750469 | 3538 | 3 | 0.00562852 |  |  |  |
| 3136 | 1 | 0.00187617 | 3539 | 25 | 0.04690432 |  |  |  |
| 3168 | 10 | 0.01876173 | 3540 | 18 | 0.03377111 |  |  |  |
| 3174 | 1 | 0.00187617 | 3542 | 3 | 0.00562852 |  |  |  |
| 3233 | 1 | 0.00187617 | 3544 | 8 | 0.01500938 |  |  |  |
| 3268 | 1 | 0.00187617 | 3545 | 2 | 0.00375235 |  |  |  |
| 3333 | 1 | 0.00187617 | 3547 | 1 | 0.00187617 |  |  |  |
| 3368 | 5 | 0.00938086 | 3548 | 12 | 0.02251407 |  |  |  |
| 3468 | 1 | 0.00187617 | 3549 | 6 | 0.01125704 |  |  |  |
| 6668 | 1 | 0.00187617 | 3550 | 2 | 0.00375235 |  |  |  |
| 6868 | 9 | 0.01688555 | 3551 | 10 | 0.01876173 |  |  |  |
| 6874 | 2 | 0.00375235 | 3552 | 8 | 0.01500938 |  |  |  |
|  |  |  | 3553 | 5 | 0.00938086 |  |  |  |
|  |  |  | 3554 | 1 | 0.00187617 |  |  |  |
|  |  |  | 3556 | 1 | 0.00187617 |  |  |  |
|  |  |  | 3557 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3558 | 4 | 0.00750469 |  |  |  |
|  |  |  | 3738 | 1 | 0.00187617 |  |  |  |
|  |  |  | 3739 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3751 | 1 | 0.00187617 |  |  |  |
|  |  |  | 3744 | 1 | 0.00187617 |  |  |  |
|  |  |  | 3839 | 3 | 0.00562852 |  |  |  |
|  |  |  | 3840 | 5 | 0.00938086 |  |  |  |
|  |  |  | 3844 | 3 | 0.00562852 |  |  |  |
|  |  |  | 3939 | 4 | 0.00750469 |  |  |  |
|  |  |  | 3940 | 12 | 0.02251407 |  |  |  |
|  |  |  | 3941 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3944 | 14 | 0.02626642 |  |  |  |
|  |  |  | 3945 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3948 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3950 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3951 | 8 | 0.01500938 |  |  |  |
|  |  |  | 3952 | 7 | 0.01313321 |  |  |  |
|  |  |  | 3953 | 2 | 0.00375235 |  |  |  |
|  |  |  | 3957 | 4 | 0.00750469 |  |  |  |
|  |  |  | 3958 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4040 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4042 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4044 | 4 | 0.00750469 |  |  |  |
|  |  |  | 4048 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4049 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4050 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4051 | 4 | 0.00750469 |  |  |  |
|  |  |  | 4052 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4053 | 3 | 0.00562852 |  |  |  |
|  |  |  | 4055 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4057 | 3 | 0.00562852 |  |  |  |
|  |  |  | 4058 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4142 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4144 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4145 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4155 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4251 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4252 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4444 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4445 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4448 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4449 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4451 | 9 | 0.01688555 |  |  |  |
|  |  |  | 4452 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4848 | 4 | 0.00750469 |  |  |  |
|  |  |  | 4849 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4851 | 3 | 0.00562852 |  |  |  |
|  |  |  | 4852 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4857 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4858 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4950 | 1 | 0.00187617 |  |  |  |
|  |  |  | 4951 | 2 | 0.00375235 |  |  |  |
|  |  |  | 4957 | 1 | 0.00187617 |  |  |  |
|  |  |  | 5151 | 4 | 0.00750469 |  |  |  |
|  |  |  | 5152 | 3 | 0.00562852 |  |  |  |
|  |  |  | 5157 | 1 | 0.00187617 |  |  |  |
|  |  |  | 5252 | 3 | 0.00562852 |  |  |  |
|  |  |  | 5257 | 1 | 0.00187617 |  |  |  |
|  |  |  | 5355 | 1 | 0.00187617 |  |  |  |