|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table S1: List of HLA I and II types retrieved from 4 different cohorts  in public databases** | | | | | |
| **HLA types** | **Class** | **Frequency   in Cohort 1** | **Frequency   in Cohort 2** | **Frequency   in Cohort 3** | **Frequency   in Cohort 4** |
| A\*01:01 | I | 0 | 0.038 | 0 | 0.0149 |
| A\*02:01 | I | 0 | 0.021 | 0 | 0.0297 |
| A\*02:03 | I | 0 | 0.079 | 0 | 0.0793 |
| A\*02:06 | I | 0 | 0.047 | 0 | 0.0297 |
| A\*02:07 | I | 0 | 0.085 | 0 | 0.099 |
| A\*03:02 | I | 0 | 0.003 | 0 | 0.0099 |
| A\*11:01 | I | 0 | 0.229 | 0 | 0.2277 |
| A\*11:02 | I | 0 | 0.035 | 0 | 0.0248 |
| A\*11:04 | I | 0 | 0.003 | 0 | 0.0099 |
| A\*24:02 | I | 0 | 0.138 | 0 | 0.1387 |
| A\*24:03 | I | 0 | 0.015 | 0 | 0.0099 |
| A\*24:07 | I | 0 | 0.044 | 0 | 0.0297 |
| A\*24:10 | I | 0 | 0.024 | 0 | 0.005 |
| A\*26:01 | I | 0 | 0.021 | 0 | 0.0198 |
| A\*29:01 | I | 0 | 0.062 | 0 | 0.0842 |
| A\*30:01 | I | 0 | 0.003 | 0 | 0.005 |
| A\*31:01 | I | 0 | 0.021 | 0 | 0.0149 |
| A\*33:03 | I | 0 | 0.115 | 0 | 0.1089 |
| A\*34:01 | I | 0 | 0.006 | 0 | 0.0149 |
| A\*68:01 | I | 0 | 0.009 | 0 | 0.005 |
| A\*74:01 | I | 0 | 0.003 | 0 | 0 |
| B\*07:05 | I | 0 | 0.074 | 0 | 0.0693 |
| B\*08:01 | I | 0 | 0.003 | 0 | 0.005 |
| B\*13:01 | I | 0 | 0.038 | 0 | 0.0297 |
| B\*13:02 | I | 0 | 0.006 | 0 | 0.0099 |
| B\*15:01 | I | 0 | 0.041 | 0 | 0.0099 |
| B\*15:02 | I | 0 | 0.135 | 0 | 0.1188 |
| B\*15:07 | I | 0 | 0.003 | 0 | 0 |
| B\*15:17 | I | 0 | 0.003 | 0 | 0.005 |
| B\*15:18 | I | 0 | 0.003 | 0 | 0 |
| B\*15:21 | I | 0 | 0.003 | 0 | 0 |
| B\*15:25 | I | 0 | 0.059 | 0 | 0.0545 |
| B\*15:27 | I | 0 | 0.003 | 0 | 0.005 |
| B\*18:01 | I | 0 | 0.006 | 0 | 0.0099 |
| B\*18:02 | I | 0 | 0.018 | 0 | 0.005 |
| B\*27:06 | I | 0 | 0.009 | 0 | 0.0198 |
| B\*35:01 | I | 0 | 0.003 | 0 | 0.0198 |
| B\*35:03 | I | 0 | 0.003 | 0 | 0.005 |
| B\*35:05 | I | 0 | 0.041 | 0 | 0.0347 |
| B\*38:02 | I | 0 | 0.056 | 0 | 0.0792 |
| B\*39:01 | I | 0 | 0.012 | 0 | 0.0198 |
| B\*39:05 | I | 0 | 0.003 | 0 | 0 |
| B\*39:15 | I | 0 | 0.006 | 0 | 0 |
| B\*40:01 | I | 0 | 0.062 | 0 | 0.0792 |
| B\*40:02 | I | 0 | 0.012 | 0 | 0.005 |
| B\*40:06 | I | 0 | 0.021 | 0 | 0.0198 |
| B\*44:03 | I | 0 | 0.038 | 0 | 0.0099 |
| B\*46:01 | I | 0 | 0.115 | 0 | 0.0941 |
| B\*48:01 | I | 0 | 0.003 | 0 | 0.0149 |
| B\*51:01 | I | 0 | 0.035 | 0 | 0.0198 |
| B\*51:02 | I | 0 | 0.018 | 0 | 0.0149 |
| B\*52:01 | I | 0 | 0.003 | 0 | 0.0198 |
| B\*54:01 | I | 0 | 0.024 | 0 | 0.0149 |
| B\*55:02 | I | 0 | 0.026 | 0 | 0.0198 |
| B\*56:01 | I | 0 | 0.012 | 0 | 0.0149 |
| B\*56:02 | I | 0 | 0.012 | 0 | 0 |
| B\*57:01 | I | 0 | 0.029 | 0 | 0.005 |
| B\*58:01 | I | 0 | 0.065 | 0 | 0.0842 |
| C\*01:02 | I | 0 | 0.165 | 0 | 0.1337 |
| C\*01:03 | I | 0 | 0.003 | 0 | 0 |
| C\*03:02 | I | 0 | 0.068 | 0 | 0.0891 |
| C\*03:03 | I | 0 | 0.05 | 0 | 0.0446 |
| C\*03:04 | I | 0 | 0.062 | 0 | 0.0793 |
| C\*04:01 | I | 0 | 0.053 | 0 | 0.0495 |
| C\*04:03 | I | 0 | 0.059 | 0 | 0.0743 |
| C\*04:06 | I | 0 | 0.006 | 0 | 0 |
| C\*06:02 | I | 0 | 0.032 | 0 | 0.0198 |
| C\*07:01 | I | 0 | 0.041 | 0 | 0.01 |
| C\*07:02 | I | 0 | 0.147 | 0 | 0.2178 |
| C\*07:04 | I | 0 | 0.024 | 0 | 0.0099 |
| C\*08:01 | I | 0 | 0.156 | 0 | 0.1287 |
| C\*12:02 | I | 0 | 0.021 | 0 | 0.0149 |
| C\*12:03 | I | 0 | 0.009 | 0 | 0 |
| C\*14:02 | I | 0 | 0.026 | 0 | 0.0198 |
| C\*15:02 | I | 0 | 0.029 | 0 | 0.0149 |
| C\*15:05 | I | 0 | 0.05 | 0 | 0.0693 |
| A\*03:01 | I | 0 | 0 | 0 | 0.005 |
| A\*24:20 | I | 0 | 0 | 0 | 0.0149 |
| A\*32:01 | I | 0 | 0 | 0 | 0.005 |
| A\*33:01 | I | 0 | 0 | 0 | 0.0099 |
| A\*74:02 | I | 0 | 0 | 0 | 0.005 |
| B\*07:02 | I | 0 | 0 | 0 | 0.0198 |
| B\*15:11 | I | 0 | 0 | 0 | 0.005 |
| B\*15:12 | I | 0 | 0 | 0 | 0.0149 |
| B\*15:13 | I | 0 | 0 | 0 | 0.005 |
| B\*15:35 | I | 0 | 0 | 0 | 0.0099 |
| B\*37:01 | I | 0 | 0 | 0 | 0.005 |
| B\*39:09 | I | 0 | 0 | 0 | 0.005 |
| B\*51:06 | I | 0 | 0 | 0 | 0.005 |
| B\*55:18 | I | 0 | 0 | 0 | 0.005 |
| B\*56:04 | I | 0 | 0 | 0 | 0.0099 |
| C\*03:17 | I | 0 | 0 | 0 | 0.005 |
| C\*04:82 | I | 0 | 0 | 0 | 0.005 |
| C\*07:06 | I | 0 | 0 | 0 | 0.005 |
| C\*08:03 | I | 0 | 0 | 0 | 0.0099 |
| DQB1\*02:01 | II | 0.065 | 0.091 | 0.11 | 0.0693 |
| DQB1\*03:01 | II | 0.37 | 0.4 | 0.085 | 0.2871 |
| DQB1\*03:02 | II | 0.045 | 0.024 | 0.024 | 0.0248 |
| DQB1\*03:03 | II | 0.17 | 0.126 | 0.085 | 0.1337 |
| DQB1\*04:01 | II | 0.05 | 0.035 | 0.024 | 0.0495 |
| DQB1\*05:01 | II | 0.115 | 0.118 | 0.11 | 0.1238 |
| DQB1\*05:02 | II | 0.08 | 0.065 | 0.481 | 0.1139 |
| DQB1\*05:03 | II | 0.015 | 0.035 | 0.006 | 0.0348 |
| DQB1\*06:01 | II | 0.035 | 0.065 | 0.018 | 0.0842 |
| DQB1\*06:02 | II | 0.02 | 0.012 | 0.006 | 0.0099 |
| DQB1\*06:03 | II | 0.01 | 0.006 | 0 | 0.005 |
| DQB1\*06:05 | II | 0.005 | 0.015 | 0.006 | 0 |
| DQB1\*06:09 | II | 0.02 | 0 | 0 | 0.0099 |
| DRB1\*03:01 | II | 0.044 | 0.047 | 0.127 | 0.0743 |
| DRB1\*04:03 | II | 0.025 | 0.021 | 0.018 | 0.0149 |
| DRB1\*04:04 | II | 0.01 | 0.003 | 0 | 0 |
| DRB1\*04:05 | II | 0.044 | 0.038 | 0.024 | 0.0644 |
| DRB1\*04:08 | II | 0.005 | 0 | 0.006 | 0 |
| DRB1\*07:01 | II | 0.049 | 0.076 | 0.006 | 0.0297 |
| DRB1\*08:03 | II | 0.054 | 0.041 | 0 | 0.0545 |
| DRB1\*09:01 | II | 0.142 | 0.097 | 0.078 | 0.1337 |
| DRB1\*10:01 | II | 0.044 | 0.056 | 0.03 | 0.0792 |
| DRB1\*11:01 | II | 0.005 | 0.015 | 0.012 | 0.0248 |
| DRB1\*12:01 | II | 0.025 | 0.009 | 0 | 0 |
| DRB1\*12:02 | II | 0.304 | 0.353 | 0.102 | 0.2228 |
| DRB1\*13:01 | II | 0.02 | 0.006 | 0.006 | 0.005 |
| DRB1\*13:02 | II | 0.02 | 0.018 | 0.006 | 0.0149 |
| DRB1\*13:03 | II | 0.015 | 0.018 | 0 | 0 |
| DRB1\*13:12 | II | 0.005 | 0 | 0.012 | 0.0297 |
| DRB1\*14:01 | II | 0.029 | 0.032 | 0.151 | 0 |
| DRB1\*14:04 | II | 0.01 | 0.018 | 0 | 0.005 |
| DRB1\*14:05 | II | 0.005 | 0.012 | 0 | 0.0099 |
| DRB1\*15:01 | II | 0.039 | 0.038 | 0.054 | 0.0248 |
| DRB1\*15:02 | II | 0.078 | 0.062 | 0.127 | 0.104 |
| DRB1\*15:05 | II | 0.005 | 0 | 0 | 0 |
| DRB1\*16:02 | II | 0.01 | 0.018 | 0.199 | 0.0446 |
| DRB1\*16:05 | II | 0.015 | 0 | 0 | 0 |
| DQB1\*04:02 | II | 0 | 0.006 | 0 | 0.0099 |
| DQB1\*06:04 | II | 0 | 0.003 | 0.012 | 0.005 |
| DRB1\*04:01 | II | 0 | 0.003 | 0 | 0.005 |
| DRB1\*04:06 | II | 0 | 0.006 | 0 | 0.0099 |
| DRB1\*08:02 | II | 0 | 0.009 | 0 | 0 |
| DRB1\*14:02 | II | 0 | 0.003 | 0 | 0 |
| DRB1\*14:03 | II | 0 | 0.003 | 0 | 0 |
| DQB1\*03:09 | II | 0 | 0 | 0.018 | 0 |
| DQB1\*05:04 | II | 0 | 0 | 0.006 | 0 |
| DQB1\*06:06 | II | 0 | 0 | 0.006 | 0 |
| DRB1\*08:18 | II | 0 | 0 | 0.03 | 0 |
| DRB1\*15:06 | II | 0 | 0 | 0.012 | 0 |
| DQB1\*02:02 | II | 0 | 0 | 0 | 0.0198 |
| DQB1\*03:05 | II | 0 | 0 | 0 | 0.005 |
| DQB1\*05:10 | II | 0 | 0 | 0 | 0.005 |
| DQB1\*05:18 | II | 0 | 0 | 0 | 0.0099 |
| DRB1\*08:12 | II | 0 | 0 | 0 | 0.005 |
| DRB1\*11:06 | II | 0 | 0 | 0 | 0.0149 |
| DRB1\*11:12 | II | 0 | 0 | 0 | 0.005 |
| DRB1\*14:10 | II | 0 | 0 | 0 | 0.005 |
| DRB1\*14:18 | II | 0 | 0 | 0 | 0.005 |
| DRB1\*14:54 | II | 0 | 0 | 0 | 0.0149 |