**Supplemental Table 4. DOB alleles. Related to Figures 6 and 7.**

| Chrom | Position | RSID | Ref | Alt | Protein Consequence | Transcript Consequence | Annotation | Number of Homozygotes | Allele Frequency |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 32782883 | . | G | A | p.Ala100Val | c.299C>T | missense | 0 | 0.00002472 |
| 6 | 32782931 | . | G | A | p.Ala84Val | c.251C>T | missense | 0 | 0.000008237 |
| 6 | 32782827 | . | T | C | p.Arg119Gly | c.355A>G | missense | 0 | 0.00001656 |
| 6 | 32782826 | rs143319753 | C | T | p.Arg119Lys | c.356G>A | missense | 0 | 0.001093 |
| 6 | 32782246 | . | C | A | p.Arg165Ile | c.494G>T | missense | 0 | 0.000008579 |
| 6 | 32784676 | rs2071554 | C | T | p.Arg18Gln | c.53G>A | missense | 343 | 0.06776 |
| 6 | 32781586 | . | C | T | p.Arg223Lys | c.668G>A | missense | 0 | 0.00003937 |
| 6 | 32782989 | rs147835586 | G | A | p.Arg65Cys | c.193C>T | missense | 0 | 0.00002471 |
| 6 | 32782988 | rs144504518 | C | T | p.Arg65His | c.194G>A | missense | 0 | 0.00003295 |
| 6 | 32782913 | . | C | T | p.Arg90Gln | c.269G>A | missense | 0 | 0.000008238 |
| 6 | 32782913 | . | C | A | p.Arg90Leu | c.269G>T | missense | 0 | 0.000008238 |
| 6 | 32782914 | . | G | A | p.Arg90Trp | c.268C>T | missense | 0 | 0.00001648 |
| 6 | 32782896 | . | T | C | p.Arg96Gly | c.286A>G | missense | 0 | 0.00004119 |
| 6 | 32782325 | rs139684832 | T | G | p.Asn139His | c.415A>C | missense | 0 | 0.000008605 |
| 6 | 32782213 | . | T | C | p.Asn176Ser | c.527A>G | missense | 0 | 0.0001543 |
| 6 | 32781221 | rs143706496 | T | C | p.Asn261Ser | c.782A>G | missense | 0 | 0.00000859 |
| 6 | 32782877 | . | T | A | p.Asp102Val | c.305A>T | missense | 0 | 0.00001648 |
| 6 | 32782285 | . | T | A | p.Asp152Val | c.455A>T | missense | 0 | 0.00005158 |
| 6 | 32784646 | . | T | C | p.Asp28Gly | c.83A>G | missense | 0 | 0.000008614 |
| 6 | 32782983 | . | C | T | p.Asp67Asn | c.199G>A | missense | 0 | 0.000008237 |
| 6 | 32782935 | . | C | A | p.Asp83Tyr | c.247G>T | missense | 0 | 0.000008237 |
| 6 | 32780998 | . | A | G | p.Cys273Arg | c.817T>C | missense | 0 | 0.000008601 |
| 6 | 32782376 | . | G | A | p.Gln122Ter | c.364C>T | stop gained | 0 | 0.000008656 |
| 6 | 32782330 | . | T | C | p.Gln137Arg | c.410A>G | missense | 0 | 0.000008606 |
| 6 | 32782255 | . | T | C | p.Gln162Arg | c.485A>G | missense | 0 | 0.000008583 |
| 6 | 32781234 | . | G | C | p.Gln257Glu | c.769C>G | missense | 0 | 0.000008592 |
| 6 | 32784655 | . | T | C | p.Gln25Arg | c.74A>G | missense | 0 | 0.000008611 |
| 6 | 32782924 | . | C | A | p.Gln86His | c.258G>T | missense | 0 | 0.000008237 |
| 6 | 32782926 | rs142229094 | G | T | p.Gln86Lys | c.256C>A | missense | 0 | 0.0005437 |
| 6 | 32782885 | . | C | A | p.Gln99His | c.297G>T | missense | 0 | 0.000008239 |
| 6 | 32782887 | . | G | A | p.Gln99Ter | c.295C>T | stop gained | 0 | 0.00001648 |
| 6 | 32782251 | . | C | A | p.Glu163Asp | c.489G>T | missense | 0 | 0.00002574 |
| 6 | 32782250 | rs142148406 | C | G | p.Glu164Gln | c.490G>C | missense | 0 | 0.0001201 |
| 6 | 32782102 | . | T | C | p.Glu213Gly | c.638A>G | missense | 0 | 0.000008624 |
| 6 | 32781219 | . | C | T | p.Glu262Lys | c.784G>A | missense | 0 | 0.00004295 |
| 6 | 32783001 | . | C | T | p.Glu61Lys | c.181G>A | missense | 0 | 0.000008237 |
| 6 | 32782929 | . | C | T | p.Glu85Lys | c.253G>A | missense | 0 | 0.000008238 |
| 6 | 32782874 | rs144814623 | C | A | p.Gly103Val | c.308G>T | missense | 1 | 0.0003791 |
| 6 | 32782224 | . | GC | G | p.Gly172AlafsTer14 | c.515delG | frameshift | 0 | 0.0004802 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 6 | 32781500 | . | C | T | p.Gly252Arg | c.754G>A | missense | 0 | 0.00004295 |
| 6 | 32783046 | . | C | T | p.Gly46Arg | c.136G>A | missense | 0 | 0.00005767 |
| 6 | 32783045 | . | C | T | p.Gly46Glu | c.137G>A | missense | 0 | 0.000008238 |
| 6 | 32782863 | . | G | T | p.His107Asn | c.319C>A | missense | 0 | 0.000008243 |
| 6 | 32782334 | . | G | A | p.His136Tyr | c.406C>T | missense | 0 | 0.000008608 |
| 6 | 32782316 | . | G | A | p.His142Tyr | c.424C>T | missense | 0 | 0.000008603 |
| 6 | 32782276 | . | A | G | p.Ile155Thr | c.464T>C | missense | 0 | 0.000008593 |
| 6 | 32782220 | . | T | A | p.Ile174Phe | c.520A>T | missense | 0 | 0.00001715 |
| 6 | 32782219 | . | A | G | p.Ile174Thr | c.521T>C | missense | 0 | 0.0000343 |
| 6 | 32782336 | . | A | G | p.Leu135Pro | c.404T>C | missense | 0 | 0.0001549 |
| 6 | 32782318 | . | A | G | p.Leu141Pro | c.422T>C | missense | 0 | 0.00001721 |
| 6 | 32782142 | . | G | T | p.Leu200Ile | c.598C>A | missense | 0 | 0.000008589 |
| 6 | 32781554 | rs2070121 | G | T | p.Leu234Ile | c.700C>A | missense | 0 | 0.0009835 |
| 6 | 32781554 | rs2070121 | G | A | p.Leu234Phe | c.700C>T | missense | 143 | 0.114 |
| 6 | 32782904 | . | A | T | p.Leu93His | c.278T>A | missense | 0 | 0.000008238 |
| 6 | 32782279 | . | T | C | p.Lys154Arg | c.461A>G | missense | 0 | 0.000008594 |
| 6 | 32784728 | . | T | C | p.Met1? | c.1A>G | start lost | 0 | 0.00001729 |
| 6 | 32782182 | . | C | A | p.Met186Ile | c.558G>T | missense | 0 | 0.00001715 |
| 6 | 32782182 | . | C | T | p.Met186Ile | c.558G>A | missense | 0 | 0.00001715 |
| 6 | 32782183 | . | A | G | p.Met186Thr | c.557T>C | missense | 0 | 0.000008573 |
| 6 | 32782173 | . | C | T | p.Met189Ile | c.567G>A | missense | 0 | 0.000008576 |
| 6 | 32784662 | . | T | C | p.Met23Val | c.67A>G | missense | 0 | 0.00002583 |
| 6 | 32782298 | . | A | T | p.Phe148Ile | c.442T>A | missense | 0 | 0.0000086 |
| 6 | 32783028 | . | A | G | p.Phe52Leu | c.154T>C | missense | 0 | 0.000008237 |
| 6 | 32782355 | . | G | A | p.Pro129Ser | c.385C>T | missense | 0 | 0.00003448 |
| 6 | 32784710 | . | G | C | p.Pro7Ala | c.19C>G | missense | 0 | 0.00001724 |
| 6 | 32784664 | . | G | A | p.Ser22Phe | c.65C>T | missense | 0 | 0.00006027 |
| 6 | 32781227 | . | G | C | p.Ser259Cys | c.776C>G | missense | 0 | 0.00000859 |
| 6 | 32782836 | . | T | C | p.Thr116Ala | c.346A>G | missense | 0 | 0.000008267 |
| 6 | 32782304 | . | T | A | p.Thr146Ser | c.436A>T | missense | 0 | 0.000008601 |
| 6 | 32784679 | . | G | A | p.Thr17Ile | c.50C>T | missense | 0 | 0.00001722 |
| 6 | 32782146 | . | GGT | G | p.Thr198LeufsTer21 | c.592_593delAC | frameshift | 0 | 0.000008587 |
| 6 | 32781236 | . | G | T | p.Thr256Lys | c.767C>A | missense | 0 | 0.000008593 |
| 6 | 32781236 | . | G | A | p.Thr256Met | c.767C>T | missense | 0 | 0.00001719 |
| 6 | 32782270 | rs146350950 | C | A | p.Trp157Leu | c.470G>T | missense | 0 | 0.00006872 |
| 6 | 32782270 | rs146350950 | C | T | p.Trp157Ter | c.470G>A | stop gained | 0 | 0.00000859 |
| 6 | 32781588 | . | C | T | p.Trp222Ter | c.666G>A | stop gained | 0 | 0.00003966 |
| 6 | 32782922 | . | C | A | p.Trp87Leu | c.260G>T | missense | 0 | 0.000008237 |
| 6 | 32784707 | . | A | G | p.Trp8Arg | c.22T>C | missense | 0 | 0.000008619 |
| 6 | 32782295 | . | A | G | p.Tyr149His | c.445T>C | missense | 0 | 0.0000344 |
| 6 | 32782832 | . | A | G | p.Val117Ala | c.350T>C | missense | 0 | 0.000008273 |
| 6 | 32782832 | . | A | C | p.Val117Gly | c.350T>G | missense | 0 | 0.000008273 |
| 6 | 32782833 | . | C | G | p.Val117Leu | c.349G>C | missense | 0 | 0.00002481 |
| 6 | 32782367 | . | C | T | p.Val125Met | c.373G>A | missense | 0 | 0.000008634 |

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|---|---|---|---|---|---|---|---|---|---|
| 6 | 32782189 | . | A | G | p.Val184Ala | c.551T>C | missense | 0 | 0.000008573 |
| 6 | 32782186 | . | A | G | p.Val185Ala | c.554T>C | missense | 0 | 0.000008573 |
| 6 | 32782153 | . | A | T | p.Val196Asp | c.587T>A | missense | 0 | 0.000008581 |
| 6 | 32782112 | rs150697393 | C | T | p.Val210Ile | c.628G>A | missense | 80 | 0.02834 |
| 6 | 32782105 | . | A | G | p.Val212Ala | c.635T>C | missense | 0 | 0.00004309 |
| 6 | 32781524 | rs148095098 | C | T | p.Val244Ile | c.730G>A | missense | 25 | 0.03823 |
| 6 | 32783025 | . | C | G | p.Val53Leu | c.157G>C | missense | 0 | 0.000008237 |
| 6 | 32782096 | . | C | A | | c.643+1G>T | splice donor | 0 | 0.000008648 |
| 6 | 32781030 | . | T | C | | c.787-2A>G | splice acceptor | 0 | 0.0000086 |
| 6 | 32783091 | . | C | T | | c.92-1G>A | splice acceptor | 0 | 0.000008256 |

All single nucleotide variants found in human HLA-DOB from ExAC. http://exac.broadinstitute.org/gene/ENSG00000241106.
Ref, DOB*0101 common allele. RSID, SNP. Highlighted, alleles used in Figures 6 and S3).