**SUPPLEMENTAL MATERIAL**

**TABLE A1.** Associations Between Gene Variants and Risk of Spina Bifida

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Gene Symbol | dbSNP ID | Reference Allele | Genotype | Case N | Control N | OR (95% CI) |
| ABCB1 | rs1045642 | G | Variant | 17 | 45 | 0.9 (0.4-1.9) |
| ABCB1 | rs1045642 | G | Hetero | 42 | 98 | 1.0 (0.6-1.9) |
| ABCB1 | rs1045642 | G | Wildtype | 26 | 63 | Reference |
| ABCB1 | rs1128503 | G | Variant | 15 | 39 | 1.1 (0.5-2.3) |
| ABCB1 | rs1128503 | G | Hetero | 47 | 104 | 1.3 (0.7-2.3) |
| ABCB1 | rs1128503 | G | Wildtype | 23 | 65 | Reference |
| ABCB1 | rs2032582 | C | Variant | 13 | 42 | 0.7 (0.3-1.4) |
| ABCB1 | rs2032582 | C | Hetero | 34 | 88 | 0.8 (0.5-1.4) |
| ABCB1 | rs2032582 | C | Wildtype | 36 | 77 | Reference |
| ABCB1 | rs2032582 | C | Variant | 1 | 7 | NC |
| ABCB1 | rs2032582 | C | Hetero | 2 | 6 | NC |
| ABCB1 | rs2032582 | C | Wildtype | 66 | 154 | Reference |
| ABCC2 | rs56199535 | C | Variant | 5 | 1 | NC |
| ABCC2 | rs56199535 | C | Wildtype | 79 | 205 | Reference |
| ABCC2 | rs717620 | C | Variant | 6 | 3 | 5.4 (1.3-22.4) |
| ABCC2 | rs717620 | C | Hetero | 24 | 51 | 1.3 (0.7-2.3) |
| ABCC2 | rs717620 | C | Wildtype | 56 | 152 | Reference |
| ABCC2 | rs3740066 | C | Variant | 11 | 28 | 1.4 (0.6-3.1) |
| ABCC2 | rs3740066 | C | Hetero | 47 | 84 | 1.9 (1.1-3.4) |
| ABCC2 | rs3740066 | C | Wildtype | 27 | 94 | Reference |
| ABCC2 | rs2273697 | G | Variant | 3 | 8 | 0.9 (0.2-3.5) |
| ABCC2 | rs2273697 | G | Hetero | 23 | 53 | 1.0 (0.6-1.8) |
| ABCC2 | rs2273697 | G | Wildtype | 60 | 142 | Reference |
| ABCG2 | rs2231142 | G | Variant | 4 | 5 | 1.9 (0.5-7.2) |
| ABCG2 | rs2231142 | G | Hetero | 17 | 51 | 0.8 (0.4-1.5) |
| ABCG2 | rs2231142 | G | Wildtype | 65 | 152 | Reference |
| CYP1A1 | rs1048943 | T | Variant | 6 | 23 | 0.6 (0.3-1.7) |
| CYP1A1 | rs1048943 | T | Hetero | 25 | 45 | 1.4 (0.8-2.5) |
| CYP1A1 | rs1048943 | T | Wildtype | 55 | 137 | Reference |
| CYP1A1 | rs41279188 | G | Variant | 1 | 1 | NC |
| CYP1A1 | rs41279188 | G | Wildtype | 84 | 204 | Reference |
| CYP1A2 | rs762551 | A | Variant | 14 | 25 | 1.6 (0.8-3.4) |
| CYP1A2 | rs762551 | A | Hetero | 32 | 70 | 1.3 (0.7-2.3) |
| CYP1A2 | rs762551 | A | Wildtype | 39 | 111 | Reference |
| CYP1A2 | rs2069514 | G | Variant | 7 | 20 | 0.9 (0.4-2.3) |
| CYP1A2 | rs2069514 | G | Hetero | 24 | 48 | 1.3 (0.7-2.4) |
| CYP1A2 | rs2069514 | G | Wildtype | 48 | 128 | Reference |
| CYP2A6 | rs1801272 | A | Variant | 3 | 7 | 1.1 (0.3-4.2) |
| CYP2A6 | rs1801272 | A | Wildtype | 78 | 195 | Reference |
| CYP2A6 | rs4986891 | C | Variant | 9 | 21 | 1.1 (0.5-2.4) |
| CYP2A6 | rs4986891 | C | Wildtype | 71 | 177 | Reference |
| CYP2A6 | rs28399433 | A | Variant | 4 | 3 | 3.5 (0.8-16.2) |
| CYP2A6 | rs28399433 | A | Hetero | 16 | 28 | 1.5 (0.8-3.0) |
| CYP2A6 | rs28399433 | A | Wildtype | 66 | 175 | Reference |
| CYP2A6 | hCV33845966 | T | Variant | 0 | 1 | NC |
| CYP2A6 | hCV33845966 | T | Wildtype | 84 | 205 | Reference |
| CYP2A6 | rs28399454 | C | Variant | 1 | 4 | NC |
| CYP2A6 | rs28399454 | C | Wildtype | 82 | 199 | Reference |
| CYP2B6 | rs3745274 | G | Variant | 8 | 14 | 1.6 (0.6-4.2) |
| CYP2B6 | rs3745274 | G | Hetero | 32 | 69 | 1.3 (0.8-2.3) |
| CYP2B6 | rs3745274 | G | Wildtype | 36 | 103 | Reference |
| CYP2B6 | rs12721655 | A | Variant | 1 | 1 | NC |
| CYP2B6 | rs12721655 | A | Wildtype | 84 | 205 | Reference |
| CYP2B6 | rs28399499 | T | Variant | 0 | 3 | NC |
| CYP2B6 | rs28399499 | T | Wildtype | 86 | 199 | Reference |
| CYP2C19 | rs12248560 | C | Variant | 5 | 5 | 2.2 (0.6-7.9) |
| CYP2C19 | rs12248560 | C | Hetero | 15 | 49 | 0.7 (0.3-1.3) |
| CYP2C19 | rs12248560 | C | Wildtype | 57 | 125 | Reference |
| CYP2C19 | rs3758580 | C | Variant | 1 | 5 | NC |
| CYP2C19 | rs3758580 | C | Hetero | 18 | 34 | 1.3 (0.7-2.5) |
| CYP2C19 | rs3758580 | C | Wildtype | 65 | 163 | Reference |
| CYP2C19 | rs17878459 | G | Variant | 4 | 8 | 1.2 (0.4-4.2) |
| CYP2C19 | rs17878459 | G | Wildtype | 82 | 200 | Reference |
| CYP2C19 | rs4244285 | G | Variant | 0 | 4 | NC |
| CYP2C19 | rs4244285 | G | Hetero | 19 | 41 | 1.1 (0.6-2.1) |
| CYP2C19 | rs4244285 | G | Wildtype | 67 | 163 | Reference |
| CYP2C19 | rs41291556 | T | Variant | 1 | 0 | NC |
| CYP2C19 | rs41291556 | T | Hetero | 5 | 7 | 1.9 (0.6-6.1) |
| CYP2C19 | rs41291556 | T | Wildtype | 71 | 186 | Reference |
| CYP2C19 | rs17885098 | T | Variant | 10 | 13 | 1.9 (0.8-4.5) |
| CYP2C19 | rs17885098 | T | Wildtype | 76 | 187 | Reference |
| CYP2C19 | rs28399504 | A | Variant | 2 | 4 | NC |
| CYP2C19 | rs28399504 | A | Wildtype | 76 | 195 | Reference |
| CYP2C19 | rs17886522 | A | Variant | 3 | 2 | NC |
| CYP2C19 | rs17886522 | A | Wildtype | 83 | 205 | Reference |
| CYP2C8 | rs10509681 | T | Variant | 4 | 5 | 1.9 (0.5-7.2) |
| CYP2C8 | rs10509681 | T | Hetero | 9 | 29 | 0.7 (0.3-1.6) |
| CYP2C8 | rs10509681 | T | Wildtype | 73 | 171 | Reference |
| CYP2C8 | rs11572080 | C | Variant | 9 | 31 | 0.7 (0.3-1.4) |
| CYP2C8 | rs11572080 | C | Wildtype | 77 | 174 | Reference |
| CYP2C8 | rs1058930 | G | Variant | 1 | 0 | NC |
| CYP2C8 | rs1058930 | G | Hetero | 4 | 16 | 0.6 (0.2-1.8) |
| CYP2C8 | rs1058930 | G | Wildtype | 81 | 191 | Reference |
| CYP2C8 | rs11572103 | T | Variant | 1 | 3 | NC |
| CYP2C8 | rs11572103 | T | Wildtype | 84 | 203 | Reference |
| CYP2C9 | rs7900194 | G | Variant | 0 | 1 | NC |
| CYP2C9 | rs7900194 | G | Wildtype | 85 | 207 | Reference |
| CYP2C9 | rs1799853 | C | Variant | 1 | 2 | NC |
| CYP2C9 | rs1799853 | C | Hetero | 10 | 25 | 1.0 (0.4-2.1) |
| CYP2C9 | rs1799853 | C | Wildtype | 75 | 179 | Reference |
| CYP2C9 | rs1057910 | A | Variant | 0 | 1 | NC |
| CYP2C9 | rs1057910 | A | Hetero | 5 | 14 | 0.9 (0.3-2.5) |
| CYP2C9 | rs1057910 | A | Wildtype | 80 | 193 | Reference |
| CYP2C9 | rs28371686 | C | Variant | 0 | 1 | NC |
| CYP2C9 | rs28371686 | C | Hetero | 2 | 1 | NC |
| CYP2C9 | rs28371686 | C | Wildtype | 84 | 202 | Reference |
| CYP2C9 | rs9332239 | C | Variant | 1 | 1 | NC |
| CYP2C9 | rs9332239 | C | Hetero | 0 | 4 | NC |
| CYP2C9 | rs9332239 | C | Wildtype | 83 | 200 | Reference |
| CYP2C9 | rs28371685 | C | Variant | 1 | 2 | NC |
| CYP2C9 | rs28371685 | C | Wildtype | 84 | 202 | Reference |
| CYP2C9 | rs9332130 | A | Variant | 1 | 0 | NC |
| CYP2C9 | rs9332130 | A | Hetero | 5 | 1 | NC |
| CYP2C9 | rs9332130 | A | Wildtype | 80 | 207 | Reference |
| CYP2C9 | rs9332131 | A | Variant | 0 | 2 | NC |
| CYP2C9 | rs9332131 | A | Hetero | 6 | 3 | 5.1 (1.2-20.7) |
| CYP2C9 | rs9332131 | A | Wildtype | 78 | 197 | Reference |
| CYP2C9 | hCV72649992 | A | Variant | 1 | 1 | NC |
| CYP2C9 | hCV72649992 | A | Hetero | 4 | 1 | NC |
| CYP2C9 | hCV72649992 | A | Wildtype | 74 | 195 | Reference |
| CYP2C9 | rs72558190 | C | Variant | 0 | 1 | NC |
| CYP2C9 | rs72558190 | C | Hetero | 1 | 1 | NC |
| CYP2C9 | rs72558190 | C | Wildtype | 84 | 203 | Reference |
| CYP2D6 | rs28371706 | G | Variant | 0 | 1 | NC |
| CYP2D6 | rs28371706 | G | Hetero | 1 | 4 | NC |
| CYP2D6 | rs28371706 | G | Wildtype | 84 | 193 | Reference |
| CYP2D6 | rs3892097 | C | Variant | 3 | 3 | 2.5 (0.5-12.7) |
| CYP2D6 | rs3892097 | C | Hetero | 20 | 46 | 1.1 (0.6-2.0) |
| CYP2D6 | rs3892097 | C | Wildtype | 62 | 155 | Reference |
| CYP2D6 | rs5030862 | C | Variant | 0 | 1 | NC |
| CYP2D6 | rs5030862 | C | Hetero | 1 | 4 | NC |
| CYP2D6 | rs5030862 | C | Wildtype | 85 | 198 | Reference |
| CYP2D6 | rs72549349 | C | Variant | 0 | 1 | NC |
| CYP2D6 | rs72549349 | C | Hetero | 1 | 0 | NC |
| CYP2D6 | rs72549349 | C | Wildtype | 84 | 204 | Reference |
| CYP2D6 | rs72549350 | TCT | Variant | 4 | 5 | 2.0 (0.5-7.6) |
| CYP2D6 | rs72549350 | TCT | Wildtype | 80 | 200 | Reference |
| CYP2D6 | rs35742686 | T | Variant | 0 | 3 | NC |
| CYP2D6 | rs35742686 | T | Hetero | 5 | 7 | 1.7 (0.5-5.7) |
| CYP2D6 | rs35742686 | T | Wildtype | 78 | 191 | Reference |
| CYP2D6 | rs72549353 | AGTT | Variant | 1 | 5 | NC |
| CYP2D6 | rs72549353 | AGTT | Wildtype | 85 | 199 | Reference |
| CYP2D6 | hCV32407240 | - | Variant | 0 | 2 | NC |
| CYP2D6 | hCV32407240 | - | Hetero | 1 | 3 | NC |
| CYP2D6 | hCV32407240 | - | Wildtype | 84 | 198 | Reference |
| CYP2D6 | rs5030655 | A | Variant | 1 | 3 | NC |
| CYP2D6 | rs5030655 | A | Wildtype | 78 | 189 | Reference |
| CYP2D6 | rs72549346 | - | Variant | 0 | 4 | NC |
| CYP2D6 | rs72549346 | - | Hetero | 7 | 6 | 2.9 (0.9-8.9) |
| CYP2D6 | rs72549346 | - | Wildtype | 76 | 189 | Reference |
| CYP2D6 | rs5030865 | C | Variant | 5 | 6 | 2.0 (0.6-6.8) |
| CYP2D6 | rs5030865 | C | Wildtype | 79 | 190 | Reference |
| CYP2D6 | rs5030865 | C | Variant | 1 | 0 | NC |
| CYP2D6 | rs5030865 | C | Hetero | 8 | 20 | 1.0 (0.4-2.3) |
| CYP2D6 | rs5030865 | C | Wildtype | 73 | 175 | Reference |
| CYP3A4 | rs55785340 | A | Variant | 2 | 2 | NC |
| CYP3A4 | rs55785340 | A | Hetero | 1 | 3 | NC |
| CYP3A4 | rs55785340 | A | Wildtype | 79 | 200 | Reference |
| CYP3A5 | rs10264272 | C | Variant | 2 | 5 | NC |
| CYP3A5 | rs10264272 | C | Wildtype | 84 | 200 | Reference |
| CYP3A5 | rs55965422 | A | Variant | 3 | 4 | 1.9 (0.4-8.9) |
| CYP3A5 | rs55965422 | A | Wildtype | 78 | 202 | Reference |
| CYP3A5 | rs41303343 | - | Variant | 1 | 5 | NC |
| CYP3A5 | rs41303343 | - | Wildtype | 83 | 201 | Reference |
| DPYD | rs1801267 | C | Variant | 0 | 1 | NC |
| DPYD | rs1801267 | C | Hetero | 0 | 1 | NC |
| DPYD | rs1801267 | C | Wildtype | 82 | 201 | Reference |
| DPYD | rs1801265 | A | Variant | 4 | 16 | 0.6 (0.2-1.8) |
| DPYD | rs1801265 | A | Hetero | 29 | 68 | 1.0 (0.6-1.7) |
| DPYD | rs1801265 | A | Wildtype | 53 | 121 | Reference |
| DPYD | rs3918290 | C | Variant | 0 | 3 | NC |
| DPYD | rs3918290 | C | Wildtype | 86 | 203 | Reference |
| DPYD | hCV32287186 | ATGA | Variant | 1 | 2 | NC |
| DPYD | hCV32287186 | ATGA | Wildtype | 84 | 205 | Reference |
| GSTP1 | rs1695 | A | Variant | 20 | 38 | 1.4 (0.7-2.9) |
| GSTP1 | rs1695 | A | Hetero | 40 | 96 | 1.1 (0.6-2.0) |
| GSTP1 | rs1695 | A | Wildtype | 26 | 70 | Reference |
| NAT1 | rs4986782 | G | Variant | 2 | 4 | NC |
| NAT1 | rs4986782 | G | Wildtype | 84 | 203 | Reference |
| NAT1 | rs4986988 | C | Variant | 7 | 11 | 1.6 (0.6-4.2) |
| NAT1 | rs4986988 | C | Wildtype | 79 | 196 | Reference |
| NAT1 | rs55793712 | A | Variant | 3 | 2 | NC |
| NAT1 | rs55793712 | A | Wildtype | 82 | 206 | Reference |
| NAT2 | rs1208 | A | Variant | 13 | 30 | 1.1 (0.5-2.4) |
| NAT2 | rs1208 | A | Hetero | 38 | 92 | 1.1 (0.6-1.8) |
| NAT2 | rs1208 | A | Wildtype | 33 | 84 | Reference |
| NAT2 | rs1799931 | G | Variant | 1 | 0 | NC |
| NAT2 | rs1799931 | G | Hetero | 23 | 30 | 2.1 (1.1-3.9) |
| NAT2 | rs1799931 | G | Wildtype | 62 | 170 | Reference |
| NAT2 | rs1799930 | G | Variant | 7 | 17 | 1.0 (0.4-2.7) |
| NAT2 | rs1799930 | G | Hetero | 31 | 70 | 1.1 (0.6-1.9) |
| NAT2 | rs1799930 | G | Wildtype | 44 | 110 | Reference |
| NAT2 | rs1799929 | C | Variant | 12 | 25 | 1.2 (0.6-2.7) |
| NAT2 | rs1799929 | C | Hetero | 36 | 90 | 1.0 (0.6-1.8) |
| NAT2 | rs1799929 | C | Wildtype | 35 | 89 | Reference |
| NAT2 | rs1801280 | T | Variant | 13 | 29 | 1.1 (0.5-2.5) |
| NAT2 | rs1801280 | T | Hetero | 32 | 83 | 1.0 (0.5-1.7) |
| NAT2 | rs1801280 | T | Wildtype | 32 | 81 | Reference |
| NAT2 | rs1041983 | C | Variant | 9 | 20 | 1.1 (0.5-2.6) |
| NAT2 | rs1041983 | C | Hetero | 35 | 89 | 1.0 (0.6-1.6) |
| NAT2 | rs1041983 | C | Wildtype | 40 | 98 | Reference |
| SLC15A2 | rs2293616 | G | Variant | 10 | 32 | 0.7 (0.3-1.7) |
| SLC15A2 | rs2293616 | G | Hetero | 42 | 97 | 1.0 (0.6-1.8) |
| SLC15A2 | rs2293616 | G | Wildtype | 33 | 79 | Reference |
| SLC15A2 | rs2257212 | C | Variant | 9 | 29 | 0.7 (0.3-1.7) |
| SLC15A2 | rs2257212 | C | Hetero | 41 | 98 | 1.0 (0.6-1.7) |
| SLC15A2 | rs2257212 | C | Wildtype | 35 | 81 | Reference |
| SLC15A2 | rs1143671 | C | Variant | 10 | 32 | 0.7 (0.3-1.6) |
| SLC15A2 | rs1143671 | C | Hetero | 42 | 95 | 1.0 (0.6-1.8) |
| SLC15A2 | rs1143671 | C | Wildtype | 34 | 79 | Reference |
| SLC15A2 | rs1143672 | G | Variant | 10 | 30 | 0.7 (0.3-1.7) |
| SLC15A2 | rs1143672 | G | Hetero | 41 | 95 | 1.0 (0.6-1.7) |
| SLC15A2 | rs1143672 | G | Wildtype | 33 | 74 | Reference |
| SLC22A1 | rs628031 | G | Variant | 3 | 16 | 0.4 (0.1-1.5) |
| SLC22A1 | rs628031 | G | Hetero | 33 | 83 | 0.9 (0.5-1.5) |
| SLC22A1 | rs628031 | G | Wildtype | 47 | 104 | Reference |
| SLC22A1 | rs2282143 | C | Variant | 1 | 0 | NC |
| SLC22A1 | rs2282143 | C | Hetero | 3 | 18 | 0.4 (0.1-1.4) |
| SLC22A1 | rs2282143 | C | Wildtype | 81 | 190 | Reference |
| SLC22A1 | rs34059508 | G | Variant | 3 | 6 | 1.2 (0.3-5.1) |
| SLC22A1 | rs34059508 | G | Wildtype | 81 | 202 | Reference |
| SLC22A1 | rs55918055 | T | Variant | 4 | 2 | NC |
| SLC22A1 | rs55918055 | T | Wildtype | 82 | 204 | Reference |
| SLC22A1 | rs72552763 | GAT | Variant | 3 | 17 | 0.5 (0.1-1.7) |
| SLC22A1 | rs72552763 | GAT | Hetero | 34 | 58 | 1.6 (0.9-2.8) |
| SLC22A1 | rs72552763 | GAT | Wildtype | 48 | 132 | Reference |
| SLC22A2 | rs316019 | C | Variant | 0 | 1 | NC |
| SLC22A2 | rs316019 | C | Hetero | 12 | 32 | 0.9 (0.4-1.8) |
| SLC22A2 | rs316019 | C | Wildtype | 73 | 169 | Reference |
| SLC22A2 | rs8177507 | C | Variant | 0 | 1 | NC |
| SLC22A2 | rs8177507 | C | Wildtype | 86 | 207 | Reference |
| SLC22A2 | rs8177517 | T | Variant | 1 | 1 | NC |
| SLC22A2 | rs8177517 | T | Wildtype | 85 | 207 | Reference |
| SLC22A2 | rs8177516 | G | Variant | 0 | 1 | NC |
| SLC22A2 | rs8177516 | G | Hetero | 4 | 4 | 2.5 (0.6-10.3) |
| SLC22A2 | rs8177516 | G | Wildtype | 81 | 203 | Reference |
| SLCO1B1 | rs2306283 | A | Variant | 17 | 32 | 1.5 (0.7-3.2) |
| SLCO1B1 | rs2306283 | A | Hetero | 44 | 102 | 1.2 (0.7-2.2) |
| SLCO1B1 | rs2306283 | A | Wildtype | 23 | 66 | Reference |
| SLCO1B1 | rs56061388 | T | Variant | 0 | 2 | NC |
| SLCO1B1 | rs56061388 | T | Wildtype | 84 | 206 | Reference |
| SLCO1B1 | rs72559745 | A | Variant | 2 | 1 | NC |
| SLCO1B1 | rs72559745 | A | Wildtype | 80 | 202 | Reference |
| SLCO1B1 | rs4149056 | T | Variant | 5 | 1 | NC |
| SLCO1B1 | rs4149056 | T | Hetero | 16 | 44 | 0.9 (0.5-1.7) |
| SLCO1B1 | rs4149056 | T | Wildtype | 64 | 161 | Reference |
| SLCO1B1 | rs55737008 | A | Variant | 1 | 0 | NC |
| SLCO1B1 | rs55737008 | A | Hetero | 3 | 1 | NC |
| SLCO1B1 | rs55737008 | A | Wildtype | 81 | 206 | Reference |
| SLCO1B3 | rs4149117 | G | Variant | 2 | 10 | NC |
| SLCO1B3 | rs4149117 | G | Hetero | 31 | 56 | 1.5 (0.9-2.5) |
| SLCO1B3 | rs4149117 | G | Wildtype | 51 | 136 | Reference |
| SLCO1B3 | rs7311358 | A | Variant | 2 | 10 | NC |
| SLCO1B3 | rs7311358 | A | Hetero | 31 | 57 | 1.4 (0.8-2.4) |
| SLCO1B3 | rs7311358 | A | Wildtype | 53 | 135 | Reference |
| SLCO2B1 | rs2306168 | C | Variant | 0 | 1 | NC |
| SLCO2B1 | rs2306168 | C | Hetero | 15 | 36 | 1.0 (0.5-1.9) |
| SLCO2B1 | rs2306168 | C | Wildtype | 71 | 167 | Reference |
| TPMT | rs1142345 | T | Variant | 7 | 21 | 0.8 (0.3-2.0) |
| TPMT | rs1142345 | T | Wildtype | 73 | 179 | Reference |
| TPMT | rs56161402 | C | Variant | 3 | 1 | NC |
| TPMT | rs56161402 | C | Wildtype | 83 | 206 | Reference |
| TPMT | rs1800460 | C | Variant | 1 | 0 | NC |
| TPMT | rs1800460 | C | Hetero | 11 | 19 | 1.5 (0.7-3.3) |
| TPMT | rs1800460 | C | Wildtype | 73 | 187 | Reference |
| UGT1A1 | rs4148323 | G | Variant | 1 | 6 | NC |
| UGT1A1 | rs4148323 | G | Wildtype | 85 | 200 | Reference |
| UGT1A1 | rs4124874 | T | Variant | 24 | 47 | 1.3 (0.6-2.6) |
| UGT1A1 | rs4124874 | T | Hetero | 39 | 105 | 0.9 (0.5-1.7) |
| UGT1A1 | rs4124874 | T | Wildtype | 22 | 55 | Reference |
| UGT2B15 | rs1902023 | C | Variant | 16 | 32 | 0.9 (0.4-1.9) |
| UGT2B15 | rs1902023 | C | Hetero | 33 | 105 | 0.6 (0.3-1.0) |
| UGT2B15 | rs1902023 | C | Wildtype | 35 | 64 | Reference |
| UGT2B7 | rs7668258 | C | Variant | 9 | 27 | 0.6 (0.3-1.4) |
| UGT2B7 | rs7668258 | C | Hetero | 25 | 79 | 0.6 (0.3-1.0) |
| UGT2B7 | rs7668258 | C | Wildtype | 43 | 77 | Reference |
| UGT2B7 | rs7662029 | G | Variant | 9 | 31 | 0.5 (0.2-1.2) |
| UGT2B7 | rs7662029 | G | Hetero | 30 | 82 | 0.7 (0.4-1.2) |
| UGT2B7 | rs7662029 | G | Wildtype | 46 | 86 | Reference |
| VKORC1 | rs8050894 | C | Variant | 18 | 49 | 0.7 (0.4-1.5) |
| VKORC1 | rs8050894 | C | Hetero | 37 | 100 | 0.7 (0.4-1.3) |
| VKORC1 | rs8050894 | C | Wildtype | 29 | 57 | Reference |

**TABLE A2.** Ethnicity-stratified Associations Between Gene Variants and Risk of Spina Bifida

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Gene**  **Symbol** | **dbSNP ID** | **Genotype** | **White** | | | **Hispanic** | | |
| **Case**  **N** | **Control**  **N** | **OR (95% CI)** | **Case N** | **Control N** | **OR (95% CI)** |
| ABCB1 | rs1045642 | Variant | 7 | 22 | 1.6 (0.3-9.1) | 10 | 19 | 1.0 (0.4-2.6) |
| ABCB1 | rs1045642 | Hetero | 10 | 42 | 1.2 (0.2-6.3) | 27 | 51 | 1.0 (0.5-2.1) |
| ABCB1 | rs1045642 | Wildtype | 2 | 10 | NC | 21 | 41 | Reference |
| ABCB1 | rs1128503 | Variant | 5 | 17 | 1.1 (0.2-4.9) | 10 | 20 | 1.3 (0.5-3.5) |
| ABCB1 | rs1128503 | Hetero | 10 | 44 | 0.9 (0.2-3.1) | 33 | 51 | 1.7 (0.8-3.6) |
| ABCB1 | rs1128503 | Wildtype | 4 | 15 | Reference | 15 | 40 | Reference |
| ABCB1 | rs2032582 | Variant | 5 | 21 | 0.7 (0.2-2.7) | 8 | 18 | 0.9 (0.3-2.3) |
| ABCB1 | rs2032582 | Hetero | 9 | 41 | 0.6 (0.2-2.1) | 22 | 40 | 1.1 (0.5-2.2) |
| ABCB1 | rs2032582 | Wildtype | 5 | 14 | Reference | 26 | 52 | Reference |
| ABCB1 | rs2032582 | Variant | 0 | 4 | NC | 1 | 3 | NC |
| ABCB1 | rs2032582 | Hetero | 0 | 1 | NC | 2 | 5 | NC |
| ABCB1 | rs2032582 | Wildtype | 14 | 53 | Reference | 46 | 83 | Reference |
| ABCC2 | rs56199535 | Variant | 0 | 1 | NC | 5 | 0 | NC |
| ABCC2 | rs56199535 | Wildtype | 18 | 75 | Reference | 53 | 109 | Reference |
| ABCC2 | rs717620 | Variant | 2 | 0 | NC | 3 | 2 | NC |
| ABCC2 | rs717620 | Hetero | 6 | 23 | 1.3 (0.4-3.8) | 17 | 23 | 1.6 (0.8-3.3) |
| ABCC2 | rs717620 | Wildtype | 11 | 53 | Reference | 39 | 84 | Reference |
| ABCC2 | rs3740066 | Variant | 4 | 4 | **9.5 (1.7-53.4)** | 7 | 23 | 0.6 (0.2-1.7) |
| ABCC2 | rs3740066 | Hetero | 10 | 34 | 2.8 (0.8-9.7) | 31 | 42 | 1.5 (0.8-3.1) |
| ABCC2 | rs3740066 | Wildtype | 4 | 38 | Reference | 21 | 44 | Reference |
| ABCC2 | rs2273697 | Variant | 1 | 5 | NC | 2 | 0 | NC |
| ABCC2 | rs2273697 | Hetero | 7 | 21 | 1.4 (0.5-4.2) | 16 | 28 | 1.1 (0.5-2.3) |
| ABCC2 | rs2273697 | Wildtype | 11 | 47 | Reference | 41 | 81 | Reference |
| ABCG2 | rs2231142 | Variant | 0 | 0 | NC | 4 | 4 | 1.9 (0.4-7.9) |
| ABCG2 | rs2231142 | Hetero | 1 | 16 | NC | 15 | 32 | 0.9 (0.4-1.8) |
| ABCG2 | rs2231142 | Wildtype | 18 | 60 | Reference | 40 | 75 | Reference |
| CYP1A1 | rs1799814 | Variant | 3 | 3 | 4.6 (0.8-24.7) | 3 | 7 | 0.8 (0.2-3.3) |
| CYP1A1 | rs1799814 | Wildtype | 16 | 73 | Reference | 54 | 103 | Reference |
| CYP1A1 | rs1048943 | Variant | 0 | 2 | NC | 6 | 21 | 0.4 (0.2-1.2) |
| CYP1A1 | rs1048943 | Hetero | 2 | 4 | NC | 20 | 38 | 0.8 (0.4-1.6) |
| CYP1A1 | rs1048943 | Wildtype | 17 | 68 | Reference | 33 | 51 | Reference |
| CYP1A1 | rs41279188 | Variant | 0 | 1 | NC | 1 | 0 | NC |
| CYP1A1 | rs41279188 | Wildtype | 19 | 74 | Reference | 57 | 110 | Reference |
| CYP1A2 | rs762551 | Variant | 2 | 11 | NC | 10 | 10 | 2.6 (1.0-7.0) |
| CYP1A2 | rs762551 | Hetero | 7 | 26 | 1.1 (0.4-3.4) | 24 | 36 | 1.7 (0.9-3.5) |
| CYP1A2 | rs762551 | Wildtype | 9 | 37 | Reference | 25 | 65 | Reference |
| CYP1A2 | rs2069514 | Variant | 0 | 1 | NC | 7 | 18 | 0.7 (0.3-1.8) |
| CYP1A2 | rs2069514 | Hetero | 0 | 5 | NC | 20 | 38 | 0.9 (0.5-1.9) |
| CYP1A2 | rs2069514 | Wildtype | 16 | 65 | Reference | 28 | 49 | Reference |
| CYP2A6 | rs1801272 | Variant | 1 | 3 | NC | 2 | 3 | NC |
| CYP2A6 | rs1801272 | Wildtype | 18 | 73 | Reference | 52 | 103 | Reference |
| CYP2A6 | rs4986891 | Variant | 2 | 10 | NC | 7 | 9 | 1.5 (0.5-4.3) |
| CYP2A6 | rs4986891 | Wildtype | 15 | 64 | Reference | 48 | 94 | Reference |
| CYP2A6 | rs28399433 | Variant | 1 | 1 | NC | 2 | 2 | NC |
| CYP2A6 | rs28399433 | Hetero | 1 | 5 | NC | 15 | 18 | 1.8 (0.8-3.8) |
| CYP2A6 | rs28399433 | Wildtype | 17 | 70 | Reference | 42 | 89 | Reference |
| CYP2A6 | hCV33845966 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| CYP2A6 | hCV33845966 | Wildtype | 19 | 75 | Reference | 57 | 109 | Reference |
| CYP2A6 | rs28399454 | Variant | 1 | 1 | NC | 0 | 2 | NC |
| CYP2A6 | rs28399454 | Wildtype | 18 | 75 | Reference | 57 | 104 | Reference |
| CYP2B6 | rs3745274 | Variant | 2 | 4 | NC | 6 | 10 | 1.2 (0.4-3.8) |
| CYP2B6 | rs3745274 | Hetero | 6 | 24 | 1.1 (0.4-3.6) | 21 | 38 | 1.1 (0.5-2.3) |
| CYP2B6 | rs3745274 | Wildtype | 9 | 41 | Reference | 24 | 49 | Reference |
| CYP2B6 | rs12721655 | Variant | 0 | 1 | NC | 1 | 0 | NC |
| CYP2B6 | rs12721655 | Wildtype | 19 | 73 | Reference | 57 | 111 | Reference |
| CYP2B6 | rs28399499 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| CYP2B6 | rs28399499 | Wildtype | 19 | 71 | Reference | 59 | 109 | Reference |
| CYP2C19 | rs12248560 | Variant | 2 | 4 | NC | 3 | 1 | NC |
| CYP2C19 | rs12248560 | Hetero | 4 | 22 | 0.7 (0.2-2.7) | 11 | 23 | 0.9 (0.4-1.9) |
| CYP2C19 | rs12248560 | Wildtype | 10 | 41 | Reference | 39 | 70 | Reference |
| CYP2C19 | rs3758580 | Variant | 0 | 2 | NC | 1 | 1 | NC |
| CYP2C19 | rs3758580 | Hetero | 7 | 15 | 2.4 (0.8-7.2) | 10 | 13 | 1.5 (0.6-3.8) |
| CYP2C19 | rs3758580 | Wildtype | 11 | 56 | Reference | 47 | 94 | Reference |
| CYP2C19 | rs17878459 | Variant | 1 | 3 | NC | 3 | 3 | 1.9 (0.4-9.9) |
| CYP2C19 | rs17878459 | Wildtype | 18 | 73 | Reference | 56 | 108 | Reference |
| CYP2C19 | rs4244285 | Variant | 0 | 1 | NC | 0 | 1 | NC |
| CYP2C19 | rs4244285 | Hetero | 7 | 19 | 1.7 (0.6-5.0) | 11 | 16 | 1.3 (0.6-3.1) |
| CYP2C19 | rs4244285 | Wildtype | 12 | 56 | Reference | 48 | 94 | Reference |
| CYP2C19 | rs41291556 | Variant | 1 | 0 | NC | 0 | 0 | NC |
| CYP2C19 | rs41291556 | Hetero | 0 | 1 | NC | 5 | 6 | 1.7 (0.5-6.0) |
| CYP2C19 | rs41291556 | Wildtype | 15 | 66 | Reference | 48 | 100 | Reference |
| CYP2C19 | rs17885098 | Variant | 2 | 5 | NC | 5 | 6 | 1.6 (0.5-5.4) |
| CYP2C19 | rs17885098 | Wildtype | 17 | 68 | Reference | 54 | 102 | Reference |
| CYP2C19 | rs28399504 | Variant | 1 | 1 | NC | 1 | 3 | NC |
| CYP2C19 | rs28399504 | Wildtype | 17 | 68 | Reference | 51 | 106 | Reference |
| CYP2C19 | rs17886522 | Variant | 0 | 1 | NC | 0 | 1 | NC |
| CYP2C19 | rs17886522 | Wildtype | 19 | 75 | Reference | 59 | 109 | Reference |
| CYP2C8 | rs10509681 | Variant | 0 | 4 | NC | 4 | 1 | NC |
| CYP2C8 | rs10509681 | Hetero | 0 | 16 | NC | 8 | 13 | 1.3 (0.5-3.2) |
| CYP2C8 | rs10509681 | Wildtype | 19 | 54 | Reference | 47 | 96 | Reference |
| CYP2C8 | rs11572080 | Variant | 0 | 20 | NC | 9 | 11 | 1.6 (0.6-4.1) |
| CYP2C8 | rs11572080 | Wildtype | 19 | 55 | Reference | 50 | 98 | Reference |
| CYP2C8 | rs1058930 | Variant | 1 | 0 | NC | 0 | 0 | NC |
| CYP2C8 | rs1058930 | Hetero | 1 | 7 | NC | 3 | 7 | 0.8 (0.2-3.2) |
| CYP2C8 | rs1058930 | Wildtype | 17 | 68 | Reference | 56 | 104 | Reference |
| CYP2C8 | rs11572103 | Variant | 1 | 0 | NC | 0 | 3 | NC |
| CYP2C8 | rs11572103 | Wildtype | 18 | 75 | Reference | 58 | 107 | Reference |
| CYP2C9 | rs7900194 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| CYP2C9 | rs7900194 | Wildtype | 19 | 76 | Reference | 58 | 110 | Reference |
| CYP2C9 | rs1799853 | Variant | 0 | 2 | NC | 1 | 0 | NC |
| CYP2C9 | rs1799853 | Hetero | 1 | 16 | NC | 9 | 9 | 2.1 (0.8-5.5) |
| CYP2C9 | rs1799853 | Wildtype | 18 | 57 | Reference | 49 | 101 | Reference |
| CYP2C9 | rs1057910 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| CYP2C9 | rs1057910 | Hetero | 2 | 6 | NC | 3 | 5 | 1.1 (0.3-4.9) |
| CYP2C9 | rs1057910 | Wildtype | 16 | 69 | Reference | 56 | 106 | Reference |
| CYP2C9 | rs28371686 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| CYP2C9 | rs28371686 | Hetero | 2 | 0 | NC | 0 | 0 | NC |
| CYP2C9 | rs28371686 | Wildtype | 17 | 74 | Reference | 59 | 108 | Reference |
| CYP2C9 | rs9332239 | Variant | 1 | 1 | NC | 0 | 0 | NC |
| CYP2C9 | rs9332239 | Hetero | 0 | 2 | NC | 0 | 2 | NC |
| CYP2C9 | rs9332239 | Wildtype | 18 | 71 | Reference | 57 | 108 | Reference |
| CYP2C9 | rs28371685 | Variant | 0 | 1 | NC | 1 | 1 | NC |
| CYP2C9 | rs28371685 | Wildtype | 18 | 74 | Reference | 58 | 109 | Reference |
| CYP2C9 | rs9332130 | Variant | 0 | 0 | NC | 1 | 0 | NC |
| CYP2C9 | rs9332130 | Hetero | 0 | 0 | NC | 4 | 1 | NC |
| CYP2C9 | rs9332130 | Wildtype | 19 | 76 | Reference | 54 | 110 | Reference |
| CYP2C9 | rs9332131 | Variant | 0 | 1 | NC | 0 | 1 | NC |
| CYP2C9 | rs9332131 | Hetero | 2 | 0 | NC | 3 | 3 | 1.9 (0.4-9.9) |
| CYP2C9 | rs9332131 | Wildtype | 17 | 73 | Reference | 54 | 104 | Reference |
| CYP2C9 | hCV72649992 | Variant | 1 | 0 | NC | 0 | 1 | NC |
| CYP2C9 | hCV72649992 | Hetero | 0 | 0 | NC | 4 | 1 | NC |
| CYP2C9 | hCV72649992 | Wildtype | 17 | 72 | Reference | 49 | 102 | Reference |
| CYP2C9 | rs72558190 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| CYP2C9 | rs72558190 | Hetero | 1 | 0 | NC | 0 | 1 | NC |
| CYP2C9 | rs72558190 | Wildtype | 18 | 74 | Reference | 58 | 108 | Reference |
| CYP2D6 | rs28371706 | Variant | 0 | 0 | NC | 0 | 0 | NC |
| CYP2D6 | rs28371706 | Hetero | 0 | 1 | NC | 0 | 1 | NC |
| CYP2D6 | rs28371706 | Wildtype | 19 | 73 | Reference | 59 | 103 | Reference |
| CYP2D6 | rs3892097 | Variant | 1 | 3 | NC | 2 | 0 | NC |
| CYP2D6 | rs3892097 | Hetero | 10 | 22 | **3.1 (1.0-9.3)** | 8 | 17 | 0.9 (0.4-2.2) |
| CYP2D6 | rs3892097 | Wildtype | 7 | 48 | Reference | 49 | 93 | Reference |
| CYP2D6 | rs5030862 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| CYP2D6 | rs5030862 | Hetero | 1 | 2 | NC | 0 | 2 | NC |
| CYP2D6 | rs5030862 | Wildtype | 18 | 74 | Reference | 59 | 104 | Reference |
| CYP2D6 | rs72549349 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| CYP2D6 | rs72549349 | Hetero | 1 | 0 | NC | 0 | 0 | NC |
| CYP2D6 | rs72549349 | Wildtype | 18 | 74 | Reference | 58 | 109 | Reference |
| CYP2D6 | rs72549350 | Variant | 1 | 3 | NC | 3 | 2 | NC |
| CYP2D6 | rs72549350 | Wildtype | 18 | 72 | Reference | 54 | 107 | Reference |
| CYP2D6 | rs35742686 | Variant | 0 | 1 | NC | 0 | 2 | NC |
| CYP2D6 | rs35742686 | Hetero | 0 | 2 | NC | 5 | 5 | 1.9 (0.5-6.8) |
| CYP2D6 | rs35742686 | Wildtype | 17 | 70 | Reference | 53 | 100 | Reference |
| CYP2D6 | rs72549353 | Variant | 1 | 2 | NC | 0 | 3 | NC |
| CYP2D6 | rs72549353 | Wildtype | 18 | 72 | Reference | 59 | 106 | Reference |
| CYP2D6 | hCV32407240 | Variant | 0 | 1 | NC | 0 | 1 | NC |
| CYP2D6 | hCV32407240 | Hetero | 1 | 0 | NC | 0 | 3 | NC |
| CYP2D6 | hCV32407240 | Wildtype | 17 | 70 | Reference | 59 | 107 | Reference |
| CYP2D6 | rs5030655 | Variant | 1 | 2 | NC | 0 | 1 | NC |
| CYP2D6 | rs5030655 | Wildtype | 17 | 72 | Reference | 54 | 97 | Reference |
| CYP2D6 | rs72549346 | Variant | 0 | 2 | NC | 0 | 2 | NC |
| CYP2D6 | rs72549346 | Hetero | 0 | 0 | NC | 7 | 6 | 2.3 (0.7-7.2) |
| CYP2D6 | rs72549346 | Wildtype | 19 | 71 | Reference | 49 | 97 | Reference |
| CYP2D6 | rs5030865 | Variant | 0 | 1 | NC | 5 | 5 | 1.9 (0.5-6.7) |
| CYP2D6 | rs5030865 | Wildtype | 18 | 71 | Reference | 53 | 99 | Reference |
| CYP2D6 | rs5030865 | Variant | 0 | 0 | NC | 1 | 0 | NC |
| CYP2D6 | rs5030865 | Hetero | 3 | 6 | 2.2 (0.5-9.7) | 4 | 14 | 0.5 (0.2-1.6) |
| CYP2D6 | rs5030865 | Wildtype | 15 | 65 | Reference | 51 | 90 | Reference |
| CYP3A4 | rs55785340 | Variant | 2 | 1 | NC | 0 | 1 | NC |
| CYP3A4 | rs55785340 | Hetero | 0 | 0 | NC | 1 | 3 | NC |
| CYP3A4 | rs55785340 | Wildtype | 17 | 74 | Reference | 54 | 105 | Reference |
| CYP3A5 | rs10264272 | Variant | 0 | 0 | NC | 2 | 3 | NC |
| CYP3A5 | rs10264272 | Wildtype | 19 | 74 | Reference | 57 | 107 | Reference |
| CYP3A5 | rs55965422 | Variant | 1 | 1 | NC | 2 | 3 | NC |
| CYP3A5 | rs55965422 | Wildtype | 17 | 74 | Reference | 54 | 107 | Reference |
| CYP3A5 | rs41303343 | Variant | 0 | 2 | NC | 1 | 1 | NC |
| CYP3A5 | rs41303343 | Wildtype | 18 | 73 | Reference | 57 | 109 | Reference |
| DPYD | rs1801267 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| DPYD | rs1801267 | Hetero | 0 | 0 | NC | 0 | 1 | NC |
| DPYD | rs1801267 | Wildtype | 17 | 74 | Reference | 58 | 106 | Reference |
| DPYD | rs1801265 | Variant | 0 | 11 | NC | 2 | 1 | NC |
| DPYD | rs1801265 | Hetero | 6 | 17 | 1.2 (0.4-3.8) | 21 | 44 | 0.9 (0.4-1.7) |
| DPYD | rs1801265 | Wildtype | 13 | 46 | Reference | 36 | 65 | Reference |
| DPYD | rs3918290 | Variant | 0 | 1 | NC | 0 | 2 | NC |
| DPYD | rs3918290 | Wildtype | 19 | 75 | Reference | 59 | 107 | Reference |
| DPYD | hCV32287186 | Variant | 0 | 0 | NC | 1 | 2 | NC |
| DPYD | hCV32287186 | Wildtype | 19 | 75 | Reference | 57 | 109 | Reference |
| GSTP1 | rs1695 | Variant | 2 | 8 | NC | 18 | 26 | 1.4 (0.6-3.4) |
| GSTP1 | rs1695 | Hetero | 8 | 33 | 0.9 (0.3-2.7) | 28 | 55 | 1.0 (0.5-2.3) |
| GSTP1 | rs1695 | Wildtype | 9 | 35 | Reference | 13 | 26 | Reference |
| NAT1 | rs4986782 | Variant | 1 | 2 | NC | 1 | 2 | NC |
| NAT1 | rs4986782 | Wildtype | 18 | 74 | Reference | 58 | 108 | Reference |
| NAT1 | rs4986988 | Variant | 2 | 6 | NC | 5 | 4 | 2.5 (0.6-9.5) |
| NAT1 | rs4986988 | Wildtype | 17 | 70 | Reference | 54 | 106 | Reference |
| NAT1 | rs55793712 | Variant | 0 | 0 | NC | 2 | 2 | NC |
| NAT1 | rs55793712 | Wildtype | 19 | 76 | Reference | 56 | 109 | Reference |
| NAT2 | rs1208 | Variant | 3 | 14 | 1.3 (0.3-6.9) | 9 | 11 | 1.7 (0.6-4.7) |
| NAT2 | rs1208 | Hetero | 10 | 35 | 1.8 (0.5-6.3) | 27 | 52 | 1.1 (0.5-2.1) |
| NAT2 | rs1208 | Wildtype | 4 | 25 | Reference | 23 | 48 | Reference |
| NAT2 | rs1799931 | Variant | 1 | 0 | NC | 0 | 0 | NC |
| NAT2 | rs1799931 | Hetero | 1 | 4 | NC | 16 | 23 | 1.4 (0.7-2.9) |
| NAT2 | rs1799931 | Wildtype | 17 | 67 | Reference | 43 | 86 | Reference |
| NAT2 | rs1799930 | Variant | 1 | 8 | NC | 6 | 8 | 1.5 (0.5-4.6) |
| NAT2 | rs1799930 | Hetero | 10 | 28 | 1.5 (0.5-4.4) | 18 | 35 | 1.0 (0.5-2.1) |
| NAT2 | rs1799930 | Wildtype | 8 | 34 | Reference | 32 | 63 | Reference |
| NAT2 | rs1799929 | Variant | 4 | 12 | 1.6 (0.4-7.1) | 8 | 9 | 2.0 (0.7-5.7) |
| NAT2 | rs1799929 | Hetero | 8 | 37 | 1.0 (0.3-3.5) | 26 | 48 | 1.2 (0.6-2.4) |
| NAT2 | rs1799929 | Wildtype | 5 | 24 | Reference | 24 | 53 | Reference |
| NAT2 | rs1801280 | Variant | 5 | 15 | 1.7 (0.4-7.6) | 7 | 9 | 1.7 (0.6-5.1) |
| NAT2 | rs1801280 | Hetero | 9 | 31 | 1.5 (0.4-5.6) | 22 | 48 | 1.0 (0.5-2.0) |
| NAT2 | rs1801280 | Wildtype | 4 | 21 | Reference | 22 | 48 | Reference |
| NAT2 | rs1041983 | Variant | 1 | 6 | NC | 6 | 11 | 1.0 (0.3-3.0) |
| NAT2 | rs1041983 | Hetero | 9 | 35 | 1.0 (0.3-2.7) | 22 | 46 | 0.9 (0.5-1.8) |
| NAT2 | rs1041983 | Wildtype | 9 | 34 | Reference | 29 | 54 | Reference |
| SLC15A2 | rs2293616 | Variant | 3 | 12 | 2.4 (0.3-16.4) | 5 | 13 | 0.8 (0.2-2.4) |
| SLC15A2 | rs2293616 | Hetero | 14 | 45 | 3.0 (0.6-14.3) | 25 | 42 | 1.2 (0.6-2.3) |
| SLC15A2 | rs2293616 | Wildtype | 2 | 19 | NC | 28 | 56 | Reference |
| SLC15A2 | rs2257212 | Variant | 2 | 11 | NC | 5 | 11 | 0.9 (0.3-2.8) |
| SLC15A2 | rs2257212 | Hetero | 13 | 45 | 1.9 (0.5-7.5) | 25 | 43 | 1.1 (0.6-2.2) |
| SLC15A2 | rs2257212 | Wildtype | 3 | 20 | Reference | 29 | 57 | Reference |
| SLC15A2 | rs1143671 | Variant | 3 | 12 | 2.4 (0.3-16.4) | 5 | 13 | 0.7 (0.2-2.3) |
| SLC15A2 | rs1143671 | Hetero | 14 | 44 | 3.0 (0.6-14.6) | 25 | 41 | 1.2 (0.6-2.3) |
| SLC15A2 | rs1143671 | Wildtype | 2 | 19 | NC | 29 | 56 | Reference |
| SLC15A2 | rs1143672 | Variant | 3 | 12 | 4.7 (0.4-51.1) | 5 | 11 | 0.8 (0.3-2.5) |
| SLC15A2 | rs1143672 | Hetero | 13 | 44 | 5.6 (0.7-46.0) | 25 | 41 | 1.1 (0.5-2.1) |
| SLC15A2 | rs1143672 | Wildtype | 1 | 19 | NC | 29 | 51 | Reference |
| SLC22A1 | rs628031 | Variant | 1 | 9 | NC | 1 | 4 | NC |
| SLC22A1 | rs628031 | Hetero | 11 | 40 | 1.1 (0.4-3.4) | 20 | 30 | 1.4 (0.7-2.8) |
| SLC22A1 | rs628031 | Wildtype | 6 | 24 | Reference | 36 | 75 | Reference |
| SLC22A1 | rs2282143 | Variant | 0 | 0 | NC | 1 | 0 | NC |
| SLC22A1 | rs2282143 | Hetero | 1 | 2 | NC | 2 | 13 | NC |
| SLC22A1 | rs2282143 | Wildtype | 18 | 74 | Reference | 55 | 98 | Reference |
| SLC22A1 | rs34059508 | Variant | 2 | 4 | NC | 1 | 2 | NC |
| SLC22A1 | rs34059508 | Wildtype | 17 | 72 | Reference | 56 | 109 | Reference |
| SLC22A1 | rs55918055 | Variant | 0 | 0 | NC | 3 | 2 | NC |
| SLC22A1 | rs55918055 | Wildtype | 19 | 74 | Reference | 56 | 109 | Reference |
| SLC22A1 | rs72552763 | Variant | 0 | 5 | NC | 3 | 12 | 0.6 (0.1-2.2) |
| SLC22A1 | rs72552763 | Hetero | 5 | 21 | 0.9 (0.3-2.7) | 27 | 34 | 1.8 (0.9-3.6) |
| SLC22A1 | rs72552763 | Wildtype | 14 | 50 | Reference | 28 | 64 | Reference |
| SLC22A2 | rs316019 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| SLC22A2 | rs316019 | Hetero | 4 | 11 | 1.6 (0.4-5.8) | 8 | 13 | 1.1 (0.4-2.9) |
| SLC22A2 | rs316019 | Wildtype | 14 | 62 | Reference | 51 | 94 | Reference |
| SLC22A2 | rs8177507 | Variant | 0 | 0 | NC | 0 | 1 | NC |
| SLC22A2 | rs8177507 | Wildtype | 19 | 76 | Reference | 59 | 110 | Reference |
| SLC22A2 | rs8177517 | Variant | 0 | 0 | NC | 0 | 0 | NC |
| SLC22A2 | rs8177517 | Wildtype | 19 | 76 | Reference | 59 | 111 | Reference |
| SLC22A2 | rs8177516 | Variant | 0 | 1 | NC | 0 | 0 | NC |
| SLC22A2 | rs8177516 | Hetero | 0 | 0 | NC | 3 | 4 | 1.5 (0.3-6.8) |
| SLC22A2 | rs8177516 | Wildtype | 19 | 75 | Reference | 55 | 107 | Reference |
| SLCO1B1 | rs2306283 | Variant | 3 | 12 | 1.8 (0.3-10.5) | 12 | 11 | 2.2 (0.8-6.0) |
| SLCO1B1 | rs2306283 | Hetero | 13 | 39 | 2.4 (0.6-9.5) | 27 | 56 | 1.0 (0.5-2.0) |
| SLCO1B1 | rs2306283 | Wildtype | 3 | 22 | Reference | 19 | 39 | Reference |
| SLCO1B1 | rs56061388 | Variant | 0 | 0 | NC | 0 | 2 | NC |
| SLCO1B1 | rs56061388 | Wildtype | 19 | 76 | Reference | 58 | 109 | Reference |
| SLCO1B1 | rs72559745 | Variant | 0 | 0 | NC | 2 | 1 | NC |
| SLCO1B1 | rs72559745 | Wildtype | 19 | 76 | Reference | 53 | 105 | Reference |
| SLCO1B1 | rs4149056 | Variant | 0 | 1 | NC | 5 | 0 | NC |
| SLCO1B1 | rs4149056 | Hetero | 5 | 22 | 0.9 (0.3-2.9) | 8 | 21 | 0.7 (0.3-1.8) |
| SLCO1B1 | rs4149056 | Wildtype | 13 | 52 | Reference | 46 | 89 | Reference |
| SLCO1B1 | rs55737008 | Variant | 0 | 0 | NC | 1 | 0 | NC |
| SLCO1B1 | rs55737008 | Hetero | 0 | 0 | NC | 2 | 1 | NC |
| SLCO1B1 | rs55737008 | Wildtype | 19 | 76 | Reference | 55 | 109 | Reference |
| SLCO1B3 | rs4149117 | Variant | 0 | 3 | NC | 0 | 5 | NC |
| SLCO1B3 | rs4149117 | Hetero | 6 | 18 | 1.4 (0.5-4.2) | 23 | 32 | 1.5 (0.8-2.9) |
| SLCO1B3 | rs4149117 | Wildtype | 13 | 54 | Reference | 34 | 70 | Reference |
| SLCO1B3 | rs7311358 | Variant | 0 | 3 | NC | 0 | 5 | NC |
| SLCO1B3 | rs7311358 | Hetero | 5 | 18 | 1.1 (0.3-3.4) | 24 | 33 | 1.4 (0.7-2.8) |
| SLCO1B3 | rs7311358 | Wildtype | 14 | 54 | Reference | 35 | 69 | Reference |
| SLCO2B1 | rs2306168 | Variant | 0 | 0 | NC | 0 | 0 | NC |
| SLCO2B1 | rs2306168 | Hetero | 0 | 10 | NC | 13 | 17 | 1.5 (0.7-3.4) |
| SLCO2B1 | rs2306168 | Wildtype | 19 | 64 | Reference | 46 | 92 | Reference |
| TPMT | rs1142345 | Variant | 2 | 7 | NC | 5 | 12 | 0.8 (0.3-2.3) |
| TPMT | rs1142345 | Wildtype | 16 | 68 | Reference | 49 | 92 | Reference |
| TPMT | rs56161402 | Variant | 0 | 0 | NC | 3 | 1 | NC |
| TPMT | rs56161402 | Wildtype | 19 | 75 | Reference | 56 | 110 | Reference |
| TPMT | rs1800460 | Variant | 0 | 0 | NC | 1 | 0 | NC |
| TPMT | rs1800460 | Hetero | 2 | 8 | NC | 8 | 11 | 1.5 (0.5-3.8) |
| TPMT | rs1800460 | Wildtype | 17 | 68 | Reference | 49 | 98 | Reference |
| UGT1A1 | rs4148323 | Variant | 0 | 0 | NC | 1 | 6 | NC |
| UGT1A1 | rs4148323 | Wildtype | 19 | 76 | Reference | 58 | 103 | Reference |
| UGT1A1 | rs4124874 | Variant | 5 | 19 | 1.1 (0.3-4.4) | 16 | 23 | 1.4 (0.6-3.4) |
| UGT1A1 | rs4124874 | Hetero | 8 | 35 | 1.0 (0.3-3.3) | 29 | 60 | 1.0 (0.4-2.1) |
| UGT1A1 | rs4124874 | Wildtype | 5 | 21 | Reference | 14 | 28 | Reference |
| UGT2B15 | rs1902023 | Variant | 8 | 13 | 4.1 (0.9-18.4) | 7 | 14 | 0.7 (0.3-2.0) |
| UGT2B15 | rs1902023 | Hetero | 7 | 39 | 1.2 (0.3-5.1) | 23 | 53 | 0.6 (0.3-1.3) |
| UGT2B15 | rs1902023 | Wildtype | 3 | 20 | Reference | 28 | 41 | Reference |
| UGT2B7 | rs7668258 | Variant | 5 | 15 | 1.8 (0.4-8.8) | 2 | 11 | NC |
| UGT2B7 | rs7668258 | Hetero | 8 | 30 | 1.4 (0.3-6.1) | 15 | 40 | 0.5 (0.3-1.1) |
| UGT2B7 | rs7668258 | Wildtype | 3 | 16 | Reference | 36 | 50 | Reference |
| UGT2B7 | rs7662029 | Variant | 5 | 20 | 2.7 (0.5-15.8) | 2 | 10 | NC |
| UGT2B7 | rs7662029 | Hetero | 11 | 33 | 3.7 (0.7-18.2) | 17 | 40 | 0.6 (0.3-1.1) |
| UGT2B7 | rs7662029 | Wildtype | 2 | 22 | NC | 40 | 53 | Reference |
| VKORC1 | rs8050894 | Variant | 3 | 13 | 1.0 (0.2-4.5) | 13 | 32 | 0.5 (0.2-1.3) |
| VKORC1 | rs8050894 | Hetero | 9 | 38 | 1.0 (0.3-3.1) | 24 | 49 | 0.7 (0.3-1.4) |
| VKORC1 | rs8050894 | Wildtype | 6 | 25 | Reference | 21 | 28 | Reference |

NC – not calculated when cells have N<3