**Supplementary Table I. Imputation accuracy rates (in percent) of <u>all imputed SNPs</u> using HapMap II (HMII) and 1000 Genomes (1KG) data across the MAF spectrum. Red boldfaced are highest accuracy rates for each masked data.**

| Masking Rate | Public Data | Strategy | MAF spectrum | | | Polymorphic SNPs | | | Overall Accuracy |
|---|---|---|---|---|---|---|---|---|---|
| | | | Rare | Low Freq | Common | CEU-specific | YRI-specific | In both panels | |
| 5% | HMII | YRI | 14.4 | 57.9 | 79.3 | | 71.7 | 78.3 | 77.1 |
| | | CEU | 15.1 | 35.0 | 53.9 | 21.7 | | 53.1 | 46.2 |
| | | INT | 29.9 | **67.8** | 81.9 | | | 80.7 | **80.7** |
| | | UNI | 35.4 | 63.2 | **82.6** | 44.1 | 73.5 | **82.4** | 74.2 |
| | | MER | 15.2 | 45.9 | 78.4 | 21.7 | 71.7 | 78.3 | 66.7 |
| | 1KG | YRI | 17.2 | 61.1 | 78.3 | | 73.7 | 78.1 | 77.1 |
| | | CEU | 15.4 | 34.0 | 54.7 | 23.5 | | 54.9 | 47.8 |
| | | INT | | 67.2 | 80.8 | | | 80.2 | 80.2 |
| | | UNI | **37.5** | 60.5 | 80.5 | **46.7** | **74.1** | 82.0 | 74.0 |
| | | MER | 15.5 | 43.2 | 77.0 | 21.7 | 71.7 | 78.3 | 66.7 |
| 50% | HMII | YRI | 12.6 | 49.6 | 71.0 | | 65.6 | 70.4 | 69.6 |
| | | CEU | 14.4 | 28.7 | 46.6 | 27.3 | | 45.9 | 44.3 |
| | | INT | 27.8 | **58.4** | 73.8 | | | 72.9 | 72.9 |
| | | UNI | **30.7** | 55.5 | **75.0** | **48.8** | **67.8** | 75.1 | 72.4 |
| | | MER | 14.5 | 39.0 | 70.4 | 27.3 | 65.6 | 70.4 | 66.4 |
| | 1KG | YRI | 7.2 | 52.2 | 71.1 | | 65.1 | 71.6 | 70.4 |
| | | CEU | 13.4 | 28.5 | 49.2 | 29.4 | | 49.2 | 46.8 |
| | | INT | | 57.0 | 74.2 | | | 73.7 | **73.7** |
| | | UNI | 30.4 | 52.5 | 74.1 | 48.0 | 66.2 | **75.9** | 71.4 |
| | | MER | 13.3 | 36.1 | 70.2 | 29.4 | 65.1 | 71.6 | 66.2 |
| 80% | HMII | YRI | 4.9 | 29.8 | 49.6 | | 43.8 | 49.3 | 48.4 |
| | | CEU | 7.8 | 19.4 | 31.7 | 20.0 | | 31.2 | 30.3 |
| | | INT | 7.2 | 35.8 | 52.0 | | | 51.2 | 51.2 |
| | | UNI | **17.1** | 36.3 | **53.9** | **35.3** | **45.8** | **54.1** | **51.8** |
| | | MER | 7.9 | 24.7 | 49.2 | 20.0 | 43.8 | 49.3 | 46.4 |
| | 1KG | YRI | | 32.1 | 49.6 | | 42.9 | 50.4 | 49.0 |
| | | CEU | 8.0 | 19.6 | 34.7 | 20.8 | | 34.7 | 33.1 |
| | | INT | | **38.0** | 52.2 | | | 51.8 | **51.8** |
| | | UNI | 16.1 | 32.7 | 52.1 | 30.8 | 44.6 | 53.8 | 50.1 |
| | | MER | 7.8 | 23.1 | 48.9 | 20.8 | 42.9 | 50.4 | 46.3 |

Rare variants with MAF ≤ 0.01; Low frequency variants with 0.01 < MAF ≤ 0.05; Common variants with MAF > 0.05

INT refers the intersection strategy; UNI refers the union strategy; MER refers the merge strategy

CEU-specific SNPs are polymorphic only in CEU; YRI-specific SNPs are polymorphic only in YRI; SNPs in both panels are polymorphic in both CEU and YRI

**Supplementary Table II. Numbers of imputed SNPs and filtered SNPs (with MACH Rsq over 0.3) in the masking data sets that were used for computing imputation accuracy.**

| Masking Rate | Public Data | Strategy | Imputed SNPs | | | Filtered SNPs | | |
|---|---|---|---|---|---|---|---|---|
| | | | Rare | Low Freq | Common | Rare | Low Freq | Common |
| 5% | HMII | YRI | 13 | 61 | 903 | 9 | 54 | 880 |
| | | CEU | 159 | 94 | 774 | 71 | 76 | 724 |
| | | INT | 6 | 43 | 752 | 4 | 41 | 740 |
| | | UNI | 163 | 111 | 898 | 111 | 105 | 889 |
| | | MER | 166 | 112 | 925 | 78 | 92 | 900 |
| | 1KG | YRI | 5 | 63 | 1129 | 3 | 58 | 1,068 |
| | | CEU | 149 | 115 | 929 | 58 | 82 | 858 |
| | | INT | | 31 | 890 | | 28 | 863 |
| | | UNI | 153 | 147 | 1168 | 85 | 127 | 1,125 |
| | | MER | 153 | 147 | 1168 | 60 | 115 | 1,102 |
| 50% | HMII | YRI | 13 | 578 | 9063 | 5 | 483 | 8,503 |
| | | CEU | 159 | 851 | 7842 | 60 | 637 | 6,967 |
| | | INT | 6 | 412 | 7655 | 2 | 377 | 7,331 |
| | | UNI | 163 | 1,007 | 8979 | 83 | 882 | 8,711 |
| | | MER | 166 | 1,017 | 9250 | 64 | 779 | 8,667 |
| | 1KG | YRI | 5 | 411 | 10032 | | 317 | 9,036 |
| | | CEU | 149 | 903 | 8615 | 50 | 611 | 7,568 |
| | | INT | | 213 | 8265 | | 179 | 7,787 |
| | | UNI | 153 | 1,101 | 10385 | 61 | 850 | 9,648 |
| | | MER | 153 | 1,101 | 10382 | 51 | 761 | 9,331 |
| 80% | HMII | YRI | 13 | 904 | 14,554 | | 441 | 10,516 |
| | | CEU | 159 | 1,301 | 12,607 | 32 | 684 | 8,629 |
| | | INT | 6 | 613 | 12,303 | | 347 | 9,416 |
| | | UNI | 163 | 1,571 | 14,418 | 36 | 897 | 11,482 |
| | | MER | 166 | 1,592 | 14,858 | 34 | 778 | 10,715 |
| | 1KG | YRI | | 613 | 16,040 | | 222 | 9,464 |
| | | CEU | 149 | 1,363 | 13,839 | 20 | 555 | 8,661 |
| | | INT | | 311 | 13,269 | | 156 | 9,178 |
| | | UNI | 153 | 1,665 | 16,613 | 18 | 597 | 10,663 |
| | | MER | 153 | 1,665 | 16,612 | 22 | 628 | 9,792 |

Rare variants with MAF $\leq$ 0.01; Low frequency variants with $0.01 <$ MAF $\leq$ 0.05; Common variants with MAF $> 0.05$

INT refers the intersection strategy; UNI refers the union strategy; MER refers the merge strategy