

Overlap between SNP microarrays

In order to calculate the number of SNPs in common between different microarrays, I obtained the list of SNPs for different arrays from the UCSC Genome Browser, and from the Illumina website:

- *Affymetrix Genome-Wide Human SNP Array 6.0*: more than 906,600 SNPs derived from HapMap and from the previous generation Mapping 500K and SNP 5.0 array.
- *Axiom Genome-Wide Human Origins 1 Array*: 629,443 SNPs from modern human populations and ancient hominids with content for 11 modern human populations; coverage in Neanderthal, Denisova, and chimpanzee genomes for comparison in ancient hominids and apes; and compatibility SNPs in mitochondria, Y chromosome.
- *Illumina HumanHap650Y*: 650,000 markers. The HumanHap650Y was derived from release 21 of the International HapMap Project.
- *Illumina Human1M-Duo*: more than 1,100,000 tagSNPs.
- *Illumina HumanOmni1-Quad v1*: 1,140,419 markers in a 4-sample format. The content has been derived from the 1,000 Genomes Project, all three HapMap phases, and recently published studies, including new coding variants identified by the 1000 Genomes Project and markers chosen in high-value regions of the genome: ABO blood typing SNPs, cSNPs, disease-associated SNPs, eSNPs, SNPs in mRNA splice sites, ADME genes, AIMs, HLA complexes, indels, introns, MHC regions, miRNA binding sites, mitochondrial DNA, PAR, promoter regions, and Y-chromosome.
- *Illumina Infinium OmniExpress-24 Kit*: 713,599 markers, derived from all 3 HapMap phases.
- *Illumina Infinium HumanOmni5-4 v1.1 BeadChip*: 4,284,426 SNPs. Markers were selected from HapMap and 1000 Genomes Project.
- *Illumina Infinium Multi-Ethnic Global-8 Kit*: 1,779,819 SNPs.
- *Illumina Infinium Multi-Ethnic AMR/AFR BeadChip*: 1,430,141 SNPs.
- *Illumina MEGA GLOBAL (version Consortium)*: 1,389,627 SNPs (based on the training run with the cluster GLOBAL).

I used the information of the physical position of the markers to find the overlapping SNPs (`get_common_snps_doron.pl`), restricting the analysis to SNPs in the autosomes, and chromosome X and Y.

Table 1: SNPs in common between different arrays and the commercial MEGA GLOBAL array

Arrays	MEGA GLOBAL
Affymetrix 6.0	165,795
Affymetrix Human Origins 1	105,771
Illumina 650Y	211,845
Illumina Human1M-Duo	308,002
Illumina Omni1-Q	347,757
Illumina Omni Express	311,759
Illumina HumanOmni5	720,300
MEGA AMR-AFR	1,412,629

Table 2: SNPs in common between different arrays and the consortium MEGA GLOBAL array

Arrays	MEGA GLOBAL
Affymetrix 6.0	161,709
Affymetrix Human Origins 1	301,211
Illumina 650Y	206,736
Illumina Human1M-Duo	287,696
Illumina Omni1-Q	328,366
Illumina Omni Express	300,725
Illumina HumanOmni5	610,522
MEGA AMR-AFR	1,298,920
MEGA GLOBAL (commercial)	1,333,406