Resource

Discordant calls across genotype discovery approaches elucidate variants with systematic errors

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Large-scale high-throughput sequencing data sets have been transformative for informing clinical variant interpretation and for use as reference panels for statistical and population genetic efforts. Although such resources are often treated as ground truth, we find that in widely used reference data sets such as the Genome Aggregation Database (gnomAD), some variants pass gold-standard filters, yet are systematically different in their genotype calls across genotype discovery approaches. The inclusion of such discordant sites in study designs involving multiple genotype discovery strategies could bias results and lead to false-positive hits in association studies owing to technological artifacts rather than a true relationship to the phenotype. Here, we describe this phenomenon of discordant genotype calls across genotype discovery approaches, characterize the error mode of wrong calls, provide a list of discordant sites identified in gnomAD that should be treated with caution in analyses, and present a metric and machine learning classifier trained on gnomAD data to identify likely discordant variants in other data sets. We find that different genotype discovery approaches have different sets of variants at which this problem occurs, but there are characteristic variant features that can be used to predict discordant behavior. Discordant sites are largely shared across ancestry groups, although different populations are powered for the discovery of different variants. We find that the most common error mode is that of a variant being heterozygous for one approach and homozygous for the other, with heterozygous in the genomes and homozygous reference in the exomes making up the majority of miscalls.

[Supplemental material is available for this article.]

Although massively parallel sequencing technologies have been transformative for genomics research, they have an appreciable error rate (Ma et al. 2019) as a cost of their high-throughput capacity. To account for this, sophisticated pipelines have been developed for the detection and removal of incorrect sequencing calls (Anderson et al. 2010; McKenna et al. 2010; Highnam et al. 2015; Adelson et al. 2019; Lam et al. 2019; Li et al. 2019). However, even with gold-standard filtering, spurious genotype calls can infiltrate data sets and potentially skew results. This is of particular importance with data sets that aggregate calls generated by multiple genotype discovery approaches, as different strategies have distinct error modes. Identifying variants that have technical artifacts affecting genotype calls is of major importance, as such loci give misleading information regarding population allele frequencies (AFs) and could be incorrectly identified as being phenotypically meaningful in gene discovery.

By leveraging the unprecedented size and depth of the Genome Aggregation Database (gnomAD) (Lek et al. 2016; Karczewski et al. 2020), we comprehensively characterize trends in genotype calling depending on the sequencing technology. Specifically, we note that a subset of variants, despite passing standard quality filters (Karczewski 2017), produce discordant AFs in data generated using different genotype discovery approaches, stemming from unreliable variant calling. This cannot be explained by population stratification, as this effect is observed even when looking at the same set of individuals. Such unreliably genotyped variants should therefore be screened out of analyses. Including these variants in gene discovery efforts, particularly in study designs in which case and control data are represented by

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different combinations of sequencing platforms or genotype discovery approaches, could result in their appearance as false-positive associations.

In this article, we comprehensively characterize the observation of discordant genotyping depending on a genotype discovery approach using a large set of diverse individuals from the gnomAD database, including a subset of participants who underwent both whole-exome and whole-genome sequencing (WES/WGS). We then validate our findings in two external data sets for which data from multiple genotype discovery approaches are available: the 1000 Genomes Project and the All of Us Research Program (Auton and Salcedo 2015; The All of Us Research Program Investigators 2019). Correcting for this technical error, whether by removing the gnomAD discordant variants provided here or by identifying user-identified spurious calls with our freely distributed machine learning predictor, should be incorporated as a step in QC pipelines to avoid spurious associations, particularly in large-scale studies aggregating data from multiple sources.

Results

Discordance in genotype calls across genotype discovery approaches replicates across ancestries

We sought to compare AFs across variants found within exome and genome sequencing data sets in gnomAD to test whether there are regions with significant bias associated with genotype discovery approach. We first focused on the largest population represented in gnomAD 0.2: the non-Finnish Europeans (NFE). Using the full release of gnomAD version 2.1.1, we filtered the data to include only sites that were present and had a quality determination of PASS in both the genomes and exomes (Karczewski et al. 2020). To ensure sufficient power, we filtered for sites with allele count (AC) greater than 10 and ran a Fisher's exact test on the difference in the number of alternate AC to total alleles (allele number [AN]) between these two data sets. A nonnegligible fraction of sites was significantly discordant in their calls (Fig. 1A). We also tested other less-stringent AC thresholds (AC > 1 and AC > 5) and observed that the trends of discordance between the genotype discovery approaches were consistent across AC cutoffs (Supplemental Fig. S1).

When comparing AFs between sequencing strategies, it is critical to control for ancestry, as populations will have differing frequencies at many loci simply owing to demography (Gravel et al. 2011; Auton and Salcedo 2015; Bergström et al. 2020). To assess if ancestry affected discordance rates, we ran Fisher's exact test concordance checks across all gnomAD continental groups (Fig. 1B). The total discordant variant counts were directly related to the sample size of the population in question and were not enriched for any given ancestry (Supplemental Fig. S2). Although novel discordant variants were discovered in each population, most variants observed in other populations were shared with

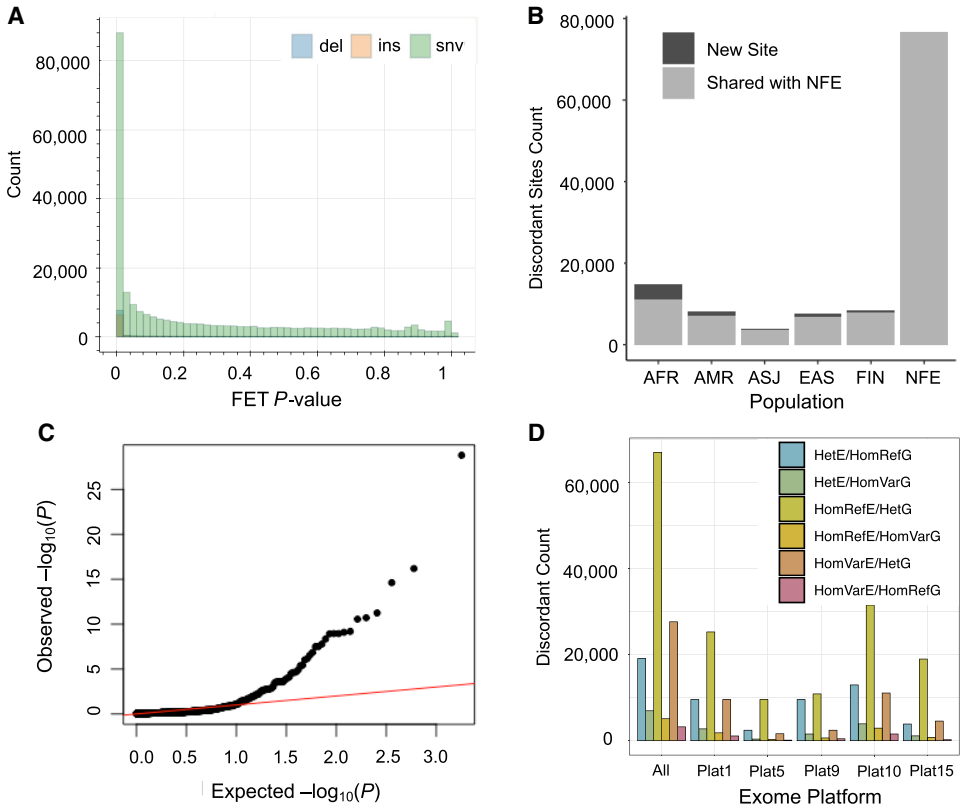

Figure 1. Discordance in genotype calls across high-throughput genotype discovery approaches. (*A*) Fisher's exact test concordance test *P*-value for shared, PASS sites in the gnomAD NFE exomes and genomes. Bars are colored by variant type: insertion (ins), deletion (del), or single-nucleotide variant (snv). (*B*) "Bad" sites are replicated across ancestry groups in gnomAD. Sites flagged as discordant in both the NFE and another ancestry group are plotted in gray; those new sites not in the NFE are shown in black. (*C*) QQ plot for the Fisher's exact test *P*-value of shared variants in a set of 946 individuals for whom both WES and WGS data were available. (*D*) Different exome captures' contribution to discordant sites. Bars are colored by the error mode that was observed for the discordant genotype call: heterozygous (Het), homozygous reference (HomRef), or homozygous variant (HomVar) in either the exomes (E) or genomes (G).

the NFE (86.9%) (Fig. 1B; Supplemental Table S1). Replication of the same variants across multiple ancestries strengthens the argument of a shared technical artifact and suggests that ancestral bias between exome and genome data sets is unlikely to be a confounding factor. Future work may wish to investigate other biological and nonbiological factors for an impact on discordance.

Error mode of discordant calls

Next, we aimed to classify the typical error mode that results in discordant calls using individuals with both WES and WGS data. As 946 gnomAD individuals underwent both WES and WGS, we were able to examine the rates and error modes of discordant genotype calls without concern over population structure or differing sample composition; because these are the same individuals, any difference in AF and/or genotype calls can be conclusively determined to be owing to technical artifacts. We tallied the number of sites in each pairwise exome–genome genotype category (6333 sites) (Supplemental Fig. S3) to classify miscall error mode. Of the six possible error modes (homozygous reference/heterozygous, homozygous reference/homozygous variant, or homozygous variant/heterozygous for both data set directions), we find that the majority of calls, 57.7%, are a heterozygous genotype call in the genomes but a homozygous reference genotype call in the exomes (Fig. 1D; Supplemental Fig. S4). We also note that different sequencing platforms have different rates of discordant calls; although because of sharing restrictions, we cannot identify platform names with certainty. Overall, ∼16% of the variants that were present and PASS in both exomes and genomes in the overlapping individuals had at least one discordant call.

Next, we examined the discordance of AFs, again with a Fisher's exact test. Usually in cohort-based comparisons, the expected distribution of Fisher's exact test *P*-values is represented by a uniform distribution. Because we are looking at the same individuals, it is expected that AFs should be identical (i.e., $P = 1$). We observe the presence of many variants substantially deviating from expectations, representing loci with significantly different MAF in the exomes versus the genomes (Fig. 1C).

Identification of discordant sites

We next sought to identify problematic sites failing a Fisher's exact test of concordant WGS/WES frequency estimates in the largest subset of gnomAD, the NFE. Based on the distribution of *P*-values from this test, we decided upon a threshold of $P < 1 \times 10^{-5}$ to determine the classification of a variant as "bad" or "good" (Fig. 1; Supplemental Fig. S5). Of the 283,287 PASS/PASS variants tested with MAF > 0.01 and AC > 10, 51,255 (18.1%) failed the Fisher's exact test and were deemed "bad," whereas 231,631 (81.8%) passed and were deemed "good." Distributions of metadata features for the good versus bad sites do show trends in several features, although no feature alone perfectly explains the phenomenon (Supplemental Fig. S6). They also highlight a difference in discordance patterns of indels versus SNVs (Supplemental Fig. S7). Specifically, SNVs show a pattern of higher AF in genomes compared with exomes, whereas indels do not have this trend. Indels are also generally less stable in AF estimates than SNVs. It therefore appears that two distinct technical error modes might be affecting miscalls in indels versus SNVs, rather than one shared mechanism. As many of these indels fell in the low complexity regions of the genome, it is likely that a mapping issue is responsible for their miscalls. A comprehensive description of gnomAD structural variant calling and considerations is published and can be found in a gnomAD blog post (Collins et al. 2020; https://gnomad.broadinstitute.org/news/2019-03-structural-variants-in-gnomad/). To correct this, we therefore recommend excluding the low complexity regions from stringent analyses. In general, when there was discordance, the genomes were found to have a higher MAF than the exomes (Supplemental Fig. S1B). The trend in MAF difference aligns with the most commonly observed error mode in genotyping.

Having confirmed that there was a systematic and significant AF discordance between genotype discovery approach, we used our Fisher's exact tests to generate a list of sites harboring this technical artifact that may be excluded from analyses. Again, these discordant sites represent variants that were a PASS in gnomAD QC in both the exomes and genomes but are unreliably genotyped depending on the sequencing technology used. Given a situation in which, for example, a case cohort has been exome-sequenced and the control cohort has been genome-sequenced, such sites could give false-positive associations owing to the resulting AF differences. We, therefore, recommend they be treated with caution or broadly excluded (in addition to standard cohort QC) unless thorough confirmation of their validity in a particular data set has been performed.

Our analysis of variant AF discordance reflects technical differences between whole-exome and whole-genome high-throughput sequencing approaches in recovering coding DNA variation. Similarly, we performed this concordance analysis on the All of Us Research Program data set to compare AFs between WGS and microarray genotyping to quantify any similar effect arising between these genotype discovery approaches in primarily noncoding variation. We subsampled the All of Us primary release cohort down to the 95,596 samples who have both WGS and microarray genotyping data available. Call rate, HWE, and MAF > 0.05 filters were applied to ensure only good-quality common variants entered the analysis. Out of 102,631 variants (7944 coding), 2344 had Fisher's exact test $P < 0.05$ (Supplemental File S1). Note that because of identical samples being analyzed, the expected *P*-value distribution is centered at one (Supplemental Fig. S8). We evaluated the overlap between the variants flagged in All of Us and gnomAD, finding that only seven out of them were found in both samples, likely owing to the focus of gnomAD on coding variation (given comparisons included WES) versus on noncoding variation in All of Us. Out of these seven variants, rs4951250 was found to be significantly discordant in both data sets ($P < 1 \times 10^{-16}$ genome vs. exome; $P = 4 \times 10^{-5}$ genome vs. array).

Recovering filtered concordant sites

In addition to generating this discordant list of bad sites that should be excluded or treated with caution despite being a PASS in gnomAD QC, we investigated whether additional trustworthy sites could be rescued from the "non-PASS" list based on our AF concordance criteria. Non-PASS variants are those that did not meet all required passing criteria in the gnomAD QC pipeline (Karczewski et al. 2020). We tested this by conditioning on PASS in one data set, non-PASS in the other, and reran the concordance pipeline, requiring the following threshold in both data sets to add a higher level of stringency for recovering sites: AC > 1, DP > 10, and AF > 0.01%. In total, there were 41,584 sites that met these criteria, of which 30,683 were instances in which the genomes are a non-PASS and the exomes are a PASS. Approximately half of these sites had *P*-values greater than 1×10^{-5}, which we consider to be reliable. The exomes represent the vast majority of sequences in

gnomAD, which may make their results more stable. For analyses that require less stringent QC, we provide these sites that can be optionally retained, given that they pass cohort QC in the individual data set.

Predicting technical bias for variants

We used features based on variant annotations generated during variant calling (e.g., variant quality, mapping quality, etc.) to build a random forest predictor that detects the presence of technical bias for a particular variant (Supplemental Table S2). Model training and validation were performed using several approaches. First, we used a leave-one-out cross-validation procedure using the exome data set from gnomAD. In 22 trials (one for each of the 22 autosomes), we set aside one chromosome and used the other 21 for model training. Then, the model was tested on the variants from the chromosome that was not used for training. Using the Fisher's exact test *P*-value threshold for the discordance analysis, we classified the variants into "bad" (with $P <$ threshold) and "good" ($P \geq$ threshold) groups. By varying the Fisher's exact test *P*-value threshold discriminating the groups, we performed ROC analysis. Because representation of the classes varies depending on the selected threshold, we used the class weights for balancing the classes (in this and the following tests, the weight for the "bad" class was set as the fraction of "bad" variants in the training data, and the weight for the "good" class was set to one). The area under the ROC curve (ROC AUC) for such a model was estimated as 0.841 (Fig. 2A).

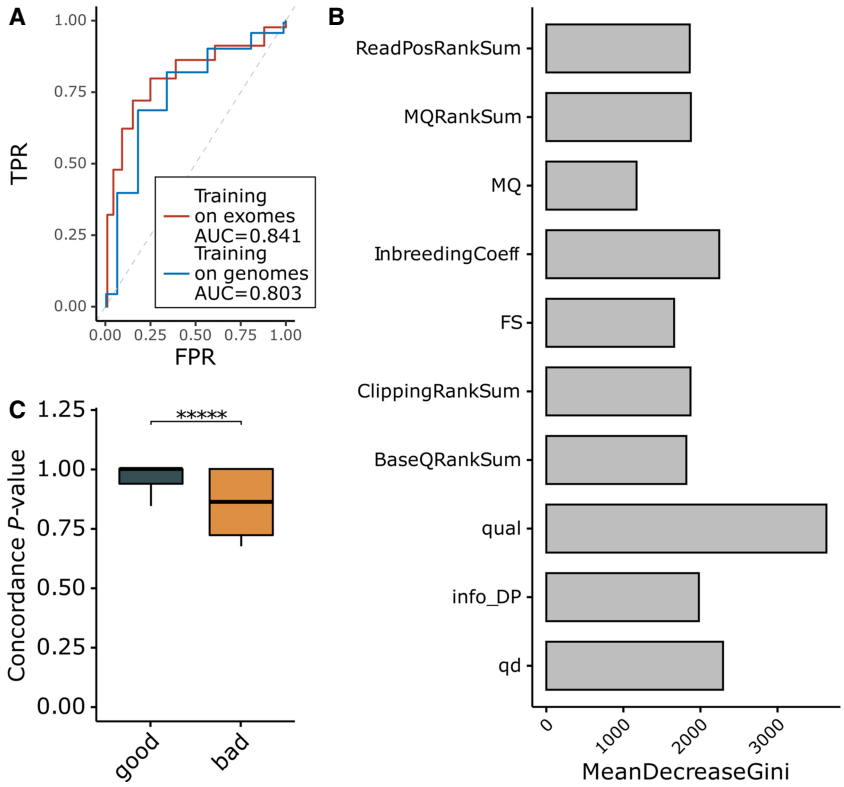

Figure 2. Reliable classification of discordant variants based on variant annotations. (*A*) ROC analysis for two random forest predictor validation approaches either using leave-one-out analysis on the exomes or using the genomes as a training set to classify exome variants. (*B*) Feature importance analysis for the random forest model. (*C*) Comparison of concordance analysis Fisher's exact test *P*-values for variants from the 1000 Genomes classified using the random forest predictor trained on the gnomAD genomes data set. MeanDecreaseGini is a measure of how each variable contributes to the homogeneity of the nodes and leaves in the resulting random forest. The higher the value of mean decrease accuracy or mean decrease Gini score, the higher the importance of the variable in the model.

Next, we used variant annotations from the gnomAD genomes data set for training and variant annotations from the gnomAD exomes as a test sample. These are two separate data sets that are well powered to detect biases in AFs and ensure full independence between test and training samples. In this setting, our model again reliably predicted discordant variants, with ROC AUC = 0.803 (Fig. 2A). Feature importance analysis of the model suggests that variant quality, inbreeding coefficient, and quality by depth are the key parameters discriminating variants with and without evidence for technical bias. Therefore, current protocols for alignment and variant calling are leaving a notable footprint that can be used to detect platform biases (Fig. 2B).

Finally, we used data from The 1000 Genomes Project (The 1000 Genomes Project Consortium 2012) as an independent public data set for testing the predictor. Exome sequences from 1393 samples (Supplemental Table S3) were used to create the variant call set following GATK best practices. Variant annotations were used to classify variants using the gnomAD genomes data as a training sample. Because of sample size, 1000 Genomes data are significantly less powered to detect technical biases compared with gnomAD. Therefore, it is harder to confidently identify the ground truth for discordant variants. Identical 1000 Genomes samples from exome and genome sequencing were used to detect variants with a signature of technical bias using the AF concordance Fisher's exact test described here. Because of the power limitations, instead of performing ROC analysis, we compared the Fisher's exact test *P*-values for the variants classified as having evidence of technical bias ("bad") and those without such evidence ("good") (Fig. 2C).

This random forest model trained on the gnomAD genome v2.1 data set was incorporated into a freely distributed R package called DNA DISCOrdant Variant IdentifiER (*DNAdiscover*) (R Core Team 2021; https://github.com/na89/DNAdiscover). The package uses variant annotations to predict whether a variant is likely to be "discordant" or "concordant" in user input data and performs well with both genome and exome sequencing data.

Discordant variants are reported in published studies and are predicted to be functionally important

We first observed the phenomenon of variant discordance through the investigation of GWAS variants in the COVID host genetics initiative and the UK Biobank (COVID-19 Host Genetics Initiative 2021). When inspecting top associated variants that did not have strong LD friends, we noticed that many had discordant frequencies between GWAS arrays and gnomAD, and this

often corresponded to variants that had discrepant frequencies between the gnomAD exomes and genomes. We thus suggest that the discordant site list provided herein can be used for quality control of GWAS variants.

To investigate whether discordant variants may be spuriously attributed phenotypic relevance, we annotated all variants with their predicted functional consequence using the Ensembl Variant Effect Predictor (VEP) (McLaren et al. 2016). Discordant variants appear in all functional consequence categories, including 11,536 that are annotated as missense (Supplemental Fig. S9; Supplemental Table S4). Such variants are tempting to prioritize for functional follow-up given their apparent functional importance despite having GWAS signal likely driven by the observed genotype calling artifact. Technical artifacts are actually expected to be enriched in functionally important categories given that they are immune from the effects of natural selection, a phenomenon that has been previously observed for putatively loss-of-function somatic variation (Buckley et al. 2017).

To see if discordant sites have been reported in peer-reviewed publications, we intersected genome-wide significant variants ($P < 5 \times 10^{-8}$) from the GWAS catalog (Welter et al. 2014) with our discordant sites list. Seventeen bad variants were found in the GWAS catalog, underscoring the importance of controlling for this artifact, as it may impact downstream interpretation of association findings (Supplemental Table S5). Variants in this list have been associated with multiple health-related phenotypes, including schizophrenia, telomere length, and blood protein levels. Of these 17, half are multiallelic and approximately a third are indels, echoing our earlier results of a higher discordance rate for these variant types than biallelic SNVs. Additionally, more than half of the 17 are present in the first megabase of the chromosome, suggesting that areas flanking the telomeres should be treated with caution.

Discussion

The need for extremely large sample sizes to obtain sufficient statistical power in genetic studies requires the creation of data sets that may go beyond the financial capabilities of many individual research groups. This leads to the creation of metadata sets that have contributions from many individual studies, thus creating heterogeneity in the genotype discovery approaches that were used for genotyping. Therefore, identification of DNA variants that are susceptible to technical bias when genotypes originate from multiple discovery strategies is vital in order to avoid false-positive associations and analyses of the artificially inflated AFs. This is of particular concern in instances in which cases may originate from one data generation effort and controls from another.

Here, we identify and describe a technical artifact arising in various genotype discovery approaches that may affect cohort data variant quality despite the following of gold-standard QC procedures. We present our metric for the identification of discordant sites, provide a list of the discordant variants identified in gnomAD that should be treated with caution, and release an openly available software package containing our random forest predictor that reliably classifies untrustworthy variants in user cohort data. Excluding variants with signals of discordance across sequencing platforms results in higher-quality results and reduces the risk of spurious associations in gene discovery. This is particularly important as we observe that technical artifacts are enriched in functionally important annotations.

Additionally, we show that discordance in AFs is also present in the All of Us Research Program data set when comparing WGS to microarray genotyping for overlapping samples. This finding indicates that variants in both coding and noncoding DNA could have discordant genotype calls. Importantly, in our predictor, we use the variant annotations, which often are used in variant quality score recalibration and filtration pipelines. Our results indicate that stricter filtration thresholds might be helpful for the elimination of some discordant variants; however, more cautious consideration of discordance is warranted in heterogeneous data sets.

We note that although we provide a discordant list of variants failing our discordance test in the gnomAD v2 data set for ready exclusion, the specific sites that are discordant in a given cohort depends on the genotype discovery approach used and data set composition. Therefore, for optimal precision, we recommend identification of discordant sites within user cohorts with the provided classifier rather than a blanket restriction of variants identified in gnomAD. We freely provide an R package with a predictor trained on gnomAD WGS data, *DNAdiscover*, for such use in other cohort data to identify cohort-specific sites with features indicative of unreliable genotype calls.

Our work is primarily aimed to show that our methodology is effective in detecting technical biases in high-throughput sequencing approaches and to call attention to this important consideration for aggregated data sets. We also believe that our findings can pave the way for even more robust approaches to detect such artifacts in the future. Specifically, we propose that a meta-analysis could be performed across all ancestral groups simultaneously, which would provide increased statistical power in identifying discordant variants. This would allow for the detection of smaller biases and could potentially extend this approach to less common variants.

Based on the examinations presented in this paper, we recommend that researchers using aggregated cohort data implement the following conservative QC procedures to ensure the elimination of discordant sites:

- Drop any variant that fails in both the gnomAD exomes and genomes;
- Consider dropping any variant that fails in the gnomAD exomes, as these represent the bulk of gnomAD data;
- Drop the discordant list variants presented here that are PASS in both the gnomAD exomes and genomes but that are discordant in frequency across the genotype discovery approach;
- Drop variants that are flagged by our random forest predictor, *DNAdiscover*, in an independent data set, as each genotype discovery approach has a distinct genotyping error mode;
- Remove the low complexity regions; and
- Optionally, skeptically retain sites that are on the "recovered" list here.

Methods

Characterizing discordance in genotype calls across gnomAD exomes and genomes

All analyses were conducted using the Hail software program on the Google Cloud platform (GCP 2021). Plots were created using Bokeh and ggplot2 (Wickham 2011; Jolly 2018). Concordance metrics for genotype calls were generated from the overlapping individuals with the command hail.methods.concordance(). Using the full release of gnomAD version 2.1 (Karczewski et al. 2020), we filtered to include only sites that were both present and had a quality determination of PASS in the genomes and exomes. We split multiallelic variants and retained only sites that were present

and PASS in both exomes and genomes, filtering to only biallelic sites with AC > 1 and AF > 0.01% in either data set for the NFE. Starting with all sites with at least one alternate allele, and subsequently for sites with AC > 5 and 10, we calculated the AF in the genomes and exomes separately and ran a Fisher's exact test on the difference in the number of alternate AC to total alleles (AN) between these two data sets. Specific filters for various steps are described in their relevant Results section. gnomAD summary data are freely available at gnomAD (https://gnomad.broadinstitute.org). Additional information and a discussion of the best practices for using gnomAD can be found at https://macarthurlab.org/blog/. The list we have curated of variants failing the discordance test in gnomAD is provided with this paper in the Supplemental Materials. Further details regarding data treatment are described throughout the paper for context.

All of Us data were subsampled to 95,596 with both WGS and microarray genotyping (WGA) available. MAF > 0.05, HWE > 0.0001, and MAC > 10 filters were applied to keep only common variants. Multiallelic variants were split. A variant call rate >0.8 was required in both the WGS and WGA data sets. Variants with a call rate difference between data sets greater than 0.05 were also eliminated from analysis. The R libraries *dplyr*, *reshape2*, *pROC*, *ROCR*, and *RandomForest* were used to process variant annotations, evaluate predictor quality, and build our classifier package, *DNAdiscover*, using R-4.0.3 (Liaw and Wiener 2002; Sing et al. 2005; Robin et al. 2011; https://github.com/hadley/reshape; https://CRAN.R-project.org/package=dplyr).

Software availability

Our *DNAdiscover* package for prediction of the presence of technical bias in variants coming from high-throughput sequencing, alongside a user manual, is available at GitHub (https://github.com/na89/DNAdiscover), and source code is presented as Supplemental File S2.

Competing interest statement

M.J.D. is a founder of Maze Therapeutics. B.M.N. is a member of the Deep Genomics Scientific Advisory Board and serves as a consultant for the Camp4 Therapeutics Corporation, Takeda Pharmaceutical, and Biogen. K.J.K. is a consultant for Vor Biopharma. The remaining authors declare no competing interests.

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Author contributions: E.G.A. and M.A. designed and implemented pipelines, ran analyses, and drafted the primary manuscript. K.J.K. and A.A.L. aided in code implementation and interpretation. H.L.R., D.G.M., B.M.N., and M.J.D. supervised and advised on the project. All authors reviewed and approved the final draft.

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Discordant calls across genotype discovery approaches elucidate variants with systematic errors

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Supplemental File S1. List of the 2,344 variants which were found to have Fisher's exact test P<0.05in the All of Us Research Program dataset.

locHG38	locHG19	Ref	Alt	ALT_AF_WGS	ALT_AF_WGA	p
chr1:102470054:A:T	1:102935610:A:T	A	T	0.238263222	0.745501421	5.40E-31
chr1:105395840:C:A	1:105938462:C:A	C	A	0.483963429	0.511745002	0.0084203
chr1:105749829:A:C	1:106292451:A:C	A	C	0.095109891	0.907165288	0.016701827
chr1:1088408:C:T	1:1023788:C:T	C	T	0.161373532	0.846519137	3.94E-11
chr1:110131941:G:A	1:110674563:G:A	G	A	0.073735495	0.923172509	0.00030713
chr1:111005720:A:C	1:111548342:A:C	A	C	0.545433623	0.449708401	0.002630442
chr1:112328671:T:A	1:112871293:T:A	T	A	0.149894345	0.852807957	0.019146682
chr1:113229895:G:A	1:113772517:G:A	G	A	0.084672	0.913290009	0.025701842
chr1:113959268:C:T	1:114501890:C:T	C	T	0.057703865	0.944798435	0.000934668
chr1:11707881:T:C	1:11767938:T:C	T	C	0.079486965	0.922321729	0.038462103
chr1:11731833:A:G	1:11791890:A:G	A	G	0.074816044	0.927356733	0.010762587
chr1:117618398:T:G	1:118161020:T:G	T	G	0.183780442	0.821191707	7.47E-05
chr1:118368672:T:G	1:118911295:T:G	T	G	0.216295932	0.780121318	0.007671789
chr1:118464276:T:C	1:119006899:T:C	T	C	0.14456306	0.859026804	0.001633556
chr1:119714953:A:G	1:120257576:A:G	A	G	0.686800427	0.317186062	0.00838495
chr1:12539107:G:T	1:12599133:G:T	G	T	0.06900816	0.928148894	0.000617195
chr1:12611698:T:C	1:12671703:T:C	T	C	0.618090426	0.387330097	0.000633206
chr1:12615695:G:A	1:12675699:G:A	G	A	0.339592639	0.652917829	1.28E-06
chr1:13834756:G:A	1:14161251:G:A	G	A	0.184476176	0.810665744	0.000143703
chr1:14520305:C:A	1:14846801:C:A	C	A	0.419197414	0.577502834	0.039683241
chr1:14766273:C:T	1:15092769:C:T	C	T	0.110456723	0.885759906	0.000250211
chr1:147668399:T:G	1:147140519:T:G	T	G	0.084153233	0.917616076	0.04931095
chr1:148939834:A:C	1:144944655:A:C	A	C	0.135023813	0.871311475	8.84E-09
chr1:15151521:A:G	1:15478017:A:G	A	G	0.941786267	0.060534565	0.002672638
chr1:151760851:T:C	1:151733327:T:C	T	C	0.094203839	0.908973406	0.000781749
chr1:153435096:C:T	1:153407572:C:T	C	T	0.093942215	0.904004788	0.031897225
chr1:153779663:T:C	1:153752139:T:C	T	C	0.463474369	0.540874644	0.007158586
chr1:15432730:C:G	1:15759226:C:G	C	G	0.390369185	0.606339425	0.038059141
chr1:154796698:C:T	1:154769174:C:T	C	T	0.147294809	0.848119062	8.66E-05
chr1:15498700:T:C	1:15825195:T:C	T	C	0.29913999	0.705232157	0.003227637
chr1:156036539:G:T	1:156006330:G:T	G	T	0.099253091	0.908047932	2.13E-14
chr1:156242034:T:C	1:156211825:T:C	T	C	0.209759109	0.792955299	0.040130982
chr1:157283868:A:T	1:157253658:A:T	A	T	0.111820702	0.890397121	0.029396544
chr1:159684505:GT:G	1:159654295:GT:G	GT	G	0.065046604	0.941315333	4.85E-16
chr1:16030027:A:G	1:16356522:A:G	A	G	0.084701169	0.918728364	0.000129351
chr1:160351148:C:T	1:160320938:C:T	C	T	0.052591663	0.94545761	0.008101433
chr1:161972719:T:C	1:161942509:T:C	T	C	0.930514875	0.071216936	0.037977415
chr1:162070515:C:A	1:162040305:C:A	C	A	0.304347599	0.691430634	0.004799631
chr1:163425465:G:T	1:163395255:G:T	G	T	0.062802716	0.939021698	0.019714152
chr1:163716126:G:A	1:163685359:G:A	G	A	0.072821089	0.924622105	0.002856967
chr1:164687667:C:T	1:164656904:C:T	C	T	0.2971934	0.709612105	4.44E-06
chr1:165447693:A:G	1:165416930:A:G	A	G	0.202853506	0.799926748	0.0329669
chr1:165720105:G:A	1:165689342:G:A	G	A	0.244848292	0.758955286	0.00633947
chr1:165871174:C:T	1:165840411:C:T	C	T	0.335678418	0.660887714	0.024977628
chr1:166829292:T:G	1:166798529:T:G	T	G	0.253823462	0.749643007	0.014220194
chr1:168645078:C:T	1:168614316:C:T	C	T	0.058841401	0.943254213	0.005973392
chr1:171210148:C:T	1:171179287:C:T	C	T	0.311849442	0.684687801	0.022137604
chr1:17259639:A:G	1:17586134:A:G	A	G	0.093453496	0.908598646	0.02881922
chr1:17388586:C:T	1:17715081:C:T	C	T	0.309098897	0.68219377	9.43E-09
chr1:175418726:A:G	1:175387862:A:G	A	G	0.195305128	0.814230183	1.29E-13
chr1:17566321:A:C	1:17892816:A:C	A	C	0.929604059	0.073307818	0.000569398
chr1:177212211:C:A	1:177181347:C:A	C	A	0.309250581	0.684718323	6.37E-05
chr1:177999370:T:C	1:177968505:T:C	T	C	0.07685682	0.926821348	2.05E-05
chr1:179998295:T:C	1:179967430:T:C	T	C	0.135950331	0.867496229	0.001944053
chr1:181447202:T:C	1:181416338:T:C	T	C	0.390995638	0.520641036	0
chr1:181477645:C:T	1:181446781:C:T	C	T	0.125001308	0.872578058	0.025228666
chr1:182130012:G:T	1:182099147:G:T	G	T	0.206906077	0.798199136	9.85E-05
chr1:18342391:G:A	1:18668885:G:A	G	A	0.361422908	0.630282799	1.33E-07
chr1:183576926:G:A	1:183546061:G:A	G	A	0.348370731	0.647004939	0.002915961
chr1:18444177:A:G	1:18770671:A:G	A	G	0.350698331	0.644934293	0.005245712
chr1:186870729:G:A	1:186839861:G:A	G	A	0.230786386	0.773496102	0.001722486
chr1:18692857:A:G	1:19019351:A:G	A	G	0.207846009	0.797606169	3.19E-05
chr1:18787807:G:T	1:19114301:G:T	G	T	0.078771421	0.923673842	0.005102803
chr1:18854899:T:C	1:19181393:T:C	T	C	0.312314323	0.691105399	0.023011092
chr1:188654698:A:C	1:188623829:A:C	A	C	0.258986665	0.749208577	8.35E-09
chr1:18914127:G:A	1:19240621:G:A	G	A	0.278250717	0.716903446	0.000974792
chr1:190590374:A:G	1:190559504:A:G	A	G	0.846485703	0.137752379	2.45E-43
chr1:191350313:C:T	1:191319443:C:T	C	T	0.150527136	0.852428576	0.01073629
chr1:197893468:G:T	1:197862598:G:T	G	T	0.415479329	0.578062463	5.66E-05
chr1:200722891:A:T	1:200692019:A:T	A	T	0.590368441	0.405141807	0.004834549
chr1:201800318:A:G	1:201769446:A:G	A	G	0.063896322	0.938537581	0.002080335

chr1:20279827:G:A	1:20606320:G:A	G	A	0.431813902	0.558827697	7.79E-09
chr1:203053994:A:C	1:203023122:A:C	A	C	0.237778661	0.777896937	5.85E-30
chr1:204032055:G:A	1:204001183:G:A	G	A	0.933916373	0.064463591	0.042841783
chr1:204638280:T:C	1:204607408:T:C	T	C	0.355460206	0.65104939	2.96E-05
chr1:204907941:T:C	1:204877069:T:C	T	C	0.462271074	0.55329584	1.94E-21
chr1:204943715:G:A	1:204912843:G:A	G	A	0.256028035	0.738846141	0.000323384
chr1:205646819:C:A	1:205615947:C:A	C	A	0.861349384	0.134086079	3.99E-05
chr1:206666424:C:T	1:206839769:C:T	C	T	0.240368794	0.753648614	2.02E-05
chr1:208112991:T:C	1:208286336:T:C	T	C	0.078967187	0.923186434	0.013823118
chr1:208592127:T:C	1:208765472:T:C	T	C	0.480960326	0.523043679	0.013662423
chr1:208795064:T:G	1:208968409:T:G	T	G	0.160843702	0.845719071	3.65E-08
chr1:209786527:G:A	1:209959872:G:A	G	A	0.807683456	0.189731697	0.042691902
chr1:21577774:A:G	1:21904267:A:G	A	G	0.867787355	0.134648545	0.027753327
chr1:216542172:G:T	1:216715514:G:T	G	T	0.413753209	0.59046772	0.008237596
chr1:217076993:G:A	1:217250335:G:A	G	A	0.286714091	0.708635949	0.001640217
chr1:217370765:T:A	1:217544107:T:A	T	A	0.233197236	0.7702136	0.012819428
chr1:218882658:C:T	1:219056000:C:T	C	T	0.243493179	0.748895156	6.36E-08
chr1:221174029:A:T	1:221347371:A:T	A	T	0.309550462	0.684254822	4.07E-05
chr1:221439292:G:A	1:221612634:G:A	G	A	0.058954295	0.939149878	0.014595838
chr1:22252513:C:T	1:22579006:C:T	C	T	0.216908496	0.779203634	0.00384591
chr1:223317782:C:T	1:223491124:C:T	C	T	0.148427352	0.854192603	0.022927281
chr1:223388460:C:T	1:223561802:C:T	C	T	0.667343139	0.324516388	1.10E-07
chr1:223478441:C:T	1:223651783:C:T	C	T	0.248088249	0.748747612	0.024449091
chr1:223539520:C:A	1:223712863:C:A	C	A	0.093312116	0.912025848	1.49E-08
chr1:224173190:A:G	1:224360892:A:G	A	G	0.478235626	0.52663468	0.002714775
chr1:227410468:G:A	1:227598169:G:A	G	A	0.809149964	0.183060662	7.81E-10
chr1:227480035:T:C	1:227667736:T:C	T	C	0.157520059	0.846637455	0.000405766
chr1:227915727:G:C	1:228103428:G:C	G	C	0.580006569	0.427439044	3.47E-06
chr1:2280410:A:G	1:2211849:A:G	A	G	0.591153544	0.418184876	6.36E-09
chr1:2299360:T:C	1:2230799:T:C	T	C	0.388682561	0.617309686	0.000153843
chr1:230105407:G:C	1:230241154:G:C	G	C	0.46766041	0.522745586	3.60E-09
chr1:230502927:C:A	1:230638673:C:A	C	A	0.059143927	0.942982823	0.005357739
chr1:23278451:T:G	1:23604944:T:G	T	G	0.085671395	0.91653847	0.014463529
chr1:234345809:C:A	1:234481555:C:A	C	A	0.280644216	0.715306177	0.005626014
chr1:23560444:T:G	1:23886935:T:G	T	G	0.559805263	0.443725933	0.028391785
chr1:235698592:C:A	1:235861892:C:A	C	A	0.545590066	0.448459429	0.000244087
chr1:235930787:A:G	1:236094087:A:G	A	G	0.892053895	0.111047193	0.002320805
chr1:240536514:A:G	1:240699814:A:G	A	G	0.237958488	0.758369136	0.008375602
chr1:24093006:A:G	1:24419496:A:G	A	G	0.439690344	0.564781959	0.005496769
chr1:241235966:A:C	1:241399266:A:C	A	C	0.184058514	0.828751704	1.99E-24
chr1:241324341:A:C	1:241487641:A:C	A	C	0.204479348	0.763119351	6.73E-126
chr1:242789190:T:C	1:242952492:T:C	T	C	0.605308031	0.511485956	0
chr1:24465427:A:G	1:24791917:A:G	A	G	0.325284536	0.683066397	4.18E-08
chr1:245190644:T:G	1:245353946:T:G	T	G	0.093682108	0.912284408	2.42E-10
chr1:245977405:A:G	1:246140707:A:G	A	G	0.160286656	0.846479328	1.16E-08
chr1:246659320:T:C	1:246822622:T:C	T	C	0.295195849	0.713729566	1.64E-09
chr1:246675749:T:C	1:246839051:T:C	T	C	0.215666317	0.790655161	2.29E-06
chr1:247348861:C:A	1:247512163:C:A	C	A	0.06892692	0.929057284	0.015510345
chr1:25037850:C:G	1:25364341:C:G	C	G	0.553081883	0.455156575	3.47E-07
chr1:25091519:G:A	1:25418010:G:A	G	A	0.672894459	0.322570516	0.002890196
chr1:31815009:T:C	1:32280610:T:C	T	C	0.663380164	0.342046623	0.000428341
chr1:32321244:T:A	1:32786845:T:A	T	A	0.107384863	0.889303926	0.001088362
chr1:33241091:G:C	1:33706692:G:C	G	C	0.232040539	0.758401249	5.37E-12
chr1:3378408:G:A	1:3294972:G:A	G	A	0.691080937	0.30383872	0.000717582
chr1:34928664:G:A	1:35394265:G:A	G	A	0.054908094	0.942395149	0.000359299
chr1:3521371:T:C	1:3437935:T:C	T	C	0.570997406	0.436811088	1.44E-06
chr1:39480658:A:T	1:39946330:A:T	A	T	0.941937947	0.056487567	0.036788821
chr1:39490244:G:A	1:39955916:G:A	G	A	0.942659735	0.055786403	0.03810408
chr1:40554253:G:T	1:41019925:G:T	G	T	0.119859378	0.886087058	1.20E-08
chr1:44416699:G:A	1:44882371:G:A	G	A	0.067265043	0.934561863	0.023923172
chr1:44501759:T:C	1:44967431:T:C	T	C	0.2659806	0.737318055	0.021138785
chr1:4488232:G:A	1:4548292:G:A	G	A	0.078452397	0.918983732	0.0038316
chr1:45760677:A:G	1:46226349:A:G	A	G	0.285212152	0.724626304	1.75E-11
chr1:45941636:C:T	1:46407308:C:T	C	T	0.287014658	0.708677071	0.003470957
chr1:46490563:G:A	1:46956235:G:A	G	A	0.830111408	0.166891755	0.013713438
chr1:50358609:C:T	1:50824281:C:T	C	T	0.080483518	0.916610582	0.001177938
chr1:5091377:A:C	1:5151437:A:C	A	C	0.102047502	0.902312629	8.76E-06
chr1:52741321:A:T	1:53206993:A:T	A	T	0.500757967	0.495494119	0.021019776
chr1:5289556:G:A	1:5349616:G:A	G	A	0.211357407	0.78545355	0.016862304
chr1:5331212:T:G	1:5391272:T:G	T	G	0.44136755	0.566253677	2.38E-06
chr1:54755238:T:G	1:55220911:T:G	T	G	0.227633857	0.77593626	0.008565185
chr1:57415286:T:C	1:57880958:T:C	T	C	0.096516085	0.907286916	7.28E-05
chr1:57791237:T:G	1:58256909:T:G	T	G	0.800547105	0.202014376	0.049486564

chr1:59763182:G:A	1:60228854:G:A	G	A	0.140050631	0.856907205	0.00744321
chr1:61759364:T:A	1:62225036:T:A	T	A	0.082217198	0.920549307	0.001896547
chr1:64444078:A:T	1:64909761:A:T	A	T	0.117035808	0.887184106	5.15E-05
chr1:66382293:A:G	1:66847976:A:G	A	G	0.314579062	0.693838338	2.54E-08
chr1:6730886:A:G	1:6790946:A:G	A	G	0.6298865	0.374632275	0.004057999
chr1:68262835:C:T	1:68728518:C:T	C	T	0.289005371	0.71968952	3.45E-09
chr1:71496603:T:A	1:71962286:T:A	T	A	0.068991049	0.933745907	0.000862637
chr1:73349602:G:T	1:73815285:G:T	G	T	0.063461195	0.934836057	0.032468853
chr1:74733056:A:C	1:75198740:A:C	A	C	0.688358287	0.308043991	0.016443747
chr1:77237466:C:A	1:77703151:C:A	C	A	0.808933394	0.194220107	0.013617508
chr1:77456929:A:T	1:77922614:A:T	A	T	0.058197682	0.940103259	0.027494365
chr1:78976805:A:T	1:79442490:A:T	A	T	0.082022872	0.916145531	0.04165789
chr1:79021395:T:C	1:79487080:T:C	T	C	0.728063477	0.281671541	2.86E-11
chr1:81618055:T:C	1:82083740:T:C	T	C	0.200631194	0.803514611	0.001396272
chr1:81640357:G:A	1:82106042:G:A	G	A	0.370965717	0.624355286	0.002918528
chr1:82243580:A:T	1:82709264:A:T	A	T	0.540579134	0.453764281	0.000487082
chr1:83237529:A:G	1:83703212:A:G	A	G	0.393880263	0.609813528	0.019758193
chr1:83397713:T:C	1:83863396:T:C	T	C	0.194930591	0.809223567	0.001159863
chr1:83831530:T:C	1:84297213:T:C	T	C	0.132690161	0.872581244	1.51E-06
chr1:86616563:A:T	1:87082246:A:T	A	T	0.422747712	0.58204817	0.002760352
chr1:88178289:G:A	1:88643972:G:A	G	A	0.307290775	0.699456982	6.53E-06
chr1:8957032:C:T	1:9017091:C:T	C	T	0.189645794	0.806928633	0.007422043
chr1:90836250:A:G	1:91301807:A:G	A	G	0.28288751	0.723767983	5.06E-06
chr1:9598649:G:A	1:9658707:G:A	G	A	0.778879649	0.21602686	0.000170079
chr1:97535833:C:A	1:98001389:C:A	C	A	0.265434876	0.730342166	0.003427556
chr1:98157418:C:T	1:98622974:C:T	C	T	0.054339638	0.947784439	0.00362912
chr10:100726389:C:T	10:102486146:C:T	C	T	0.05539049	0.942584877	0.007282232
chr10:100742391:A:G	10:102502148:A:G	A	G	0.792836146	0.21012203	0.025204256
chr10:103455175:T:C	10:105214932:T:C	T	C	0.355928657	0.6480683	0.010341879
chr10:104519244:C:G	10:106279002:C:G	C	G	0.370527236	0.640794828	5.51E-13
chr10:105095699:G:A	10:106855457:G:A	G	A	0.103447731	0.893085051	0.000490489
chr10:107038334:A:G	10:108798092:A:G	A	G	0.113822225	0.888614586	0.01796805
chr10:112449777:C:T	10:114209535:C:T	C	T	0.07292301	0.92984411	0.001026844
chr10:116591437:A:G	10:118350949:A:G	A	G	0.055081333	0.947433483	0.000587248
chr10:118818770:G:A	10:120578282:G:A	G	A	0.066121625	0.930882369	0.000268495
chr10:118994421:C:A	10:120753933:C:A	C	A	0.315645497	0.67853307	0.000124748
chr10:119964971:A:C	10:121724483:A:C	A	C	0.870969935	0.131737339	0.013808205
chr10:120591380:C:T	10:122350892:C:T	C	T	0.102731486	0.894655654	0.008838603
chr10:122184974:T:G	10:123944489:T:G	T	G	0.908345799	0.093767772	0.025507344
chr10:122354916:G:A	10:124114432:G:A	G	A	0.605862477	0.381549601	3.11E-15
chr10:122459759:C:G	10:124219275:C:G	C	G	0.234760913	0.762413195	0.040805616
chr10:123648711:T:C	10:125408227:T:C	T	C	0.077078386	0.925046366	0.013722014
chr10:123886265:A:C	10:125645781:A:C	A	C	0.149166821	0.856639992	4.90E-07
chr10:124434945:T:C	10:126123514:T:C	T	C	0.060288124	0.941506335	0.020134977
chr10:124606098:G:A	10:126294667:G:A	G	A	0.729075788	0.265342229	0.000105886
chr10:124609616:T:G	10:126298185:T:G	T	G	0.242514751	0.765009771	6.30E-08
chr10:125565861:A:G	10:127254430:A:G	A	G	0.188303181	0.819572618	5.34E-10
chr10:127394384:T:C	10:129192648:T:C	T	C	0.077661945	0.92414208	0.037699118
chr10:127429854:A:G	10:129228118:A:G	A	G	0.893491992	0.098268738	4.46E-17
chr10:127484108:C:A	10:129282372:C:A	C	A	0.082231387	0.920108593	0.008626512
chr10:12828335:C:T	10:12870334:C:T	C	T	0.523900109	0.481437119	0.000986944
chr10:129780525:A:C	10:131578789:A:C	A	C	0.733583706	0.269392854	0.038917224
chr10:129921215:T:G	10:131719479:T:G	T	G	0.10995512	0.888048538	0.049786652
chr10:130017691:A:T	10:131815955:A:T	A	T	0.709467022	0.29951496	1.71E-09
chr10:130395494:A:C	10:132193758:A:C	A	C	0.063275512	0.94256574	4.11E-14
chr10:130636717:T:C	10:132434981:T:C	T	C	0.482189932	0.522675917	0.002688674
chr10:131546489:A:G	10:133344752:A:G	A	G	0.841912842	0.161754044	0.002168146
chr10:131734760:T:C	10:133567096:T:C	T	C	0.261897096	0.745401958	3.33E-07
chr10:13219415:A:T	10:13261415:A:T	A	T	0.081337811	0.922978691	1.04E-06
chr10:13280645:C:A	10:13322645:C:A	C	A	0.196902493	0.799683332	0.008507449
chr10:132806892:G:A	10:134620396:G:A	G	A	0.13214465	0.864948586	0.008675885
chr10:133014427:G:A	10:134827931:G:A	G	A	0.39686807	0.597563988	0.000483504
chr10:133016173:G:A	10:134829677:G:A	G	A	0.075083164	0.926898372	0.019775865
chr10:133226779:A:G	10:135040283:A:G	A	G	0.479376105	0.524600964	0.014443566
chr10:133552130:C:A	10:135365634:C:A	C	A	0.131130477	0.865189055	0.000882796
chr10:1463744:G:A	10:1505939:G:A	G	A	0.234164696	0.746887815	2.19E-42
chr10:15111520:A:G	10:15153519:A:G	A	G	0.078764758	0.924623852	0.000101735
chr10:1606373:C:G	10:1648568:C:G	C	G	0.133992364	0.868198186	0.046986305
chr10:17552053:G:A	10:17594052:G:A	G	A	0.056778473	0.941338363	0.013754386
chr10:17731390:T:C	10:17773389:T:C	T	C	0.147671843	0.855148013	0.014075834
chr10:17936017:T:G	10:18224946:T:G	T	G	0.348020715	0.662041871	8.09E-11
chr10:18525048:A:C	10:18813977:A:C	A	C	0.366549403	0.628568552	0.001844429
chr10:18820748:A:T	10:19109677:A:T	A	T	0.299913327	0.703889837	0.010562058

chr10:20140443:G:A	10:20429372:G:A	G	A	0.941029561	0.056655204	0.002226424
chr10:2250490:C:T	10:2292684:C:T	C	T	0.323989549	0.679615662	0.017448329
chr10:2493467:C:A	10:2535659:C:A	C	A	0.077394197	0.926517974	6.32E-06
chr10:25366848:A:G	10:25655777:A:G	A	G	0.083953417	0.920195235	3.95E-06
chr10:2595149:G:A	10:2637341:G:A	G	A	0.05177572	0.946731287	0.040400062
chr10:26304795:G:A	10:26593724:G:A	G	A	0.208991609	0.787551934	0.009175756
chr10:26527612:T:C	10:26816541:T:C	T	C	0.238744434	0.772837595	6.13E-17
chr10:26866714:T:C	10:27155643:T:C	T	C	0.256469501	0.753173492	1.29E-11
chr10:29145074:G:A	10:29434003:G:A	G	A	0.106163631	0.896009972	0.028792964
chr10:29180500:C:T	10:29469429:C:T	C	T	0.176615714	0.831303776	1.61E-10
chr10:29470296:A:G	10:29759225:A:G	A	G	0.232945927	0.769834084	0.042228039
chr10:30611750:A:G	10:30900679:A:G	A	G	0.150075984	0.855052104	9.33E-06
chr10:3090753:C:T	10:3132945:C:T	C	T	0.31281319	0.683185765	0.008210755
chr10:32975252:A:G	10:33264180:A:G	A	G	0.191761239	0.817564528	2.86E-13
chr10:33064915:C:A	10:33353843:C:A	C	A	0.311952758	0.679520631	1.86E-08
chr10:33662802:A:C	10:33951730:A:C	A	C	0.157148836	0.838242358	0.000118267
chr10:36660204:G:A	10:36949132:G:A	G	A	0.676934585	0.319190896	0.01096284
chr10:37513604:G:A	10:37802532:G:A	G	A	0.557698343	0.438132238	0.009701327
chr10:37548585:G:A	10:37837513:G:A	G	A	0.09527695	0.907851113	0.000945088
chr10:38094829:T:C	10:38383757:T:C	T	C	0.49915217	0.504903361	0.012494507
chr10:38214731:A:T	10:38503659:A:T	A	T	0.122924752	0.879900195	0.007780019
chr10:38253093:A:G	10:38542021:A:G	A	G	0.193499116	0.80983085	0.00919716
chr10:38293210:A:T	10:38582138:A:T	A	T	0.510976759	0.476439505	1.37E-14
chr10:38329825:A:G	10:38618753:A:G	A	G	0.127967192	0.874664265	0.014675547
chr10:38521950:G:T	10:38810878:G:T	G	T	0.476400171	0.53045878	2.69E-05
chr10:38812009:A:C	10:39105140:A:C	A	C	0.525976954	0.478393038	0.007011268
chr10:38812879:C:T	10:39106010:C:T	C	T	0.224197486	0.784939229	1.73E-11
chr10:38832067:T:C	10:39125198:T:C	T	C	0.515251864	0.493767551	3.16E-08
chr10:41730415:G:A	10:42509794:G:A	G	A	0.570333176	0.425264543	0.006234972
chr10:42397905:T:C	10:42893353:T:C	T	C	0.342567214	0.654356132	0.046687161
chr10:42890633:A:G	10:43386081:A:G	A	G	0.209493671	0.795972286	3.24E-05
chr10:42988523:T:C	10:43483971:T:C	T	C	0.140063818	0.862487878	0.023025759
chr10:45518099:G:A	10:46013547:G:A	G	A	0.059804383	0.937389952	0.000337143
chr10:45526790:T:C	10:46022238:T:C	T	C	0.060260501	0.941689001	0.010972132
chr10:45557613:G:A	10:46053061:G:A	G	A	0.059825305	0.942269894	0.006022317
chr10:48689174:C:A	10:49897219:C:A	C	A	0.273128145	0.732225784	0.000204837
chr10:49615784:G:A	10:50823830:G:A	G	A	0.100235368	0.895947331	0.000116516
chr10:49886614:C:T	10:51094660:C:T	C	T	0.285499801	0.710428891	0.00569236
chr10:5003508:A:G	10:5045700:A:G	A	G	0.086455543	0.922340925	6.51E-23
chr10:50449629:T:G	10:52209389:T:G	T	G	0.363126287	0.643814827	8.71E-06
chr10:5079553:C:A	10:5121745:C:A	C	A	0.325540641	0.680304631	0.000119497
chr10:53920600:G:A	10:55680360:G:A	G	A	0.088292219	0.913692636	0.030115112
chr10:5454734:A:C	10:5496697:A:C	A	C	0.665667629	0.346507343	4.22E-15
chr10:56999961:G:A	10:58759721:G:A	G	A	0.124149945	0.881379779	1.65E-07
chr10:57243325:A:G	10:59003085:A:G	A	G	0.141638582	0.853555114	2.88E-05
chr10:59393888:T:G	10:61153646:T:G	T	G	0.891036594	0.092265205	5.13E-66
chr10:63976980:C:T	10:65736740:C:T	C	T	0.091609482	0.90647026	0.041990761
chr10:64683183:T:A	10:66442940:T:A	T	A	0.087634971	0.903743624	4.46E-20
chr10:64735832:C:G	10:66495589:C:G	C	G	0.150315926	0.846817196	0.014039776
chr10:68984923:A:G	10:70744679:A:G	A	G	0.056857062	0.945801896	0.0003453
chr10:69333636:C:T	10:71093392:C:T	C	T	0.126607578	0.871041543	0.031724973
chr10:69460012:T:C	10:71219768:T:C	T	C	0.41890815	0.601024805	4.14E-35
chr10:70619654:T:A	10:72379410:T:A	T	A	0.335158992	0.670387404	0.000293523
chr10:75058319:C:T	10:76818077:C:T	C	T	0.068910508	0.933298275	0.006695791
chr10:78282055:A:G	10:80041812:A:G	A	G	0.150952476	0.853187573	0.000336849
chr10:78816239:T:C	10:80575996:T:C	T	C	0.376502526	0.628502678	0.001468219
chr10:78981237:G:C	10:80740994:G:C	G	C	0.172934691	0.830113949	0.012696979
chr10:79215686:G:A	10:80975443:G:A	G	A	0.669309872	0.320641055	4.98E-11
chr10:79263945:C:G	10:81023702:C:G	C	G	0.054376366	0.9486887	2.34E-05
chr10:79412209:A:C	10:81171965:A:C	A	C	0.063999833	0.938988831	0.000140558
chr10:83218580:C:T	10:84978336:C:T	C	T	0.101454203	0.901412018	0.003239286
chr10:8423181:G:A	10:8465144:G:A	G	A	0.077335119	0.920128647	0.003932126
chr10:86467677:T:A	10:88227434:T:A	T	A	0.354124211	0.629292459	4.41E-25
chr10:86573217:C:T	10:88332974:C:T	C	T	0.165489753	0.830661139	0.001558411
chr10:87740165:T:C	10:89499922:T:C	T	C	0.077399116	0.924384605	0.039165571
chr10:90543296:T:A	10:92303053:T:A	T	A	0.804670991	0.199984891	0.000336245
chr10:95292537:T:C	10:97052294:T:C	T	C	0.811194334	0.191970088	0.013187461
chr10:95713053:T:A	10:97472810:T:A	T	A	0.098173838	0.905146074	0.000582231
chr10:97060557:G:A	10:98820314:G:A	G	A	0.069580727	0.932211678	0.029574842
chr10:99506760:C:T	10:101266517:C:T	C	T	0.782344596	0.221277598	0.006948672
chr11:102718114:A:C	11:102588845:A:C	A	C	0.051903873	0.908572561	0
chr11:103652614:T:C	11:103523342:T:C	T	C	0.825564366	0.182545474	9.04E-11
chr11:10497068:G:A	11:10518615:G:A	G	A	0.081530495	0.915277899	0.000411583

chr11:105864367:C:T	11:105735093:C:T	C	T	0.263756957	0.731191206	0.00044544
chr11:107551714:T:A	11:107422440:T:A	T	A	0.19539319	0.800705293	0.002896671
chr11:110320377:G:A	11:110191102:G:A	G	A	0.734280634	0.260944839	0.000819478
chr11:110773297:T:G	11:110644020:T:G	T	G	0.239154719	0.7702527	1.07E-11
chr11:11179987:A:C	11:11201534:A:C	A	C	0.593383769	0.410589755	0.01319078
chr11:11239924:T:A	11:11261471:T:A	T	A	0.389686042	0.614556498	0.007278331
chr11:11294625:A:C	11:11316172:A:C	A	C	0.30360716	0.706299781	3.29E-11
chr11:113045845:T:G	11:112916567:T:G	T	G	0.453504086	0.539131437	5.18E-06
chr11:113435709:C:T	11:113306431:C:T	C	T	0.142172368	0.861616982	0.000844886
chr11:115557176:C:A	11:115427894:C:A	C	A	0.819582614	0.183072167	0.034413666
chr11:116567025:G:A	11:116437742:G:A	G	A	0.052140129	0.949884925	0.004935669
chr11:116642471:T:C	11:116513188:T:C	T	C	0.067274496	0.936782282	4.40E-07
chr11:117596400:A:G	11:117467115:A:G	A	G	0.243220906	0.753445734	0.017378171
chr11:117874288:G:A	11:117745003:G:A	G	A	0.314622257	0.680319505	0.000819944
chr11:117986623:G:C	11:117857338:G:C	G	C	0.127173254	0.875689615	0.007811098
chr11:118741072:G:A	11:118611781:G:A	G	A	0.237552938	0.768809892	4.04E-06
chr11:119078621:C:T	11:118949331:C:T	C	T	0.377395498	0.614837616	9.02E-07
chr11:119347832:T:C	11:119218542:T:C	T	C	0.586652022	0.421898912	9.84E-08
chr11:12180343:G:A	11:12201890:G:A	G	A	0.677607459	0.316573381	0.00011904
chr11:124408336:T:C	11:124278232:T:C	T	C	0.113893858	0.889525998	0.000831191
chr11:12527517:C:T	11:12549064:C:T	C	T	0.304070741	0.692237036	0.013920427
chr11:125947716:T:C	11:125817611:T:C	T	C	0.285322089	0.720092065	0.000216328
chr11:126116382:G:T	11:125986277:G:T	G	T	0.58475516	0.409495027	0.000329105
chr11:126654356:T:C	11:126524251:T:C	T	C	0.300339269	0.708958815	4.22E-10
chr11:127553402:T:A	11:127423297:T:A	T	A	0.485251783	0.528349415	8.84E-17
chr11:127843720:G:A	11:127713615:G:A	G	A	0.362166302	0.641101021	0.036564211
chr11:128920872:A:G	11:128790767:A:G	A	G	0.83247207	0.173077131	6.10E-06
chr11:129923410:A:G	11:129793305:A:G	A	G	0.296147127	0.720387374	5.99E-29
chr11:130140904:T:C	11:130010799:T:C	T	C	0.07970863	0.924193751	8.64E-06
chr11:131788915:T:G	11:131658809:T:G	T	G	0.114001778	0.898533826	2.59E-35
chr11:132278710:C:T	11:132148604:C:T	C	T	0.34149697	0.666403224	2.85E-07
chr11:132692230:A:C	11:132562125:A:C	A	C	0.489907885	0.519870702	1.78E-09
chr11:134395227:C:T	11:134265121:C:T	C	T	0.134220218	0.86235952	0.002273212
chr11:1523692:G:T	11:1544922:G:T	G	T	0.066849731	0.93079139	0.004145259
chr11:1638580:G:A	11:1659810:G:A	G	A	0.448686564	0.544870003	7.12E-05
chr11:17431896:C:T	11:17453443:C:T	C	T	0.15926542	0.838192513	0.033267086
chr11:17647195:G:A	11:17668742:G:A	G	A	0.171459889	0.834867284	2.26E-07
chr11:18409718:C:T	11:18431265:C:T	C	T	0.126491198	0.861594013	3.91E-27
chr11:18425556:T:G	11:18447103:T:G	T	G	0.1565681	0.846682506	0.006038888
chr11:23139790:A:T	11:23161336:A:T	A	T	0.079531185	0.918657934	0.041477711
chr11:23508347:A:T	11:23529893:A:T	A	T	0.304361931	0.687968162	3.23E-07
chr11:2472787:T:C	11:2494017:T:C	T	C	0.773187087	0.230468002	0.007444159
chr11:2487043:A:G	11:2508273:A:G	A	G	0.17302019	0.842591071	9.33E-38
chr11:25743637:A:G	11:25765184:A:G	A	G	0.764263447	0.242969444	2.24E-07
chr11:25867953:G:A	11:25889500:G:A	G	A	0.326517283	0.67834235	0.001400293
chr11:26006122:C:T	11:26027669:C:T	C	T	0.069131345	0.928492378	0.004491729
chr11:26552746:A:C	11:26574293:A:C	A	C	0.663877523	0.339723132	0.018835992
chr11:27226921:T:C	11:27248468:T:C	T	C	0.054764299	0.947011069	0.016143007
chr11:297603:A:T	11:297603:A:T	A	T	0.252020245	0.7525503	0.001158576
chr11:30584312:C:G	11:30605859:C:G	C	G	0.195870345	0.808096344	0.002042541
chr11:3146288:A:G	11:3167518:A:G	A	G	0.134108819	0.871307228	8.31E-07
chr11:32580432:T:C	11:32601978:T:C	T	C	0.081675864	0.922064671	2.54E-05
chr11:33658703:G:A	11:33680249:G:A	G	A	0.271884219	0.725185454	0.043261682
chr11:34194791:T:C	11:34216338:T:C	T	C	0.174013623	0.830041531	0.000959004
chr11:34223626:T:C	11:34245173:T:C	T	C	0.845139964	0.149640077	7.19E-06
chr11:45676109:C:A	11:45697659:C:A	C	A	0.592439398	0.403709032	0.0157043
chr11:45839164:A:T	11:45860715:A:T	A	T	0.055904043	0.928990105	4.71E-80
chr11:4600093:T:G	11:4621323:T:G	T	G	0.316064511	0.673613291	1.12E-11
chr11:46301658:G:A	11:46323209:G:A	G	A	0.320207771	0.689791121	6.26E-11
chr11:47185811:G:A	11:47207362:G:A	G	A	0.088283906	0.908346586	0.00032711
chr11:4745247:C:T	11:4766477:C:T	C	T	0.109395433	0.897202666	3.54E-11
chr11:48353683:G:A	11:48375235:G:A	G	A	0.063675544	0.938443414	0.007319073
chr11:538940:G:A	11:538940:G:A	G	A	0.353243642	0.642322828	0.00456064
chr11:5555190:G:C	11:5576420:G:C	G	C	0.058163671	0.943479944	0.030403368
chr11:56139360:A:T	11:55906836:A:T	A	T	0.074691444	0.92851967	0.000152717
chr11:566936:C:A	11:566936:C:A	C	A	0.212537139	0.783145935	0.00124603
chr11:5760899:C:A	11:5782129:C:A	C	A	0.176453588	0.829660118	7.10E-07
chr11:5816805:T:C	11:5838035:T:C	T	C	0.062025316	0.940131202	0.005523436
chr11:5869589:T:G	11:5890819:T:G	T	G	0.388178545	0.616046148	0.007518445
chr11:60798448:C:T	11:60565921:C:T	C	T	0.074554108	0.923752216	0.049164325
chr11:60992375:G:A	11:60759847:G:A	G	A	0.070543868	0.927401038	0.014594158
chr11:61697053:C:T	11:61464525:C:T	C	T	0.386448515	0.609320345	0.007516644
chr11:61930186:A:G	11:61697658:A:G	A	G	0.381014434	0.624839063	0.000210725

chr11:65691933:T:C	11:65459404:T:C	T	C	0.521031875	0.482815388	0.017857098
chr11:66738231:C:A	11:66505702:C:A	C	A	0.243266308	0.772347326	3.64E-29
chr11:6701463:A:T	11:6722694:A:T	A	T	0.117295058	0.884771365	0.047010662
chr11:68398181:T:G	11:68165649:T:G	T	G	0.066037538	0.93584531	0.018476405
chr11:6897410:T:C	11:6918641:T:C	T	C	0.396471509	0.60775605	0.007711381
chr11:69296261:G:C	11:69063728:G:C	G	C	0.12678097	0.875735818	0.020543333
chr11:69435230:C:T	11:69249998:C:T	C	T	0.062623568	0.939364769	0.011747614
chr11:69631563:G:A	11:69446331:G:A	G	A	0.054902722	0.94678592	0.022308388
chr11:70087979:G:A	11:69934085:G:A	G	A	0.257364941	0.739746177	0.042241385
chr11:70128374:A:G	11:69974480:A:G	A	G	0.802510592	0.201151767	0.004879475
chr11:70658356:G:A	11:70504461:G:A	G	A	0.057664139	0.94398707	0.028639982
chr11:71327082:C:T	11:71038128:C:T	C	T	0.202336991	0.794061572	0.006212478
chr11:71376288:C:A	11:71087334:C:A	C	A	0.290304867	0.723460239	1.08E-20
chr11:75613554:G:A	11:75324599:G:A	G	A	0.085733265	0.91232303	0.035130382
chr11:7594960:C:T	11:7616191:C:T	C	T	0.235579881	0.771680231	1.32E-07
chr11:76557321:T:A	11:76268365:T:A	T	A	0.137087575	0.866783459	0.000518762
chr11:79391956:C:T	11:79103000:C:T	C	T	0.42713531	0.56936521	0.029737764
chr11:80613909:T:C	11:80324953:T:C	T	C	0.062466653	0.939411759	0.015881726
chr11:80674412:A:G	11:80385456:A:G	A	G	0.944961086	0.057065188	0.007061215
chr11:81268610:A:G	11:80979653:A:G	A	G	0.069248788	0.933141334	0.003665785
chr11:87501075:T:A	11:87212117:T:A	T	A	0.139902807	0.863525542	0.002310803
chr11:8880277:G:A	11:8901824:G:A	G	A	0.165334098	0.837111623	0.041991494
chr11:90184739:T:C	11:89917907:T:C	T	C	0.05544164	0.946269197	0.020516466
chr11:92020610:T:C	11:91753776:T:C	T	C	0.251907997	0.751809508	0.008179881
chr11:92285279:A:G	11:92018445:A:G	A	G	0.659888101	0.34488404	0.001913786
chr11:98212093:T:A	11:98082821:T:A	T	A	0.399757413	0.605891745	0.000386991
chr11:99851118:C:A	11:99721850:C:A	C	A	0.182749211	0.8247134	2.87E-09
chr12:100716907:T:C	12:101110685:T:C	T	C	0.155803053	0.847755055	0.002391287
chr12:102575037:T:A	12:102968815:T:A	T	A	0.227196644	0.775818507	0.026144621
chr12:103657248:G:A	12:104051026:G:A	G	A	0.188151906	0.819199021	6.61E-09
chr12:103776696:C:T	12:104170474:C:T	C	T	0.297110573	0.711192242	2.17E-08
chr12:106587085:A:G	12:106980863:A:G	A	G	0.062538586	0.939411456	0.012446954
chr12:106900740:G:A	12:107294518:G:A	G	A	0.066295568	0.937109608	2.23E-05
chr12:107873874:T:C	12:108267651:T:C	T	C	0.672578265	0.332508605	0.000851004
chr12:109536346:C:T	12:109974151:C:T	C	T	0.174664198	0.822194631	0.011356114
chr12:109670452:T:C	12:110108257:T:C	T	C	0.199688249	0.802922791	0.043785484
chr12:113664887:T:C	12:114102692:T:C	T	C	0.477257276	0.529971227	8.28E-06
chr12:113792992:T:C	12:114230797:T:C	T	C	0.092813056	0.912384395	2.79E-08
chr12:114227875:G:A	12:114665680:G:A	G	A	0.097097383	0.905841914	0.002173934
chr12:114604663:C:T	12:115042468:C:T	C	T	0.204907571	0.792217928	0.028804225
chr12:114904087:C:T	12:115341892:C:T	C	T	0.283666956	0.719668212	0.02247713
chr12:115324867:C:A	12:115762672:C:A	C	A	0.061015987	0.937425425	0.045787024
chr12:116368657:C:T	12:116806462:C:T	C	T	0.081979475	0.920329641	0.009160957
chr12:11878849:G:A	12:12031783:G:A	G	A	0.070367345	0.93381528	4.64E-07
chr12:118878044:C:T	12:119315849:C:T	C	T	0.089591506	0.908232317	0.020346692
chr12:119377324:G:T	12:119815129:G:T	G	T	0.082447986	0.915518661	0.024723386
chr12:121252752:T:C	12:121690555:T:C	T	C	0.754040483	0.254594447	1.07E-09
chr12:122973072:C:T	12:123457619:C:T	C	T	0.685803354	0.311117301	0.041453679
chr12:123034319:T:C	12:123518866:T:C	T	C	0.774195573	0.229643786	0.00491977
chr12:123962850:G:T	12:124447397:G:T	G	T	0.302520918	0.688223787	7.28E-10
chr12:125208935:G:A	12:125693481:G:A	G	A	0.671926815	0.32067272	1.23E-06
chr12:126715987:A:G	12:127200533:A:G	A	G	0.155927301	0.846632634	0.029384467
chr12:128265434:A:T	12:128749979:A:T	A	T	0.309402618	0.698650361	8.01E-08
chr12:129166351:G:T	12:129650896:G:T	G	T	0.633782627	0.36161658	0.003621865
chr12:129819768:T:C	12:130304313:T:C	T	C	0.071535428	0.931727373	7.94E-05
chr12:12993534:G:A	12:13146468:G:A	G	A	0.070794372	0.930937088	0.037497836
chr12:130009774:A:G	12:130494319:A:G	A	G	0.168923019	0.834590523	0.003742601
chr12:130150318:C:T	12:130634863:C:T	C	T	0.218235454	0.778952221	0.036885483
chr12:130753191:A:G	12:131237736:A:G	A	G	0.781008725	0.222098276	0.022200368
chr12:130764008:G:C	12:131248553:G:C	G	C	0.087619645	0.916808869	9.77E-07
chr12:130933691:A:G	12:131418236:A:G	A	G	0.09356823	0.921453061	1.97E-60
chr12:131571765:T:G	12:132056310:T:G	T	G	0.341732641	0.669034418	2.79E-12
chr12:131668187:C:G	12:132152732:C:G	C	G	0.079301399	0.939395923	1.55E-111
chr12:131840694:G:A	12:132325239:G:A	G	A	0.468115821	0.522083973	2.04E-09
chr12:132445048:G:A	12:133021634:G:A	G	A	0.316887043	0.676950755	5.00E-05
chr12:132821865:A:C	12:133398451:A:C	A	C	0.294300187	0.716082694	2.76E-12
chr12:14770588:T:C	12:14923522:T:C	T	C	0.592197209	0.411348873	0.026330486
chr12:1527320:A:G	12:1636486:A:G	A	G	0.113563365	0.888872507	0.017304097
chr12:16169973:G:A	12:16322907:G:A	G	A	0.158043392	0.839558502	0.043972919
chr12:1796671:C:T	12:1905837:C:T	C	T	0.063015189	0.935366554	0.043084501
chr12:1912534:T:A	12:2021700:T:A	T	A	0.124675678	0.873041559	0.034464366
chr12:22264141:C:T	12:22417075:C:T	C	T	0.262262927	0.732365417	0.000197727
chr12:2352057:G:A	12:2461223:G:A	G	A	0.243255259	0.750341293	5.34E-06

chr12:23581895:T:A	12:23734829:T:A	T	A	0.116699283	0.806288755	0
chr12:24928661:C:T	12:25081595:C:T	C	T	0.174955877	0.833038675	8.76E-11
chr12:25513983:A:G	12:25666917:A:G	A	G	0.17778452	0.826002022	0.002157217
chr12:26446832:C:A	12:26599765:C:A	C	A	0.080277103	0.922894239	0.000319446
chr12:26865006:C:A	12:27017939:C:A	C	A	0.114751717	0.888386739	0.002376072
chr12:27811948:G:A	12:27964881:G:A	G	A	0.1913871	0.812521575	0.002169808
chr12:28361564:G:T	12:28514497:G:T	G	T	0.069095774	0.932721984	0.027149477
chr12:2936781:A:C	12:3045947:A:C	A	C	0.167622469	0.836024931	0.002630376
chr12:29670954:G:C	12:29823887:G:C	G	C	0.549608877	0.445271417	0.001488253
chr12:30659894:A:C	12:30812828:A:C	A	C	0.225003668	0.771427504	0.008860579
chr12:30848920:G:A	12:31001854:G:A	G	A	0.153238968	0.844112109	0.024553907
chr12:30976053:G:A	12:31128988:G:A	G	A	0.261161555	0.732414582	7.87E-06
chr12:31875277:A:G	12:32028211:A:G	A	G	0.332983916	0.680958458	9.30E-20
chr12:34007252:T:G	12:34160187:T:G	T	G	0.171811744	0.832077758	0.00141026
chr12:39105039:C:T	12:39498841:C:T	C	T	0.072426851	0.930681793	0.000218183
chr12:44420470:G:A	12:44814253:G:A	G	A	0.069072165	0.934116515	0.00010313
chr12:46843681:C:A	12:47237464:C:A	C	A	0.624704479	0.372038913	0.037906667
chr12:47858881:G:A	12:48252664:G:A	G	A	0.488911438	0.506866463	0.009215254
chr12:51394035:C:T	12:51787819:C:T	C	T	0.607059168	0.386789152	0.000101985
chr12:51614768:T:G	12:52008552:T:G	T	G	0.094412634	0.908796543	0.000698163
chr12:52818740:G:A	12:53212524:G:A	G	A	0.055169665	0.947127063	0.001909773
chr12:52882649:G:T	12:53276433:G:T	G	T	0.129148122	0.877312944	3.71E-09
chr12:53486869:C:T	12:53880653:C:T	C	T	0.082965458	0.913891309	0.000552874
chr12:53679285:G:T	12:54073069:G:T	G	T	0.317362353	0.68988236	1.62E-06
chr12:54573955:G:A	12:54967739:G:A	G	A	0.325503675	0.678011402	0.020608673
chr12:55275204:T:G	12:55668988:T:G	T	G	0.054931199	0.943112994	0.009138149
chr12:5625153:A:G	12:5734319:A:G	A	G	0.652268971	0.344109924	0.01864001
chr12:5930157:C:T	12:6039323:C:T	C	T	0.089551927	0.917001711	7.21E-13
chr12:62609625:C:A	12:63003405:C:A	C	A	0.10344582	0.901238571	2.09E-06
chr12:63684020:A:G	12:64077800:A:G	A	G	0.301032902	0.702792603	0.01006715
chr12:63745000:C:G	12:64138780:C:G	C	G	0.456464492	0.55095193	4.61E-06
chr12:66262787:A:G	12:66656567:A:G	A	G	0.086948549	0.916375755	0.000244208
chr12:6721719:G:A	12:6830885:G:A	G	A	0.239983868	0.771913888	1.11E-17
chr12:68946589:G:A	12:69340369:G:A	G	A	0.160443975	0.834584607	4.01E-05
chr12:68960853:C:T	12:69354633:C:T	C	T	0.36915223	0.622828959	3.78E-07
chr12:70689003:A:G	12:71082783:A:G	A	G	0.071456012	0.938200248	7.90E-32
chr12:71126157:A:G	12:71519937:A:G	A	G	0.831926312	0.170894205	0.020846092
chr12:7230985:C:T	12:7383581:C:T	C	T	0.250903746	0.758933615	2.79E-12
chr12:74874102:G:T	12:75267882:G:T	G	T	0.084312675	0.917582187	0.034793422
chr12:75818136:C:T	12:76211916:C:T	C	T	0.182027409	0.812292629	7.40E-06
chr12:76719504:C:T	12:77113284:C:T	C	T	0.2521186	0.744092391	0.007448926
chr12:77197569:G:T	12:77591349:G:T	G	T	0.121502033	0.883168327	1.03E-05
chr12:7729399:A:C	12:7881995:A:C	A	C	0.151788578	0.851478157	0.004974773
chr12:80768922:A:C	12:81162701:A:C	A	C	0.882917848	0.112468559	8.17E-06
chr12:82662255:C:A	12:83056034:C:A	C	A	0.24090257	0.741146809	8.89E-37
chr12:82712498:T:C	12:83106277:T:C	T	C	0.110792275	0.894361335	4.08E-07
chr12:84698547:T:G	12:85092326:T:G	T	G	0.06133936	0.942970064	1.81E-08
chr12:9338335:T:A	12:9490931:T:A	T	A	0.093832284	0.89294072	5.77E-42
chr12:93747996:T:A	12:94141772:T:A	T	A	0.49692298	0.498682622	0.006769926
chr12:94443155:T:C	12:94836931:T:C	T	C	0.082072973	0.921543499	4.81E-05
chr12:94443281:T:G	12:94837057:T:G	T	G	0.07075604	0.931388755	0.009885891
chr12:94486741:A:T	12:94880517:A:T	A	T	0.067294012	0.928637503	9.00E-07
chr12:95004664:G:A	12:95398440:G:A	G	A	0.187205413	0.819677798	5.32E-08
chr12:96978082:T:A	12:97371860:T:A	T	A	0.350412756	0.662991838	5.65E-18
chr12:9700065:A:C	12:9852661:A:C	A	C	0.059544109	0.943768278	1.21E-05
chr12:97194239:C:T	12:97588017:C:T	C	T	0.131050644	0.871457393	0.021779183
chr12:99798737:T:C	12:100192515:T:C	T	C	0.489810543	0.52433317	4.81E-18
chr13:100872137:G:A	13:101524391:G:A	G	A	0.408067621	0.587180915	0.00301439
chr13:100984370:A:T	13:101636722:A:T	A	T	0.105112046	0.899941355	3.67E-07
chr13:103621666:G:A	13:104274016:G:A	G	A	0.104532274	0.898172365	0.006341832
chr13:103855459:T:C	13:104507809:T:C	T	C	0.053733014	0.948503076	0.001994996
chr13:104265282:G:A	13:104917632:G:A	G	A	0.629481087	0.366661087	0.013627529
chr13:104591572:T:C	13:105243923:T:C	T	C	0.853323919	0.140721132	1.55E-07
chr13:106395768:A:C	13:107048116:A:C	A	C	0.852822897	0.142571179	5.69E-05
chr13:108358525:T:C	13:109010873:T:C	T	C	0.097226726	0.904854532	0.029648435
chr13:108506532:T:A	13:109158880:T:A	T	A	0.135305196	0.869944194	2.19E-06
chr13:109226751:A:G	13:109879099:A:G	A	G	0.236998483	0.768502957	7.16E-05
chr13:110485559:G:A	13:111137906:G:A	G	A	0.415744313	0.587431351	0.046946555
chr13:110503364:C:T	13:111155711:C:T	C	T	0.363394809	0.633282587	0.033825407
chr13:112911129:G:A	13:113565443:G:A	G	A	0.089943824	0.907566208	0.008312843
chr13:113003553:T:C	13:113657867:T:C	T	C	0.553571429	0.449768275	0.038563661
chr13:114080168:A:G	13:114845643:A:G	A	G	0.079827186	0.92227083	0.016202665
chr13:114110954:C:T	13:114876429:C:T	C	T	0.160809934	0.836463965	0.022983773

chr13:19148352:G:C	13:19722492:G:C	G	C	0.086857824	0.915334925	0.015627603
chr13:20235982:C:A	13:20810121:C:A	C	A	0.125071331	0.853289997	7.14E-83
chr13:22201823:T:A	13:22775962:T:A	T	A	0.070720954	0.931392877	0.011023141
chr13:22981550:C:T	13:23555689:C:T	C	T	0.065223908	0.937675879	0.000274218
chr13:23559694:A:G	13:24133833:A:G	A	G	0.081380394	0.922543316	9.48E-06
chr13:23989756:T:C	13:24563895:T:C	T	C	0.908944935	0.092990694	0.039702873
chr13:24380338:T:C	13:24954476:T:C	T	C	0.056863237	0.947582732	1.67E-09
chr13:24498739:T:C	13:25072877:T:C	T	C	0.100311641	0.903450515	0.000110934
chr13:24500352:C:T	13:25074490:C:T	C	T	0.096661994	0.900687502	0.006427571
chr13:26780458:T:G	13:27354595:T:G	T	G	0.10041644	0.901800776	0.0222299
chr13:27517320:G:A	13:28091457:G:A	G	A	0.130085468	0.866102677	0.00058009
chr13:27675093:G:A	13:28249230:G:A	G	A	0.149748397	0.846737399	0.00270586
chr13:27801589:T:C	13:28375726:T:C	T	C	0.284056514	0.71129429	0.001532939
chr13:29229974:C:T	13:29804111:C:T	C	T	0.817826619	0.176654075	9.83E-06
chr13:29235804:A:G	13:29809941:A:G	A	G	0.573699864	0.421014091	0.000969943
chr13:30541201:C:T	13:31115338:C:T	C	T	0.156669108	0.840091	0.006305663
chr13:30935521:C:T	13:31509658:C:T	C	T	0.055823465	0.947387595	1.22E-05
chr13:32181697:C:T	13:32755834:C:T	C	T	0.506451647	0.497871183	0.007712176
chr13:34083189:C:A	13:34657326:C:A	C	A	0.067777638	0.934637394	0.002910182
chr13:34678153:A:C	13:35252290:A:C	A	C	0.290810562	0.712728959	0.015999372
chr13:35673845:T:C	13:36247982:T:C	T	C	0.096215285	0.907712346	3.92E-05
chr13:36355849:C:A	13:36929986:C:A	C	A	0.254428205	0.748928882	0.0175145
chr13:38802663:A:G	13:39376800:A:G	A	G	0.71538711	0.287808909	0.030175723
chr13:39313192:G:A	13:39887329:G:A	G	A	0.682929891	0.313401504	0.015577185
chr13:40263157:A:G	13:40837294:A:G	A	G	0.211364635	0.79475607	3.63E-06
chr13:42373291:T:G	13:42947427:T:G	T	G	0.776806545	0.218990127	0.001819232
chr13:43806541:G:A	13:44380677:G:A	G	A	0.204102091	0.798787378	0.02693375
chr13:43966560:G:A	13:44540696:G:A	G	A	0.295524448	0.707768656	0.027270219
chr13:44687808:T:C	13:45261944:T:C	T	C	0.071939661	0.926149045	0.024633768
chr13:45921890:G:C	13:46496025:G:C	G	C	0.056874436	0.945316832	0.003516475
chr13:46344957:A:T	13:46919092:A:T	A	T	0.280044442	0.729722519	2.11E-11
chr13:46431208:C:T	13:47005343:C:T	C	T	0.055889133	0.942435591	0.026479089
chr13:49126269:T:G	13:49700405:T:G	T	G	0.372349579	0.618976499	5.22E-08
chr13:52300895:A:G	13:52875030:A:G	A	G	0.705607526	0.290966186	0.020559575
chr13:53081439:G:A	13:53655574:G:A	G	A	0.167871452	0.82944904	0.027800008
chr13:53930931:C:T	13:54505066:C:T	C	T	0.133540104	0.870963523	4.40E-05
chr13:55313878:G:T	13:55888013:G:T	G	T	0.297554049	0.71719296	3.60E-23
chr13:55751157:C:T	13:56325291:C:T	C	T	0.294485549	0.714928248	2.36E-10
chr13:57626855:A:G	13:58200989:A:G	A	G	0.141441117	0.864534081	1.23E-07
chr13:61102370:G:A	13:61676504:G:A	G	A	0.081820658	0.914861729	0.000232937
chr13:62638049:T:A	13:63212182:T:A	T	A	0.11805047	0.885614781	0.000468133
chr13:67442088:A:C	13:68016220:A:C	A	C	0.066488226	0.919845088	9.42E-58
chr13:67763117:C:T	13:68337249:C:T	C	T	0.080483027	0.921574968	0.019836204
chr13:69714729:G:A	13:70288861:G:A	G	A	0.326119255	0.669669459	0.005968836
chr13:69745301:C:A	13:70319433:C:A	C	A	0.235660835	0.770002408	3.90E-05
chr13:70658792:A:G	13:71232924:A:G	A	G	0.087106155	0.915314816	0.007660914
chr13:70721051:A:G	13:71295183:A:G	A	G	0.0760056	0.927159791	0.000206942
chr13:72435662:A:T	13:73009800:A:T	A	T	0.580404691	0.412636954	1.35E-05
chr13:75402181:C:A	13:75976317:C:A	C	A	0.100936241	0.89674232	0.018965363
chr13:76707711:G:C	13:77281846:G:C	G	C	0.088325749	0.917631236	5.16E-11
chr13:76761824:C:A	13:77335959:C:A	C	A	0.241114751	0.774731465	1.27E-29
chr13:77626961:C:A	13:78201096:C:A	C	A	0.92397918	0.070631931	1.70E-10
chr13:78210898:C:T	13:78785033:C:T	C	T	0.098693453	0.904525005	0.000861286
chr13:78640977:T:C	13:79215112:T:C	T	C	0.242393896	0.760723776	0.024681936
chr13:81280803:A:G	13:81854938:A:G	A	G	0.186765629	0.822957198	1.71E-14
chr13:81493233:C:A	13:82067368:C:A	C	A	0.278710562	0.714144769	1.12E-06
chr13:82569465:G:T	13:83143600:G:T	G	T	0.497384636	0.498759966	0.017720369
chr13:84662456:T:A	13:85236591:T:A	T	A	0.147966229	0.854701261	0.020162544
chr13:84711539:A:G	13:85285674:A:G	A	G	0.475840447	0.527619078	0.032749084
chr13:85264104:C:T	13:85838239:C:T	C	T	0.050633445	0.947197602	0.002698492
chr13:85267217:G:T	13:85841352:G:T	G	T	0.092960855	0.910108452	0.001027342
chr13:87252036:T:G	13:87904291:T:G	T	G	0.051666423	0.945358831	4.66E-05
chr13:90116634:C:T	13:90768888:C:T	C	T	0.193179891	0.809369377	0.046117215
chr13:91783803:T:C	13:92436057:T:C	T	C	0.738939858	0.264366843	0.02064229
chr13:97913640:G:C	13:98565894:G:C	G	C	0.067185882	0.936645245	1.88E-06
chr14:102922662:T:C	14:103388999:T:C	T	C	0.481460357	0.522077327	0.029539255
chr14:103431976:T:C	14:103898313:T:C	T	C	0.317589281	0.668100849	1.07E-20
chr14:104210592:G:A	14:104676929:G:A	G	A	0.384431914	0.611287775	0.006819114
chr14:104314074:C:A	14:104780411:C:A	C	A	0.224998391	0.780496736	4.92E-05
chr14:104687768:A:G	14:105154105:A:G	A	G	0.503991755	0.501165053	0.001520337
chr14:104796444:C:T	14:105262781:C:T	C	T	0.278034646	0.715729856	2.28E-05
chr14:105263455:G:A	14:105729792:G:A	G	A	0.275552905	0.721238188	0.027288392
chr14:106821535:C:T	14:107229765:C:T	C	T	0.087677394	0.914702464	0.009413156

chr14:106844924:C:T	14:107253139:C:T	C	T	0.22490716	0.770093991	0.000252268
chr14:19952179:T:C	14:20420338:T:C	T	C	0.138533331	0.869725026	1.02E-13
chr14:20477992:T:C	14:20946151:T:C	T	C	0.284275218	0.719106001	0.020732956
chr14:20604158:C:G	14:21072317:C:G	C	G	0.172965868	0.822963978	0.000959746
chr14:21103948:G:T	14:21572107:G:T	G	T	0.073182978	0.92941974	0.002049655
chr14:22662732:G:A	14:23131941:G:A	G	A	0.073663215	0.923896135	0.004556869
chr14:23130762:G:T	14:23599971:G:T	G	T	0.084743526	0.910779502	9.83E-07
chr14:23667945:C:T	14:24137154:C:T	C	T	0.751930078	0.245146096	0.036887962
chr14:24232499:G:C	14:24701705:G:C	G	C	0.12072516	0.882852985	0.000702126
chr14:24632191:A:G	14:25101397:A:G	A	G	0.113236463	0.88887371	0.039180163
chr14:26199479:G:A	14:26668685:G:A	G	A	0.415887655	0.577725139	6.65E-05
chr14:27248019:T:G	14:27717225:T:G	T	G	0.064189479	0.937530732	0.030372616
chr14:27657830:G:C	14:28127036:G:C	G	C	0.502641462	0.500664371	0.042065098
chr14:29230205:T:C	14:29699411:T:C	T	C	0.306870302	0.697749719	0.002010391
chr14:30160704:C:G	14:30629910:C:G	C	G	0.052125612	0.946329926	0.034958662
chr14:31923795:G:A	14:32393001:G:A	G	A	0.689310363	0.314435635	0.012676969
chr14:32778826:C:A	14:33248032:C:A	C	A	0.102367644	0.900365245	0.00523749
chr14:32794645:T:C	14:33263851:T:C	T	C	0.474998169	0.528380308	0.037059156
chr14:33582927:T:C	14:34052133:T:C	T	C	0.255098622	0.752976689	1.14E-08
chr14:34086169:A:G	14:34555375:A:G	A	G	0.135141285	0.86997444	3.82E-06
chr14:35155625:A:C	14:35624831:A:C	A	C	0.186367549	0.816577736	0.01960582
chr14:35583084:G:A	14:36052290:G:A	G	A	0.13262125	0.874721318	1.28E-11
chr14:41034665:C:T	14:41503870:C:T	C	T	0.416465134	0.58747934	0.013591216
chr14:43383310:T:C	14:43852513:T:C	T	C	0.088393365	0.914783298	0.000525384
chr14:46703356:G:T	14:47172559:G:T	G	T	0.242739219	0.752773111	0.001369813
chr14:50026527:C:A	14:50493245:C:A	C	A	0.078836882	0.923271289	0.015811451
chr14:50111193:A:G	14:50577911:A:G	A	G	0.864894552	0.13861708	0.001755662
chr14:50197684:A:T	14:50664402:A:T	A	T	0.874166107	0.128339073	0.020354655
chr14:51549565:A:G	14:52016283:A:G	A	G	0.205964241	0.801809718	3.09E-09
chr14:51945780:G:A	14:52412498:G:A	G	A	0.364764122	0.644256121	7.92E-09
chr14:53146939:T:G	14:53613657:T:G	T	G	0.865123473	0.117616707	1.47E-57
chr14:54353864:A:C	14:54820582:A:C	A	C	0.173136265	0.833884315	1.05E-08
chr14:56453988:G:T	14:56920706:G:T	G	T	0.055787437	0.945690506	0.045377903
chr14:56749211:A:G	14:57215929:A:G	A	G	0.130055426	0.874238363	8.22E-05
chr14:56761566:A:C	14:57228284:A:C	A	C	0.865876876	0.127656455	3.15E-09
chr14:58079392:C:A	14:58546110:C:A	C	A	0.429162482	0.561684333	1.42E-08
chr14:60705382:A:G	14:61172100:A:G	A	G	0.705527033	0.297831437	0.023434881
chr14:61262775:A:G	14:61729493:A:G	A	G	0.055777559	0.941475547	0.000309628
chr14:63245295:A:C	14:63712013:A:C	A	C	0.094626559	0.90837239	0.001554383
chr14:63791955:C:A	14:64258673:C:A	C	A	0.667212892	0.329465534	0.0305325
chr14:64270791:T:C	14:64737509:T:C	T	C	0.069406522	0.93354417	0.000305678
chr14:65698068:G:A	14:66164786:G:A	G	A	0.066856724	0.938633186	6.59E-12
chr14:67444770:G:T	14:67911487:G:T	G	T	0.3752799	0.63078915	0.00011124
chr14:67677474:A:G	14:68144191:A:G	A	G	0.174307865	0.831131266	9.70E-06
chr14:68610910:G:A	14:69077627:G:A	G	A	0.061814389	0.940174293	0.010924486
chr14:69830872:T:A	14:70297589:T:A	T	A	0.231130035	0.719260601	1.15E-269
chr14:72046041:C:G	14:72512758:C:G	C	G	0.667212394	0.337789087	0.001147492
chr14:72220238:G:A	14:72686946:G:A	G	A	0.399575265	0.594975253	0.000646931
chr14:73737639:T:C	14:74204342:T:C	T	C	0.086286562	0.916019793	0.011149199
chr14:75903428:A:G	14:76369771:A:G	A	G	0.057305162	0.945713835	5.05E-05
chr14:76258299:G:C	14:76724642:G:C	G	C	0.069199628	0.933172227	0.003616609
chr14:76663727:A:G	14:77130070:A:G	A	G	0.145313532	0.857061938	0.03756476
chr14:76742627:C:A	14:77208970:C:A	C	A	0.09942056	0.902633066	0.034526575
chr14:76825750:T:C	14:77292093:T:C	T	C	0.275362633	0.733881851	1.80E-10
chr14:77564838:A:G	14:78031181:A:G	A	G	0.091273232	0.910604444	0.044079931
chr14:77797490:G:T	14:78263833:G:T	G	T	0.840606982	0.152987143	5.01E-08
chr14:78681869:G:T	14:79148212:G:T	G	T	0.100394566	0.897452676	0.027669606
chr14:80674114:A:G	14:81140458:A:G	A	G	0.86081908	0.141841506	0.018802827
chr14:80820048:T:G	14:81286392:T:G	T	G	0.054673112	0.947283539	0.007383294
chr14:81004795:A:C	14:81471139:A:C	A	C	0.350264666	0.653253732	0.022863063
chr14:81588112:A:G	14:82054456:A:G	A	G	0.099539315	0.903455252	0.001895874
chr14:84227019:C:A	14:84693363:C:A	C	A	0.642833897	0.353963533	0.039089919
chr14:84682681:C:T	14:85149025:C:T	C	T	0.640855974	0.355989427	0.04312421
chr14:87511107:G:T	14:87977451:G:T	G	T	0.073523104	0.928561611	0.013270391
chr14:91737429:C:T	14:92203773:C:T	C	T	0.090277996	0.906101769	0.000130191
chr14:92922159:G:T	14:93388504:G:T	G	T	0.771538558	0.221878209	1.19E-06
chr14:93824462:G:T	14:94290808:G:T	G	T	0.189197954	0.807229302	0.005231964
chr14:94042298:C:T	14:94508644:C:T	C	T	0.354423825	0.641013074	0.003385991
chr14:94628067:T:C	14:95094404:T:C	T	C	0.110221269	0.892110111	0.021046393
chr14:94884183:G:A	14:95350520:G:A	G	A	0.054145658	0.949836734	3.39E-08
chr14:95874581:T:C	14:96340918:T:C	T	C	0.358068871	0.632342778	9.03E-10
chr14:95939285:G:A	14:96405622:G:A	G	A	0.741007043	0.263631703	0.001117916
chr14:96472323:G:A	14:96938660:G:A	G	A	0.458868639	0.536825737	0.008028217

chr14:96860761:T:TTG	14:97327098:T:TTG	T	TTG	0.065417774	0.93756845	0.000168921
chr14:98205431:C:T	14:98671768:C:T	C	T	0.051378644	0.944574041	2.85E-08
chr14:99683165:C:A	14:100149502:C:A	C	A	0.400239555	0.588493447	2.33E-12
chr14:99953050:G:T	14:100419387:G:T	G	T	0.280721776	0.707634035	2.70E-15
chr15:100349725:C:G	15:100889930:C:G	C	G	0.084201934	0.917836347	0.022844209
chr15:101162696:A:G	15:101702901:A:G	A	G	0.611606256	0.3940772	0.000372826
chr15:101378898:T:C	15:101919103:T:C	T	C	0.945290598	0.057177389	0.001032241
chr15:101477847:G:T	15:102018052:G:T	G	T	0.282900931	0.720232865	0.031214322
chr15:19969608:C:T	15:20174861:C:T	C	T	0.215171202	0.787953804	0.018817838
chr15:23067245:T:G	15:22805823:T:G	T	G	0.101832962	0.900743608	0.008192985
chr15:24540281:G:A	15:24785428:G:A	G	A	0.421169357	0.572789872	0.000166462
chr15:24924297:A:G	15:25169444:A:G	A	G	0.448231848	0.557099679	0.00094042
chr15:25778508:C:A	15:26023655:C:A	C	A	0.15211497	0.851491881	0.001930896
chr15:26375733:A:C	15:26620880:A:C	A	C	0.082259347	0.921160974	0.000106707
chr15:26667001:G:C	15:26912148:G:C	G	C	0.296065159	0.701022408	0.049705801
chr15:26816265:T:C	15:27061412:T:C	T	C	0.089057818	0.913906966	0.001272946
chr15:27410837:C:T	15:27655983:C:T	C	T	0.061210175	0.941267232	0.001501105
chr15:29439240:G:A	15:29731444:G:A	G	A	0.169188618	0.837386958	6.46E-08
chr15:30995696:G:A	15:31287899:G:A	G	A	0.198588379	0.804398662	0.022864806
chr15:31711888:A:G	15:32004091:A:G	A	G	0.236194811	0.768650225	0.00042534
chr15:33051481:G:A	15:33343682:G:A	G	A	0.431591533	0.578026147	2.44E-09
chr15:33812020:T:G	15:34104221:T:G	T	G	0.269076662	0.734063255	0.028373339
chr15:35950968:T:C	15:36243169:T:C	T	C	0.727542812	0.266119161	1.01E-05
chr15:36386510:C:T	15:36678711:C:T	C	T	0.222477352	0.774661096	0.034642801
chr15:36734411:A:T	15:37026612:A:T	A	T	0.275978445	0.736809578	1.38E-18
chr15:37330528:C:A	15:37622729:C:A	C	A	0.087787936	0.914964338	0.002517245
chr15:38754011:G:T	15:39046212:G:T	G	T	0.661633332	0.333408885	0.001201595
chr15:38868230:C:A	15:39160431:C:A	C	A	0.181872391	0.813748777	0.000527246
chr15:38886316:A:T	15:39178517:A:T	A	T	0.577155452	0.426076765	0.044656603
chr15:41481543:G:T	15:41773741:G:T	G	T	0.05297213	0.944437737	0.0004811
chr15:45710326:G:T	15:46002524:G:T	G	T	0.077601555	0.925666485	0.000162338
chr15:48936418:A:G	15:49228615:A:G	A	G	0.19214956	0.811711903	0.002463336
chr15:50679342:C:A	15:50971539:C:A	C	A	0.541018827	0.450754947	4.03E-07
chr15:52957840:G:A	15:53250037:G:A	G	A	0.424302789	0.57169085	0.012484836
chr15:54167533:A:G	15:54459730:A:G	A	G	0.287400719	0.723510177	1.16E-13
chr15:54241689:G:A	15:54533887:G:A	G	A	0.298102372	0.697930748	0.007775464
chr15:58474532:A:G	15:58766731:A:G	A	G	0.709965235	0.292984624	0.045233883
chr15:58713575:A:G	15:59005774:A:G	A	G	0.080704049	0.9216986	0.006109675
chr15:59161379:G:A	15:59453578:G:A	G	A	0.104278466	0.893395007	0.020466399
chr15:59591899:G:A	15:59884098:G:A	G	A	0.222859175	0.773853714	0.015320706
chr15:60082666:C:T	15:60374865:C:T	C	T	0.898885534	0.103077631	0.045639954
chr15:61024227:A:G	15:61316426:A:G	A	G	0.088948584	0.913724567	0.003733967
chr15:62529095:T:C	15:62821294:T:C	T	C	0.109000296	0.882572349	4.57E-16
chr15:67133926:T:G	15:67426264:T:G	T	G	0.057645618	0.945568365	1.67E-05
chr15:70177895:TG:T	15:70470234:TG:T	TG	T	0.231447001	0.496999814	0
chr15:73558413:G:A	15:73850754:G:A	G	A	0.509749872	0.493498478	0.044558523
chr15:75750009:C:A	15:76042350:C:A	C	A	0.272624565	0.722551623	0.00094213
chr15:77013796:T:C	15:77306137:T:C	T	C	0.122945675	0.879731154	0.011620578
chr15:77970102:G:A	15:78262444:G:A	G	A	0.207564441	0.789204376	0.014594136
chr15:78140893:T:C	15:78433235:T:C	T	C	0.924013557	0.078009498	0.019965037
chr15:78206605:G:A	15:78498947:G:A	G	A	0.121481102	0.87627792	0.036392924
chr15:78849442:T:C	15:79141784:T:C	T	C	0.468206662	0.535633727	0.017685761
chr15:79126716:T:C	15:79419058:T:C	T	C	0.06551486	0.936319218	0.021528726
chr15:79332068:C:G	15:79624410:C:G	C	G	0.189571764	0.814272108	0.002466571
chr15:79742451:T:C	15:80034793:T:C	T	C	0.315218201	0.695578106	7.53E-13
chr15:80774190:A:G	15:81066531:A:G	A	G	0.943407674	0.059333538	0.000336738
chr15:82094379:A:C	15:82386720:A:C	A	C	0.096193276	0.901134496	0.005785026
chr15:84145975:A:G	15:84814727:A:G	A	G	0.071397935	0.930771011	0.008902543
chr15:84860109:C:T	15:85403340:C:T	C	T	0.072136909	0.92554887	0.006571798
chr15:86950520:T:A	15:87493751:T:A	T	A	0.717103117	0.239701731	3.12E-202
chr15:87517135:A:T	15:88060366:A:T	A	T	0.277830209	0.728542998	1.16E-05
chr15:89699652:C:T	15:90242883:C:T	C	T	0.060761454	0.943389881	5.67E-08
chr15:89831025:C:A	15:90374257:C:A	C	A	0.730872631	0.272579476	0.016958074
chr15:90240825:T:A	15:90784057:T:A	T	A	0.129671123	0.866587976	0.000683893
chr15:91527489:C:A	15:92070719:C:A	C	A	0.39765285	0.599153237	0.044635948
chr15:93243825:G:A	15:93787054:G:A	G	A	0.094166194	0.909406403	0.000163479
chr15:93356654:C:T	15:93899883:C:T	C	T	0.206895795	0.803292367	9.31E-15
chr15:93562164:T:C	15:94105393:T:C	T	C	0.273720107	0.722291974	0.006437076
chr15:94146424:G:A	15:94689653:G:A	G	A	0.607547071	0.38693238	0.000512968
chr15:95085578:C:T	15:95628807:C:T	C	T	0.162829734	0.840480293	0.006300316
chr15:95185916:G:A	15:95729145:G:A	G	A	0.102074441	0.902084183	1.82E-05
chr15:95552961:A:G	15:96096190:A:G	A	G	0.334702719	0.672613358	1.77E-06
chr15:96957080:G:T	15:97500310:G:T	G	T	0.497928697	0.505717305	0.02416835

chr15:97253603:A:G	15:97796833:A:G	A	G	0.140870708	0.863174633	0.000330216
chr15:97522473:G:A	15:98065703:G:A	G	A	0.183247552	0.813958613	0.027280298
chr15:98090563:C:A	15:98633792:C:A	C	A	0.074370482	0.929123684	3.29E-05
chr15:98382453:G:A	15:98925682:G:A	G	A	0.395554161	0.598608584	0.000247873
chr15:99266942:A:G	15:99807147:A:G	A	G	0.62919356	0.37487956	0.009421916
chr15:99906812:C:T	15:100447017:C:T	C	T	0.053387242	0.949805947	9.11E-06
chr15:99973159:G:A	15:100513364:G:A	G	A	0.626342933	0.368559665	0.001199586
chr16:1009706:G:A	16:1059706:G:A	G	A	0.088283906	0.909198036	0.006953079
chr16:1025147:G:A	16:1075147:G:A	G	A	0.084266137	0.918273872	0.004721392
chr16:10256769:A:G	16:10350626:A:G	A	G	0.328831635	0.684398999	6.25E-18
chr16:10330860:G:A	16:10424717:G:A	G	A	0.331814472	0.664949111	0.034720074
chr16:11202115:G:A	16:11295972:G:A	G	A	0.877871459	0.119112783	0.00434
chr16:11495228:G:C	16:11589084:G:C	G	C	0.081567556	0.921112509	0.002524609
chr16:11565399:T:G	16:11659255:T:G	T	G	0.195689395	0.809885971	1.46E-05
chr16:1215720:C:T	16:1265720:C:T	C	T	0.841374116	0.15622218	0.042217553
chr16:13265831:C:A	16:13359688:C:A	C	A	0.084610934	0.917840129	0.006595544
chr16:13368751:A:C	16:13462608:A:C	A	C	0.79991003	0.195053155	0.000101459
chr16:13656002:T:C	16:13749859:T:C	T	C	0.789652239	0.213638267	0.013003355
chr16:1443150:C:T	16:1493151:C:T	C	T	0.3496731	0.641623754	2.69E-08
chr16:16142574:G:A	16:16236431:G:A	G	A	0.054489701	0.947123285	0.028453925
chr16:1808887:G:A	16:1858888:G:A	G	A	0.771593703	0.221723093	9.17E-07
chr16:1866102:C:T	16:1916103:C:T	C	T	0.838128066	0.157668906	0.00041202
chr16:1886181:T:G	16:1936182:T:G	T	G	0.067492089	0.935468386	0.000249888
chr16:19150137:A:G	16:19161459:A:G	A	G	0.265308364	0.729252747	0.000159074
chr16:23303530:A:C	16:23314851:A:C	A	C	0.209867244	0.79444167	0.001077368
chr16:24606964:T:C	16:24618285:T:C	T	C	0.28860688	0.716810363	0.000227581
chr16:24609812:C:T	16:24621133:C:T	C	T	0.261685323	0.731849583	7.31E-06
chr16:25883143:C:G	16:25894464:C:G	C	G	0.735089876	0.268058708	0.02802002
chr16:26793187:T:C	16:26804508:T:C	T	C	0.670509468	0.334177567	0.00221824
chr16:27138436:C:T	16:27149757:C:T	C	T	0.127979178	0.877412875	6.41E-07
chr16:27172943:T:A	16:27184264:T:A	T	A	0.265493018	0.739916165	0.000160795
chr16:27405797:T:C	16:27417118:T:C	T	C	0.289538549	0.713645971	0.030240164
chr16:27855743:G:A	16:27867064:G:A	G	A	0.10045205	0.903695069	2.12E-05
chr16:2817449:G:C	16:2867450:G:C	G	C	0.526216634	0.479882772	0.000169281
chr16:28269597:G:A	16:28280918:G:A	G	A	0.053626281	0.948592257	0.002588528
chr16:3103405:G:A	16:3153406:G:A	G	A	0.783359834	0.213851546	0.035968875
chr16:31486560:G:A	16:31497881:G:A	G	A	0.144972488	0.852526599	0.030326217
chr16:34061841:G:A	16:33864308:G:A	G	A	0.092899291	0.923375084	1.36E-71
chr16:49870885:T:G	16:49904796:T:G	T	G	0.092564111	0.909940504	0.007308453
chr16:49962389:G:A	16:49996300:G:A	G	A	0.226614641	0.768702027	0.000627257
chr16:5228910:G:A	16:5278911:G:A	G	A	0.703773743	0.29923417	0.042415091
chr16:53326361:G:T	16:53360273:G:T	G	T	0.109564608	0.888295593	0.036139
chr16:534038:T:G	16:584038:T:G	T	G	0.159390953	0.843601345	0.011404017
chr16:54570957:G:T	16:54604869:G:T	G	T	0.392651297	0.610549956	0.045305953
chr16:55420354:C:A	16:55454266:C:A	C	A	0.313840472	0.691000563	0.00129254
chr16:55830540:C:A	16:55864452:C:A	C	A	0.053914799	0.943859057	0.00281035
chr16:5600507:A:G	16:5650508:A:G	A	G	0.179573108	0.825329316	8.07E-05
chr16:56277862:G:A	16:56311774:G:A	G	A	0.305512592	0.700134086	0.000157324
chr16:57765387:G:A	16:57799299:G:A	G	A	0.070874132	0.925902946	0.000147193
chr16:58884402:G:A	16:58918306:G:A	G	A	0.283824499	0.712892875	0.025807441
chr16:59090727:T:C	16:59124631:T:C	T	C	0.116173609	0.88645538	0.011064172
chr16:63179354:T:C	16:63213258:T:C	T	C	0.266024841	0.743480815	3.56E-11
chr16:6497540:T:C	16:6547541:T:C	T	C	0.514764952	0.489245737	0.013381803
chr16:66267821:G:A	16:66301724:G:A	G	A	0.105779591	0.889944676	2.52E-05
chr16:67991092:G:A	16:68024995:G:A	G	A	0.167144381	0.830075488	0.022744431
chr16:68047438:A:G	16:68081341:A:G	A	G	0.123439936	0.879760673	0.002585604
chr16:68050691:A:G	16:68084594:A:G	A	G	0.12358763	0.88344105	3.14E-11
chr16:68820800:G:C	16:68854703:G:C	G	C	0.082123303	0.920573647	0.002427121
chr16:68911416:T:C	16:68945319:T:C	T	C	0.086264657	0.918163566	1.33E-06
chr16:70737563:C:T	16:70771466:C:T	C	T	0.078451576	0.925194224	2.60E-05
chr16:73160783:T:C	16:73194682:T:C	T	C	0.142655531	0.854608223	0.016230129
chr16:73245781:G:A	16:73279680:G:A	G	A	0.09996234	0.896907998	0.001518641
chr16:73401366:A:C	16:73435265:A:C	A	C	0.306689688	0.703407842	1.70E-11
chr16:73402882:C:G	16:73436781:C:G	C	G	0.09301481	0.909823534	0.002575448
chr16:77946173:C:A	16:77980070:C:A	C	A	0.439149208	0.569100077	3.06E-07
chr16:78108411:G:T	16:78142308:G:T	G	T	0.336634505	0.655780498	8.35E-07
chr16:78262173:C:A	16:78296070:C:A	C	A	0.142723911	0.862263697	1.08E-05
chr16:78557656:A:G	16:78591553:A:G	A	G	0.156232581	0.850546151	8.46E-09
chr16:78827459:A:C	16:78861356:A:C	A	C	0.230494005	0.772325106	0.039512331
chr16:78831084:G:C	16:78864981:G:C	G	C	0.064658193	0.93301961	0.004201973
chr16:78831104:T:G	16:78865001:T:G	T	G	0.061499676	0.940164477	0.031586188
chr16:7917108:C:T	16:7967110:C:T	C	T	0.21679569	0.778711545	0.000849047
chr16:79598568:G:A	16:79632465:G:A	G	A	0.266114072	0.740305332	7.57E-06

chr16:80744061:C:G	16:80777958:C:G	C	G	0.327263882	0.666787884	0.000101585
chr16:81210220:C:T	16:81243825:C:T	C	T	0.658171432	0.335688324	6.87E-05
chr16:81246869:G:A	16:81280474:G:A	G	A	0.386016063	0.621958876	5.54E-07
chr16:81547052:G:A	16:81580657:G:A	G	A	0.11015974	0.893384178	0.000440259
chr16:81713997:A:G	16:81747602:A:G	A	G	0.779376814	0.224731149	0.002307224
chr16:82961492:A:G	16:82995097:A:G	A	G	0.171820665	0.836149356	7.31E-11
chr16:83763416:T:A	16:83797021:T:A	T	A	0.750966102	0.251844989	0.045191141
chr16:84116773:A:G	16:84150378:A:G	A	G	0.39744314	0.606148867	0.023805223
chr16:84409854:C:T	16:84443460:C:T	C	T	0.926456128	0.070969337	0.002176559
chr16:84866239:G:T	16:84899845:G:T	G	T	0.650465801	0.357408385	4.42E-07
chr16:85222343:A:G	16:85255949:A:G	A	G	0.504681256	0.498742545	0.035147211
chr16:86318030:C:T	16:86351636:C:T	C	T	0.236202376	0.774638826	3.83E-15
chr16:86450497:G:A	16:86484103:G:A	G	A	0.146803147	0.848504914	5.74E-05
chr16:87018092:G:A	16:87051698:G:A	G	A	0.194724021	0.809252125	0.001960978
chr16:87635006:T:C	16:87668612:T:C	T	C	0.313213311	0.690890228	0.006281048
chr16:87642185:C:G	16:87675791:C:G	C	G	0.389659801	0.614310089	0.012090627
chr16:87679308:G:C	16:87712914:G:C	G	C	0.112137131	0.892015337	4.98E-05
chr16:8788980:C:T	16:8882837:C:T	C	T	0.138072075	0.859402029	0.025145249
chr16:87932808:C:G	16:87966414:C:G	C	G	0.204760859	0.799161646	0.002664446
chr16:88439227:A:G	16:88505635:A:G	A	G	0.78796707	0.217426128	5.72E-05
chr17:10171031:C:T	17:10074348:C:T	C	T	0.244793029	0.748601814	2.76E-06
chr17:10174713:T:A	17:10078030:T:A	T	A	0.19899287	0.807758474	1.75E-07
chr17:10274527:T:C	17:10177844:T:C	T	C	0.071533899	0.930485088	0.015615981
chr17:1133944:T:C	17:1037159:T:C	T	C	0.466871724	0.538191759	0.001824251
chr17:11359270:T:A	17:11262587:T:A	T	A	0.106212142	0.890328312	0.000655217
chr17:12856499:C:T	17:12759816:C:T	C	T	0.07141811	0.933550585	1.53E-09
chr17:12885196:G:T	17:12788513:G:T	G	T	0.629000031	0.367739822	0.037283945
chr17:13082895:C:T	17:12986212:C:T	C	T	0.2126156	0.784325827	0.022051442
chr17:14171261:A:G	17:14074578:A:G	A	G	0.053959055	0.948089958	0.004800797
chr17:14197712:G:A	17:14101029:G:A	G	A	0.567253667	0.441306622	1.07E-07
chr17:14813854:G:A	17:14717171:G:A	G	A	0.385836533	0.610859607	0.037224447
chr17:14910238:T:C	17:14813555:T:C	T	C	0.068787857	0.934646756	2.28E-05
chr17:15048860:A:G	17:14952177:A:G	A	G	0.061308918	0.936313027	0.002530591
chr17:1549204:T:C	17:1452498:T:C	T	C	0.105790801	0.898045242	0.000119525
chr17:18779697:A:T	17:18683010:A:T	A	T	0.470388852	0.533851371	0.008891738
chr17:18969024:T:C	17:18872337:T:C	T	C	0.532691704	0.47062994	0.040293157
chr17:20124113:C:A	17:20027426:C:A	C	A	0.058263853	0.939118081	0.000727489
chr17:20609728:A:G	17:20513041:A:G	A	G	0.073666088	0.92967917	6.64E-05
chr17:20758454:T:C	17:20661767:T:C	T	C	0.314153598	0.693487143	3.86E-07
chr17:227387:C:T	17:77178:C:T	C	T	0.712137115	0.284872142	0.04215824
chr17:266640:A:G	17:116431:A:G	A	G	0.072442389	0.929364374	0.031272786
chr17:26999795:T:C	17:25326821:T:C	T	C	0.055991422	0.945708105	0.021579965
chr17:28265920:T:C	17:26592946:T:C	T	C	0.54587465	0.457371356	0.04444807
chr17:314357:C:A	17:164148:C:A	C	A	0.0848499	0.918539236	0.000173428
chr17:31676249:C:T	17:30003268:C:T	C	T	0.184816409	0.811478304	0.003473061
chr17:31701450:C:A	17:30028469:C:A	C	A	0.235532262	0.761190772	0.018484706
chr17:32309173:G:A	17:30636192:G:A	G	A	0.068134271	0.936848893	3.03E-09
chr17:32567044:C:T	17:30894062:C:T	C	T	0.417930443	0.578124504	0.013730332
chr17:35407398:C:T	17:33734417:C:T	C	T	0.542169242	0.452145162	0.000442671
chr17:3553441:T:C	17:3456735:T:C	T	C	0.471761075	0.533093304	0.002747167
chr17:36030783:A:G	17:34357820:A:G	A	G	0.106632615	0.895583989	0.026589908
chr17:39087980:G:A	17:37244233:G:A	G	A	0.264135745	0.732400794	0.01579128
chr17:39957033:C:T	17:38113286:C:T	C	T	0.645904752	0.359444928	0.000577513
chr17:40001742:C:T	17:38157995:C:T	C	T	0.351640297	0.645121347	0.037893812
chr17:40751862:G:A	17:38908114:G:A	G	A	0.93837516	0.058435737	3.45E-05
chr17:42214635:T:C	17:40366653:T:C	T	C	0.071032437	0.930858075	0.02316174
chr17:43093449:G:A	17:41245466:G:A	G	A	0.305374218	0.689903663	0.001745094
chr17:43126360:G:A	17:41278377:G:A	G	A	0.307314114	0.687089775	0.000206427
chr17:45949373:G:A	17:44026739:G:A	G	A	0.344291019	0.650621402	0.001044516
chr17:4982687:G:A	17:4885982:G:A	G	A	0.617729821	0.376664928	0.000378152
chr17:49966298:G:T	17:48043662:G:T	G	T	0.072154865	0.932159036	1.97E-07
chr17:50063143:G:A	17:48140507:G:A	G	A	0.085278095	0.916651822	0.032721783
chr17:51707602:G:A	17:49784962:G:A	G	A	0.411510945	0.596934713	1.28E-07
chr17:53262017:T:C	17:51339378:T:C	T	C	0.082397063	0.92511169	1.04E-17
chr17:54229158:C:T	17:52306519:C:T	C	T	0.066006549	0.937047154	0.000126395
chr17:54967964:G:A	17:53045325:G:A	G	A	0.2917455	0.717735186	1.32E-10
chr17:56751417:A:G	17:54828778:A:G	A	G	0.763883638	0.229806253	4.07E-06
chr17:57632019:A:G	17:55709380:A:G	A	G	0.222339057	0.790998114	2.26E-22
chr17:5796200:C:T	17:5699520:C:T	C	T	0.055923846	0.946228232	0.003826188
chr17:58293059:G:A	17:56370420:G:A	G	A	0.101151701	0.900977649	0.029107108
chr17:60148405:C:T	17:58225766:C:T	C	T	0.170305357	0.825098665	0.000191234
chr17:60469345:T:A	17:58546706:T:A	T	A	0.052547633	0.949097439	0.022845835
chr17:61342508:T:C	17:59419869:T:C	T	C	0.850241647	0.153267493	0.002683695

chr17:61483102:C:T	17:59560463:C:T	C	T	0.105361159	0.892098309	0.011513095
chr17:63470201:G:A	17:61547562:G:A	G	A	0.624211517	0.367367993	8.47E-08
chr17:65689056:C:T	17:63685174:C:T	C	T	0.332806795	0.662545376	0.002576706
chr17:67585137:C:A	17:65581253:C:A	C	A	0.21425583	0.790628372	0.000242781
chr17:68212616:G:T	17:66208757:G:T	G	T	0.227084903	0.769706904	0.019095787
chr17:68246719:G:A	17:66242860:G:A	G	A	0.157757367	0.838578714	0.002248008
chr17:70097145:C:T	17:68093286:C:T	C	T	0.828500445	0.168853151	0.03008489
chr17:70301146:G:T	17:68297287:G:T	G	T	0.07750334	0.906501726	9.28E-69
chr17:7114647:C:A	17:7017966:C:A	C	A	0.130971933	0.866372232	0.016089212
chr17:72039555:A:G	17:70035696:A:G	A	G	0.080457197	0.92300972	8.32E-05
chr17:72926836:C:T	17:70922975:C:T	C	T	0.380225551	0.613286638	4.28E-05
chr17:73728198:C:T	17:71724337:C:T	C	T	0.053255366	0.944656007	0.004945168
chr17:73982830:G:A	17:71978969:G:A	G	A	0.36229443	0.62727662	3.98E-11
chr17:77126965:C:T	17:75123047:C:T	C	T	0.36094876	0.630392723	3.27E-08
chr17:77265544:A:G	17:75261626:A:G	A	G	0.249694015	0.755665088	0.000132934
chr17:78472735:G:A	17:76468817:G:A	G	A	0.09946335	0.897353732	0.001236702
chr17:78540605:T:C	17:76536687:T:C	T	C	0.767287094	0.239190626	2.65E-06
chr17:78947889:C:T	17:76943971:C:T	C	T	0.153350071	0.844303041	0.045897069
chr17:79262832:C:T	17:77258914:C:T	C	T	0.675833717	0.320856563	0.029764081
chr17:79859127:C:T	17:77832926:C:T	C	T	0.259903968	0.734837346	0.000242865
chr17:79920407:A:G	17:77894206:A:G	A	G	0.543221048	0.460155216	0.037409982
chr17:80452275:A:C	17:78426075:A:C	A	C	0.535749778	0.467542147	0.042779794
chr17:81020824:T:G	17:78994624:T:G	T	G	0.26889448	0.737827257	2.87E-06
chr17:81050837:G:A	17:79024637:G:A	G	A	0.285739289	0.718206354	0.007013689
chr17:81151316:C:G	17:79125116:C:G	C	G	0.434597585	0.577076001	8.85E-13
chr17:81688221:A:G	17:79655251:A:G	A	G	0.251859897	0.75123884	0.027647582
chr17:82092200:C:G	17:80050076:C:G	C	G	0.062545112	0.943018884	5.02E-13
chr17:82775673:G:A	17:80733549:G:A	G	A	0.370830566	0.635738377	2.98E-05
chr17:82830616:A:G	17:80788492:A:G	A	G	0.406498452	0.601399132	8.15E-07
chr17:82962889:G:A	17:80920765:G:A	G	A	0.214492015	0.780938135	0.000733017
chr17:82963169:A:G	17:80921045:A:G	A	G	0.47308324	0.532052177	0.001577124
chr17:82965660:C:T	17:80923536:C:T	C	T	0.258834236	0.738086871	0.030922559
chr17:82986017:T:G	17:80943893:T:G	T	G	0.377862396	0.626831005	0.002844161
chr17:878378:G:A	17:781618:G:A	G	A	0.159701166	0.84685661	3.50E-08
chr17:9226155:T:G	17:9129472:T:G	T	G	0.508234016	0.500769255	3.30E-08
chr18:10294578:G:T	18:10294575:G:T	G	T	0.285186536	0.721804354	1.82E-06
chr18:10523469:G:T	18:10523466:G:T	G	T	0.310429416	0.699004921	3.48E-10
chr18:10618074:C:T	18:10618071:C:T	C	T	0.623188716	0.380991047	0.008470302
chr18:11178039:G:C	18:11178038:G:C	G	C	0.221281292	0.77539558	0.0143228
chr18:12286543:A:G	18:12286542:A:G	A	G	0.301609703	0.70266283	0.004100565
chr18:12981827:C:T	18:12981826:C:T	C	T	0.42499893	0.583949247	2.56E-08
chr18:13376127:A:G	18:13376126:A:G	A	G	0.469317195	0.537629106	2.00E-05
chr18:13565376:C:T	18:13565375:C:T	C	T	0.209420504	0.799640954	6.93E-12
chr18:13780468:C:T	18:13780467:C:T	C	T	0.865458444	0.128549114	4.86E-08
chr18:22364597:G:A	18:19944560:G:A	G	A	0.226926537	0.770123204	0.030533651
chr18:25356733:A:G	18:22936697:A:G	A	G	0.156029537	0.846332939	0.044358531
chr18:26945592:A:G	18:24525556:A:G	A	G	0.176617358	0.826098872	0.027573318
chr18:274474:C:T	18:274474:C:T	C	T	0.102480953	0.900645688	0.001460995
chr18:2913433:T:C	18:2913431:T:C	T	C	0.173419688	0.832058564	7.96E-06
chr18:3002232:A:C	18:3002230:A:C	A	C	0.166710282	0.839796634	7.29E-08
chr18:3022362:T:C	18:3022360:T:C	T	C	0.424277614	0.580350554	0.003962817
chr18:3028718:T:A	18:3028716:T:A	T	A	0.069098205	0.92266661	2.75E-22
chr18:31996725:G:A	18:29576688:G:A	G	A	0.648700013	0.342939209	6.63E-08
chr18:32018846:T:C	18:29598809:T:C	T	C	0.071506282	0.931178887	0.001190998
chr18:32084094:A:G	18:29664057:A:G	A	G	0.67823466	0.325487447	0.014518564
chr18:33467283:C:T	18:31047247:C:T	C	T	0.223912516	0.780271285	0.00238866
chr18:33832915:C:A	18:31412879:C:A	C	A	0.062364634	0.940655892	0.000114365
chr18:34091638:G:A	18:31671602:G:A	G	A	0.487619127	0.508322305	0.012688589
chr18:36084195:G:A	18:33664158:G:A	G	A	0.626503728	0.36895866	0.003797227
chr18:36511369:C:T	18:34091332:C:T	C	T	0.605417045	0.388564362	0.000145882
chr18:38022110:T:A	18:35602074:T:A	T	A	0.060393978	0.937442283	0.005593172
chr18:42209748:C:T	18:39789713:C:T	C	T	0.09968502	0.904994037	1.46E-06
chr18:43516270:G:T	18:41096235:G:T	G	T	0.40434159	0.602566787	1.54E-05
chr18:46624416:T:G	18:44204379:T:G	T	G	0.08935932	0.916929823	5.58E-12
chr18:4780185:G:C	18:4780184:G:C	G	C	0.128269922	0.876444411	1.56E-05
chr18:503893:T:C	18:503893:T:C	T	C	0.06317526	0.938571713	0.026989371
chr18:51517224:C:A	18:49043594:C:A	C	A	0.281084827	0.726284626	4.31E-07
chr18:51976594:T:C	18:49502964:T:C	T	C	0.089373143	0.914626359	1.21E-05
chr18:5585978:A:C	18:5585977:A:C	A	C	0.218686573	0.784015671	0.043361856
chr18:59077678:C:T	18:56744910:C:T	C	T	0.323309726	0.671883972	0.001596046
chr18:59529787:G:A	18:57197019:G:A	G	A	0.281320613	0.712988758	0.000114576
chr18:5961299:C:T	18:5961298:C:T	C	T	0.351529481	0.643989488	0.003977303
chr18:60019251:A:G	18:57686483:A:G	A	G	0.059546601	0.944197683	7.48E-07

chr18:60889128:A:G	18:58556361:A:G	A	G	0.0937604	0.908510304	0.016246813
chr18:61841064:G:A	18:59508297:G:A	G	A	0.050139655	0.947613313	0.001877728
chr18:62253205:C:G	18:59920438:C:G	C	G	0.064808445	0.936911852	0.031019472
chr18:62354271:T:G	18:60021504:T:G	T	G	0.687970082	0.315073055	0.043977323
chr18:6393088:A:T	18:6393087:A:T	A	T	0.518799431	0.475929441	0.001168022
chr18:67937385:T:G	18:65604622:T:G	T	G	0.134475364	0.871573387	3.65E-08
chr18:68167087:C:G	18:65834324:C:G	C	G	0.146886435	0.855444174	0.042249719
chr18:68530003:A:G	18:66197240:A:G	A	G	0.054212422	0.947252103	0.046746313
chr18:6922859:A:C	18:6922858:A:C	A	C	0.563054244	0.42877694	3.86E-07
chr18:6928181:G:T	18:6928180:G:T	G	T	0.512501308	0.482021911	0.000739503
chr18:6942998:A:G	18:6942997:A:G	A	G	0.857242981	0.154028411	1.13E-22
chr18:69655424:G:A	18:67322660:G:A	G	A	0.437799443	0.552133662	5.91E-10
chr18:71681365:G:C	18:69348601:G:C	G	C	0.172697368	0.82980059	0.040612386
chr18:722814:T:C	18:722814:T:C	T	C	0.177937376	0.818981886	0.013547476
chr18:72827731:A:G	18:70494966:A:G	A	G	0.485560266	0.507623318	2.60E-05
chr18:73752554:T:C	18:71419789:T:C	T	C	0.944024855	0.05412122	0.012219218
chr18:74367825:C:T	18:72035060:C:T	C	T	0.304537272	0.699149439	0.013451058
chr18:75222992:G:C	18:72934947:G:C	G	C	0.204159344	0.790675045	9.47E-05
chr18:75606632:C:G	18:73318587:C:G	C	G	0.075625196	0.926744938	0.00550446
chr18:765056:C:T	18:765057:C:T	C	T	0.33236504	0.672055947	0.003792552
chr18:76580329:A:G	18:74292286:A:G	A	G	0.560528711	0.443067603	0.025656137
chr18:76580715:A:G	18:74292672:A:G	A	G	0.183979831	0.836829824	4.24E-63
chr18:77097894:C:T	18:74809850:C:T	C	T	0.087204638	0.914724344	0.034955717
chr18:78683577:G:A	18:76443577:G:A	G	A	0.486664409	0.5190127	0.000461939
chr18:79678688:T:C	18:77438688:T:C	T	C	0.753072859	0.252700883	4.63E-05
chr18:8563408:G:A	18:8563406:G:A	G	A	0.275316456	0.715138436	8.54E-11
chr18:8784725:A:G	18:8784723:A:G	A	G	0.148224094	0.854664391	0.01181047
chr18:908228:A:T	18:908229:A:T	A	T	0.067977569	0.935884111	1.80E-06
chr19:10055557:C:T	19:10166233:C:T	C	T	0.313806306	0.68142458	0.00159762
chr19:10086755:T:A	19:10197431:T:A	T	A	0.096632849	0.907803163	3.64E-06
chr19:10356095:G:C	19:10466771:G:C	G	C	0.092551915	0.909622533	0.020629974
chr19:10829116:T:C	19:10939792:T:C	T	C	0.291255636	0.714258172	0.000185662
chr19:11057353:T:C	19:11168029:T:C	T	C	0.274958938	0.728572339	0.014662401
chr19:11060605:A:C	19:11171281:A:C	A	C	0.266735012	0.747696191	6.99E-24
chr19:11079434:A:G	19:11190110:A:G	A	G	0.12954263	0.872604688	0.048393535
chr19:11192878:A:G	19:11303554:A:G	A	G	0.080440377	0.921353316	0.041627129
chr19:15046425:A:T	19:15157236:A:T	A	T	0.196548513	0.812363994	4.74E-12
chr19:15470214:A:C	19:15581025:A:C	A	C	0.375174257	0.628427023	0.021685505
chr19:15571696:C:G	19:15682507:C:G	C	G	0.168822796	0.82720294	0.001156528
chr19:16033776:A:G	19:16144586:A:G	A	G	0.482660686	0.530198296	3.66E-15
chr19:1648827:G:T	19:1648826:G:T	G	T	0.18077366	0.814873845	0.000559549
chr19:1677697:T:C	19:1677696:T:C	T	C	0.15047914	0.852123768	0.024270276
chr19:17035722:G:A	19:17146532:G:A	G	A	0.365075956	0.630495785	0.004768864
chr19:17561773:G:A	19:17672582:G:A	G	A	0.18247675	0.814969172	0.043176823
chr19:17675939:C:T	19:17786748:C:T	C	T	0.165249612	0.83179986	0.015239525
chr19:1806464:G:A	19:1806463:G:A	G	A	0.214304395	0.782528721	0.018120381
chr19:18409421:A:G	19:18520231:A:G	A	G	0.190327744	0.816348036	1.41E-07
chr19:1843494:G:A	19:1843493:G:A	G	A	0.235683948	0.760152715	0.002821999
chr19:18670146:G:A	19:18780956:G:A	G	A	0.07915686	0.923267195	0.005428621
chr19:1871342:T:C	19:1871341:T:C	T	C	0.664063481	0.339030559	0.045523508
chr19:18733554:G:A	19:18844364:G:A	G	A	0.220826228	0.772832201	3.20E-06
chr19:19117968:C:A	19:19228777:C:A	C	A	0.119500903	0.884378792	0.000222683
chr19:19137298:C:T	19:19248107:C:T	C	T	0.645745938	0.349494756	0.002166019
chr19:19264563:G:A	19:19375372:G:A	G	A	0.16243684	0.832684424	5.71E-05
chr19:20536964:G:C	19:20719770:G:C	G	C	0.064887414	0.937924222	0.00038653
chr19:2094593:C:T	19:2094592:C:T	C	T	0.059427173	0.938865657	0.028815349
chr19:20948765:A:G	19:21131571:A:G	A	G	0.111630121	0.908627026	1.74E-93
chr19:22041953:T:C	19:22224755:T:C	T	C	0.152734481	0.850832516	0.002117177
chr19:29048375:G:T	19:29539282:G:T	G	T	0.080119051	0.918098431	0.04542201
chr19:29129222:T:C	19:29620129:T:C	T	C	0.079227466	0.923380685	0.002867202
chr19:29598772:G:A	19:30089679:G:A	G	A	0.083476305	0.913690768	0.001880207
chr19:29872700:C:T	19:30363607:C:T	C	T	0.339381734	0.656829733	0.013899135
chr19:30172353:A:G	19:30663260:A:G	A	G	0.064784401	0.938748965	7.62E-06
chr19:3192300:A:G	19:3192298:A:G	A	G	0.410994737	0.595205245	0.000105168
chr19:32199815:C:T	19:32690721:C:T	C	T	0.682345988	0.311422322	3.60E-05
chr19:33008072:A:G	19:33498978:A:G	A	G	0.431626793	0.576877776	1.36E-07
chr19:3337706:G:A	19:3337704:G:A	G	A	0.432831215	0.562741612	0.006085878
chr19:33474993:A:G	19:33965899:A:G	A	G	0.092520268	0.911699409	6.98E-06
chr19:33702822:G:A	19:34193727:G:A	G	A	0.122447592	0.875374577	0.042948648
chr19:33704188:C:T	19:34195093:C:T	C	T	0.060060673	0.941908267	0.010386542
chr19:33759718:C:T	19:34250623:C:T	C	T	0.144962027	0.852061461	0.009832083
chr19:33786309:T:C	19:34277214:T:C	T	C	0.259280198	0.745721399	0.000432737
chr19:33882224:A:G	19:34373129:A:G	A	G	0.127800685	0.886451627	1.31E-38

chr19:34720071:A:C	19:35210976:A:C	A	C	0.131177074	0.866145597	0.015573569
chr19:3481215:C:T	19:3481213:C:T	C	T	0.17774314	0.818297034	0.001596605
chr19:34990070:T:G	19:35480974:T:G	T	G	0.147003981	0.855616606	0.02192599
chr19:38304110:G:A	19:38794750:G:A	G	A	0.157125396	0.850727609	2.89E-11
chr19:38358156:A:G	19:38848796:A:G	A	G	0.156983983	0.84586136	0.015940498
chr19:38727754:A:G	19:39218394:A:G	A	G	0.061460036	0.946195	6.35E-24
chr19:38738449:A:G	19:39229089:A:G	A	G	0.086564834	0.91742182	1.06E-05
chr19:39475036:G:A	19:39965676:G:A	G	A	0.157621374	0.839574586	0.018314802
chr19:39480792:G:C	19:39971432:G:C	G	C	0.159426127	0.837859485	0.023527195
chr19:41137161:T:C	19:41643066:T:C	T	C	0.864738064	0.138144108	0.010062477
chr19:4116654:A:G	19:4116652:A:G	A	G	0.771948362	0.23113557	0.024518337
chr19:42038314:A:C	19:42542466:A:C	A	C	0.112150217	0.896038444	4.81E-16
chr19:43614039:G:A	19:44118191:G:A	G	A	0.231068174	0.764875671	0.003179613
chr19:44870308:G:A	19:45373565:G:A	G	A	0.161235314	0.835398816	0.005108968
chr19:44876259:G:A	19:45379516:G:A	G	A	0.129999059	0.867399389	0.01785387
chr19:4575361:G:A	19:4575373:G:A	G	A	0.453328173	0.541606995	0.00180658
chr19:4863847:C:G	19:4863859:C:G	C	G	0.905691006	0.092276272	0.031645599
chr19:49010276:A:G	19:49513533:A:G	A	G	0.942925885	0.058789756	0.024512765
chr19:4967514:C:G	19:4967525:C:G	C	G	0.118621635	0.879185316	0.038247353
chr19:50656314:T:G	19:51159571:T:G	T	G	0.875967614	0.126365878	0.030705881
chr19:50963260:A:G	19:51466516:A:G	A	G	0.335976898	0.667633651	0.018556011
chr19:50972393:G:A	19:51475649:G:A	G	A	0.76726309	0.227860483	0.000355439
chr19:51834930:C:T	19:52338183:C:T	C	T	0.104424918	0.899056794	0.000416279
chr19:53036877:T:C	19:53540130:T:C	T	C	0.072425409	0.929326989	0.035919777
chr19:53037859:C:A	19:53541112:C:A	C	A	0.846440713	0.1507446	0.015788866
chr19:53423602:T:C	19:53926855:T:C	T	C	0.157595521	0.858366683	1.06E-41
chr19:5359590:A:G	19:5359601:A:G	A	G	0.440797062	0.563895224	0.003587708
chr19:53633029:C:T	19:54136283:C:T	C	T	0.397663272	0.594595465	1.27E-06
chr19:53763297:G:A	19:54266551:G:A	G	A	0.124598854	0.881116904	9.24E-08
chr19:54011694:T:C	19:54514948:T:C	T	C	0.694738719	0.279889712	1.58E-66
chr19:5406412:A:G	19:5406423:A:G	A	G	0.234513702	0.770318225	0.000441098
chr19:55170678:C:T	19:55682046:C:T	C	T	0.176918892	0.820362626	0.028862803
chr19:55228147:T:C	19:55739515:T:C	T	C	0.641567462	0.368819768	3.72E-11
chr19:55320208:A:C	19:55831576:A:C	A	C	0.385692166	0.61816482	0.014671123
chr19:55533698:A:T	19:56045065:A:T	A	T	0.822035863	0.187498625	5.62E-14
chr19:55566929:G:A	19:56078295:G:A	G	A	0.10496281	0.892286399	0.006043381
chr19:5590995:T:C	19:5591006:T:C	T	C	0.702840404	0.300705039	0.01754102
chr19:55948092:C:T	19:56459458:C:T	C	T	0.069487306	0.928731865	0.032954755
chr19:56083896:A:G	19:56595262:A:G	A	G	0.415627879	0.590705587	7.56E-05
chr19:56957285:G:T	19:57468653:G:T	G	T	0.899134874	0.097104771	0.00011305
chr19:57172246:C:T	19:57683614:C:T	C	T	0.127174153	0.870607637	0.042954812
chr19:57186176:A:G	19:57697544:A:G	A	G	0.321127871	0.681971908	0.040671847
chr19:5759220:T:G	19:5759231:T:G	T	G	0.833887756	0.170700994	0.000182284
chr19:606473:T:C	19:606473:T:C	T	C	0.448446833	0.563480242	2.33E-13
chr19:608511:G:A	19:608511:G:A	G	A	0.281512877	0.727133284	3.12E-09
chr19:7257433:C:T	19:7257444:C:T	C	T	0.072846113	0.929215528	0.014351649
chr19:7626579:G:A	19:7691465:G:A	G	A	0.156691983	0.840616771	0.024013806
chr19:8656154:C:A	19:8765593:C:A	C	A	0.266166185	0.730936587	0.044223947
chr19:8678357:T:C	19:8788618:T:C	T	C	0.202216021	0.8080799	2.85E-15
chr19:8840208:G:T	19:8950884:G:T	G	T	0.29625764	0.710245682	1.15E-05
chr19:9136282:T:C	19:9246958:T:C	T	C	0.110435669	0.875161749	4.34E-43
chr19:9970646:G:A	19:10081322:G:A	G	A	0.090678454	0.906714573	0.005886447
chr2:101993813:G:C	2:102610275:G:C	G	C	0.134607137	0.862792665	0.019756364
chr2:102193708:T:G	2:102810168:T:G	T	G	0.148146792	0.849406307	0.034893723
chr2:10330074:G:A	2:10470200:G:A	G	A	0.072144547	0.929825296	0.018759978
chr2:103894919:A:T	2:104511377:A:T	A	T	0.055229717	0.939135667	1.21E-13
chr2:104418371:A:T	2:105034829:A:T	A	T	0.378686587	0.614858753	4.14E-05
chr2:106043267:C:T	2:106659723:C:T	C	T	0.093635584	0.909290193	0.001810503
chr2:106273267:A:C	2:106889723:A:C	A	C	0.333887843	0.669686626	0.019581863
chr2:107488837:T:C	2:108105293:T:C	T	C	0.682786505	0.310531171	9.07E-06
chr2:111274883:A:G	2:112032460:A:G	A	G	0.587452392	0.416508478	0.013597954
chr2:111289587:G:C	2:112047164:G:C	G	C	0.104833897	0.897807373	0.007578475
chr2:111307816:C:T	2:112065393:C:T	C	T	0.282810575	0.722024068	0.000935801
chr2:111396975:A:G	2:112154552:A:G	A	G	0.289140514	0.714524759	0.012777616
chr2:111410354:T:C	2:112167931:T:C	T	C	0.241841596	0.762817908	0.000797509
chr2:111876762:C:T	2:112634339:C:T	C	T	0.674556182	0.320104133	0.000441138
chr2:113224566:G:A	2:113982143:G:A	G	A	0.353530066	0.636169624	5.51E-11
chr2:115806847:A:G	2:116564423:A:G	A	G	0.087336714	0.914949506	0.012397411
chr2:11864032:T:C	2:12004158:T:C	T	C	0.054809482	0.946668899	0.045233939
chr2:118859500:G:A	2:119617076:G:A	G	A	0.220107957	0.776518557	0.01263673
chr2:119519867:A:C	2:120277443:A:C	A	C	0.715152118	0.281351411	0.016533379
chr2:120566498:G:T	2:121324074:G:T	G	T	0.117587062	0.879885871	0.016444888
chr2:122781589:G:A	2:123539165:G:A	G	A	0.086122291	0.916294421	0.007841689

chr2:125832942:T:C	2:126590519:T:C	T	C	0.076198845	0.925917983	0.013196992
chr2:12609947:G:A	2:12750073:G:A	G	A	0.056744852	0.94549753	0.002942909
chr2:127190271:T:A	2:127947847:T:A	T	A	0.123632072	0.878709292	0.027972194
chr2:127361337:A:T	2:128118913:A:T	A	T	0.805606997	0.1908016	0.005219185
chr2:128241335:G:A	2:128998909:G:A	G	A	0.924183889	0.069159348	2.17E-15
chr2:128367806:G:A	2:129125380:G:A	G	A	0.072131679	0.92546398	0.004805523
chr2:131790564:A:G	2:132548137:A:G	A	G	0.196868887	0.810204147	3.59E-08
chr2:132528902:T:C	2:133286475:T:C	T	C	0.435050058	0.568156621	0.0465583
chr2:136749687:G:T	2:137507257:G:T	G	T	0.489747882	0.502737498	3.69E-06
chr2:140217562:G:C	2:140975131:G:C	G	C	0.074616093	0.936840914	7.91E-44
chr2:140597425:A:G	2:141354994:A:G	A	G	0.363253025	0.632168243	0.003437373
chr2:141255117:T:C	2:142012686:T:C	T	C	0.215627812	0.788095238	0.00517247
chr2:143659900:C:T	2:144417469:C:T	C	T	0.154355185	0.851596908	3.73E-07
chr2:143813501:A:G	2:144571070:A:G	A	G	0.329413734	0.676759612	5.21E-05
chr2:144378986:T:C	2:145136553:T:C	T	C	0.092357021	0.905069735	0.007024599
chr2:1456232:G:T	2:1460004:G:T	G	T	0.374751543	0.62097654	0.006630556
chr2:147334642:G:T	2:148092210:G:T	G	T	0.1933565	0.812150742	1.87E-05
chr2:1490511:T:C	2:1494283:T:C	T	C	0.399575159	0.60365414	0.04312881
chr2:152375831:A:G	2:153232345:A:G	A	G	0.076751814	0.926086775	0.000996138
chr2:152878679:C:T	2:153735193:C:T	C	T	0.173815253	0.822337696	0.001928913
chr2:155609891:G:A	2:156466403:G:A	G	A	0.413068949	0.582537915	0.006023769
chr2:159797209:C:T	2:160653720:C:T	C	T	0.594451303	0.409597339	0.011098634
chr2:168448045:C:A	2:169304555:C:A	C	A	0.9229456	0.069913171	2.72E-17
chr2:173298777:G:C	2:174163505:G:C	G	C	0.09633349	0.906055598	0.012016015
chr2:173313627:T:C	2:174178355:T:C	T	C	0.161822202	0.841530398	0.004944566
chr2:176735123:G:A	2:177599851:G:A	G	A	0.078421014	0.924247689	0.002035611
chr2:177024810:G:A	2:177889538:G:A	G	A	0.201713009	0.80451293	1.71E-06
chr2:177107961:A:G	2:177972689:A:G	A	G	0.812452262	0.184374052	0.011769919
chr2:177997733:A:C	2:178862460:A:C	A	C	0.222910346	0.790601009	7.48E-24
chr2:181509254:T:C	2:182373981:T:C	T	C	0.725625702	0.277268686	0.045571191
chr2:186242509:T:C	2:187107236:T:C	T	C	0.173831235	0.802235822	1.57E-77
chr2:190647713:T:C	2:191512439:T:C	T	C	0.225650937	0.768083637	4.63E-06
chr2:19933460:C:T	2:20133221:C:T	C	T	0.05647844	0.941540301	0.009229963
chr2:202135994:A:T	2:203000717:A:T	A	T	0.3725795	0.637899749	2.62E-11
chr2:202250262:C:T	2:203114985:C:T	C	T	0.876064397	0.120613505	0.001755146
chr2:204257108:T:G	2:205121831:T:G	T	G	0.296067278	0.710396223	1.31E-05
chr2:20517365:C:T	2:20717125:C:T	C	T	0.232280169	0.762623555	0.000221574
chr2:205570674:T:C	2:206435398:T:C	T	C	0.63022942	0.380336637	2.10E-11
chr2:211461917:A:C	2:212326642:A:C	A	C	0.759043644	0.237743597	0.020286269
chr2:211752816:C:A	2:212617541:C:A	C	A	0.469687935	0.535410543	0.001593355
chr2:213147681:A:C	2:214012405:A:C	A	C	0.944289854	0.051531711	1.01E-08
chr2:215463584:G:A	2:216328307:G:A	G	A	0.092240493	0.909858875	0.025241711
chr2:219268115:T:C	2:220132837:T:C	T	C	0.082801847	0.919770575	0.003828812
chr2:219556063:G:A	2:220420785:G:A	G	A	0.262723212	0.732389688	0.00066881
chr2:220908889:C:T	2:221773609:C:T	C	T	0.19846878	0.809878016	1.11E-10
chr2:221954172:A:G	2:222818891:A:G	A	G	0.16954545	0.833033435	0.03382625
chr2:222841328:T:G	2:223706046:T:G	T	G	0.439854043	0.551714217	1.83E-07
chr2:223142306:A:G	2:224007024:A:G	A	G	0.883059273	0.107101744	5.53E-22
chr2:225367898:T:C	2:226232614:T:C	T	C	0.059611061	0.942314532	0.011988387
chr2:227226945:G:A	2:228091661:G:A	G	A	0.481635493	0.514677257	0.022699527
chr2:227431662:C:T	2:228296378:C:T	C	T	0.594416897	0.400968969	0.003938382
chr2:22839226:C:T	2:23062098:C:T	C	T	0.055682681	0.946266548	0.008792435
chr2:230383546:C:T	2:231248261:C:T	C	T	0.157574585	0.844950976	0.0320005
chr2:231331885:G:A	2:232196597:G:A	G	A	0.324683816	0.67003796	0.000540961
chr2:232715581:A:G	2:233580291:A:G	A	G	0.305224555	0.706337085	1.12E-14
chr2:233617178:G:A	2:234525824:G:A	G	A	0.129838271	0.872304074	0.048944239
chr2:233670047:T:G	2:234578693:T:G	T	G	0.190993253	0.817965158	1.31E-12
chr2:233673438:C:T	2:234582084:C:T	C	T	0.187864962	0.806416135	8.68E-06
chr2:233711220:T:A	2:234619866:T:A	T	A	0.104709193	0.899989307	1.90E-06
chr2:233713464:C:G	2:234622110:C:G	C	G	0.104233574	0.898232541	0.012550612
chr2:233784736:G:A	2:234693382:G:A	G	A	0.618559936	0.375206691	7.91E-05
chr2:234713224:G:A	2:235621868:G:A	G	A	0.333797485	0.678960362	8.61E-17
chr2:236793649:G:T	2:237702292:G:T	G	T	0.108705658	0.888645371	0.009378693
chr2:237907559:C:T	2:238816201:C:T	C	T	0.232597279	0.771587889	0.002249354
chr2:238397627:A:C	2:239306268:A:C	A	C	0.058943647	0.944172288	4.38E-05
chr2:238911116:A:C	2:239832812:A:C	A	C	0.558756146	0.446016861	0.003121417
chr2:239149397:T:A	2:240071093:T:A	T	A	0.256255365	0.746946303	0.023499077
chr2:239149551:G:A	2:240071247:G:A	G	A	0.220590235	0.77502829	0.001201921
chr2:239430820:T:C	2:240352514:T:C	T	C	0.599719985	0.404653328	0.006021099
chr2:239676376:A:G	2:240598070:A:G	A	G	0.057082928	0.944961888	0.006241051
chr2:240800117:C:T	2:241739534:C:T	C	T	0.302773994	0.679709932	3.46E-31
chr2:241550502:T:C	2:242489917:T:C	T	C	0.535250609	0.469697948	0.002343839
chr2:241575747:C:T	2:242515162:C:T	C	T	0.212701634	0.783056007	0.001532679

chr2:2520643:C:T	2:2524415:C:T	C	T	0.083012532	0.913819952	0.000508061
chr2:26015880:G:A	2:26238749:G:A	G	A	0.923563747	0.074602324	0.032490903
chr2:27525730:C:A	2:27748597:C:A	C	A	0.580242737	0.428921155	1.17E-08
chr2:30400464:C:T	2:30623330:C:T	C	T	0.43584409	0.569280259	0.00145337
chr2:30648942:G:A	2:30871808:G:A	G	A	0.800804987	0.201831839	0.042019557
chr2:30865615:T:C	2:31088481:T:C	T	C	0.067185571	0.935882831	0.000132822
chr2:31278295:C:A	2:31501161:C:A	C	A	0.081507259	0.921586475	0.000488572
chr2:31739469:G:T	2:31964538:G:T	G	T	0.118514102	0.8866367	6.86E-07
chr2:33229199:A:G	2:33454266:A:G	A	G	0.494225337	0.509092937	0.041103324
chr2:33551676:A:G	2:33776743:A:G	A	G	0.123140582	0.881004867	9.41E-05
chr2:34074321:T:G	2:34299388:T:G	T	G	0.081143288	0.925842197	1.32E-15
chr2:35655517:A:T	2:35880583:A:T	A	T	0.207275459	0.797925889	7.56E-05
chr2:38062617:T:A	2:38289760:T:A	T	A	0.197132992	0.792691401	5.43E-15
chr2:38281622:G:A	2:38508764:G:A	G	A	0.185303029	0.811781748	0.021903156
chr2:38737389:A:G	2:38964531:A:G	A	G	0.252487211	0.750809781	0.019168044
chr2:40194512:C:T	2:40421652:C:T	C	T	0.229014066	0.774289993	0.015677558
chr2:41903166:C:A	2:42130306:C:A	C	A	0.170202527	0.826296808	0.004381779
chr2:42882443:A:G	2:43109583:A:G	A	G	0.175960507	0.828885211	8.66E-05
chr2:42970770:T:A	2:43197910:T:A	T	A	0.34261234	0.653051938	0.004951656
chr2:44503978:G:A	2:44731117:G:A	G	A	0.708131553	0.296285254	0.002792141
chr2:44980729:T:C	2:45207868:T:C	T	C	0.472428836	0.535271217	2.29E-06
chr2:46272597:G:A	2:46499736:G:A	G	A	0.417612537	0.569878156	9.26E-15
chr2:47632197:G:C	2:47859336:G:C	G	C	0.091919995	0.905757383	0.014223538
chr2:47678875:T:G	2:47906014:T:G	T	G	0.127971526	0.877761005	1.18E-07
chr2:48325841:T:G	2:48552980:T:G	T	G	0.052687557	0.948917105	0.026904179
chr2:49222916:A:T	2:49450055:A:T	A	T	0.110752508	0.885456801	0.000243664
chr2:49385073:G:T	2:49612212:G:T	G	T	0.10394284	0.899190919	0.001498036
chr2:49475722:T:C	2:49702860:T:C	T	C	0.061468749	0.940216822	0.030425014
chr2:5255740:T:C	2:5395873:T:C	T	C	0.410118531	0.593998305	0.009841723
chr2:53270492:T:G	2:53497630:T:G	T	G	0.067460816	0.939298952	1.80E-17
chr2:53515993:C:T	2:53743131:C:T	C	T	0.353997113	0.640373902	0.000306119
chr2:54808145:C:T	2:55035282:C:T	C	T	0.137041686	0.857023026	1.77E-07
chr2:54924406:C:T	2:55151543:C:T	C	T	0.906789058	0.095454056	0.018656742
chr2:55890479:T:C	2:56117614:T:C	T	C	0.159026208	0.84731387	7.33E-08
chr2:55923214:T:C	2:56150349:T:C	T	C	0.055074329	0.947214402	0.001788061
chr2:57128527:A:G	2:57355662:A:G	A	G	0.327066922	0.682232408	1.05E-09
chr2:59625468:A:G	2:59852603:A:G	A	G	0.796203697	0.209292664	3.34E-05
chr2:59794827:C:T	2:60021962:C:T	C	T	0.540151063	0.456155473	0.022321274
chr2:59806571:C:A	2:60033706:C:A	C	A	0.641500005	0.36181681	0.033212986
chr2:61458691:T:C	2:61685826:T:C	T	C	0.098707852	0.905475525	1.50E-05
chr2:630509:T:C	2:630509:T:C	T	C	0.849448193	0.152988218	0.036810059
chr2:630903:A:G	2:630903:A:G	A	G	0.849508317	0.153732598	0.005646637
chr2:635866:A:G	2:635866:A:G	A	G	0.849469114	0.155843738	5.93E-06
chr2:63949661:C:T	2:64176795:C:T	C	T	0.100444536	0.903256705	0.000146407
chr2:64860098:C:G	2:65087232:C:G	C	G	0.213034155	0.791893543	0.000193935
chr2:64987606:T:C	2:65214740:T:C	T	C	0.154668071	0.848376735	0.009265195
chr2:65072166:G:C	2:65299300:G:C	G	C	0.103648841	0.898779452	0.013808827
chr2:67735856:T:C	2:67962988:T:C	T	C	0.547785694	0.456103852	0.016133444
chr2:6813803:G:A	2:6953934:G:A	G	A	0.059081426	0.938469894	0.001672793
chr2:70576548:T:C	2:70803680:T:C	T	C	0.102379956	0.900976474	0.000580119
chr2:71153225:G:C	2:71380355:G:C	G	C	0.150361428	0.855264276	1.04E-06
chr2:74815845:T:C	2:75042972:T:C	T	C	0.563517296	0.441555852	0.001642347
chr2:7494692:A:G	2:7634823:A:G	A	G	0.187533706	0.818014648	1.18E-05
chr2:75581006:T:G	2:75808132:T:G	T	G	0.150536116	0.85802489	9.59E-14
chr2:75633823:C:T	2:75860949:C:T	C	T	0.357715463	0.655047964	2.64E-16
chr2:76542887:G:A	2:76770013:G:A	G	A	0.782748461	0.221857043	0.000599795
chr2:777141:G:A	2:777138:G:A	G	A	0.167587246	0.82691952	7.77E-06
chr2:78721244:T:C	2:78948370:T:C	T	C	0.159442078	0.833365195	2.50E-09
chr2:79073175:C:T	2:79300301:C:T	C	T	0.512148324	0.494612407	3.12E-05
chr2:79662490:C:A	2:79889616:C:A	C	A	0.631351544	0.364395045	0.006647793
chr2:79865597:G:T	2:80092723:G:T	G	T	0.157435012	0.83980929	0.020324871
chr2:85596955:C:T	2:85824078:C:T	C	T	0.055034259	0.946445702	0.044507431
chr2:98747327:A:G	2:99363790:A:G	A	G	0.373341842	0.631342384	0.002938742
chr20:10089954:T:C	20:10070602:T:C	T	C	0.054636576	0.948403078	3.00E-05
chr20:10659553:A:G	20:10640201:A:G	A	G	0.773704019	0.229337978	0.025149283
chr20:10853430:T:C	20:10834078:T:C	T	C	0.702982623	0.301901973	0.001052194
chr20:11789183:A:G	20:11769831:A:G	A	G	0.302403917	0.701676206	0.006320667
chr20:11870313:C:A	20:11850961:C:A	C	A	0.322458953	0.673679903	0.011117237
chr20:12030397:C:G	20:12011045:C:G	C	G	0.093374255	0.903915168	0.004314006
chr20:15019174:C:T	20:14999820:C:T	C	T	0.117936375	0.879532849	0.016930955
chr20:15618886:G:A	20:15599531:G:A	G	A	0.097448585	0.906401158	5.42E-05
chr20:16264239:C:T	20:16244884:C:T	C	T	0.151287846	0.845842638	0.014414632
chr20:17740536:C:T	20:17721181:C:T	C	T	0.068892966	0.934418512	5.45E-05

chr20:17865111:T:C	20:17845755:T:C	T	C	0.851170551	0.154391914	2.20E-06
chr20:18447789:T:G	20:18428433:T:G	T	G	0.304874214	0.698149045	0.042688831
chr20:2213840:A:G	20:2194486:A:G	A	G	0.106394062	0.896417885	0.004877654
chr20:22274535:G:T	20:22255173:G:T	G	T	0.317999226	0.675130124	6.66E-06
chr20:22816851:T:A	20:22797489:T:A	T	A	0.110422234	0.892030337	0.01574587
chr20:23130619:C:T	20:23111256:C:T	C	T	0.910991587	0.086284825	0.003021515
chr20:23638399:C:CCA	20:23619036:C:CCA	C	CCA	0.195208899	0.809794738	9.87E-05
chr20:23724866:C:T	20:23705503:C:T	C	T	0.065921361	0.936216955	0.007450129
chr20:2674279:A:C	20:2654925:A:C	A	C	0.655488094	0.349490036	0.001252056
chr20:30371231:A:G	20:29605907:A:G	A	G	0.388813903	0.614786636	0.023057456
chr20:31225258:A:G	20:29813061:A:G	A	G	0.840237647	0.164073994	0.000334362
chr20:3393065:T:G	20:3373712:T:G	T	G	0.204099887	0.802057282	2.08E-06
chr20:347011:G:C	20:327655:G:C	G	C	0.079157289	0.91369784	1.16E-15
chr20:35139070:C:T	20:33726873:C:T	C	T	0.097531123	0.89996966	0.010318563
chr20:35790210:T:G	20:34378132:T:G	T	G	0.111879066	0.875289082	4.17E-34
chr20:35834679:G:A	20:34422601:G:A	G	A	0.100939409	0.896982104	0.034709499
chr20:37448433:A:G	20:36076835:A:G	A	G	0.093369744	0.909009949	0.011173969
chr20:38271641:C:T	20:36900043:C:T	C	T	0.084749043	0.913173332	0.022728557
chr20:41472251:A:G	20:40100891:A:G	A	G	0.236230565	0.760150183	0.009023589
chr20:42824925:T:C	20:41453565:T:C	T	C	0.069052034	0.929208556	0.036394664
chr20:42983785:T:C	20:41612425:T:C	T	C	0.493951953	0.510032745	0.014011794
chr20:46089588:A:G	20:44718227:A:G	A	G	0.223542151	0.779920086	0.01023041
chr20:462199:G:C	20:442843:G:C	G	C	0.054996174	0.948013231	4.82E-05
chr20:46552829:T:C	20:45181468:T:C	T	C	0.862441943	0.140619271	0.006671611
chr20:47754292:T:C	20:46383036:T:C	T	C	0.062501308	0.941649783	7.72E-08
chr20:4784663:G:A	20:4765309:G:A	G	A	0.118092696	0.885179102	0.001759343
chr20:4798891:C:A	20:4779537:C:A	C	A	0.333683918	0.67290492	1.66E-05
chr20:48633167:C:T	20:47249705:C:T	C	T	0.211298253	0.791319675	0.047511186
chr20:50026165:C:T	20:48642702:C:T	C	T	0.189515032	0.804166166	9.76E-07
chr20:50029855:C:T	20:48646392:C:T	C	T	0.06841885	0.934826906	6.43E-05
chr20:50124008:G:A	20:48740545:G:A	G	A	0.278557156	0.713764191	1.73E-07
chr20:50312792:G:A	20:48929329:G:A	G	A	0.475589472	0.518284099	0.000160993
chr20:50387503:C:T	20:49004040:C:T	C	T	0.639463361	0.346984113	3.81E-18
chr20:51859596:G:A	20:50476135:G:A	G	A	0.175598632	0.820297742	0.000979798
chr20:53495477:C:T	20:52112016:C:T	C	T	0.35956754	0.646522139	9.10E-05
chr20:53751361:T:G	20:52367900:T:G	T	G	0.377306523	0.635310303	1.18E-15
chr20:57588884:A:G	20:56163940:A:G	A	G	0.749074229	0.255544387	0.001096337
chr20:57610247:G:A	20:56185303:G:A	G	A	0.0579319	0.94471555	0.00041803
chr20:57919853:G:T	20:56494909:G:T	G	T	0.127192845	0.86932496	0.001471325
chr20:60030377:T:G	20:58605432:T:G	T	G	0.139485563	0.857253476	0.004064743
chr20:61557843:A:G	20:60132899:A:G	A	G	0.083768225	0.918558427	0.009551132
chr20:62152469:G:A	20:60727525:G:A	G	A	0.874470422	0.120635257	4.40E-06
chr20:62614595:G:A	20:61211802:G:A	G	A	0.807995272	0.188703208	0.00958846
chr20:62822197:G:A	20:61453549:G:A	G	A	0.276682881	0.71853875	0.001124858
chr20:62875074:C:A	20:61506426:C:A	C	A	0.152384349	0.854560119	2.63E-09
chr20:63064383:T:C	20:61695735:T:C	T	C	0.61537335	0.393287936	5.79E-08
chr20:63420901:T:C	20:62052254:T:C	T	C	0.555470123	0.453912302	7.18E-09
chr20:63717555:A:G	20:62348907:A:G	A	G	0.694379576	0.310442745	0.001332982
chr20:775431:G:A	20:756074:G:A	G	A	0.272484282	0.72398506	0.015339694
chr20:8590628:T:C	20:8571275:T:C	T	C	0.09428682	0.908556685	0.002532507
chr20:914775:A:G	20:895418:A:G	A	G	0.558809068	0.446875634	0.000436582
chr21:13245953:T:C	21:14618274:T:C	T	C	0.549978025	0.464774599	1.32E-19
chr21:14051307:G:T	21:15423628:G:T	G	T	0.345970771	0.65095897	0.046663883
chr21:14080266:T:C	21:15452587:T:C	T	C	0.290532978	0.716421943	2.17E-06
chr21:14237788:A:G	21:15610109:A:G	A	G	0.268093901	0.735475094	0.012948182
chr21:17786289:T:C	21:19158606:T:C	T	C	0.502186912	0.502673209	0.00273492
chr21:18504794:A:T	21:19877112:A:T	A	T	0.264086599	0.748700438	4.98E-19
chr21:19205093:T:C	21:20577411:T:C	T	C	0.316458649	0.687822357	0.004535056
chr21:20052082:C:G	21:21424395:C:G	C	G	0.339030856	0.665508835	0.003078736
chr21:20744842:A:C	21:22117160:A:C	A	C	0.097387223	0.909937554	1.27E-14
chr21:21913505:A:C	21:23285825:A:C	A	C	0.225916819	0.780541859	1.74E-06
chr21:21921732:A:G	21:23294052:A:G	A	G	0.196707031	0.80804629	0.000228221
chr21:23098763:G:A	21:24471085:G:A	G	A	0.146935445	0.849648493	0.003105988
chr21:26967805:C:T	21:28340124:C:T	C	T	0.263678209	0.733213385	0.03021635
chr21:27756506:T:C	21:29128825:T:C	T	C	0.064990428	0.932421583	0.00146006
chr21:27998457:T:C	21:29370776:T:C	T	C	0.067501125	0.934518492	0.012351212
chr21:27999514:G:A	21:29371833:G:A	G	A	0.595812455	0.400512242	0.02113266
chr21:32038318:A:G	21:33410631:A:G	A	G	0.26810821	0.735233935	0.019968398
chr21:32156138:C:T	21:33528450:C:T	C	T	0.539318843	0.452920408	1.82E-06
chr21:32870829:T:C	21:34243137:T:C	T	C	0.513195412	0.491628822	0.002940895
chr21:33573415:T:C	21:34945721:T:C	T	C	0.311004635	0.702132516	2.35E-18
chr21:35198707:C:T	21:36571004:C:T	C	T	0.081366775	0.912992311	3.92E-10
chr21:35381018:A:T	21:36753316:A:T	A	T	0.500537312	0.516957708	5.79E-26

chr21:35630292:C:A	21:37002590:C:A	C	A	0.782808365	0.219838315	0.048964989
chr21:38359991:A:C	21:39731913:A:C	A	C	0.47264444	0.530756447	0.035804296
chr21:39348568:C:T	21:40720494:C:T	C	T	0.083285161	0.918597717	0.035658907
chr21:39833210:A:G	21:41205137:A:G	A	G	0.112582643	0.890431433	0.003090115
chr21:41403253:C:T	21:42775180:C:T	C	T	0.908885495	0.084951585	2.08E-11
chr21:41728097:G:A	21:43148257:G:A	G	A	0.298351326	0.698154204	0.01937498
chr21:42799489:C:T	21:44219599:C:T	C	T	0.772908908	0.222787846	0.001536992
chr21:42811264:T:G	21:44231374:T:G	T	G	0.078233484	0.926232494	3.40E-07
chr21:43265514:A:C	21:44685393:A:C	A	C	0.060395418	0.944470882	1.37E-10
chr21:43329261:G:A	21:44749141:G:A	G	A	0.67127644	0.324376373	0.004302301
chr21:43337912:G:A	21:44757792:G:A	G	A	0.266852522	0.728902301	0.003253183
chr21:44723946:C:G	21:46143861:C:G	C	G	0.068738938	0.93456631	5.90E-05
chr21:44997056:A:G	21:46416970:A:G	A	G	0.682811503	0.321840496	0.002190147
chr21:45892161:T:C	21:47312075:T:C	T	C	0.146256617	0.869950248	5.80E-47
chr21:46151261:C:T	21:47571175:C:T	C	T	0.054332817	0.947346736	0.021548793
chr22:16692122:C:T	22:17173012:C:T	C	T	0.702368374	0.29135628	2.25E-05
chr22:17337917:T:C	22:17818807:T:C	T	C	0.09786179	0.904644846	0.008915728
chr22:17431799:T:C	22:17910844:T:C	T	C	0.190438085	0.813525578	0.001845316
chr22:19171502:C:T	22:19159015:C:T	C	T	0.580878507	0.415522832	0.024721833
chr22:23890859:C:T	22:24233046:C:T	C	T	0.534008484	0.473170757	9.35E-06
chr22:25750462:T:G	22:26146429:T:G	T	G	0.298675552	0.697489917	0.010067126
chr22:26634987:G:T	22:27030951:G:T	G	T	0.525248985	0.470902468	0.017546913
chr22:26736587:C:T	22:27132550:C:T	C	T	0.145040292	0.85815202	0.005135934
chr22:26999974:A:G	22:27395937:A:G	A	G	0.424342209	0.579167452	0.028609964
chr22:27456222:T:C	22:27852183:T:C	T	C	0.093850032	0.908091945	0.039034064
chr22:29491197:G:C	22:29887186:G:C	G	C	0.662084837	0.330718877	2.84E-06
chr22:30866918:C:T	22:31262905:C:T	C	T	0.063607549	0.933597966	0.000496867
chr22:35012134:A:G	22:35408124:A:G	A	G	0.063239585	0.93899479	0.004604363
chr22:36230909:A:G	22:36626955:A:G	A	G	0.219863164	0.783602406	0.009704688
chr22:38821996:G:A	22:39218001:G:A	G	A	0.164370472	0.8402647	0.000114353
chr22:38996245:G:A	22:39392250:G:A	G	A	0.223638513	0.773138107	0.017782169
chr22:43318249:C:T	22:43714255:C:T	C	T	0.194875979	0.802393135	0.034410558
chr22:45119094:C:T	22:45514975:C:T	C	T	0.333920714	0.676922513	1.49E-12
chr22:46380140:G:A	22:46776037:G:A	G	A	0.08231516	0.920011993	0.008608923
chr22:46728747:A:T	22:47124644:A:T	A	T	0.076394338	0.928597438	4.53E-09
chr22:48086709:G:C	22:48482526:G:C	G	C	0.919389089	0.083721842	0.00053391
chr22:48357021:G:A	22:48752833:G:A	G	A	0.078875243	0.91734398	2.26E-05
chr22:48696429:C:G	22:49092241:C:G	C	G	0.267130095	0.736302098	0.016681694
chr22:49198217:C:A	22:49594143:C:A	C	A	0.05477797	0.947223099	0.006235708
chr22:49203234:A:G	22:49599160:A:G	A	G	0.882848296	0.11938533	0.033529241
chr22:49279742:A:G	22:49675668:A:G	A	G	0.148222543	0.856337371	6.90E-05
chr22:49904240:T:C	22:50297888:T:C	T	C	0.09143171	0.917237289	4.09E-21
chr22:49963045:T:C	22:50356693:T:C	T	C	0.764846488	0.238415554	0.018451725
chr22:50162890:T:G	22:50601319:T:G	T	G	0.887223315	0.115746801	0.004405464
chr22:50182839:A:G	22:50621268:A:G	A	G	0.542036278	0.463133862	0.001428648
chr22:50204348:C:T	22:50642777:C:T	C	T	0.564010963	0.432282663	0.021355136
chr22:50271528:A:C	22:50709957:A:C	A	C	0.072670281	0.930639537	7.47E-05
chr22:50493057:T:C	22:50931486:T:C	T	C	0.112837823	0.891396724	3.66E-05
chr3:102005079:A:C	3:101723923:A:C	A	C	0.168630077	0.833846995	0.040612027
chr3:103766983:A:T	3:103485827:A:T	A	T	0.068438459	0.913756214	1.54E-92
chr3:10504650:T:G	3:10546334:T:G	T	G	0.169148777	0.834375	0.003751148
chr3:105520057:T:C	3:105238901:T:C	T	C	0.40933879	0.603117544	6.82E-15
chr3:10558767:C:T	3:10600451:C:T	C	T	0.165829361	0.837740712	0.003097902
chr3:107893934:G:A	3:107612781:G:A	G	A	0.090889119	0.907176237	0.040174612
chr3:108215610:A:G	3:107934457:A:G	A	G	0.092583875	0.911321075	2.86E-05
chr3:10834351:T:G	3:10876036:T:G	T	G	0.218630966	0.786023402	0.000680853
chr3:10919389:C:G	3:10961074:C:G	C	G	0.074716251	0.927461628	0.00999328
chr3:111987519:G:A	3:111706366:G:A	G	A	0.21256774	0.78360367	0.004334779
chr3:112126674:C:A	3:111845521:C:A	C	A	0.254861656	0.740027458	0.000337969
chr3:113622160:T:C	3:113341007:T:C	T	C	0.30879168	0.686122577	0.000757909
chr3:115574247:T:A	3:115293094:T:A	T	A	0.136150209	0.868349014	5.28E-05
chr3:116801534:C:T	3:116520381:C:T	C	T	0.240731372	0.771024469	2.60E-17
chr3:116950316:C:T	3:116669163:C:T	C	T	0.21718235	0.786414932	0.007134542
chr3:119344952:G:A	3:119063799:G:A	G	A	0.111714021	0.89282201	8.97E-06
chr3:119552344:A:C	3:119271191:A:C	A	C	0.072518285	0.936769338	6.96E-30
chr3:122997528:G:A	3:122716375:G:A	G	A	0.061756981	0.936559084	0.032292943
chr3:123329396:C:T	3:123048243:C:T	C	T	0.138108688	0.858279611	0.001363333
chr3:125862537:T:A	3:125581380:T:A	T	A	0.128892028	0.875503132	4.61E-05
chr3:126304379:A:T	3:126023222:A:T	A	T	0.080343132	0.917568801	0.01952882
chr3:126635702:T:C	3:126354545:T:C	T	C	0.068379868	0.936072163	3.45E-08
chr3:127102567:T:C	3:126821410:T:C	T	C	0.067238944	0.934774877	0.012998627
chr3:127143478:G:A	3:126862321:G:A	G	A	0.189417635	0.802013939	3.61E-11
chr3:127406746:C:T	3:127125589:C:T	C	T	0.294853287	0.697324938	1.61E-07

chr3:127743651:G:A	3:127462494:G:A	G	A	0.150107014	0.852446411	0.027491468
chr3:127777711:G:A	3:127496554:G:A	G	A	0.087796525	0.910388659	0.048821492
chr3:128481616:T:C	3:128200459:T:C	T	C	0.697812119	0.305268124	0.038713676
chr3:128780367:G:A	3:128499210:G:A	G	A	0.096214	0.905920707	0.024695592
chr3:129575613:C:T	3:129294456:C:T	C	T	0.192936943	0.802924058	0.001351142
chr3:132706085:C:T	3:132424929:C:T	C	T	0.063254525	0.944656903	1.11E-24
chr3:133989260:C:A	3:133708104:C:A	C	A	0.216297218	0.778440431	9.06E-05
chr3:137152399:T:C	3:136871241:T:C	T	C	0.190505833	0.812995964	0.005751833
chr3:1384298:C:T	3:1425982:C:T	C	T	0.172568688	0.822839093	0.000224689
chr3:138436113:T:A	3:138154955:T:A	T	A	0.054820179	0.936071029	1.00E-32
chr3:139851662:C:T	3:139570504:C:T	C	T	0.459624569	0.551003756	5.37E-11
chr3:139979485:G:A	3:139698327:G:A	G	A	0.059533025	0.942994151	0.000878659
chr3:140120158:T:C	3:139839000:T:C	T	C	0.716718623	0.288521355	0.000367851
chr3:140833820:G:A	3:140552662:G:A	G	A	0.823889933	0.178745528	0.033094516
chr3:141684021:GGTT:G	3:141402863:GGTT:G	GGTT	G	0.110287809	0.887109265	0.010914683
chr3:142163265:A:G	3:141882107:A:G	A	G	0.054824798	0.947002125	0.013248891
chr3:145433849:A:T	3:145151636:A:T	A	T	0.891789833	0.092302124	3.62E-60
chr3:147677404:C:T	3:147395191:C:T	C	T	0.110214351	0.885285071	1.37E-05
chr3:147693737:T:C	3:147411524:T:C	T	C	0.814625548	0.190924377	1.41E-05
chr3:147713617:G:A	3:147431404:G:A	G	A	0.05429495	0.947492805	0.014079782
chr3:147966098:A:G	3:147683885:A:G	A	G	0.139354123	0.864313249	0.001035514
chr3:148218488:C:T	3:147936275:C:T	C	T	0.158967519	0.835668004	7.96E-06
chr3:148244768:T:A	3:147962555:T:A	T	A	0.740522732	0.256371767	0.028921362
chr3:149190208:A:G	3:148907995:A:G	A	G	0.063247971	0.938345279	0.042549745
chr3:151191920:A:C	3:150909707:A:C	A	C	0.937909694	0.060083468	0.009786334
chr3:151888193:T:C	3:151605981:T:C	T	C	0.054166799	0.947625921	0.014373618
chr3:152603614:G:T	3:152321403:G:T	G	T	0.282496809	0.713185443	0.00326211
chr3:158139642:T:G	3:157857431:T:G	T	G	0.082163825	0.919714694	0.034883227
chr3:158321575:T:A	3:158039364:T:A	T	A	0.938757257	0.054202667	1.57E-20
chr3:158947851:C:T	3:158665640:C:T	C	T	0.12713673	0.868761217	0.000172104
chr3:161072137:G:A	3:160789925:G:A	G	A	0.175508705	0.783370221	5.17E-214
chr3:16199726:G:T	3:16241233:G:T	G	T	0.146940791	0.846739687	6.37E-08
chr3:164216575:A:G	3:163934363:A:G	A	G	0.231894595	0.771895545	0.005752028
chr3:16493722:C:T	3:16535229:C:T	C	T	0.385817931	0.618884228	0.002888709
chr3:165256378:T:G	3:164974166:T:G	T	G	0.456185136	0.550581853	3.08E-05
chr3:169546619:T:C	3:169264407:T:C	T	C	0.055449201	0.946005043	0.048072385
chr3:171502062:C:T	3:171219851:C:T	C	T	0.779178392	0.217173281	0.006684854
chr3:172177695:A:T	3:171895485:A:T	A	T	0.398734987	0.608331062	8.87E-06
chr3:172469088:G:A	3:172186878:G:A	G	A	0.172169498	0.835080474	4.10E-09
chr3:172567447:G:A	3:172285237:G:A	G	A	0.199551218	0.797445177	0.021538754
chr3:172650911:G:A	3:172368701:G:A	G	A	0.443107256	0.561277228	0.006462078
chr3:172855535:G:A	3:172573325:G:A	G	A	0.208650667	0.788423782	0.027367559
chr3:174002750:A:G	3:173720540:A:G	A	G	0.183055822	0.819896186	0.019441182
chr3:174308073:C:T	3:174025863:C:T	C	T	0.193845957	0.809432896	0.010478408
chr3:174851366:A:G	3:174569156:A:G	A	G	0.173776546	0.776761596	1.92255187203464e-314
chr3:175964166:C:T	3:175681954:C:T	C	T	0.235061511	0.762173119	0.045324719
chr3:176073646:G:A	3:175791434:G:A	G	A	0.151004394	0.844388392	9.06E-05
chr3:177471787:G:A	3:177189575:G:A	G	A	0.241490052	0.751198161	1.88E-07
chr3:179022634:T:A	3:178740422:T:A	T	A	0.715766805	0.277294018	1.90E-06
chr3:179260056:G:C	3:178977844:G:C	G	C	0.823899536	0.171564167	0.000225209
chr3:1807931:T:C	3:1849615:T:C	T	C	0.464379492	0.540441215	0.00286763
chr3:181824828:C:T	3:181542616:C:T	C	T	0.056680914	0.945760762	0.001118731
chr3:183328521:A:G	3:183046309:A:G	A	G	0.130703279	0.872697589	0.001852481
chr3:183402883:C:A	3:183120671:C:A	C	A	0.362143836	0.634447767	0.029083114
chr3:184398820:C:T	3:184116608:C:T	C	T	0.110884097	0.88693283	0.033997685
chr3:184410667:C:T	3:184128455:C:T	C	T	0.254618412	0.757350708	2.78E-17
chr3:184629820:A:G	3:184347608:A:G	A	G	0.666630054	0.337319244	0.010179292
chr3:185084194:C:A	3:184801982:C:A	C	A	0.698350291	0.294642294	2.39E-06
chr3:186355693:T:C	3:186073482:T:C	T	C	0.517471624	0.487497384	0.002142052
chr3:1863714:T:C	3:1905398:T:C	T	C	0.137922563	0.865245988	0.004617495
chr3:186963223:T:A	3:186681011:T:A	T	A	0.055078031	0.943160166	0.018141631
chr3:189755484:C:T	3:189473273:C:T	C	T	0.150947842	0.841860107	1.30E-09
chr3:189980572:G:A	3:189698361:G:A	G	A	0.239590688	0.74402006	9.75E-31
chr3:190686505:G:A	3:190404294:G:A	G	A	0.083102232	0.919426565	0.004539705
chr3:190782517:C:A	3:190500306:C:A	C	A	0.477441289	0.518872523	0.023007789
chr3:190818988:C:A	3:190536777:C:A	C	A	0.184714925	0.821269406	1.96E-06
chr3:191977214:G:A	3:191695003:G:A	G	A	0.809293341	0.185856863	0.000128157
chr3:192362247:T:A	3:192080036:T:A	T	A	0.083253123	0.913440303	0.000250675
chr3:192365937:G:A	3:192083726:G:A	G	A	0.071156506	0.932181227	6.19E-05
chr3:193646065:A:G	3:193363854:A:G	A	G	0.220398921	0.789721191	5.53E-14
chr3:193650903:C:A	3:193368692:C:A	C	A	0.416711999	0.587172897	0.015134811
chr3:193651735:T:A	3:193369524:T:A	T	A	0.417605427	0.589484739	9.85E-06
chr3:193676706:T:C	3:193394495:T:C	T	C	0.48568305	0.522266837	1.03E-06

chr3:193705735:T:G	3:193423524:T:G	T	G	0.068566736	0.934121711	0.000926219
chr3:194300942:C:T	3:194018731:C:T	C	T	0.092533894	0.905417697	0.03065751
chr3:194830384:G:T	3:194551113:G:T	G	T	0.075293344	0.926973815	0.008055062
chr3:195094486:C:T	3:194815215:C:T	C	T	0.151995397	0.842450718	2.60E-06
chr3:196729042:C:T	3:196455913:C:T	C	T	0.726864652	0.276786462	0.011595554
chr3:197220652:T:C	3:196947523:T:C	T	C	0.757989435	0.246553928	0.001164438
chr3:20190296:C:T	3:20231788:C:T	C	T	0.341140518	0.673019577	4.23E-20
chr3:21546075:G:T	3:21587567:G:T	G	T	0.355687965	0.6405704	0.016171569
chr3:22008754:G:T	3:22050246:G:T	G	T	0.170449741	0.835510968	1.00E-06
chr3:2381295:T:C	3:2422979:T:C	T	C	0.945242952	0.051551979	1.30E-05
chr3:23896298:G:A	3:23937789:G:A	G	A	0.206103297	0.8019614	8.05E-10
chr3:24821603:T:G	3:24863094:T:G	T	G	0.888614586	0.113585197	0.032572902
chr3:25171387:A:C	3:25212878:A:C	A	C	0.312669606	0.695118506	2.23E-07
chr3:2532886:A:G	3:2574570:A:G	A	G	0.736303627	0.267042134	0.019735327
chr3:2860808:A:G	3:2902492:A:G	A	G	0.215565135	0.788289436	0.003792791
chr3:31632673:T:G	3:31674165:T:G	T	G	0.087556397	0.91443327	0.029658815
chr3:31827313:A:G	3:31868805:A:G	A	G	0.243006591	0.759845225	0.040059245
chr3:31923815:A:T	3:31965307:A:T	A	T	0.745036403	0.250762114	0.002903609
chr3:32201691:A:G	3:32243183:A:G	A	G	0.088805009	0.914208451	0.00100218
chr3:32360501:C:T	3:32401993:C:T	C	T	0.275862249	0.719608577	0.001891747
chr3:35617986:A:G	3:35659478:A:G	A	G	0.699435117	0.307071757	1.53E-05
chr3:3906071:AC:A	3:3947755:AC:A	AC	A	0.134141621	0.85980585	5.36E-08
chr3:39198524:C:T	3:39240015:C:T	C	T	0.108709752	0.888678284	0.010228993
chr3:39501936:G:T	3:39543427:G:T	G	T	0.152212575	0.844592713	0.006544113
chr3:39547507:G:A	3:39588998:G:A	G	A	0.20699954	0.788881058	0.001844447
chr3:39780426:C:G	3:39821917:C:G	C	G	0.17161437	0.833342055	4.99E-05
chr3:42128856:G:A	3:42170348:G:A	G	A	0.375034064	0.496850839	0
chr3:42160563:G:T	3:42202055:G:T	G	T	0.191906271	0.812517665	0.000530249
chr3:42666621:C:T	3:42708113:C:T	C	T	0.086491689	0.910842498	0.003934918
chr3:45570474:T:G	3:45611966:T:G	T	G	0.110852125	0.893142271	8.67E-05
chr3:4711494:C:T	3:4753178:C:T	C	T	0.146387302	0.857420833	0.000884789
chr3:49714152:C:T	3:49751585:C:T	C	T	0.273691093	0.722821519	0.016262761
chr3:49799274:G:A	3:49836707:G:A	G	A	0.230236524	0.76328432	2.63E-06
chr3:535503:T:C	3:577186:T:C	T	C	0.063740977	0.938710255	0.001818032
chr3:5430771:T:C	3:5472457:T:C	T	C	0.093806884	0.908217105	0.031243298
chr3:56886881:G:A	3:56920909:G:A	G	A	0.332587114	0.662396748	0.00111252
chr3:58342238:T:C	3:58327965:T:C	T	C	0.065183279	0.937421073	0.001019844
chr3:61324654:G:T	3:61310328:G:T	G	T	0.124901083	0.879476101	4.43E-05
chr3:65746326:G:A	3:65732001:G:A	G	A	0.118231651	0.879353875	0.022352662
chr3:6675265:C:A	3:6716952:C:A	C	A	0.642705134	0.36046883	0.042068365
chr3:66878420:A:C	3:66928844:A:C	A	C	0.186143752	0.818363931	0.000350591
chr3:68134095:A:G	3:68183245:A:G	A	G	0.119522204	0.878366642	0.046669629
chr3:70163362:G:T	3:70212513:G:T	G	T	0.130134387	0.873887886	0.000217431
chr3:70347431:C:T	3:70396582:C:T	C	T	0.068395948	0.933260451	0.043104664
chr3:72337089:G:C	3:72386240:G:C	G	C	0.62413822	0.371864292	0.010857865
chr3:73886855:G:A	3:73936006:G:A	G	A	0.459472889	0.535745669	0.003112416
chr3:7442964:C:A	3:7484651:C:A	C	A	0.74106749	0.261969031	0.032706559
chr3:75787707:A:G	3:75836858:A:G	A	G	0.160338767	0.847209203	1.63E-10
chr3:76056517:A:C	3:76105668:A:C	A	C	0.555232193	0.435242833	3.67E-09
chr3:78434252:A:C	3:78483402:A:C	A	C	0.346788367	0.647687371	0.000381296
chr3:78725948:T:C	3:78775098:T:C	T	C	0.230601134	0.778555684	2.06E-11
chr3:79308239:A:G	3:79357389:A:G	A	G	0.074394518	0.92842995	0.000829168
chr3:81335016:A:T	3:81384167:A:T	A	T	0.203515385	0.805472095	6.18E-12
chr3:82519460:C:G	3:82568611:C:G	C	G	0.122324623	0.87994282	0.032093188
chr3:86825091:G:A	3:86874241:G:A	G	A	0.673783583	0.322802932	0.025094839
chr3:88325505:A:C	3:88374655:A:C	A	C	0.512585262	0.483314154	0.011288551
chr3:98507696:C:T	3:98226540:C:T	C	T	0.191489696	0.803853777	0.000325915
chr3:98786685:T:G	3:98505529:T:G	T	G	0.353982398	0.627718784	2.71E-31
chr3:99007688:A:C	3:98726532:A:C	A	C	0.641036102	0.371227683	6.81E-15
chr3:99007844:A:G	3:98726688:A:G	A	G	0.647311153	0.35630643	0.019798176
chr4:10029539:A:T	4:10031163:A:T	A	T	0.833923465	0.162817212	0.00666311
chr4:100880155:A:G	4:101801312:A:G	A	G	0.207946504	0.779446996	4.68E-21
chr4:10144869:G:A	4:10146493:G:A	G	A	0.197817102	0.80629094	0.001454315
chr4:102253164:C:T	4:103174321:C:T	C	T	0.565276471	0.442265596	3.33E-06
chr4:108321596:G:A	4:109242752:G:A	G	A	0.900324285	0.096461949	0.000876334
chr4:108855230:A:C	4:109776386:A:C	A	C	0.09189483	0.910590968	0.007922962
chr4:112764648:C:T	4:113685804:C:T	C	T	0.29206012	0.711887363	0.007479654
chr4:114341740:G:A	4:115262896:G:A	G	A	0.326878567	0.655423592	5.31E-31
chr4:11883167:T:A	4:11884791:T:A	T	A	0.348666117	0.655945491	0.002852307
chr4:120535615:C:T	4:121456770:C:T	C	T	0.058033099	0.945168006	1.85E-05
chr4:12064985:C:G	4:12066609:C:G	C	G	0.492569215	0.511849061	0.006452074
chr4:120723617:G:A	4:121644772:G:A	G	A	0.103303407	0.905351738	5.57E-19
chr4:124051931:G:C	4:124973086:G:C	G	C	0.088415591	0.907673072	3.07E-05

chr4:126635147:C:T	4:127556302:C:T	C	T	0.066607489	0.935238364	0.022514359
chr4:12679234:C:T	4:12680858:C:T	C	T	0.055520686	0.946127352	0.026143597
chr4:127829930:A:G	4:128751085:A:G	A	G	0.072456645	0.917784287	2.73E-29
chr4:130093901:A:C	4:131015056:A:C	A	C	0.082826803	0.921937969	6.23E-08
chr4:131928716:G:A	4:132849871:G:A	G	A	0.095172089	0.913027217	1.88E-18
chr4:133218495:T:C	4:134139650:T:C	T	C	0.859834299	0.137951057	0.04803273
chr4:134885279:G:T	4:135806434:G:T	G	T	0.578576285	0.417453179	0.01314103
chr4:137460675:G:T	4:138381829:G:T	G	T	0.091679862	0.910149961	0.049631219
chr4:138792543:A:C	4:139713697:A:C	A	C	0.164447188	0.832587139	0.014386669
chr4:139704951:A:G	4:140626105:A:G	A	G	0.869371914	0.128133263	0.022010002
chr4:139716549:G:A	4:140637703:G:A	G	A	0.168993709	0.838333683	1.72E-09
chr4:141895959:A:G	4:142817112:A:G	A	G	0.777321561	0.226746494	0.002781943
chr4:144123033:A:G	4:145044186:A:G	A	G	0.093892219	0.908286822	0.020569522
chr4:144171704:T:C	4:145092857:T:C	T	C	0.803481544	0.192496835	0.00171397
chr4:144314175:C:G	4:145235327:C:G	C	G	0.216854109	0.786888851	0.005162023
chr4:145617075:T:C	4:146538227:T:C	T	C	0.086156936	0.915960994	0.019339218
chr4:145672419:T:G	4:146593571:T:G	T	G	0.213432276	0.791979858	4.62E-05
chr4:145750194:T:C	4:146671346:T:C	T	C	0.085096144	0.912520435	0.009203808
chr4:146233822:C:T	4:147154974:C:T	C	T	0.126970594	0.870447983	0.017878704
chr4:148418515:C:T	4:149339667:C:T	C	T	0.218255469	0.766981639	3.13E-27
chr4:14903778:T:C	4:14905402:T:C	T	C	0.360455896	0.643340692	0.014772812
chr4:150181625:A:T	4:151102777:A:T	A	T	0.900855614	0.094800839	5.79E-06
chr4:151373577:A:G	4:152294729:A:G	A	G	0.123119573	0.879611589	0.009995848
chr4:151550916:C:T	4:152472068:C:T	C	T	0.109965061	0.895564943	3.33E-08
chr4:153143317:A:G	4:154064469:A:G	A	G	0.098347021	0.903652161	0.03739498
chr4:154041406:A:G	4:154962558:A:G	A	G	0.275885338	0.720477643	0.012638534
chr4:1551530:T:C	4:1553257:T:C	T	C	0.754058747	0.252767184	1.44E-06
chr4:15600629:G:C	4:15602252:G:C	G	C	0.349903758	0.646740108	0.030480297
chr4:1578002:T:C	4:1579729:T:C	T	C	0.774205191	0.228724155	0.032475101
chr4:159438482:T:A	4:160359634:T:A	T	A	0.190442315	0.8142221	0.000236437
chr4:1595244:A:G	4:1596971:A:G	A	G	0.408506988	0.597511268	0.000169689
chr4:15963047:C:T	4:15964670:C:T	C	T	0.130472534	0.865057791	5.59E-05
chr4:160365992:T:G	4:161287144:T:G	T	G	0.265024083	0.738100469	0.028998523
chr4:161120660:A:T	4:162041812:A:T	A	T	0.233661632	0.773980633	2.59E-08
chr4:161292105:C:T	4:162213257:C:T	C	T	0.092589105	0.904846652	0.007246492
chr4:16179828:A:G	4:16181451:A:G	A	G	0.056592268	0.929890997	4.84E-65
chr4:16439790:C:T	4:16441413:C:T	C	T	0.187768061	0.808720512	0.005976747
chr4:164805246:T:C	4:165726398:T:C	T	C	0.059051823	0.944234049	1.27E-05
chr4:165320466:C:T	4:166241618:C:T	C	T	0.094461996	0.909239752	8.34E-05
chr4:165799958:C:T	4:166721110:C:T	C	T	0.147594489	0.849934498	0.033443233
chr4:166106161:C:A	4:167027313:C:A	C	A	0.064374045	0.933146215	0.002218495
chr4:169069341:T:C	4:169990492:T:C	T	C	0.325266153	0.68129277	1.58E-05
chr4:173778488:C:G	4:174699639:C:G	C	G	0.128670509	0.875119419	0.00045256
chr4:174214345:G:T	4:175135496:G:T	G	T	0.361886777	0.628176552	2.48E-10
chr4:174229367:T:A	4:175150518:T:A	T	A	0.07804082	0.92571697	1.25E-05
chr4:174758444:G:A	4:175679595:G:A	G	A	0.053660909	0.944469038	0.011773476
chr4:175965616:T:C	4:176886767:T:C	T	C	0.109255746	0.877259738	5.89E-38
chr4:176312131:C:A	4:177233282:C:A	C	A	0.147003453	0.856499309	0.002280843
chr4:178794434:C:T	4:179715588:C:T	C	T	0.301340196	0.701791977	0.036998187
chr4:180604950:T:G	4:181526103:T:G	T	G	0.113883658	0.888958797	0.005822806
chr4:180626913:G:T	4:181548066:G:T	G	T	0.568542818	0.435940073	0.005356911
chr4:180932829:C:T	4:181853982:C:T	C	T	0.053939825	0.947844104	0.014087588
chr4:182092830:A:G	4:183013983:A:G	A	G	0.364103315	0.639452921	0.022947005
chr4:182761603:C:T	4:183682756:C:T	C	T	0.517366287	0.371645866	0
chr4:182826090:C:T	4:183747243:C:T	C	T	0.144979235	0.852385547	0.022108345
chr4:182897942:T:C	4:183819095:T:C	T	C	0.261215031	0.74324828	0.001728235
chr4:183649562:T:G	4:184570715:T:G	T	G	0.245661922	0.762929952	7.73E-10
chr4:183662077:A:G	4:184583230:A:G	A	G	0.188641048	0.814685573	0.008497259
chr4:186014610:A:G	4:186935764:A:G	A	G	0.122351944	0.875247986	0.025637536
chr4:186262526:T:C	4:187183680:T:C	T	C	0.614598909	0.38937942	0.011720422
chr4:186456853:T:C	4:187378007:T:C	T	C	0.535488727	0.472388644	1.19E-06
chr4:186485282:T:C	4:187406436:T:C	T	C	0.366820175	0.642909134	5.02E-10
chr4:186485747:G:A	4:187406901:G:A	G	A	0.233004122	0.769816093	0.039162661
chr4:188420198:T:C	4:189341352:T:C	T	C	0.135259171	0.861049972	0.001020858
chr4:188623614:G:T	4:189544768:G:T	G	T	0.58332723	0.413434786	0.042809688
chr4:20497789:G:C	4:20499412:G:C	G	C	0.714414235	0.290113669	0.002123809
chr4:21492232:G:T	4:21493855:G:T	G	T	0.335838881	0.655010473	3.97E-09
chr4:2334928:T:C	4:2336655:T:C	T	C	0.328657037	0.676431097	0.000841176
chr4:23757639:G:A	4:23759262:G:A	G	A	0.643710649	0.361525184	0.000766289
chr4:25556943:T:A	4:25558565:T:A	T	A	0.924259866	0.073938905	0.034436416
chr4:25620389:T:C	4:25622011:T:C	T	C	0.147238313	0.855854536	0.007110052
chr4:25945462:T:A	4:25947084:T:A	T	A	0.595713605	0.389210009	3.02E-21
chr4:2795756:C:T	4:2797483:C:T	C	T	0.154122557	0.842798058	0.009121127

chr4:28015754:G:A	4:28017376:G:A	G	A	0.08920023	0.903512817	1.11E-14
chr4:29733863:C:T	4:29735485:C:T	C	T	0.497028667	0.495128404	1.48E-06
chr4:30365462:G:A	4:30367084:G:A	G	A	0.06019647	0.942733819	0.000127929
chr4:31876247:A:C	4:31877869:A:C	A	C	0.281526015	0.722143149	0.011853682
chr4:31970946:T:C	4:31972568:T:C	T	C	0.059382449	0.943427734	0.000246403
chr4:32428364:G:T	4:32429986:G:T	G	T	0.245620837	0.758072617	0.008122792
chr4:35116864:G:A	4:35118486:G:A	G	A	0.172953804	0.830233915	0.009174452
chr4:35533108:A:G	4:35534730:A:G	A	G	0.17582044	0.834600134	2.69E-17
chr4:3603176:G:A	4:3604903:G:A	G	A	0.137636512	0.864675937	0.038559264
chr4:3611437:C:T	4:3613164:C:T	C	T	0.455562994	0.539571619	0.002792083
chr4:3631932:A:G	4:3633659:A:G	A	G	0.107503034	0.901046226	5.45E-18
chr4:38935212:G:A	4:38936833:G:A	G	A	0.45333961	0.543164628	0.030723942
chr4:39598859:C:T	4:39600479:C:T	C	T	0.070106486	0.927165698	0.001227387
chr4:39839699:C:T	4:39841319:C:T	C	T	0.057850516	0.944660082	0.000897989
chr4:40179763:T:C	4:40181383:T:C	T	C	0.16253677	0.815819922	3.12E-68
chr4:40275726:G:A	4:40277346:G:A	G	A	0.099858777	0.903084069	0.002435115
chr4:40938914:G:A	4:40940931:G:A	G	A	0.180433509	0.816406375	0.011763287
chr4:4226335:G:T	4:4228062:G:T	G	T	0.141529369	0.866837031	8.54E-14
chr4:42391295:T:C	4:42393312:T:C	T	C	0.398012344	0.609620534	1.85E-06
chr4:48437076:T:C	4:48439093:T:C	T	C	0.289643926	0.717772241	4.66E-07
chr4:52260551:T:A	4:53126717:T:A	T	A	0.309192333	0.687272861	0.01858824
chr4:52675732:C:T	4:53541899:C:T	C	T	0.125775407	0.877263762	0.004519931
chr4:53146157:T:C	4:54012324:T:C	T	C	0.443581374	0.559662001	0.044848717
chr4:53584164:T:C	4:54450331:T:C	T	C	0.296390317	0.710514202	3.14E-06
chr4:5640026:T:G	4:5641753:T:G	T	G	0.518988534	0.486736177	0.000420851
chr4:5726297:A:G	4:5728024:A:G	A	G	0.064879228	0.938884076	1.83E-06
chr4:60933967:C:T	4:61799685:C:T	C	T	0.127168974	0.87644175	0.000849436
chr4:60961311:A:C	4:61827029:A:C	A	C	0.776775253	0.23071174	4.33E-08
chr4:62358268:C:T	4:63223986:C:T	C	T	0.623815302	0.371725393	0.004403712
chr4:64363015:A:G	4:65228733:A:G	A	G	0.235919528	0.767176532	0.024459871
chr4:65091568:C:G	4:65957286:C:G	C	G	0.059303505	0.944975767	1.59E-08
chr4:65846634:A:C	4:66712352:A:C	A	C	0.109890922	0.885971795	5.22E-05
chr4:6691022:T:C	4:6692749:T:C	T	C	0.199678638	0.803836522	0.006685686
chr4:67618045:C:A	4:68483763:C:A	C	A	0.384935466	0.606876683	2.78E-07
chr4:70574406:T:A	4:71440123:T:A	T	A	0.441413402	0.562955376	0.006643046
chr4:72875653:T:A	4:73741370:T:A	T	A	0.79623508	0.208090878	0.001016851
chr4:72973471:C:T	4:73839188:C:T	C	T	0.64027618	0.351340445	8.47E-08
chr4:7427826:A:G	4:7429553:A:G	A	G	0.674015906	0.332408987	2.49E-05
chr4:76872281:G:A	4:77793434:G:A	G	A	0.085116065	0.911899612	0.001170989
chr4:782219:T:C	4:776007:T:C	T	C	0.061288128	0.941340047	0.000645883
chr4:791091:G:A	4:784879:G:A	G	A	0.071249558	0.932466943	8.61E-06
chr4:81219847:A:G	4:82141001:A:G	A	G	0.086561199	0.910007192	0.000216938
chr4:81236130:T:C	4:82157284:T:C	T	C	0.241999937	0.771239749	1.58E-21
chr4:81418147:T:C	4:82339301:T:C	T	C	0.055417817	0.946060466	0.044666956
chr4:82394468:G:C	4:83315621:G:C	G	C	0.092224326	0.905385578	0.011911416
chr4:8527178:G:A	4:8528905:G:A	G	A	0.119042865	0.887022093	1.26E-08
chr4:90994485:A:G	4:91915636:A:G	A	G	0.056861029	0.945008531	0.012730918
chr4:91502721:A:C	4:92423872:A:C	A	C	0.116334174	0.887630413	0.000122296
chr4:95601398:G:C	4:96522549:G:C	G	C	0.829340878	0.174030678	0.006377644
chr4:96884360:A:G	4:97805511:A:G	A	G	0.367914254	0.636374768	0.006158369
chr4:96988318:T:C	4:97909469:T:C	T	C	0.138960101	0.863438864	0.032022492
chr4:97108061:C:T	4:98029212:C:T	C	T	0.201503311	0.806268373	1.63E-09
chr4:99315605:C:T	4:100236762:C:T	C	T	0.809593799	0.185760849	0.000246502
chr5:102234532:T:C	5:101570236:T:C	T	C	0.082466731	0.919700192	0.014659855
chr5:105530303:T:G	5:104866004:T:G	T	G	0.94049898	0.056491711	7.21E-05
chr5:107609990:G:C	5:106945691:G:C	G	C	0.563681901	0.439511189	0.047115195
chr5:107736258:G:C	5:107071959:G:C	G	C	0.103498237	0.899007684	0.010797351
chr5:109082971:C:A	5:108418672:C:A	C	A	0.207475373	0.787109395	4.05E-05
chr5:109958314:C:G	5:109294015:C:G	C	G	0.062942623	0.938994524	0.013216006
chr5:112344704:A:G	5:111680401:A:G	A	G	0.905906105	0.090552988	0.00016885
chr5:112692738:A:C	5:112028435:A:C	A	C	0.117221796	0.876287417	1.31E-09
chr5:115406814:G:T	5:114742511:G:T	G	T	0.11572781	0.881985144	0.028979411
chr5:117272743:C:T	5:116608439:C:T	C	T	0.120604299	0.871522728	2.15E-13
chr5:117335463:G:T	5:116671159:G:T	G	T	0.117859982	0.886593467	1.79E-05
chr5:121916357:T:C	5:121252052:T:C	T	C	0.72913572	0.265625	0.000258313
chr5:122445592:G:T	5:121781287:G:T	G	T	0.053200725	0.948670037	0.010238408
chr5:123235799:G:A	5:122571493:G:A	G	A	0.237277717	0.769860119	2.31E-07
chr5:123349434:A:G	5:122685128:A:G	A	G	0.404827911	0.599181916	0.012277135
chr5:124620115:G:C	5:123955808:G:C	G	C	0.077619664	0.925915065	4.59E-05
chr5:125507966:A:G	5:124843659:A:G	A	G	0.771049451	0.232605944	0.007397688
chr5:126237036:C:T	5:125572729:C:T	C	T	0.538800734	0.411002437	1.33E-212
chr5:131529486:T:A	5:130865179:T:A	T	A	0.641907083	0.361617551	0.023480297
chr5:134513486:C:G	5:133849177:C:G	C	G	0.192113349	0.812288743	0.00056753

chr5:137112852:G:A	5:136448541:G:A	G	A	0.415596119	0.581138724	0.043101337
chr5:13726908:C:T	5:13727017:C:T	C	T	0.588098376	0.405183021	2.65E-05
chr5:14033161:A:G	5:14033270:A:G	A	G	0.378613352	0.625006625	0.021429379
chr5:140757226:G:A	5:140136811:G:A	G	A	0.427524098	0.568776992	0.021415665
chr5:141203704:G:T	5:140583277:G:T	G	T	0.058614267	0.945598739	2.38E-08
chr5:14159102:T:G	5:14159211:T:G	T	G	0.274410211	0.731294654	7.88E-05
chr5:143041450:G:A	5:142421015:G:A	G	A	0.057411263	0.94450405	0.010436588
chr5:146738429:C:T	5:146117992:C:T	C	T	0.138001629	0.865178769	0.004520905
chr5:148931024:T:C	5:148310587:T:C	T	C	0.612323995	0.39211669	0.005099762
chr5:150338364:A:G	5:149717927:A:G	A	G	0.148703911	0.858458094	5.34E-10
chr5:1517527:A:G	5:1517642:A:G	A	G	0.200125536	0.803195668	0.010350749
chr5:152148366:C:T	5:151527927:C:T	C	T	0.157802513	0.839644626	0.032435272
chr5:153688729:G:T	5:153068289:G:T	G	T	0.077642319	0.925356509	0.000490534
chr5:154522702:T:C	5:153902262:T:C	T	C	0.901124266	0.096773344	0.029126807
chr5:157594742:A:C	5:157021750:A:C	A	C	0.145728725	0.838699891	5.07E-40
chr5:157628166:A:T	5:157055174:A:T	A	T	0.098262298	0.904572398	0.003084821
chr5:159929758:T:A	5:159356765:T:A	T	A	0.068542939	0.928807604	0.001495988
chr5:159965845:A:T	5:159392852:A:T	A	T	0.220975135	0.783877204	0.000290132
chr5:160192819:A:G	5:159619826:A:G	A	G	0.172022595	0.830710511	0.025502589
chr5:163231324:G:A	5:162658330:G:A	G	A	0.165529174	0.837391313	0.01527691
chr5:164508423:C:T	5:163935429:C:T	C	T	0.059859192	0.942677447	0.000927327
chr5:165497418:G:A	5:164924423:G:A	G	A	0.768842907	0.228248377	0.033384598
chr5:165616605:G:A	5:165043610:G:A	G	A	0.183756203	0.822178052	2.30E-06
chr5:165746824:T:C	5:165173829:T:C	T	C	0.246541043	0.767247991	4.06E-22
chr5:166915173:T:G	5:166342178:T:G	T	G	0.411449287	0.584902241	0.022789499
chr5:167245514:C:T	5:166672519:C:T	C	T	0.930675919	0.065319957	7.89E-07
chr5:16773799:A:G	5:16773908:A:G	A	G	0.140097912	0.86597539	6.74E-08
chr5:168770639:A:G	5:168197644:A:G	A	G	0.093425568	0.908854521	0.015603392
chr5:16912738:G:A	5:16912847:G:A	G	A	0.10401274	0.899562679	0.000301122
chr5:169257354:T:C	5:168684358:T:C	T	C	0.312670758	0.697639748	7.74E-12
chr5:170353753:C:T	5:169780757:C:T	C	T	0.149558031	0.845458313	2.21E-05
chr5:170411649:A:G	5:169838653:A:G	A	G	0.65360072	0.351785657	0.000504207
chr5:171154120:A:T	5:170581124:A:T	A	T	0.066204443	0.935380059	0.049083825
chr5:171473286:A:G	5:170900290:A:G	A	G	0.218214443	0.784816258	0.0232905
chr5:171556795:A:G	5:170983799:A:G	A	G	0.350754857	0.65556953	4.42E-05
chr5:172225916:G:T	5:171652920:G:T	G	T	0.405896128	0.602884404	3.65E-08
chr5:172229542:T:C	5:171656546:T:C	T	C	0.101643238	0.900568182	0.024103022
chr5:172290709:A:G	5:171717713:A:G	A	G	0.326958335	0.67916574	5.59E-05
chr5:172963390:A:T	5:172390393:A:T	A	T	0.068148877	0.934076888	0.006494513
chr5:174246346:C:G	5:173673349:C:G	C	G	0.281228643	0.728820563	5.77E-12
chr5:178311164:C:G	5:177738165:C:G	C	G	0.063603649	0.938664755	0.00404526
chr5:178328276:G:A	5:177755277:G:A	G	A	0.054600707	0.943421024	0.008196388
chr5:178535846:G:T	5:177962847:G:T	G	T	0.920498766	0.076348395	0.000286771
chr5:179076639:C:T	5:178503640:C:T	C	T	0.284053226	0.712934907	0.039927148
chr5:179667107:A:C	5:179094108:A:C	A	C	0.179527458	0.826707119	5.14E-07
chr5:179839268:C:A	5:179266268:C:A	C	A	0.064511249	0.937165635	0.035871356
chr5:179868060:T:C	5:179295060:T:C	T	C	0.138924925	0.870431399	2.93E-17
chr5:180367981:T:A	5:179794981:T:A	T	A	0.067574353	0.927924003	5.48E-08
chr5:180453984:A:C	5:179880984:A:C	A	C	0.107011948	0.896486071	0.000480236
chr5:18087499:T:G	5:18087608:T:G	T	G	0.083955364	0.918001318	0.029537609
chr5:20508870:G:T	5:20508979:G:T	G	T	0.478636459	0.516519088	0.002939695
chr5:2110804:G:A	5:2110918:G:A	G	A	0.227252756	0.767787924	0.000307053
chr5:2137873:T:C	5:2137987:T:C	T	C	0.087251909	0.918201557	2.32E-09
chr5:21453971:A:C	5:21454080:A:C	A	C	0.138296929	0.871972245	3.89E-20
chr5:21529303:A:G	5:21529412:A:G	A	G	0.064764426	0.937849008	0.000938909
chr5:21540531:A:G	5:21540640:A:G	A	G	0.366073857	0.637889625	0.011275589
chr5:22301069:T:C	5:22301178:T:C	T	C	0.348228842	0.66256539	3.12E-12
chr5:22760704:A:C	5:22760813:A:C	A	C	0.491780793	0.498774483	6.97E-09
chr5:22902368:G:T	5:22902477:G:T	G	T	0.193942881	0.808736437	0.036343753
chr5:23720246:T:C	5:23720355:T:C	T	C	0.716622208	0.286781213	0.021378473
chr5:25575450:A:G	5:25575559:A:G	A	G	0.165718231	0.840368527	3.76E-07
chr5:27842957:G:T	5:27843064:G:T	G	T	0.063237242	0.939566393	0.000332945
chr5:28621186:A:G	5:28621293:A:G	A	G	0.566118466	0.442217968	2.27E-07
chr5:29223585:A:C	5:29223692:A:C	A	C	0.247861503	0.75551065	0.016053088
chr5:31386399:G:T	5:31386506:G:T	G	T	0.178370787	0.829949265	2.09E-11
chr5:32462647:C:T	5:32462753:C:T	C	T	0.21548649	0.780466297	0.002596074
chr5:34389711:G:A	5:34389816:G:A	G	A	0.437613276	0.558148865	0.00873569
chr5:37243651:C:A	5:37243753:C:A	C	A	0.220536994	0.784593813	0.000137137
chr5:38143181:C:T	5:38143283:C:T	C	T	0.076530772	0.926431815	0.000512145
chr5:3815565:G:T	5:3815679:G:T	G	T	0.509812434	0.485729242	0.006000851
chr5:39511849:A:G	5:39511951:A:G	A	G	0.297594498	0.707143829	0.001390713
chr5:4011057:A:G	5:4011171:A:G	A	G	0.295996611	0.716973162	2.49E-18
chr5:4223961:T:C	5:4224074:T:C	T	C	0.057663858	0.944599593	0.002537663

chr5:42729086:C:T	5:42729188:C:T	C	T	0.084009834	0.918352762	0.008377327
chr5:46380224:G:A	5:46380326:G:A	G	A	0.664580431	0.323029693	6.66E-16
chr5:5260750:C:T	5:5260863:C:T	C	T	0.145187107	0.850737657	0.000418783
chr5:52939972:T:G	5:52235802:T:G	T	G	0.870352742	0.127091852	0.018576808
chr5:5294074:C:T	5:5294187:C:T	C	T	0.101178957	0.900809886	0.040671513
chr5:53222774:T:C	5:52518604:T:C	T	C	0.329232314	0.678100503	1.47E-06
chr5:55482225:C:T	5:54778053:C:T	C	T	0.734538241	0.261098846	0.002217494
chr5:55538243:A:G	5:54834071:A:G	A	G	0.885170617	0.112611521	0.031293945
chr5:56882284:A:G	5:56178111:A:G	A	G	0.078551176	0.92434658	0.000799768
chr5:59116265:A:G	5:58412092:A:G	A	G	0.169275029	0.834082587	0.005559085
chr5:59427095:A:T	5:58722921:A:T	A	T	0.085376337	0.91785718	0.000357761
chr5:60031661:T:G	5:59327488:T:G	T	G	0.065683352	0.932650461	0.040571351
chr5:6021733:A:C	5:6021846:A:C	A	C	0.795497578	0.211315946	2.69E-07
chr5:63314081:A:T	5:62609908:A:T	A	T	0.252976858	0.758771261	2.53E-16
chr5:64600397:T:A	5:63896224:T:A	T	A	0.102480281	0.89417762	0.000814524
chr5:65620648:T:C	5:64916475:T:C	T	C	0.077314562	0.924504018	0.03564375
chr5:65637359:C:T	5:64933186:C:T	C	T	0.590377957	0.401186633	1.47E-07
chr5:66555779:A:T	5:65851607:A:T	A	T	0.067323326	0.92975815	0.000437462
chr5:68021286:G:T	5:67317114:G:T	G	T	0.400594217	0.603559583	0.00872043
chr5:68474576:A:C	5:67770403:A:C	A	C	0.055417947	0.946376417	0.015460755
chr5:71659917:A:C	5:70955744:A:C	A	C	0.121075811	0.881279453	0.025442943
chr5:73849602:A:G	5:73145427:A:G	A	G	0.059719169	0.94378944	4.01E-06
chr5:74679269:G:A	5:73975094:G:A	G	A	0.180424935	0.824128476	0.000245703
chr5:75925108:C:T	5:75220933:C:T	C	T	0.208178594	0.788924669	0.028530956
chr5:77086872:A:G	5:76382697:A:G	A	G	0.05451645	0.947458607	0.006835506
chr5:78636020:G:A	5:77931843:G:A	G	A	0.306211245	0.688742726	0.00083328
chr5:80201337:T:C	5:79497156:T:C	T	C	0.141769887	0.861650769	0.002405941
chr5:80354176:T:A	5:79649995:T:A	T	A	0.117559944	0.89306776	4.33E-25
chr5:80808884:C:T	5:80104703:C:T	C	T	0.840442533	0.155632541	0.000943182
chr5:81217249:C:T	5:80513068:C:T	C	T	0.201470988	0.795890588	0.044079705
chr5:81919597:A:G	5:81215416:A:G	A	G	0.053015655	0.949127709	0.003197772
chr5:84241699:C:A	5:83537517:C:A	C	A	0.095364294	0.899511164	1.05E-07
chr5:87769489:G:A	5:87065306:G:A	G	A	0.258641724	0.7528094	8.89E-16
chr5:95406133:A:G	5:94741837:A:G	A	G	0.779019165	0.22551618	0.000819193
chr5:96384655:T:C	5:95720359:T:C	T	C	0.263996568	0.739570507	0.012606381
chr5:96419328:A:T	5:95755032:A:T	A	T	0.280317038	0.702292646	2.22E-31
chr5:96618719:C:A	5:95954423:C:A	C	A	0.82837148	0.168744726	0.01791363
chr5:97564336:A:G	5:96900040:A:G	A	G	0.101892636	0.902787743	1.45E-06
chr5:98048276:T:C	5:97383980:T:C	T	C	0.369944873	0.640583971	1.93E-11
chr5:98730558:A:C	5:98066262:A:C	A	C	0.093974693	0.904029014	0.03732972
chr5:98916571:G:C	5:98252275:G:C	G	C	0.186149867	0.819281601	2.16E-05
chr5:99486209:C:G	5:98821913:C:G	C	G	0.753512948	0.241743241	0.000679676
chr6:101166891:T:A	6:101614767:T:A	T	A	0.822346737	0.173272207	0.000392653
chr6:104258704:C:T	6:104706579:C:T	C	T	0.25087132	0.752398289	0.019858434
chr6:105329971:T:C	6:105777846:T:C	T	C	0.068762238	0.933241204	0.014093081
chr6:107007802:T:C	6:107329006:T:C	T	C	0.281877158	0.72217842	0.005444998
chr6:107986042:G:A	6:108307246:G:A	G	A	0.686190411	0.31009374	0.013485795
chr6:108960208:G:T	6:109281411:G:T	G	T	0.1151529	0.878129283	1.56E-10
chr6:11276971:T:A	6:11277204:T:A	T	A	0.05919409	0.942511299	0.02566464
chr6:113660528:T:C	6:113981730:T:C	T	C	0.349370313	0.635446287	4.60E-22
chr6:114010406:T:C	6:114331570:T:C	T	C	0.561020389	0.446135982	9.75E-06
chr6:114160335:T:A	6:114481499:T:A	T	A	0.067137905	0.917677187	4.57E-70
chr6:11473526:G:C	6:11473759:G:C	G	C	0.057597155	0.944732206	0.00186391
chr6:118290580:T:C	6:118611743:T:C	T	C	0.059648242	0.942326085	0.009577345
chr6:118412159:C:A	6:118733322:C:A	C	A	0.054083458	0.947496689	0.030253769
chr6:11863124:A:G	6:11863357:A:G	A	G	0.929842549	0.067658043	0.002322536
chr6:119998300:T:A	6:120319446:T:A	T	A	0.067457702	0.93488155	0.003718357
chr6:12380135:A:C	6:12380367:A:C	A	C	0.573490951	0.429837957	0.03820597
chr6:124931375:T:C	6:125252521:T:C	T	C	0.764974476	0.238259794	0.019283215
chr6:128727230:G:T	6:129048375:G:T	G	T	0.068560788	0.929750049	0.041756654
chr6:131964571:C:T	6:132285711:C:T	C	T	0.636401214	0.359134574	0.004365699
chr6:132625901:T:C	6:132947040:T:C	T	C	0.057253349	0.944569543	0.015595067
chr6:134188116:T:C	6:134509254:T:C	T	C	0.657328152	0.338522378	0.006893325
chr6:135147172:C:T	6:135468310:C:T	C	T	0.186306267	0.817459483	0.002979238
chr6:138092132:A:G	6:138413269:A:G	A	G	0.559357052	0.443923485	0.042362434
chr6:139242518:G:A	6:139563655:G:A	G	A	0.08190805	0.915211751	0.001491391
chr6:14056017:G:A	6:14056248:G:A	G	A	0.307546342	0.703578009	1.58E-13
chr6:14091139:A:C	6:14091370:A:C	A	C	0.52668065	0.492866638	1.28E-33
chr6:142454158:A:G	6:142775295:A:G	A	G	0.212491631	0.799527819	8.32E-20
chr6:145430606:A:G	6:145751742:A:G	A	G	0.094809358	0.910931888	2.92E-09
chr6:148423272:C:T	6:148744408:C:T	C	T	0.124423336	0.872499808	0.004638786
chr6:148452691:C:G	6:148773827:C:G	C	G	0.444999365	0.560498016	0.000649621
chr6:148512271:G:A	6:148833407:G:A	G	A	0.166192424	0.830641951	0.009381542

chr6:150314279:G:A	6:150635415:G:A	G	A	0.134442328	0.862755141	0.012223991
chr6:150957036:G:A	6:151278172:G:A	G	A	0.277933531	0.718024031	0.005628328
chr6:151287559:C:T	6:151608694:C:T	C	T	0.340166335	0.649374184	1.69E-11
chr6:153436601:C:T	6:153757736:C:T	C	T	0.810462781	0.186004898	0.005286545
chr6:154713849:T:A	6:155034983:T:A	T	A	0.055240547	0.946778902	0.006418441
chr6:155593515:A:G	6:155914649:A:G	A	G	0.150806774	0.846535127	0.022983087
chr6:155907543:C:T	6:156228677:C:T	C	T	0.056218682	0.942287821	0.049277912
chr6:155935852:A:G	6:156256986:A:G	A	G	0.101576929	0.901588065	0.001221274
chr6:156662722:G:A	6:156983856:G:A	G	A	0.876943114	0.119575643	0.001001574
chr6:158307471:C:T	6:158728503:C:T	C	T	0.142532091	0.854579134	0.011676844
chr6:15850667:A:T	6:15850898:A:T	A	T	0.126809851	0.875633639	0.022847714
chr6:158768540:G:A	6:159189572:G:A	G	A	0.128006981	0.868840319	0.004118694
chr6:159399661:A:G	6:159820693:A:G	A	G	0.140792229	0.861423534	0.049155282
chr6:159530798:T:C	6:159951830:T:C	T	C	0.7930488	0.214533684	1.31E-08
chr6:161984557:G:T	6:162405589:G:T	G	T	0.300312788	0.69638396	0.026909026
chr6:162575541:T:G	6:162996573:T:G	T	G	0.065309965	0.93761704	0.000257733
chr6:16284554:C:A	6:16284785:C:A	C	A	0.122692038	0.874676072	0.014256021
chr6:163144250:G:A	6:163565282:G:A	G	A	0.354879966	0.636816896	1.47E-07
chr6:163627248:T:G	6:164048280:T:G	T	G	0.248320989	0.755713895	0.003882994
chr6:163855904:G:A	6:164276936:G:A	G	A	0.075758685	0.926971649	0.001362936
chr6:163920203:A:G	6:164341235:A:G	A	G	0.059885971	0.942268269	0.004775851
chr6:165835580:T:C	6:166249068:T:C	T	C	0.258486855	0.747143527	7.18E-05
chr6:166470980:T:C	6:166884468:T:C	T	C	0.497368889	0.506683725	0.012537736
chr6:166695891:C:G	6:167109379:C:G	C	G	0.071255925	0.931946333	0.000106068
chr6:167230789:A:C	6:167644277:A:C	A	C	0.21784961	0.790583753	3.04E-10
chr6:167686795:G:A	6:168087475:G:A	G	A	0.796026434	0.21037464	1.26E-06
chr6:168024396:G:A	6:168425076:G:A	G	A	0.25600615	0.749081931	0.000324211
chr6:168050608:C:T	6:168451288:C:T	C	T	0.056248038	0.94871767	1.59E-11
chr6:168087569:G:C	6:168488249:G:C	G	C	0.494711956	0.510408838	0.001659442
chr6:168132771:G:T	6:168533451:G:T	G	T	0.495360587	0.50058932	0.013332615
chr6:168715360:A:G	6:169115590:A:G	A	G	0.084633478	0.918015633	0.003307412
chr6:168910205:C:T	6:169310300:C:T	C	T	0.073441877	0.929772958	0.000143374
chr6:169805477:T:C	6:170205573:T:C	T	C	0.102004134	0.902913332	5.39E-07
chr6:170177225:G:T	6:170492449:G:T	G	T	0.68196769	0.324918755	6.16E-06
chr6:17543715:T:G	6:17543946:T:G	T	G	0.183853143	0.819369181	0.010177996
chr6:17632830:C:T	6:17633061:C:T	C	T	0.772772158	0.230430052	0.018734487
chr6:18374369:C:T	6:18374600:C:T	C	T	0.271292731	0.736149758	2.45E-07
chr6:18772949:T:A	6:18773180:T:A	T	A	0.546465009	0.448424369	0.001544767
chr6:18894385:T:G	6:18894616:T:G	T	G	0.858329411	0.139002187	0.017880472
chr6:20751084:T:C	6:20751315:T:C	T	C	0.425184162	0.584274721	3.94E-09
chr6:21197170:T:A	6:21197401:T:A	T	A	0.298434628	0.70740915	8.63E-05
chr6:21249782:C:T	6:21250013:C:T	C	T	0.060975355	0.937152676	0.017686397
chr6:21978450:T:C	6:21978679:T:C	T	C	0.142223432	0.861153263	0.002881239
chr6:23255418:A:G	6:23255646:A:G	A	G	0.095421924	0.906618366	0.031214575
chr6:23313792:A:T	6:23314020:A:T	A	T	0.086202258	0.916188632	0.008570444
chr6:23513332:T:C	6:23513560:T:C	T	C	0.238064084	0.755555672	4.45E-06
chr6:23876707:A:C	6:23876935:A:C	A	C	0.29379463	0.710052207	0.009201083
chr6:25332787:A:G	6:25333015:A:G	A	G	0.145475857	0.857140614	0.022143085
chr6:26436171:G:A	6:26436399:G:A	G	A	0.102569863	0.901775875	1.01E-05
chr6:27309272:C:T	6:27277051:C:T	C	T	0.109784928	0.89274213	0.012150176
chr6:28705624:A:C	6:28673401:A:C	A	C	0.06894603	0.933276226	0.006762921
chr6:28814986:A:C	6:28782763:A:C	A	C	0.062657572	0.93973593	0.002145837
chr6:28915911:T:C	6:28883688:T:C	T	C	0.110467124	0.892422114	0.004294456
chr6:29624913:C:A	6:29592690:C:A	C	A	0.100706141	0.897250915	0.038039181
chr6:29625316:T:G	6:29593093:T:G	T	G	0.100650709	0.905475753	2.49E-10
chr6:29697284:A:T	6:29665061:A:T	A	T	0.464261053	0.546373617	6.33E-11
chr6:29765036:G:T	6:29732813:G:T	G	T	0.250235375	0.754792518	0.000332412
chr6:29800272:G:A	6:29768049:G:A	G	A	0.282216387	0.707162007	7.44E-13
chr6:29802052:T:C	6:29769829:T:C	T	C	0.282193185	0.726456579	3.05E-09
chr6:29827644:G:A	6:29795421:G:A	G	A	0.496914097	0.499123825	0.014986567
chr6:29864555:A:G	6:29832332:A:G	A	G	0.819692453	0.176619025	0.003013746
chr6:29946622:G:A	6:29914399:G:A	G	A	0.320279728	0.684562981	0.001339861
chr6:29998161:C:T	6:29965938:C:T	C	T	0.056971295	0.940282421	0.000354724
chr6:30001263:T:C	6:29969040:T:C	T	C	0.058783208	0.943032744	0.017279054
chr6:30002041:T:C	6:29969818:T:C	T	C	0.05696666	0.944571621	0.039457462
chr6:30006377:G:A	6:29974154:G:A	G	A	0.056968448	0.946236852	1.82E-05
chr6:30013738:C:T	6:29981515:C:T	C	T	0.057037502	0.944807018	0.01362088
chr6:30078763:T:C	6:30046540:T:C	T	C	0.056990428	0.945811226	0.000164655
chr6:30089208:A:G	6:30056985:A:G	A	G	0.056991621	0.944597815	0.033216056
chr6:30235825:C:T	6:30203602:C:T	C	T	0.421237642	0.574190066	0.004466616
chr6:30397543:C:T	6:30365320:C:T	C	T	0.781303611	0.21444661	0.001576293
chr6:30399405:C:T	6:30367182:C:T	C	T	0.419343871	0.573961111	3.26E-05
chr6:30469199:T:G	6:30436976:T:G	T	G	0.150135997	0.867445981	7.03E-54

chr6:30828329:A:C	6:30796106:A:C	A	C	0.858833006	0.143562191	0.035109834
chr6:30831266:C:T	6:30799043:C:T	C	T	0.565117082	0.423203523	5.31E-13
chr6:30992490:T:C	6:30960267:T:C	T	C	0.158792496	0.844816403	0.002294049
chr6:31112809:A:G	6:31080586:A:G	A	G	0.102761651	0.899799694	0.008971005
chr6:31127517:A:G	6:31095294:A:G	A	G	0.53000314	0.476307702	0.000100083
chr6:31138722:G:A	6:31106499:G:A	G	A	0.137433598	0.865564301	0.007381982
chr6:31140708:G:A	6:31108485:G:A	G	A	0.717666259	0.278287771	0.005599265
chr6:31207267:T:C	6:31175044:T:C	T	C	0.479338058	0.5275571	2.16E-05
chr6:31210502:T:C	6:31178279:T:C	T	C	0.461539669	0.545178203	3.26E-05
chr6:31216648:G:A	6:31184425:G:A	G	A	0.077928531	0.917900589	2.77E-06
chr6:31228814:G:A	6:31196591:G:A	G	A	0.063131577	0.939027212	0.00580061
chr6:31243273:A:G	6:31211050:A:G	A	G	0.793747516	0.201488679	0.000267916
chr6:31274414:A:G	6:31242191:A:G	A	G	0.226145378	0.786334713	3.75E-20
chr6:31291360:T:C	6:31259137:T:C	T	C	0.11347476	0.889734617	0.001785787
chr6:31305076:C:A	6:31272853:C:A	C	A	0.113017048	0.884625443	0.022250886
chr6:31306237:G:A	6:31274014:G:A	G	A	0.103243017	0.894518675	0.024877755
chr6:31333559:A:C	6:31301336:A:C	A	C	0.339415371	0.664547475	0.009907782
chr6:31334434:A:G	6:31302211:A:G	A	G	0.665453214	0.337668109	0.042529718
chr6:31336198:G:A	6:31303975:G:A	G	A	0.072514205	0.930835432	6.29E-05
chr6:31337507:A:G	6:31305284:A:G	A	G	0.472869069	0.53379845	4.04E-05
chr6:31341238:G:C	6:31309015:G:C	G	C	0.331708439	0.675949182	5.33E-07
chr6:31344755:G:A	6:31312532:G:A	G	A	0.77400205	0.222243901	0.005527367
chr6:31351504:A:G	6:31319281:A:G	A	G	0.088394987	0.913817754	0.015731601
chr6:31352785:T:C	6:31320562:T:C	T	C	0.837256256	0.159246684	0.003415713
chr6:31517397:C:A	6:31485174:C:A	C	A	0.694682443	0.29943778	7.98E-05
chr6:32223264:G:A	6:32191041:G:A	G	A	0.309390791	0.685501966	0.000698654
chr6:32344860:T:G	6:32312637:T:G	T	G	0.756156134	0.250636146	1.53E-06
chr6:32375937:T:C	6:32343714:T:C	T	C	0.720314249	0.284467342	0.001074843
chr6:32378924:G:A	6:32346701:G:A	G	A	0.263242141	0.733531369	0.024663123
chr6:32393072:G:T	6:32360849:G:T	G	T	0.203561902	0.793101974	0.01119441
chr6:32460285:C:T	6:32428062:C:T	C	T	0.291856718	0.704546661	0.01507133
chr6:32591439:A:G	6:32559216:A:G	A	G	0.620726451	0.383171071	0.013517877
chr6:32614658:G:A	6:32582435:G:A	G	A	0.445718351	0.540856609	1.83E-16
chr6:32615682:A:C	6:32583459:A:C	A	C	0.119549981	0.884451658	0.000132233
chr6:32619388:T:G	6:32587165:T:G	T	G	0.393890574	0.616528448	6.17E-11
chr6:32626375:T:C	6:32594152:T:C	T	C	0.297079054	0.713620087	6.02E-13
chr6:32641284:T:A	6:32609061:T:A	T	A	0.090334596	0.912698748	0.001012127
chr6:32653139:A:T	6:32620916:A:T	A	T	0.139380092	0.867545163	7.06E-10
chr6:32655373:T:C	6:32623150:T:C	T	C	0.152000837	0.855943125	5.81E-12
chr6:32660056:A:G	6:32627833:A:G	A	G	0.399283398	0.604369088	0.021719948
chr6:32660075:G:A	6:32627852:G:A	G	A	0.399278167	0.590452612	1.31E-10
chr6:32665041:T:G	6:32632818:T:G	T	G	0.171860942	0.841241625	2.96E-27
chr6:32665685:T:A	6:32633462:T:A	T	A	0.193754648	0.811862306	1.08E-05
chr6:32668106:C:T	6:32635883:C:T	C	T	0.169351633	0.826571278	0.000892794
chr6:32685759:C:A	6:32653536:C:A	C	A	0.263321429	0.747787425	8.19E-15
chr6:32686126:A:G	6:32653903:A:G	A	G	0.252246597	0.751841713	0.003630706
chr6:32687480:C:T	6:32655257:C:T	C	T	0.264816985	0.729915738	0.000270695
chr6:32693007:C:G	6:32660784:C:G	C	G	0.546845422	0.468956172	4.70E-22
chr6:32700249:C:T	6:32668026:C:T	C	T	0.126640178	0.877536651	0.000107584
chr6:32701990:T:C	6:32669767:T:C	T	C	0.376586521	0.635614231	9.46E-15
chr6:32704662:T:C	6:32672439:T:C	T	C	0.103411526	0.901463266	8.00E-07
chr6:32706623:T:C	6:32674400:T:C	T	C	0.264120349	0.740753298	0.000639995
chr6:32711955:A:G	6:32679732:A:G	A	G	0.265281671	0.747733506	1.18E-19
chr6:32735331:C:G	6:32703108:C:G	C	G	0.136851025	0.860166184	0.008005193
chr6:32740727:C:G	6:32708504:C:G	C	G	0.7998138	0.20706883	1.76E-07
chr6:32772894:G:C	6:32740671:G:C	G	C	0.674651099	0.331474195	5.79E-05
chr6:32776273:G:A	6:32744050:G:A	G	A	0.698760395	0.297046743	0.004781232
chr6:32792557:A:G	6:32760334:A:G	A	G	0.6627019	0.340868508	0.020598132
chr6:32823522:C:A	6:32791299:C:A	C	A	0.359194267	0.648187868	2.12E-06
chr6:32975311:A:T	6:32943088:A:T	A	T	0.066250978	0.935387497	0.041984395
chr6:33017422:C:T	6:32985199:C:T	C	T	0.132566168	0.871124903	0.000717943
chr6:33549832:T:G	6:33517609:T:G	T	G	0.262854562	0.745229548	1.51E-08
chr6:33883275:C:A	6:33851052:C:A	C	A	0.129312509	0.876391286	1.25E-07
chr6:35025252:A:C	6:34993029:A:C	A	C	0.054357533	0.947727225	0.004556648
chr6:35580459:G:A	6:35548236:G:A	G	A	0.459184319	0.544428404	0.025447406
chr6:36394664:A:C	6:36362441:A:C	A	C	0.248364987	0.755391319	0.007249745
chr6:36651044:C:T	6:36618821:C:T	C	T	0.224959464	0.771498667	0.009310613
chr6:36679512:G:A	6:36647289:G:A	G	A	0.199272975	0.79770424	0.020393957
chr6:3693987:T:C	6:3694221:T:C	T	C	0.062399958	0.939423067	0.019362226
chr6:37558784:C:T	6:37526560:C:T	C	T	0.099126523	0.897211103	0.000199703
chr6:3959999:T:A	6:3960233:T:A	T	A	0.084616511	0.917165081	0.047516577
chr6:41562940:C:G	6:41530678:C:G	C	G	0.071159579	0.939638613	1.25E-40
chr6:41820642:T:G	6:41788380:T:G	T	G	0.139101598	0.863480044	0.020816781

chr6:42008108:C:T	6:41975846:C:T	C	T	0.18278012	0.814702128	0.045601357
chr6:43165821:C:A	6:43133559:C:A	C	A	0.089902921	0.907457308	0.00495275
chr6:44321818:A:G	6:44289555:A:G	A	G	0.110609469	0.893705257	2.05E-05
chr6:4434616:A:G	6:4434850:A:G	A	G	0.52488072	0.484788249	2.67E-09
chr6:4461937:T:C	6:4462171:T:C	T	C	0.279314546	0.724212971	0.015204579
chr6:45412387:A:C	6:45380124:A:C	A	C	0.130328507	0.848978849	4.14E-73
chr6:45617004:G:T	6:45584741:G:T	G	T	0.156453334	0.839525284	0.000748018
chr6:45730748:A:G	6:45698485:A:G	A	G	0.081160952	0.920628742	0.0421045
chr6:46707288:C:A	6:46675025:C:A	C	A	0.791508881	0.203221665	5.97E-05
chr6:46833334:G:T	6:46801071:G:T	G	T	0.431052879	0.565603084	0.038294611
chr6:48816971:G:A	6:48784608:G:A	G	A	0.119833673	0.876351433	0.000362098
chr6:50237488:A:G	6:50205201:A:G	A	G	0.09760854	0.904400146	0.036970091
chr6:5057165:A:G	6:5057399:A:G	A	G	0.15852791	0.844327478	0.0163862
chr6:52614920:T:C	6:52479718:T:C	T	C	0.076898494	0.928831018	2.75E-11
chr6:528932:T:C	6:528932:T:C	T	C	0.794931024	0.19532604	1.21E-13
chr6:5587475:G:A	6:5587708:G:A	G	A	0.814929495	0.181008746	0.001197638
chr6:65512005:A:G	6:66221898:A:G	A	G	0.12811622	0.878964791	8.33E-11
chr6:66454735:A:T	6:67164628:A:T	A	T	0.793730463	0.209313045	0.020951525
chr6:6975868:G:T	6:6976101:G:T	G	T	0.075521732	0.926258084	0.036653841
chr6:70619562:T:C	6:71329265:T:C	T	C	0.289640526	0.715629638	0.000340126
chr6:72448644:A:G	6:73158346:A:G	A	G	0.478919728	0.525818213	0.003594043
chr6:73031141:G:A	6:73740864:G:A	G	A	0.08231079	0.920130135	0.005767073
chr6:73272775:C:T	6:73982498:C:T	C	T	0.14769195	0.855352908	0.007929609
chr6:73350204:G:C	6:74059927:G:C	G	C	0.132291305	0.872388552	2.05E-05
chr6:74733747:C:A	6:75443463:C:A	C	A	0.819160844	0.185016539	0.000905936
chr6:7542041:T:C	6:7542274:T:C	T	C	0.068151389	0.934707325	0.000423642
chr6:76122334:G:A	6:76832051:G:A	G	A	0.282960049	0.710723367	1.84E-05
chr6:78718307:G:A	6:79428024:G:A	G	A	0.204559222	0.798579364	0.016314268
chr6:80669346:G:A	6:81379063:G:A	G	A	0.485075099	0.519116909	0.009736535
chr6:81041617:A:T	6:81751334:A:T	A	T	0.165121923	0.837979076	0.009676103
chr6:82062750:C:A	6:82772467:C:A	C	A	0.208021568	0.803042339	4.34E-17
chr6:87442817:C:A	6:88152535:C:A	C	A	0.591713222	0.404304234	0.012648232
chr6:87645119:A:G	6:88354837:A:G	A	G	0.111728072	0.883518001	3.85E-06
chr6:88496323:A:G	6:89206042:A:G	A	G	0.054913578	0.947253897	0.003285952
chr6:90008300:T:C	6:90718019:T:C	T	C	0.115370934	0.887223092	0.012098066
chr6:90329612:C:T	6:91039331:C:T	C	T	0.066336085	0.931346504	0.004655108
chr6:90675909:T:C	6:91385628:T:C	T	C	0.811245358	0.192873758	0.001292538
chr6:96777116:A:G	6:97224992:A:G	A	G	0.080650266	0.922656299	0.000179444
chr6:97968582:C:T	6:98416458:C:T	C	T	0.441703543	0.554746149	0.02775721
chr6:9989824:A:C	6:9990057:A:C	A	C	0.073603636	0.92469224	0.046685579
chr7:100008238:T:C	7:99605861:T:C	T	C	0.68805967	0.31506277	0.038874739
chr7:100119278:C:G	7:99716901:C:G	C	G	0.58623359	0.418050062	0.007742603
chr7:100616392:A:G	7:100214015:A:G	A	G	0.227766328	0.780652486	6.13E-10
chr7:100642673:A:G	7:100240296:A:G	A	G	0.65640465	0.348831211	0.000730063
chr7:100690922:G:A	7:100288545:G:A	G	A	0.641870829	0.345019574	4.35E-17
chr7:102692001:C:G	7:102332448:C:G	C	G	0.058000502	0.943570505	0.037135909
chr7:105733491:C:T	7:105373937:C:T	C	T	0.057520957	0.940263119	0.003662247
chr7:106066016:C:A	7:105706462:C:A	C	A	0.092206705	0.903426145	4.90E-06
chr7:10857598:G:A	7:10897225:G:A	G	A	0.229574335	0.777406865	3.11E-07
chr7:1177099:C:T	7:1216735:C:T	C	T	0.443771525	0.561639626	0.00081681
chr7:118639970:T:G	7:118280024:T:G	T	G	0.467129922	0.545462402	1.04E-14
chr7:12005667:A:G	7:12045293:A:G	A	G	0.060498628	0.941900248	0.001892449
chr7:120398107:C:T	7:120038161:C:T	C	T	0.114100765	0.890947084	9.90E-07
chr7:12205980:G:A	7:12245606:G:A	G	A	0.119707922	0.873642678	6.46E-10
chr7:123445187:A:T	7:123085241:A:T	A	T	0.798271937	0.198181703	0.006233646
chr7:123937327:C:T	7:123577381:C:T	C	T	0.825123436	0.165012502	1.05E-15
chr7:12455833:T:G	7:12495459:T:G	T	G	0.613065721	0.392890397	0.000175587
chr7:12658005:C:A	7:12697630:C:A	C	A	0.057302619	0.94428981	0.033224709
chr7:127416375:A:G	7:127056429:A:G	A	G	0.92967279	0.072462986	0.011128348
chr7:128400645:C:T	7:128040699:C:T	C	T	0.37862732	0.611091117	1.00E-10
chr7:129532353:A:C	7:129172194:A:C	A	C	0.446132683	0.558613416	0.003256846
chr7:129786070:T:C	7:129425910:T:C	T	C	0.482284082	0.522319486	0.004568999
chr7:131947549:G:A	7:131632308:G:A	G	A	0.110235273	0.884739975	1.23E-06
chr7:1342522:G:A	7:1382158:G:A	G	A	0.068905629	0.934194663	0.000144908
chr7:134756374:G:A	7:134441125:G:A	G	A	0.153020141	0.851288301	0.000223168
chr7:135691177:A:C	7:135375925:A:C	A	C	0.293016642	0.702647506	0.003490195
chr7:13702823:C:G	7:13742448:C:G	C	G	0.29334974	0.714989023	2.58E-08
chr7:138603175:C:T	7:138287920:C:T	C	T	0.058964756	0.943470124	0.001277875
chr7:139669591:C:T	7:139354337:C:T	C	T	0.623826996	0.381056992	0.001891095
chr7:140283372:T:C	7:139983172:T:C	T	C	0.188155114	0.815647273	0.002600784
chr7:140728550:A:T	7:140428350:A:T	A	T	0.058221606	0.943285535	0.046914535
chr7:141541740:A:G	7:141241540:A:G	A	G	0.475887356	0.527798608	0.022858263
chr7:145547822:C:A	7:145244915:C:A	C	A	0.451510517	0.544925611	0.027651362

chr7:147499247:A:G	7:147196339:A:G	A	G	0.283621357	0.72160155	0.00036311
chr7:147641408:G:A	7:147338500:G:A	G	A	0.070481839	0.931217374	0.039530506
chr7:147792352:C:T	7:147489444:C:T	C	T	0.062063088	0.939817963	0.016010883
chr7:148230701:C:T	7:147927793:C:T	C	T	0.245567144	0.750180982	0.002452333
chr7:149636012:C:T	7:149333103:C:T	C	T	0.657585459	0.346713266	0.005240714
chr7:149692267:T:A	7:149389358:T:A	T	A	0.084712487	0.917181129	0.036526831
chr7:149918846:A:G	7:149615935:A:G	A	G	0.633566265	0.381270885	7.35E-21
chr7:150066677:A:G	7:149763766:A:G	A	G	0.126361325	0.87673372	0.003844714
chr7:150793348:C:T	7:150490436:C:T	C	T	0.156222866	0.838531852	1.10E-05
chr7:151505054:C:A	7:151202140:C:A	C	A	0.509652793	0.494107949	0.020506969
chr7:153367301:T:C	7:153064386:T:C	T	C	0.389518128	0.6154333	0.001742082
chr7:153368225:A:C	7:153065310:A:C	A	C	0.382778734	0.610469287	2.21E-05
chr7:155813050:C:T	7:155605744:C:T	C	T	0.161047254	0.841687329	0.021624583
chr7:157089373:C:G	7:156882067:C:G	C	G	0.060907997	0.941214716	0.00587417
chr7:157276463:A:G	7:157069157:A:G	A	G	0.20117684	0.802109168	0.011968129
chr7:157542523:T:C	7:157335217:T:C	T	C	0.499837837	0.520663229	4.14E-36
chr7:157713906:G:T	7:157506598:G:T	G	T	0.432071386	0.561458444	6.01E-05
chr7:157895051:T:C	7:157687743:T:C	T	C	0.80493071	0.188737442	7.06E-07
chr7:15825660:G:A	7:15865285:G:A	G	A	0.0533975	0.949775646	1.07E-05
chr7:158961890:C:T	7:158754581:C:T	C	T	0.102881768	0.902574608	2.98E-08
chr7:158982481:A:C	7:158775172:A:C	A	C	0.837723611	0.155695514	2.64E-08
chr7:18925776:C:T	7:18965399:C:T	C	T	0.111469133	0.884948779	0.000552887
chr7:20611323:T:C	7:20650946:T:C	T	C	0.065569824	0.937398105	0.000192693
chr7:20736668:G:C	7:20776291:G:C	G	C	0.202947822	0.800927251	0.00288681
chr7:21553148:A:T	7:21592766:A:T	A	T	0.230279995	0.777866284	2.53E-09
chr7:21625929:G:T	7:21665547:G:T	G	T	0.051190038	0.946739278	0.004140285
chr7:220023:T:C	7:220023:T:C	T	C	0.100520991	0.902284465	0.003834849
chr7:22561508:G:T	7:22601127:G:T	G	T	0.336011382	0.660687791	0.031739195
chr7:22701306:G:A	7:22740925:G:A	G	A	0.233695993	0.759311638	4.73E-07
chr7:2313965:A:G	7:2353600:A:G	A	G	0.827218997	0.169336605	0.004980754
chr7:23817198:A:T	7:23856817:A:T	A	T	0.739452459	0.254728375	4.50E-05
chr7:24041844:G:A	7:24081463:G:A	G	A	0.299845174	0.709501444	2.41E-10
chr7:25065933:A:G	7:25105552:A:G	A	G	0.936900466	0.061218694	0.016344749
chr7:25260889:C:T	7:25300508:C:T	C	T	0.757998549	0.24581289	0.006192007
chr7:2639397:A:G	7:2679031:A:G	A	G	0.311955351	0.692209118	0.005595738
chr7:26814647:C:T	7:26854266:C:T	C	T	0.22404583	0.7819401	9.58E-06
chr7:27283985:T:G	7:27323604:T:G	T	G	0.090722221	0.906679053	0.005910908
chr7:27301526:G:A	7:27341145:G:A	G	A	0.692464112	0.310708307	0.034039682
chr7:27681497:G:A	7:27721116:G:A	G	A	0.05716886	0.941293774	0.043673719
chr7:2875744:G:T	7:2915378:G:T	G	T	0.153707346	0.842456521	0.00122772
chr7:2887911:C:T	7:2927545:C:T	C	T	0.763659759	0.22994147	3.37E-06
chr7:29128198:T:G	7:29167814:T:G	T	G	0.089251661	0.914016178	0.000373276
chr7:30173836:C:T	7:30213452:C:T	C	T	0.096780099	0.900209845	0.001964171
chr7:3061645:G:A	7:3101279:G:A	G	A	0.235461561	0.761525426	0.029004283
chr7:3186486:C:T	7:3226118:C:T	C	T	0.0595598	0.942002583	0.040290138
chr7:32152196:G:A	7:32191808:G:A	G	A	0.24680929	0.748875906	0.002156402
chr7:32786560:C:T	7:32826172:C:T	C	T	0.515791236	0.477121469	1.28E-05
chr7:32819347:T:G	7:32858959:T:G	T	G	0.068012764	0.93505309	0.000149339
chr7:35101892:T:C	7:35141504:T:C	T	C	0.112704275	0.889841102	0.012769305
chr7:37683810:A:C	7:37723413:A:C	A	C	0.702990805	0.302903623	8.07E-05
chr7:3836530:A:G	7:3876162:A:G	A	G	0.213807426	0.795881778	2.51E-13
chr7:39171507:C:T	7:39211106:C:T	C	T	0.127386469	0.876208887	0.000827464
chr7:41991353:G:A	7:42030952:G:A	G	A	0.130924859	0.866473437	0.018352896
chr7:43560628:G:A	7:43600227:G:A	G	A	0.439465425	0.556816253	0.02121076
chr7:44614312:G:T	7:44653911:G:T	G	T	0.450751306	0.545304278	0.014837045
chr7:44670732:T:C	7:44710331:T:C	T	C	0.555993765	0.452338842	2.90E-07
chr7:44730270:A:G	7:44769869:A:G	A	G	0.601261585	0.402607935	0.015191558
chr7:45084687:A:G	7:45124286:A:G	A	G	0.363891243	0.640825284	0.002505044
chr7:46214996:T:A	7:46254594:T:A	T	A	0.05476944	0.946968665	0.018539174
chr7:48993828:T:C	7:49033424:T:C	T	C	0.159791167	0.843687888	0.003398035
chr7:49276584:A:T	7:49316180:A:T	A	T	0.07043213	0.927764246	0.032515077
chr7:4961760:A:C	7:5001391:A:C	A	C	0.107246058	0.896415371	0.000235667
chr7:5012726:C:T	7:5052357:C:T	C	T	0.472244724	0.536530732	6.32E-08
chr7:50322700:G:A	7:50362296:G:A	G	A	0.072631601	0.931240147	3.13E-06
chr7:52395405:C:A	7:52463101:C:A	C	A	0.124337019	0.880649725	2.71E-06
chr7:5279756:G:A	7:5319387:G:A	G	A	0.334297521	0.657517464	1.10E-07
chr7:53056840:A:G	7:53124533:A:G	A	G	0.615851233	0.379376984	0.002413716
chr7:53101121:A:C	7:53168814:A:C	A	C	0.539792937	0.470206089	6.47E-10
chr7:53323237:C:T	7:53390930:C:T	C	T	0.13512237	0.869829976	7.75E-06
chr7:56257105:C:T	7:56324798:C:T	C	T	0.22471629	0.780049527	0.00042769
chr7:5833614:T:C	7:5873245:T:C	T	C	0.937439186	0.06067346	0.015620162
chr7:63872628:G:A	7:63333006:G:A	G	A	0.076243435	0.925888933	0.012657796
chr7:665757:A:G	7:705394:A:G	A	G	0.778994717	0.227993767	2.85E-07

chr7:67521726:G:A	7:66986713:G:A	G	A	0.43389022	0.560425459	0.000434033
chr7:67671492:T:G	7:67136479:T:G	T	G	0.839112924	0.154209519	1.48E-08
chr7:67761754:A:C	7:67226741:A:C	A	C	0.064976353	0.937984373	0.000191068
chr7:67891854:C:T	7:67356841:C:T	C	T	0.058392175	0.939239466	0.002092482
chr7:68010178:A:C	7:67475165:A:C	A	C	0.447635243	0.559375589	1.41E-05
chr7:68103258:T:C	7:67568245:T:C	T	C	0.942759111	0.058965592	0.024194808
chr7:68542969:A:G	7:68007956:A:G	A	G	0.547242941	0.456168779	0.034890782
chr7:69074048:C:A	7:68539035:C:A	C	A	0.14888163	0.83479675	1.64E-42
chr7:6916303:A:C	7:6955934:A:C	A	C	0.2405877	0.763084295	0.007963879
chr7:73759086:G:A	7:73173416:G:A	G	A	0.058178338	0.940140769	0.029198334
chr7:76654876:G:A	7:76284193:G:A	G	A	0.116657592	0.885537277	0.03450875
chr7:76878576:G:A	7:76507893:G:A	G	A	0.747633706	0.245607777	1.52E-06
chr7:77072283:T:C	7:76701600:T:C	T	C	0.652914831	0.344048276	0.04933999
chr7:77288543:G:A	7:76917860:G:A	G	A	0.119717352	0.882729514	0.019493139
chr7:78036032:T:C	7:77665349:T:C	T	C	0.077596717	0.925410925	0.00052176
chr7:78040505:C:T	7:77669822:C:T	C	T	0.057487755	0.940225639	0.002655182
chr7:78444505:G:A	7:78073822:G:A	G	A	0.090776425	0.907057412	0.021575629
chr7:78817553:A:C	7:78446869:A:C	A	C	0.133647519	0.870556606	0.000126987
chr7:80151414:T:A	7:79780730:T:A	T	A	0.073463363	0.913129355	1.35E-52
chr7:80373298:T:C	7:80002614:T:C	T	C	0.213191756	0.79105703	0.001322399
chr7:8204151:A:G	7:8243781:A:G	A	G	0.074219567	0.928152168	0.004980917
chr7:82312994:C:T	7:81942310:C:T	C	T	0.180339359	0.816617372	0.015298814
chr7:85772034:T:C	7:85401350:T:C	T	C	0.060587002	0.943585764	4.54E-08
chr7:87976303:C:T	7:87605618:C:T	C	T	0.507385324	0.488874165	0.021197875
chr7:9023200:G:A	7:9062830:G:A	G	A	0.092412266	0.90953333	0.03803996
chr7:90384603:A:C	7:90013917:A:C	A	C	0.198089487	0.781256884	6.59E-55
chr7:9071059:C:G	7:9110689:C:G	C	G	0.196803186	0.808685507	2.05E-05
chr7:92308566:C:T	7:91937880:C:T	C	T	0.053272251	0.943771181	6.71E-05
chr7:92510477:A:T	7:92139791:A:T	A	T	0.893138834	0.1044353	0.015015073
chr7:95861629:T:A	7:95490941:T:A	T	A	0.10273847	0.900399095	0.001423196
chr7:9625487:T:G	7:9665117:T:G	T	G	0.833829302	0.169083086	0.016212598
chr8:102571836:G:T	8:103584064:G:T	G	T	0.664827051	0.345325655	5.05E-11
chr8:106214059:A:G	8:107226287:A:G	A	G	0.058596161	0.945158942	5.65E-07
chr8:10768164:A:G	8:10625674:A:G	A	G	0.241257167	0.765607799	7.79E-07
chr8:107802301:G:A	8:108814529:G:A	G	A	0.329861405	0.673290165	0.038649237
chr8:107977606:T:G	8:108989834:T:G	T	G	0.785135941	0.218643417	0.004808829
chr8:10851700:G:A	8:10709210:G:A	G	A	0.070907779	0.926969085	0.011818824
chr8:110772630:T:C	8:111784859:T:C	T	C	0.065310862	0.937498009	0.000414316
chr8:11710324:T:C	8:11567833:T:C	T	C	0.0899014	0.911979227	0.04207527
chr8:117285284:T:G	8:118297523:T:G	T	G	0.312825932	0.692121813	0.00098916
chr8:118482464:A:T	8:119494703:A:T	A	T	0.784775374	0.209962434	7.27E-05
chr8:11869308:A:G	8:11726817:A:G	A	G	0.319391997	0.684119094	0.020146484
chr8:118710927:A:G	8:119723166:A:G	A	G	0.342941364	0.662136136	0.000967618
chr8:118801133:C:T	8:119813372:C:T	C	T	0.763552106	0.227952417	6.58E-10
chr8:1201953:C:T	8:1151953:C:T	C	T	0.219162839	0.791346326	5.37E-15
chr8:123701829:A:G	8:124714069:A:G	A	G	0.152789839	0.861623995	5.15E-36
chr8:124417097:G:T	8:125429338:G:T	G	T	0.430505234	0.56509347	0.006208951
chr8:124738263:T:C	8:125750505:T:C	T	C	0.376198557	0.629072433	0.000793586
chr8:133108323:A:G	8:134120567:A:G	A	G	0.273124804	0.729943193	0.033612646
chr8:133791927:T:C	8:134804170:T:C	T	C	0.159857291	0.842635267	0.035214962
chr8:13384552:C:T	8:13242061:C:T	C	T	0.930451187	0.071552608	0.015726057
chr8:134199135:G:A	8:135211378:G:A	G	A	0.365592195	0.638973157	0.003450944
chr8:134785705:A:T	8:135797948:A:T	A	T	0.08707874	0.910918698	0.029509231
chr8:1353737:T:A	8:1301903:T:A	T	A	0.075181756	0.922169606	0.002312171
chr8:13547259:A:C	8:13404768:A:C	A	C	0.277821366	0.726315902	0.004442471
chr8:137281864:C:G	8:138294107:C:G	C	G	0.939762124	0.05770304	0.000896565
chr8:141229278:C:A	8:142239377:C:A	C	A	0.086985176	0.910522345	0.007328268
chr8:14153010:G:A	8:14010519:G:A	G	A	0.102661617	0.899668264	0.017792252
chr8:141702578:A:G	8:142712678:A:G	A	G	0.801140287	0.202714573	0.003109535
chr8:141709616:C:G	8:142719716:C:G	C	G	0.086983451	0.8957659	4.95E-72
chr8:143647152:T:G	8:144729322:T:G	T	G	0.100369033	0.905308735	1.22E-08
chr8:144431432:A:G	8:145656815:A:G	A	G	0.516884788	0.496007474	2.84E-15
chr8:15517444:A:G	8:15374953:A:G	A	G	0.109193668	0.893989957	0.00163374
chr8:15617070:A:G	8:15474579:A:G	A	G	0.370801811	0.632366018	0.042863743
chr8:1675865:C:T	8:1624031:C:T	C	T	0.116038856	0.887527199	0.000585144
chr8:17484542:G:A	8:17342051:G:A	G	A	0.092570452	0.910034109	0.005397524
chr8:18223782:A:T	8:18081291:A:T	A	T	0.082127651	0.921057071	0.000308034
chr8:1841337:C:G	8:1789503:C:G	C	G	0.373916	0.629823874	0.017197234
chr8:1874068:A:T	8:1822234:A:T	A	T	0.557697739	0.437940374	0.006762088
chr8:19200432:G:T	8:19057942:G:T	G	T	0.08428094	0.918931653	0.000369261
chr8:19790050:G:A	8:19647561:G:A	G	A	0.289231687	0.706705029	0.00616448
chr8:19969190:C:T	8:19826701:C:T	C	T	0.090547722	0.911788562	0.011510492
chr8:21893495:T:G	8:21751006:T:G	T	G	0.185713538	0.826314523	1.02E-21

chr8:22359406:A:T	8:22216919:A:T	A	T	0.062319	0.940592349	0.000199934
chr8:22709959:G:A	8:22567472:G:A	G	A	0.25649636	0.738556786	0.000541604
chr8:25077640:G:A	8:24935155:G:A	G	A	0.201753377	0.800844276	0.046381994
chr8:25956634:A:G	8:25814150:A:G	A	G	0.25876211	0.744452549	0.023405433
chr8:2640974:A:C	8:2498470:A:C	A	C	0.096436717	0.906982144	0.000321278
chr8:26999321:A:C	8:26856838:A:C	A	C	0.79436994	0.208969232	0.011289837
chr8:27215751:A:C	8:27073268:A:C	A	C	0.292077784	0.713262755	0.000292178
chr8:27539570:C:T	8:27397087:C:T	C	T	0.076593277	0.901050283	4.40E-126
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chr8:3398952:T:C	8:3256474:T:C	T	C	0.533820898	0.4703744	0.009341849
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chr8:37835829:C:A	8:37693347:C:A	C	A	0.422641588	0.571577641	0.000327741
chr8:38697929:A:G	8:38555447:A:G	A	G	0.124840458	0.877335158	0.041725551
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chr8:52844686:G:A	8:53757246:G:A	G	A	0.708443439	0.283613401	7.04E-08
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chr8:80563816:C:A	8:81476051:C:A	C	A	0.115619565	0.893174	1.22E-17
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chr8:87086705:T:C	8:88098933:T:C	T	C	0.183575966	0.818968908	0.042642224
chr8:87123387:G:A	8:88135615:G:A	G	A	0.107254233	0.894924909	0.029156859
chr8:87496576:G:T	8:88508804:G:T	G	T	0.053807371	0.942822449	7.25E-06
chr8:88502546:T:G	8:89514775:T:G	T	G	0.188143356	0.818120369	7.64E-07
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chr8:9500364:A:G	8:9357874:A:G	A	G	0.16356573	0.844386767	3.38E-11
chr8:95085685:T:G	8:96097913:T:G	T	G	0.56942865	0.434240126	0.022277491
chr8:95438074:A:G	8:96450302:A:G	A	G	0.663246711	0.341320153	0.002908681
chr8:96296057:C:T	8:97308285:C:T	C	T	0.081806866	0.920233932	0.021439464
chr8:96532353:G:A	8:97544581:G:A	G	A	0.350735095	0.66161521	1.72E-15
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chr9:102280664:A:G	9:105042946:A:G	A	G	0.141067487	0.862448063	0.001743815
chr9:102726140:C:T	9:105488422:C:T	C	T	0.124564624	0.878371833	0.005905453
chr9:10356125:C:T	9:10356125:C:T	C	T	0.249669425	0.754836819	0.001315705
chr9:1061912:G:T	9:1061912:G:T	G	T	0.128429421	0.876020716	4.01E-05
chr9:107150170:C:T	9:109912451:C:T	C	T	0.369799996	0.637010304	1.38E-05
chr9:107714256:C:T	9:110476537:C:T	C	T	0.213961663	0.792064089	7.57E-06
chr9:107754764:C:G	9:110517045:C:G	C	G	0.061873575	0.935071687	0.000129486
chr9:109016949:T:C	9:111779229:T:C	T	C	0.201132	0.6642294	0
chr9:109757959:T:A	9:112520239:T:A	T	A	0.829562216	0.175327281	7.56E-05
chr9:11084673:T:G	9:11084673:T:G	T	G	0.635680392	0.3577764	2.85E-05
chr9:112024093:A:G	9:114786373:A:G	A	G	0.071323175	0.935575923	3.00E-17
chr9:113390611:A:G	9:116152891:A:G	A	G	0.089058937	0.922173652	9.22E-36

chr9:115118513:A:G	9:117880792:A:G	A	G	0.281981124	0.721125789	0.033329213
chr9:116578758:G:A	9:119341037:G:A	G	A	0.364342499	0.64472817	6.41E-09
chr9:118439424:A:G	9:121201702:A:G	A	G	0.125410591	0.877429178	0.00781855
chr9:121365492:C:T	9:124127770:C:T	C	T	0.428004613	0.568612673	0.035411838
chr9:122354641:G:A	9:125116920:G:A	G	A	0.063136147	0.935023618	0.021275953
chr9:122799154:T:C	9:125561433:T:C	T	C	0.129955855	0.874844493	9.45E-06
chr9:124126988:G:A	9:126889267:G:A	G	A	0.358413097	0.633943264	1.14E-06
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chr9:125471227:G:A	9:128233506:G:A	G	A	0.303474104	0.692482674	0.006929663
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chr9:127790085:A:T	9:130552364:A:T	A	T	0.427526336	0.557313082	7.76E-21
chr9:12889814:C:T	9:12889813:C:T	C	T	0.181622278	0.81268935	7.36E-06
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chr9:131591766:A:G	9:134467153:A:G	A	G	0.8255505	0.177037242	0.036436782
chr9:131790901:T:G	9:134666288:T:G	T	G	0.126547221	0.875767657	0.031650687
chr9:132594007:C:T	9:135469394:C:T	C	T	0.317986235	0.689044291	3.28E-06
chr9:133076933:A:C	9:135952320:A:C	A	C	0.412659804	0.592741166	0.000721173
chr9:133301911:T:C	9:136177394:T:C	T	C	0.530542217	0.474726165	0.001175851
chr9:133304031:C:T	9:136179513:C:T	C	T	0.107898062	0.899439293	1.91E-13
chr9:133654580:A:G	9:136519702:A:G	A	G	0.392077789	0.616118657	2.32E-07
chr9:133845428:G:A	9:136710550:G:A	G	A	0.140704438	0.85650411	0.014610552
chr9:133959730:G:A	9:136824852:G:A	G	A	0.653020555	0.342262438	0.002205856
chr9:134024985:C:G	9:136890107:C:G	C	G	0.337901406	0.666314402	0.005989744
chr9:134215118:C:T	9:137106964:C:T	C	T	0.19640877	0.797154199	8.95E-07
chr9:134603081:T:C	9:137494927:T:C	T	C	0.204407549	0.800727575	8.30E-05
chr9:134773599:A:G	9:137665445:A:G	A	G	0.377756507	0.625539885	0.036256031
chr9:134842091:T:G	9:137733937:T:G	T	G	0.129648809	0.878909765	1.97E-15
chr9:134883309:T:C	9:137775155:T:C	T	C	0.346613796	0.658416261	0.001107989
chr9:135085187:G:A	9:137977033:G:A	G	A	0.204252314	0.79184125	0.003016633
chr9:135184248:G:A	9:138076094:G:A	G	A	0.277493593	0.715895892	6.32E-06
chr9:137031950:T:C	9:139926402:T:C	T	C	0.666308753	0.337909242	0.005884605
chr9:137116032:C:T	9:140010484:C:T	C	T	0.76731767	0.226872388	2.21E-05
chr9:14026034:T:G	9:14026033:T:G	T	G	0.329907051	0.677860222	4.04E-07
chr9:14353774:G:C	9:14353773:G:C	G	C	0.059671411	0.94275414	0.00161511
chr9:15008446:G:A	9:15008444:G:A	G	A	0.121383316	0.885663451	2.57E-11
chr9:18032369:C:T	9:18032367:C:T	C	T	0.504979392	0.489628897	0.000936678
chr9:18497143:A:G	9:18497141:A:G	A	G	0.134782973	0.862895844	0.0385206
chr9:18818975:G:A	9:18818973:G:A	G	A	0.793540457	0.203556855	0.026544757
chr9:18938784:A:G	9:18938782:A:G	A	G	0.208426397	0.799863967	3.15E-10
chr9:19027573:C:A	9:19027571:C:A	C	A	0.103338076	0.904135993	2.25E-14
chr9:19207237:T:C	9:19207235:T:C	T	C	0.089033716	0.913319161	0.01037474
chr9:2102159:G:A	9:2102159:G:A	G	A	0.112657492	0.89000293	0.009468134
chr9:2301888:T:C	9:2301888:T:C	T	C	0.308329236	0.699327539	3.18E-07
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chr9:2481696:T:C	9:2481696:T:C	T	C	0.6293485	0.374230644	0.022565071
chr9:2694834:C:T	9:2694834:C:T	C	T	0.524603208	0.479265614	0.016968675
chr9:28055039:A:T	9:28055037:A:T	A	T	0.294477468	0.71078375	0.000349481
chr9:30907142:C:G	9:30907140:C:G	C	G	0.058068321	0.943889203	0.00984466
chr9:33113972:C:T	9:33113970:C:T	C	T	0.059834917	0.941684191	0.046672317
chr9:33385441:A:G	9:33385439:A:G	A	G	0.907228412	0.08788007	1.43E-07
chr9:34548967:T:A	9:34548965:T:A	T	A	0.080223606	0.923766696	5.12E-06
chr9:3574730:C:G	9:3574730:C:G	C	G	0.920838738	0.08189153	0.002152661
chr9:35828380:A:T	9:35828377:A:T	A	T	0.184180308	0.776511043	6.28E-183
chr9:38383351:T:C	9:38383348:T:C	T	C	0.119895797	0.883456111	0.001366765
chr9:38507370:G:C	9:38507367:G:C	G	C	0.171818771	0.836646108	3.13E-12
chr9:38641922:T:A	9:38641919:T:A	T	A	0.078816515	0.923292238	0.015949978
chr9:38700364:A:G	9:38700361:A:G	A	G	0.220249867	0.78300262	0.015341118
chr9:4362231:T:C	9:4362231:T:C	T	C	0.418931501	0.584891737	0.016742821
chr9:6634569:A:C	9:6634569:A:C	A	C	0.214609262	0.789888206	0.000732518
chr9:6834016:C:G	9:6834016:C:G	C	G	0.477940711	0.526386761	0.007586185
chr9:69861761:T:C	9:72476677:T:C	T	C	0.853308993	0.149045905	0.040651645
chr9:70517454:A:G	9:73132370:A:G	A	G	0.170773966	0.833926143	0.000117156
chr9:70792590:C:G	9:73407506:C:G	C	G	0.09675713	0.906913486	0.000114317
chr9:75696365:A:T	9:78311281:A:T	A	T	0.189819406	0.79369273	1.14E-36
chr9:77515630:G:T	9:80130546:G:T	G	T	0.183975687	0.813402654	0.038121603
chr9:79562166:A:C	9:82177081:A:C	A	C	0.089263297	0.914378919	7.07E-05
chr9:79921748:C:A	9:82536663:C:A	C	A	0.342651706	0.661985019	0.002579142
chr9:8110767:C:T	9:8110767:C:T	C	T	0.263704362	0.732598256	0.010029486
chr9:82809316:C:T	9:85424231:C:T	C	T	0.39204533	0.592302784	1.78E-22
chr9:82830843:C:T	9:85445758:C:T	C	T	0.108080259	0.889122871	0.00605632
chr9:870027:G:A	9:870027:G:A	G	A	0.390522021	0.60604729	0.030038805
chr9:87090551:T:C	9:89705466:T:C	T	C	0.259287834	0.731116737	2.61E-11

chr9:87144988:G:C	9:89759903:G:C	G	C	0.845013759	0.14919814	7.00E-07
chr9:89462985:A:G	9:92077900:A:G	A	G	0.098428686	0.890789983	2.37E-27
chr9:90876462:T:C	9:93638744:T:C	T	C	0.061102161	0.940558152	0.03150655
chr9:91990386:T:A	9:94752668:T:A	T	A	0.069952855	0.926720792	6.87E-05
chr9:92985107:T:C	9:95747389:T:C	T	C	0.525003923	0.481597245	5.06E-05
chr9:93231873:C:T	9:95994155:C:T	C	T	0.150461316	0.846364339	0.006888951
chr9:93452646:G:A	9:96214928:G:A	G	A	0.307543439	0.684242812	5.59E-08
chr9:96343138:G:A	9:99105420:G:A	G	A	0.252615227	0.743031443	0.002135502
chr9:97922475:A:G	9:100684757:A:G	A	G	0.318481865	0.684586144	0.042459835
chr9:98880073:A:G	9:101642355:A:G	A	G	0.057094721	0.945743167	0.000160552

Supplemental Materials

Discordant genotype calls across technology platforms elucidate variants with systematic errors in next-generation sequencing

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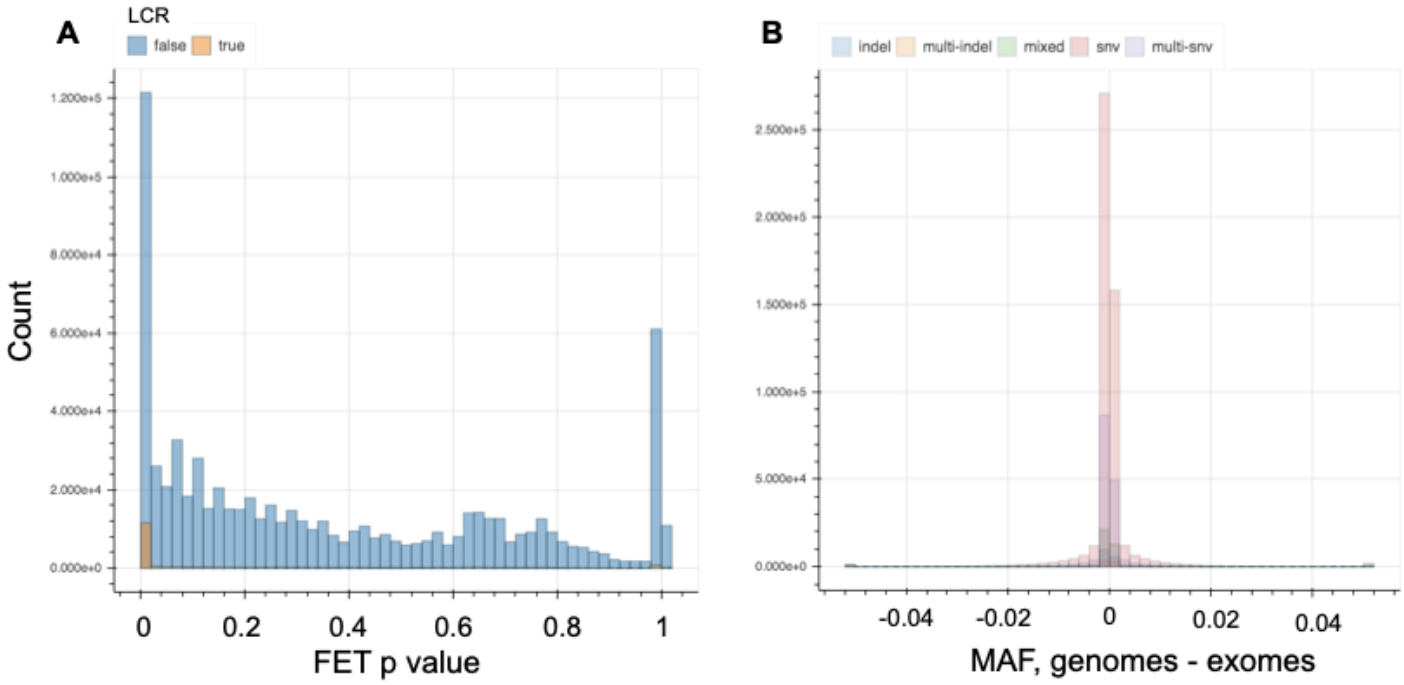
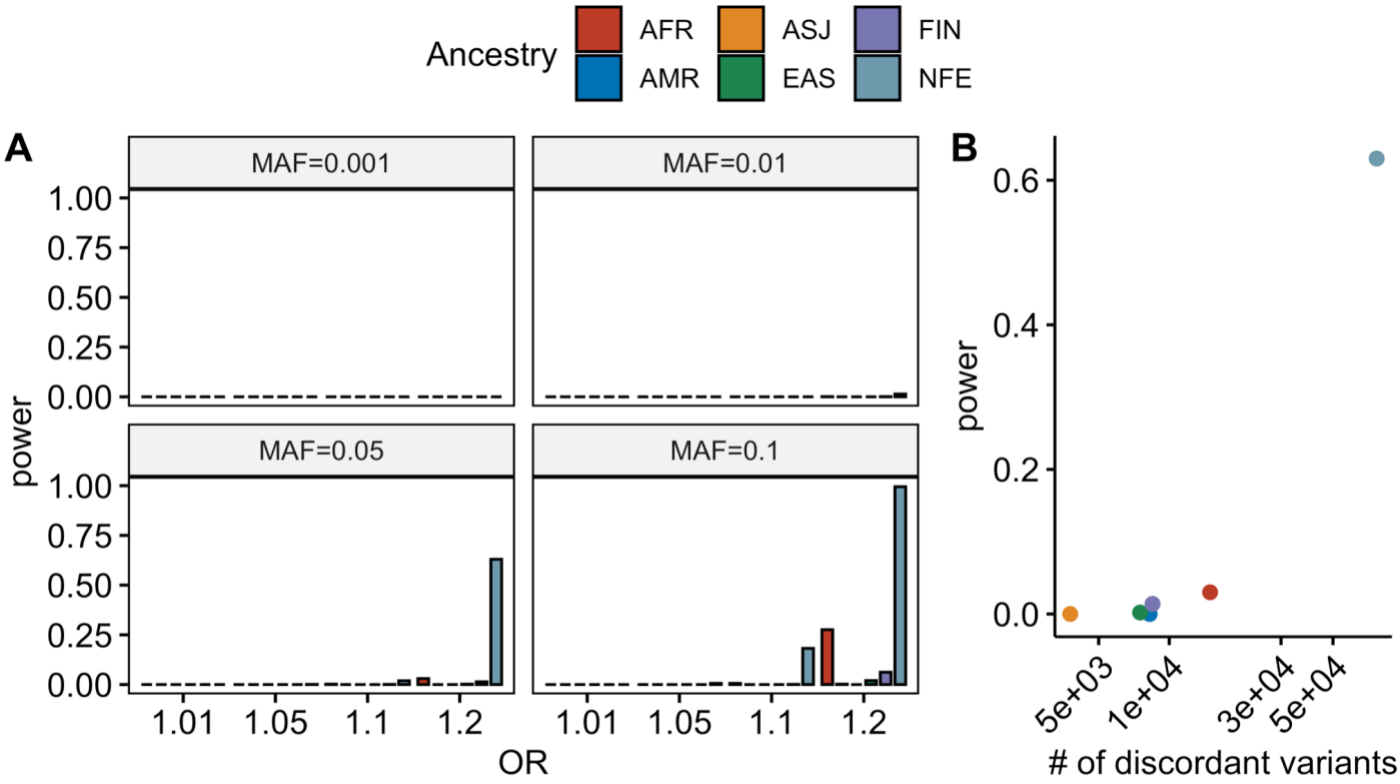
Supplemental Figures



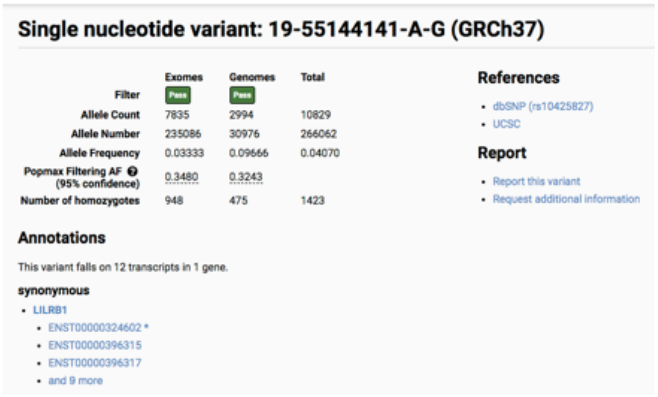
Supplemental Figure S1. The signal of discordance is consistent across AC thresholds. (A) FET p value for variants with at AC>1. Variants falling in the low complexity region (LCR) are indicated with orange and are enriched in the worst performing bin. **(B)** Distribution of allele

frequencies in the NFE exomes vs genomes at AC>5. Variants are colored by variant type. Both panels show results for the NFE.



Supplemental Figure S2. Power to detect variants with discordant allele frequencies between sequencing platforms. (A) Fisher's exact test power evaluated for the number of samples in gnomAD WES and WGS datasets for each ancestry given a particular MAF cutoff; **(B)** Fisher's exact test power for MAF=0.05 and OR=1.2 and the observed number of discordant variants ($p<1x10^{-5}$) for each ancestry. Note that due to sample size the NFE are the most highly powered for identifying discordant variants.

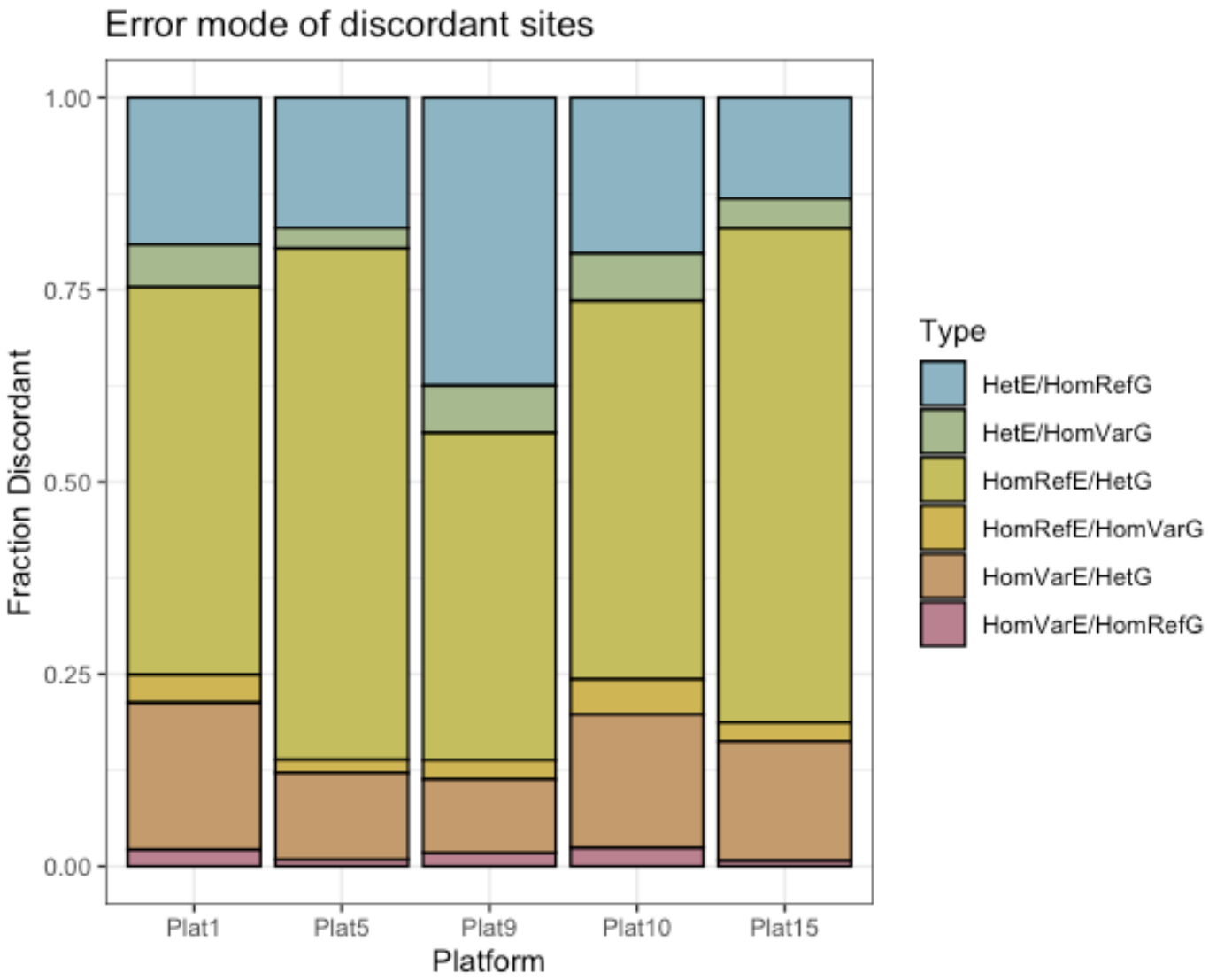
A



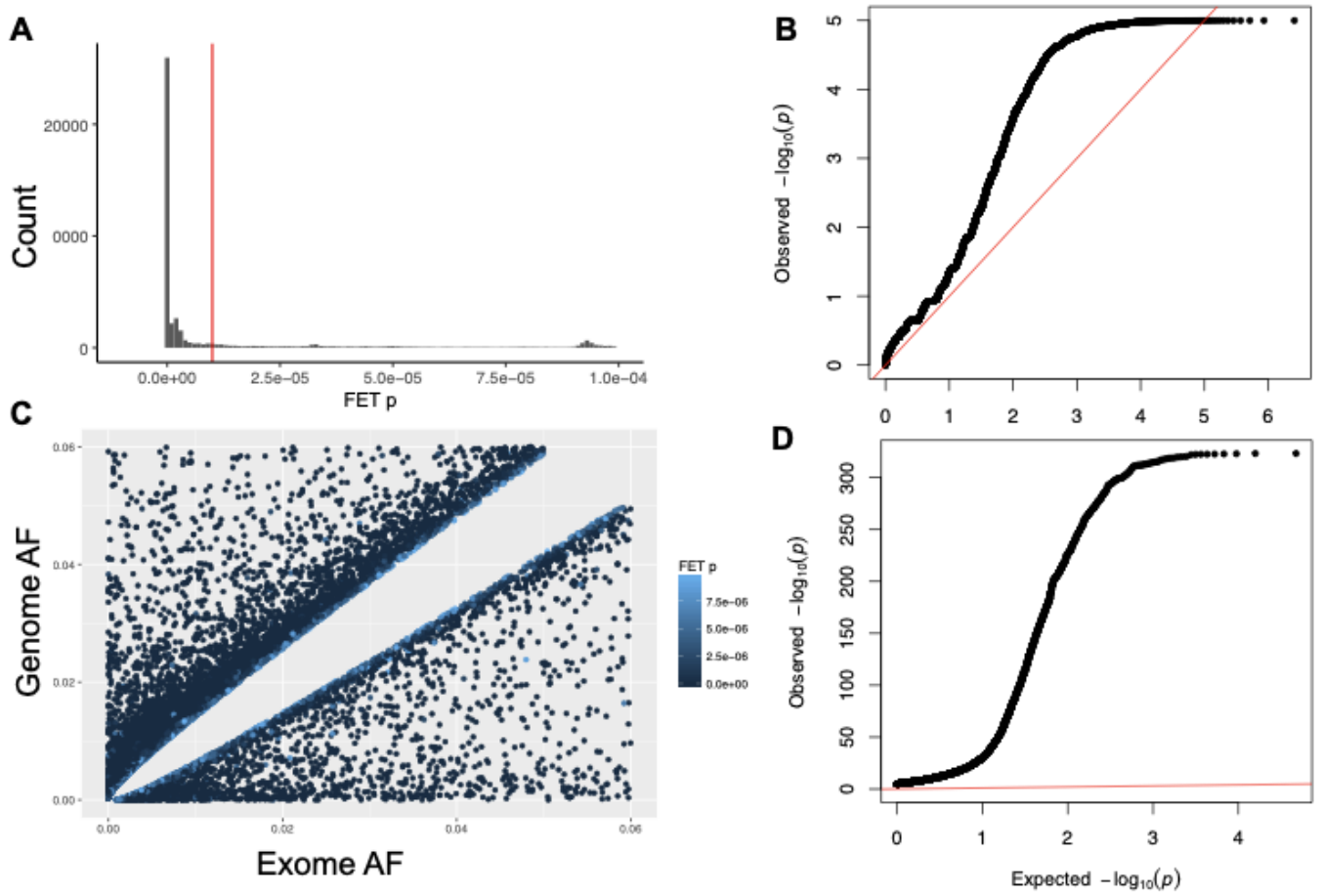
B

	0	1	2	3	4
0	Missing variant both	Missing variant G	Missing variant G	Missing variant G	Missing variant G
1	Missing variant E	No call both	No call G	No call G	No call G
2	Missing variant E	No call E	ref/ref both	Hom ref G / Het E	Hom ref G / Hom Var E
3	Missing variant E	No call E	Het G / Hom ref E	het both	Het G / Hom var E
4	Missing variant E	No call E	Hom var G / hom ref E	Hom var G / het E	hom var both

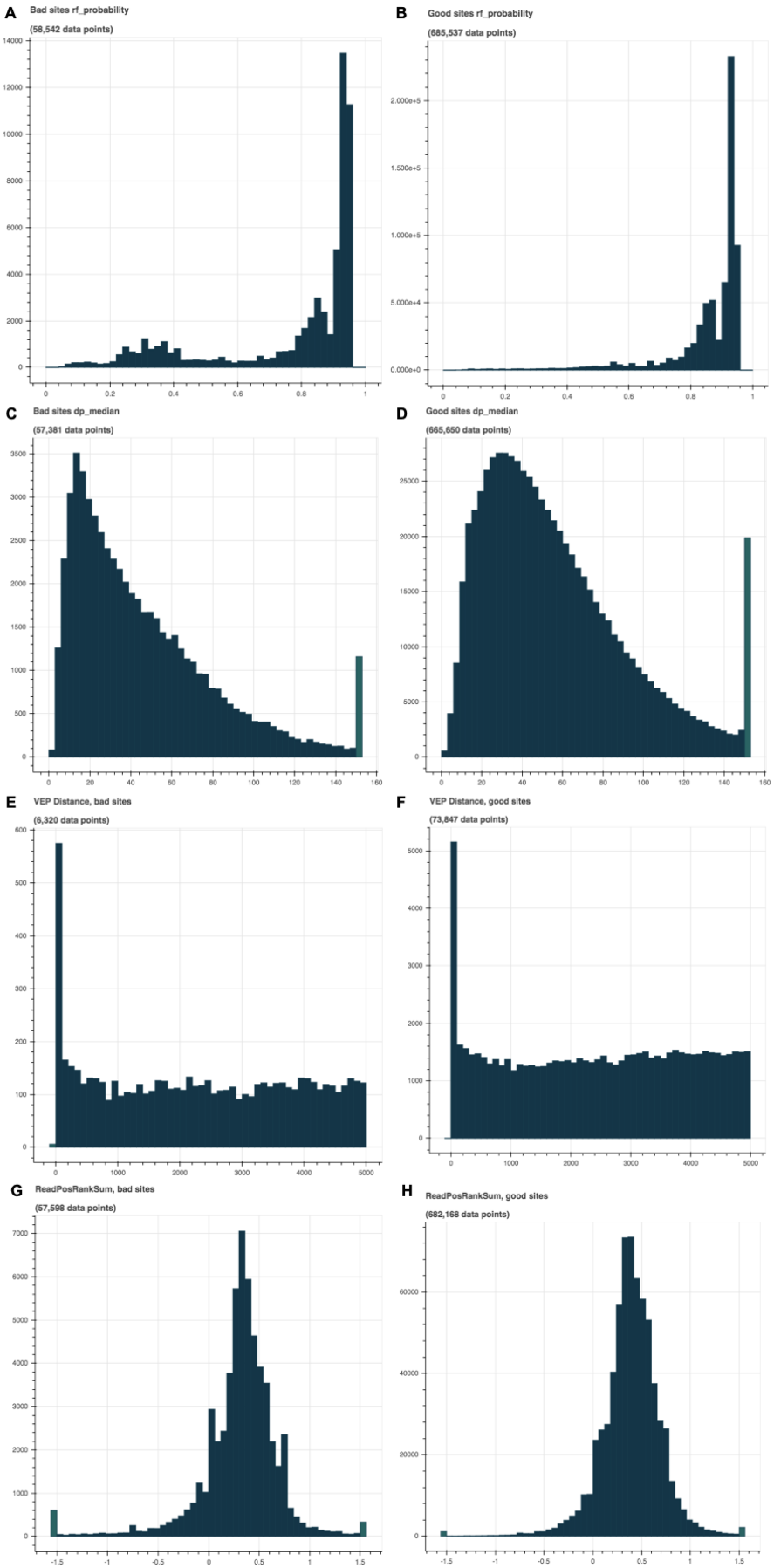
Supplemental Figure S3. Examples of discordance. (A) Example of a discordant variant as seen in the gnomAD browser. Note that this variant is PASS in both the Exomes and Genomes, but that there is a sizable MAF difference depending on technology. **(B)** Concordance table. The miscall categories considered as discordant here are shown in white. Gray indicates variants that were excluded from the concordance test due to missing information in one of the two datasets. Red indicates no alternative alleles were observed in either dataset. Green indicates concordant calls when alternative alleles were observed.



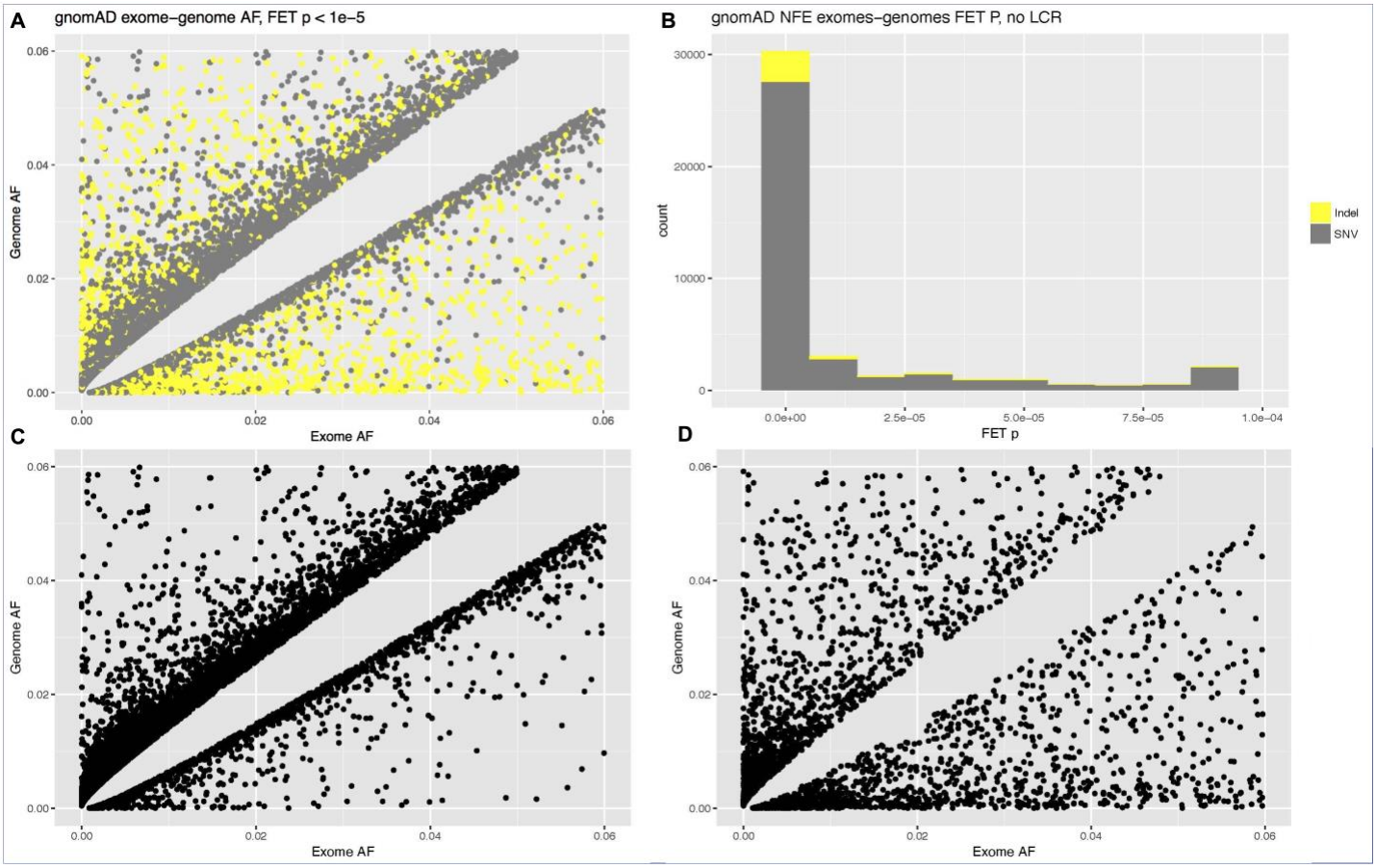
Supplemental Figure S4. Wrong call error mode by technology platform. The proportion of wrong calls in each error mode category are shown for each gnomAD sequencing platform for which overlapping data was available.



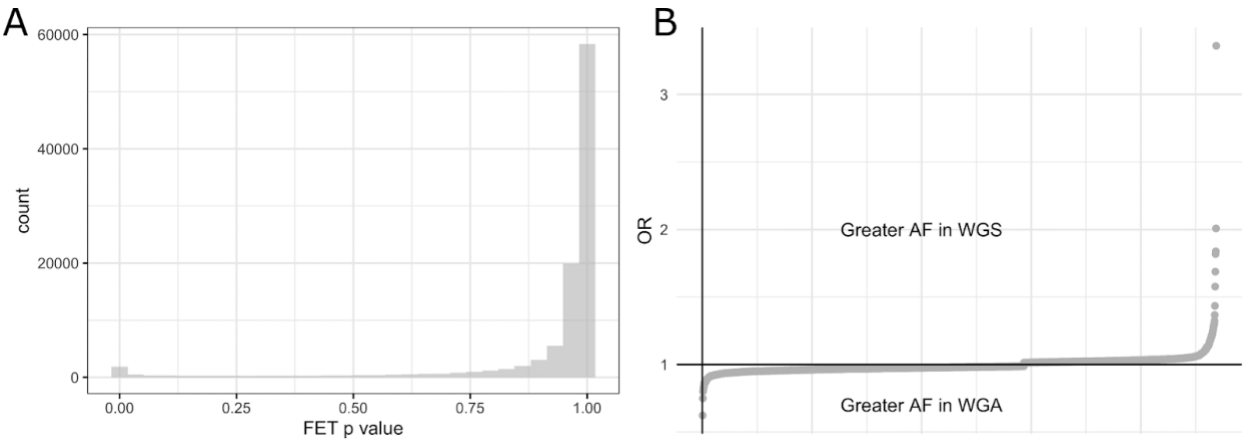
Supplemental Figure S5. Selection of 1e-5 as the threshold for 'good' vs 'bad' variants. (A) Concordance FET *p* value for AC>10 highlighting 1e-5, indicated with the red line, which was chosen as the threshold for NFE variants considered to be discordant. **(B)** QQ plot for the concordance test for all NFE variants. **(C)** Exomes vs genomes AF for bad NFE variants failing the 1e-5 threshold. **(D)** QQ plot for just the bad variants.


A
Bad sites rf_probability
(58,542 data points)
B
Good sites rf_probability
(685,537 data points)
C
Bad sites dp_median
(57,381 data points)
D
Good sites dp_median
(665,650 data points)
E
VEP Distance, bad sites
(6,320 data points)
F
VEP Distance, good sites
(73,847 data points)
G
ReadPosRankSum, bad sites
(57,598 data points)
H
ReadPosRankSum, good sites
(682,168 data points)

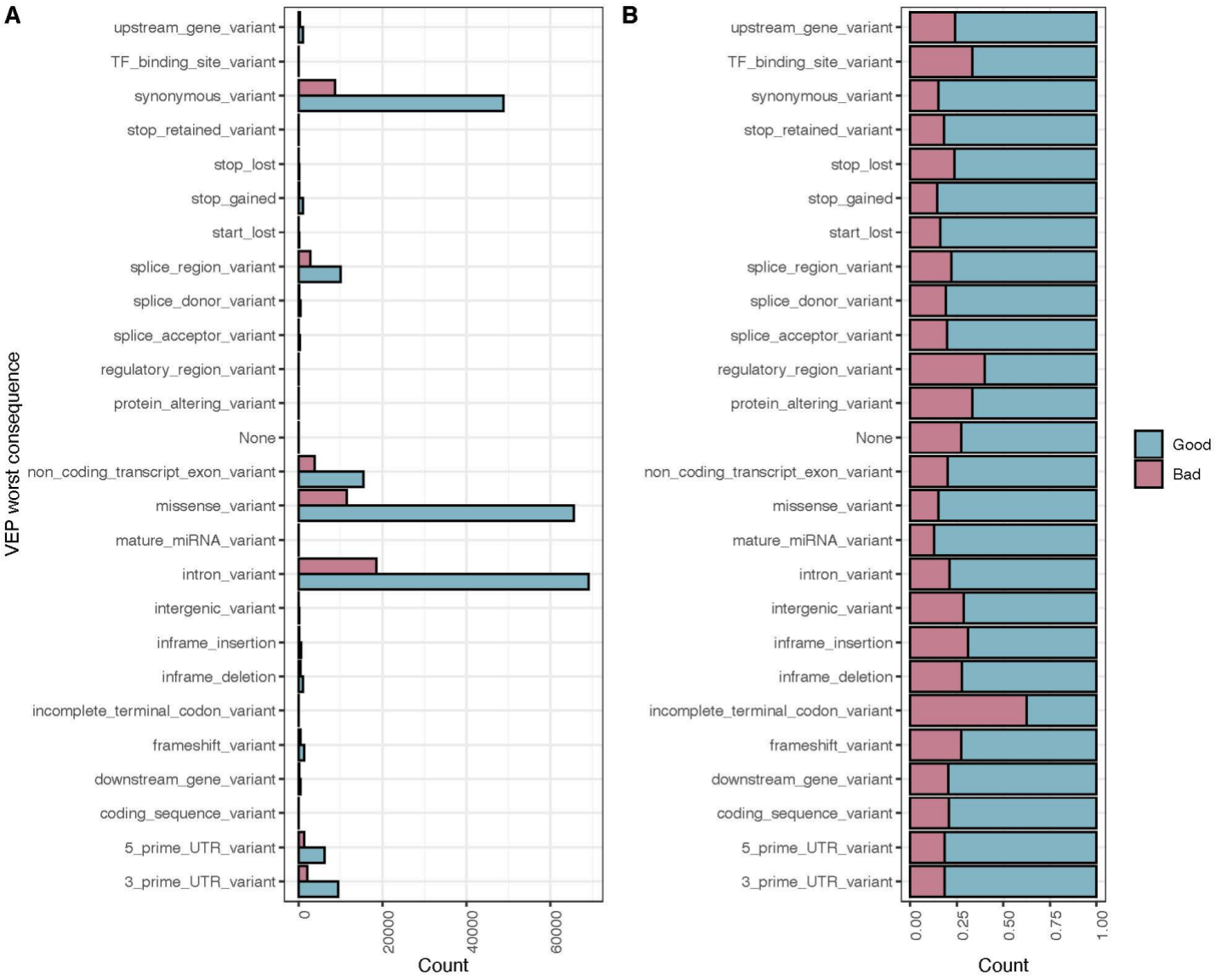
Supplemental Figure S6. **Distribution of gnomAD exomes metadata features for good versus bad variants**. Bad variant distributions are presented on the left, good on the right. **(A,B)** RF_Probability, the confidence of the random forest genotyper implemented with gnomAD. **(C,D)** DP_Median, the median depth of exomes. **(E,F)** VEP Distance, the distance to the closest canonical gene. **(G,H)** ReadPosRankSum, how far along sequencing reads the variant is falling.



Supplemental Figure S7. Different patterns of discordance in SNVs as compared to indels. (A) Allele frequencies in the exomes vs genomes for SNVs vs indels. Note an enrichment for indels at particularly discordant allele frequencies and a trend for SNVs to have higher AF in the genomes as compared to exomes. **(B)** FET *p* value for variants after excluding the LCR region. **(C)** Exomes vs genomes AF for bad NFE SNV variants failing the 1e-5 threshold. **(D)** Exomes vs genomes AF for indel bad NFE indels failing the 1e-5 threshold.



Supplemental Figure S8. Analysis of variant allele frequency concordance between whole genome sequencing and microarray data in the All of Us cohort. (A) Distribution of the Fisher's exact test *P*-values for the allele frequency comparison between the whole genome sequencing and microarray genotyping for the same individuals from All of Us cohort. The distribution is centered at 1 as the analysis cohort was subsampled to the individuals with both whole genome sequencing (WGS) and whole genome array (WGA) data available. (B) Odds ratios for allele frequency concordance analysis between WGS and WGA datasets.



Supplemental Figure S9. **VEP predicted worst consequence for 'good' versus 'bad' variants with MAF>0.01 after an AC > 10 filter.** Note the presence of many bad variants that are predicted to have severe functional consequences. (A) Absolute count; (B) proportion of total in each category

Supplemental Tables

Population	Fraction bad sites shared with NFE
AFR	0.745
AMR	0.865
ASJ	0.992
EAS	0.803
FIN	0.938
Average	**0.869**

Supplemental Table S1. Large overlap in discordant sites between NFE and other continental ancestry groups.

Low complexity region membership
segdup
nonpar
variant_type
allele_type
was_mixed
has_star
qd
info_SOR
rf_probability
was_split
score
qual
BaseQRankSum
ClippingRankSum
FS
InbreedingCoeff
MQ
MQRankSum
ReadPosRankSum

Supplemental Table S2. Features of the gnomADv2 variant annotations used in the random forest prediction model.

Ancestry	AFR	AMR	EAS	EUR	SAS
#Samples	296	222	422	351	102

Supplemental Table S3. 1000 Genomes samples per ancestry included into testing dataset.

VEP_worst_consequence	All	Bad	Good
3_prime_UTR_variant	11519	2130	9380
5_prime_UTR_variant	7602	1399	6175
coding_sequence_variant	35	7	27
downstream_gene_variant	596	121	475
frameshift_variant	1833	494	1312
incomplete_terminal_codon_variant	8	5	3
inframe_deletion	1485	410	1075
inframe_insertion	791	244	547
intergenic_variant	263	75	188
intron_variant	87799	18589	69116
mature_miRNA_variant	95	12	83
missense_variant	77243	11536	65588
non_coding_transcript_exon_variant	19353	3858	15463
regulatory_region_variant	50	20	30
splice_acceptor_variant	467	91	370
splice_donor_variant	554	106	446
splice_region_variant	12916	2842	10053
start_lost	277	44	232
stop_gained	1257	180	1077
astop_lost	195	46	148
stop_retained_variant	72	13	59
synonymous_variant	57514	8703	48755
TF_binding_site_variant	3	1	2
upstream_gene_variant	1341	323	1013
None	10	3	8
protein_altering_variant	9	3	6

Supplemental Table S4. **Counts for good and bad variants within VEP categories (AC >10)**.

Note the substantial numbers of bad variants with severe predicted consequences.

Chromosome	Position
4	3494956
5	33963745
6	31852866
6	151687847
9	712766
9	4576774
9	5126343
9	5185581
11	308180
11	308290
11	308314
11	309127
11	828916
18	618124
18	662103
19	844020
19	913048

Supplemental Table S5. Discordant variants seen at genome-wide significance in the GWAS catalog.

Supplemental File Legends

Supplemental File S1. List of the 2,344 variants which were found to have Fisher's exact test P<0.05 in the All of Us Research Program dataset.

Supplemental File S2. Source code for the *DNAdiscover* package described in this manuscript for prediction of the presence of technical bias in variants coming from high-throughout sequencing. This code, alongside a user manual, is also available at https://github.com/na89/DNAdiscover.