Estimating permutation p-values using MatrixEQTL

In our pipeline we first reformat the data per gene and then for each preprocessed gene run step4_MatrixEQTL script which runs multiple bootstraps.

step4_submitMatrixEQTL.R will call step4_MatrixEQTL.R with several options: chromosome (in this example 9), number of samples inthe dataset (this can be taken from specification file) random seed 1565691 window - 5e+05 is used in this example and which model is used - shorter model for this example and optional parameter - how much paralellization you want to introduce (if your cluster supports submitting multiple jobs, for this example set to 1 meaning that every job will be run sequentially)

We load the data for MatrixEQTL

```r
args = c("9", "704", "1565691", "5e+05", "short", "1")
args

## [1] "9"       "704"     "1565691" "5e+05"    "short"    "1"

chri = as.numeric(args[1])
nsub = as.numeric(args[2])
seedval = as.numeric(args[3])
cis_window = as.numeric(args[4])
model = args[5]
if(length(args)>5){
  paral = as.numeric(args[6])
}else{
  paral = 1e6
}

specf = "specifications.txt"

specs = unlist(read.table(specf, as.is=T))
pref = specs[1]
nsam = specs[2]
queue = specs[3]
days = specs[4]
days = 2
bmem = as.numeric(specs[5])
mem = "4g"
if(length(specs)>20){
  mem = specs[21]
}
mem

## V121
## "4g"
```

```r
seedval = specs[13]
wrk.dir = specs[14]
lib.dir = specs[15]
bas.dir = specs[16]
eigenMTdir = specs[9]
rprog = specs[19];rprog
```

```
## V119
##  "R"
```

```r
pyth = specs[20];pyth
```

```
##     V120
## "python"
```

```r
setwd(wrk.dir)
wrk.dir
```

```
##
V114
##
"C:/Users/Vasyl/Documents/GitHub/asSeq/pipeline_GTEx/v8/example/Muscle_Skelet
al"
```

```r
library(MatrixEQTL)
library(Matrix)
useModel = modelLINEAR;
source(sprintf("%s/helpers.R", lib.dir))


numpoints = 100
maf = 0.05

set.seed(seedval)


routdir = sprintf("%s/rout_%s", wrk.dir, pref)
boutdir = sprintf("%s/bout_%s", wrk.dir, pref)
if(!file.exists(routdir))dir.create(routdir)
if(!file.exists(boutdir))dir.create(boutdir)

int.dir = sprintf("%s_%s_%s", pref, nsub, cis_window)


cnt.dir = sprintf("%s_prepr", pref);cnt.dir;file.exists(cnt.dir)
```

```
## [1] "Muscle_Skeletal_prepr"
```

```
## [1] TRUE
```

```
out.dir = sprintf("oneperm_%s_%s_%s_%s", pref, nsub, cis_window, model)
perm.dir = sprintf("boot_%s_%s_%s_%s_%s", pref, nsub, cis_window, model,
numpoints)
if(!file.exists(out.dir))dir.create(out.dir)
if(!file.exists(perm.dir))dir.create(perm.dir)
```

Once initial setup is done we read relevant (multigene) data

```
genepos_file_name = sprintf("%s/geneInfo_prepr_%s.txt", cnt.dir, model)
geneInfo = read.table(genepos_file_name,
                      header = T, as.is = T)
genepos = geneInfo[geneInfo$chr==sprintf("chr%s", chri),1:4]
genepos[,2] = gsub("chr", "", genepos[,2])
for(coli in 3:4)genepos[,coli] = as.numeric(genepos[,coli])
genepos

##                    Name chr start    end
## 15011 ENSG00000181404.15    9 14521 25004

covariates_file_name = sprintf("%s/Xmat_%s.csv", int.dir, model)
covar =  read.csv(covariates_file_name, as.is=T, header=F)
covar = as.matrix(covar)

converge = 1e-4
vari = apply(covar,2,var)

updvar = which(vari<converge)
for(i in updvar){
  if(length(vari[-updvar]>0)>0){
    correct = sqrt(median(vari[-updvar]))/sqrt(vari[i])
  }else{
    correct = 1/sqrt(vari[i])
  }
  xm = mean(covar[,i])
  covar[,i] = xm+(covar[,i]-xm)*correct
}
```

Load gene specific data

```
blocki = 1

  suff0 = sprintf("%s_%s", chri, blocki)
  timout = sprintf("%s/time_%s.csv", perm.dir, suff0)

    output_file_name = sprintf("%s/output_norm_%s.txt", int.dir, suff0)
    output_file_name2 = sprintf("%s/output_eigenMT_%s.txt", out.dir, suff0)
    expression_file_name = sprintf("%s/GE_norm_%s_%s.dat", int.dir, model,
suff0)
    output_file_name_min = sprintf("%s/output_norm_min_%s.txt", perm.dir,
suff0)
```

```
genotype_file_name = sprintf("%s/genotypes_%s.dat", int.dir, suff0)
cvrt = SlicedData$new()
cvrt = cvrt$CreateFromMatrix(t(covar))

g.ini = read.table(genotype_file_name, header=T)
g.ini[g.ini==3] = 1
g.ini[g.ini==4] = 2
snpspos_file_name = sprintf("%s/genotypei_%s.dat", int.dir, suff0)
snpspos = read.table(snpspos_file_name, header=T, as.is=T)
for(coli in 3:3)snpspos[,coli] = as.numeric(snpspos[,coli])
rownames(g.ini) = snpspos[,1]


kp = rowMeans(g.ini)/2


converge=5e-5
varZ = apply(g.ini, 1, var)
wVar = (varZ >= converge)
kp = wVar #& ((a0&a1)|(a2&a1)|(a0&a2))


g.ini = read.table(genotype_file_name, header=T)
g.ini[g.ini==3] = 1
g.ini[g.ini==4] = 2
snpspos_file_name = sprintf("%s/genotypei_%s.dat", int.dir, suff0)
snpspos = read.table(snpspos_file_name, header=T, as.is=T)
for(coli in 3:3)snpspos[,coli] = as.numeric(snpspos[,coli])
rownames(g.ini) = snpspos[,1]


kp = rowMeans(g.ini)/2


converge=5e-5
varZ = apply(g.ini, 1, var)
wVar = (varZ >= converge)
kp = wVar


exprj = read.table(expression_file_name)


pvOutputThreshold = 1;
errorCovariance = numeric();

snps = SlicedData$new();
snps$fileSliceSize = 2000;        # read file in pieces of 2,000 rows
snps = snps$CreateFromMatrix(as.matrix(g.ini))

genepos_file_name = sprintf("%s/genepos_%s.dat", int.dir, suff0)
colnames(snpspos) = c("snpid", "chr", "pos")
colnames(genepos) = c("geneid", "chr", "left", "right")
write.table(genepos[blocki,], file=genepos_file_name, row.names=F,
```

```
col.names=T, quote=F, sep="\t")

    rownames(exprj) = genepos$geneid[blocki]
    gene = SlicedData$new();
    gene = gene$CreateFromMatrix(as.matrix(exprj))
```

Load information for the relevant chromosome

```
genepos_file_name = sprintf("%s/geneInfo_prepr_%s.txt", cnt.dir, model)
geneInfo = read.table(genepos_file_name,
                      header = T, as.is = T)
genepos = geneInfo[geneInfo$chr==sprintf("chr%s", chri),1:4]
genepos[,2] = gsub("chr", "", genepos[,2])
for(coli in 3:4)genepos[,coli] = as.numeric(genepos[,coli])
genepos

##                    Name chr start   end
## 15011 ENSG00000181404.15   9 14521 25004

covariates_file_name = sprintf("%s/Xmat_%s.csv", int.dir, model)
covar =  read.csv(covariates_file_name, as.is=T, header=F)
covar = as.matrix(covar)


converge = 1e-4
vari = apply(covar,2,var)

updvar = which(vari<converge)
for(i in updvar){
  if(length(vari[-updvar]>0)>0){
    correct = sqrt(median(vari[-updvar]))/sqrt(vari[i])
  }else{
    correct = 1/sqrt(vari[i])
  }
  xm = mean(covar[,i])
  covar[,i] = xm+(covar[,i]-xm)*correct
}
```

Load gene specific data

```
blocki = 1
countjobs = 0

  suff0 = sprintf("%s_%s", chri, blocki)
  timout = sprintf("%s/time_%s.csv", perm.dir, suff0)

    output_file_name = sprintf("%s/output_norm_%s.txt", int.dir, suff0)
    output_file_name2 = sprintf("%s/output_eigenMT_%s.txt", out.dir, suff0)
    expression_file_name = sprintf("%s/GE_norm_%s_%s.dat", int.dir, model,
suff0)
    output_file_name_min = sprintf("%s/output_norm_min_%s.txt", perm.dir,
suff0)
```

```r
genotype_file_name = sprintf("%s/genotypes_%s.dat", int.dir, suff0)
cvrt = SlicedData$new()
cvrt = cvrt$CreateFromMatrix(t(covar))

g.ini = read.table(genotype_file_name, header=T)
g.ini[g.ini==3] = 1
g.ini[g.ini==4] = 2
snpspos_file_name = sprintf("%s/genotypei_%s.dat", int.dir, suff0)
snpspos = read.table(snpspos_file_name, header=T, as.is=T)
for(coli in 3:3)snpspos[,coli] = as.numeric(snpspos[,coli])
rownames(g.ini) = snpspos[,1]

kp = rowMeans(g.ini)/2

converge=5e-5
varZ = apply(g.ini, 1, var)
wVar = (varZ >= converge)
kp = wVar #& ((a0&a1)|(a2&a1)|(a0&a2))


g.ini = read.table(genotype_file_name, header=T)
g.ini[g.ini==3] = 1
g.ini[g.ini==4] = 2
snpspos_file_name = sprintf("%s/genotypei_%s.dat", int.dir, suff0)
snpspos = read.table(snpspos_file_name, header=T, as.is=T)
for(coli in 3:3)snpspos[,coli] = as.numeric(snpspos[,coli])
rownames(g.ini) = snpspos[,1]

kp = rowMeans(g.ini)/2

converge=5e-5
varZ = apply(g.ini, 1, var)
wVar = (varZ >= converge)
kp = wVar

SNP_file_name = sprintf("%s/SNP_%s.txt", int.dir, suff0)

write.table(g.ini, SNP_file_name, row.names=T, col.names=T, quote=F,
sep="\t")

exprj = read.table(expression_file_name)


pvOutputThreshold = 1;
errorCovariance = numeric();

snps = SlicedData$new();
snps$fileSliceSize = 2000;       # read file in pieces of 2,000 rows
```

```
    snps = snps$CreateFromMatrix(as.matrix(g.ini))

    genepos_file_name = sprintf("%s/genepos_%s.dat", int.dir, suff0)
    colnames(snpspos) = c("snpid", "chr", "pos")
    colnames(genepos) = c("geneid", "chr", "left", "right")
    write.table(genepos[blocki,], file=genepos_file_name, row.names=F,
col.names=T, quote=F, sep="\t")

    rownames(exprj) = genepos$geneid[blocki]
    gene = SlicedData$new();
    gene = gene$CreateFromMatrix(as.matrix(exprj))
```

Rewrite permutation estimate as a function Run permutation estimate (calling newscript runboot to produce 1000 iterations for 100 points) with the refitting on the same data MatrixEQTL) Note, here we disabled submission to the cluster, so example gene will be run directly on the local machine.

```
#will now create an object which would contained required information
permEst = list(snpM=as.matrix(g.ini), geneM=as.matrix(exprj),
cvrtM=as.matrix(covar),
            snpspos=snpspos, genepos=genepos,
outpf=sprintf("%s_mEQTL.txt", rownames(exprj)[1]),
            pvOutputThreshold=1e-300, pvOutputThreshold.csv=1,
cisDist=1e9,
            effNumGuess=nrow(g.ini)/4,
            verbose=FALSE, pvalue.hist=FALSE, min.pv.by.genesnp = FALSE,
noFDRsaveMemory=FALSE,
            outdir="unreduced")
#updNtests=sprintf("%s_updtests.csv", rownames(exprj)[1])
me = getPermP(permEst)

## 1 of 1 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 1,613 cis-eQTLs, 0 trans-eQTLs

## No significant associations were found.
## 5

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 1 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 2 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 3 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 4 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 5 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 6 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 7 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 8 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 9 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 10 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 11 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 12 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 13 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 14 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 15 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 16 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 17 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 18 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 19 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 20 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 21 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 22 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 23 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 24 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 25 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 26 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 27 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 28 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 29 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 30 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 31 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 32 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 33 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 34 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 35 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 36 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 37 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 38 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 39 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 40 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 41 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 42 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 43 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 44 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 45 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 46 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 47 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 48 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 49 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 50 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 51 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 52 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 53 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 54 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 55 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 56 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 57 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 58 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 59 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 60 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 61 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 62 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 63 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 64 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 65 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 66 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 67 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 68 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 69 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 70 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 71 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 72 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 73 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 74 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 75 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 76 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 77 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 78 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 79 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 80 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 81 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 82 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 83 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 84 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 85 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 86 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 87 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 88 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 89 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 90 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 91 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 92 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 93 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 94 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 95 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 96 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 97 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 98 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 99 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 100 out of 100

## time per iter: 0.3439

## attempt 1: 0.52 and 0.01

## 1 47

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 1 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 2 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 3 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 4 out of 100

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 5 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 6 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 7 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 8 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 9 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 10 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 11 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 12 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 13 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 14 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 15 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 16 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 17 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 18 out of 100

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 19 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 20 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 21 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 22 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 23 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 24 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 25 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 26 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 27 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 28 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 29 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 30 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 31 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 32 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 33 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 34 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 35 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 36 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 37 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 38 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 39 out of 100

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 40 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 41 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 42 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 43 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 44 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 45 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 46 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 47 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 48 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 49 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 50 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 51 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 52 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 53 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 54 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 55 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 56 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 57 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 58 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 59 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 60 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 61 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 62 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 63 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 64 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 65 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 66 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 67 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 68 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 69 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 70 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 71 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 72 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 73 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 74 out of 100

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 75 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 76 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 77 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 78 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 79 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 80 out of 100

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 81 out of 100

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 82 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 83 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 84 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 85 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 86 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 87 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 88 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 89 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 90 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 91 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 92 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 93 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 94 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 95 out of 100
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 96 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 97 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 98 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 99 out of 100
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 100 out of 100
## time per iter: 0.4123
## attempt 2: 0.285714285714286 and 0.0204081632653061
## 52 1 47 34.39
## 42 3 102 41.23
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 101 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 102 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 103 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 104 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 105 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 106 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 107 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 108 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 109 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 110 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 111 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 112 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 113 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 114 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 115 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 116 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 117 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 118 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 119 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 120 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 121 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 122 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 123 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 124 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 125 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 126 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 127 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 128 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 129 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 130 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 131 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 132 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 133 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 134 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 135 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 136 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 137 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 138 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 139 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 140 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 141 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 142 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 143 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 144 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 145 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 146 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 147 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 148 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 149 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 150 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 151 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 152 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 153 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
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## 154 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 155 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 156 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 157 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 158 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 159 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 160 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 161 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 162 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 163 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 164 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 165 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 166 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 167 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 168 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 169 out of 1000

## 147 of 147 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 170 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 171 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 172 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 173 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 174 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 175 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 176 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 177 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 178 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 233 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 248 out of 1000
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## 1613 of 1613 SNPs matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 255 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 256 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 257 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 258 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 259 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 260 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 261 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 262 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 303 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 304 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 305 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 306 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 307 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 308 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 309 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 310 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 311 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 312 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 313 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 315 out of 1000

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## 316 out of 1000

## 147 of 147 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 317 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 318 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

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## 147 of 147 genes matched

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## 346 out of 1000

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## 1613 of 1613 SNPs matched

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## 1613 of 1613 SNPs matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 467 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 468 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 469 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 470 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 471 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 472 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 473 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 474 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 475 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 476 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 477 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 478 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 479 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 480 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 481 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 483 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 485 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 486 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 487 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 488 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 489 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 492 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 493 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 500 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 507 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 513 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 514 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 515 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 516 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 520 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 521 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 548 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 549 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 550 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 553 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 555 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 556 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 557 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 558 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 559 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 560 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 561 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 562 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 563 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 564 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 565 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 566 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 567 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 568 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 569 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 570 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 571 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 572 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 573 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 574 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 575 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 576 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 577 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 578 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 579 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 580 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 581 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 582 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 583 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 584 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 585 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 586 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 587 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 588 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 589 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 590 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 591 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 592 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 593 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 594 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 595 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 596 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 597 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 598 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 599 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 600 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 601 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 602 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 603 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 604 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 605 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 606 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 607 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 608 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 609 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 610 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 611 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 612 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 613 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 614 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 615 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 616 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 617 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 618 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 619 out of 1000
## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 620 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 621 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 622 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 623 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 624 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 625 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 626 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 627 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 628 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 629 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 630 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 631 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 632 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 633 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 634 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 635 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 636 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 637 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 638 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 639 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 640 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 641 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 642 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 643 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 644 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 645 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 646 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 647 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 648 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 649 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 650 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 651 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 652 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 653 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 654 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 655 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 656 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 657 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 658 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 659 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 660 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 661 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 662 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 663 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 664 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 665 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 666 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 667 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 668 out of 1000

## 147 of 147 genes matched
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```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 669 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 670 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 671 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 672 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 673 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 674 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 675 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 676 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 677 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 678 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 679 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 680 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 681 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 682 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 683 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 684 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 685 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 686 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 687 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 688 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 689 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 690 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 691 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 692 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 693 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 694 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 695 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 696 out of 1000

## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 697 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 698 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 699 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 700 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 701 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 702 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 703 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 704 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 705 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 706 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 707 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 708 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 709 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 710 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 711 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 712 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 713 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 714 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 715 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 716 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 717 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 718 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 719 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 720 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 721 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 722 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 723 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 724 out of 1000
## 147 of 147 genes matched
```

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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 725 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 726 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 727 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 728 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 729 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 730 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 731 out of 1000

## 147 of 147 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 732 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 733 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 734 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 735 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 736 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 737 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 738 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 739 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 740 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 741 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 742 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 743 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 744 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 745 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 746 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 747 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 748 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 749 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 750 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 751 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 752 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 753 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 754 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 755 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 756 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 757 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 758 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 759 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 760 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 761 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 762 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 763 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 764 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 765 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 766 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 767 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 768 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 769 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 770 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 771 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 772 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 773 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 774 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 775 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 776 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 777 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 778 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 779 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 780 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 781 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 782 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 783 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 784 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 785 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 786 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 787 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 788 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 789 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 790 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 791 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 792 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 793 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 794 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 795 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 796 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 797 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 798 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 799 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 800 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 801 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 802 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 803 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 804 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 805 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 806 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 807 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 808 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 809 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 810 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 811 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 812 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 813 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 814 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 815 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 816 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 817 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 818 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 819 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 820 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 821 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 822 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 823 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 824 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 825 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 826 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 827 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 828 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 829 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 830 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 831 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 832 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 833 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 834 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 835 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 836 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 837 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 838 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 839 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 840 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 841 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 842 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 843 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 844 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 845 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 846 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 847 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 848 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 849 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 850 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 851 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 852 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 853 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 854 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 855 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 856 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 857 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 858 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 859 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 860 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 861 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 862 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 863 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 864 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 865 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 866 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 867 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 868 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 869 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 870 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 871 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 872 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 873 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 874 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 875 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 876 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 877 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 878 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 879 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 880 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 881 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 882 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 883 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 884 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 885 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 886 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 887 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 888 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 889 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 890 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 891 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 892 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 893 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 894 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 895 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 896 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 897 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 898 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 899 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 900 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 901 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 902 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 903 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 904 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 905 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 906 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 907 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 908 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 909 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 910 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 911 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 912 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 913 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 914 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 915 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 916 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 917 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 918 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 919 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 920 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 921 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 922 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 923 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 924 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 925 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 926 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 927 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 928 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 929 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 930 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 931 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 932 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 933 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 934 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 935 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 936 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 937 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 938 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 939 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 940 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 941 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 942 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 943 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 944 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 945 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 946 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 947 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 948 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 949 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 950 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 951 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 952 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 953 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 954 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 955 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 956 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 957 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 958 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 959 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 960 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 961 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 962 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 963 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 964 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 965 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 966 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 967 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 968 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 969 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 970 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 971 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 972 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 973 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 974 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 975 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 976 out of 1000

## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 977 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 978 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 979 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 980 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 981 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 982 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 983 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 984 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 985 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 986 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 987 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 988 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 989 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 990 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 991 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 992 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 993 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 994 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 995 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 996 out of 1000
## 147 of 147 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 997 out of 1000
## 147 of 147 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 998 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 999 out of 1000

## 147 of 147 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 1000 out of 1000

## time per iter: 0.4417

## attempt 2: 0.0680272108843537 and 0.0136054421768707

names(me)

## [1] "summ"    "tim"     "vals"    "mEQTL"    "min.snp"

me$summ

##                  SNP                gene     beta    t.stat       p.value
## 1 chr9_520337_T_G_b38 ENSG00000181404.15 0.9185603 14.08248 8.582963e-40
##        FDR        BF   TESTS chr snppos genestart geneend ntest
## 1 1.384432e-36 3.46108e-37 403.25   9 520337     14521   25004  1613
##   TESTSupd pred.permGLM  pred.permLM     LM.i     LM.s    GLM.i    GLM.s
## 1  201.625 1.526859e-33 2.372658e-32 -2.126765 0.8639537 5.319358 -2.07036
##   numpts
## 1    135

#if you ran eigenMT outside, you can use that result to get a better guess of
effective number of tests
#but it can be skipped, in that case
#simple number of SNPs will be used as a proxy for initial guess of effective
number of steps

#now, same but imagine reduced effect size
eigenMT = me$summ
eigenMT$TESTS = eigenMT$TESTSupd
gen.sub = me$min.snp
redboot = get_reduced_boot(1, target.perm.ps=1e-2, i=1, mQTL.fit=eigenMT,
expr.mat = permEst$geneM,
                        min.SNP=gen.sub, covars=permEst$cvrtM,
```

```
nsam=ncol(gen.sub))
permEstR = permEst
permEstR$geneM = redboot
rownames(permEstR$geneM) = rownames(permEst$geneM)

permEstR$effNumGuess=eigenMT$TESTSupd
permEstR$outdir="reduced"

meR = getPermP(permEstR)

## 1 of 1 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 1,613 cis-eQTLs, 0 trans-eQTLs

## No significant associations were found.
## 5

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 1 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 2 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 3 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 4 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 5 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 6 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 7 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 8 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 9 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 10 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 11 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 12 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 13 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 14 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 15 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 16 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 17 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 18 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 19 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 20 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 21 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 22 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 23 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 24 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 25 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 26 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 27 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 28 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 29 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 30 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 31 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 32 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 33 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 34 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 35 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 36 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 37 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 38 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 39 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 40 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 41 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 42 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 43 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 44 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 45 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 46 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 47 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 48 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 49 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 50 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 51 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 52 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 53 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 54 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 55 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 56 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 57 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 58 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 59 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 60 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 61 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 62 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 63 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 64 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 65 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 66 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 67 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 68 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 69 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 70 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 71 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 72 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 73 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 74 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 75 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 76 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 77 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 78 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 79 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 80 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 81 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 82 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 83 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 84 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 85 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 86 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 87 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 88 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 89 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 90 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 91 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 92 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 93 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 94 out of 100

## 100 of 100 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
```

```
## 95 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 96 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 97 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 98 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 99 out of 100
## 100 of 100 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 100 out of 100
## time per iter: 0.3385
## attempt 1: 0.32 and 0.02
## 1 66
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 1 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 2 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 3 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 4 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 5 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 6 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 7 out of 100

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 8 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 9 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 10 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 11 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 12 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 13 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 14 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 15 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 16 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 17 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 18 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 19 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 20 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 21 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 22 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 23 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 24 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 25 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 26 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 27 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 28 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 29 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 30 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 31 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 32 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 33 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 34 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 35 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 36 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 37 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 38 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 39 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 40 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 41 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 42 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 43 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 44 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 45 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 46 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 47 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 48 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 49 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 50 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 51 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 52 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 53 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 54 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 55 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 56 out of 100

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 57 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 58 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 59 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 60 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 61 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 62 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 63 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 64 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 65 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 66 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 67 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 68 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 69 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 70 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 71 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 72 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 73 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 74 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 75 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 76 out of 100

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 77 out of 100

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 78 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 79 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 80 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 81 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 82 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 83 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 84 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 85 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 86 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 87 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 88 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 89 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 90 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 91 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 92 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 93 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 94 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 95 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 96 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 97 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 98 out of 100
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 99 out of 100
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 100 out of 100
## time per iter: 0.7037
## attempt 2: 0.283132530120482 and 0.0240963855421687
## 32 2 66 33.85
## 47 4 115 70.37
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 101 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 102 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 103 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 104 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 105 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 106 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 107 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 108 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 109 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 110 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 111 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 112 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 113 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 114 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 115 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 116 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 117 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 118 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 119 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 120 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 121 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 122 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 123 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 124 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 125 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 126 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 127 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 128 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 129 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 130 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 131 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 132 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 133 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 134 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 135 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 136 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 137 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 138 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 139 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 140 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 141 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 142 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 143 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 144 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 145 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 146 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 147 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 148 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 149 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 150 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 151 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 152 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 153 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 154 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 155 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 156 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 157 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 158 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 159 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 160 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 161 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 162 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 163 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 164 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 165 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 166 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 167 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 168 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
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## 166 of 166 genes matched
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## 166 of 166 genes matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 174 out of 1000
## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 175 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 176 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 181 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 209 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 1613 of 1613 SNPs matched
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## 1613 of 1613 SNPs matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 299 out of 1000

## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 166 of 166 genes matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
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## 166 of 166 genes matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

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## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

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## 326 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 327 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 328 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 329 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 330 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 331 out of 1000

## 166 of 166 genes matched

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## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 332 out of 1000

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## 166 of 166 genes matched

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## 334 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

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## 335 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched

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## 166 of 166 genes matched
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## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

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## 166 of 166 genes matched

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 490 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 491 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 492 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 493 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 494 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 495 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 496 out of 1000
## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 497 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 498 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 499 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 500 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 501 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 502 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 503 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 504 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 505 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 506 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 507 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 508 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 509 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 510 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 511 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 512 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 513 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 514 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 515 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 516 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 517 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 518 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 519 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 520 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 521 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 522 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 523 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 524 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 525 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 526 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 527 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 528 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 529 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 530 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 531 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 532 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 533 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 534 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 535 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 536 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 537 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 538 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 539 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 540 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 541 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 542 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 543 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 544 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 545 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 546 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 547 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 548 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 549 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 550 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 551 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 552 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 553 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 554 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 555 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 556 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 557 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 558 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 559 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 560 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 561 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 562 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 563 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 564 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 565 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 566 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 567 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 568 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 569 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 570 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 571 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 572 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 573 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 574 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 575 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 576 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 577 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 578 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 579 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 580 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 581 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 582 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 583 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 584 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 585 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 586 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 587 out of 1000

## 166 of 166 genes matched
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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 588 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 589 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 590 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 591 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 592 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 593 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 594 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 595 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 596 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 597 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 598 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 599 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 600 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 601 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 602 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 603 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 604 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 605 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 606 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 607 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 608 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 609 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 610 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 611 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 612 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 613 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 614 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 615 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 616 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 617 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 618 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 619 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 620 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 621 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 622 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 623 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 624 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 625 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 626 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 627 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 628 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 629 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 630 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 631 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 632 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 633 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 634 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 635 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 636 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 637 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 638 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 639 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 640 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 641 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 642 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 643 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 644 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 645 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 646 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 647 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 648 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 649 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 650 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 651 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 652 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 653 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 654 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 655 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 656 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 657 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 658 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 659 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 660 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 661 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 662 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 663 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 664 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 665 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 666 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 667 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 668 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 669 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 670 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 671 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 672 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 673 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 674 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 675 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 676 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 677 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 678 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 679 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 680 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 681 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 682 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 683 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 684 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 685 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 686 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 687 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 688 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 689 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 690 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 691 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 692 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 693 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 694 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 695 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 696 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 697 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 698 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 699 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 700 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 701 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 702 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 703 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 704 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 705 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 706 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 707 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 708 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 709 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 710 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 711 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 712 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 713 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 714 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 715 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 716 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 717 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 718 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 719 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 720 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 721 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 722 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 723 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 724 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 725 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 726 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 727 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 728 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 729 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 730 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 731 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 732 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 733 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 734 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 735 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 736 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 737 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 738 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 739 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 740 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 741 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 742 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 743 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 744 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 745 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 746 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 747 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 748 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 749 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 750 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 751 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 752 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 753 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 754 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 755 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 756 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 757 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 758 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 759 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 760 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 761 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 762 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 763 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 764 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 765 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 766 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 767 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 768 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 769 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 770 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 771 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 772 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 773 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 774 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 775 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 776 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 777 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 778 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 779 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 780 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 781 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 782 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 783 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 784 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 785 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 786 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 787 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 788 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 789 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 790 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 791 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 792 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 793 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 794 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 795 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 796 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 797 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 798 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 799 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 800 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 801 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 802 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 803 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 804 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 805 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 806 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 807 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 808 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 809 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 810 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 811 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 812 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 813 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 814 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 815 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 816 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 817 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 818 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 819 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 820 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 821 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 822 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 823 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 824 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 825 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 826 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 827 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 828 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 829 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 830 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 831 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 832 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 833 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 834 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 835 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 836 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 837 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 838 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 839 out of 1000

## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 840 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 841 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 842 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 843 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 844 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 845 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 846 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 847 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 848 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 849 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 850 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 851 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 852 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 853 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 854 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 855 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 856 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 857 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 858 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 859 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 860 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 861 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 862 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 863 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 864 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 865 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 866 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 867 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 868 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 869 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 870 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 871 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 872 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 873 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 874 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 875 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 876 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 877 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 878 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 879 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 880 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 881 out of 1000
## 166 of 166 genes matched
```

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## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 882 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 883 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 884 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 885 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 886 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 887 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 888 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 889 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 890 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 891 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 892 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 893 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 894 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 895 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 896 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 897 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 898 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 899 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 900 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 901 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 902 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 903 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 904 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 905 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 906 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 907 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 908 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 909 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 910 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 911 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 912 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 913 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 914 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 915 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 916 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 917 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 918 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 919 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 920 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 921 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 922 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 923 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 924 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 925 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 926 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 927 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 928 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 929 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 930 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 931 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 932 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 933 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 934 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 935 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 936 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 937 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 938 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 939 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 940 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 941 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 942 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 943 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 944 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 945 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 946 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 947 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 948 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 949 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 950 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 951 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 952 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 953 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 954 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 955 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 956 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 957 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 958 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 959 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 960 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 961 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 962 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 963 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 964 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 965 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 966 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 967 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 968 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 969 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 970 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 971 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 972 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 973 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 974 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 975 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 976 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 977 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 978 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 979 out of 1000

## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 980 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 981 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 982 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 983 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 984 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 985 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 986 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 987 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 988 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 989 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 990 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 991 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 992 out of 1000
## 166 of 166 genes matched
## 1613 of 1613 SNPs matched
## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs
## 993 out of 1000
## 166 of 166 genes matched
```

```
## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 994 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 995 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 996 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 997 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 998 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 999 out of 1000

## 166 of 166 genes matched

## 1613 of 1613 SNPs matched

## 100.00% done, 0 cis-eQTLs, 0 trans-eQTLs

## 1000 out of 1000

## time per iter: 0.50158
```

```
## attempt 2: 0.0240963855421687 and 0.0180722891566265
```

```
meR$summ
```

```
##                     SNP                gene      beta  t.stat       p.value
## 1 chr9_521172_A_C_b38 ENSG00000181404.15 0.2772655 4.39478 1.282664e-05
##           FDR          BF   TESTS chr snppos genestart geneend ntest
## 1 0.008789618 0.002586172 201.625   9 521172     14521   25004  1613
##   TESTSupd pred.permGLM pred.permLM      LM.i      LM.s     GLM.i     GLM.s
## 1  201.625  0.007402141 0.007182481 -2.207039 0.8893836 5.605652 -2.147271
##   numpts
## 1    159
```

Lets illustrate calculation of permutation p-value estimate. We take the values generated in step4_runboot.R and fit glm predicting probability of observing more extreme result (then observed in bootstrap) by log10(minimum p-value). After fitting glm, predict permutation p-value based on log10(minimum p-value) Effective number of tests will be ratio of predicted permutation p-value and minimum p-value (trimmed between 1 and number of SNPs)

```
#boots = read.csv(sprintf("%s/short_boot_pval_9_1.csv", perm.dir), as.is=T)
#eigenMT = read.csv(sprintf("%s/upd_eigenMT_9_1.csv", out.dir), as.is=T)
nperm = 1000
y = me$vals$permp*nperm
pvalb = me$vals$pvalb
kp3 = (y/nperm)>=0    & (y/nperm)<=0.3
kp3a = (y/nperm)>0    & (y/nperm)<=0.3

y1 = log10(y/nperm)
x1 = log10(pvalb)
glmi3 = glm(cbind(y[kp3],nperm-y[kp3])~x1[kp3], family="binomial")
summary(glmi3)
```

```
##
## Call:
## glm(formula = cbind(y[kp3], nperm - y[kp3]) ~ x1[kp3], family =
## "binomial")
##
## Deviance Residuals:
##      Min        1Q    Median        3Q       Max
## -3.05450  -0.64409  -0.05165   0.49232   2.25401
##
## Coefficients:
##             Estimate Std. Error z value Pr(>|z|)
## (Intercept)  5.31936    0.10488   50.72   <2e-16 ***
## x1[kp3]      2.07036    0.02768   74.80   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## (Dispersion parameter for binomial family taken to be 1)
```
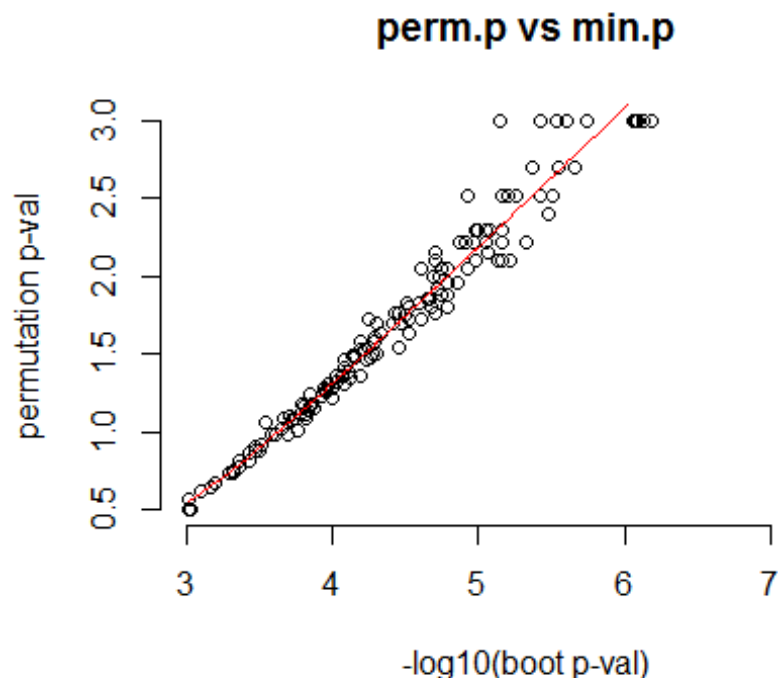
```
##
##      Null deviance: 8722.30  on 144  degrees of freedom
## Residual deviance:  124.67  on 143  degrees of freedom
## AIC: 773.55
##
## Number of Fisher Scoring iterations: 4

xval = log10(eigenMT$p.value)
pred.perm = logiti(glmi3$coef[1]+glmi3$coef[2]*xval)
c(xval, pred.perm)

##                      (Intercept)
## -3.906636e+01   1.526859e-33

xlim = range(-c(x1, xval))
ylim = range(-log10(y/nperm))
ylim[2] = -log10(pred.perm)

plot(-x1, -log10(y/nperm), xlab="-log10(boot p-val)", ylab="permutation p-
val", bty="n", main="perm.p vs min.p")
o = order(x1[kp3])
xf = x1[kp3][o]
yf = glmi3$fitted.values[o]
lines(-xf, -log10(yf), col="red")
```
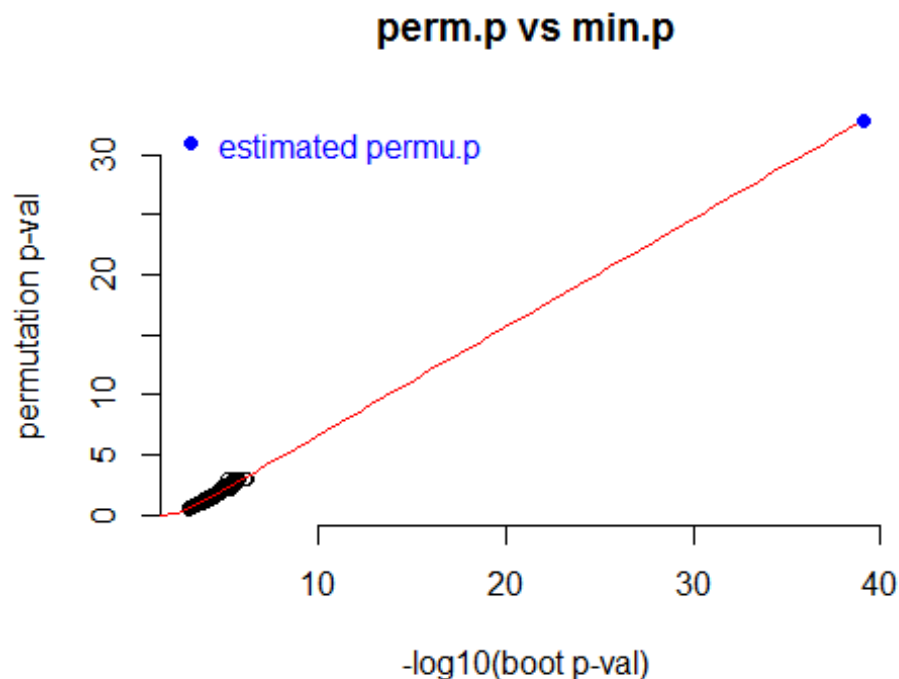

perm.p vs min.p

```
fit = seq(0, xval, length.out=50)
pred.perm0 = logiti(glmi3$coef[1]+glmi3$coef[2]*fit)
```

```
plot(-x1, -log10(y/nperm), xlab="-log10(boot p-val)", ylab="permutation p-
val", bty="n", main="perm.p vs min.p", xlim=xlim,ylim=ylim)
lines(-fit, -log10(pred.perm0), col="red")
points(-xval, -log10(pred.perm), col="blue", cex=1, pch=19)
legend("topleft", "estimated permu.p", text.col="blue", pch=19, col="blue",
bty="n")
```


perm.p vs min.p

Or using less extreme efect size: Lets illustrate calculation of permutation p-value estimate.
We take the values generated in step4_runboot.R and fit glm predicting probability of
observing more extreme result (then observed in bootstrap) by $\log10(\text{minimum p-value})$.
After fitting glm, predict permutation p-value based on $\log10(\text{minimum p-value})$ Effective
number of tests will be ratio of predicted permutation p-value and minimum p-value
(trimmed between 1 and number of SNPs)

```
nperm = 1000
eigenMT = meR$summ
y = meR$vals$permp*nperm
pvalb = meR$vals$pvalb
kp3 = (y/nperm)>=0      & (y/nperm)<=0.3
kp3a = (y/nperm)>0      & (y/nperm)<=0.3

y1 = log10(y/nperm)
x1 = log10(pvalb)
glmi3 = glm(cbind(y[kp3],nperm-y[kp3])~x1[kp3], family="binomial")
summary(glmi3)
```
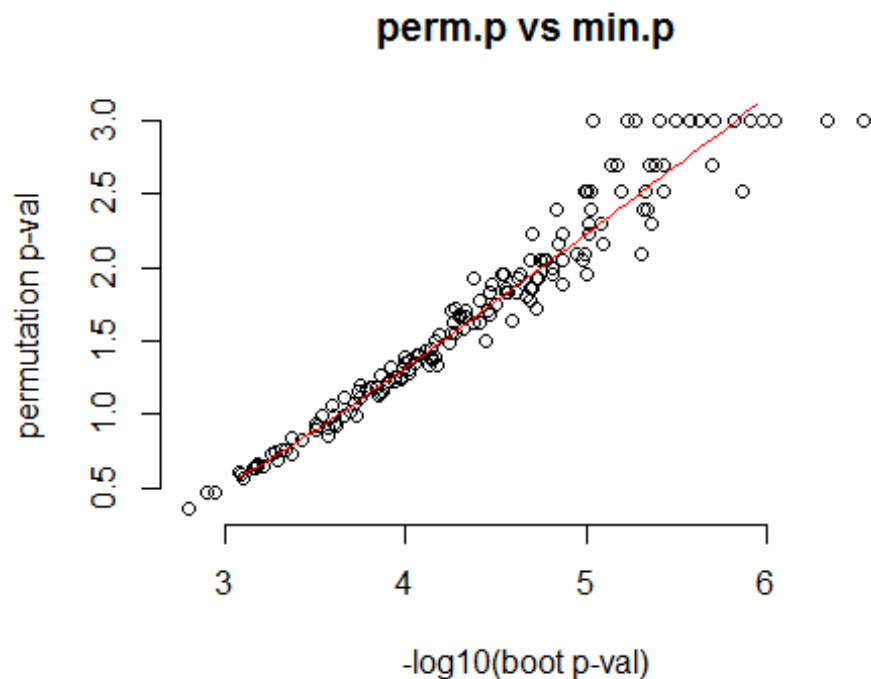
```
## 
## Call:
## glm(formula = cbind(y[kp3], nperm - y[kp3]) ~ x1[kp3], family = 
## "binomial")
## 
## Deviance Residuals:
##      Min       1Q    Median        3Q       Max
## -2.56893  -0.77416  -0.03343   0.68899   2.69706
## 
## Coefficients:
##              Estimate Std. Error z value Pr(>|z|)
## (Intercept)   5.60565    0.09047   61.96   <2e-16 ***
## x1[kp3]       2.14727    0.02442   87.92   <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 
## (Dispersion parameter for binomial family taken to be 1)
## 
##     Null deviance: 11853.9  on 162  degrees of freedom
## Residual deviance:   203.2  on 161  degrees of freedom
## AIC: 965.49
## 
## Number of Fisher Scoring iterations: 4

xval = log10(eigenMT$p.value)
pred.perm = logiti(glmi3$coef[1]+glmi3$coef[2]*xval)
c(xval, pred.perm)

##                (Intercept)
## -4.891887051   0.007402141

xlim = range(-c(x1, xval))
ylim = range(-log10(y/nperm))
ylim[2] = -log10(pred.perm)

plot(-x1, -log10(y/nperm), xlab="-log10(boot p-val)", ylab="permutation p-
val", bty="n", main="perm.p vs min.p")
o = order(x1[kp3])
xf = x1[kp3][o]
yf = glmi3$fitted.values[o]
lines(-xf, -log10(yf), col="red")
```

perm.p vs min.p


```r
fit = seq(0, xval, length.out=50)
pred.perm0 = logiti(glmi3$coef[1]+glmi3$coef[2]*fit)
plot(-x1, -log10(y/nperm), xlab="-log10(boot p-val)", ylab="permutation p-
val", bty="n", main="perm.p vs min.p", xlim=xlim,ylim=ylim)
lines(-fit, -log10(pred.perm0), col="red")
points(-xval, -log10(pred.perm), col="blue", cex=1, pch=19)
legend("topleft", "estimated permu.p", text.col="blue", pch=19, col="blue",
bty="n")
```