Single Nucleotide Polymorphism Spectral Decomposition (SNPSpD) - RESULTS

Matrix of pairwise LD correlations for your markers:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1	1	0.73	0.10	0.02	-0.16	0.10	0.10	-0.01	0.09	0.05	0.14	-0.05	-0.06	-0.01	0.02	-0.01	0.19	0.12	-0.05	-0.08	0.06	0.04	0.00
2	0.73	1	0.20	-0.18	0.02	-0.13	0.12	-0.04	0.13	0.07	-0.01	-0.05	-0.03	0.06	0.09	-0.00	0.20	0.12	-0.08	-0.11	0.10	0.03	-0.15
3	0.10	0.20	1	-0.03	0.08	-0.25	0.03	-0.13	0.05	0.10	-0.04	0.02	-0.06	0.05	0.01	-0.07	0.06	0.03	0.04	-0.01	-0.03	-0.04	-0.04
4	0.02	-0.18	-0.03	1	-0.18	0.47	0.10	-0.01	0.05	0.05	0.02	-0.08	0.06	0.18	-0.01	-0.01	-0.06	-0.01	-0.00	-0.03	0.07	0.04	0.04
5	-0.16	0.02	0.08	-0.18	1	-0.32	0.09	0.03	0.05	0.04	-0.19	-0.04	-0.06	0.09	-0.02	-0.09	0.08	0.05	0.02	0.02	0.03	0.04	-0.19
6	0.10	-0.13	-0.25	0.47	-0.32	1	0.07	0.01	0.03	0.13	0.06	-0.01	0.00	0.00	0.01	0.08	-0.10	-0.00	-0.02	-0.05	-0.02	0.07	0.07
7	0.10	0.12	0.03	0.10	0.09	0.07	1	-0.43	0.94	0.58	0.20	0.06	-0.01	0.04	-0.04	-0.13	0.02	-0.03	0.03	-0.06	0.09	0.07	-0.01
8	-0.01	-0.04	-0.13	-0.01	0.03	0.01	-0.43	1	-0.38	-0.22	-0.10	-0.02	0.04	0.03	-0.11	0.10	-0.01	0.10	0.06	0.08	-0.01	0.02	-0.18
9	0.09	0.13	0.05	0.05	0.05	0.03	0.94	-0.38	1	0.59	0.18	0.04	-0.01	0.02	-0.04	-0.13	0.00	-0.06	0.03	-0.10	0.07	0.04	-0.04
10	0.05	0.07	0.10	0.05	0.04	0.13	0.58	-0.22	0.59	1	-0.28	0.20	-0.07	-0.01	-0.03	-0.06	0.03	-0.05	-0.01	-0.07	0.05	0.13	-0.11
11	0.14	-0.01	-0.04	0.02	-0.19	0.06	0.20	-0.10	0.18	-0.28	1	-0.08	0.01	-0.04	-0.00	-0.00	-0.00	0.13	0.09	0.03	0.01	-0.07	0.21
12	-0.05	-0.05	0.02	-0.08	-0.04	-0.01	0.06	-0.02	0.04	0.20	-0.08	1	-0.06	0.03	0.16	0.04	-0.00	0.01	-0.11	0.17	-0.01	0.05	-0.07
13	-0.06	-0.03	-0.06	0.06	-0.06	0.00	-0.01	0.04	-0.01	-0.07	0.01	-0.06	1	0.14	0.01	0.05	-0.04	-0.00	-0.01	0.04	0.07	0.05	-0.00
14	-0.01	0.06	0.05	0.18	0.09	0.00	0.04	0.03	0.02	-0.01	-0.04	0.03	0.14	1	0.04	0.02	0.07	0.09	0.05	0.03	-0.03	0.08	-0.06
15	0.02	0.09	0.01	-0.01	-0.02	0.01	-0.04	-0.11	-0.04	-0.03	-0.00	0.16	0.01	0.04	1	0.09	0.04	0.06	-0.11	0.04	0.02	0.07	-0.05
16	-0.01	-0.00	-0.07	-0.01	-0.09	0.08	-0.13	0.10	-0.13	-0.06	-0.00	0.04	0.05	0.02	0.09	1	-0.18	0.59	0.10	0.30	-0.08	-0.04	0.01
17	0.19	0.20	0.06	-0.06	0.08	-0.10	0.02	-0.01	0.00	0.03	-0.00	-0.00	-0.04	0.07	0.04	-0.18	1	0.39	-0.34	0.19	0.10	0.16	-0.12
18	0.12	0.12	0.03	-0.01	0.05	-0.00	-0.03	0.10	-0.06	-0.05	0.13	0.01	-0.00	0.09	0.06	0.59	0.39	1	0.05	0.35	-0.02	0.07	0.01
19	-0.05	-0.08	0.04	-0.00	0.02	-0.02	0.03	0.06	0.03	-0.01	0.09	-0.11	-0.01	0.05	-0.11	0.10	-0.34	0.05	1	-0.10	0.07	0.10	0.05
20	-0.08	-0.11	-0.01	-0.03	0.02	-0.05	-0.06	0.08	-0.10	-0.07	0.03	0.17	0.04	0.03	0.04	0.30	0.19	0.35	-0.10	1	-0.04	-0.05	0.14
21	0.06	0.10	-0.03	0.07	0.03	-0.02	0.09	-0.01	0.07	0.05	0.01	-0.01	0.07	-0.03	0.02	-0.08	0.10	-0.02	0.07	-0.04	1	0.13	-0.07
22	0.04	0.03	-0.04	0.04	0.04	0.07	0.07	0.02	0.04	0.13	-0.07	0.05	0.05	0.08	0.07	-0.04	0.16	0.07	0.10	-0.05	0.13	1	-0.17
23	0.00	-0.15	-0.04	0.04	-0.19	0.07	-0.01	-0.18	-0.04	-0.11	0.21	-0.07	-0.00	-0.06	-0.05	0.01	-0.12	0.01	0.05	0.14	-0.07	-0.17	1

Original (total) number of marker loci (M) after removing redundant (collinear) SNPs:

23

For factor 1 to M, original eigenvalues associated with the LD correlation matrix:

1	3.2260
2	2.1803
3	1.7823
4	1.4933
5	1.3331
6	1.1806
7	1.1337
8	1.0932
9	1.0519
10	0.9921
11	0.9696
12	0.9170
13	0.8933
14	0.8255
15	0.7295

16 0.6599
17 0.6426
18 0.5701
19 0.4475
20 0.3699
21 0.2846
22 0.1777
23 0.0463

Variance of the observed eigenvalues:

0.4876

Effective number of independent marker loci [Meff]:

22.5336

Experiment-wide significance threshold required to keep Type I error rate at 5%:

0.00221890781135168

USING THE REPORTEDLY MORE ACCURATE ESTIMATE OF THE Meff [MeffLi] PROPOSED BY LI AND JI (2005):

Effective Number of Independent Marker Loci [MeffLi] (using Equation 5 of Li and Ji 2005):

20

Experiment-wide Significance Threshold Required to Keep Type I Error Rate at 5%:

0.00256137877653029

NB: I recommend using the Li and Ji (2005) approach only if MeffLi < Meff.

SELECT A SUBSET OF SNPs WHILE OPTIMISING INFORMATION:

For factor 1 to M, Eigenvalues and Proportion of Variance, after Varimax Rotation:

1 2.1659 0.0942
2 1.0008 0.0435
3 1.0208 0.0444
4 1.7315 0.0753
5 1.0201 0.0444
6 1.0162 0.0442

```
 7 1.0086 0.0439
 8 1.0020 0.0436
 9 1.0129 0.0440
10 1.0019 0.0436
11 1.0067 0.0438
12 1.0039 0.0436
13 1.0047 0.0437
14 1.0041 0.0437
15 1.0168 0.0442
16 0.9642 0.0419
17 1.0129 0.0440
18 1.0324 0.0449
19 0.9828 0.0427
20 0.8019 0.0349
21 0.9297 0.0404
22 0.2118 0.0092
23 0.0472 0.0021


Principal component coefficients for varimax-rotated matrix:
 - Columns represent factors (principal components) 1 to M
 - Rows represent SNP 1 to M

      SNP       1       2       3       4       5       6       7       8
 [1,] AV1S1A    -0.0394 0.0721  -0.0421 -0.9423 0.0548  -0.0894 -0.0189 -0.0278
 [2,] AV1S1B    -0.0794 0.0702  0.1239  -0.89   -0.1188 0.0481  -0.0141 -0.0032
 [3,] AV6S1     -0.0141 0.0178  -0.0024 -0.0858 -0.012  -0.0121 -0.0043 -0.0251
 [4,] AV8S3     -0.0444 0.0175  0.9609  -0.0512 -0.0081 9e-04   -0.0377 -0.0253
 [5,] AV12S2    -0.0354 0.0303  0.0689  -0.0491 -0.0909 -0.0883 -0.0169 -0.0285
 [6,] AV8S4     -0.0176 0.0395  0.2509  -0.0575 -0.0246 -0.0201 0.0069  0.0072
 [7,] hADV14S1A -0.9529 0.0091  0.0418  -0.055  0.0265  -0.0719 -0.0189 0.0025
 [8,] hADV14S1B -0.2734 -0.006  -0.0037 0.0039  -0.0929 -0.0265 0.0023  -0.0201
 [9,] hADV14S1C -0.9665 -0.0128 0.0094  -0.0491 -0.0185 -0.0471 0.001   -7e-04
[10,] AV8S6     -0.4607 0.0105  0.0077  -0.0121 -0.0515 -0.1381 -0.1169 -0.0393
[11,] AV17S1    -0.1117 -0.015  -6e-04  -0.0398 -0.0974 -0.975  -0.0346 -0.0026
[12,] AV21S1    -0.0216 -0.009  0.0347  -0.0246 -0.0276 -0.0335 -0.9864 -0.0287
[13,] hADV23S1  -0.0011 0.0148  0.0227  -0.024  0.0058  -0.0026 -0.0281 -0.9944
[14,] AV26S1A   -0.015  0.0257  0.0853  -0.0131 -0.0236 -0.0145 -0.0113 -0.0674
[15,] AV26S1B   -0.0201 0.0068  3e-04   -0.0276 -0.0207 0.0044  -0.0749 -0.0033
[16,] AV27S1A   -0.0812 0.0593  -0.0057 0.0191  0.0051  0.0177  -0.012  -0.0229
[17,] AV27S1B   0.0046  0.9494  0.0189  -0.1183 -0.0576 0.017   0.0102  -0.0172
[18,] hADV29S1  -0.0072 0.207   -0.0017 -0.0742 0.0208  -0.078  0.0115  0.0113
[19,] AV30S1    -0.0122 0.1586  -0.0052 -0.0283 -0.0144 -0.0422 -0.0502 0.0018
[20,] AV26S2    -0.0422 0.0701  0.0073  -0.0512 -0.0672 -0.0043 -0.0869 -0.0178
[21,] hADV38S2  -0.0475 0.0358  0.0318  -0.0421 -0.03   0.0037  -9e-04  -0.0329
[22,] AV39S1    -0.0305 0.0642  0.0118  -0.0112 -0.0789 -0.0246 -0.018  -0.0215
[23,] hDV102S2  0.0032  0.0527  0.0081  -0.0357 -0.9771 -0.0969 -0.0284 0.0061
      9       10      11      12      13      14      15      16      17
 [1,] -0.0098 -0.0129 0.004   -0.0099 -0.0239 0.0093  0.1058  0.0016  0.0274
 [2,] -0.1152 -0.0479 0.0377  0.0534  0.0107  -0.0313 -0.0539 -0.0051 0.0399
 [3,] -0.9853 -0.0108 0.0173  9e-04   -0.0166 -0.024  0.0261  0.0615  -0.0059
 [4,] 0.0043  -0.0351 -0.0056 3e-04   -0.0124 -0.094  0.0702  -0.0032 0.0071
 [5,] -0.0267 -0.009  4e-04   0.0077  -0.0113 -0.0397 0.974   8e-04   -0.0043
 [6,] -0.1299 -0.0015 0.0057  2e-04   -0.0293 0.019   0.1589  -0.0048 0.0226
 [7,] 0.0072  -0.0408 0.0051  0.0097  -0.0304 -0.0179 0.0364  0.1697  -2e-04
```

```
 [8,] -0.0684 0.0073  0.0295  0.0521  0.0028  -0.0099 6e-04   0.9499  0.0277
 [9,] -0.0201 -0.0179 0.011   0.0147  -0.0024 -0.0017 0.0073  0.1085  0.0474
[10,] -0.0467 -0.0114 -0.0121 0.0045  -0.0617 0.003   -0.0057 0.051   0.0157
[11,] -0.0123 0.004   0.0428  -0.0047 -0.0254 -0.0151 0.0882  0.025   0.0045
[12,] -0.0042 -9e-04  0.0491  0.0764  -0.018  -0.0114 0.0163  -0.002  0.0822
[13,] -0.0244 -0.0327 -0.0016 0.0033  -0.0211 -0.0665 0.0267  0.0175  0.0165
[14,] -0.0236 -0.0079 0.0185  0.0193  -0.0374 -0.9902 0.0376  0.0089  0.0079
[15,] -9e-04  -0.006  0.0498  0.9924  -0.0316 -0.0191 0.0073  0.0459  0.0093
[16,] -0.0341 -0.0411 0.0445  0.041   -0.0069 0.0016  0.0436  0.0307  0.1368
[17,] -0.0199 -0.0409 0.1755  0.0072  -0.0719 -0.0286 0.0328  -0.0065 0.0739
[18,] -0.002  0.0036  -0.0054 0.0262  -0.0322 -0.0484 0.0151  0.0461  0.1739
[19,] -0.0176 -0.0314 0.9796  0.0518  -0.0394 -0.0189 3e-04   0.0271  0.0396
[20,] 0.0062  -0.0116 0.0412  0.0097  -0.0134 -0.0082 -0.0044 0.026   0.969
[21,] -0.0106 -0.9926 0.0304  0.006   -0.0611 -0.0079 0.0085  -0.0062 0.0108
[22,] -0.0165 -0.062  0.0387  0.032   -0.9878 -0.0377 0.011   -0.0023 0.0128
[23,] -0.0123 -0.0315 0.0147  0.0216  -0.0817 -0.0245 0.0901  0.0856  0.0653
       18      19      20      21      22      23
 [1,] -0.0026 -0.033  -0.0052 0.0278  0.2766  0
 [2,] 0.0212  -0.0364 -0.0082 0.0495  -0.3673 2e-04
 [3,] -0.0297 -0.1123 -0.0315 0.0023  -0.0068 -3e-04
 [4,] 0.006   -0.2329 -0.0051 -0.0012 -0.0097 4e-04
 [5,] -0.0398 -0.1431 0.0037  0.0129  0.007   3e-04
 [6,] -0.0341 -0.9396 -0.0514 -0.014  -0.0015 4e-04
 [7,] -0.0533 -0.0222 -0.1391 -0.0178 -0.0034 0.1574
 [8,] -0.0313 0.0048  -0.0384 0.0391  4e-04   2e-04
 [9,] -0.0326 0.0063  -0.146  0.0258  -0.0021 -0.1498
[10,] -0.0064 -0.0664 -0.8582 0.0193  -6e-04  2e-04
[11,] 0.013   -0.0181 -0.0951 0.0596  0.0061  3e-04
[12,] -0.0101 0.0055  -0.0777 -0.0082 -3e-04  2e-04
[13,] -0.019  0.0056  -0.0258 -0.0076 7e-04   0
[14,] -4e-04  0.015   0.0018  0.0358  -0.0024 2e-04
[15,] -0.0359 -2e-04  -0.0031 0.0201  -0.0038 0
[16,] -0.9418 -0.0349 -0.0047 0.2687  0.0018  3e-04
[17,] -0.0631 -0.0389 -0.0078 0.1709  -0.0026 3e-04
[18,] -0.3327 0.0175  -0.0173 0.8926  -0.0031 -6e-04
[19,] -0.039  -0.0048 0.0081  -0.003  -0.0024 -1e-04
[20,] -0.1302 -0.0208 -0.0114 0.1373  -0.0019 -5e-04
[21,] -0.0349 -0.0018 -0.0078 -0.0015 -0.0027 3e-04
[22,] -0.0072 -0.0255 -0.0414 0.0245  0.0014  3e-04
[23,] 0.0052  -0.0222 -0.0357 -0.0157 -0.0094 -5e-04


 Factor "loadings" after varimax rotation:
  - Columns represent factors 1 to M
  - Rows represent SNP 1 to M
  - SNPs contributing the MOST to each rotated factor are designated by a "1"

      SNP       1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
 [1,] AV1S1A    0 0 0 1 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [2,] AV1S1B    0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  1  0
 [3,] AV6S1     0 0 0 0 0 0 0 0 1 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [4,] AV8S3     0 0 1 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [5,] AV12S2    0 0 0 0 0 0 0 0 0 0  0  0  0  0  1  0  0  0  0  0  0  0  0
 [6,] AV8S4     0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  1  0  0  0  0
 [7,] hADV14S1A 0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  1
```

```
 [8,] hADV14S1B 0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  1  0  0  0  0  0  0  0
 [9,] hADV14S1C 1 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[10,] AV8S6     0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  1  0  0  0
[11,] AV17S1    0 0 0 0 0 1 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[12,] AV21S1    0 0 0 0 0 0 1 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[13,] hADV23S1  0 0 0 0 0 0 0 0 1 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[14,] AV26S1A   0 0 0 0 0 0 0 0 0 0  0  0  0  1  0  0  0  0  0  0  0  0  0
[15,] AV26S1B   0 0 0 0 0 0 0 0 0 0  0  1  0  0  0  0  0  0  0  0  0  0  0
[16,] AV27S1A   0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  1  0  0  0  0  0
[17,] AV27S1B   0 1 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[18,] hADV29S1  0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  1  0  0
[19,] AV30S1    0 0 0 0 0 0 0 0 0 0  1  0  0  0  0  0  0  0  0  0  0  0  0
[20,] AV26S2    0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  1  0  0  0  0  0  0
[21,] hADV38S2  0 0 0 0 0 0 0 0 0 1  0  0  0  0  0  0  0  0  0  0  0  0  0
[22,] AV39S1    0 0 0 0 0 0 0 0 0 0  0  0  1  0  0  0  0  0  0  0  0  0  0
[23,] hDV102S2  0 0 0 0 1 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0

 => Select one SNP to represent either:
    i.   each factor,
    ii.  the factors with the largest Meff eigenvalues, or
    iii. the factors explaining a selected proportion of variance.


--------------------------------------------------------------------------------


SELECT A SUBSET OF SNPs WHILE OPTIMISING INFORMATION:

For factor 1 to M, Eigenvalues and Proportion of Variance, after Promax Rotation:

 1 1.9357 0.0847
 2 0.9981 0.0437
 3 0.9965 0.0436
 4 1.6275 0.0712
 5 0.9999 0.0438
 6 0.9998 0.0438
 7 0.9999 0.0438
 8 1.0000 0.0438
 9 0.9999 0.0438
10 1.0000 0.0438
11 0.9995 0.0437
12 1.0000 0.0438
13 1.0000 0.0438
14 1.0000 0.0438
15 0.9996 0.0438
16 0.9947 0.0435
17 0.9994 0.0437
18 0.9906 0.0434
19 0.9951 0.0436
20 0.9407 0.0412
21 0.9797 0.0429
22 0.3314 0.0145
23 0.0576 0.0025
```

Principal component coefficients for promax-rotated matrix:
- Columns represent factors (principal components) 1 to M
- Rows represent SNP 1 to M

	SNP	1	2	3	4	5	6	7	8	9
[1,]	AV1S1A	0	0	0	-0.9982	0	-1e-04	0	0	
[2,]	AV1S1B	0	0	3e-04	-0.7944	-2e-04	0	0	0	-2e-04
[3,]	AV6S1	0	0	0	-1e-04	0	0	0	0	-0.9999
[4,]	AV8S3	0	0	0.9982	0	0	0	0	0	
[5,]	AV12S2	0	0	0	0	-1e-04	-1e-04	0	0	
[6,]	AV8S4	0	0	0.0046	0	0	0	0	0	-3e-04
[7,]	hADV14S1A	-0.9548	0	0	0	0	0	0	0	
[8,]	hADV14S1B	-0.0065	0	0	0	-1e-04	0	0	0	
[9,]	hADV14S1C	-1.0106	0	0	0	0	0	0	0	
[10,]	AV8S6	-0.0522	0	0	0	0	-4e-04	-2e-04	0	
[11,]	AV17S1	-2e-04	0	0	0	-1e-04	-0.9999	0	0	
[12,]	AV21S1	0	0	0	0	0	0	-1	0	
[13,]	hADV23S1	0	0	0	0	0	0	0	-1	0
[14,]	AV26S1A	0	0	1e-04	0	0	0	0	0	
[15,]	AV26S1B	0	0	0	0	0	0	0	0	
[16,]	AV27S1A	-1e-04	0	0	0	0	0	0	0	
[17,]	AV27S1B	0	0.9991	0	-2e-04	0	0	0	0	
[18,]	hADV29S1	0	0.0023	0	0	0	0	0	0	
[19,]	AV30S1	0	8e-04	0	0	0	0	0	0	
[20,]	AV26S2	0	0	0	0	0	0	-1e-04	0	
[21,]	hADV38S2	0	0	0	0	0	0	0	0	
[22,]	AV39S1	0	0	0	0	0	0	0	0	
[23,]	hDV102S2	0	0	0	0	-0.9999	-1e-04	0	0	

	10	11	12	13	14	15	16	17	18	19	20
[1,]	0	0	0	0	0	1e-04	0	0	0	0	
[2,]	0	0	0	0	0	0	0	0	0	0	
[3,]	0	0	0	0	0	0	0	0	0	-2e-04	0
[4,]	0	0	0	0	-1e-04	0	0	0	0	-0.0038	0
[5,]	0	0	0	0	0	0.9998	0	0	0	-5e-04	0
[6,]	0	0	0	0	0	7e-04	0	0	0	-0.9975	0
[7,]	0	0	0	0	0	0	0.001	0	0	0	-7e-04
[8,]	0	0	0	0	0	0	0.9974	0	0	0	0
[9,]	0	0	0	0	0	0	2e-04	0	0	0	-8e-04
[10,]	0	0	0	0	0	0	0	0	0	0	-0.9699
[11,]	0	0	0	0	0	1e-04	0	0	0	0	-1e-04
[12,]	0	0	0	0	0	0	0	1e-04	0	0	-1e-04
[13,]	0	0	0	0	0	0	0	0	0	0	0
[14,]	0	0	0	0	-1	0	0	0	0	0	0
[15,]	0	0	1	0	0	0	0	0	0	0	0
[16,]	0	0	0	0	0	0	0	4e-04	-0.9952	0	0
[17,]	0	0.001	0	0	0	0	0	0	0	0	0
[18,]	0	0	0	0	0	0	0	0.001	-0.0155	0	0
[19,]	0	0.9997	0	0	0	0	0	0	0	0	0
[20,]	0	0	0	0	0	0	0	0.9997	-4e-04	0	0
[21,]	-1	0	0	0	0	0	0	0	0	0	0
[22,]	0	0	0	-1	0	0	0	0	0	0	0
[23,]	0	0	0	0	0	1e-04	1e-04	0	0	0	0

	21	22	23
[1,]	0	0.1762	0
[2,]	0	-0.5481	0

```
 [3,] 0      0       0
 [4,] 0      0       0
 [5,] 0      0       0
 [6,] 0      0       0
 [7,] 0      0       0.1855
 [8,] 0      0       0
 [9,] 0      0       -0.1522
[10,] 0      0       0
[11,] 0      0       0
[12,] 0      0       0
[13,] 0      0       0
[14,] 0      0       0
[15,] 0      0       0
[16,] 0.0081 0       0
[17,] 0.0013 0       0
[18,] 0.9898 0       0
[19,] 0      0       0
[20,] 6e-04  0       0
[21,] 0      0       0
[22,] 0      0       0
[23,] 0      0       0


 Factor "loadings" after promax rotation:
  - Columns represent factors 1 to M
  - Rows represent SNP 1 to M
  - SNPs contributing the MOST to each rotated factor are designated by a "1"

      SNP       1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
 [1,] AV1S1A    0 0 0 1 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [2,] AV1S1B    0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  1  0
 [3,] AV6S1     0 0 0 0 0 0 0 0 1 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [4,] AV8S3     0 0 1 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
 [5,] AV12S2    0 0 0 0 0 0 0 0 0 0  0  0  0  0  1  0  0  0  0  0  0  0  0
 [6,] AV8S4     0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  1  0  0  0  0
 [7,] hADV14S1A 0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  1
 [8,] hADV14S1B 0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  1  0  0  0  0  0  0  0
 [9,] hADV14S1C 1 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[10,] AV8S6     0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  1  0  0  0
[11,] AV17S1    0 0 0 0 0 1 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[12,] AV21S1    0 0 0 0 0 0 1 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[13,] hADV23S1  0 0 0 0 0 0 0 1 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[14,] AV26S1A   0 0 0 0 0 0 0 0 0 0  0  0  0  1  0  0  0  0  0  0  0  0  0
[15,] AV26S1B   0 0 0 0 0 0 0 0 0 0  0  1  0  0  0  0  0  0  0  0  0  0  0
[16,] AV27S1A   0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  1  0  0  0  0  0
[17,] AV27S1B   0 1 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0
[18,] hADV29S1  0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  1  0  0
[19,] AV30S1    0 0 0 0 0 0 0 0 0 0  1  0  0  0  0  0  0  0  0  0  0  0  0
[20,] AV26S2    0 0 0 0 0 0 0 0 0 0  0  0  0  0  0  0  1  0  0  0  0  0  0
[21,] hADV38S2  0 0 0 0 0 0 0 0 0 1  0  0  0  0  0  0  0  0  0  0  0  0  0
[22,] AV39S1    0 0 0 0 0 0 0 0 0 0  0  0  1  0  0  0  0  0  0  0  0  0  0
[23,] hDV102S2  0 0 0 0 1 0 0 0 0 0  0  0  0  0  0  0  0  0  0  0  0  0  0

 => Select one SNP to represent either:
    i.   each factor,
```

ii. the factors with the largest Meff eigenvalues, or
iii. the factors explaining a selected proportion of variance.

==========

The following data may be copied and pasted to a local file for plotting by GOLD:

M1	M2	al1	al2	N	df(0)	df(1)	ChiSq	pvalue	delta2	D'
1	2	2	2	210	208	207	162.79	0.00000	0.531	1.000
1	3	2	2	210	208	207	1.78	0.18245	0.010	0.406
1	4	2	2	210	208	207	0.13	0.72244	0.001	0.026
1	5	2	2	210	208	207	6.10	0.01353	0.026	0.675
1	6	2	2	210	208	207	1.89	0.16962	0.009	0.130
1	7	2	2	210	208	207	2.11	0.14669	0.010	0.147
1	8	2	2	210	208	207	0.02	0.89929	0.000	0.013
1	9	2	2	210	208	207	1.69	0.19366	0.008	0.131
1	10	2	2	210	208	207	0.43	0.51138	0.003	0.108
1	11	2	2	210	208	207	4.06	0.04401	0.019	0.316
1	12	2	2	210	208	207	0.39	0.53197	0.002	0.056
1	13	2	2	210	208	207	0.42	0.51789	0.003	0.239
1	14	2	2	210	208	207	0.02	0.89285	0.000	0.015
1	15	2	2	210	208	207	0.07	0.78862	0.000	0.025
1	16	2	2	210	208	207	0.02	0.87809	0.000	0.015
1	17	2	2	210	208	207	7.29	0.00692	0.035	0.703
1	18	2	2	210	208	207	2.77	0.09598	0.015	0.247
1	19	2	2	210	208	207	0.37	0.54106	0.002	0.325
1	20	2	2	210	208	207	1.44	0.22977	0.007	0.161
1	21	2	2	210	208	207	0.68	0.40935	0.003	0.091
1	22	2	2	210	208	207	0.44	0.50880	0.002	0.088
1	23	2	2	210	208	207	0.00	0.94974	0.000	0.008
2	3	2	2	210	208	207	6.95	0.00837	0.040	0.596
2	4	2	2	210	208	207	6.97	0.00831	0.034	0.200
2	5	2	2	210	208	207	0.08	0.78067	0.000	0.080
2	6	2	2	210	208	207	2.93	0.08711	0.017	0.175
2	7	2	2	210	208	207	2.73	0.09858	0.016	0.131
2	8	2	2	210	208	207	0.23	0.63066	0.001	0.081
2	9	2	2	210	208	207	3.04	0.08099	0.016	0.136
2	10	2	2	210	208	207	0.88	0.34755	0.004	0.101
2	11	2	2	210	208	207	0.02	0.89585	0.000	0.021
2	12	2	2	210	208	207	0.42	0.51777	0.003	0.059
2	13	2	2	210	208	207	0.07	0.79874	0.001	0.193
2	14	2	2	210	208	207	0.59	0.44201	0.004	0.108
2	15	2	2	210	208	207	1.19	0.27452	0.008	0.158
2	16	2	2	210	208	207	0.00	1.00000	0.000	0.000
2	17	2	2	210	208	207	8.64	0.00328	0.041	0.554
2	18	2	2	210	208	207	2.22	0.13637	0.015	0.175
2	19	2	2	210	208	207	1.05	0.30635	0.007	0.403
2	20	2	2	210	208	207	2.26	0.13257	0.012	0.154
2	21	2	2	210	208	207	2.37	0.12404	0.010	0.224
2	22	2	2	210	208	207	0.18	0.67472	0.001	0.041
2	23	2	2	210	208	207	3.51	0.06118	0.024	0.313
3	4	2	2	210	208	207	0.18	0.67156	0.001	0.099
3	5	2	2	210	208	207	2.01	0.15662	0.006	0.999
3	6	2	2	210	208	207	13.25	0.00027	0.060	1.000

3	7	2	2	210	208	207	0.23	0.62933	0.001	0.093
3	8	2	2	210	208	207	2.35	0.12509	0.018	0.886
3	9	2	2	210	208	207	0.58	0.44667	0.003	0.142
3	10	2	2	210	208	207	2.20	0.13784	0.009	0.189
3	11	2	2	210	208	207	0.34	0.55991	0.002	0.280
3	12	2	2	210	208	207	0.06	0.80707	0.000	0.057
3	13	2	2	210	208	207	1.12	0.29070	0.003	0.999
3	14	2	2	210	208	207	0.49	0.48479	0.003	0.263
3	15	2	2	210	208	207	0.03	0.86189	0.000	0.061
3	16	2	2	210	208	207	0.97	0.32518	0.005	0.426
3	17	2	2	210	208	207	0.60	0.44026	0.004	0.066
3	18	2	2	210	208	207	0.16	0.68871	0.001	0.055
3	19	2	2	210	208	207	0.48	0.48843	0.002	0.929
3	20	2	2	210	208	207	0.01	0.92628	0.000	0.012
3	21	2	2	210	208	207	0.16	0.68857	0.001	0.057
3	22	2	2	210	208	207	0.36	0.54715	0.002	0.277
3	23	2	2	210	208	207	0.32	0.57182	0.002	0.257
4	5	2	2	210	208	207	10.60	0.00113	0.032	0.697
4	6	2	2	210	208	207	58.07	0.00000	0.224	0.590
4	7	2	2	210	208	207	2.36	0.12419	0.009	0.131
4	8	2	2	210	208	207	0.01	0.92662	0.000	0.010
4	9	2	2	210	208	207	0.77	0.37959	0.003	0.074
4	10	2	2	210	208	207	0.78	0.37684	0.003	0.106
4	11	2	2	210	208	207	0.10	0.74984	0.000	0.042
4	12	2	2	210	208	207	1.16	0.28110	0.006	0.084
4	13	2	2	210	208	207	1.15	0.28261	0.003	0.314
4	14	2	2	210	208	207	6.34	0.01183	0.032	0.237
4	15	2	2	210	208	207	0.02	0.89801	0.000	0.014
4	16	2	2	210	208	207	0.01	0.91455	0.000	0.010
4	17	2	2	210	208	207	0.81	0.36859	0.003	0.168
4	18	2	2	210	208	207	0.01	0.93102	0.000	0.008
4	19	2	2	210	208	207	0.00	0.99008	0.000	0.004
4	20	2	2	210	208	207	0.19	0.66339	0.001	0.051
4	21	2	2	210	208	207	1.02	0.31309	0.005	0.127
4	22	2	2	210	208	207	0.39	0.53444	0.002	0.079
4	23	2	2	210	208	207	0.29	0.59148	0.001	0.066
5	6	2	2	210	208	207	38.33	0.00000	0.102	1.000
5	7	2	2	210	208	207	1.95	0.16307	0.007	0.384
5	8	2	2	210	208	207	0.16	0.69101	0.001	0.170
5	9	2	2	210	208	207	0.69	0.40681	0.003	0.230
5	10	2	2	210	208	207	0.42	0.51585	0.002	0.266
5	11	2	2	210	208	207	7.38	0.00661	0.036	0.349
5	12	2	2	210	208	207	0.51	0.47553	0.002	0.161
5	13	2	2	210	208	207	0.89	0.34611	0.004	0.085
5	14	2	2	210	208	207	1.61	0.20411	0.008	0.223
5	15	2	2	210	208	207	0.10	0.75026	0.001	0.125
5	16	2	2	210	208	207	2.15	0.14294	0.008	0.194
5	17	2	2	210	208	207	1.59	0.20775	0.007	0.981
5	18	2	2	210	208	207	0.54	0.46327	0.003	0.330
5	19	2	2	210	208	207	0.06	0.81162	0.000	0.028
5	20	2	2	210	208	207	0.06	0.79922	0.000	0.037
5	21	2	2	210	208	207	0.22	0.63887	0.001	0.059
5	22	2	2	210	208	207	0.48	0.48965	0.002	0.280
5	23	2	2	210	208	207	8.77	0.00306	0.038	0.407
6	7	2	2	210	208	207	1.06	0.30408	0.004	0.072

6	8	2	2	210	208	207	0.02	0.88864	0.000	0.015
6	9	2	2	210	208	207	0.22	0.63904	0.001	0.033
6	10	2	2	210	208	207	3.89	0.04867	0.016	0.200
6	11	2	2	210	208	207	0.92	0.33816	0.004	0.106
6	12	2	2	210	208	207	0.02	0.88507	0.000	0.010
6	13	2	2	210	208	207	0.00	0.94481	0.000	0.018
6	14	2	2	210	208	207	0.00	0.99034	0.000	0.001
6	15	2	2	210	208	207	0.01	0.92407	0.000	0.010
6	16	2	2	210	208	207	1.41	0.23458	0.006	0.114
6	17	2	2	210	208	207	2.17	0.14084	0.010	0.365
6	18	2	2	210	208	207	0.00	0.95425	0.000	0.006
6	19	2	2	210	208	207	0.09	0.75866	0.001	0.115
6	20	2	2	210	208	207	0.57	0.45202	0.003	0.076
6	21	2	2	210	208	207	0.11	0.73710	0.001	0.037
6	22	2	2	210	208	207	1.10	0.29517	0.005	0.105
6	23	2	2	210	208	207	1.15	0.28394	0.005	0.110
7	8	2	2	210	208	207	49.00	0.00000	0.182	1.000
7	9	2	2	210	208	207	327.36	0.00000	0.891	0.949
7	10	2	2	210	208	207	90.38	0.00000	0.339	0.839
7	11	2	2	210	208	207	8.09	0.00445	0.039	0.311
7	12	2	2	210	208	207	0.54	0.46144	0.003	0.074
7	13	2	2	210	208	207	0.04	0.84618	0.000	0.084
7	14	2	2	210	208	207	0.36	0.54974	0.002	0.072
7	15	2	2	210	208	207	0.35	0.55132	0.002	0.052
7	16	2	2	210	208	207	3.94	0.04725	0.017	0.279
7	17	2	2	210	208	207	0.07	0.79659	0.000	0.042
7	18	2	2	210	208	207	0.22	0.63849	0.001	0.070
7	19	2	2	210	208	207	0.28	0.59771	0.001	0.232
7	20	2	2	210	208	207	0.62	0.43061	0.003	0.074
7	21	2	2	210	208	207	2.21	0.13732	0.009	0.216
7	22	2	2	210	208	207	1.18	0.27781	0.005	0.101
7	23	2	2	210	208	207	0.02	0.89289	0.000	0.019
8	9	2	2	210	208	207	35.43	0.00000	0.146	0.898
8	10	2	2	210	208	207	10.04	0.00153	0.048	0.743
8	11	2	2	210	208	207	1.85	0.17430	0.009	0.357
8	12	2	2	210	208	207	0.05	0.82760	0.000	0.030
8	13	2	2	210	208	207	0.24	0.62756	0.002	0.107
8	14	2	2	210	208	207	0.22	0.64198	0.001	0.082
8	15	2	2	210	208	207	2.29	0.13030	0.011	0.130
8	16	2	2	210	208	207	2.22	0.13597	0.010	0.110
8	17	2	2	210	208	207	0.02	0.89791	0.000	0.055
8	18	2	2	210	208	207	1.64	0.20084	0.009	0.105
8	19	2	2	210	208	207	0.65	0.42066	0.004	0.708
8	20	2	2	210	208	207	1.36	0.24284	0.006	0.247
8	21	2	2	210	208	207	0.01	0.92872	0.000	0.006
8	22	2	2	210	208	207	0.09	0.76566	0.000	0.019
8	23	2	2	210	208	207	5.32	0.02105	0.032	0.573
9	10	2	2	210	208	207	93.21	0.00000	0.344	0.841
9	11	2	2	210	208	207	6.94	0.00845	0.031	0.278
9	12	2	2	210	208	207	0.31	0.58047	0.002	0.053
9	13	2	2	210	208	207	0.03	0.86950	0.000	0.072
9	14	2	2	210	208	207	0.12	0.73439	0.000	0.040
9	15	2	2	210	208	207	0.42	0.51844	0.002	0.053
9	16	2	2	210	208	207	3.63	0.05681	0.016	0.270
9	17	2	2	210	208	207	0.00	0.94944	0.000	0.009

9	18	2	2	210	208	207	0.78	0.37572	0.004	0.133
9	19	2	2	210	208	207	0.26	0.61266	0.001	0.224
9	20	2	2	210	208	207	2.22	0.13594	0.011	0.135
9	21	2	2	210	208	207	1.20	0.27277	0.005	0.161
9	22	2	2	210	208	207	0.47	0.49378	0.002	0.063
9	23	2	2	210	208	207	0.32	0.57295	0.002	0.086
10	11	2	2	210	208	207	26.37	0.00000	0.079	1.000
10	12	2	2	210	208	207	7.84	0.00512	0.041	0.375
10	13	2	2	210	208	207	0.68	0.40997	0.005	0.623
10	14	2	2	210	208	207	0.05	0.82050	0.000	0.018
10	15	2	2	210	208	207	0.21	0.64736	0.001	0.036
10	16	2	2	210	208	207	1.00	0.31834	0.004	0.185
10	17	2	2	210	208	207	0.17	0.67830	0.001	0.048
10	18	2	2	210	208	207	0.76	0.38378	0.003	0.168
10	19	2	2	210	208	207	0.02	0.89340	0.000	0.024
10	20	2	2	210	208	207	1.02	0.31305	0.005	0.073
10	21	2	2	210	208	207	0.60	0.43954	0.002	0.159
10	22	2	2	210	208	207	3.99	0.04576	0.016	0.126
10	23	2	2	210	208	207	3.11	0.07770	0.012	0.337
11	12	2	2	210	208	207	1.45	0.22848	0.007	0.160
11	13	2	2	210	208	207	0.04	0.84644	0.000	0.032
11	14	2	2	210	208	207	0.32	0.57070	0.002	0.056
11	15	2	2	210	208	207	0.01	0.93575	0.000	0.006
11	16	2	2	210	208	207	0.00	0.96549	0.000	0.008
11	17	2	2	210	208	207	0.00	0.96437	0.000	0.015
11	18	2	2	210	208	207	3.16	0.07559	0.017	0.148
11	19	2	2	210	208	207	2.82	0.09335	0.008	1.000
11	20	2	2	210	208	207	0.23	0.63405	0.001	0.111
11	21	2	2	210	208	207	0.01	0.92201	0.000	0.022
11	22	2	2	210	208	207	1.24	0.26457	0.005	0.243
11	23	2	2	210	208	207	7.06	0.00787	0.043	0.237
12	13	2	2	210	208	207	0.53	0.46628	0.004	0.306
12	14	2	2	210	208	207	0.19	0.66585	0.001	0.046
12	15	2	2	210	208	207	4.28	0.03857	0.024	0.230
12	16	2	2	210	208	207	0.30	0.58655	0.001	0.065
12	17	2	2	210	208	207	0.00	0.95360	0.000	0.011
12	18	2	2	210	208	207	0.01	0.93334	0.000	0.009
12	19	2	2	210	208	207	2.53	0.11142	0.011	0.643
12	20	2	2	210	208	207	5.21	0.02248	0.030	0.277
12	21	2	2	210	208	207	0.03	0.87224	0.000	0.022
12	22	2	2	210	208	207	0.54	0.46065	0.002	0.091
12	23	2	2	210	208	207	0.78	0.37773	0.005	0.120
13	14	2	2	210	208	207	6.01	0.01425	0.019	1.000
13	15	2	2	210	208	207	0.05	0.82861	0.000	0.101
13	16	2	2	210	208	207	0.47	0.49297	0.002	0.135
13	17	2	2	210	208	207	0.34	0.55924	0.002	0.656
13	18	2	2	210	208	207	0.00	0.97521	0.000	0.014
13	19	2	2	210	208	207	0.01	0.92454	0.000	0.007
13	20	2	2	210	208	207	0.42	0.51802	0.002	0.341
13	21	2	2	210	208	207	2.26	0.13242	0.005	0.660
13	22	2	2	210	208	207	0.69	0.40537	0.003	0.141
13	23	2	2	210	208	207	0.00	0.97521	0.000	0.014
14	15	2	2	210	208	207	0.40	0.52839	0.002	0.047
14	16	2	2	210	208	207	0.06	0.80049	0.000	0.042
14	17	2	2	210	208	207	0.89	0.34484	0.005	0.334

14	18	2	2	210	208	207	1.41	0.23584	0.008	0.223
14	19	2	2	210	208	207	0.35	0.55279	0.002	0.187
14	20	2	2	210	208	207	0.17	0.68314	0.001	0.034
14	21	2	2	210	208	207	0.17	0.68395	0.001	0.072
14	22	2	2	210	208	207	1.58	0.20923	0.007	0.217
14	23	2	2	210	208	207	0.57	0.44973	0.004	0.071
15	16	2	2	210	208	207	1.77	0.18372	0.008	0.229
15	17	2	2	210	208	207	0.31	0.57564	0.001	0.174
15	18	2	2	210	208	207	0.75	0.38609	0.004	0.167
15	19	2	2	210	208	207	1.77	0.18297	0.012	0.988
15	20	2	2	210	208	207	0.33	0.56727	0.002	0.044
15	21	2	2	210	208	207	0.09	0.76949	0.000	0.024
15	22	2	2	210	208	207	1.31	0.25174	0.005	0.195
15	23	2	2	210	208	207	0.47	0.49490	0.003	0.060
16	17	2	2	210	208	207	10.73	0.00105	0.033	1.000
16	18	2	2	210	208	207	79.44	0.00000	0.347	0.597
16	19	2	2	210	208	207	1.71	0.19161	0.010	0.989
16	20	2	2	210	208	207	21.79	0.00000	0.092	0.851
16	21	2	2	210	208	207	1.73	0.18893	0.007	0.091
16	22	2	2	210	208	207	0.33	0.56363	0.001	0.108
16	23	2	2	210	208	207	0.01	0.92134	0.000	0.007
17	18	2	2	210	208	207	32.17	0.00000	0.153	0.732
17	19	2	2	210	208	207	16.75	0.00004	0.113	0.608
17	20	2	2	210	208	207	10.62	0.00112	0.036	1.000
17	21	2	2	210	208	207	3.06	0.08033	0.009	0.573
17	22	2	2	210	208	207	5.65	0.01743	0.024	0.280
17	23	2	2	210	208	207	3.92	0.04784	0.016	0.692
18	19	2	2	210	208	207	0.41	0.52267	0.003	0.540
18	20	2	2	210	208	207	31.70	0.00000	0.124	1.000
18	21	2	2	210	208	207	0.09	0.76379	0.000	0.022
18	22	2	2	210	208	207	1.31	0.25243	0.006	0.078
18	23	2	2	210	208	207	0.01	0.92388	0.000	0.006
19	20	2	2	210	208	207	4.88	0.02720	0.011	1.000
19	21	2	2	210	208	207	1.27	0.25929	0.005	0.229
19	22	2	2	210	208	207	2.48	0.11562	0.009	0.999
19	23	2	2	210	208	207	0.41	0.52267	0.003	0.540
20	21	2	2	210	208	207	0.27	0.60119	0.001	0.117
20	22	2	2	210	208	207	0.53	0.46682	0.002	0.051
20	23	2	2	210	208	207	4.24	0.03953	0.019	0.396
21	22	2	2	210	208	207	4.32	0.03771	0.017	0.440
21	23	2	2	210	208	207	0.90	0.34338	0.005	0.076
22	23	2	2	210	208	207	6.33	0.01184	0.030	0.529

If there are no results between the above two lines there must be a problem with your "ldmax" input files => please re-check. However, if you are 100% confident that your .pre and .map files are correct but cannot get any results, please email me, detailing your problem.

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