FIG. 1

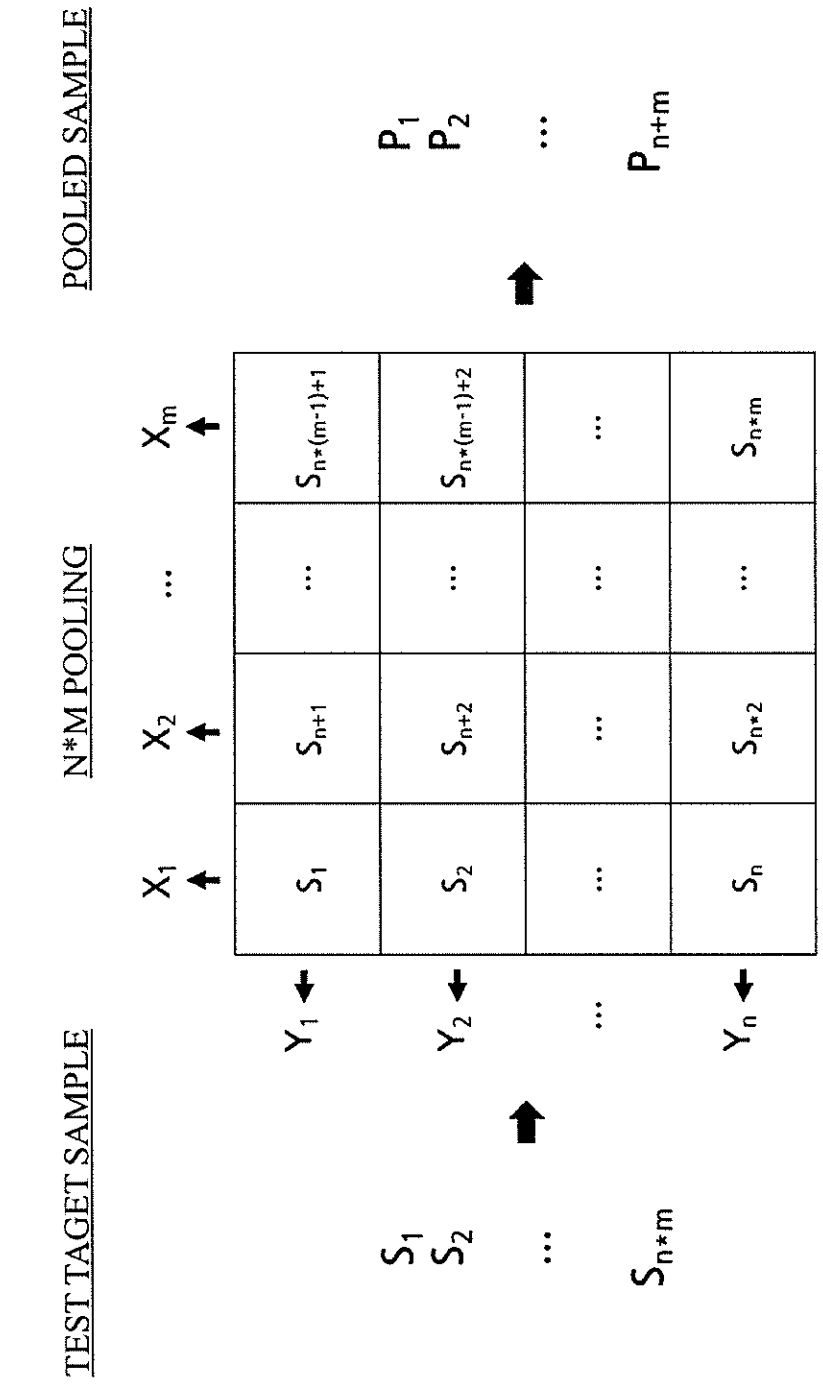

TEST TAGET SAMPLE
N*M POOLING
POOLED SAMPLE
X1
X2
...
Xm
Y1
Y2
...
Yn
S1
S2
...
Sn*m
P1
P2
...
Pn+m
S1
S2
Sn+1
Sn+2
Sn*(m-1)+1
Sn*(m-1)+2
Sn*2
Sn*m

FIG. 2

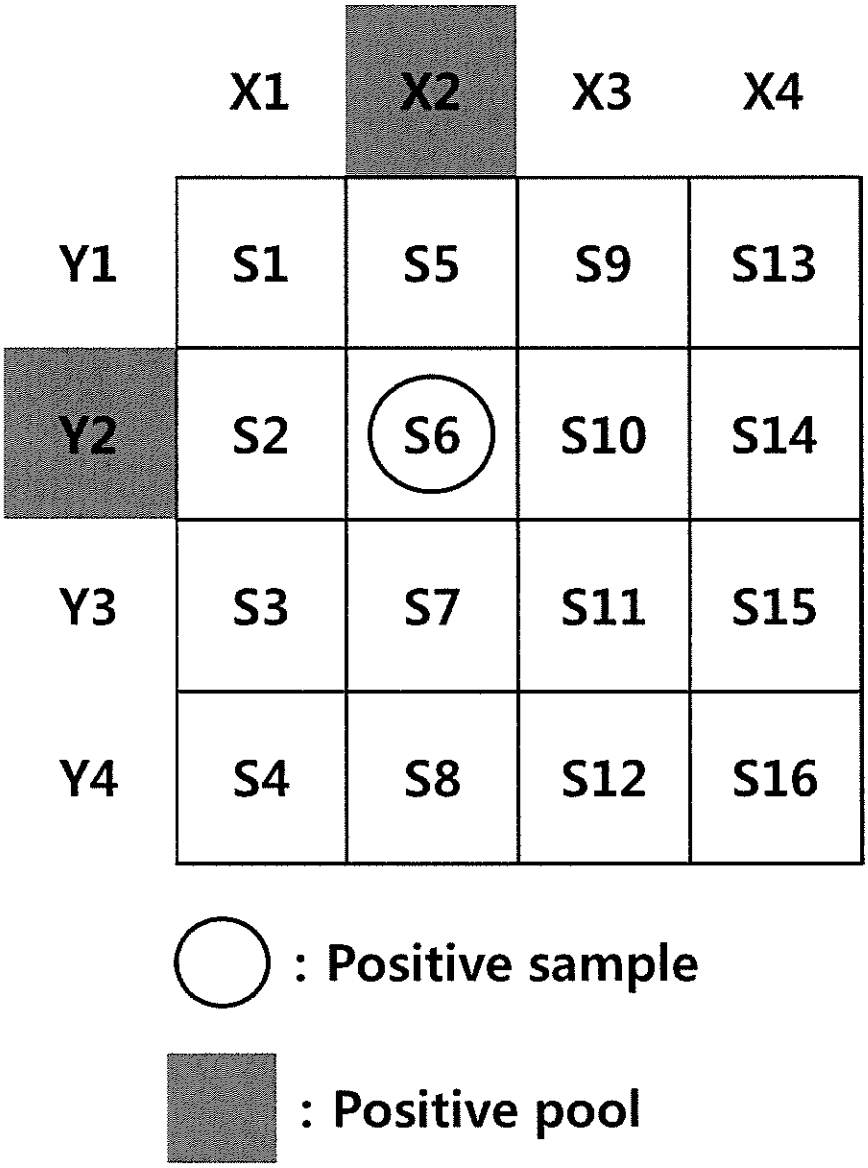

X1
X2
X3
X4
Y1
Y2
Y3
Y4
S1
S5
S9
S13
S2
S6
S10
S14
S3
S7
S11
S15
S4
S8
S12
S16
: Positive sample
: Positive pool

FIG. 3

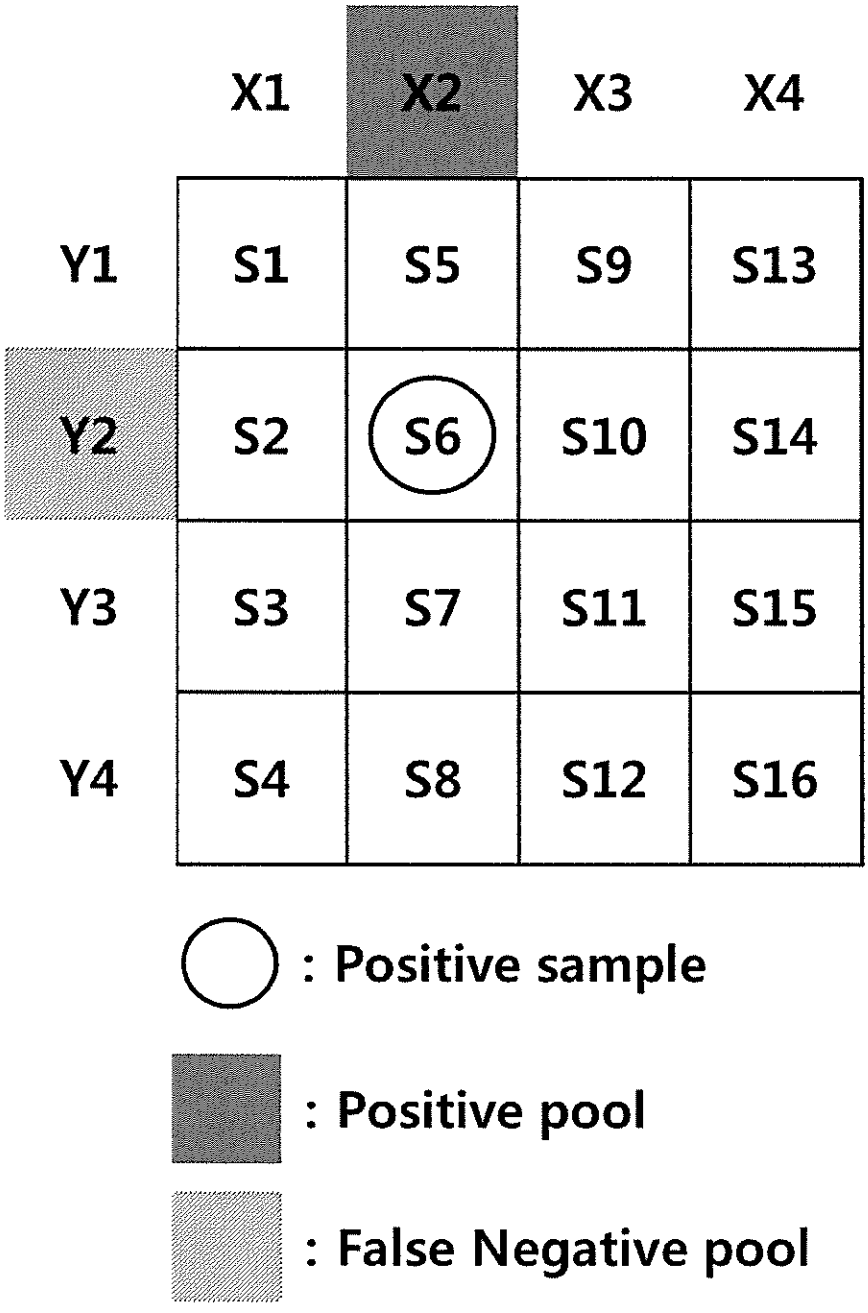

X1
X2
X3
X4
Y1
Y2
Y3
Y4
S1
S5
S9
S13
S2
S6
S10
S14
S3
S7
S11
S15
S4
S8
S12
S16
: Positive sample
: Positive pool
: False Negative pool

FIG. 4

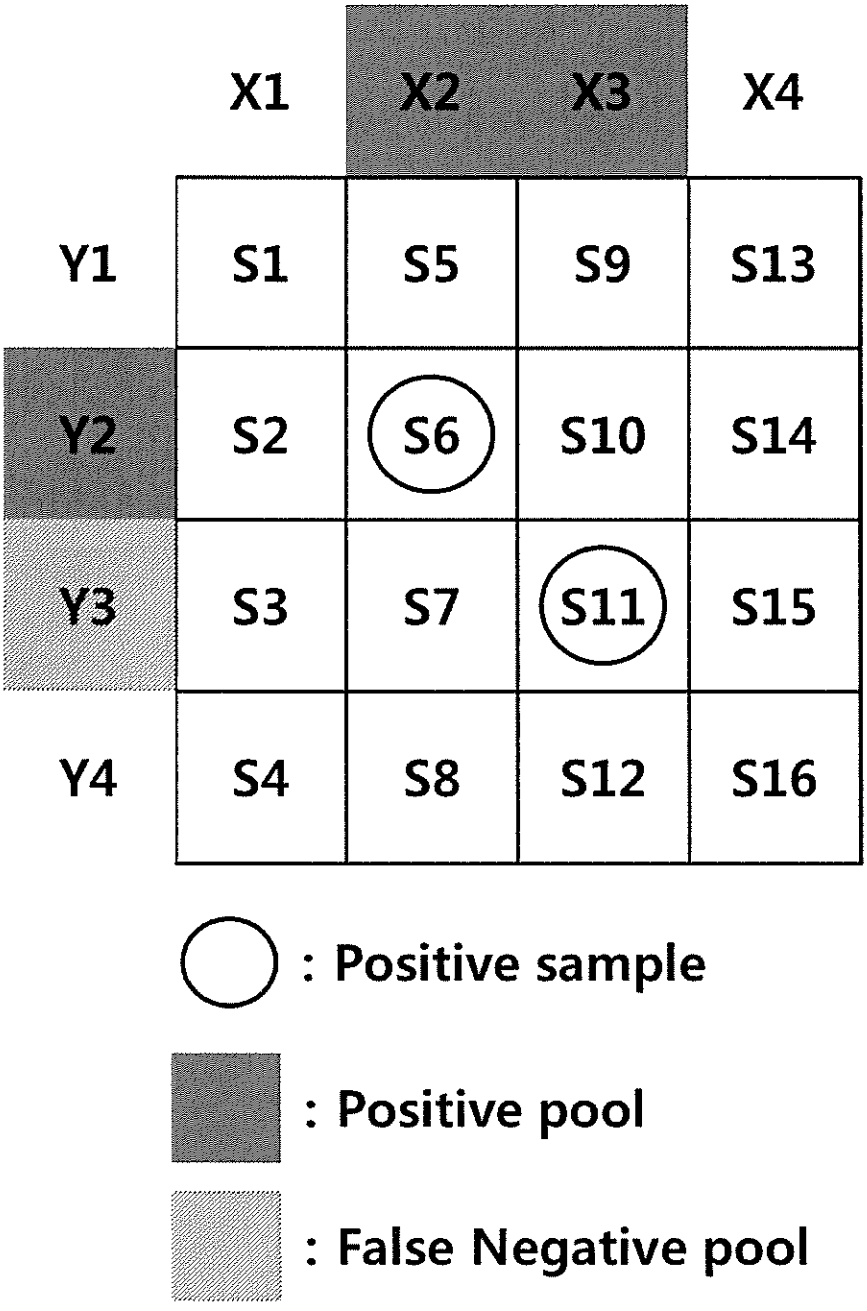

X1
X2
X3
X4
Y1
Y2
Y3
Y4
S1
S5
S9
S13
S2
S6
S10
S14
S3
S7
S11
S15
S4
S8
S12
S16
: Positive sample
: Positive pool
: False Negative pool

FIG. 5

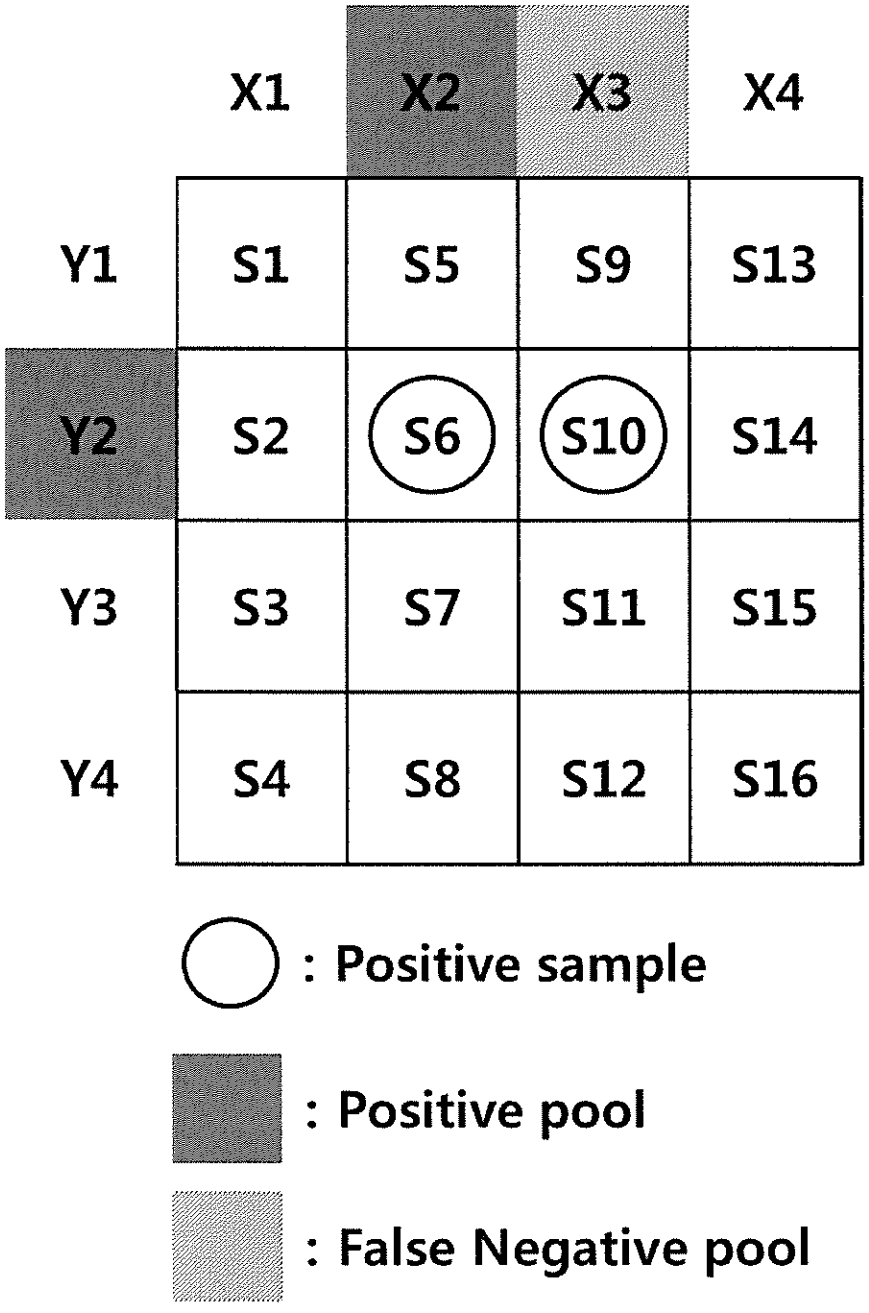

X1
X2
X3
X4
Y1
Y2
Y3
Y4
S1
S5
S9
S13
S2
S6
S10
S14
S3
S7
S11
S15
S4
S8
S12
S16
: Positive sample
: Positive pool
: False Negative pool

FIG. 6

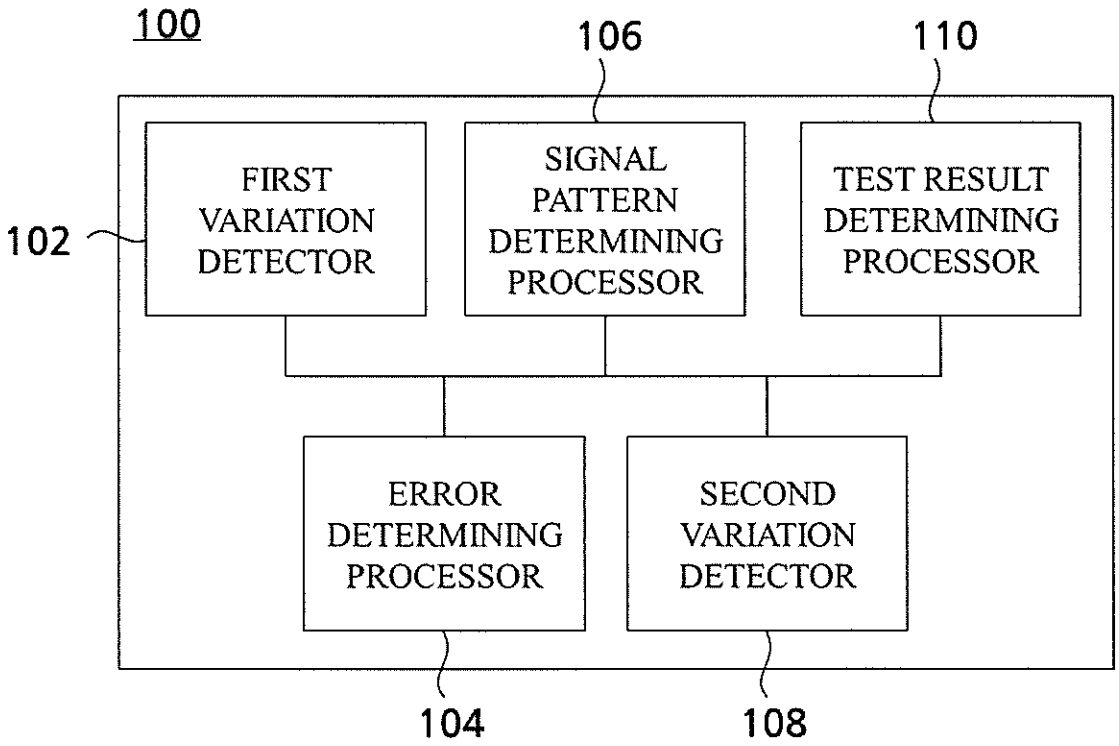

100
106
110
FIRST VARIATION DETECTOR
SIGNAL PATTERN DETERMINING PROCESSOR
TEST RESULT DETERMINING PROCESSOR
102
ERROR DETERMINING PROCESSOR
SECOND VARIATION DETECTOR
104
108

FIG. 7

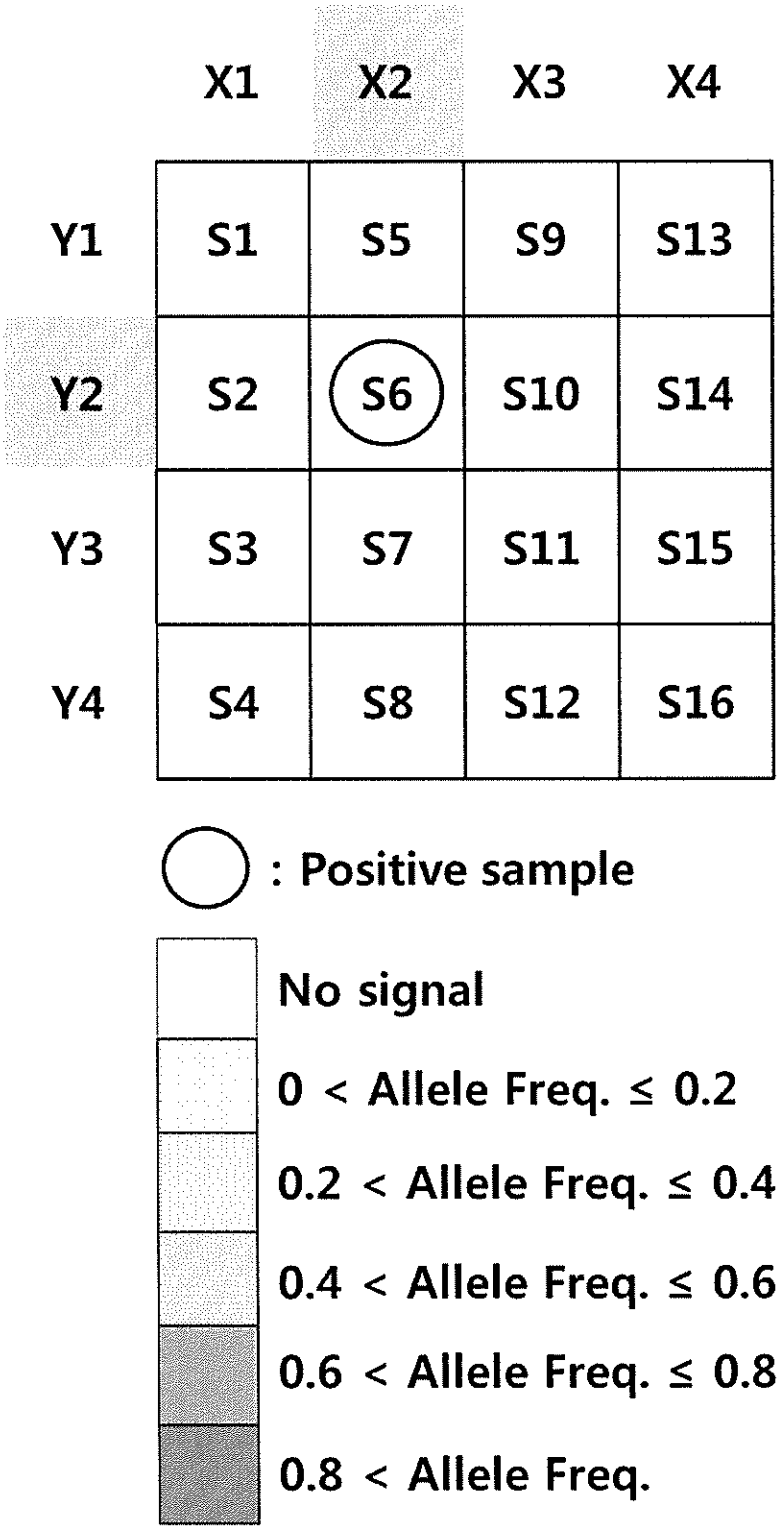

X1
X2
X3
X4
Y1
Y2
Y3
Y4
S1
S5
S9
S13
S2
S6
S10
S14
S3
S7
S11
S15
S4
S8
S12
S16
: Positive sample
No signal
0 < Allele Freq. ≤ 0.2
0.2 < Allele Freq. ≤ 0.4
0.4 < Allele Freq. ≤ 0.6
0.6 < Allele Freq. ≤ 0.8
0.8 < Allele Freq.

FIG. 8

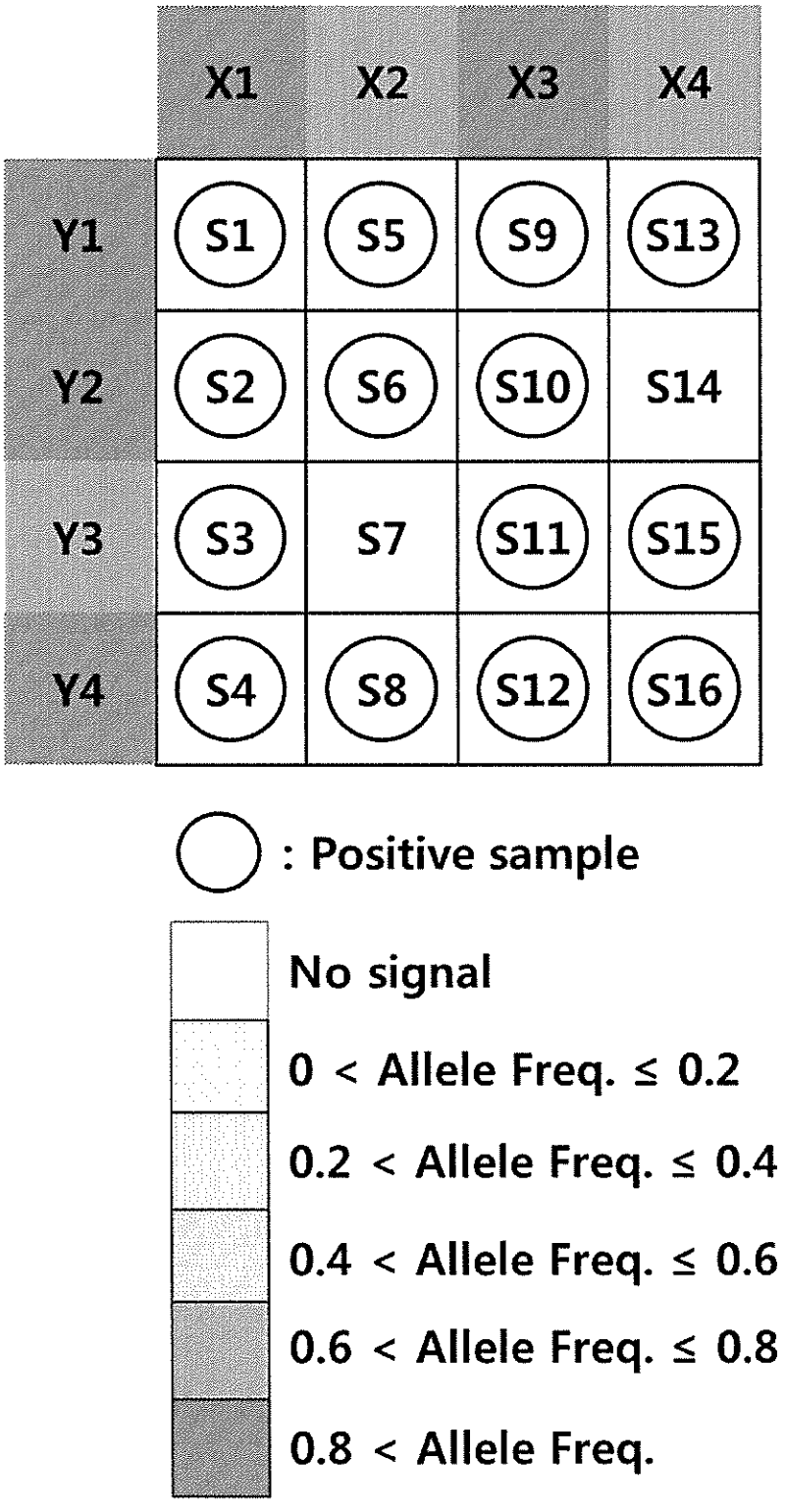

X1
X2
X3
X4
Y1
S1
S5
S9
S13
Y2
S2
S6
S10
S14
Y3
S3
S7
S11
S15
Y4
S4
S8
S12
S16
: Positive sample
No signal
0 < Allele Freq. ≤ 0.2
0.2 < Allele Freq. ≤ 0.4
0.4 < Allele Freq. ≤ 0.6
0.6 < Allele Freq. ≤ 0.8
0.8 < Allele Freq.

FIG. 9

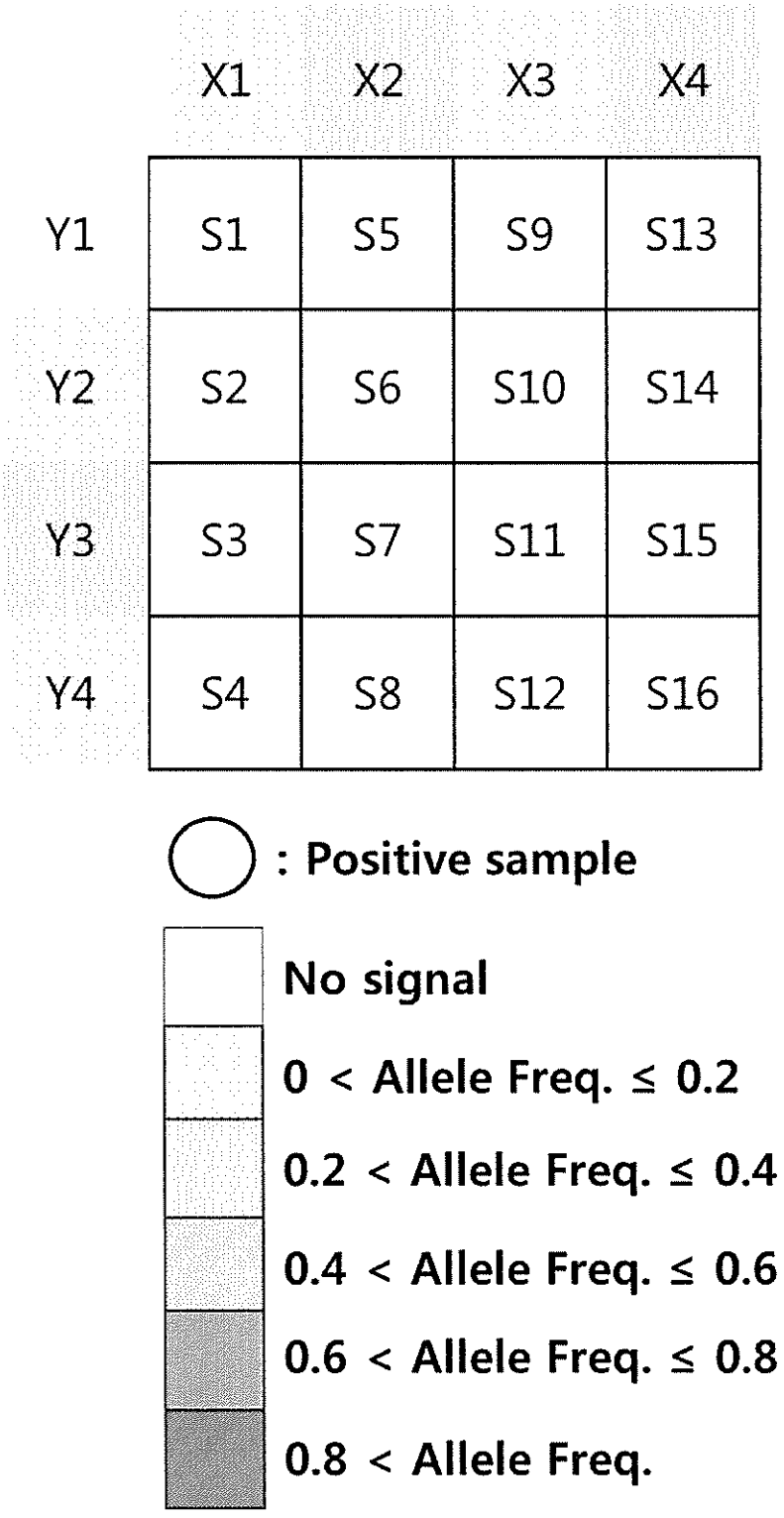
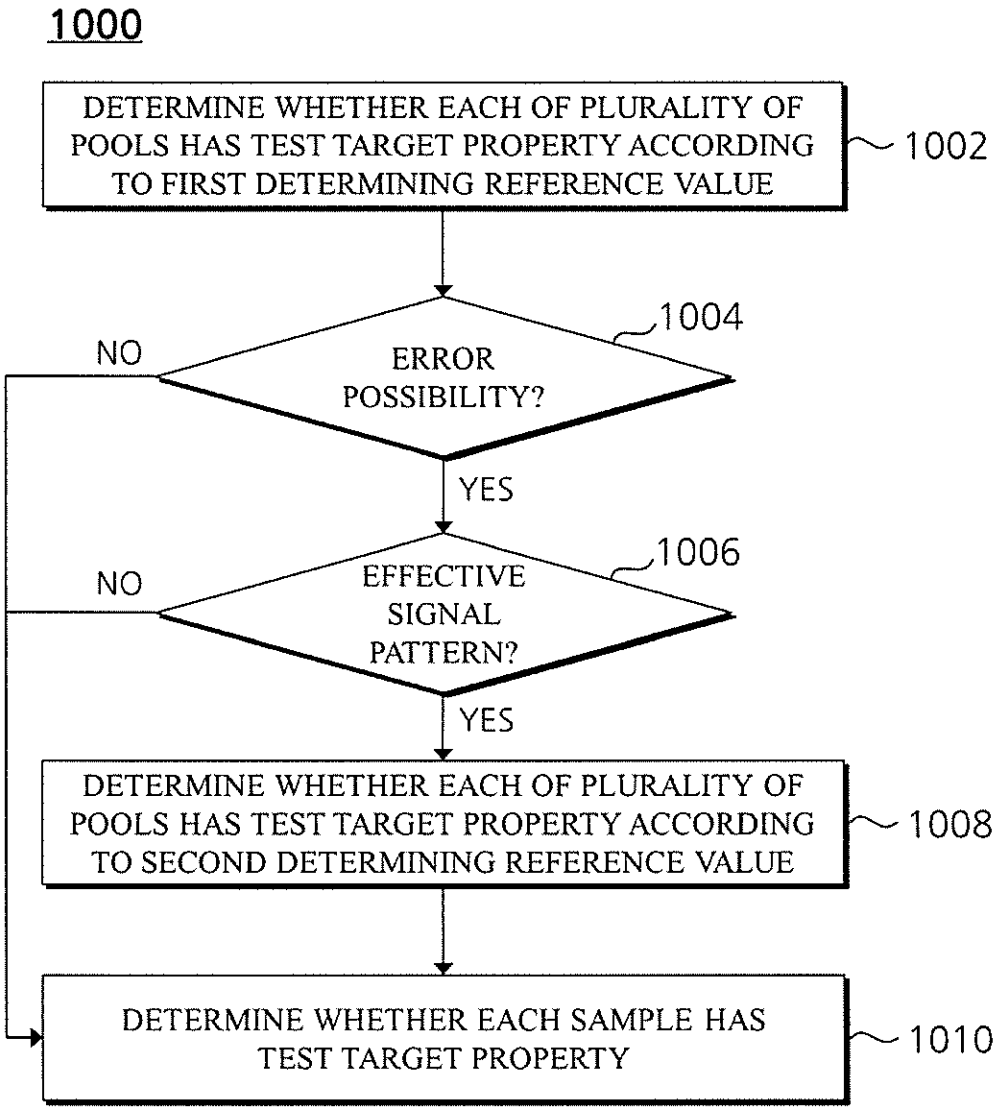

X1
X2
X3
X4
Y1
S1
S5
S9
S13
Y2
S2
S6
S10
S14
Y3
S3
S7
S11
S15
Y4
S4
S8
S12
S16
: Positive sample
No signal
0 < Allele Freq. ≤ 0.2
0.2 < Allele Freq. ≤ 0.4
0.4 < Allele Freq. ≤ 0.6
0.6 < Allele Freq. ≤ 0.8
0.8 < Allele Freq.

FIG. 10


1000
DETERMINE WHETHER EACH OF PLURALITY OF POOLS HAS TEST TARGET PROPERTY ACCORDING TO FIRST DETERMINING REFERENCE VALUE
1002
1004
ERROR POSSIBILITY?
NO
YES
1006
EFFECTIVE SIGNAL PATTERN?
NO
YES
DETERMINE WHETHER EACH OF PLURALITY OF POOLS HAS TEST TARGET PROPERTY ACCORDING TO SECOND DETERMINING REFERENCE VALUE
1008
DETERMINE WHETHER EACH SAMPLE HAS TEST TARGET PROPERTY
1010