FIGURE 1

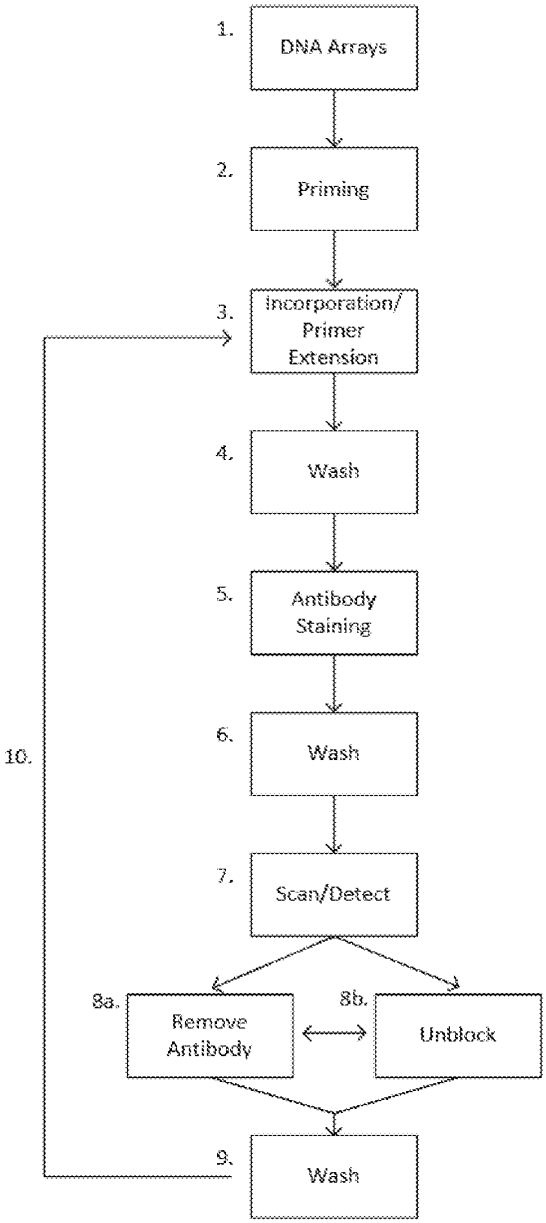

1.
DNA Arrays
2.
Priming
3.
Incorporation/ Primer Extension
4.
Wash
5.
Antibody Staining
6.
Wash
7.
Scan/Detect
8a.
Remove Antibody
8b.
Unblock
9.
Wash
10.

FIGURE 2

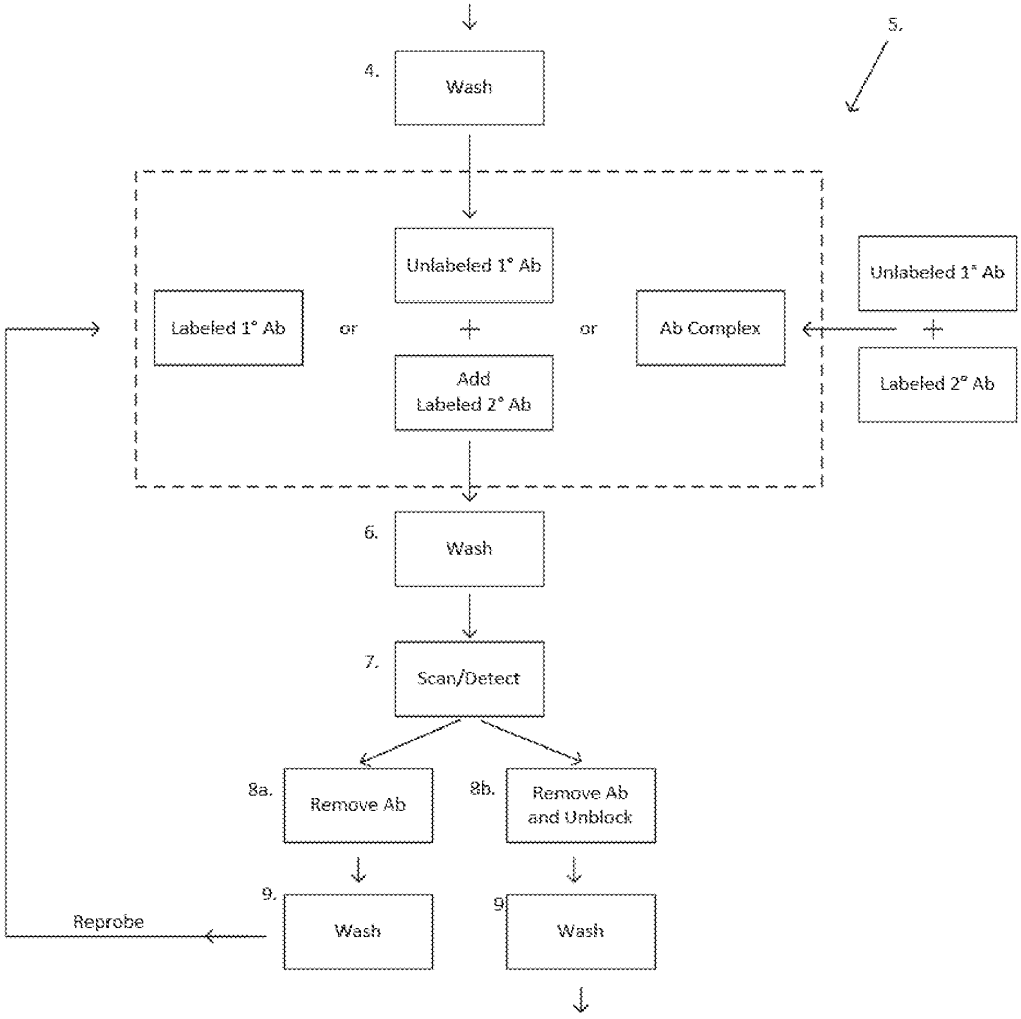
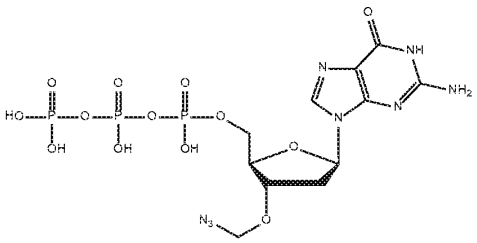
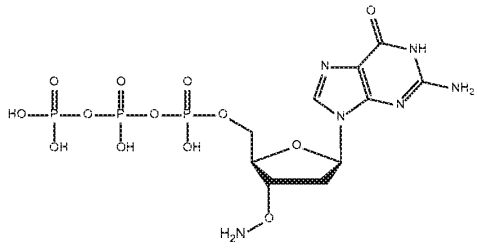

4.
Wash
5.
Unlabeled 1° Ab
Labeled 1° Ab
or
or
Ab Complex
Unlabeled 1° Ab
Labeled 2° Ab
Add
Labeled 2° Ab
6.
Wash
7.
Scan/Detect
8a.
Remove Ab
8b.
Remove Ab
and Unblock
9.
Wash
9.
Wash
Reprobe

FIGURE 3

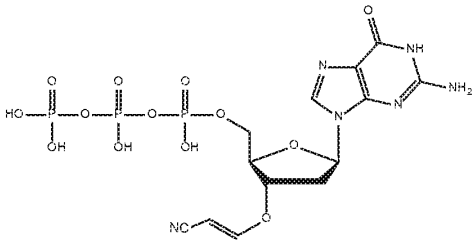
A.



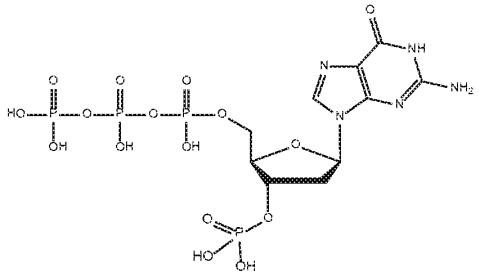
B.



C.



D.



E.

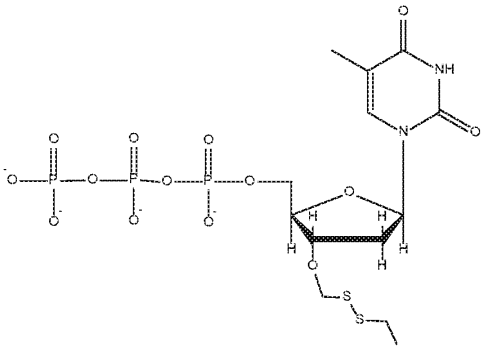


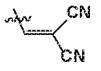
FIGURE 4

Allenyl

Cis or trans-cyanoethenyl

Cis or trans-cyanofluoroethenyl

Cis or trans-Trifluoromethylethenyl

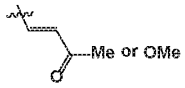


Biscyanoethenyl

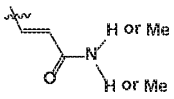
Bisfluoroethenyl

Cis or trans propenyl

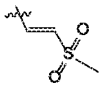
Nitroethenyl



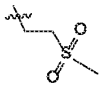
aceto/methylcarbono-ethenyl



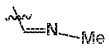
amidoethenyl



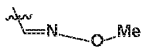
methylsulfonoethenyl



methylsulfonoethyl



Formimidate



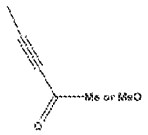
Formhydroxymate

vinyloethenyl

ethylenoethenyl

cyanoethylenyl

nitroethylenyl



3-oxobut-1-ynyl/ 3-methoxy-3-oxoprop-1-ynyl

FIGURE 5

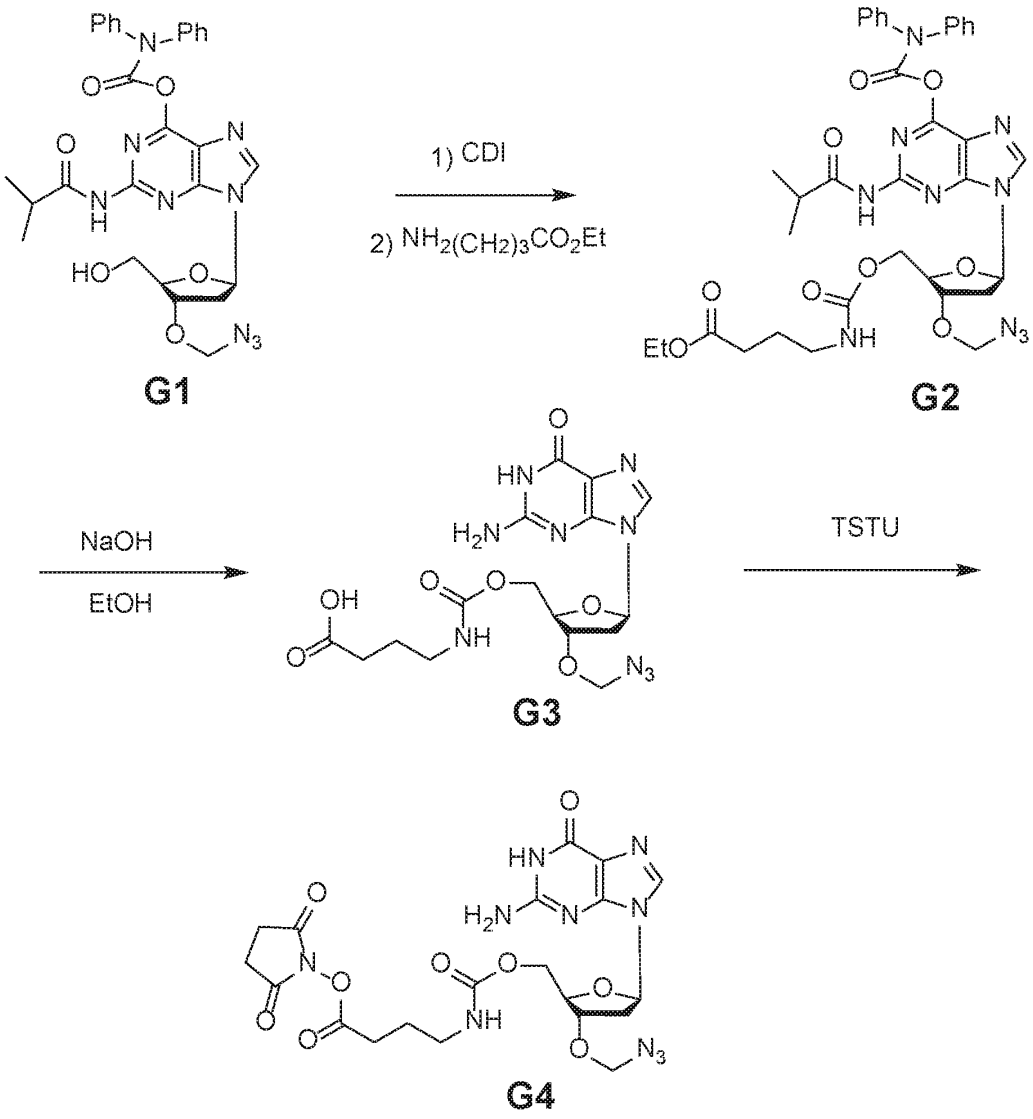

Ph
N
Ph
O
O
N
N
O
N
H
N
N
HO
O
O
N3
G1
1) CDI
2) NH2(CH2)3CO2Et
EtO
NH
G2
NaOH
EtOH
HN
H2N
OH
G3
TSTU
G4

FIGURE 6

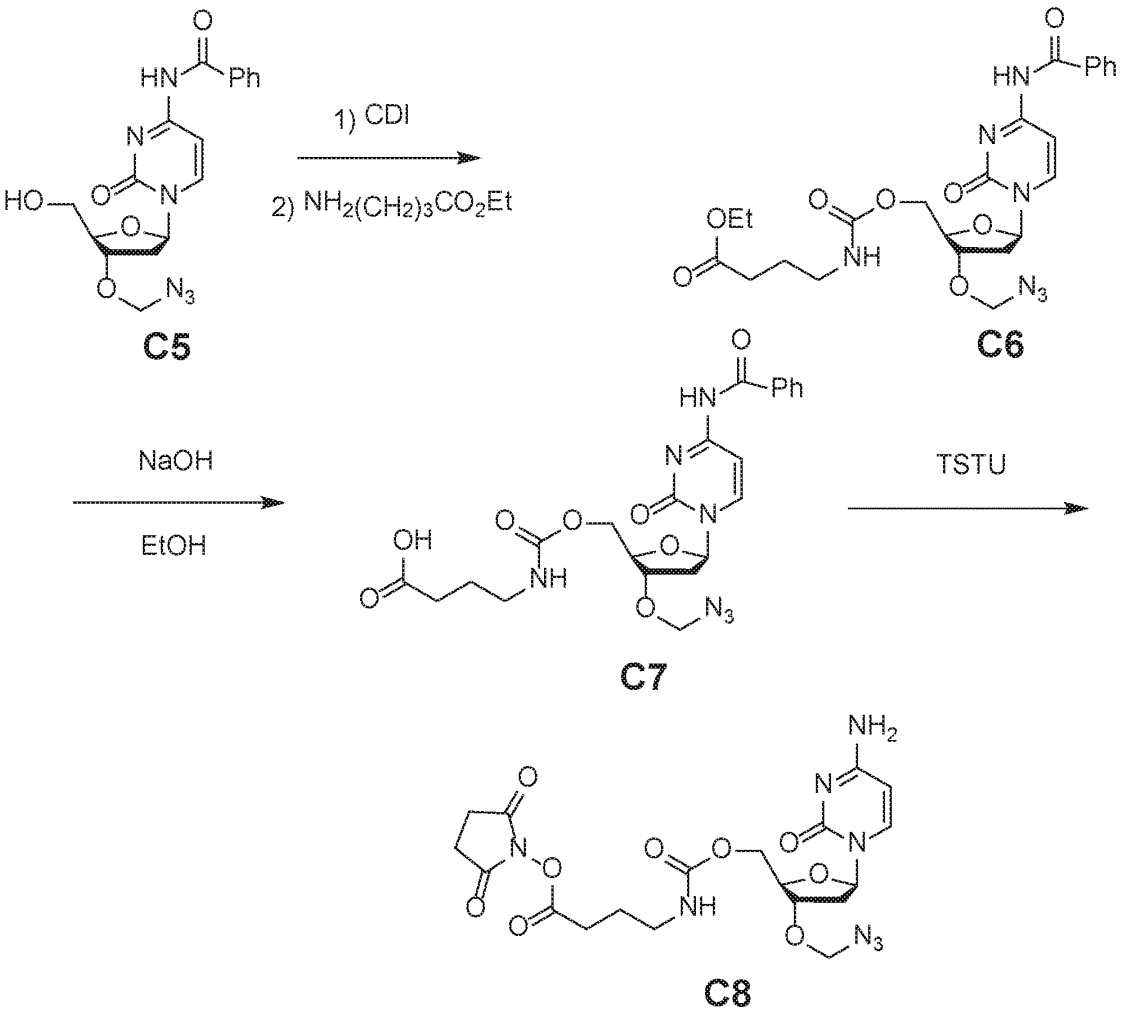


FIGURE 7

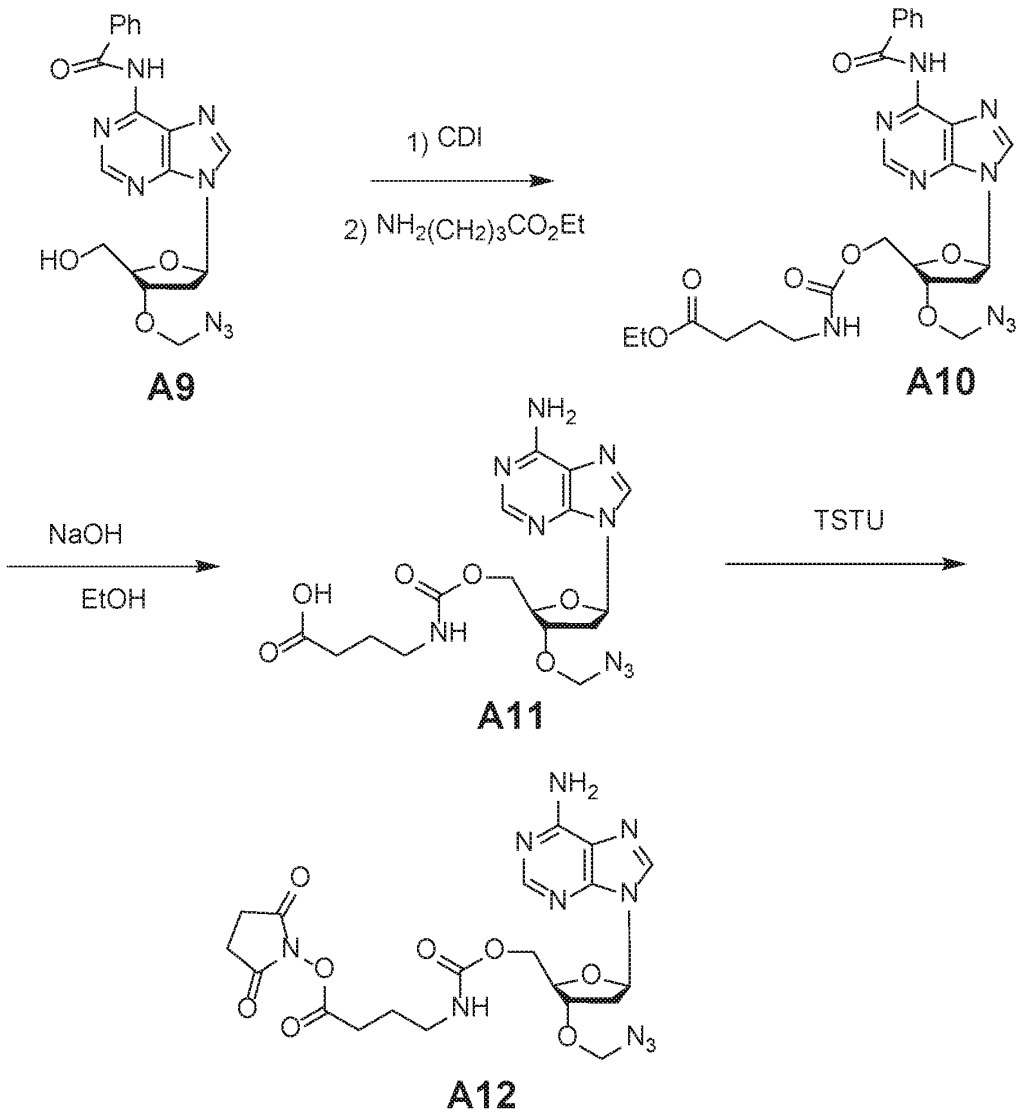
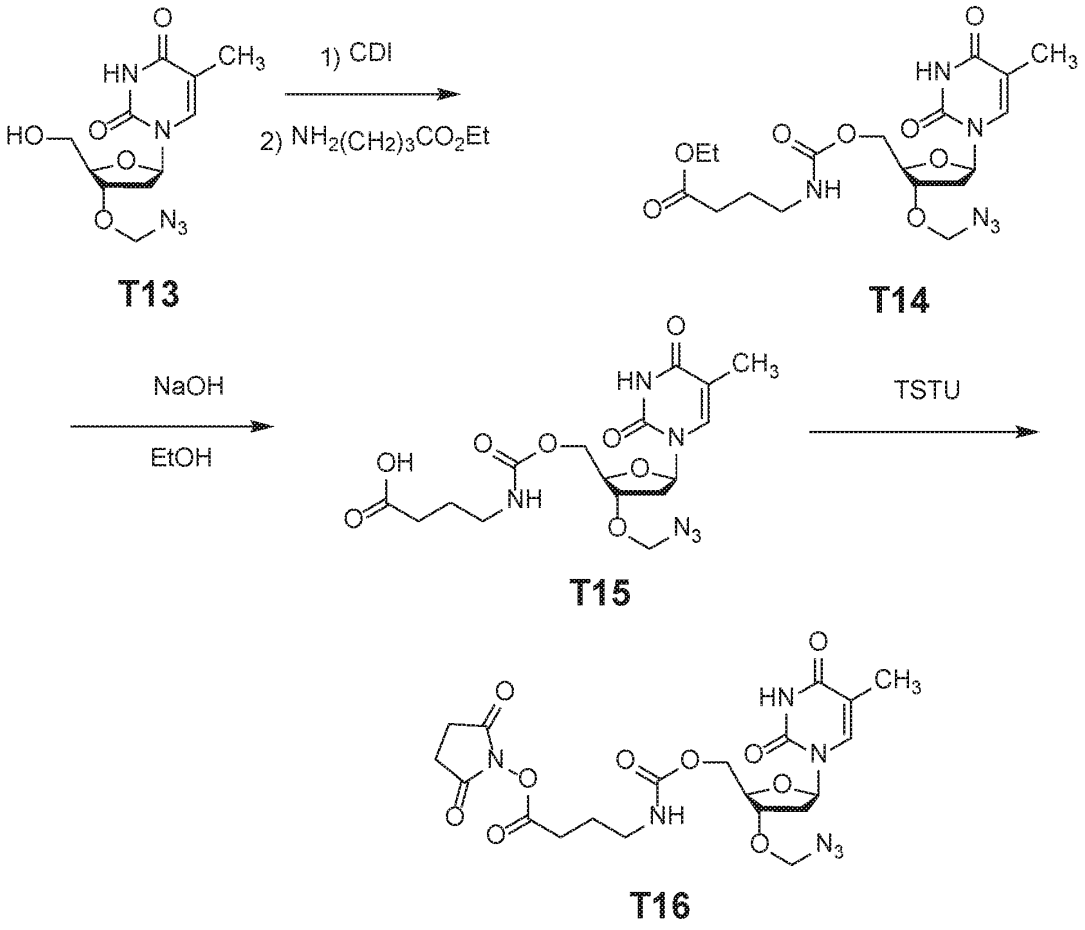

Ph
NH
N
HO
O
N3
A9
1) CDI
2) NH2(CH2)3CO2Et
EtO
A10
NH2
NaOH
EtOH
OH
A11
TSTU
A12

FIGURE 8



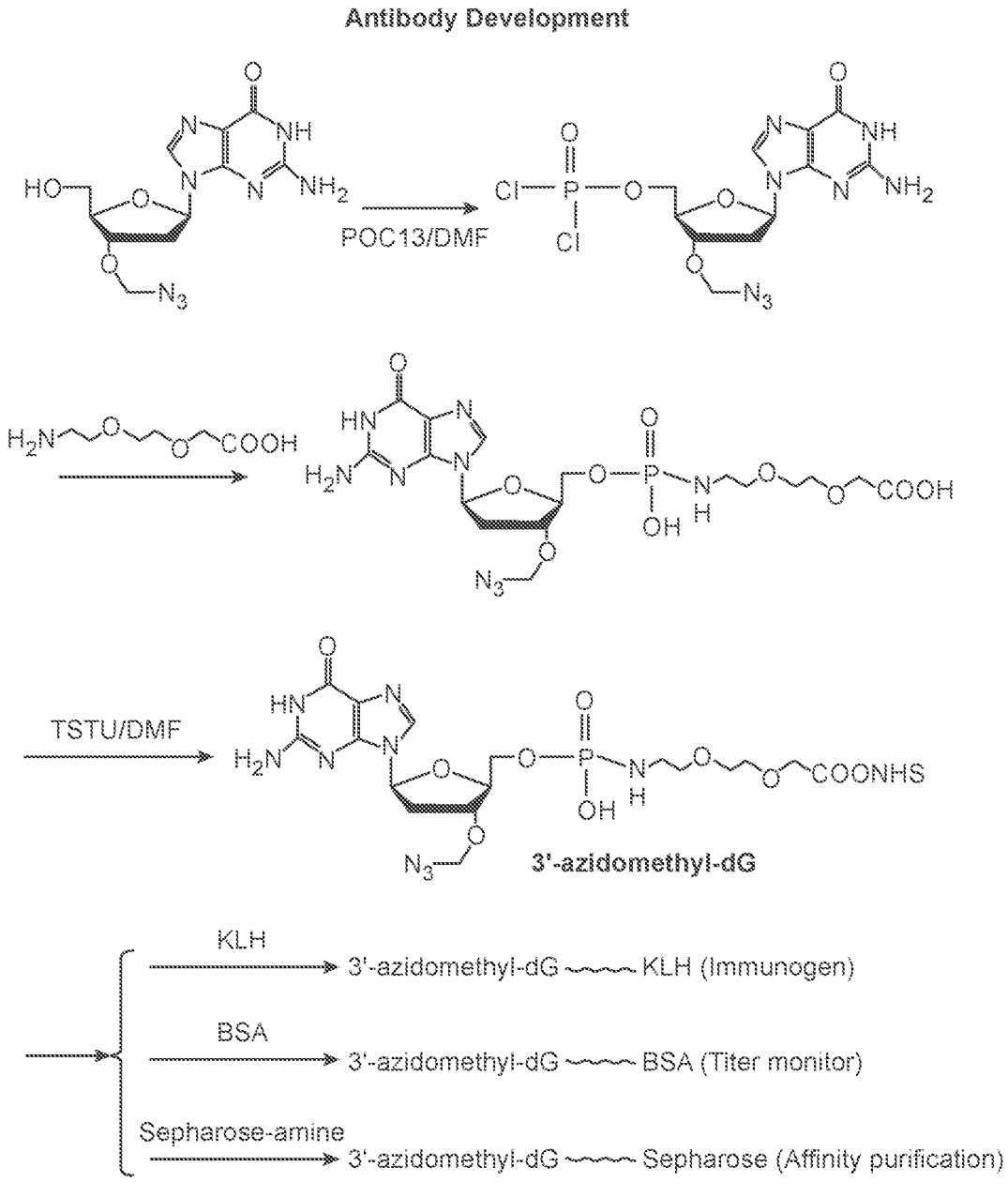

Antibody Development
POC13/DMF
TSTU/DMF
3'-azidomethyl-dG
KLH
3'-azidomethyl-dG
KLH (Immunogen)
BSA
3'-azidomethyl-dG
BSA (Titer monitor)
Sepharose-amine
3'-azidomethyl-dG
Sepharose (Affinity purification)

FIG. 9

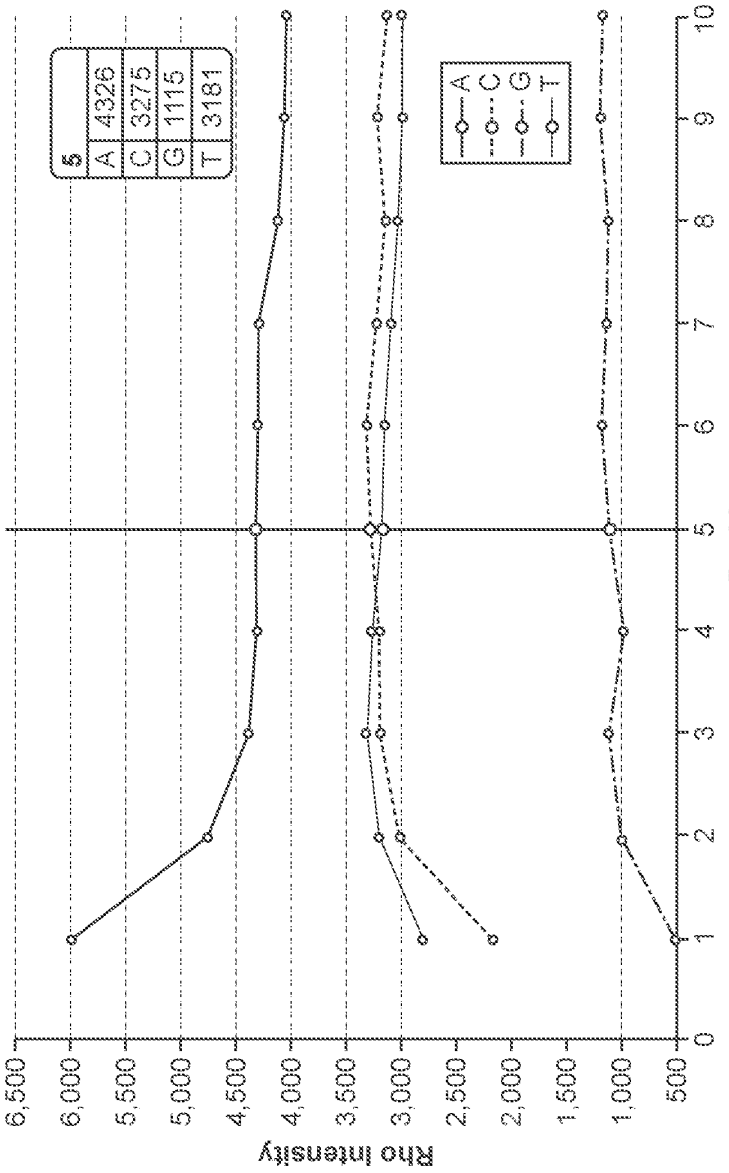

5
A 4326
C 3275
G 1115
T 3181
A
C
G
T
Rho intensity
6,500
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
1
2
3
4
5
6
7
8
9
10
Position

FIG. 10A

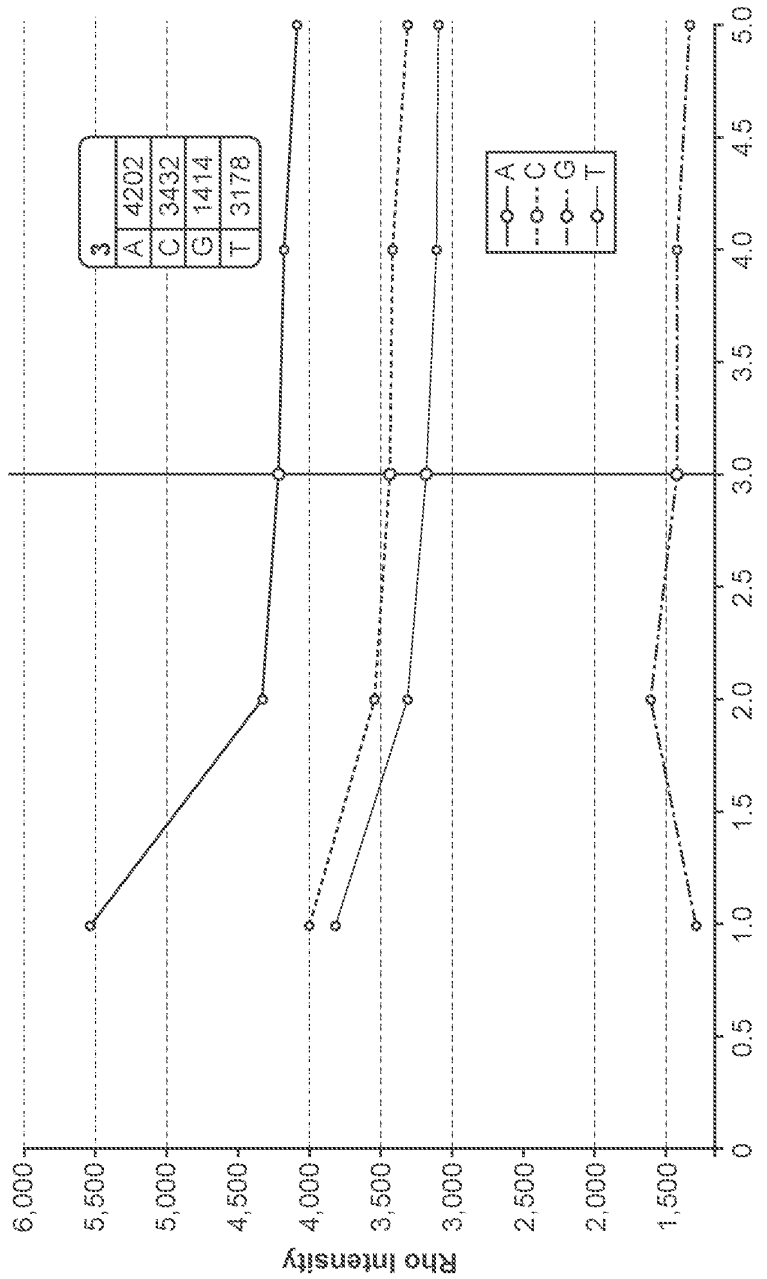

3
A 4202
C 3432
G 1414
T 3178
A
C
G
T
Rho Intensity
6,000
5,500
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Position

FIG. 10B

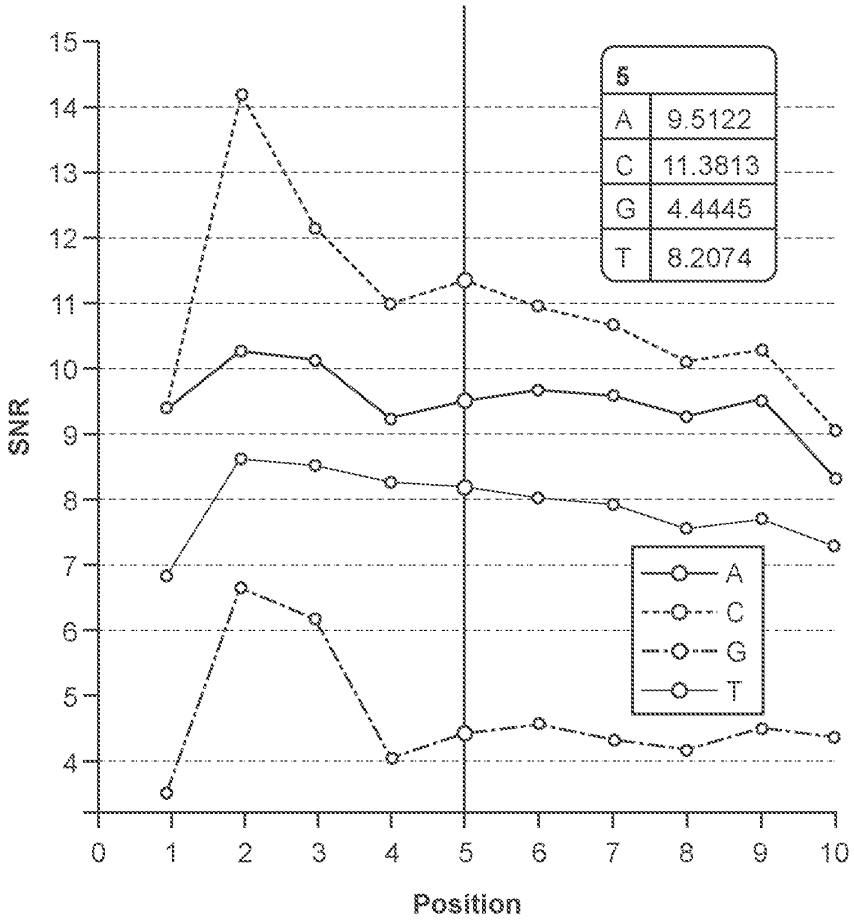

5
A 9.5122
C 11.3813
G 4.4445
T 8.2074
A
C
G
T
SNR
Position
15
14
13
12
11
10
9
8
7
6
5
4
0
1
2
3
4
5
6
7
8
9
10

FIG. 10C

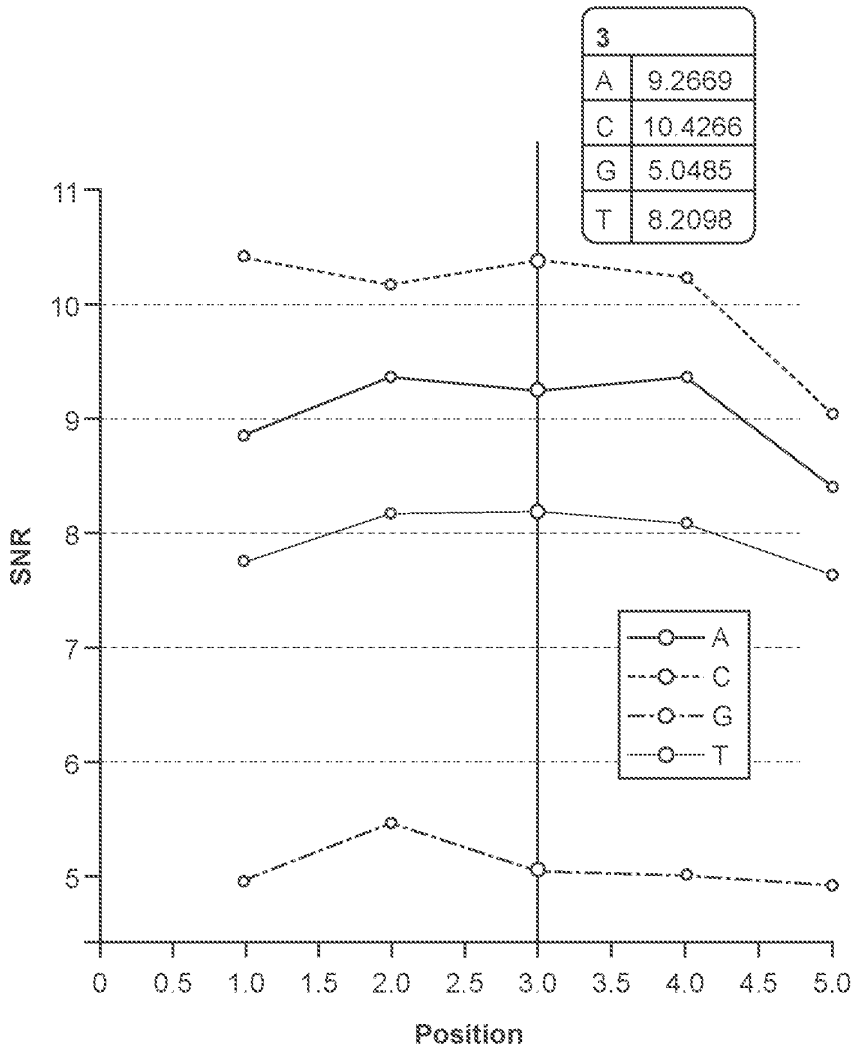

3
A 9.2669
C 10.4266
G 5.0485
T 8.2098
A
C
G
T
SNR
11
10
9
8
7
6
5
0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
Position

FIG. 10D

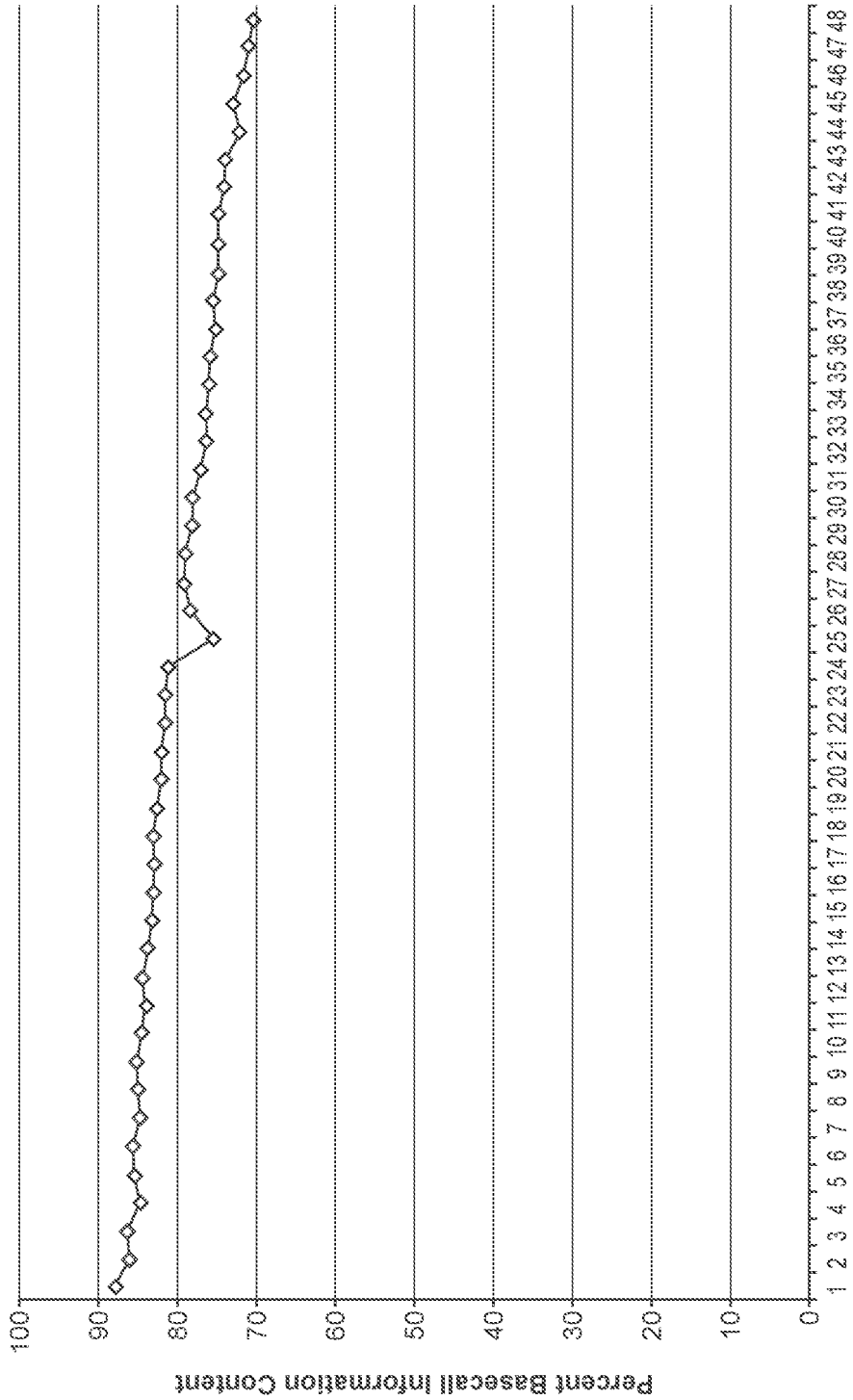

Percent Basecall Information Content
100
90
80
70
60
50
40
30
20
10
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

FIG. 11A

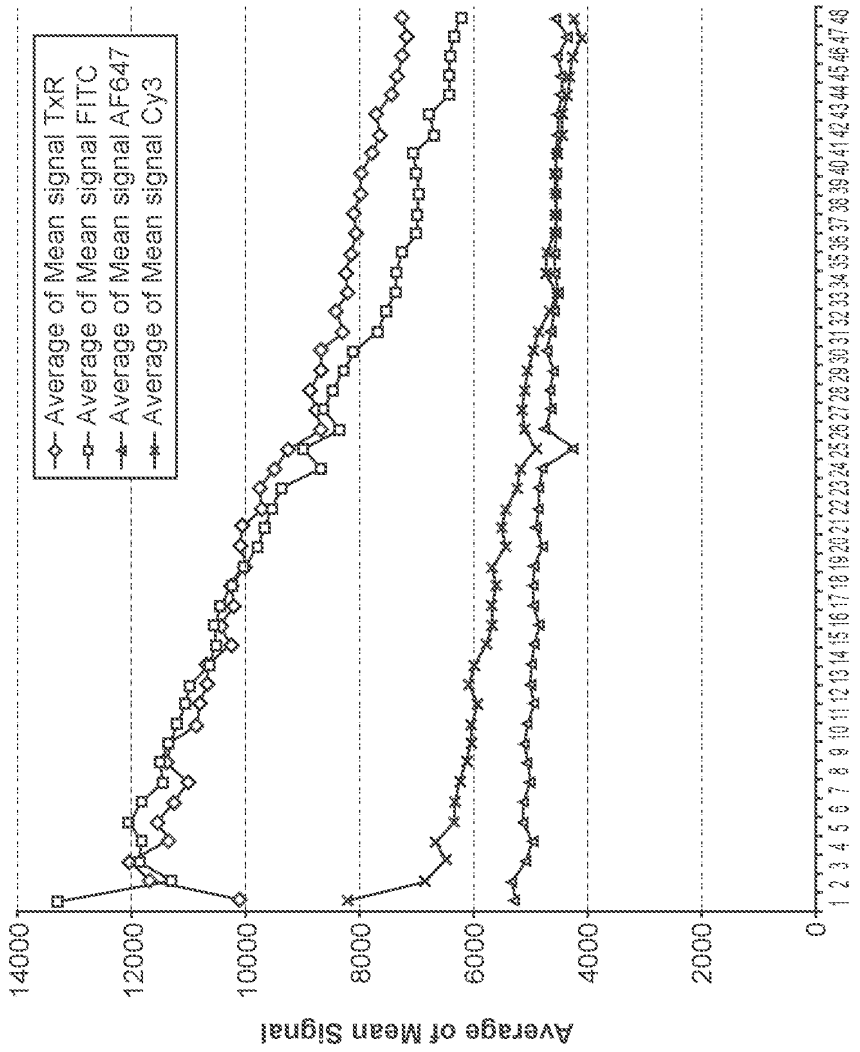

Average of Mean signal TxR
Average of Mean signal FITC
Average of Mean signal AF647
Average of Mean signal Cy3
Average of Mean Signal
14000
12000
10000
8000
6000
4000
2000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48

FIG. 11B

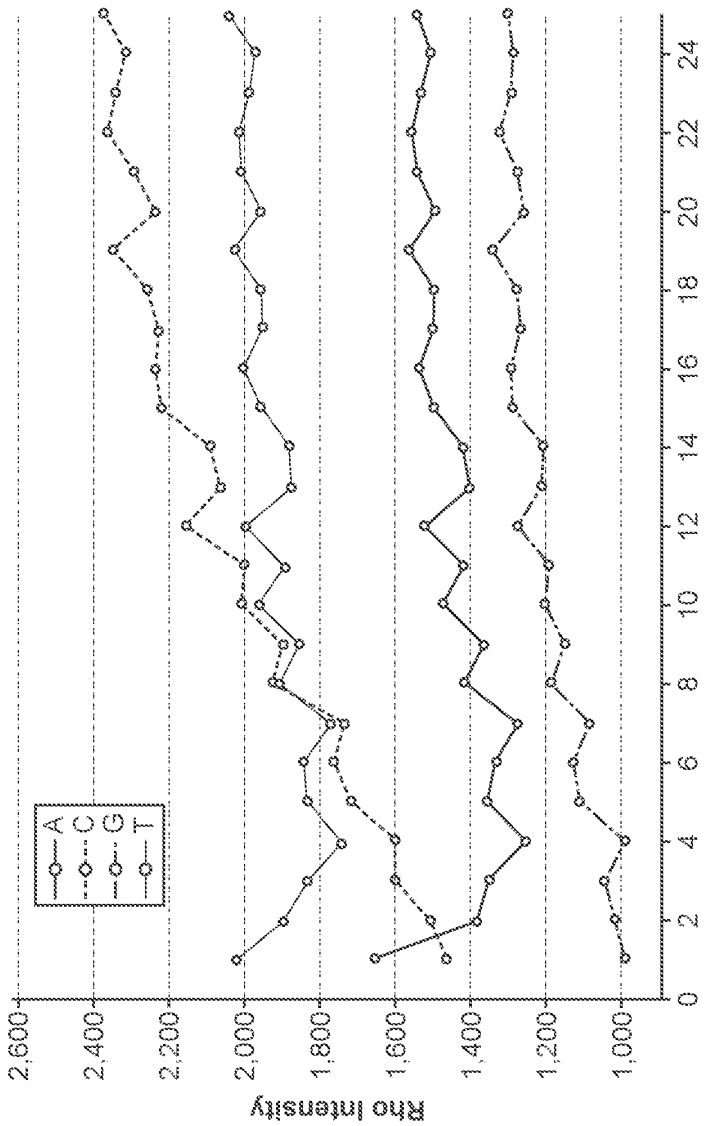

A
C
G
T
2,600
2,400
2,200
2,000
1,800
1,600
1,400
1,200
1,000
Rho Intensity
0
2
4
6
8
10
12
14
16
18
20
22
24
Position

FIG. 12A

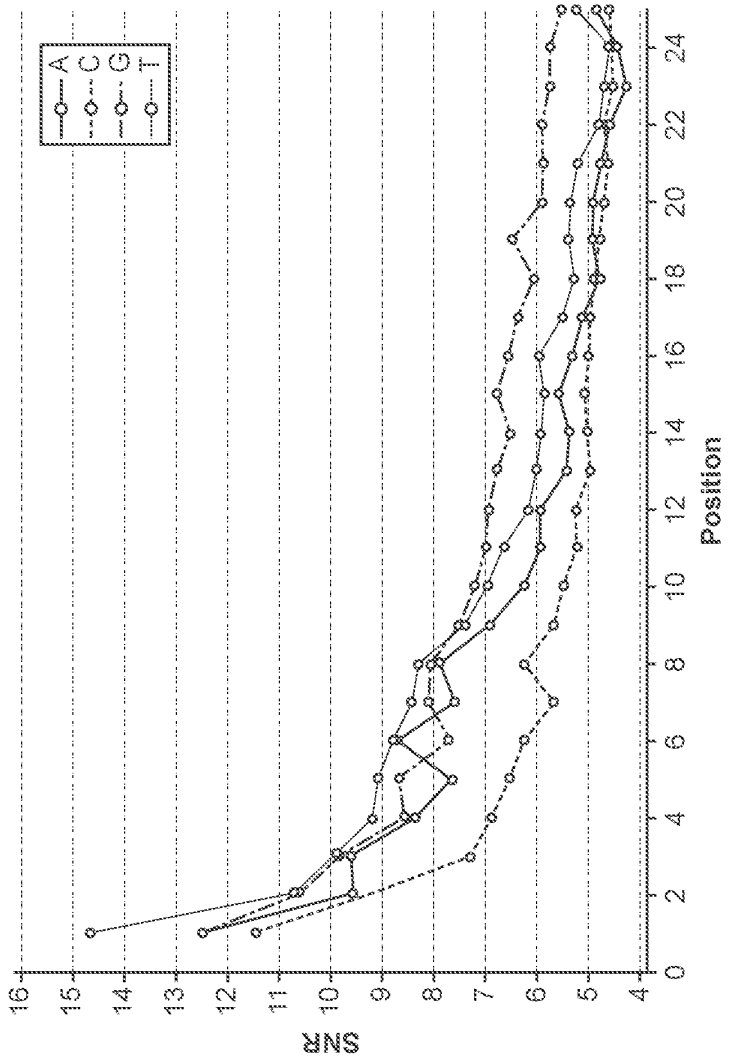

A
C
G
T
SNR
16
15
14
13
12
11
10
9
8
7
6
5
4
0
2
4
6
8
10
12
14
16
18
20
22
24
Position

FIG. 12B