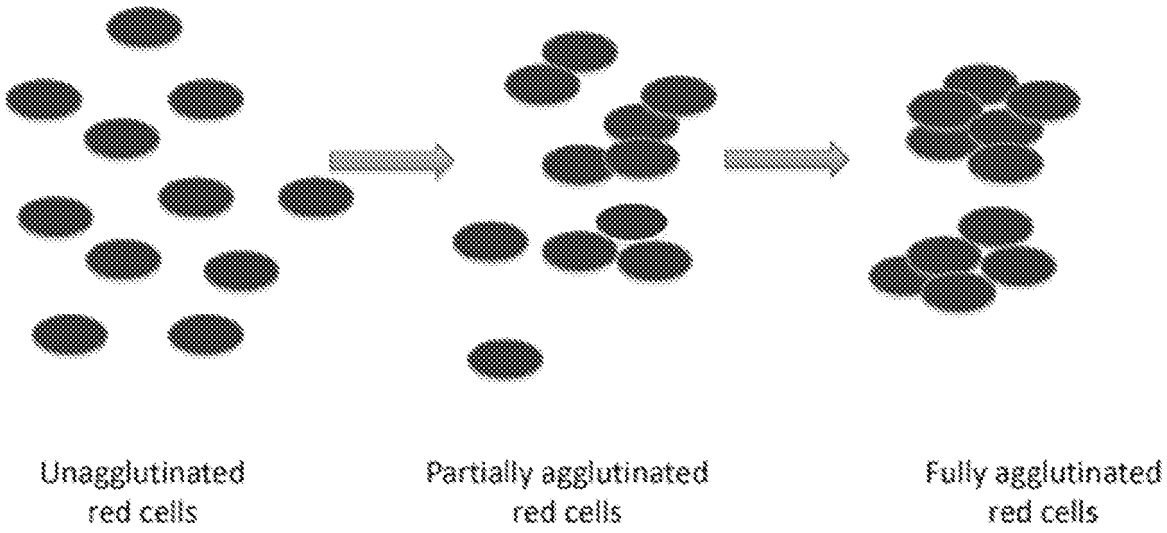

Unagglutinated red cells
Partially agglutinated red cells
Fully agglutinated red cells

FIG. 1

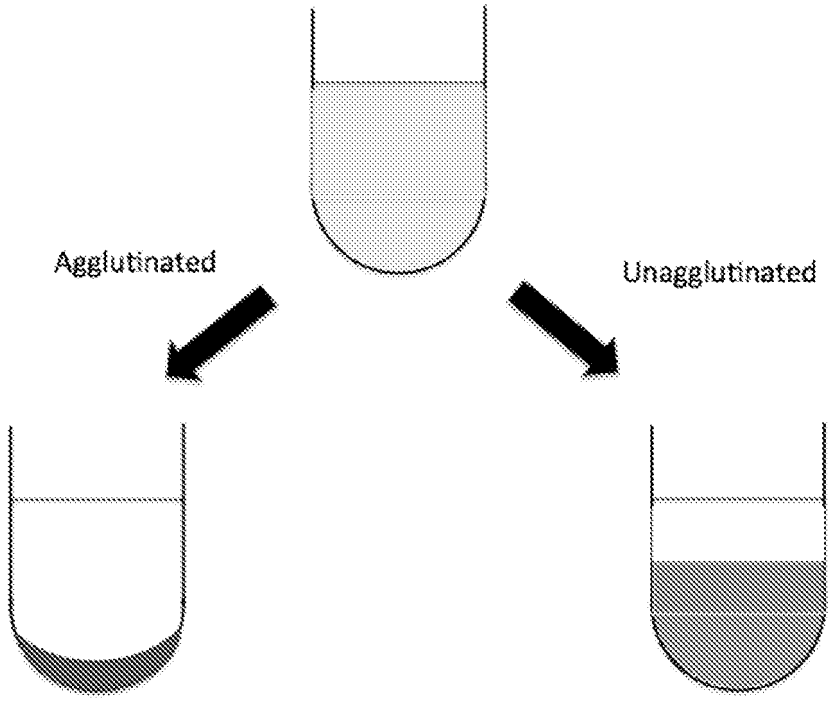

Agglutinated
Unagglutinated

FIG. 2

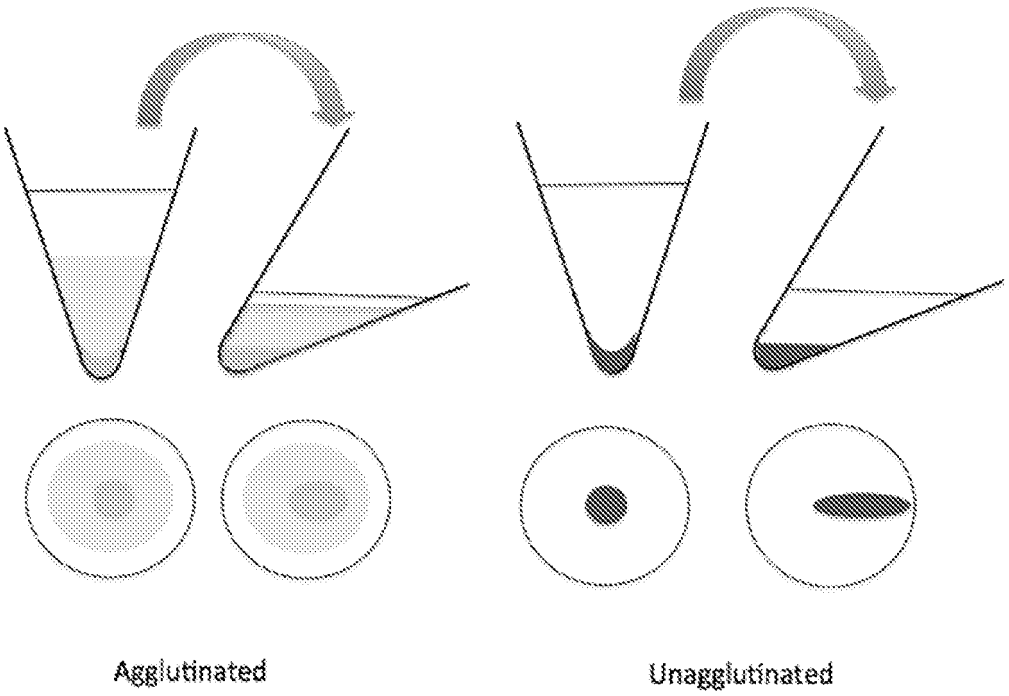


FIG. 3

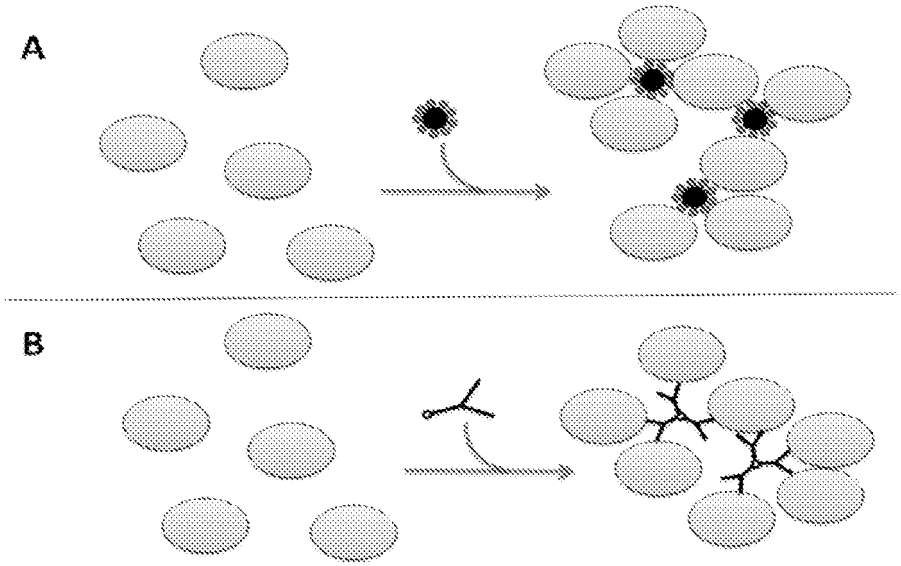


FIG. 4

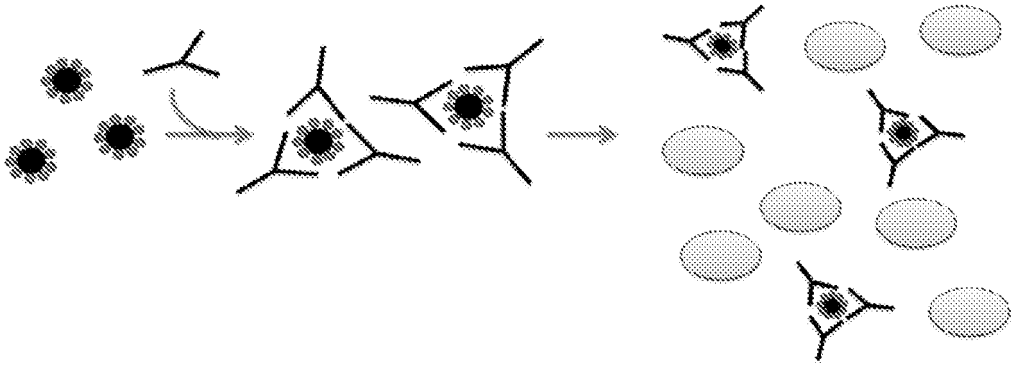


FIG. 5

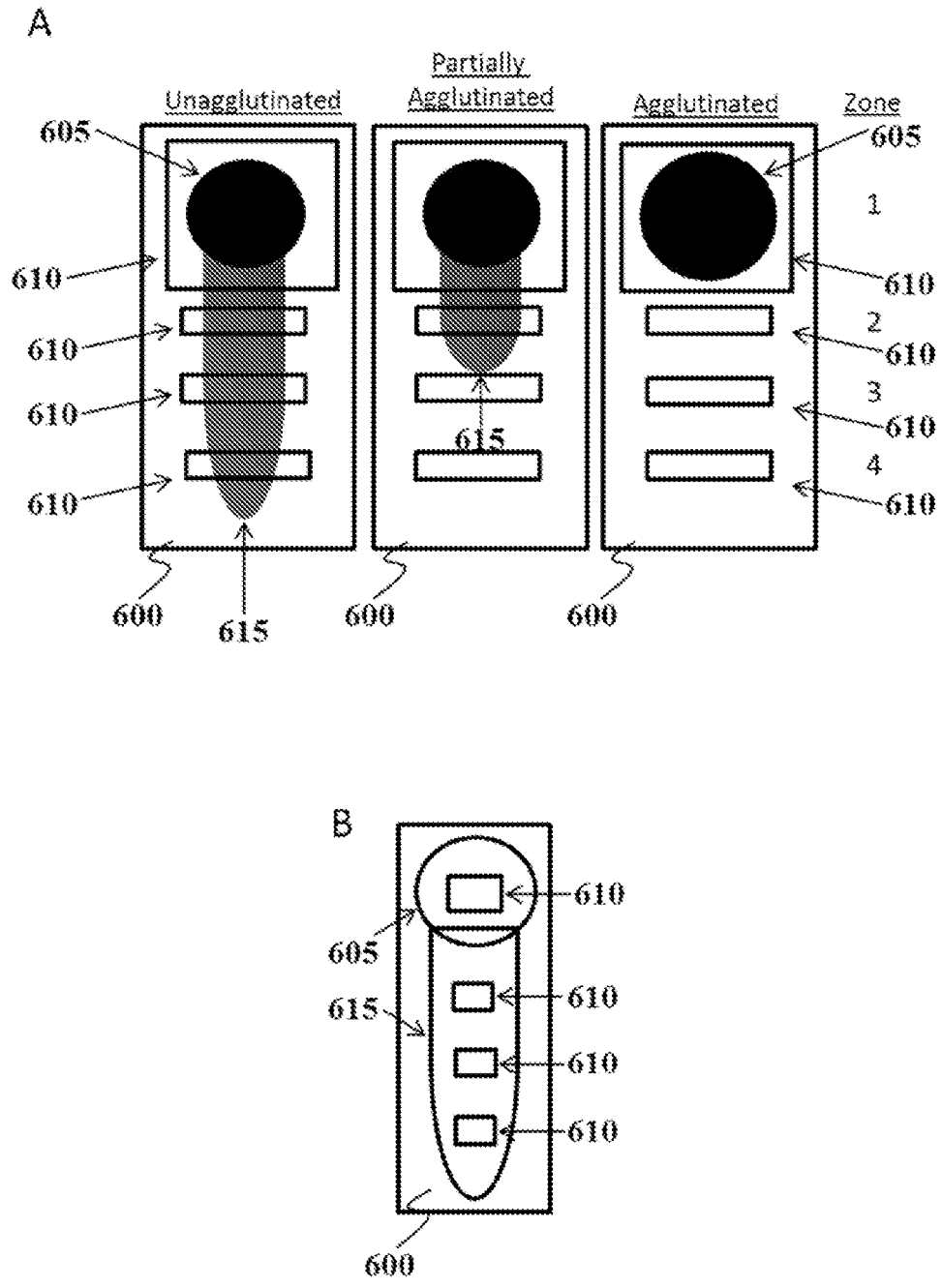

A
Unagglutinated
Partially Agglutinated
Agglutinated
Zone
605
610
615
600
1
2
3
4
B

FIG. 6

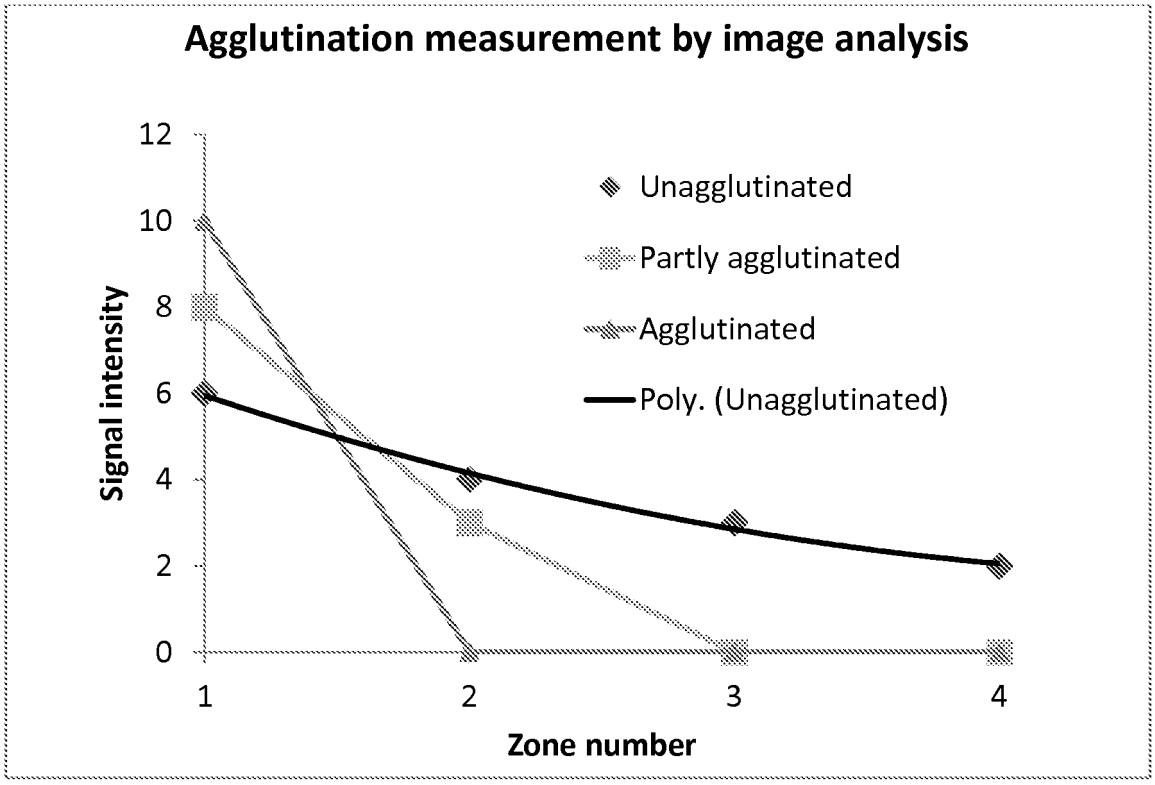

Agglutination measurement by image analysis
Signal intensity
12
10
8
6
4
2
0
1
2
3
4
Zone number
Unagglutinated
Partly agglutinated
Agglutinated
Poly. (Unagglutinated)

FIG. 7

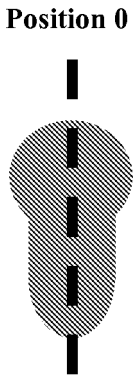

Position 0
Position 20

FIG. 8

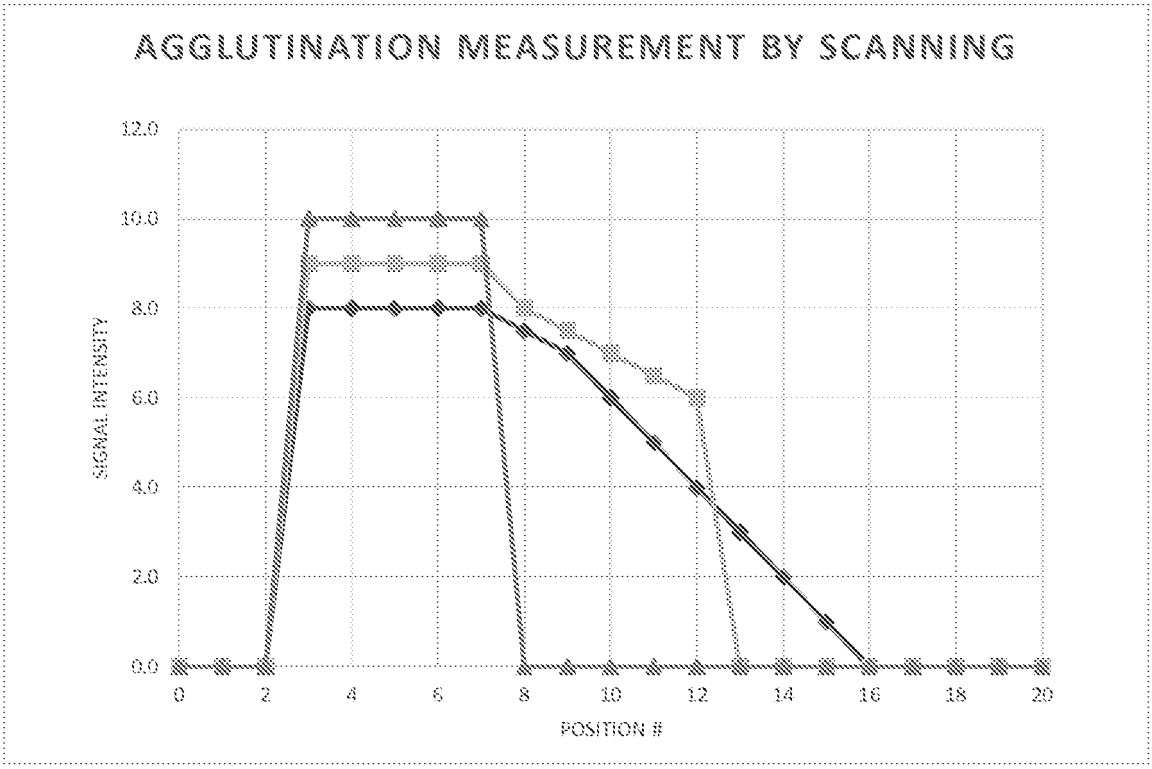

AGGLUTINATION MEASUREMENT BY SCANNING
SIGNAL INTENSITY
12.0
10.0
8.0
6.0
4.0
2.0
0.0
0
2
4
6
8
10
12
14
16
18
20
POSITION #

FIG. 9

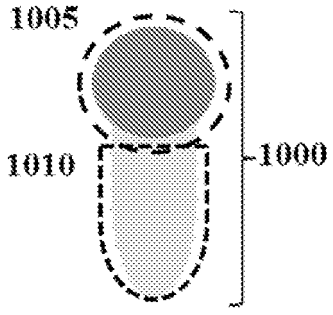

1005
1010
1000

FIG. 10

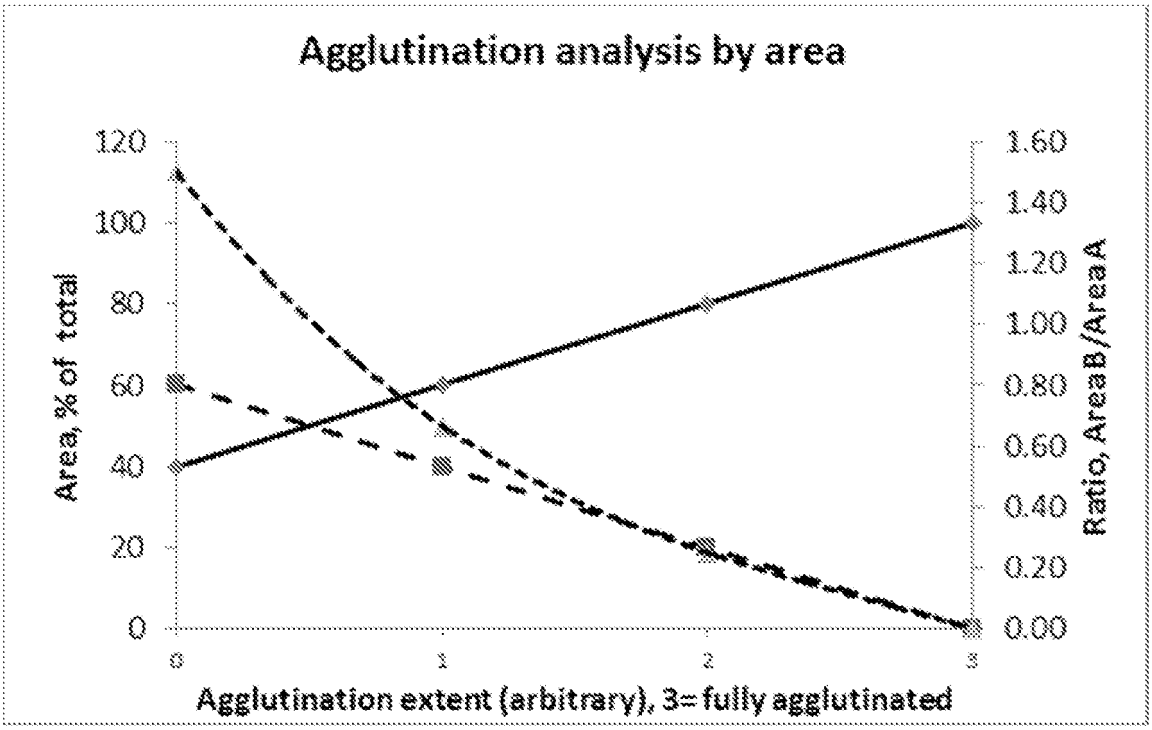

Agglutination analysis by area
120
100
80
60
40
20
0
Area, % of total
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Ratio, Area B/Area A
0
1
2
3
Agglutination extent (arbitrary), 3= fully agglutinated

FIG. 11

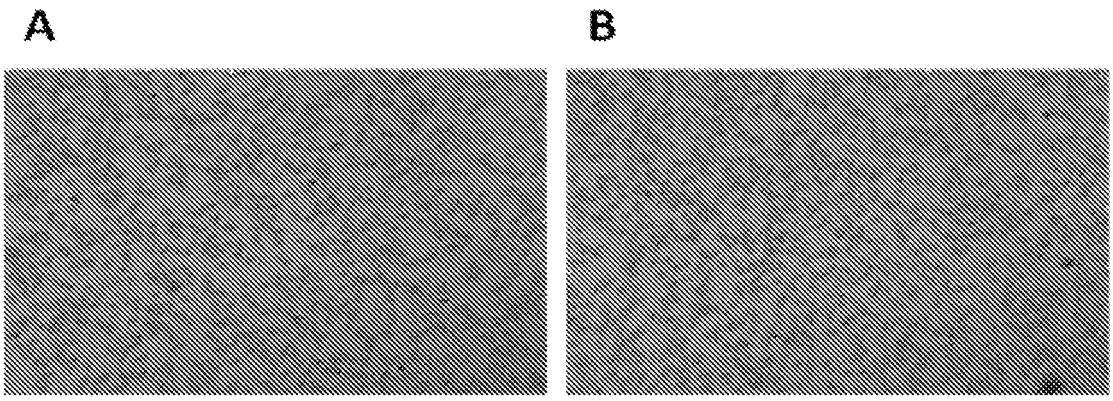

A
B

FIG. 12

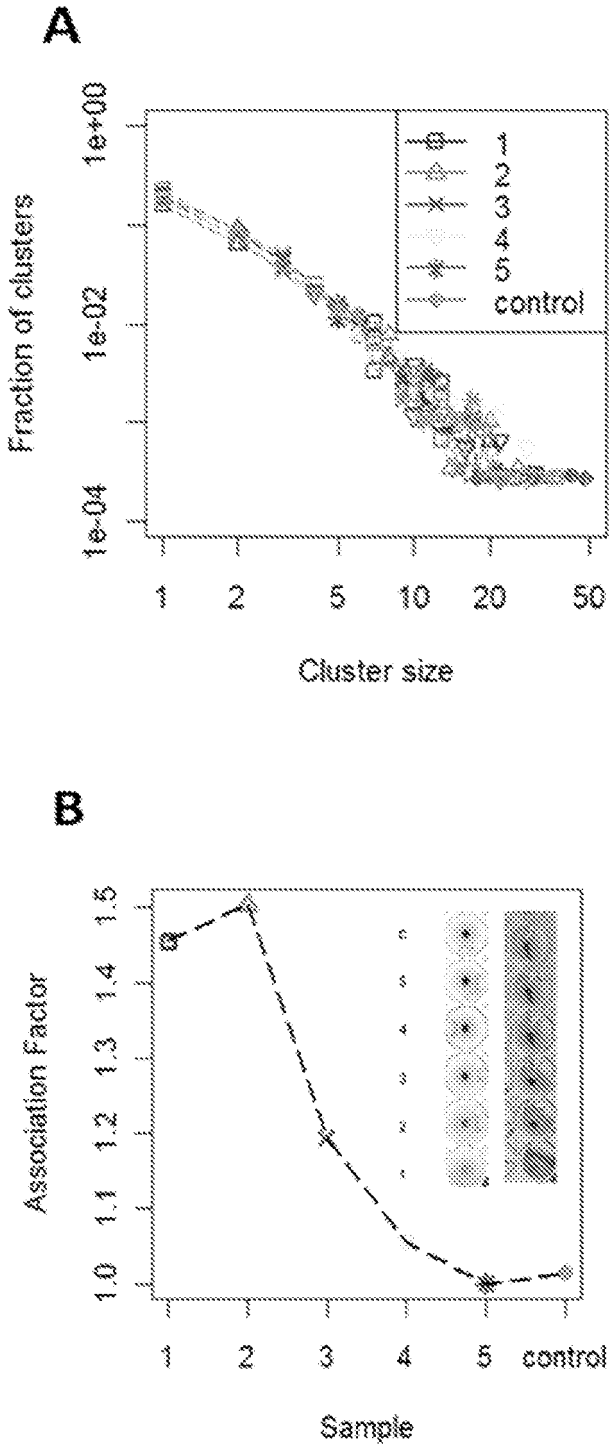

A
Fraction of clusters
1e+00
1e-02
1e-04
1
2
3
4
5
control
1
2
5
10
20
50
Cluster size
B
Association Factor
1.0
1.1
1.2
1.3
1.4
1.5
1
2
3
4
5
control
Sample

FIG. 13

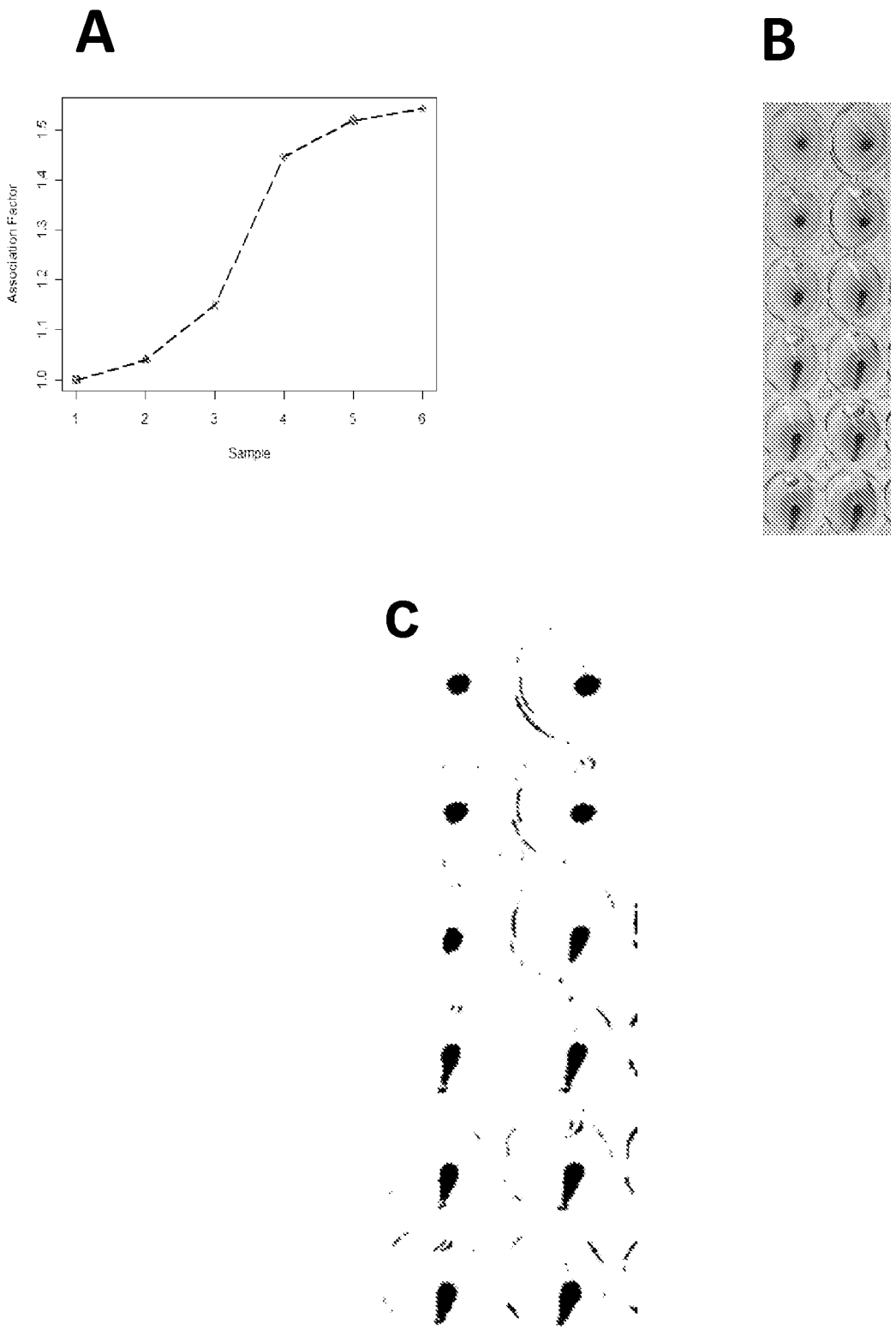


FIG. 14 (continued below)

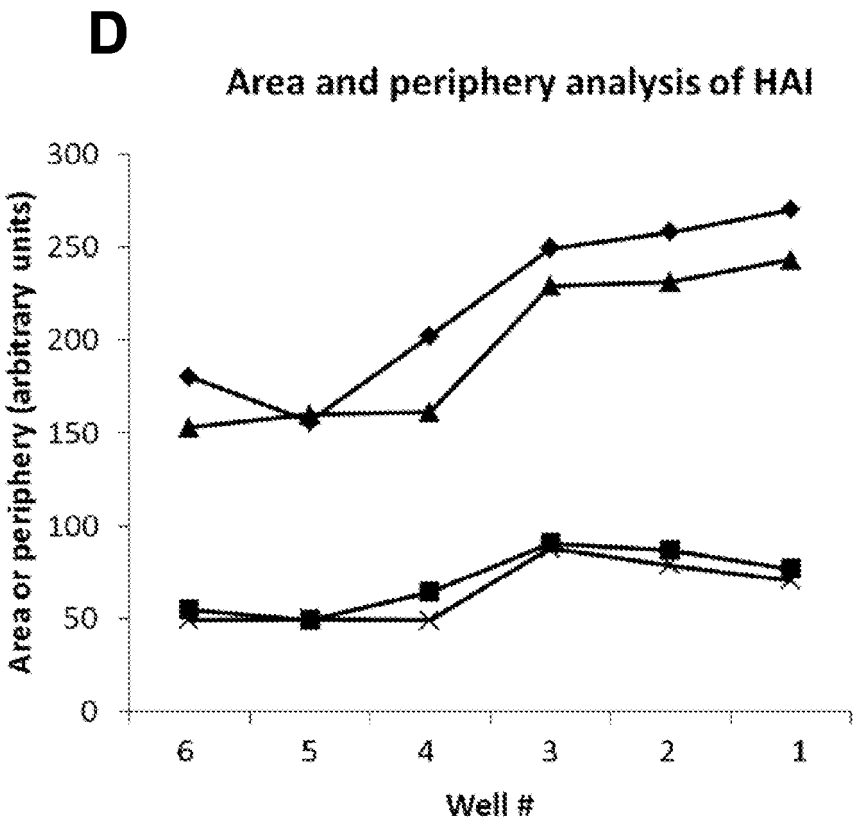


FIG. 14 (continued from above)

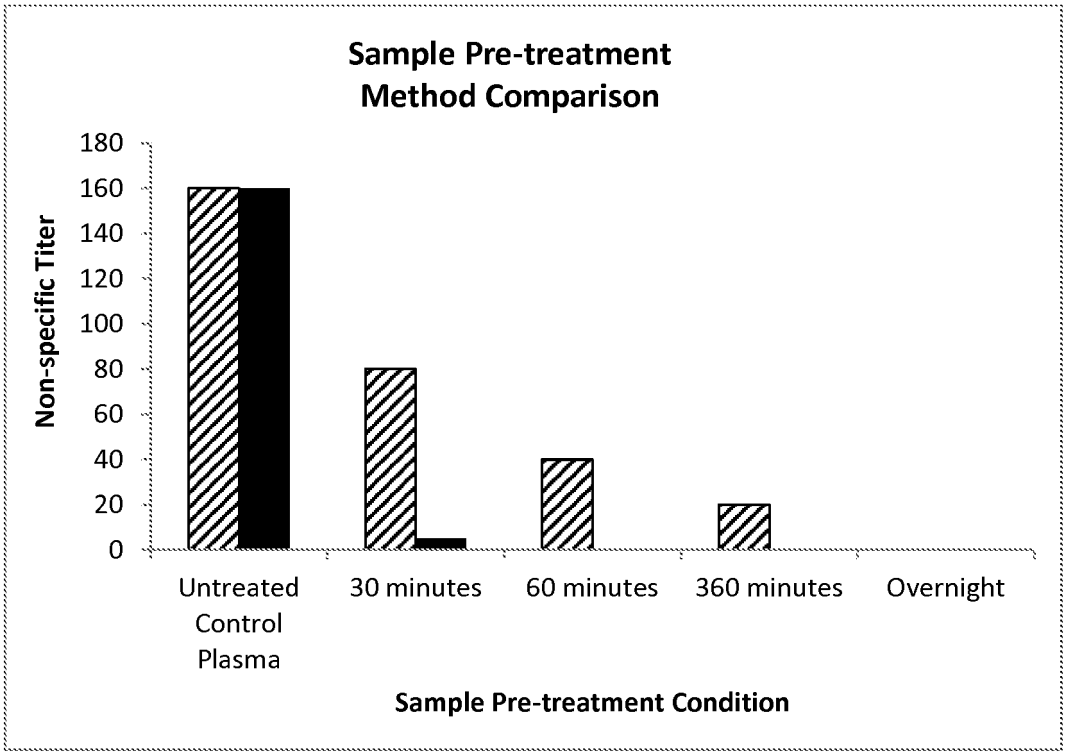

Sample Pre-treatment
Method Comparison
Non-specific Titer
180
160
140
120
100
80
60
40
20
0
Untreated Control Plasma
30 minutes
60 minutes
360 minutes
Overnight
Sample Pre-treatment Condition

FIG. 15

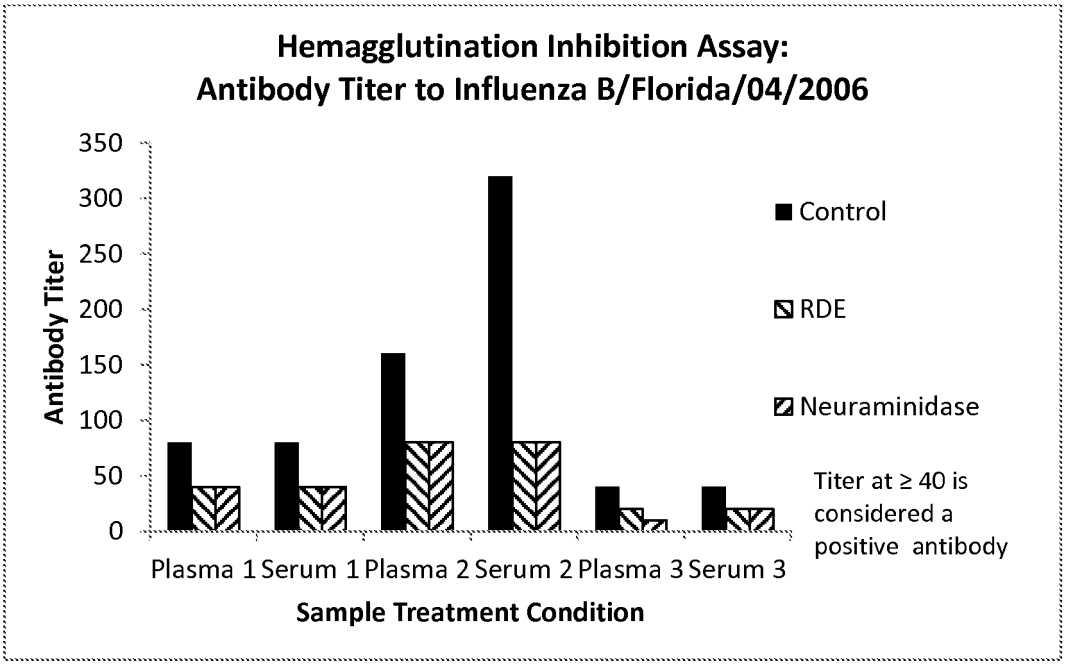

Hemagglutination Inhibition Assay:
Antibody Titer to Influenza B/Florida/04/2006
Antibody Titer
350
300
250
200
150
100
50
0
Control
RDE
Neuraminidase
Titer at ≥ 40 is considered a positive antibody
Plasma 1
Serum 1
Plasma 2
Serum 2
Plasma 3
Serum 3
Sample Treatment Condition

FIG. 16

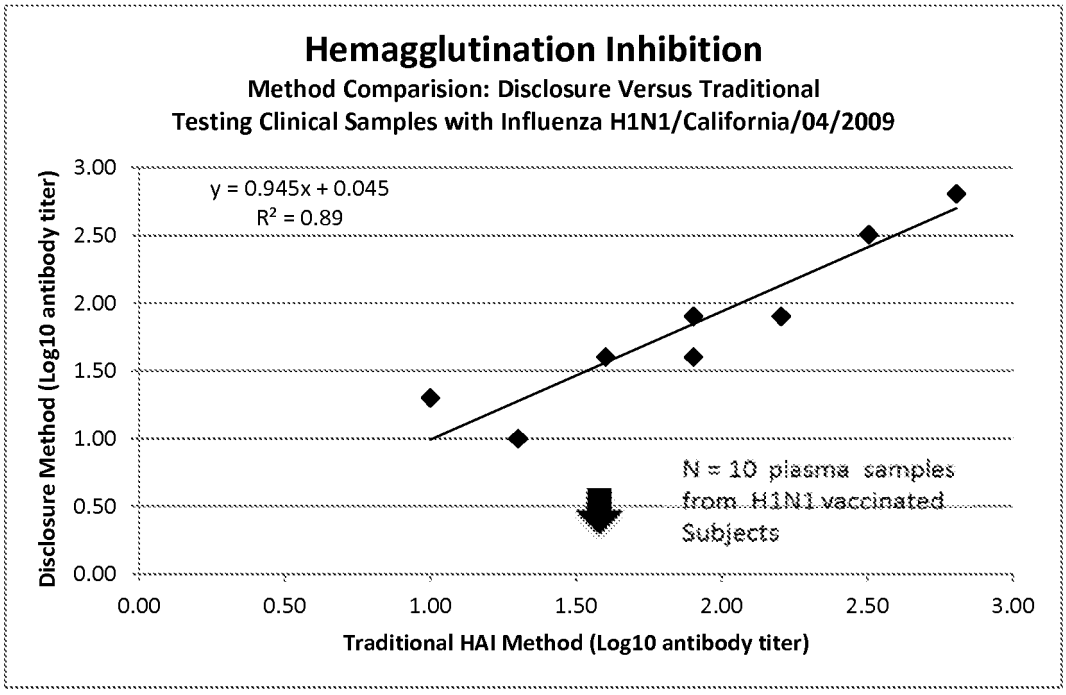

Hemagglutination Inhibition
Method Comparision: Disclosure Versus Traditional
Testing Clinical Samples with Influenza H1N1/California/04/2009
y = 0.945x + 0.045
R² = 0.89
N = 10 plasma samples from H1N1 vaccinated Subjects
Disclosure Method (Log10 antibody titer)
Traditional HAI Method (Log10 antibody titer)
0.00
0.50
1.00
1.50
2.00
2.50
3.00

FIG. 17

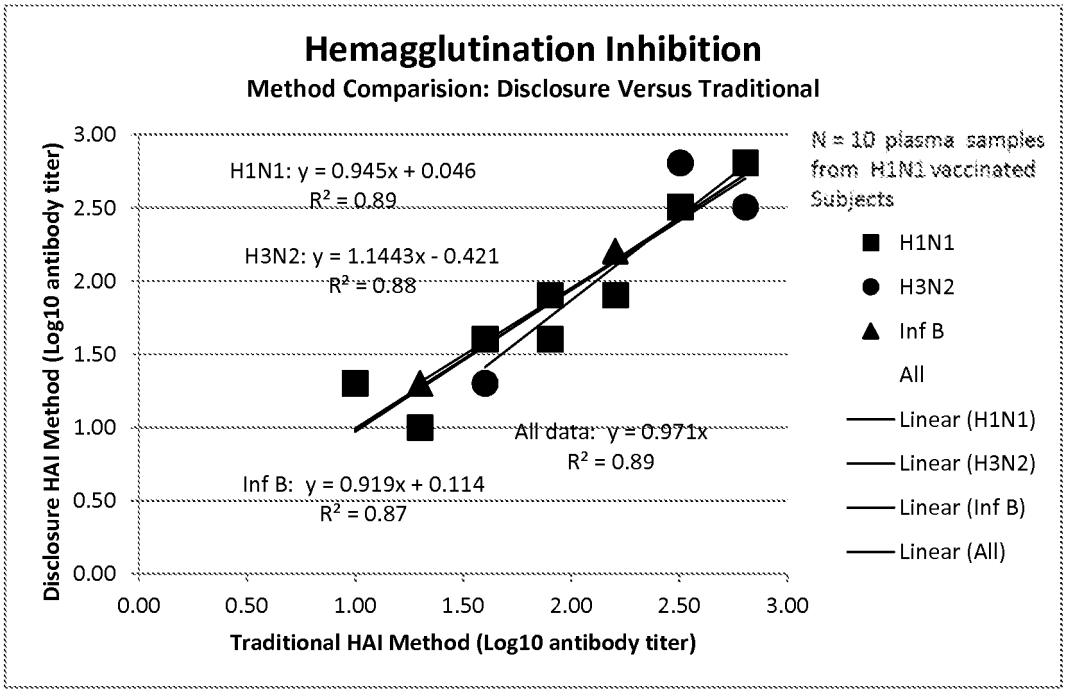

Hemagglutination Inhibition
Method Comparision: Disclosure Versus Traditional
H1N1: y = 0.945x + 0.046
R² = 0.89
H3N2: y = 1.1443x - 0.421
R² = 0.88
All data: y = 0.971x
R² = 0.89
Inf B: y = 0.919x + 0.114
R² = 0.87
N = 10 plasma samples from H1N1 vaccinated Subjects
H1N1
H3N2
Inf B
All
Linear (H1N1)
Linear (H3N2)
Linear (Inf B)
Linear (All)
Disclosure HAI Method (Log10 antibody titer)
Traditional HAI Method (Log10 antibody titer)
0.00
0.50
1.00
1.50
2.00
2.50
3.00

FIG. 18

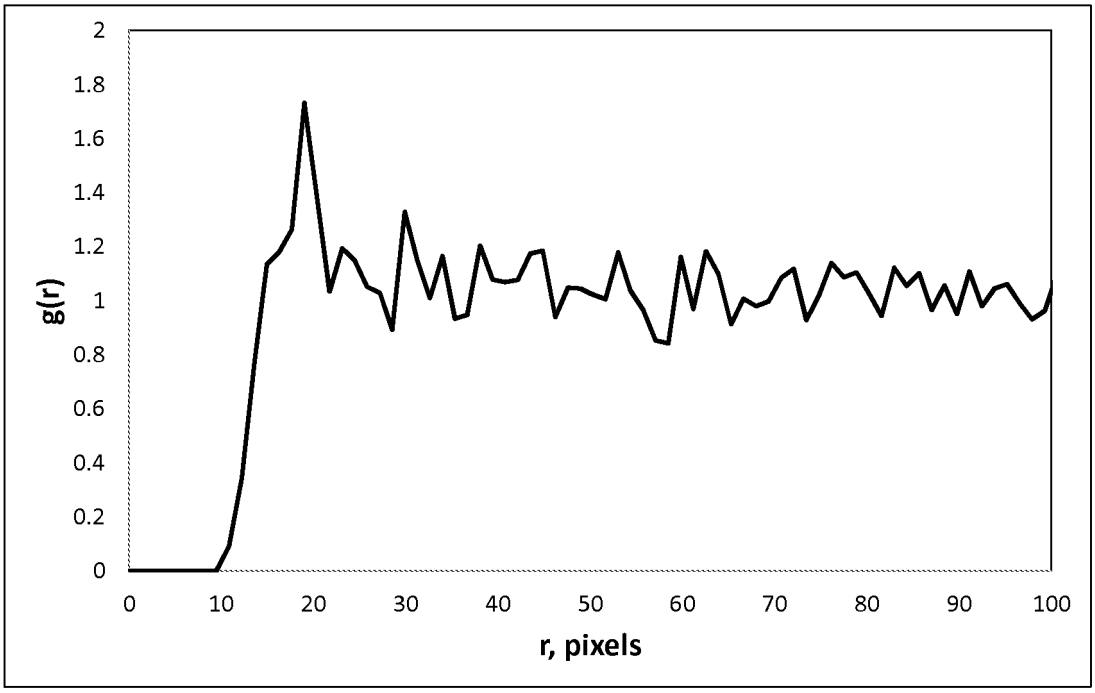

2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
g(r)
0
10
20
30
40
50
60
70
80
90
100
r, pixels

FIG. 19

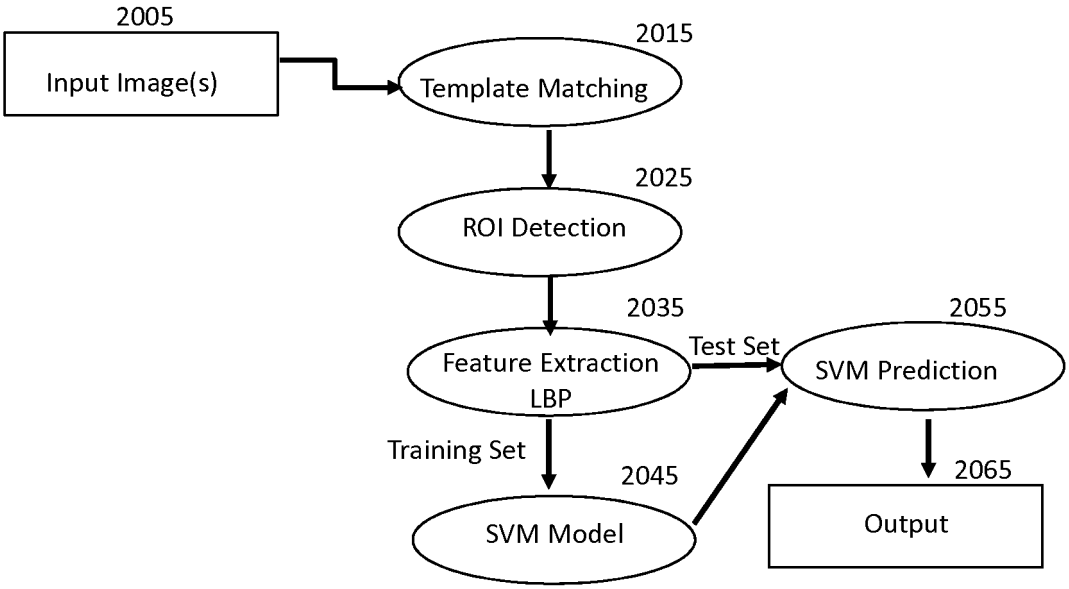

2005
Input Image(s)
2015
Template Matching
2025
ROI Detection
2035
Feature Extraction
LBP
Test Set
2055
SVM Prediction
Training Set
2045
SVM Model
2065
Output

FIG. 20

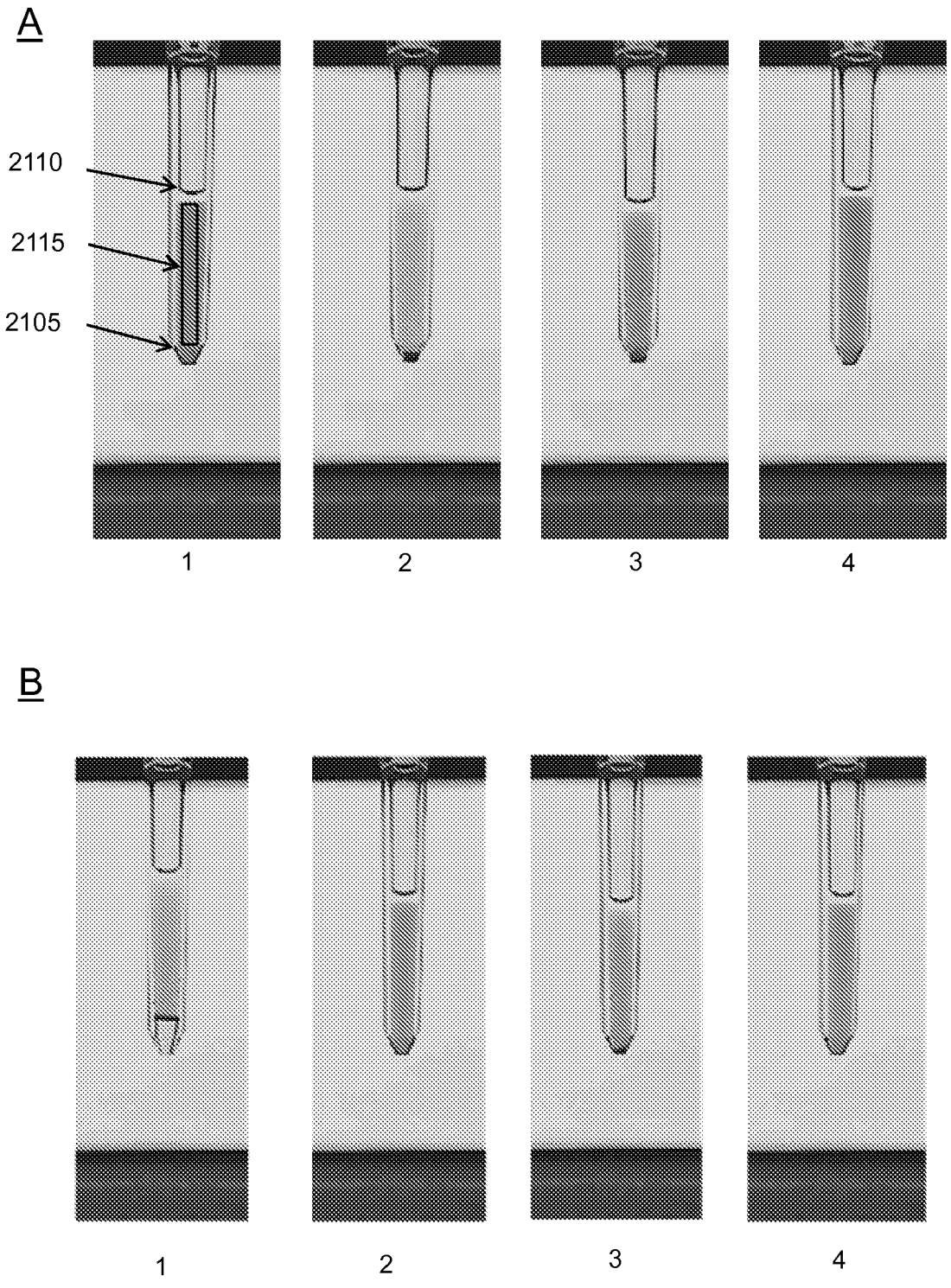


FIG. 21 (continued below)

C

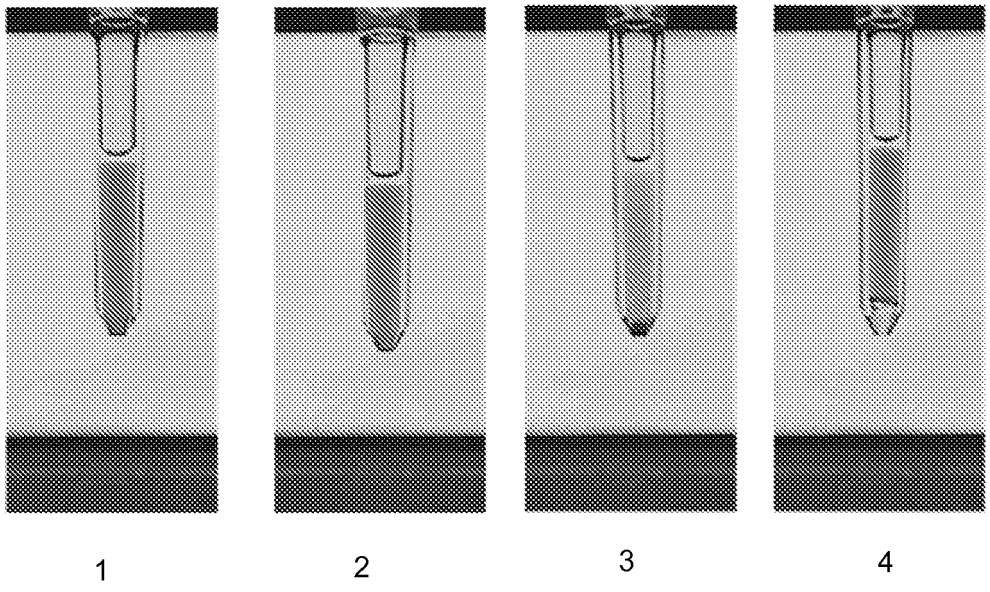


FIG. 21 (continued from above)