FIGURE 1

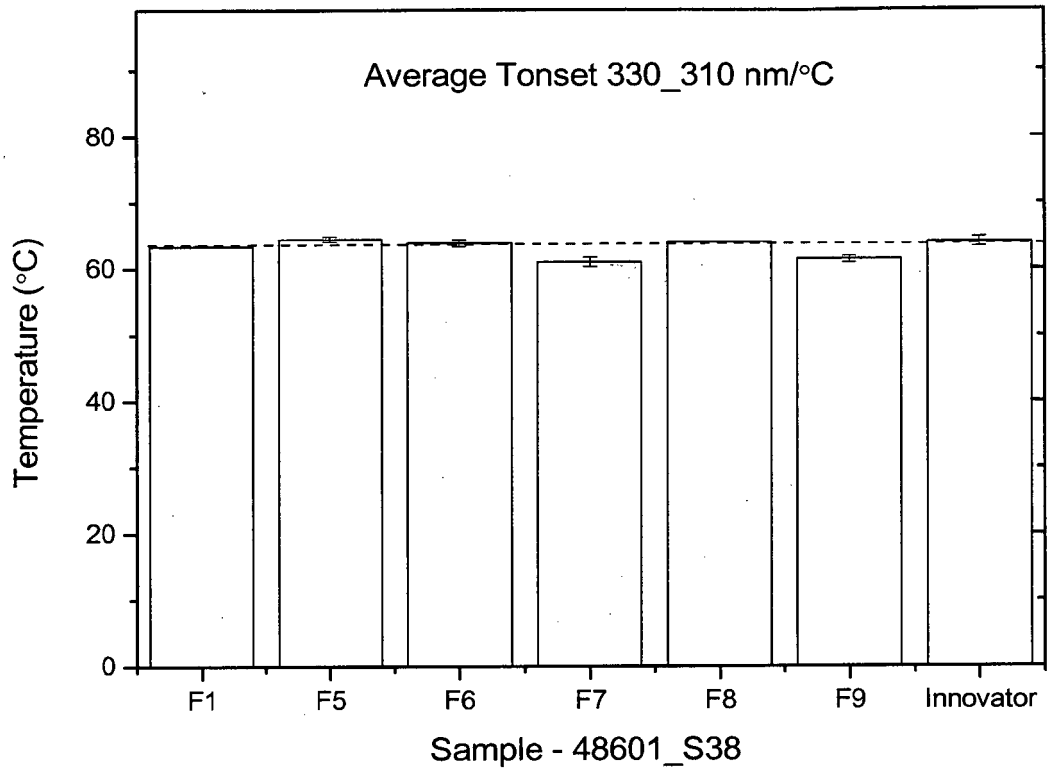

Average Tonset 330_310 nm/°C
Temperature (°C)
0
20
40
60
80
F1
F5
F6
F7
F8
F9
Innovator
Sample - 48601_S38

FIGURE 2A

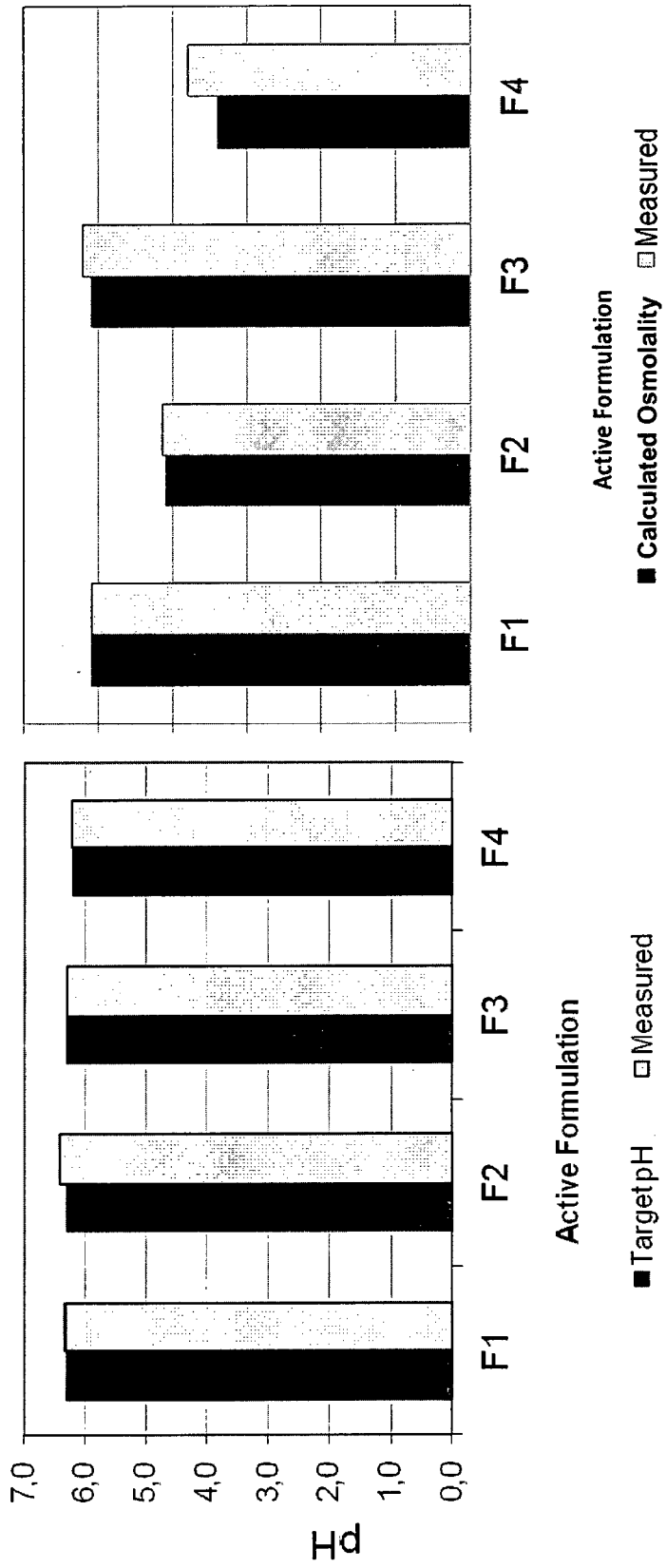
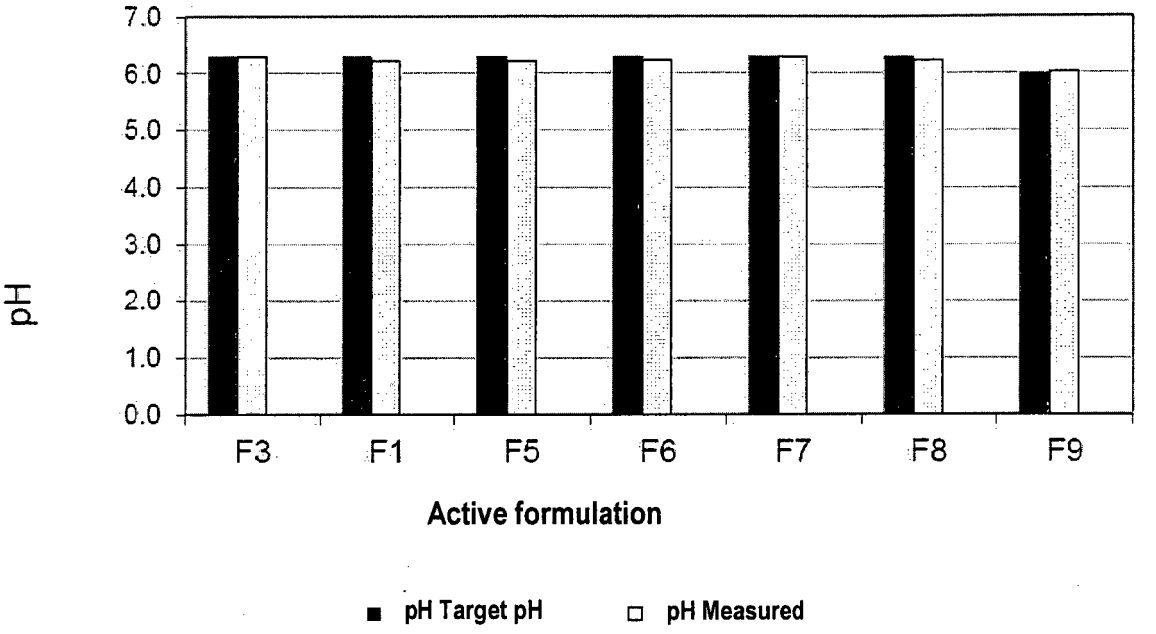

F4
F3
F2
F1
Active Formulation
Calculated Osmolality
Measured
pH
7,0
6,0
5,0
4,0
3,0
2,0
1,0
0,0
F1
F2
F3
F4
Active Formulation
TargetpH
Measured

FIGURE 2B


7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
pH
F3
F1
F5
F6
F7
F8
F9
Active formulation
pH Target pH
pH Measured

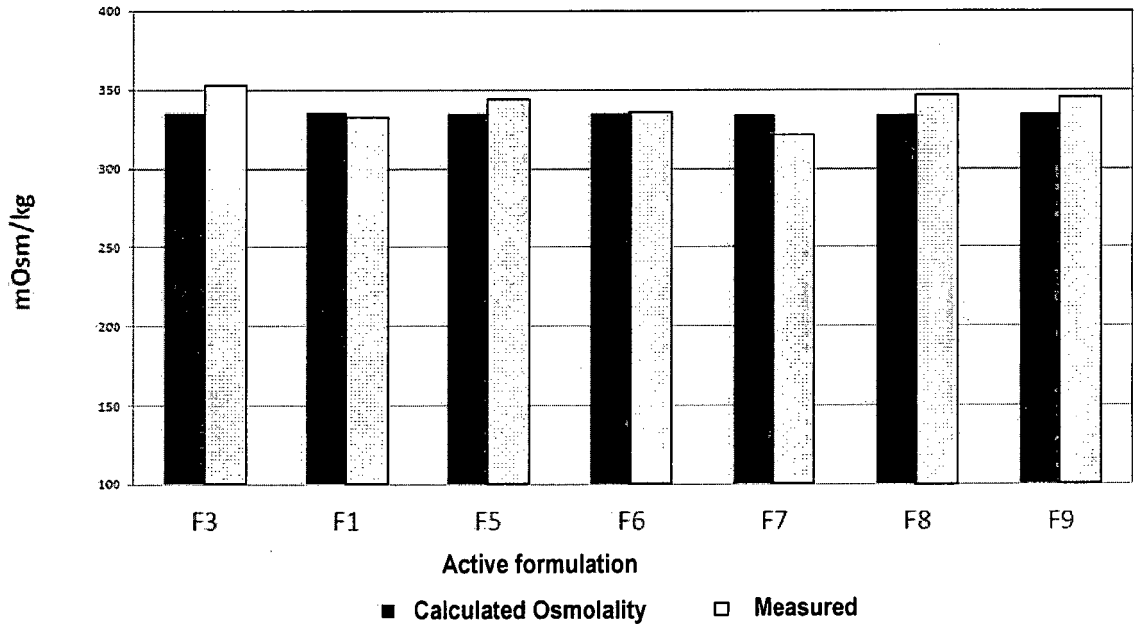
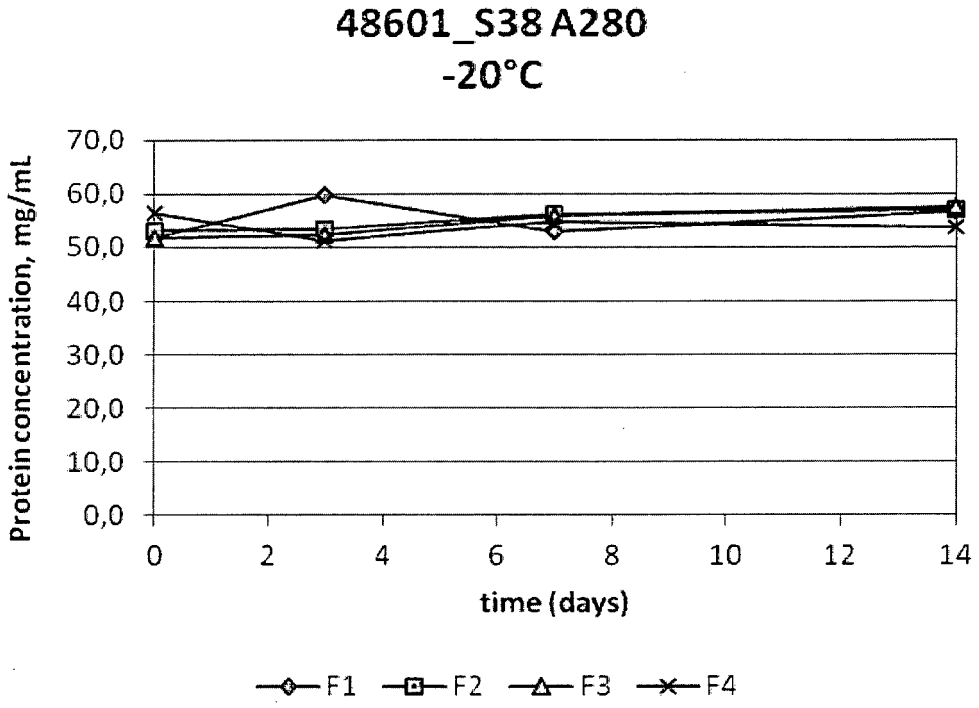

400
350
300
250
200
150
100
mOsm/kg
F3
F1
F5
F6
F7
F8
F9
Active formulation
Calculated Osmolality
Measured

FIGURE 3A


48601_S38 A280
-20°C
Protein concentration, mg/mL
70,0
60,0
50,0
40,0
30,0
20,0
10,0
0,0
0
2
4
6
8
10
12
14
time (days)
F1
F2
F3
F4

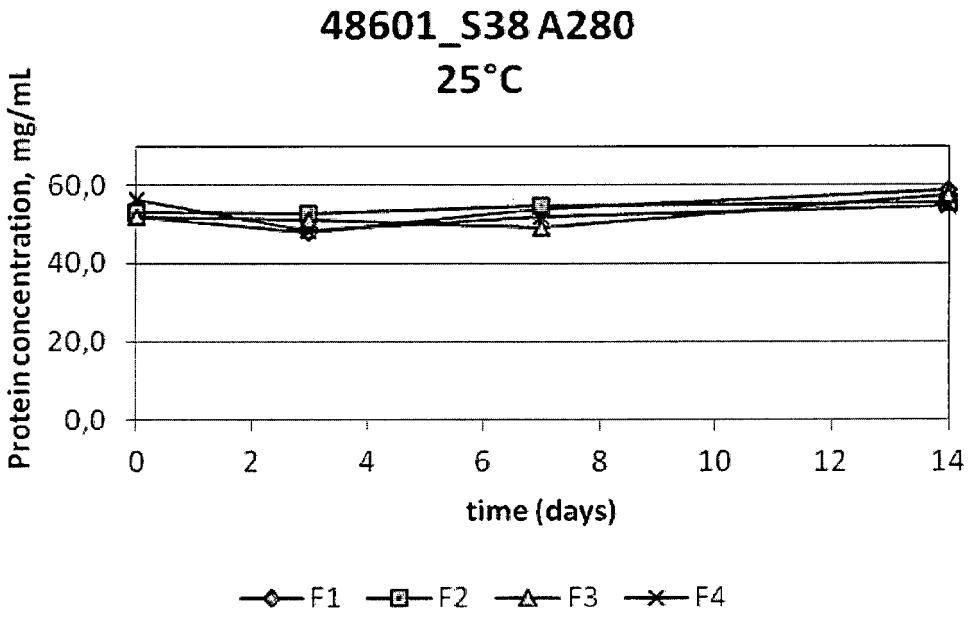
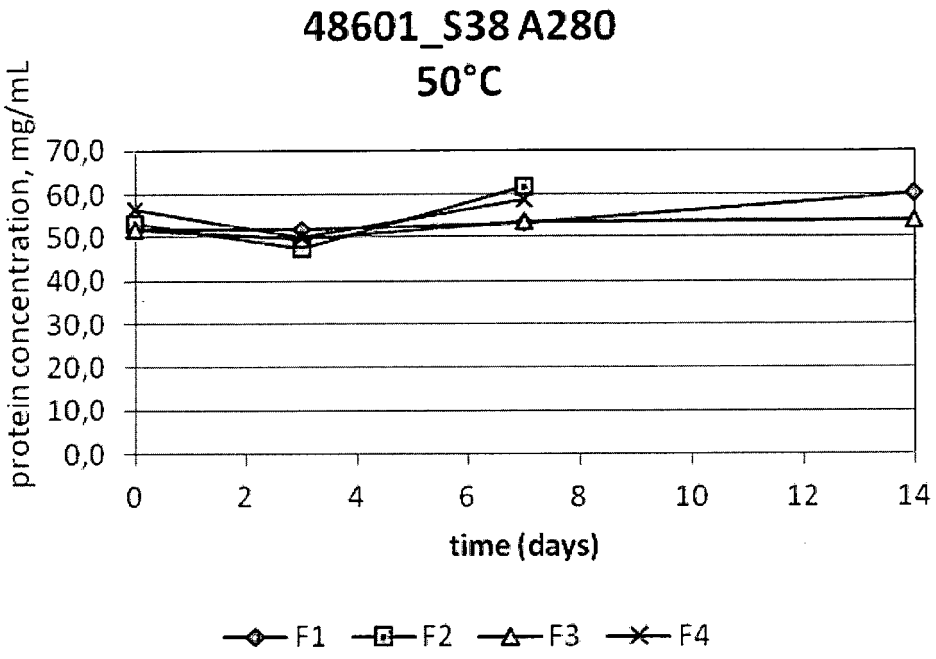

48601_S38 A280
25°C
Protein concentration, mg/mL
60,0
40,0
20,0
0,0
0
2
4
6
8
10
12
14
time (days)
F1
F2
F3
F4

FIGURE 3A (Cont)



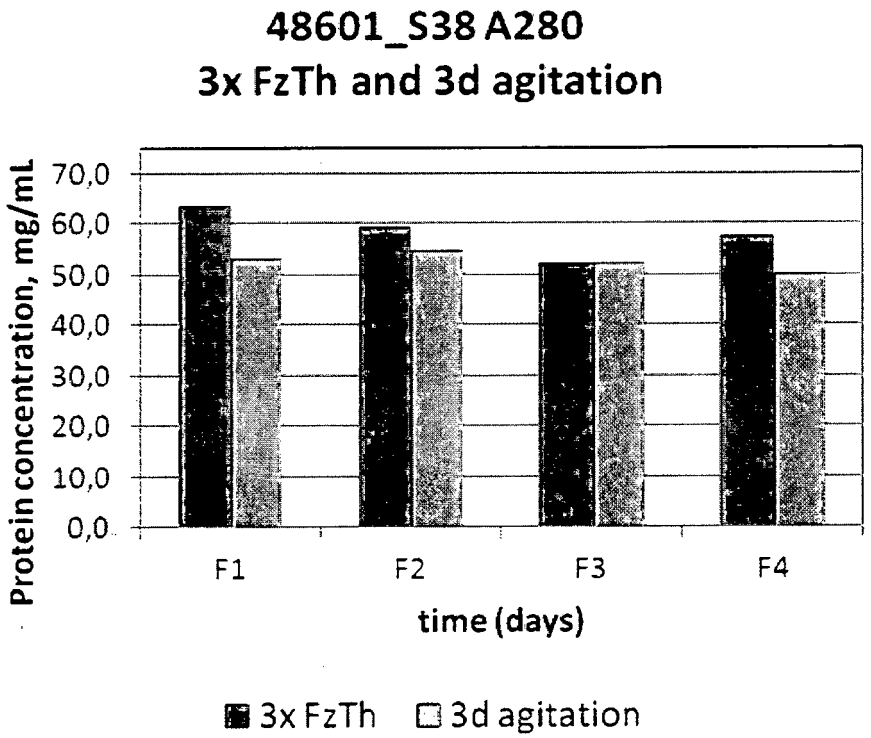
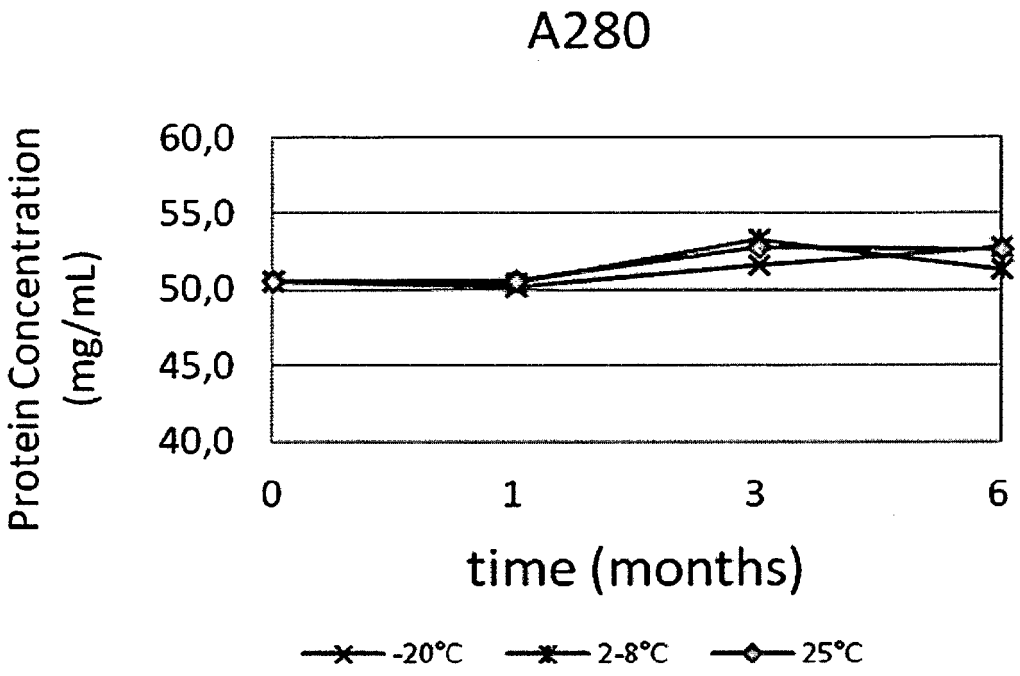


FIGURE 3B


A280
Protein Concentration (mg/mL)
60,0
55,0
50,0
45,0
40,0
0
1
3
6
time (months)
-20°C
2-8°C
25°C

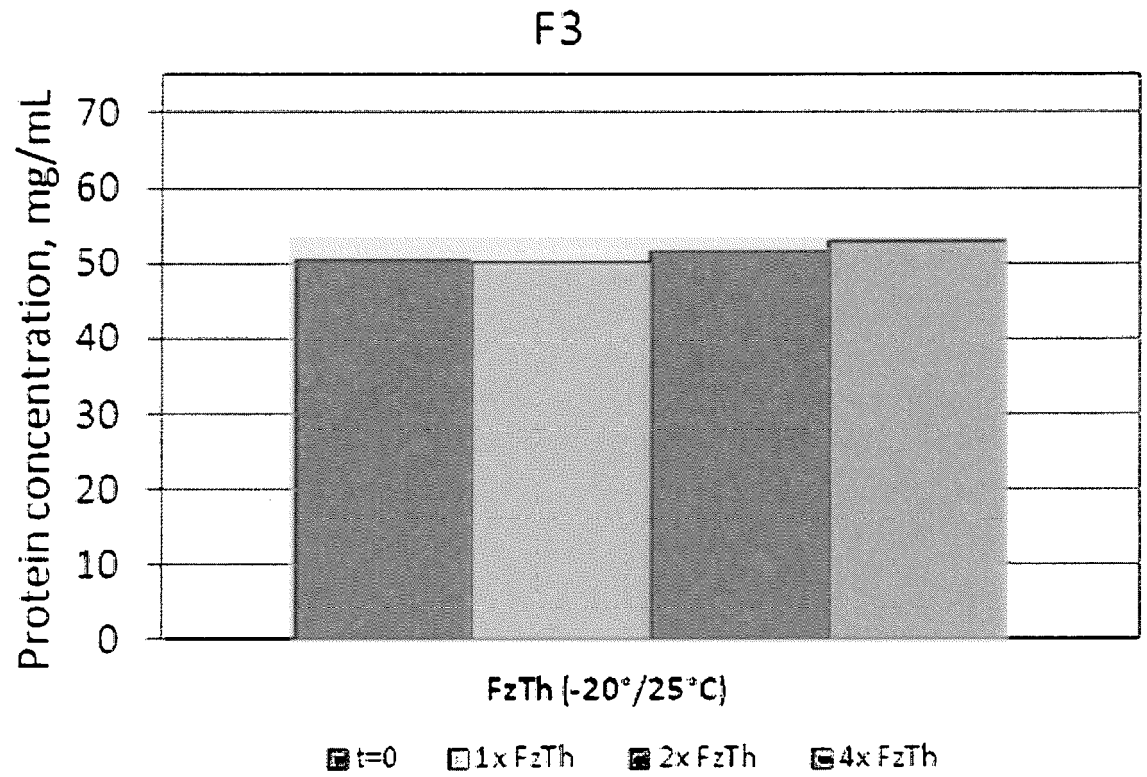
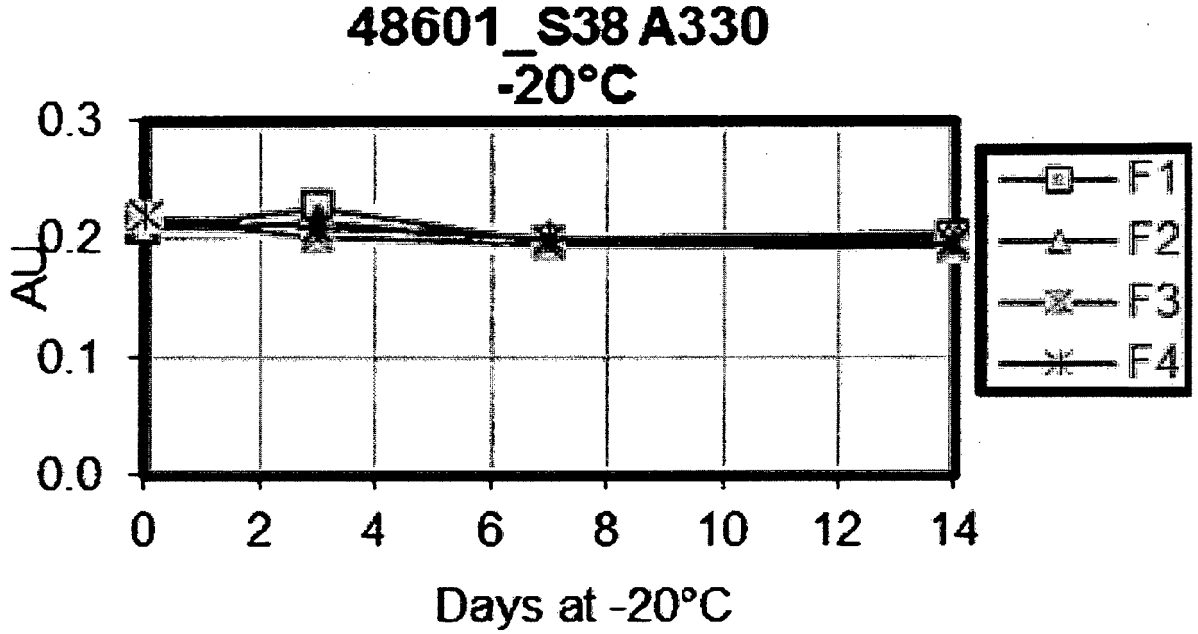

F3
Protein concentration, mg/mL
70
60
50
40
30
20
10
0
FzTh (-20°/25°C)
t=0
1x FzTh
2x FzTh
4x FzTh

FIGURE 4A


48601_S38 A330
-20°C
0.3
0.2
0.1
0.0
AU
0
2
4
6
8
10
12
14
Days at -20°C
F1
F2
F3
F4

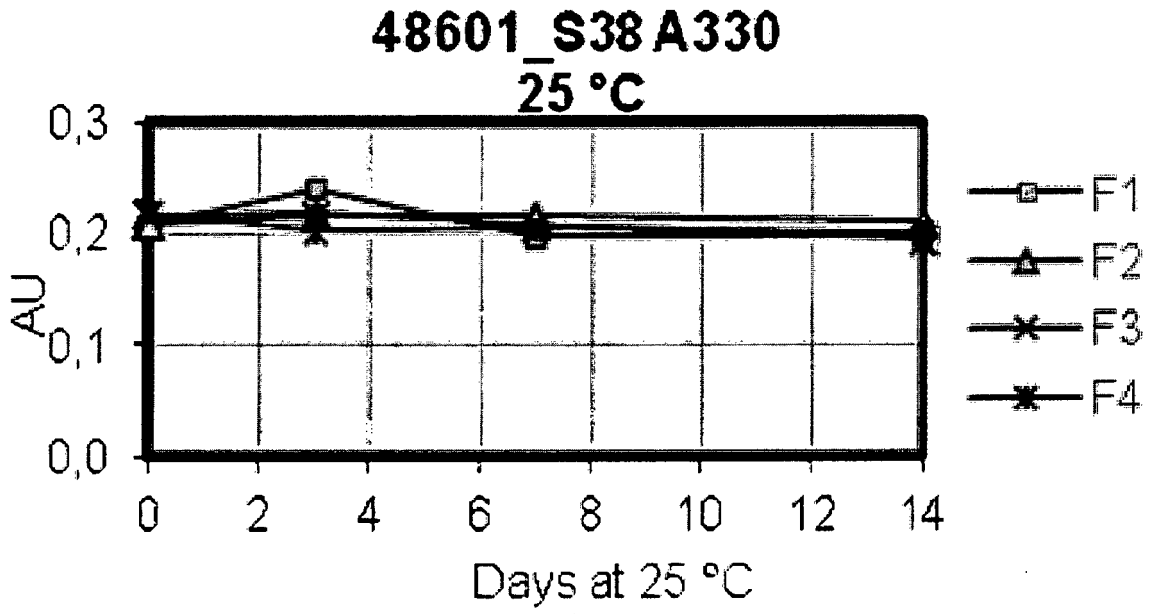
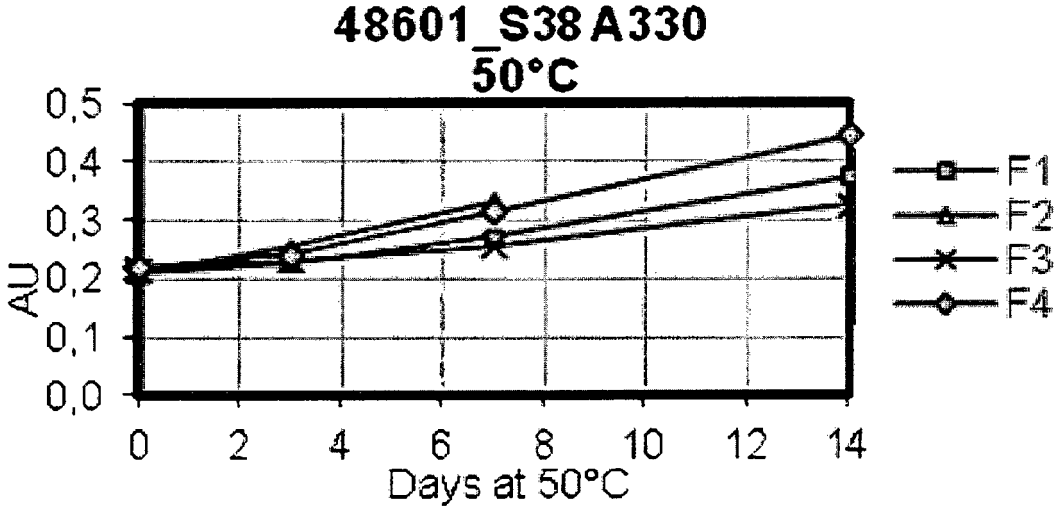

48601_S38 A330
25 °C
0,3
0,2
0,1
0,0
AU
0
2
4
6
8
10
12
14
Days at 25 °C
F1
F2
F3
F4

FIGURE 4A (cont)



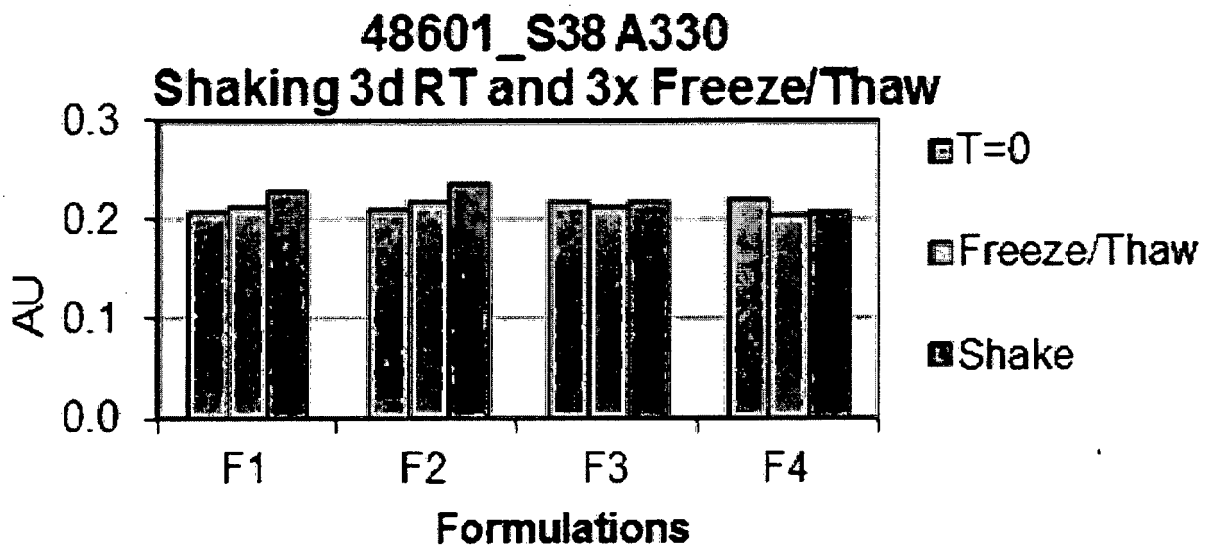
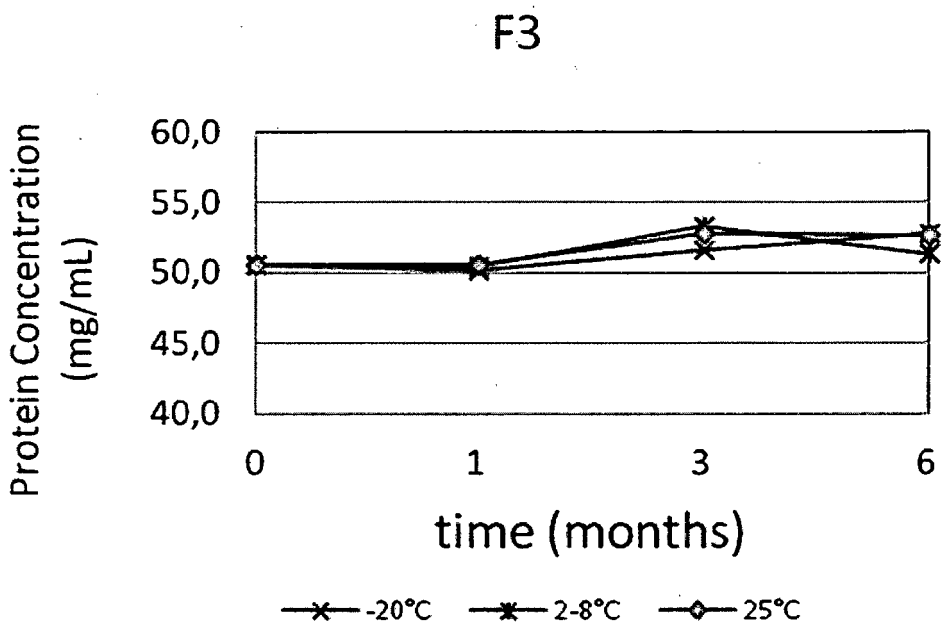


FIGURE 4B(1)


F3
Protein Concentration (mg/mL)
60,0
55,0
50,0
45,0
40,0
0
1
3
6
time (months)
-20°C
2-8°C
25°C

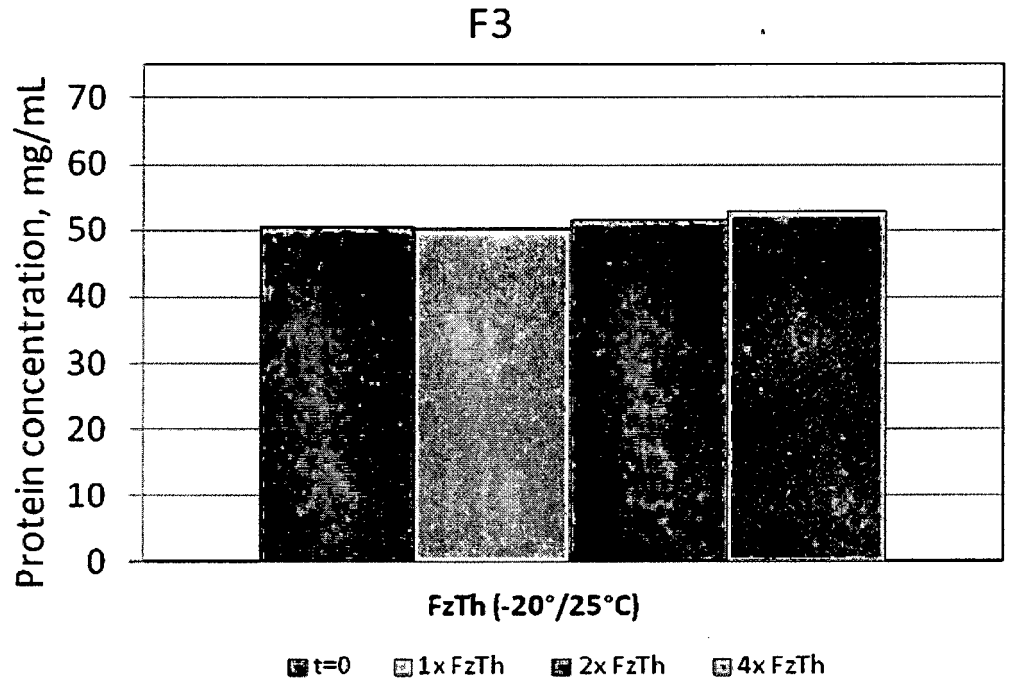

F3
Protein concentration, mg/mL
70
60
50
40
30
20
10
0
FzTh (-20°/25°C)
t=0
1x FzTh
2x FzTh
4x FzTh

FIGURE 4B(2)

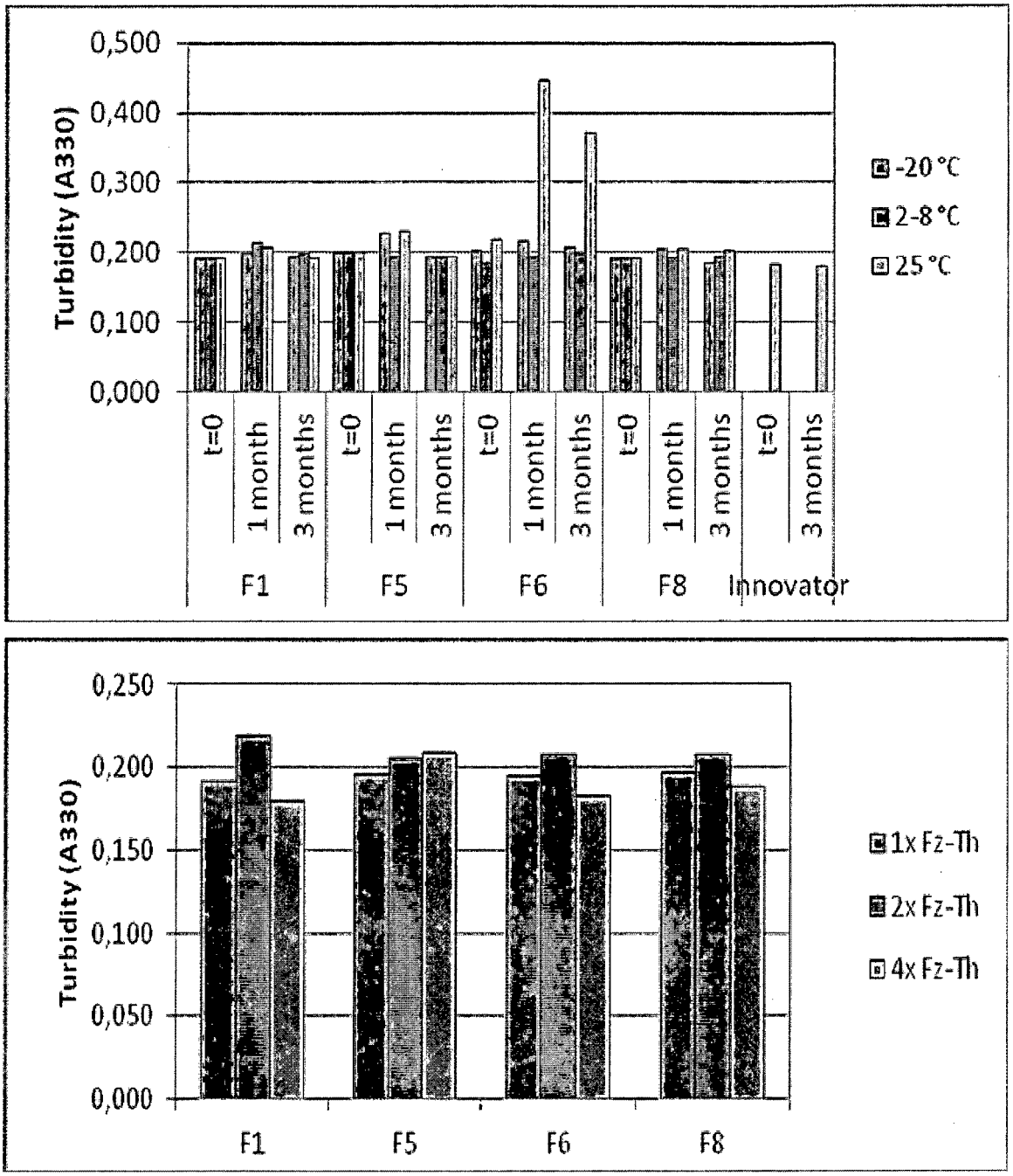

Turbidity (A330)
0,500
0,400
0,300
0,200
0,100
0,000
t=0
1 month
3 months
F1
F5
F6
F8
Innovator
-20 °C
2-8 °C
25 °C
Turbidity (A330)
0,250
0,200
0,150
0,100
0,050
0,000
F1
F5
F6
F8
1x Fz-Th
2x Fz-Th
4x Fz-Th

FIGURE 5A

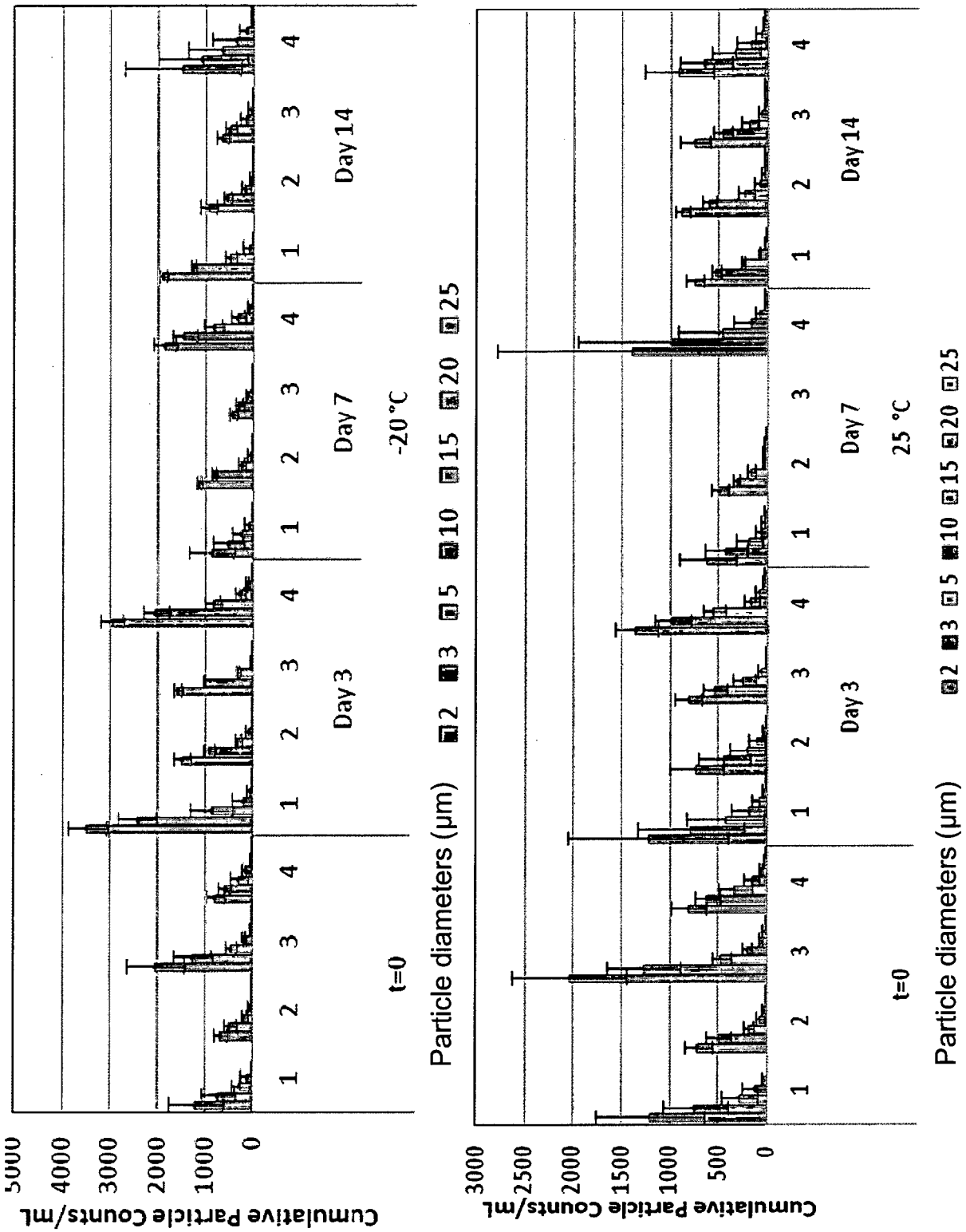

Cumulative Particle Counts/mL
5000
4000
3000
2000
1000
0
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
t=0
Day 3
Day 7
Day 14
-20 °C
Particle diameters (µm)
2 3 5 10 15 20 25
Cumulative Particle Counts/mL
3000
2500
2000
1500
1000
500
0
1 2 3 4 1 2 3 4 1 2 3 4 1 2 3 4
t=0
Day 3
Day 7
Day 14
25 °C
Particle diameters (µm)
2 3 5 10 15 20 25

FIGURE 5A (cont)

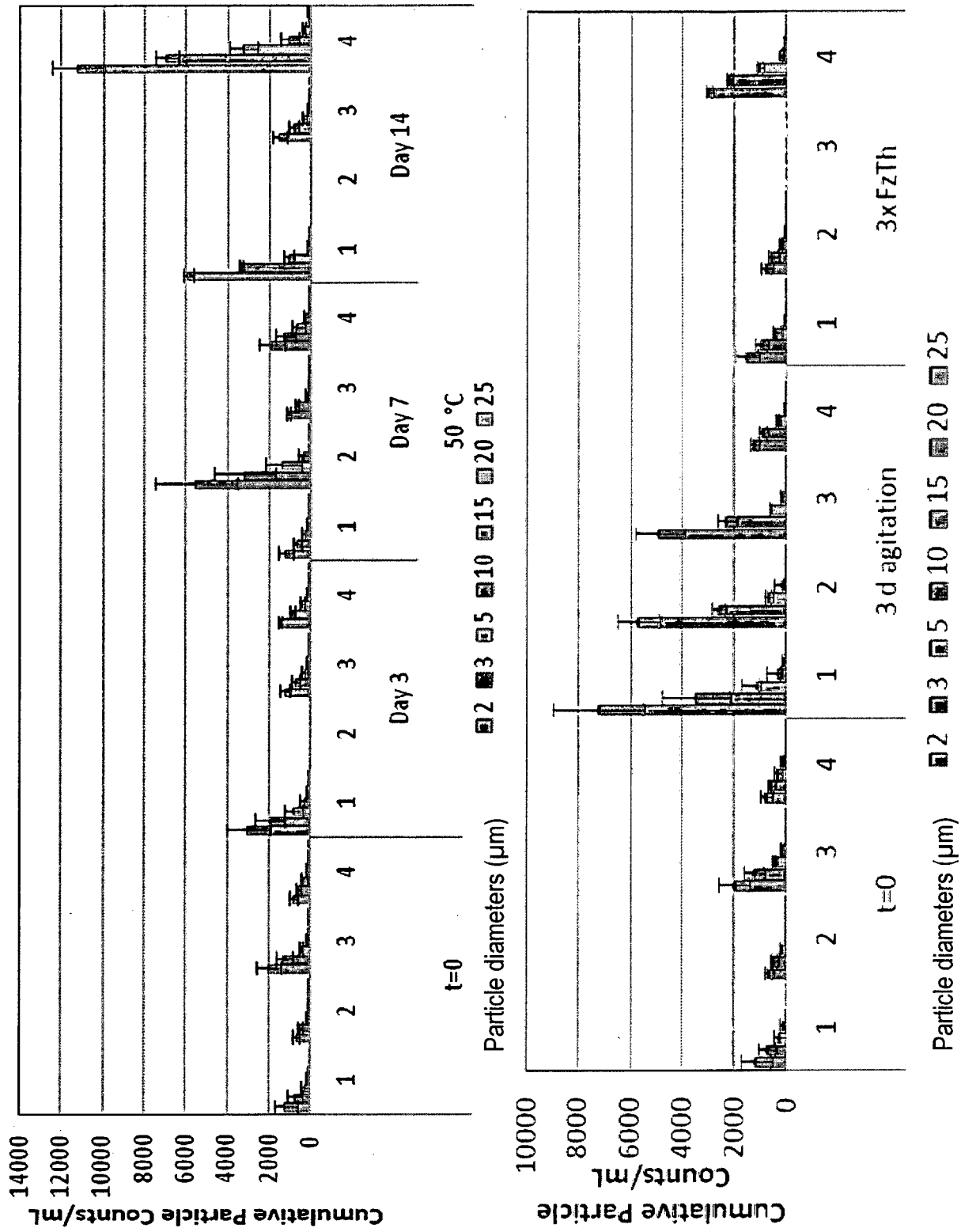


FIGURE 5B

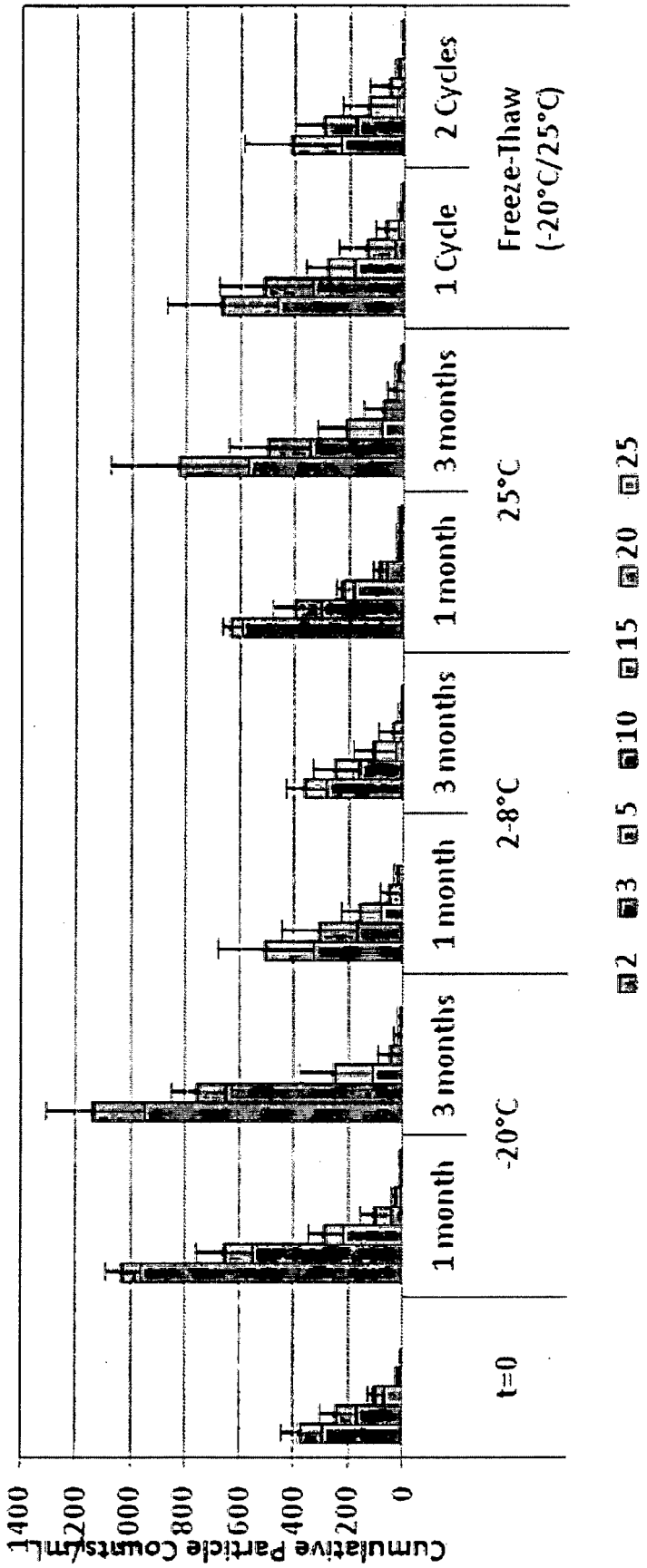

Cumulative Particle Counts/mL
1400
1200
1000
800
600
400
200
0
t=0
1 month
3 months
-20°C
1 month
3 months
2-8°C
1 month
3 months
25°C
1 Cycle
2 Cycles
Freeze-Thaw (-20°C/25°C)
2
3
5
10
15
20
25

FIGURE 5C(1)

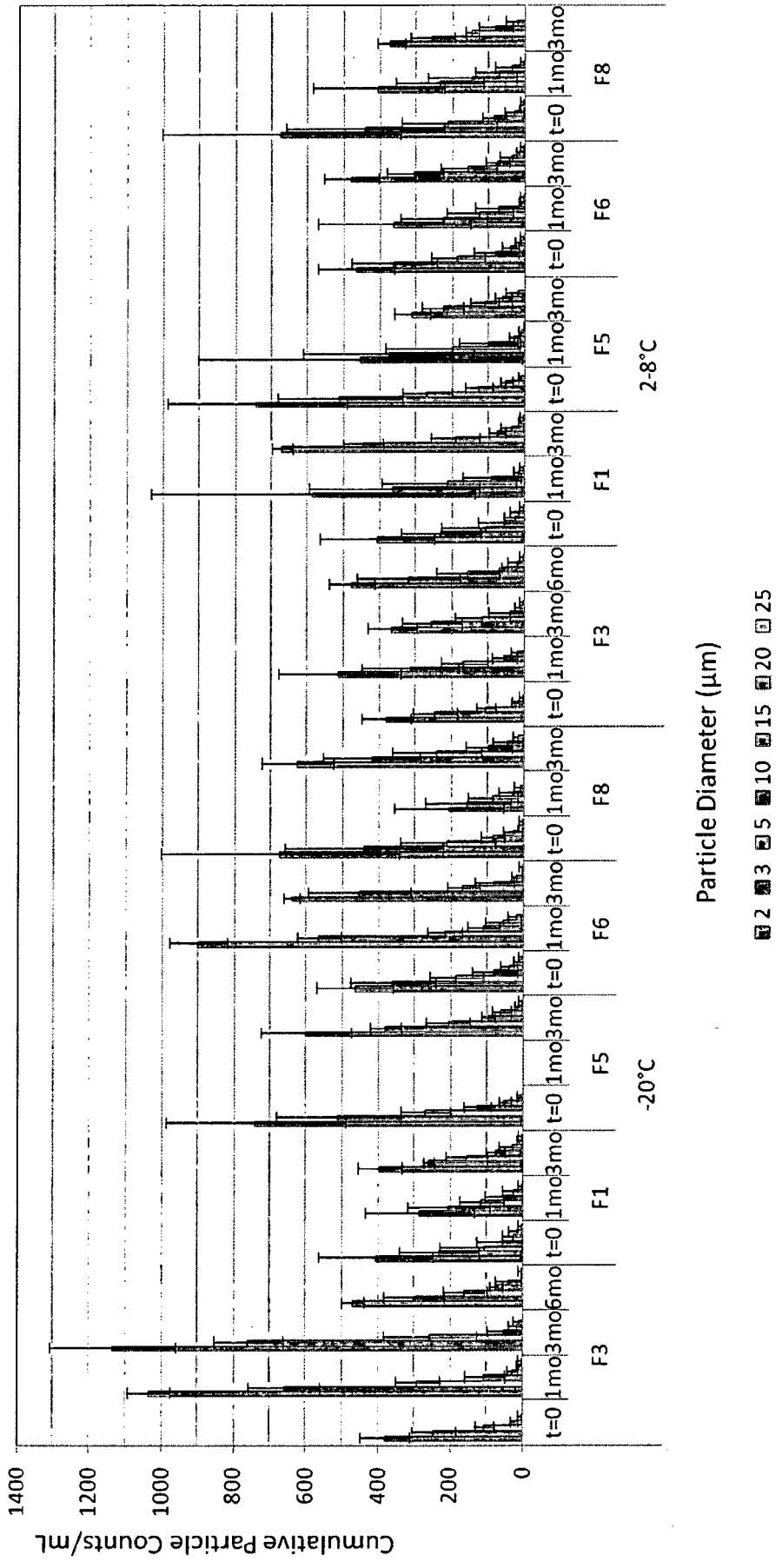

Cumulative Particle Counts/mL
1400
1200
1000
800
600
400
200
0
t=0 1mo 3mo 6mo
F3
t=0 1mo 3mo
F1
t=0 1mo 3mo
F5
t=0 1mo 3mo
F6
t=0 1mo 3mo
F8
-20°C
t=0 1mo 3mo 6mo
F3
t=0 1mo 3mo
F1
t=0 1mo 3mo
F5
t=0 1mo 3mo
F6
t=0 1mo 3mo
F8
2-8°C
Particle Diameter (µm)
2 3 5 10 15 20 25

FIGURE 5C(2)

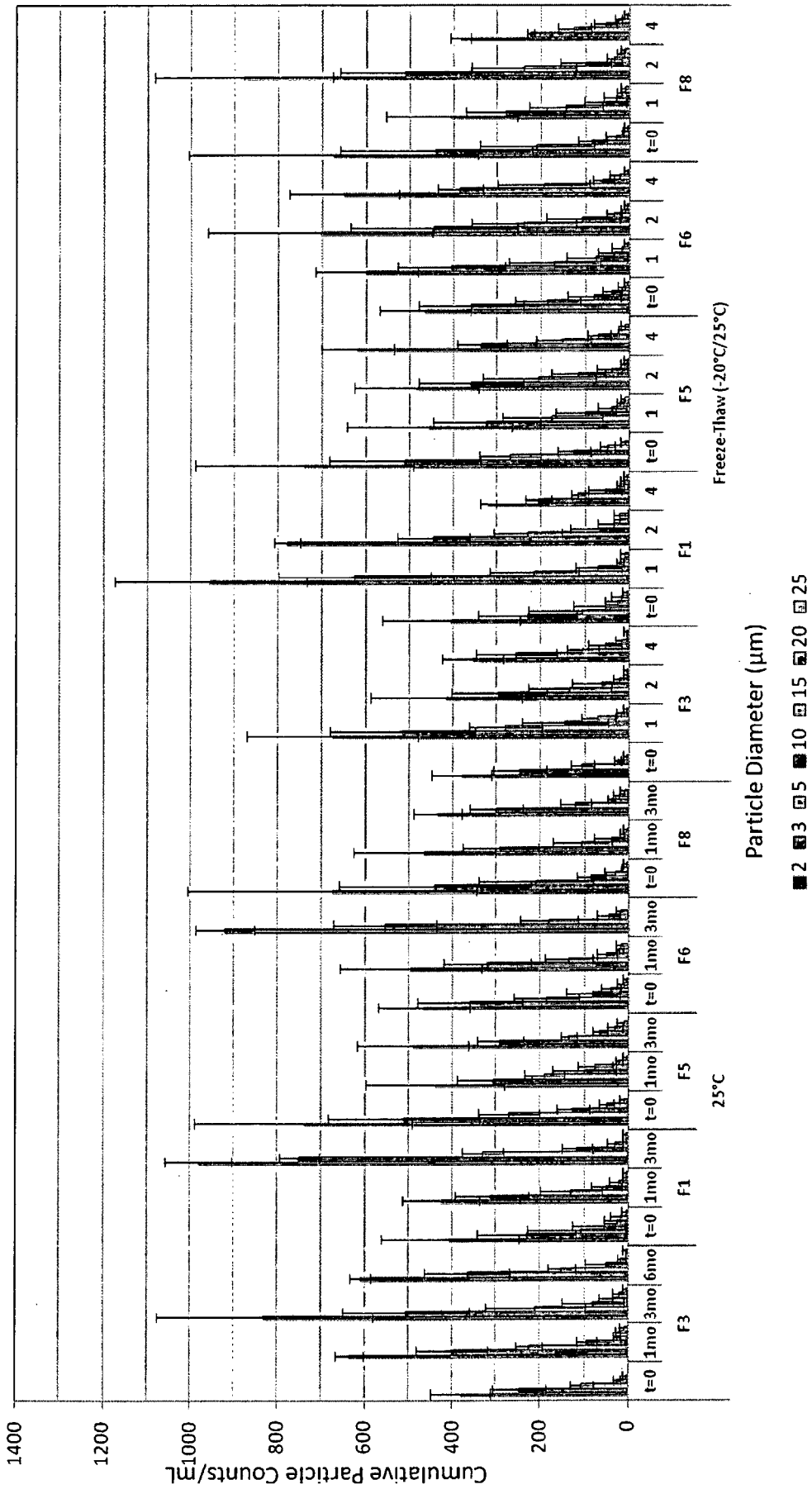
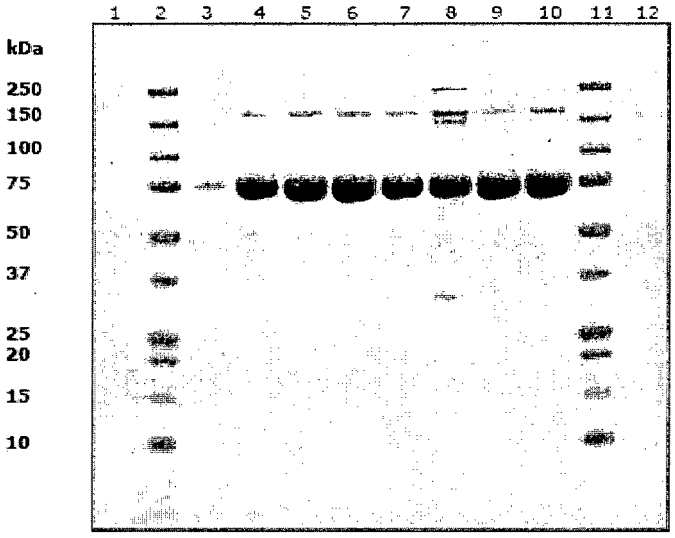

Cumulative Particle Counts/mL
1400
1200
1000
800
600
400
200
0
t=0 1mo 3mo 6mo F3 t=0 1mo 3mo F1 t=0 1mo 3mo F5 t=0 1mo 3mo F6 t=0 1mo 3mo F8 t=0 1 2 4 F3 t=0 1 2 4 F1 t=0 1 2 4 F5 t=0 1 2 4 F6 t=0 1 2 4 F8
25°C
Freeze-Thaw (-20°C/25°C)
Particle Diameter (µm)
2 3 5 10 15 20 25

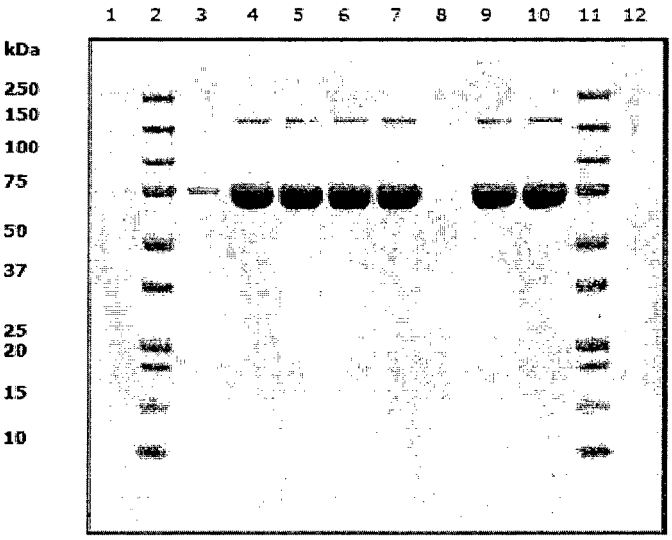
FIGURE 6A

(A) F1 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB1, t=0 Control	5
6	FB1, t=14 day -20ºC	5
7	FB1, t=14 day 25ºC	5
8	FB1, t=14 day 50ºC	5
9	FB1, 3 Day Agitation	5
10	FB1, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

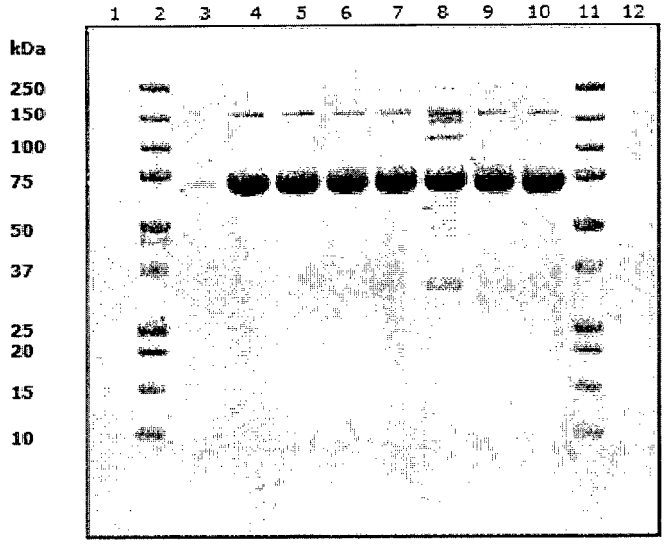
(B) F2 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB2, t=0 Control	5
6	FB2, t=14 day -20ºC	5
7	FB2, t=14 day 25ºC	5
8	----------	----
9	FB2, 3 Day Agitation	5
10	FB2, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

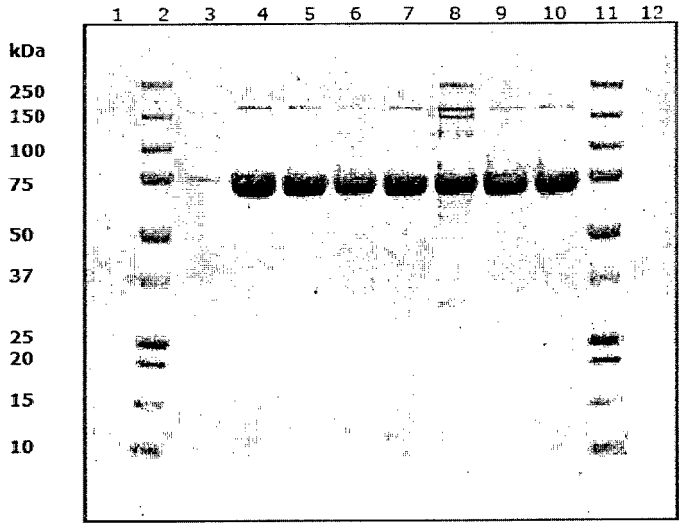
FIGURE 6A (cont)

(C) F3 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



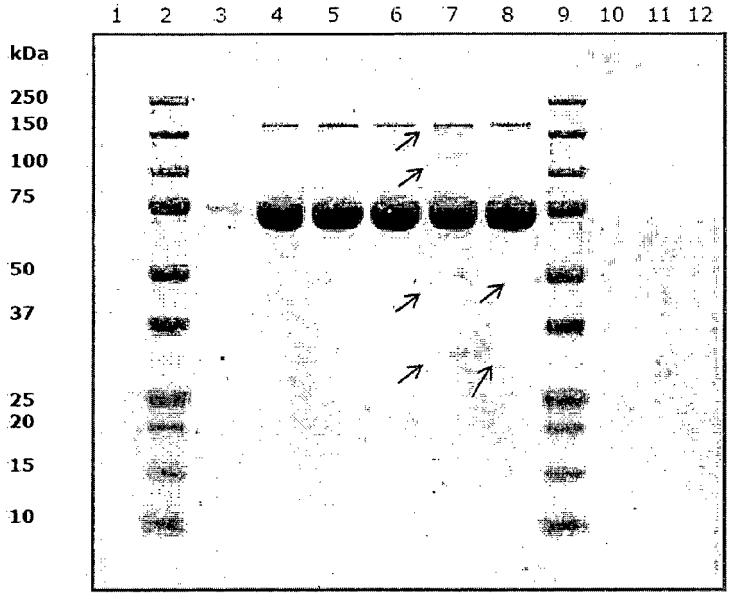
Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB3, t=0 Control	5
6	FB3, t=14 day -20°C	5
7	FB3, t=14 day 25°C	5
8	FB3, t=14 day 50°C	----
9	FB3, 3 Day Agitation	5
10	FB3, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

(D) F4 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



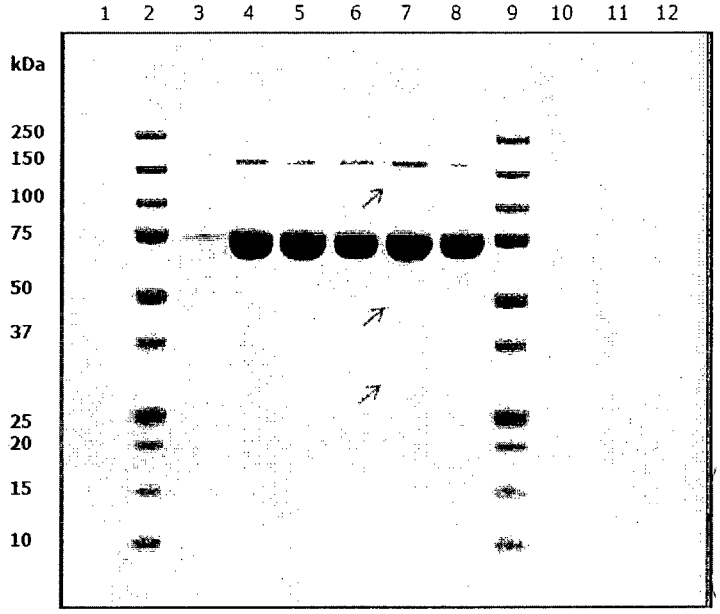
Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB4, t=0 Control	5
6	FB4, t=14 day -20°C	5
7	FB4, t=14 day 25°C	5
8	FB4, t=14 day 50°C	----
9	FB4, 3 Day Agitation	5
10	FB4, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

FIGURE 6B(1)



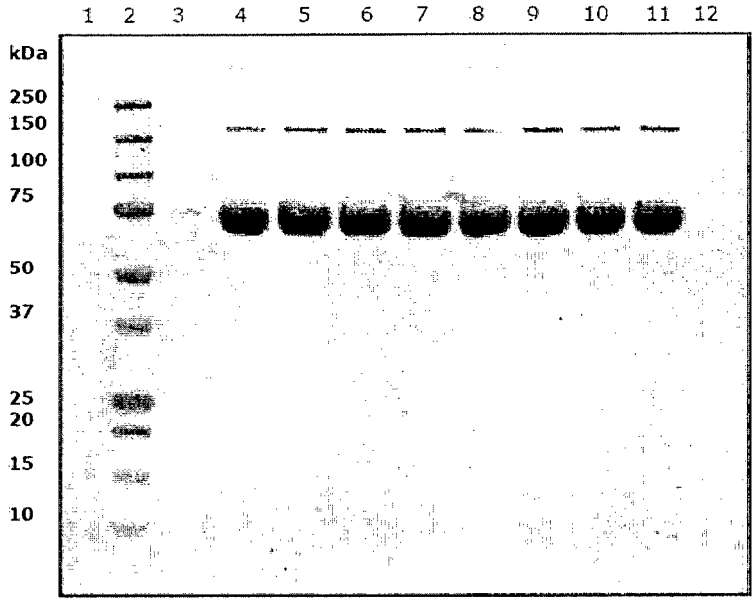
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	t=3 month, -20°C	5
6	t=3 month, 2-8°C	5
7	t=3 month, 25°C	5
8	2x Freeze/Thaw	5
9	Precision Plus Marker	----
10	----------	----
11	----------	----
12	----------	----

FIGURE 6B(2)



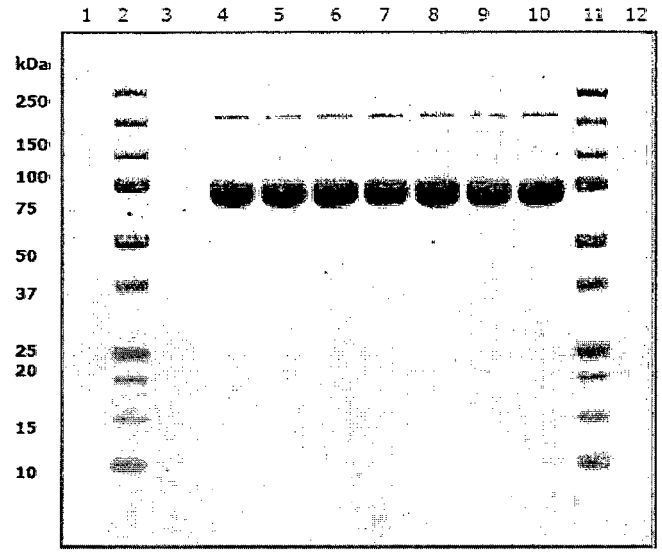
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	t=3 month, -20°C	5
6	t=3 month, 2-8°C	5
7	t=3 month, 25°C	5
8	2x Freeze/Thaw	5
9	Precision Plus Marker	----
10	----------	----
11	----------	----
12	----------	----

FIGURE 6C



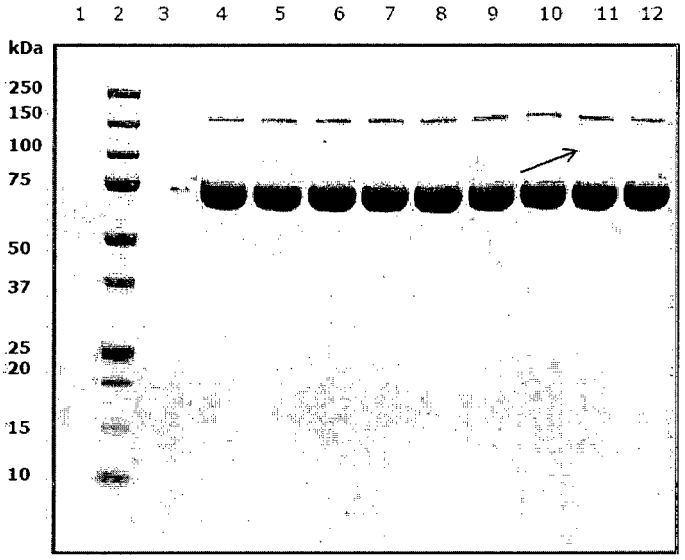
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	Enbrel	5
6	FB 5 t=0	5
7	FB 5 1x Freeze Thaw	5
8	FB 6 t=0	5
9	FB 6 1x Freeze Thaw	5
10	FB 7 t=0	5
11	FB 7 1x Freeze Thaw	5
12	----------	----

FIGURE 6D



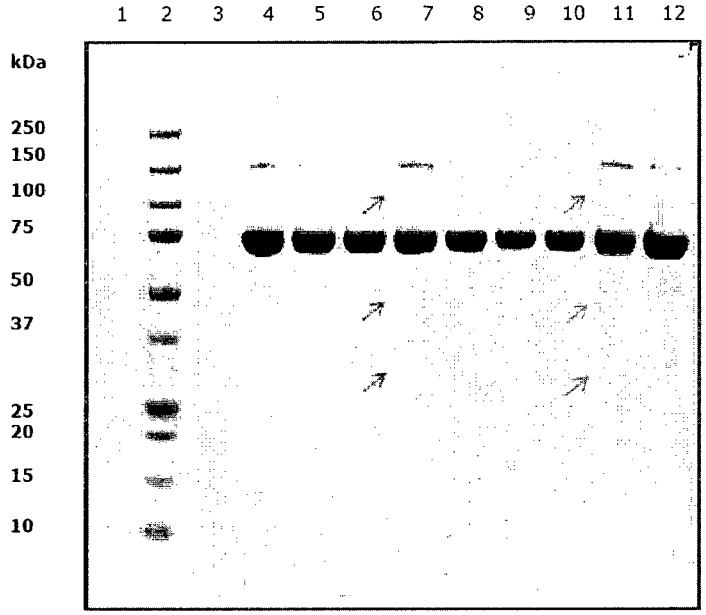
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB 8 t=0	5
6	FB 8 1x Freeze Thaw	5
7	FB 9 t=0	5
8	FB 9 1x Freeze Thaw	5
9	FB 1 t=0	5
10	FB 1 1x Freeze Thaw	5
11	Precision Plus Marker	----
12	----------	----

FIGURE 6E(1)



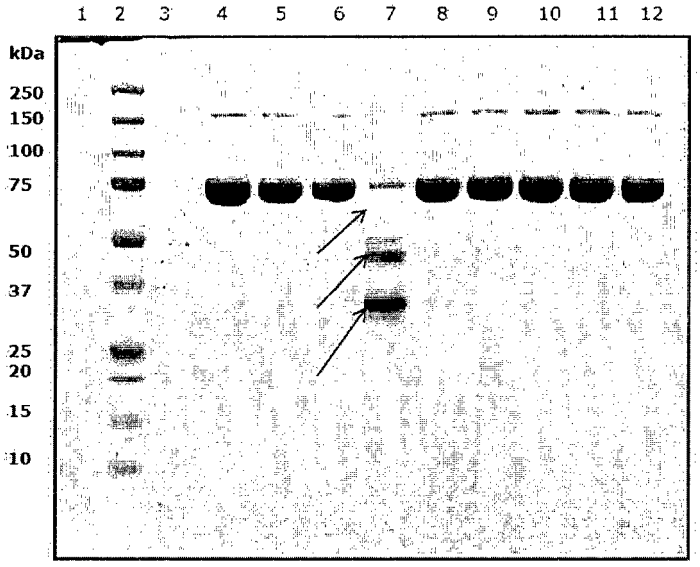
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	F1 1 month -20°C	5
6	F1 1 month 2 to 8°C	5
7	F1 1 month 25°C	5
8	F1 2x Freeze Thaw	5
9	F5 1 month -20°C	5
10	F5 1 month 2 to 8°C	5
11	F5 1 month 25°C	5
12	F5 2x Freeze Thaw	5

FIGURE 6E(2)



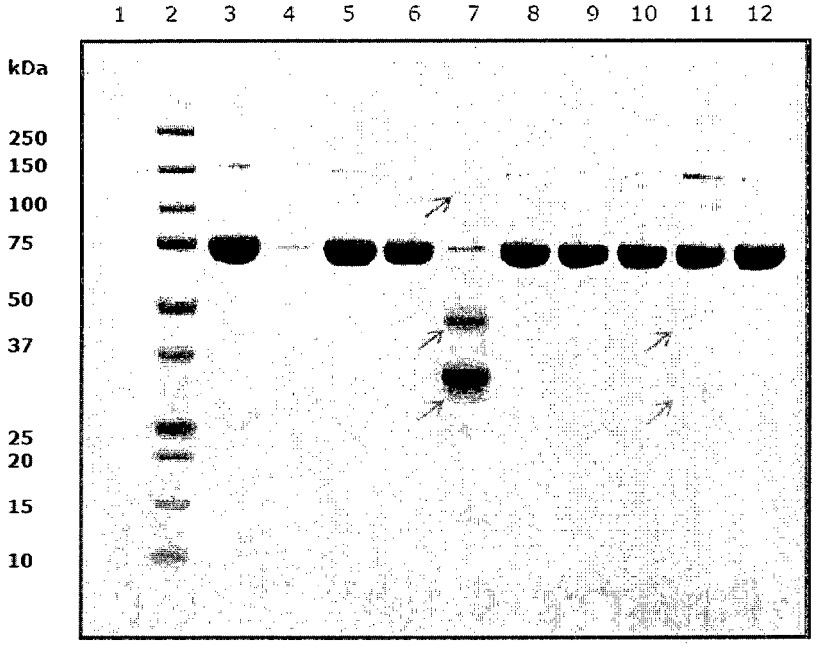
Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	F1 t=3 month, -20°C	5
6	F1 t=3 month, 2-8°C	5
7	F1 t=3 month, 25°C	5
8	F1 4x Freeze/Thaw	5
9	F5 t=3 month, -20°C	5
10	F5 t=3 month, 2-8°C	5
11	F5 t=3 month, 25°C	5
12	F5 4x Freeze/Thaw	5

FIGURE 6F(1)



Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	F6 1 month -20°C	5
6	F6 1 month 2 to 8°C	5
7	F6 1 month 25°C	5
8	F6 2x Freeze Thaw	5
9	F8 1 month -20°C	5
10	F8 1 month 2 to 8°C	5
11	F8 1 month 25°C	5
12	F8 2x Freeze Thaw	5

FIGURE 6F(2)



Lane	Sample	Load (µg)
1	----------	----
2	Precision Plus Marker	----
3	Reference Sample	5
4	Sensitivity Sample	0.1
5	F6 t=3 month, -20°C	5
6	F6 t=3 month, 2-8°C	5
7	F6 t=3 month, 25°C	5
8	F6 4x Freeze/Thaw	5
9	F8 t=3 month, -20°C	5
10	F8 t=3 month, 2-8°C	5
11	F8 t=3 month, 25°C	5
12	F8 4x Freeze/Thaw	5

FIGURE 7A

-20°C condition

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3d -20°C	0.7%	97.7%	1.6%	7428
F2 3d -20°C	0.8%	97.8%	1.4%	7354
F3 3d -20°C	0.8%	97.4%	1.8%	7563
F4 3d -20°C	0.8%	97.6%	1.5%	7005
F1 7d -20°C	0.6%	98.0%	1.4%	7597
F2 7d -20°C	1.8%	96.5%	1.7%	4378
F3 7d -20°C	1.2%	97.2%	1.6%	7641
F4 7d -20°C	1.1%	97.3%	1.6%	7183
F1 14d -20°C	0.8%	97.6%	1.6%	7809
F2 14d -20°C	0.9%	97.5%	1.6%	7902
F3 14d -20°C	0.7%	97.8%	1.5%	7569
F4 14d -20°C	0.9%	97.4%	1.7%	7237

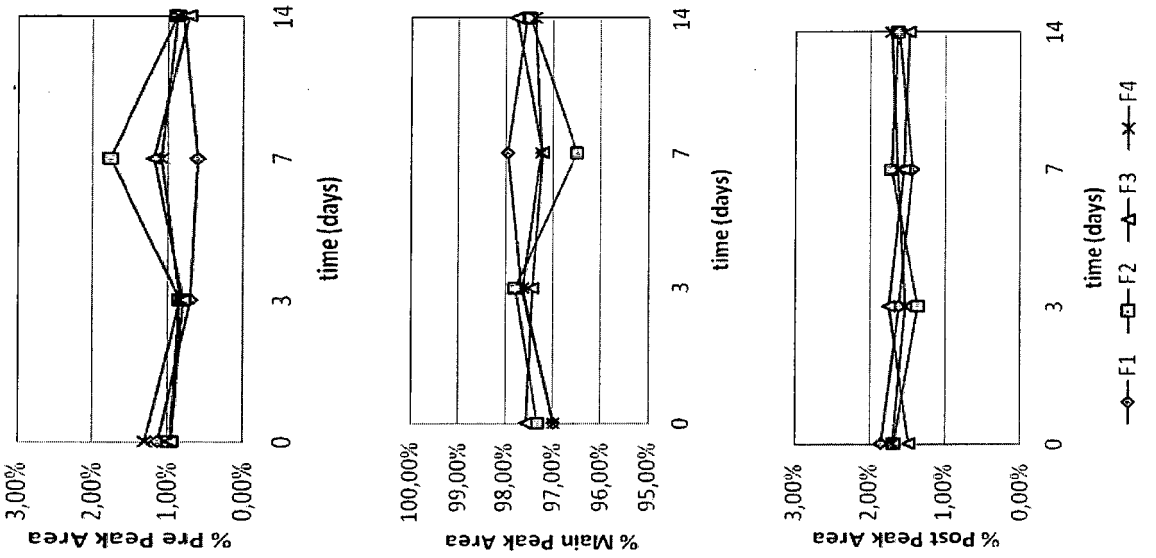


FIGURE 7B

25°C condition

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3d 25°C	0.8%	97.6%	1.6%	6628
F2 3d 25°C	0.9%	97.4%	1.6%	7554
F3 3d 25°C	0.8%	97.7%	1.5%	7364
F4 3d 25°C	0.9%	97.5%	1.6%	7010
F1 7d 25°C	1.0%	97.2%	1.8%	7753
F2 7d 25°C	1.2%	97.1%	1.7%	7416
F3 7d 25°C	1.0%	97.3%	1.6%	7520
F4 7d 25°C	1.1%	97.2%	1.7%	6902
F1 14d 25°C	1.1%	97.0%	2.0%	7790
F2 14d 25°C	1.4%	96.9%	1.8%	7835
F3 14d 25°C	1.3%	96.7%	2.0%	7624
F4 14d 25°C	1.5%	96.6%	1.9%	7255

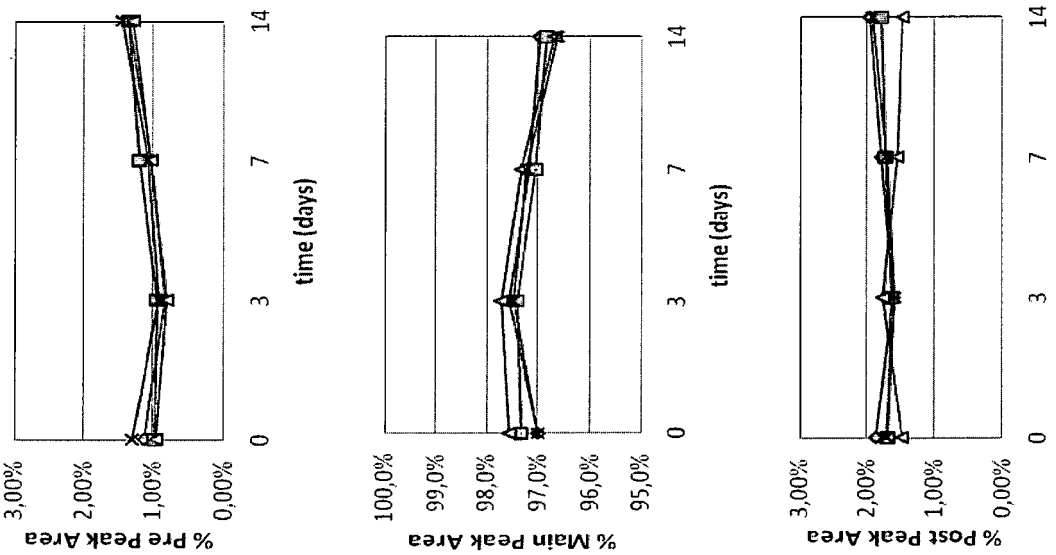


FIGURE 7C

50°C condition

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3d 50°C	13.0%	83.5%	3.5%	7321
F2 3d 50°C	27.3%	69.9%	2.8%	6940
F3 3d 50°C	10.3%	85.7%	4.0%	7051
F4 3d 50°C	23.0%	74.3%	2.8%	6954
F1 7d 50°C	32.4%	62.9%	4.6%	8071
F2 7d 50°C	67.6%	29.9%	2.5%	8276
F3 7d 50°C	26.8%	67.3%	5.9%	7620
F4 7d 50°C	56.5%	40.5%	3.0%	7464
F1 14d 50°C	55.9%	37.8%	6.3%	7312
F2 14d 50°C				
F3 14d 50°C	51.4%	40.9%	7.7%	7967
F4 14d 50°C	81.9%	14.5%	3.6%	8513

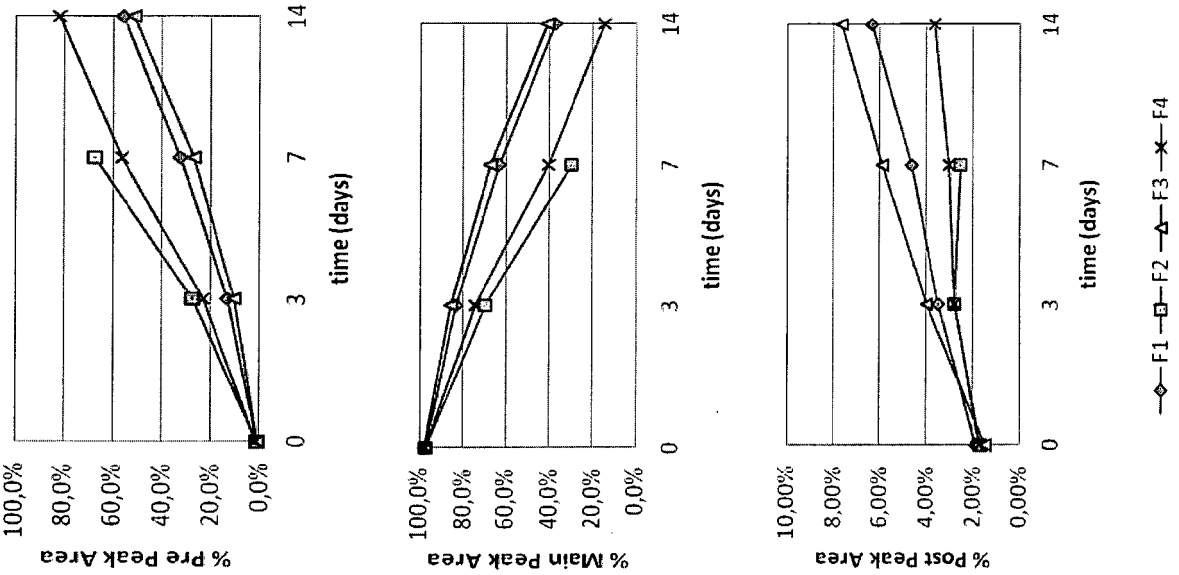


FIGURE 7D

3x FzTh and 3d agitation

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3x FzTh	0.7%	97.8%	1.5%	7919
F2 3x FzTh	1.0%	97.6%	1.5%	7912
F3 3x FzTh	0.8%	97.8%	1.4%	7848
F4 3x FzTh	0.9%	97.5%	1.6%	7261
F1 3d agitation	0.9%	97.5%	1.6%	7680
F2 3d agitation	1.0%	97.4%	1.6%	7722
F3 3d agitation	1.0%	97.5%	1.5%	7574
F4 3d agitation	0.9%	97.4%	1.7%	7131

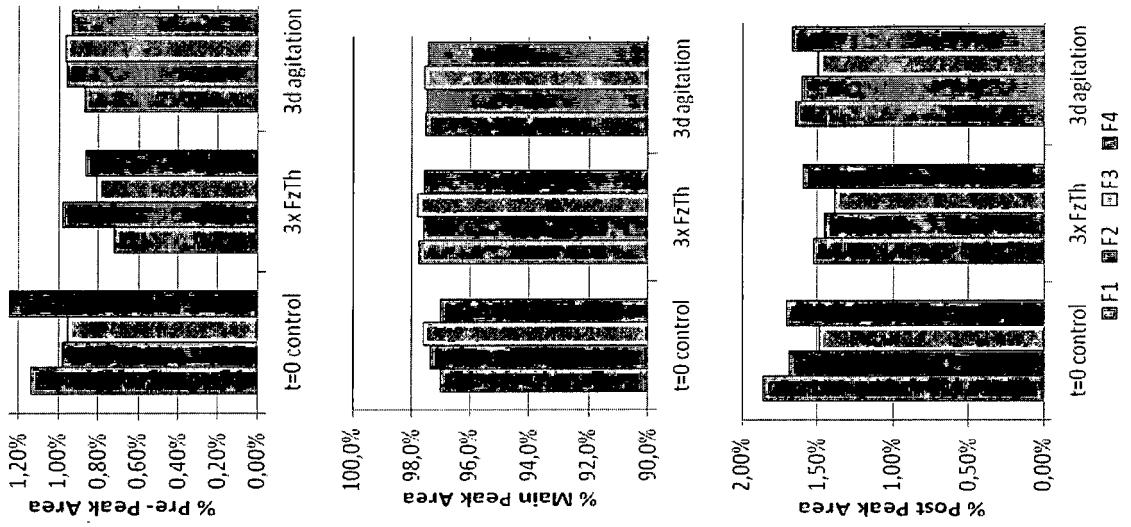


FIGURE 7E(1)

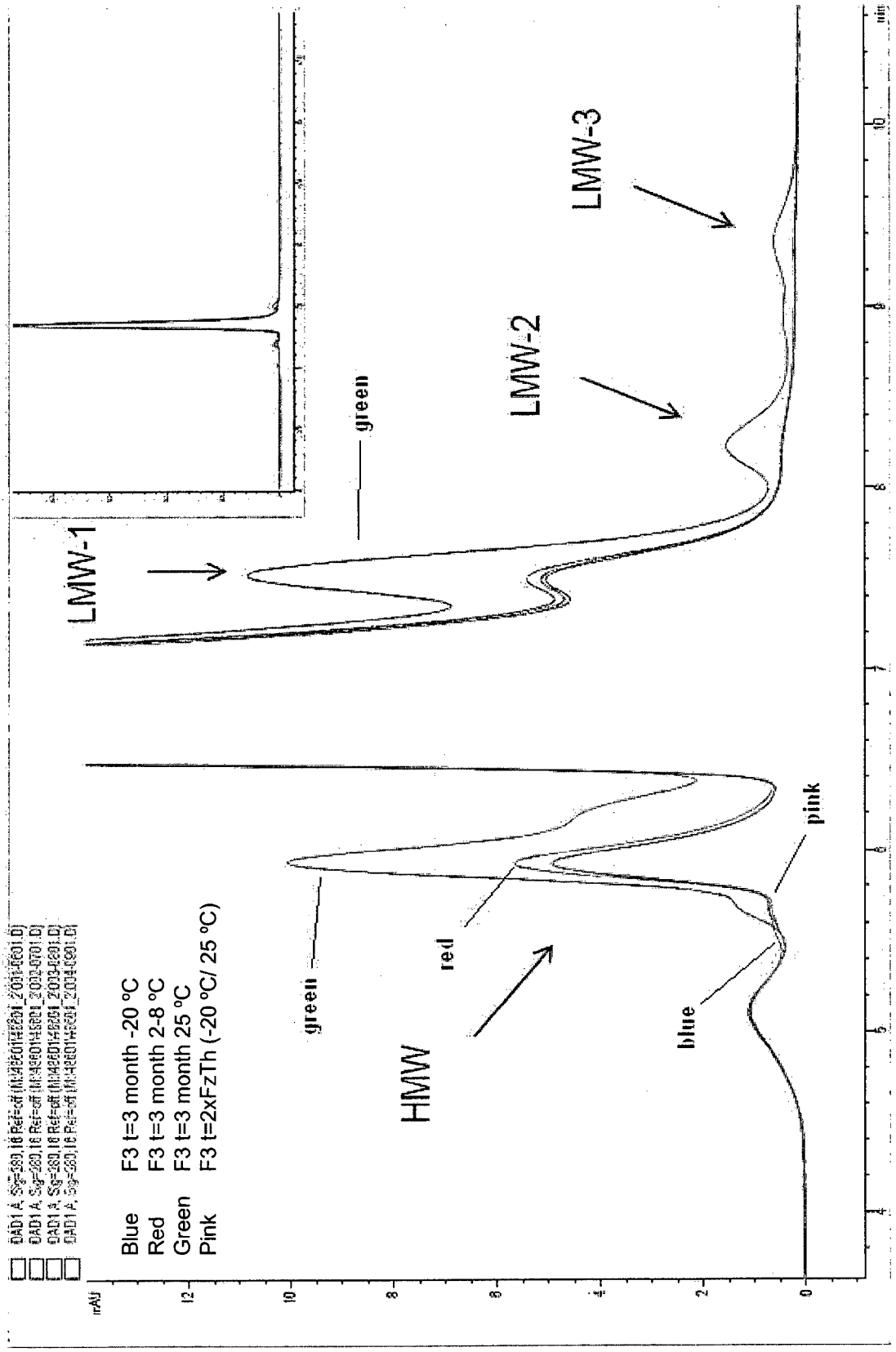

Blue F3 t=3 month -20 °C
Red F3 t=3 month 2-8 °C
Green F3 t=3 month 25 °C
Pink F3 t=2xFzTh (-20 °C/ 25 °C)
mAU
min
LMW-1
LMW-2
LMW-3
HMW
green
red
blue
pink

FIGURE 7E(2)

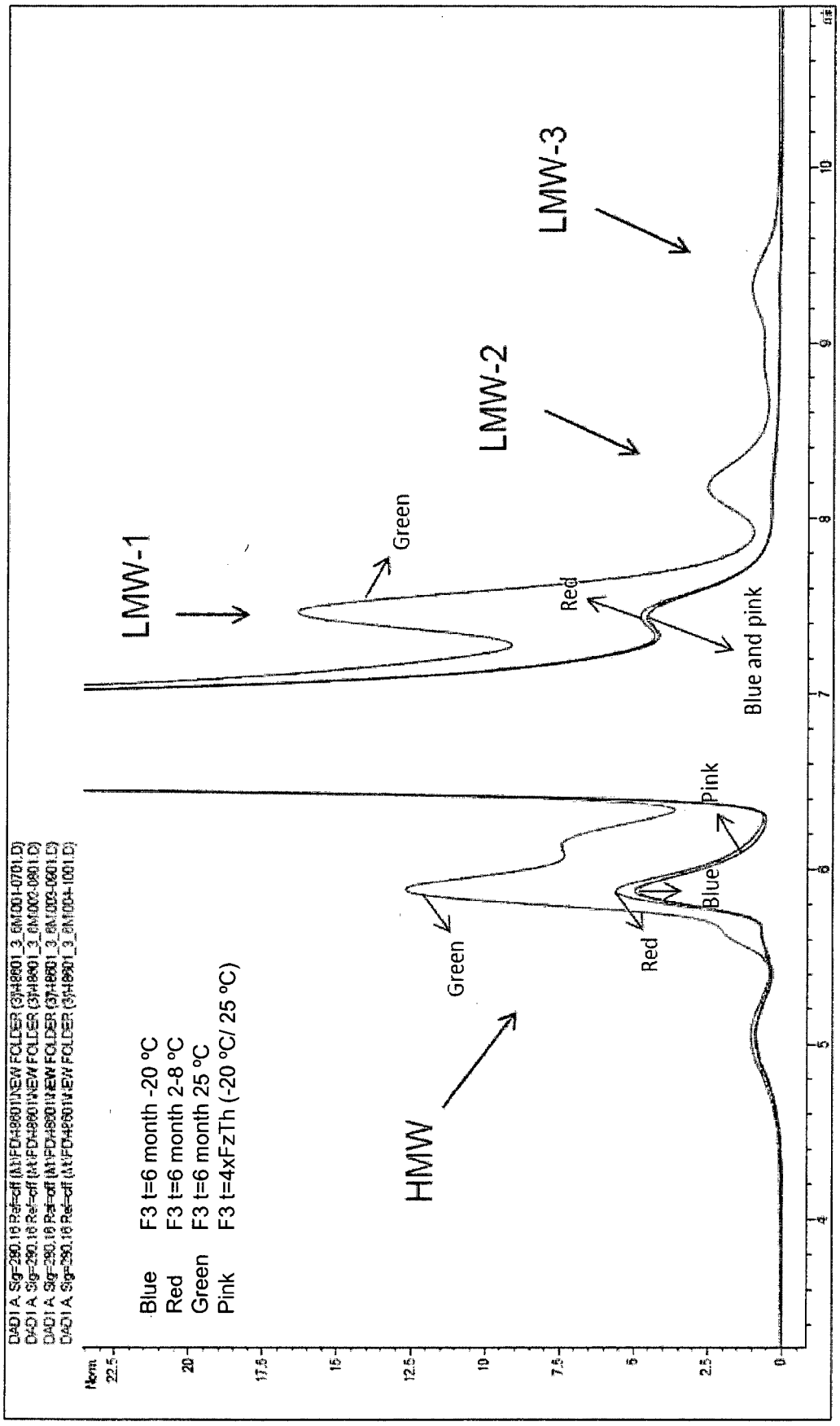

LMW-1
LMW-2
LMW-3
HMW
Green
Red
Blue and pink
Green
Red
Blue
Pink
Blue F3 t=6 month -20 °C
Red F3 t=6 month 2-8 °C
Green F3 t=6 month 25 °C
Pink F3 t=4xFzTh (-20 °C/ 25 °C)

FIGURE 7F

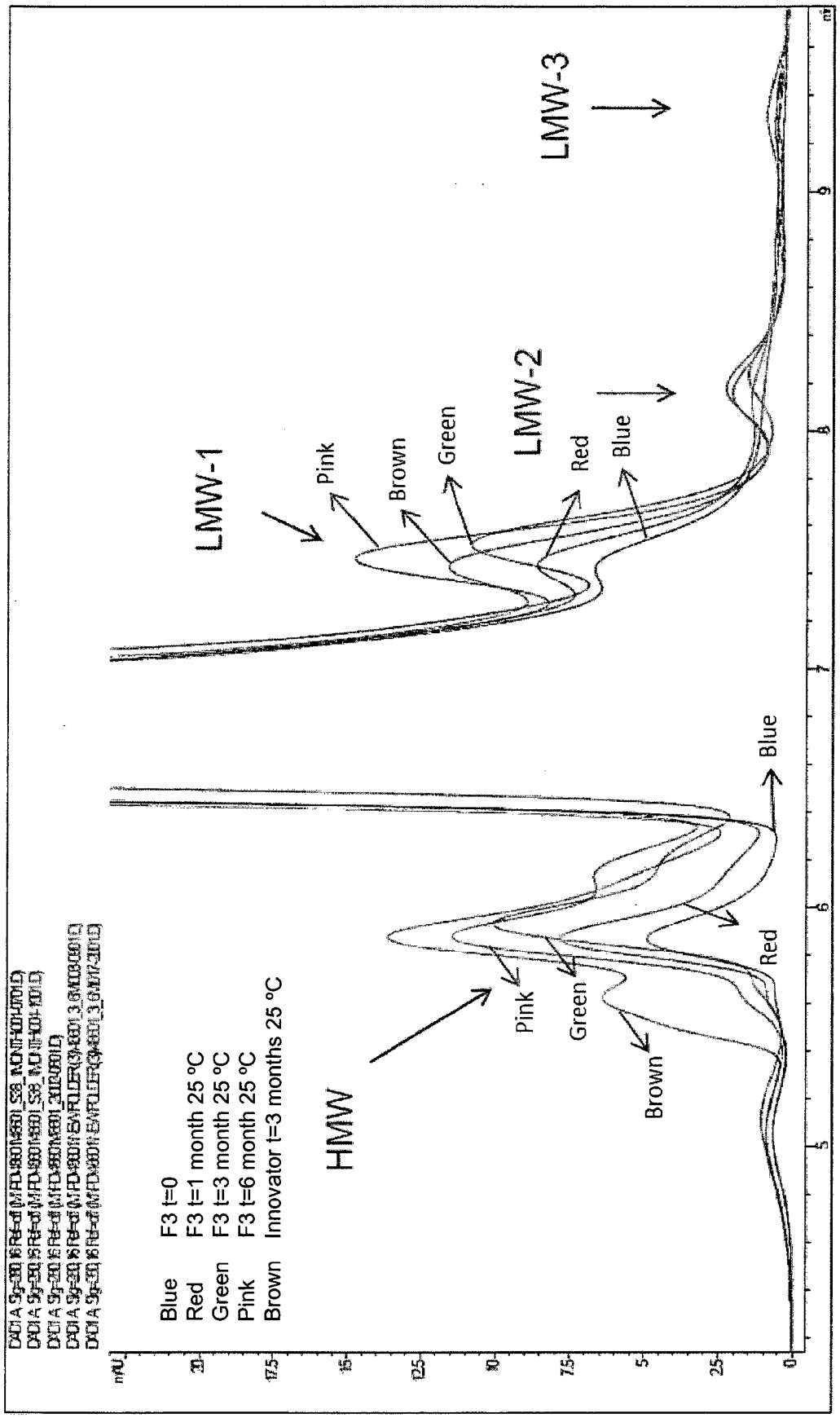

Blue F3 t=0
Red F3 t=1 month 25 °C
Green F3 t=3 month 25 °C
Pink F3 t=6 month 25 °C
Brown Innovator t=3 months 25 °C
mAU
HMW
Pink
Green
Brown
Red
Blue
LMW-1
Pink
Brown
Green
LMW-2
Red
Blue
LMW-3
min

FIGURE 7G(1)

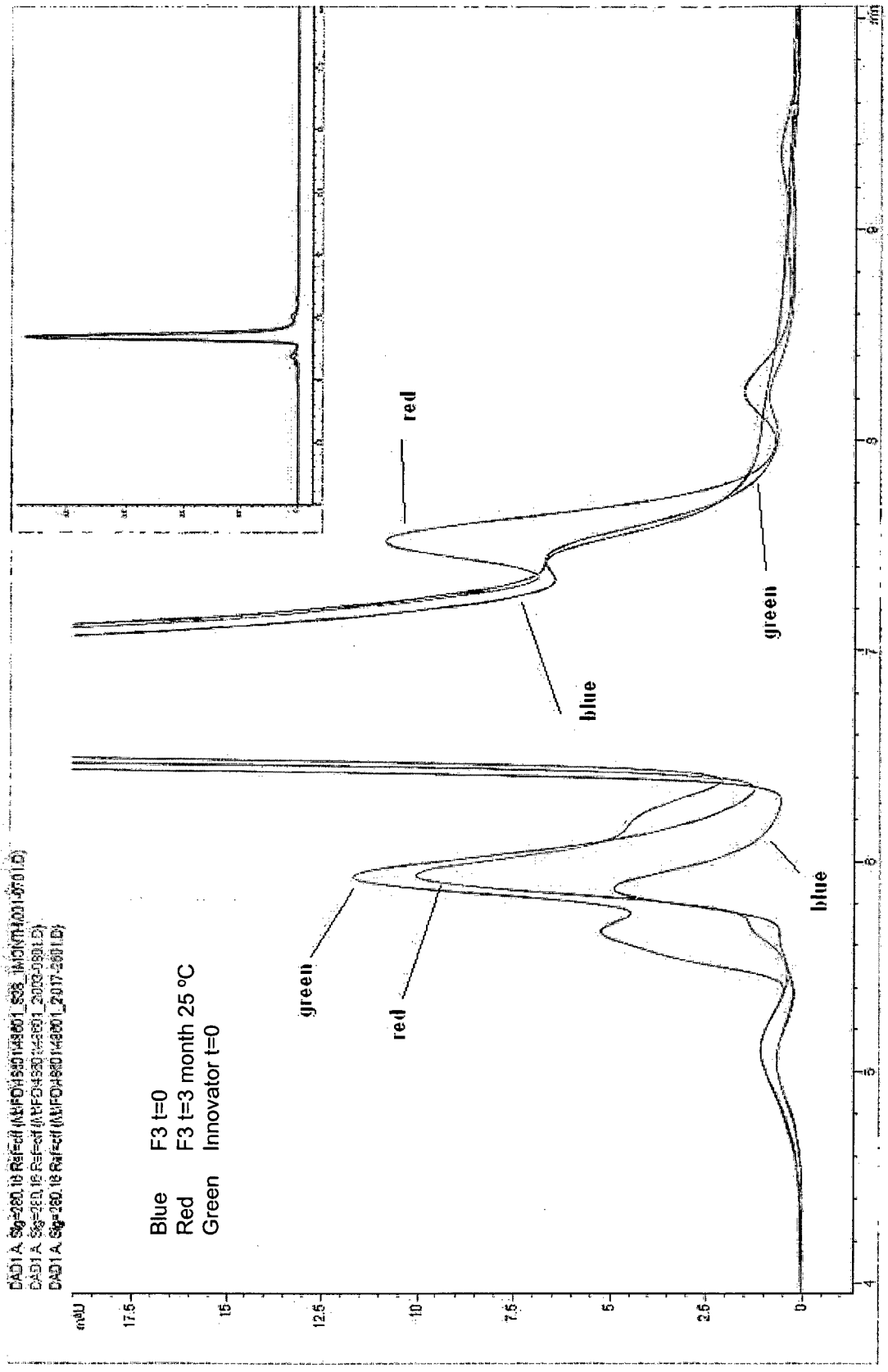

Blue F3 t=0
Red F3 t=3 month 25 °C
Green Innovator t=0
green
red
blue
red
green
blue
mAU
17.5
15
12.5
10
7.5
5
2.5
0
4
5
6
7
8
9
min

FIGURE 7G(2)

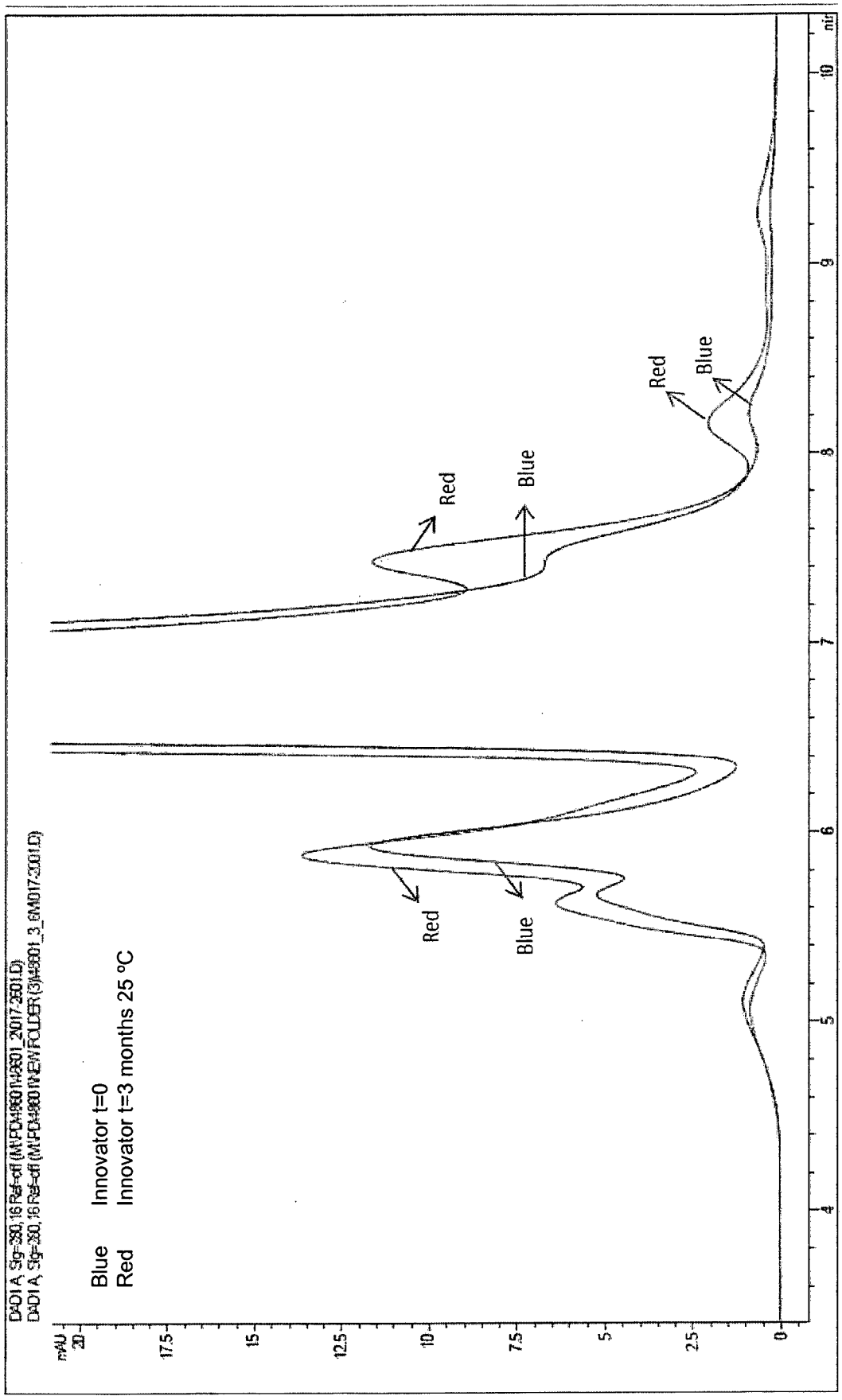
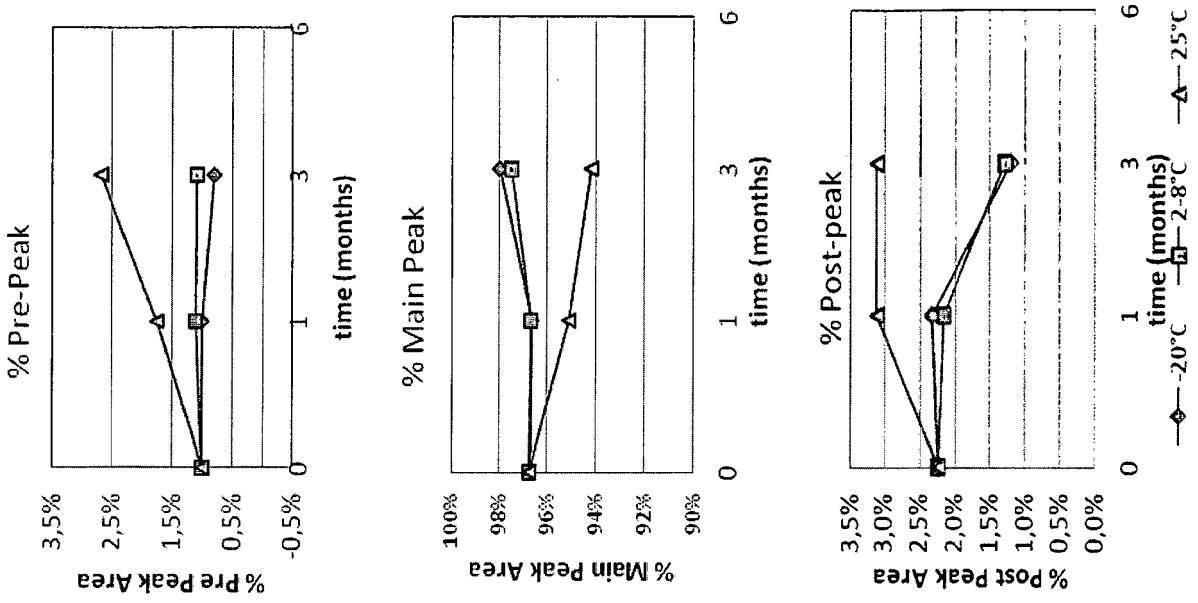

Blue Innovator t=0
Red Innovator t=3 months 25 °C
Red
Blue
Red
Blue
Red
Blue
mAU
min

FIGURE 7H



Formulation	Condition	Time Point (months)	Peak Percentage (%)			Total Peak Area
			Pre peak	Main peak	Post peak	
F3	t=0	0	1.0%	96.7%	2.2%	7754
	-20°C	1	1.0%	96.7%	2.3%	7822
		3	0.8%	98.0%	1.2%	7648
		6				
	2-8°C	1	1.1%	96.7%	2.2%	7776
		3	1.1%	97.5%	1.3%	8117
		6				
	25°C	1	1.8%	95.1%	3.1%	7765
		3	2.7%	94.2%	3.2%	7655
		6				
	Fz Th (-20°C/25°C)	1x cycle	1.2%	96.5%	2.4%	7917
		2x cycle	0.8%	98.1%	1.1%	7804
		4x cycle				

FIGURE 7I

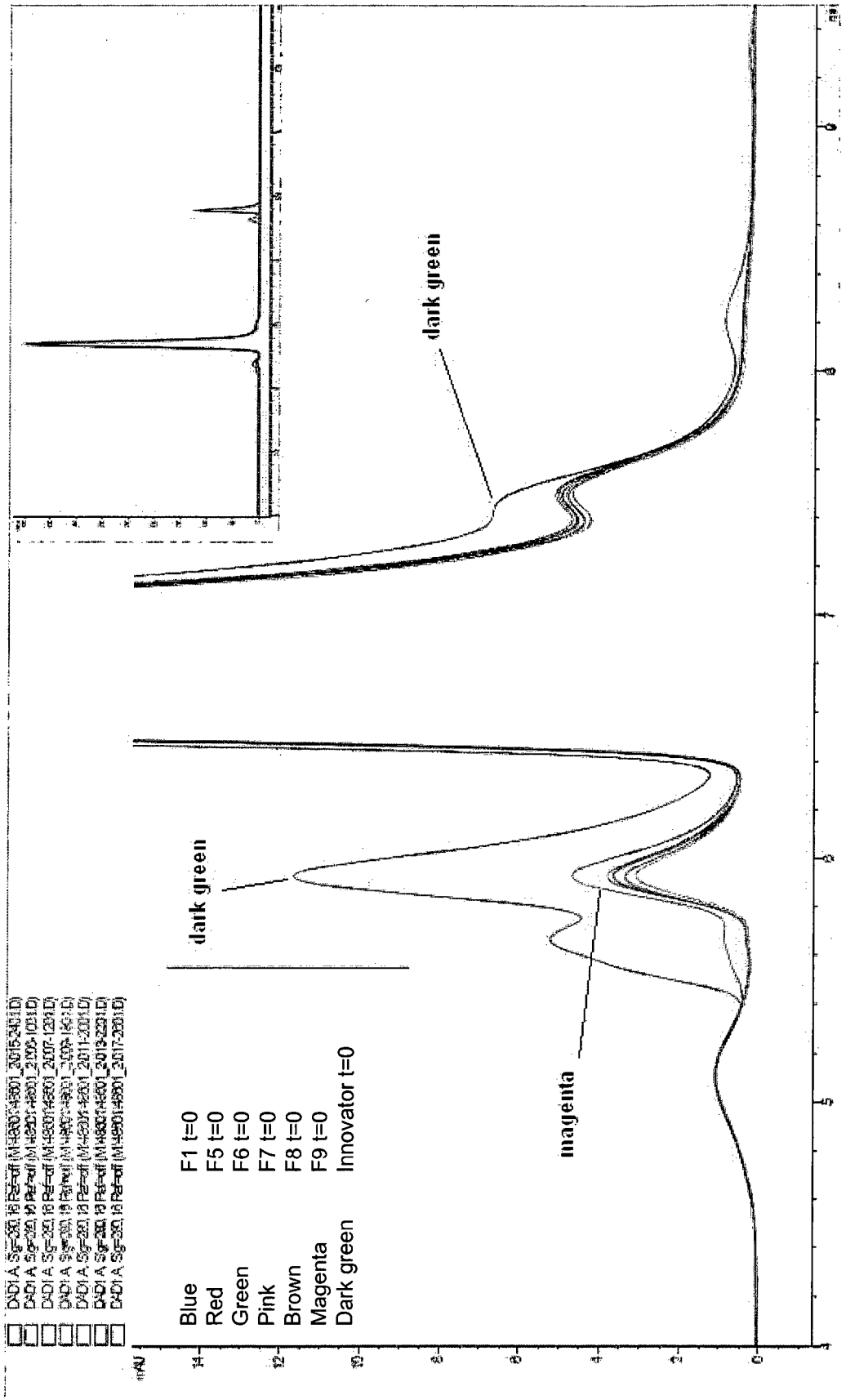

Blue F1 t=0
Red F5 t=0
Green F6 t=0
Pink F7 t=0
Brown F8 t=0
Magenta F9 t=0
Dark green Innovator t=0
dark green
magenta
dark green

FIGURE 7J

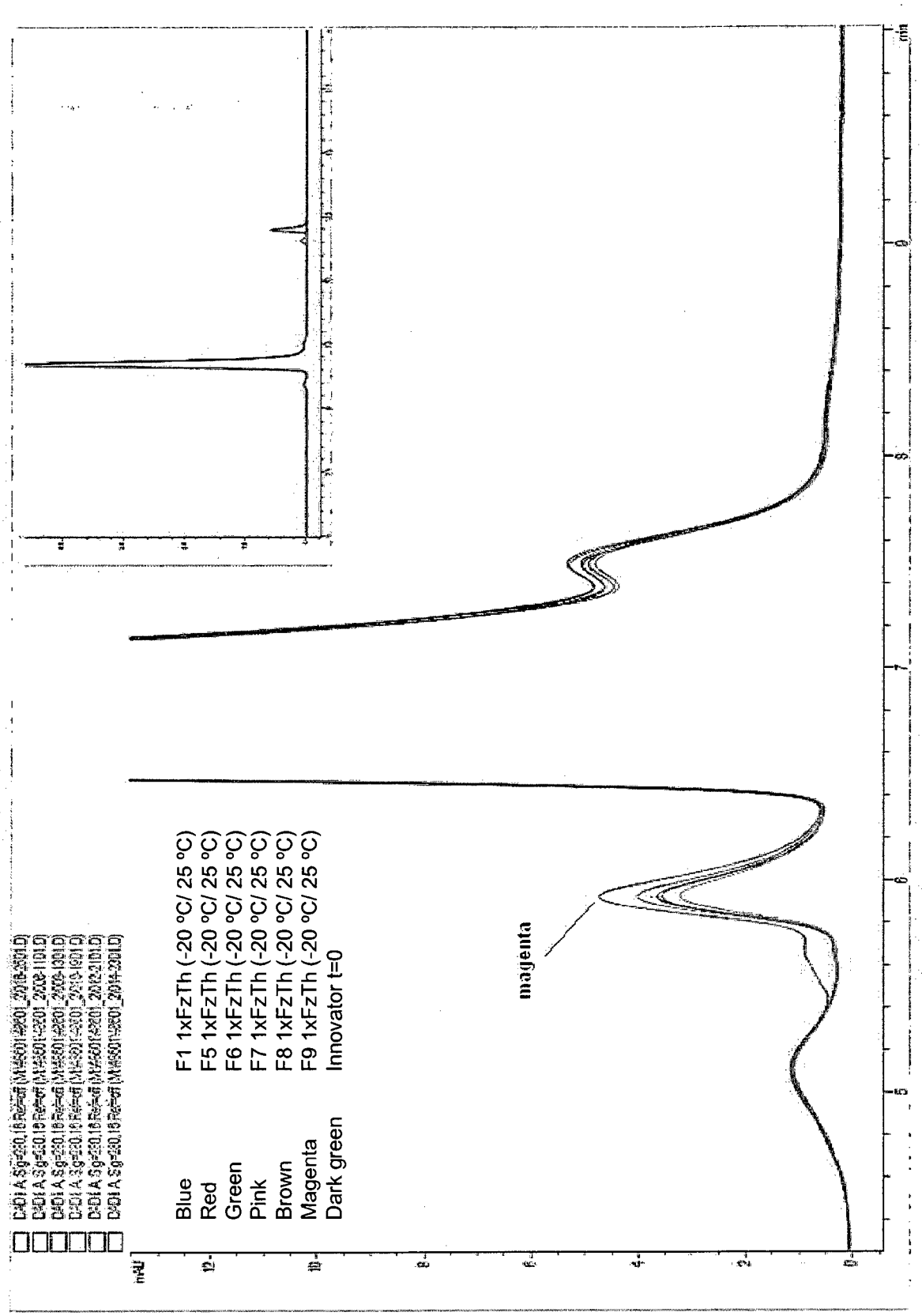

Blue F1 1xFzTh (-20 °C/ 25 °C)
Red F5 1xFzTh (-20 °C/ 25 °C)
Green F6 1xFzTh (-20 °C/ 25 °C)
Pink F7 1xFzTh (-20 °C/ 25 °C)
Brown F8 1xFzTh (-20 °C/ 25 °C)
Magenta F9 1xFzTh (-20 °C/ 25 °C)
Dark green Innovator t=0
magenta
mAU
min

FIGURE 7K(1)

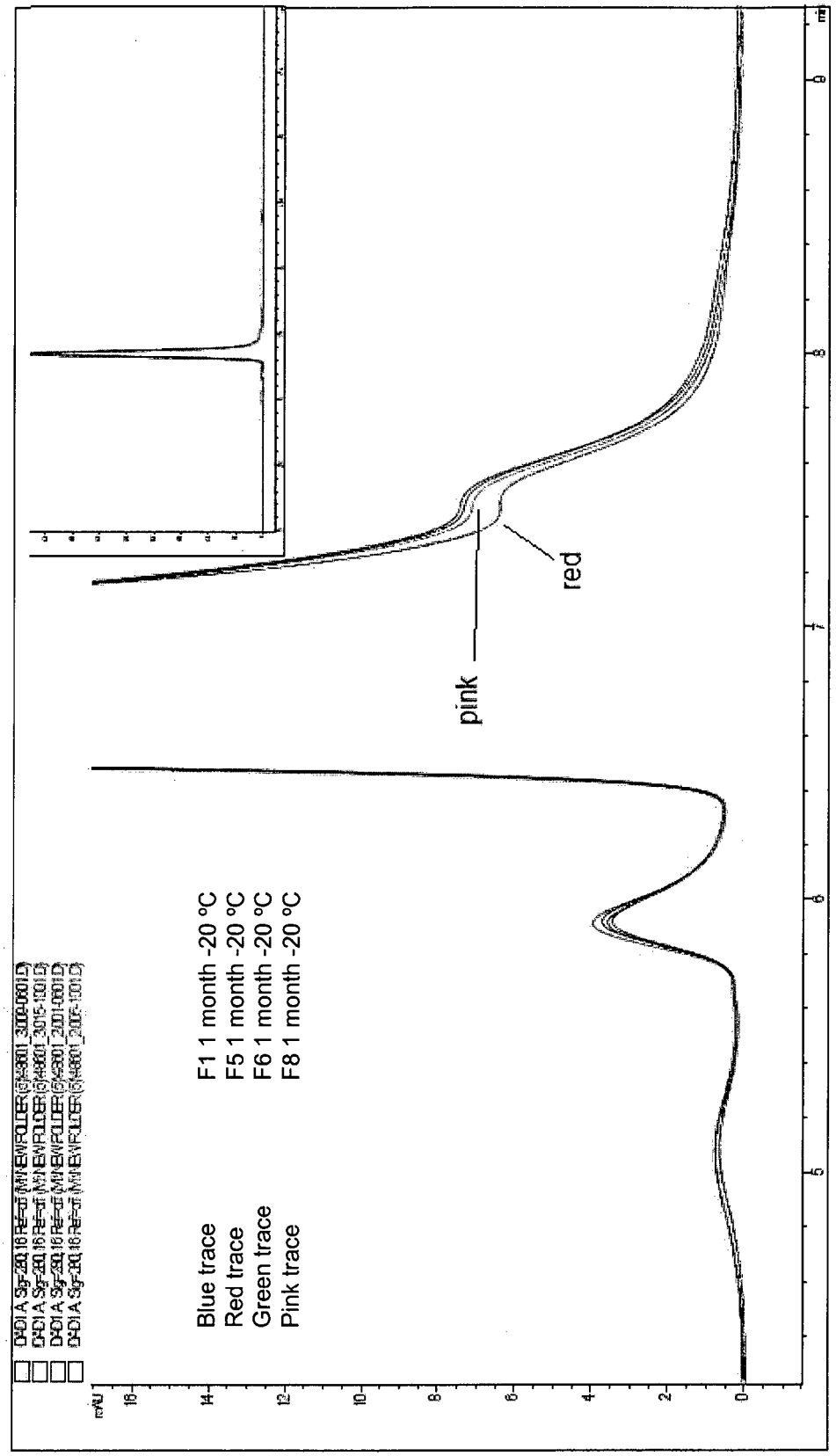

Blue trace
Red trace
Green trace
Pink trace
F1 1 month -20 °C
F5 1 month -20 °C
F6 1 month -20 °C
F8 1 month -20 °C
pink
red
mAU
min

FIGURE 7K(2)

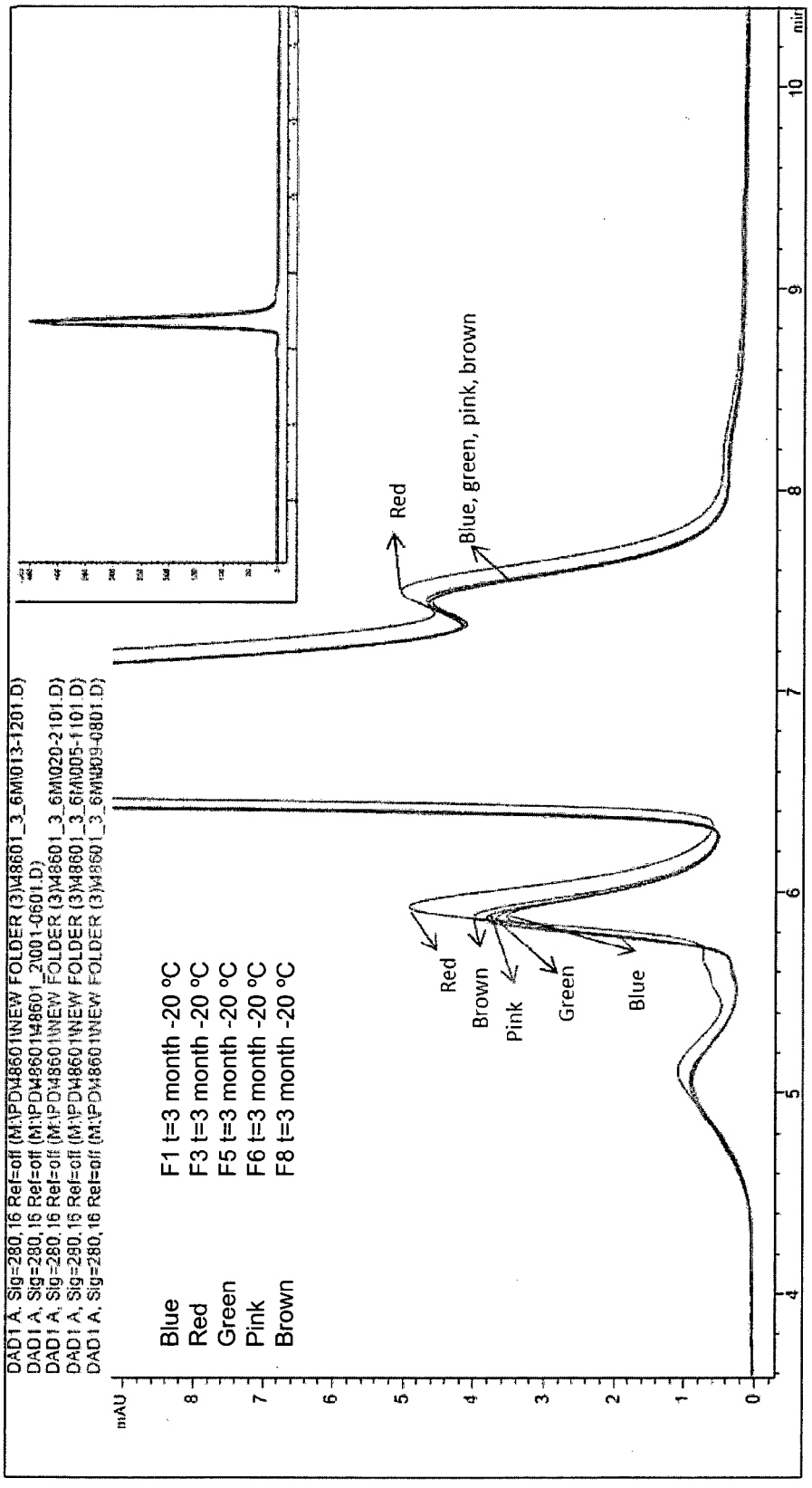

DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M\013-1201.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\48601_2001-0601.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M\020-2101.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M\005-1101.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M\009-0801.D)
Blue F1 t=3 month -20 °C
Red F3 t=3 month -20 °C
Green F5 t=3 month -20 °C
Pink F6 t=3 month -20 °C
Brown F8 t=3 month -20 °C
mAU
Red
Blue, green, pink, brown
Red
Brown
Pink
Green
Blue
min

FIGURE 7L(1)

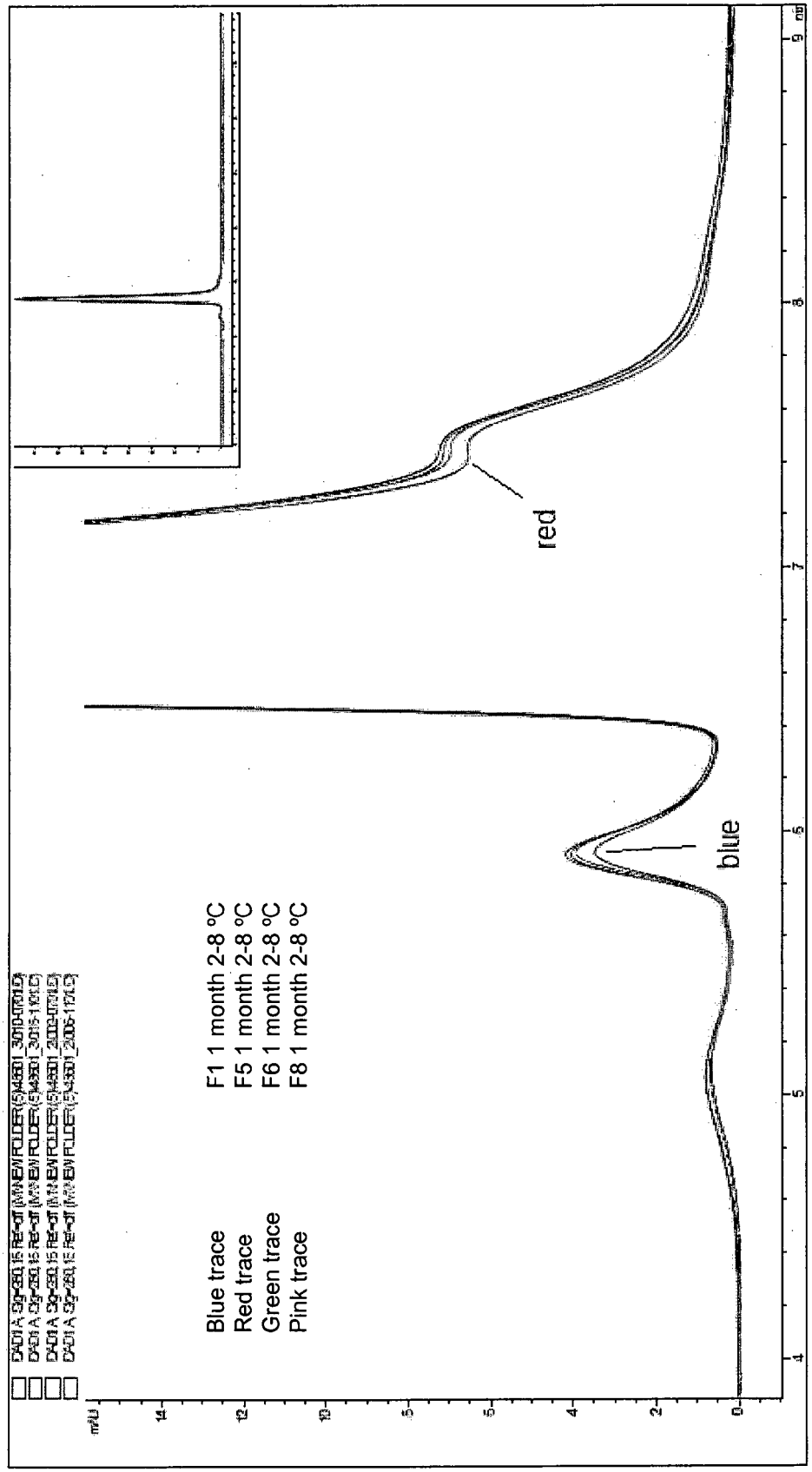

Blue trace
Red trace
Green trace
Pink trace
F1 1 month 2-8 °C
F5 1 month 2-8 °C
F6 1 month 2-8 °C
F8 1 month 2-8 °C
blue
red
mAU
min

FIGURE 7L(2)

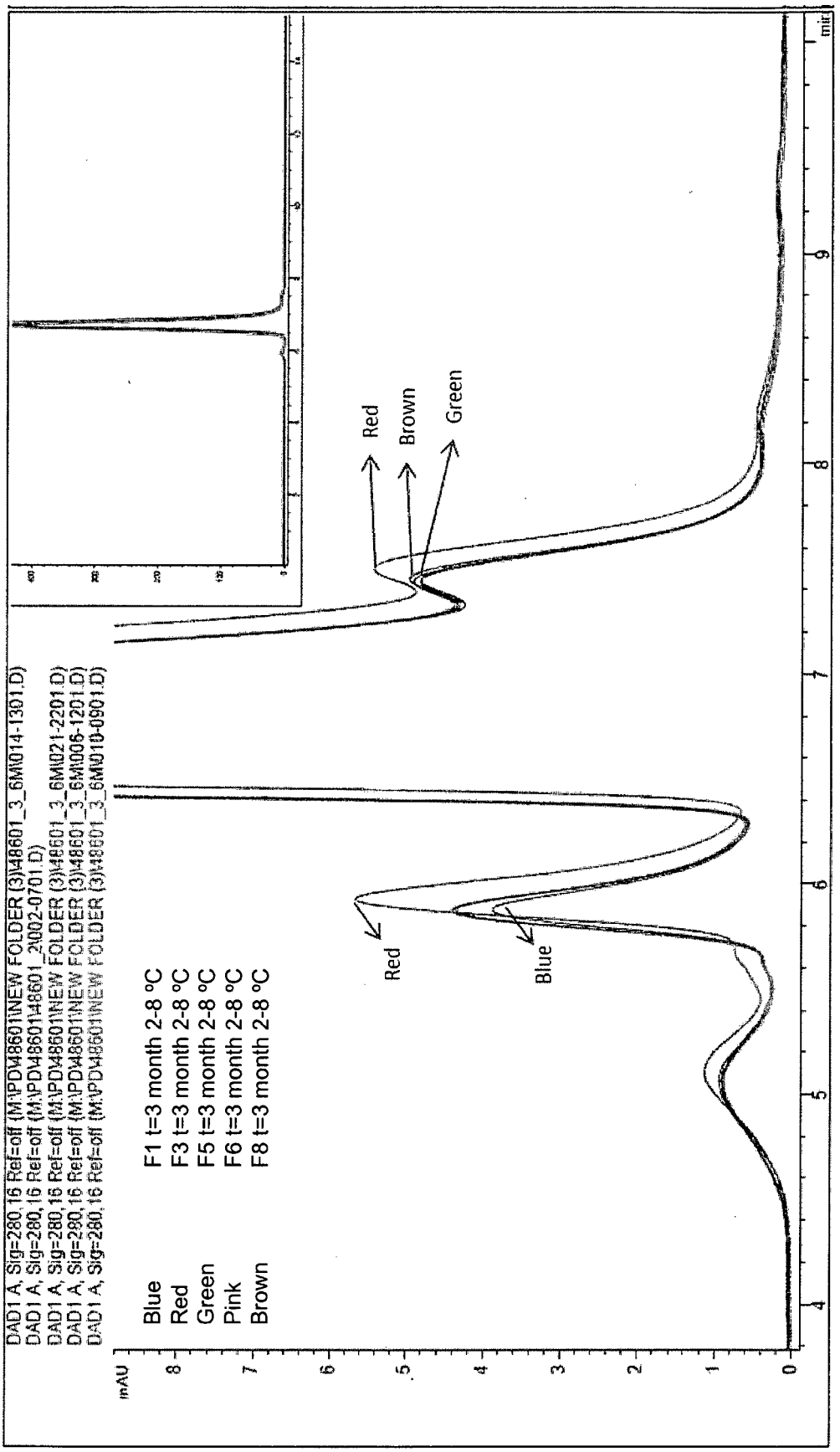

DAD1 A, Sig=280,16 Ref=off (M:\PD48601\NEW FOLDER (3)\48601_3_6M014-1301.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD48601\48601_2002-0701.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD48601\NEW FOLDER (3)\48601_3_6M021-2201.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD48601\NEW FOLDER (3)\48601_3_6M006-1201.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD48601\NEW FOLDER (3)\48601_3_6M010-0901.D)
Blue F1 t=3 month 2-8 °C
Red F3 t=3 month 2-8 °C
Green F5 t=3 month 2-8 °C
Pink F6 t=3 month 2-8 °C
Brown F8 t=3 month 2-8 °C
mAU
min
Red
Blue
Red
Brown
Green

FIGURE 7M(1)

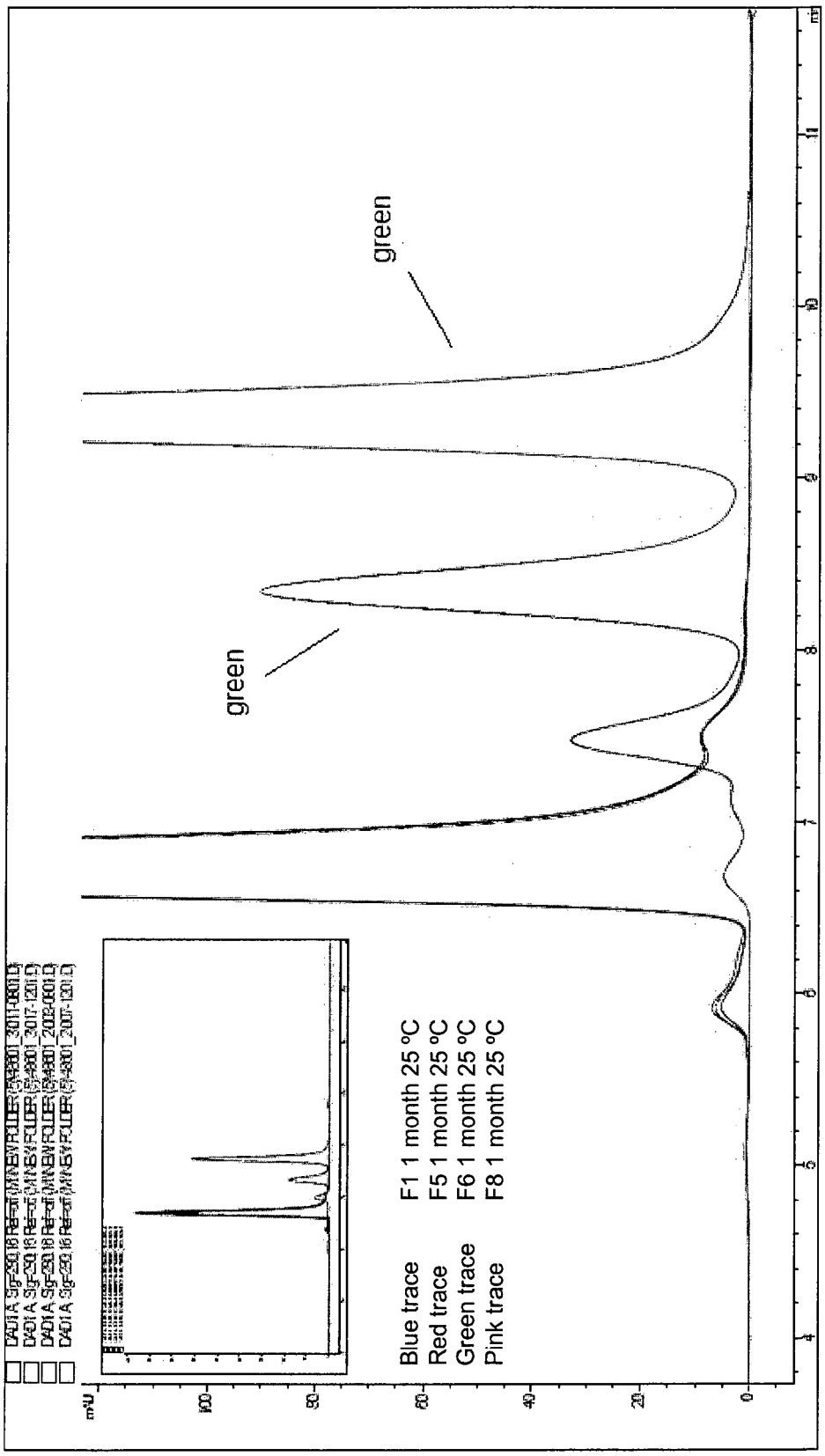

green
green
Blue trace F1 1 month 25 °C
Red trace F5 1 month 25 °C
Green trace F6 1 month 25 °C
Pink trace F8 1 month 25 °C
mAU

FIGURE 7M(2)

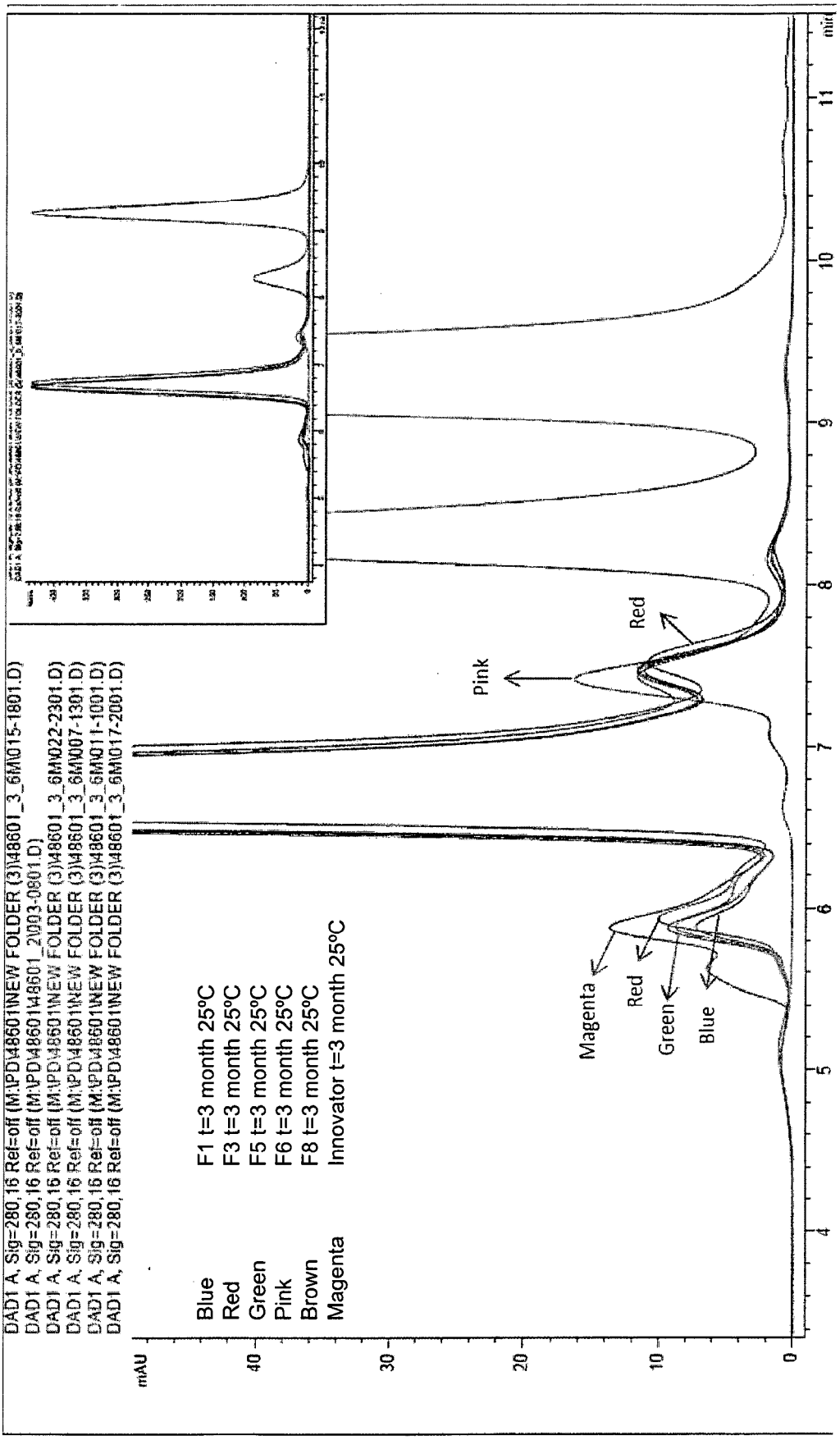

DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1015-1801.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\48601_2\003-0601.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1022-2301.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1007-1301.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1011-1001.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1017-2001.D)
mAU
Blue F1 t=3 month 25°C
Red F3 t=3 month 25°C
Green F5 t=3 month 25°C
Pink F6 t=3 month 25°C
Brown F8 t=3 month 25°C
Magenta Innovator t=3 month 25°C
Pink
Red
Magenta
Red
Green
Blue
min

FIGURE 7N(1)

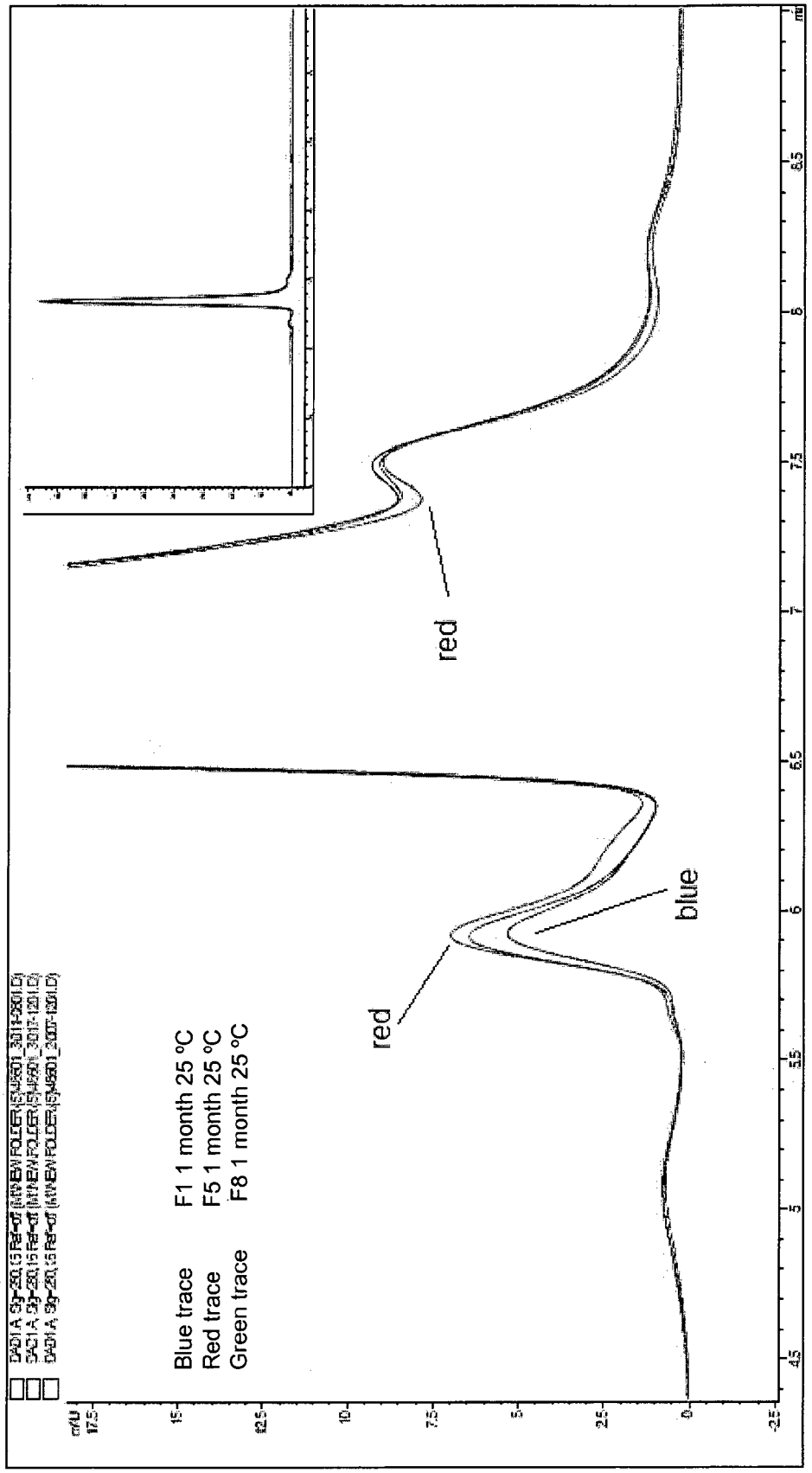

Blue trace F1 1 month 25 °C
Red trace F5 1 month 25 °C
Green trace F8 1 month 25 °C
red
blue
red
mAU
min

FIGURE 7N(2)

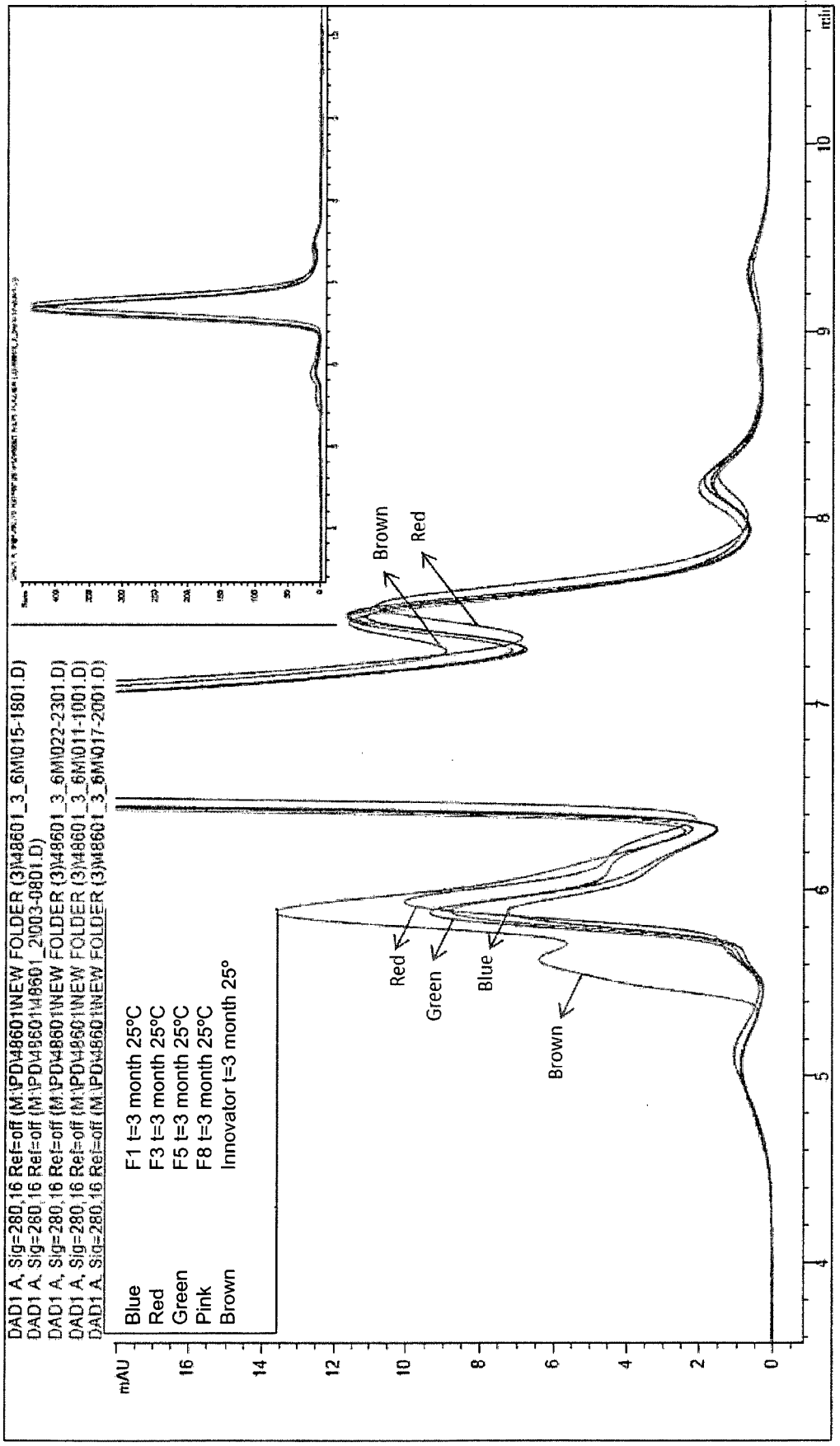

DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1015-1801.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\48601_2003-0801.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1022-2301.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1011-1001.D)
DAD1 A, Sig=280,16 Ref=off (M:\PD\48601\NEW FOLDER (3)\48601_3_6M1017-2001.D)
mAU
Blue
Red
Green
Pink
Brown
F1 t=3 month 25°C
F3 t=3 month 25°C
F5 t=3 month 25°C
F8 t=3 month 25°C
Innovator t=3 month 25°
Red
Green
Blue
Brown
Brown
Red
min

FIGURE 7O

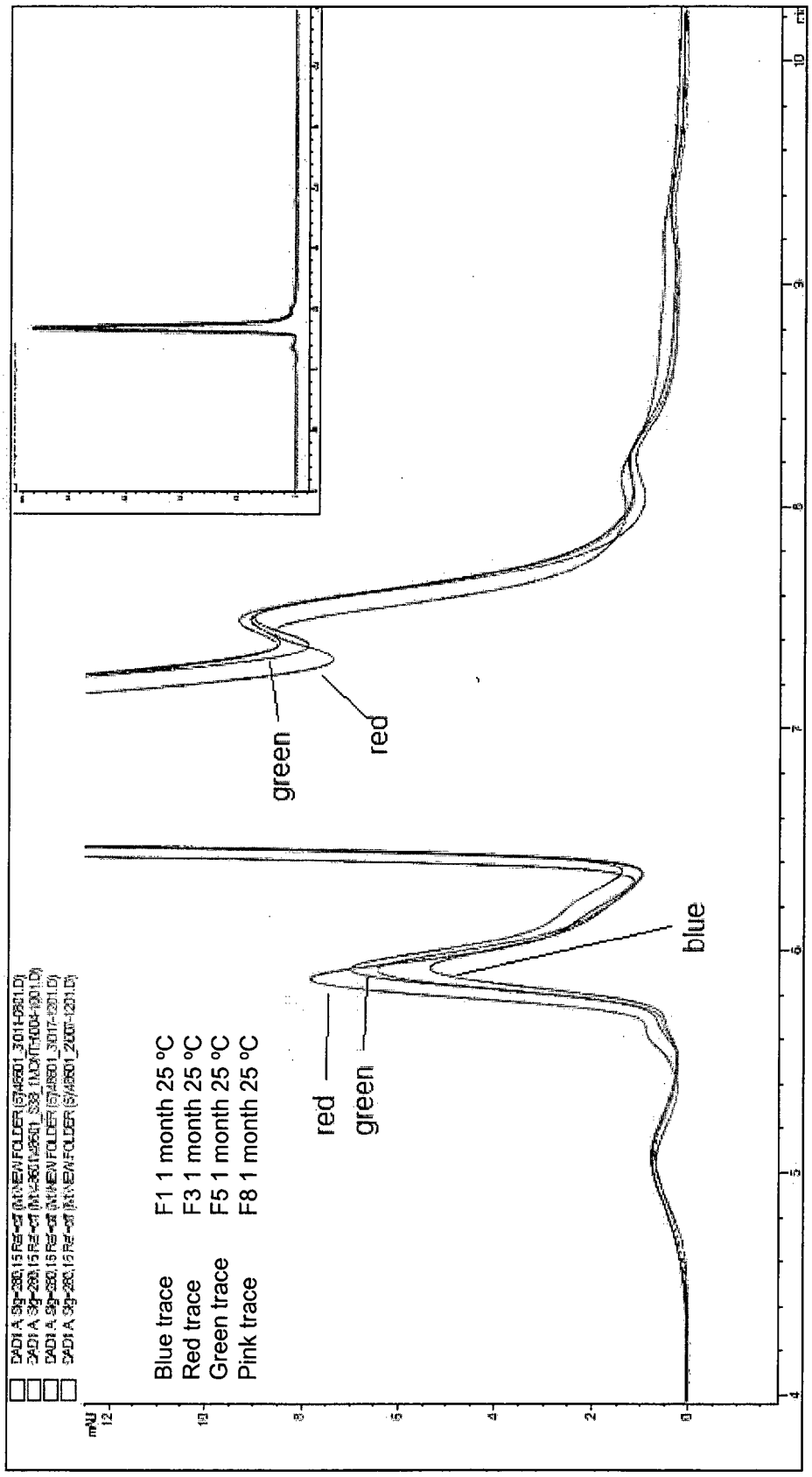

Blue trace F1 1 month 25 °C
Red trace F3 1 month 25 °C
Green trace F5 1 month 25 °C
Pink trace F8 1 month 25 °C
green
red
red
green
blue
mAU
min

FIGURE 7P

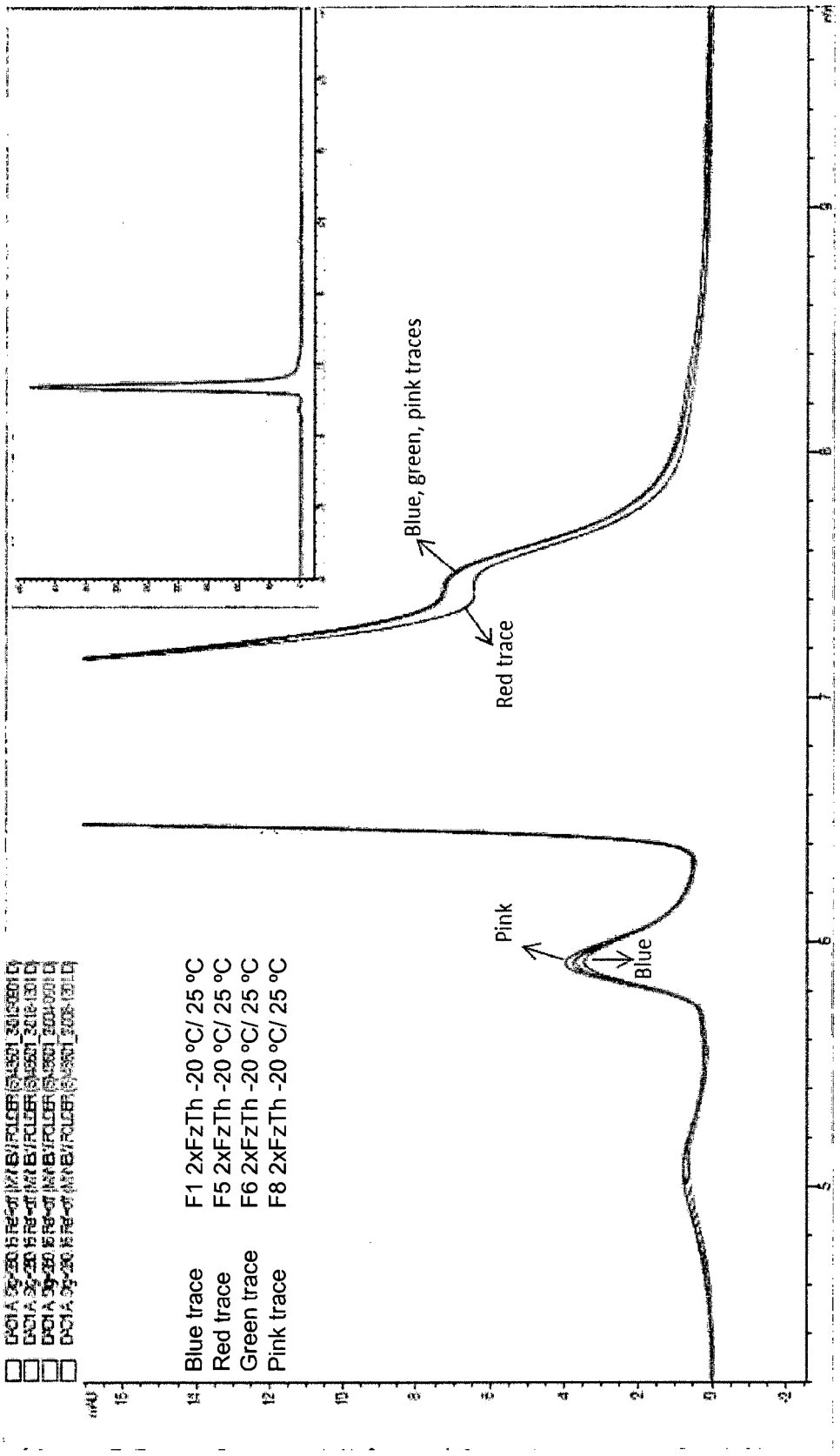

Blue trace F1 2xFzTh -20 °C/ 25 °C
Red trace F5 2xFzTh -20 °C/ 25 °C
Green trace F6 2xFzTh -20 °C/ 25 °C
Pink trace F8 2xFzTh -20 °C/ 25 °C
Blue, green, pink traces
Red trace
Pink
Blue

FIGURE 7Q

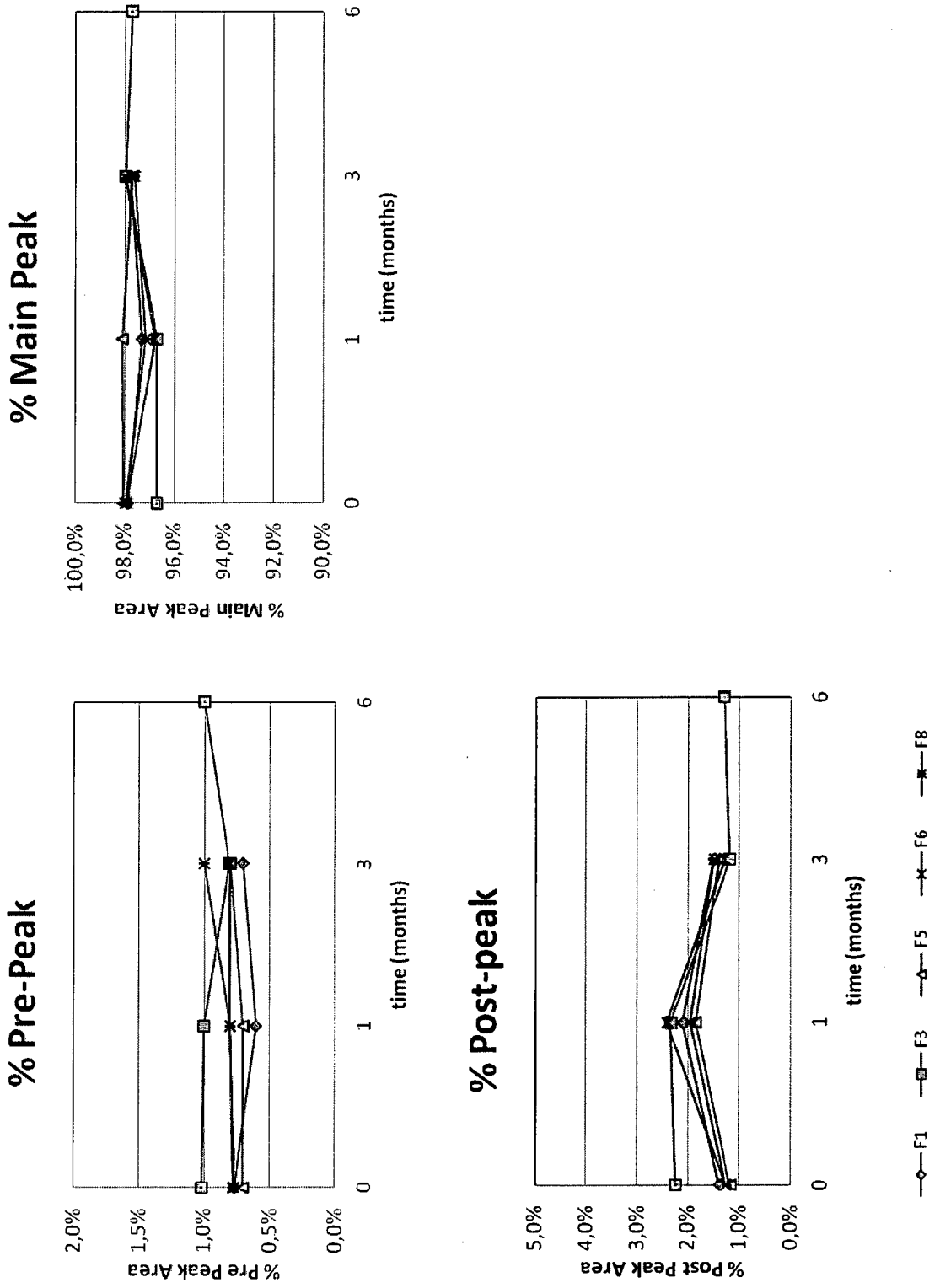

% Main Peak
% Main Peak Area
100,0%
98,0%
96,0%
94,0%
92,0%
90,0%
0
1
3
6
time (months)
% Pre-Peak
% Pre Peak Area
2,0%
1,5%
1,0%
0,5%
0,0%
% Post-peak
% Post Peak Area
5,0%
4,0%
3,0%
2,0%
1,0%
0,0%
F1
F3
F5
F6
F8

FIGURE 7R

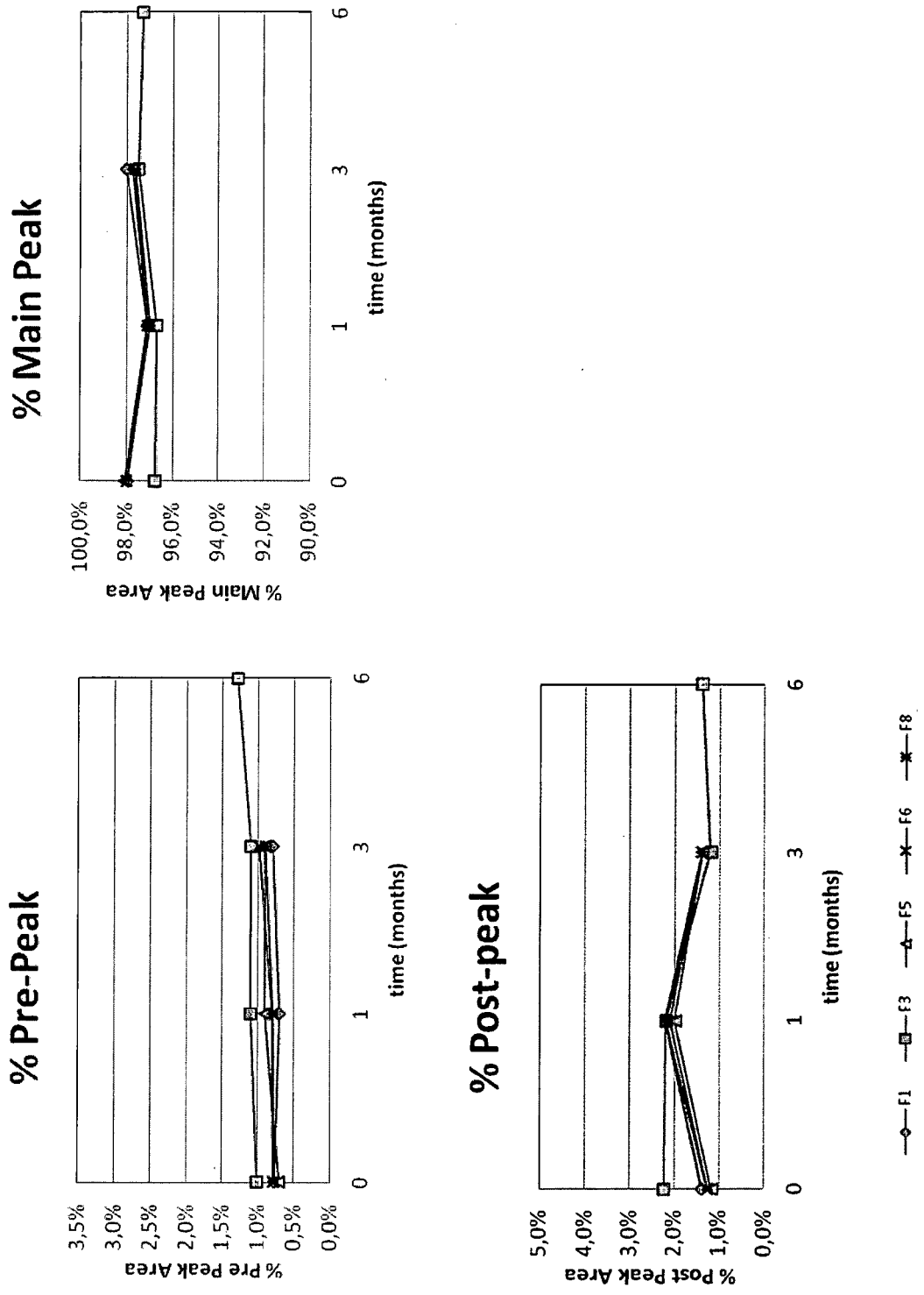

% Main Peak
% Main Peak Area
100,0%
98,0%
96,0%
94,0%
92,0%
90,0%
0
1
3
6
time (months)
% Pre-Peak
% Pre Peak Area
3,5%
3,0%
2,5%
2,0%
1,5%
1,0%
0,5%
0,0%
0
1
3
6
time (months)
% Post-peak
% Post Peak Area
5,0%
4,0%
3,0%
2,0%
1,0%
0,0%
0
1
3
6
time (months)
F1
F3
F5
F6
F8

FIGURE 7S

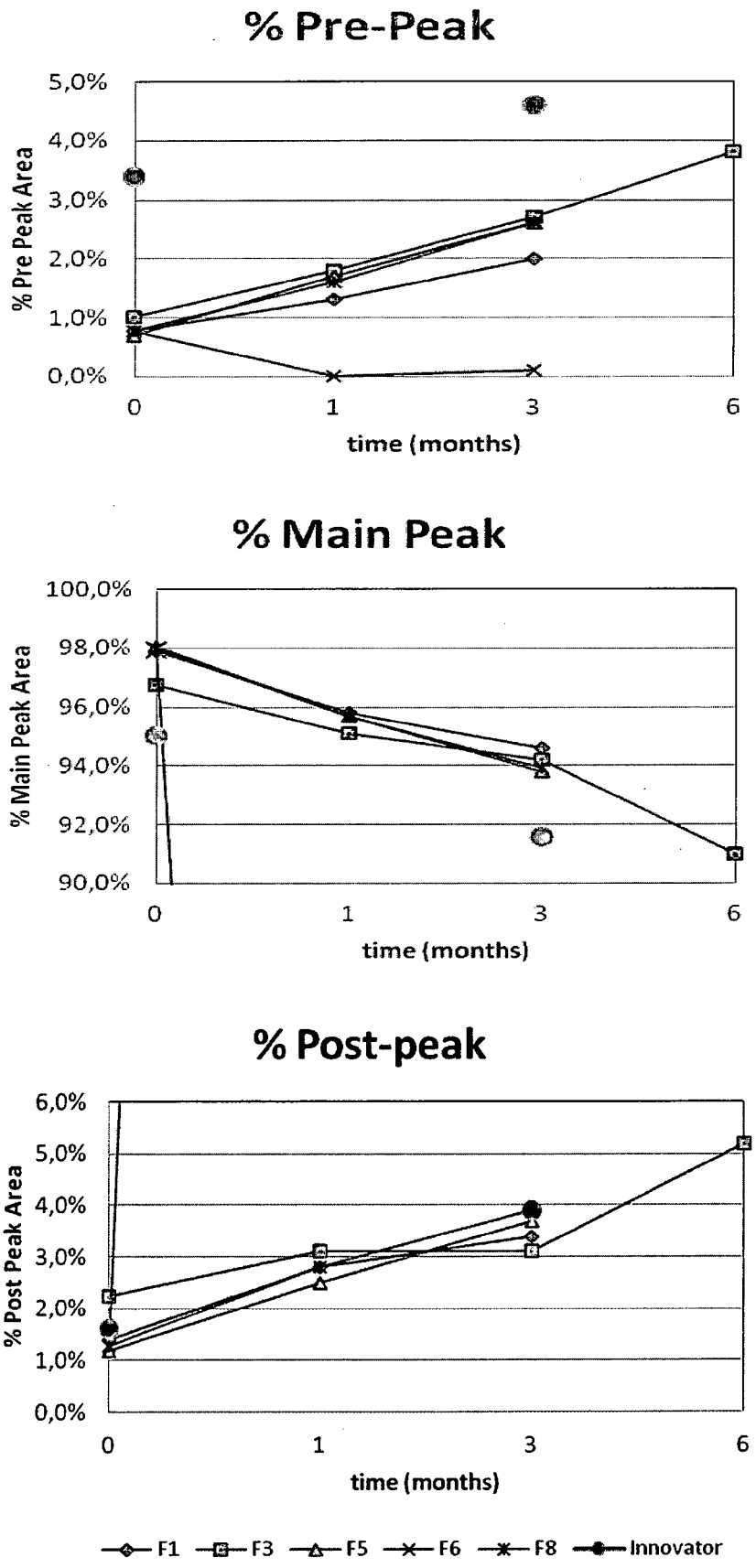

% Pre-Peak
5,0%
4,0%
3,0%
2,0%
1,0%
0,0%
% Pre Peak Area
0
1
3
6
time (months)
% Main Peak
100,0%
98,0%
96,0%
94,0%
92,0%
90,0%
% Main Peak Area
0
1
3
6
time (months)
% Post-peak
6,0%
5,0%
4,0%
3,0%
2,0%
1,0%
0,0%
% Post Peak Area
0
1
3
6
time (months)
F1
F3
F5
F6
F8
Innovator

FIGURE 7T

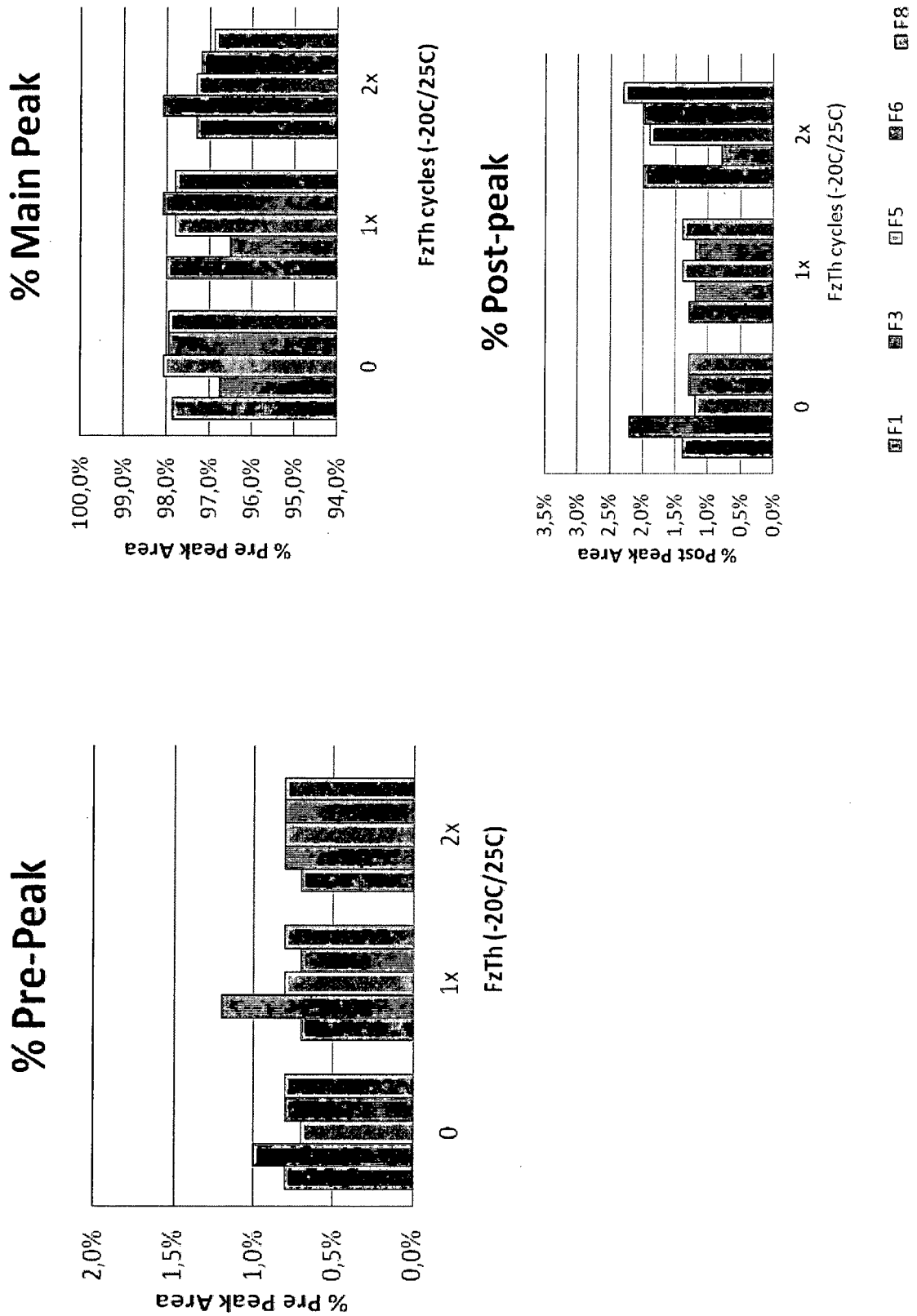

% Main Peak
% Pre Peak Area
100,0%
99,0%
98,0%
97,0%
96,0%
95,0%
94,0%
0
1x
2x
FzTh cycles (-20C/25C)
% Post-peak
% Post Peak Area
3,5%
3,0%
2,5%
2,0%
1,5%
1,0%
0,5%
0,0%
F1
F3
F5
F6
F8
% Pre-Peak
% Pre Peak Area
2,0%
1,5%
1,0%
0,5%
0,0%
FzTh (-20C/25C)

FIGURE 7U

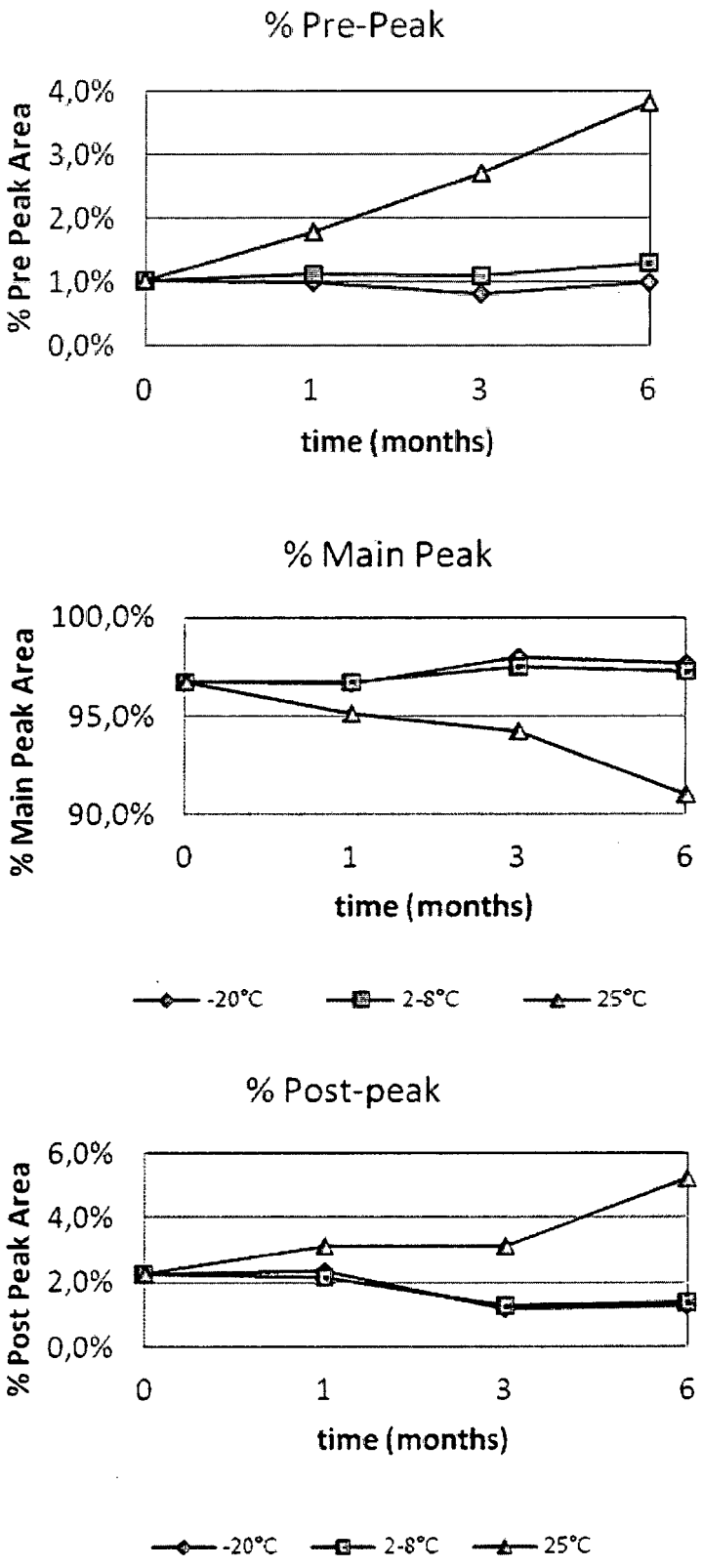
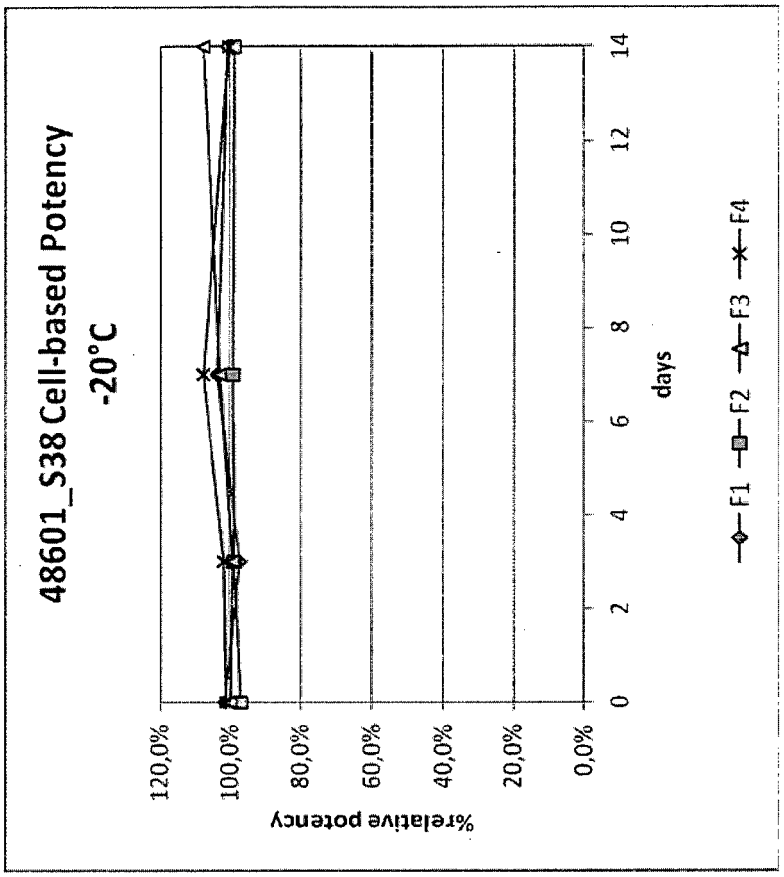
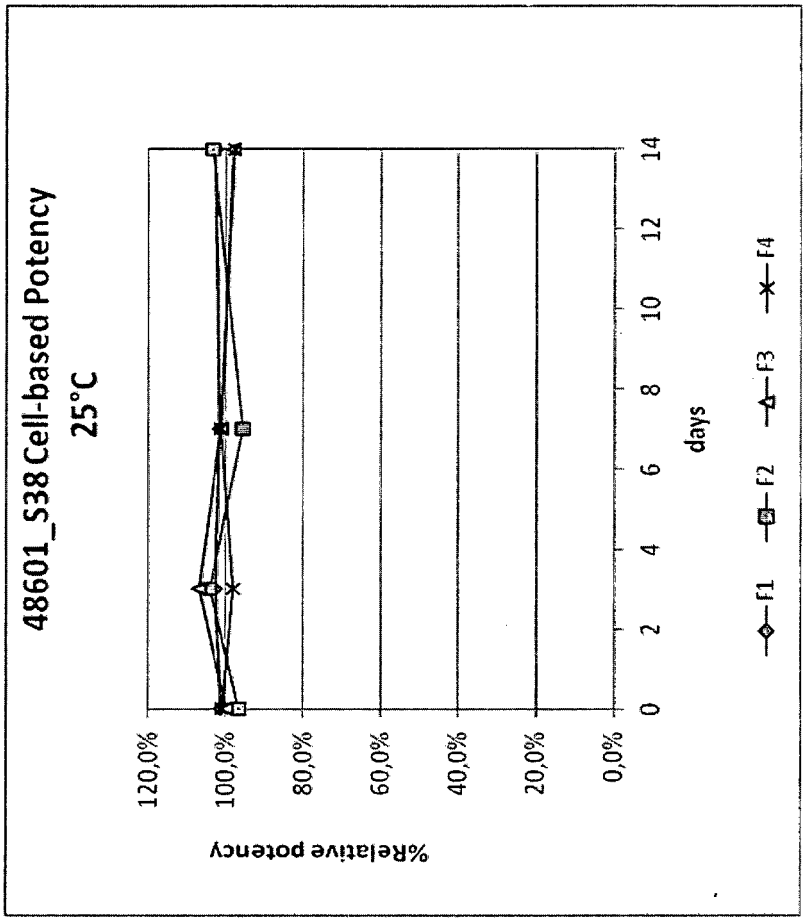

% Pre-Peak
% Pre Peak Area
4,0%
3,0%
2,0%
1,0%
0,0%
0
1
3
6
time (months)
% Main Peak
% Main Peak Area
100,0%
95,0%
90,0%
0
1
3
6
time (months)
-20°C
2-8°C
25°C
% Post-peak
% Post Peak Area
6,0%
4,0%
2,0%
0,0%
0
1
3
6
time (months)
-20°C
2-8°C
25°C

FIGURE 8A



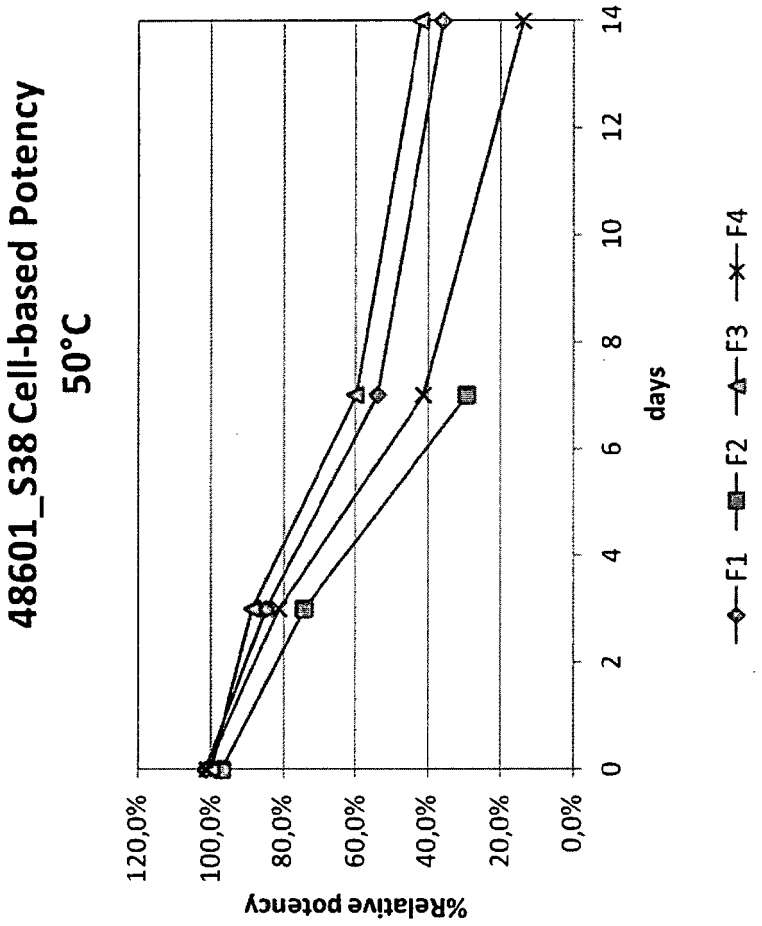
Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3d -20°C	97.3%	98.8%	99.2%	101.6%
7d -20°C	103.7%	99.3%	102.9%	107.9%
14d -20°C	100.7%	98.9%	107.9%	100.1%

FIGURE 8B



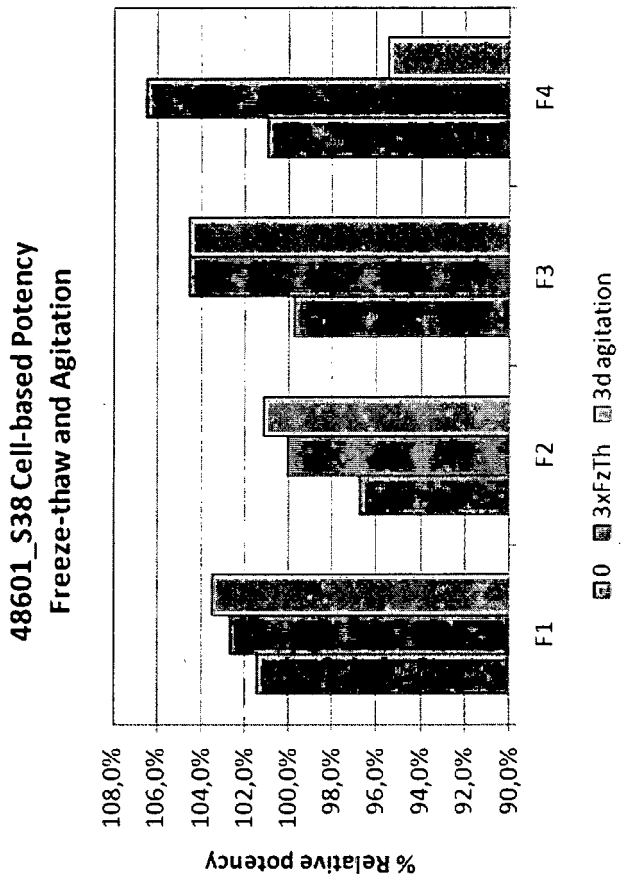
Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3d 25°C	102.7%	104.1%	107.1%	98.0%
7d 25°C	101.7%	95.7%	101.4%	101.2%
14d 25°C	102.6%	103.6%	98.2%	97.7%

FIGURE 8C



Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3d 50°C	84.8%	74.4%	88.6%	81.2%
7d 50°C	54.2%	29.3%	60.1%	41.2%
14d 50°C	35.7%		42.2%	13.8%

FIGURE 8D



Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3x FzTh	102.7%	100.1%	104.6%	106.5%
3d agitation	103.5%	101.2%	97.6%	95.5%

FIGURE 8E

Formulation	Condition	Time Point (months)	Relative Potency (%)
F3	t=0	0	98.1%
	-20°C	1	103.3%
		3	97.6%
		6	98.0%
	2-8°C	1	98.7%
		3	99.9%
		6	99.4%
	25°C	1	95.3%
		3	89.5%
		6	96.1%
	Fz Th (-20°C/25°C)	1x cycle	100.5%
		2x cycle	101.0%
		4x cycle	96.7%

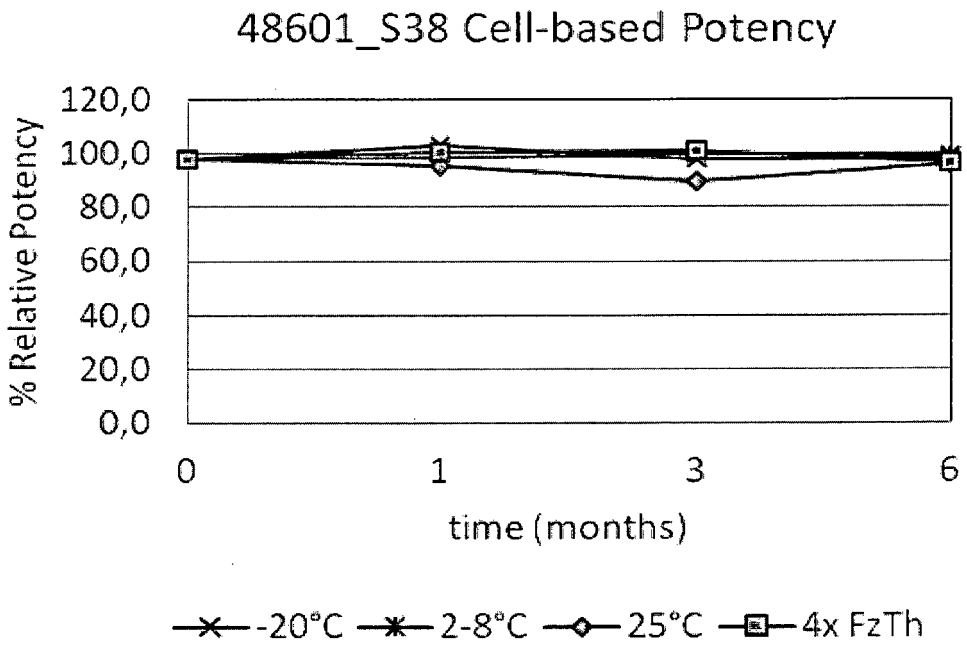


FIGURE 8F

Formulation	Condition	Time Point (months)	% Relative Potency
F1	t=0 Control	0	97.9%
	-20 °C	1	102.7%
		3	102.3%
	2-8 °C	1	100.4%
		3	101.9%
	25 °C	1	102.3%
		3	95.6%
	Fz Th (-20°C/25°C)	1x	100.0%
		2x	100.9%
		4x	102.8%
F5	t=0 Control	0	94.3%
	-20 °C	1	103.6%
		3	105.2%
	2-8 °C	1	98.7%
		3	98.0%
	25 °C	1	96.1%
		3	100.3%
	Fz Th (-20°C/25°C)	1x	94.7%
		2x	98.5%
		4x	92.9%
F6	t=0 Control	0	96.9%
	-20 °C	1	105.0%
		3	94.6%
	2-8 °C	1	94.3%
		3	97.2%
	25 °C	1	No remaining potency
		3	1.1%
	Fz Th (-20°C/25°C)	1x	99.8%
		2x	98.3%
		4x	101.7
F8	t=0 Control	0	100.0%
	-20 °C	1	99.4%
		3	101.2%
	2-8 °C	1	100.5%
		3	98.5%
	25 °C	1	101.0%
		3	96.7%
	Fz Th (-20°C/25°C)	1x	98.4%
		2x	98.3%
		4x	100.6%
Innovator	t=0 Control	0	95.1%
	25 °C	3	86.3%

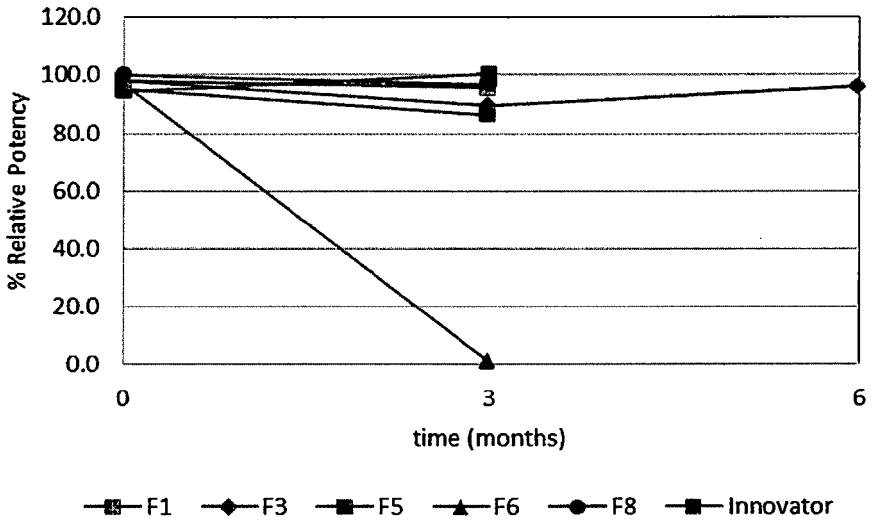


FIGURE 9

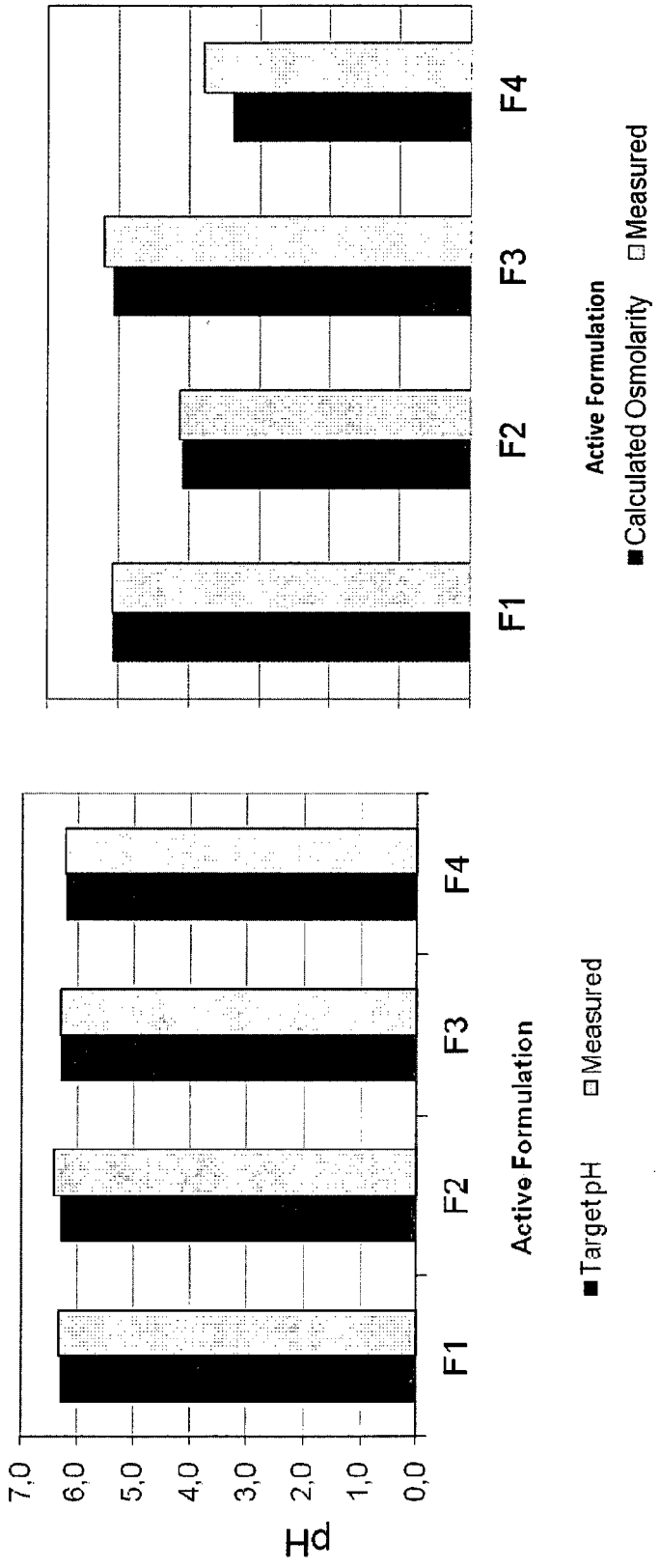

F4
F3
F2
F1
Active Formulation
Calculated Osmolarity
Measured
F4
F3
F2
F1
Active Formulation
Target pH
Measured
pH
7,0
6,0
5,0
4,0
3,0
2,0
1,0
0,0

FIGURE 10

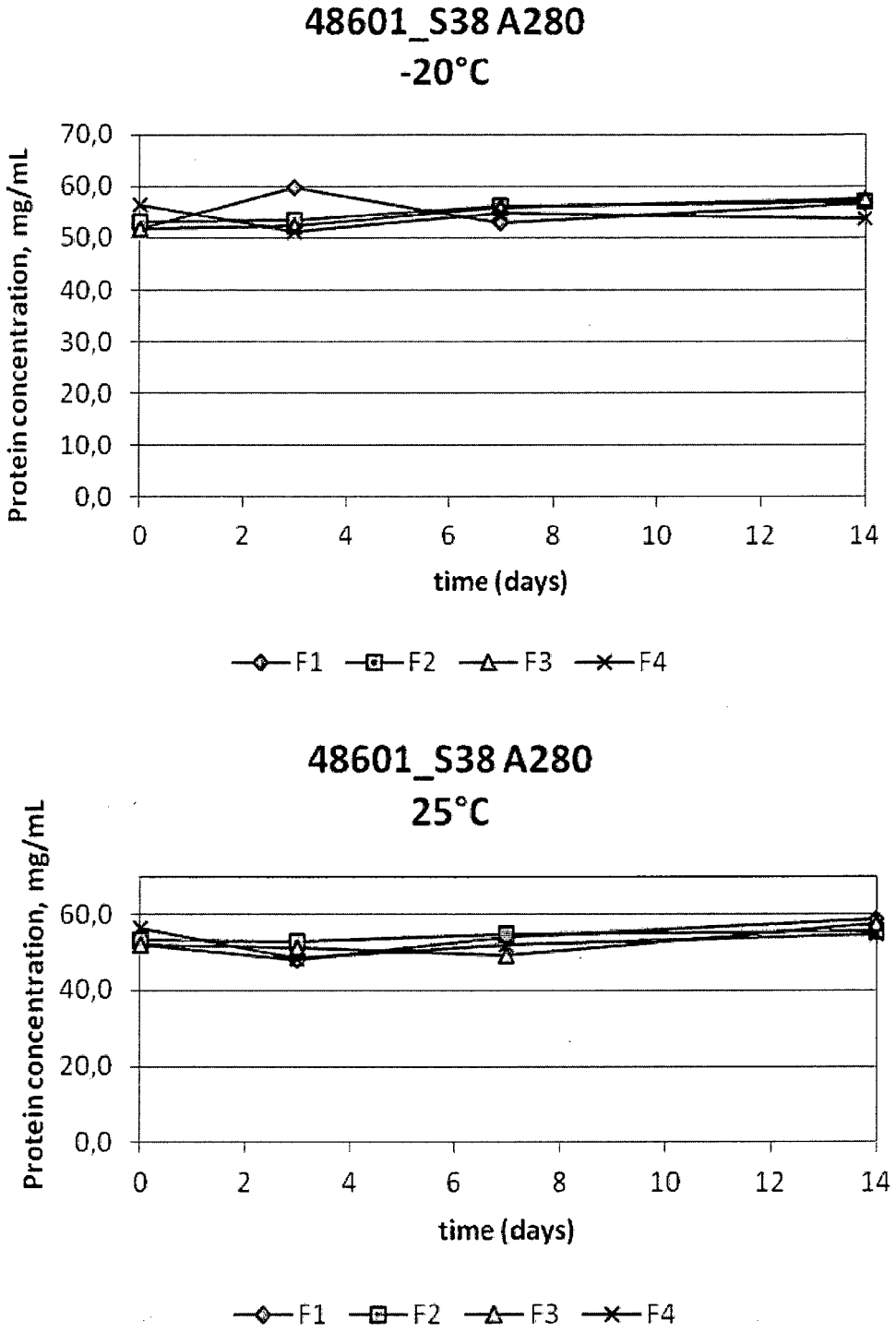
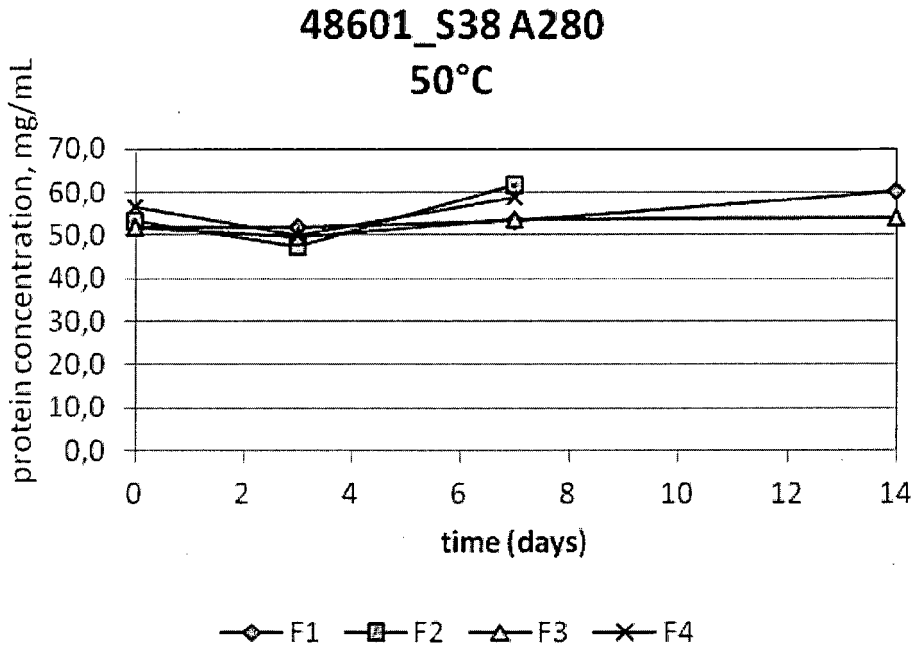

48601_S38 A280
-20°C
Protein concentration, mg/mL
70,0
60,0
50,0
40,0
30,0
20,0
10,0
0,0
0
2
4
6
8
10
12
14
time (days)
F1
F2
F3
F4
48601_S38 A280
25°C
Protein concentration, mg/mL
60,0
40,0
20,0
0,0
0
2
4
6
8
10
12
14
time (days)
F1
F2
F3
F4

FIGURE 10 (Cont)



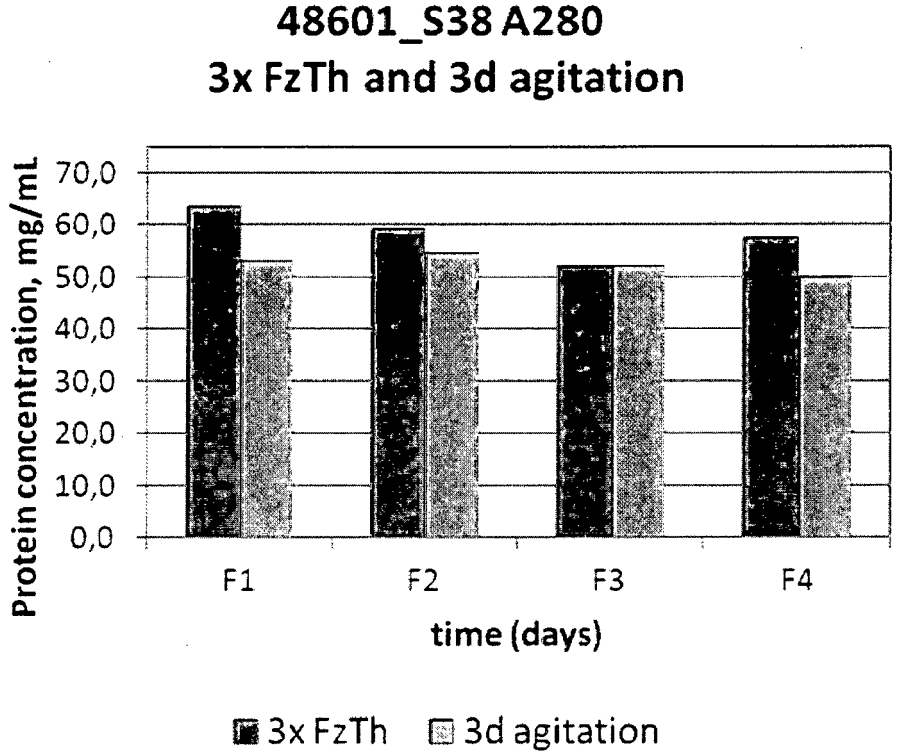
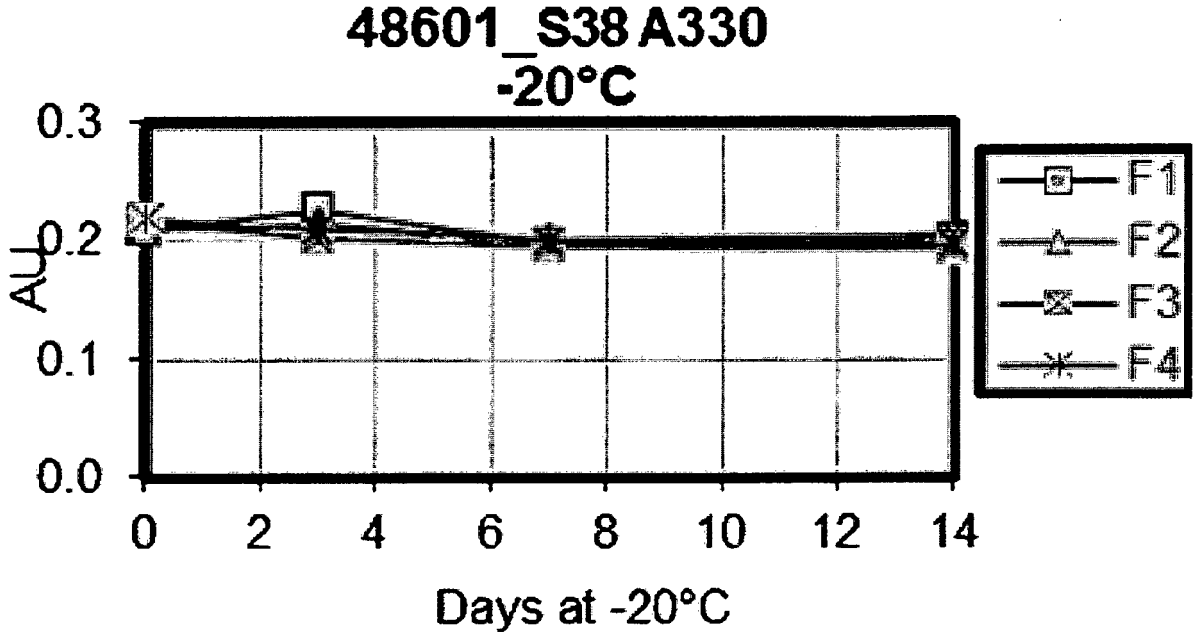


FIGURE 11


48601_S38 A330
-20°C
0.3
0.2
0.1
0.0
AU
0
2
4
6
8
10
12
14
Days at -20°C
F1
F2
F3
F4

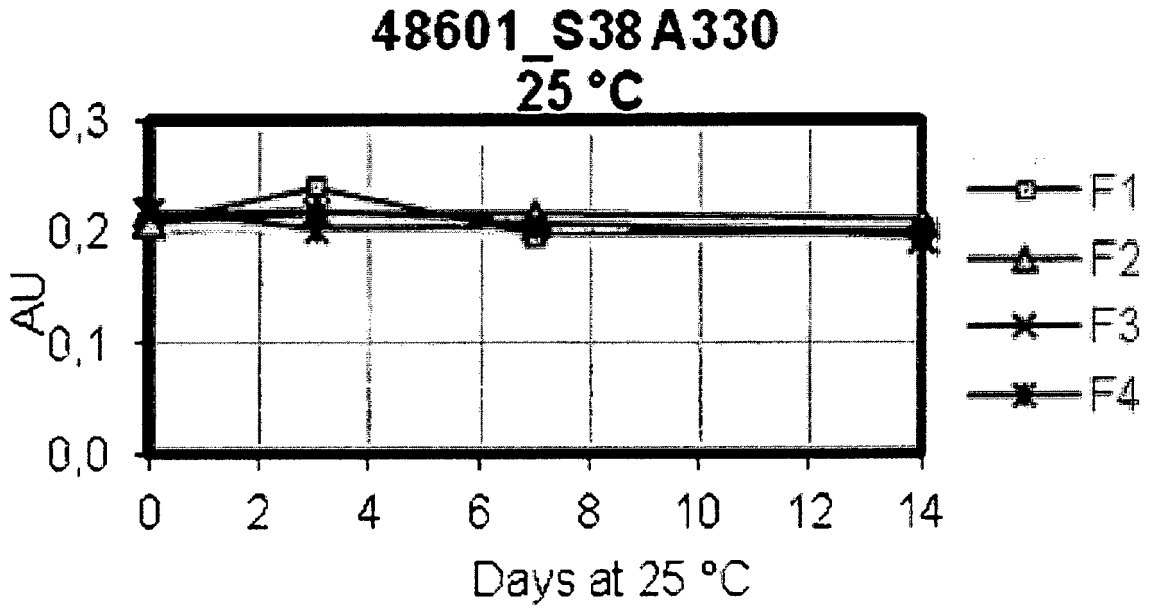
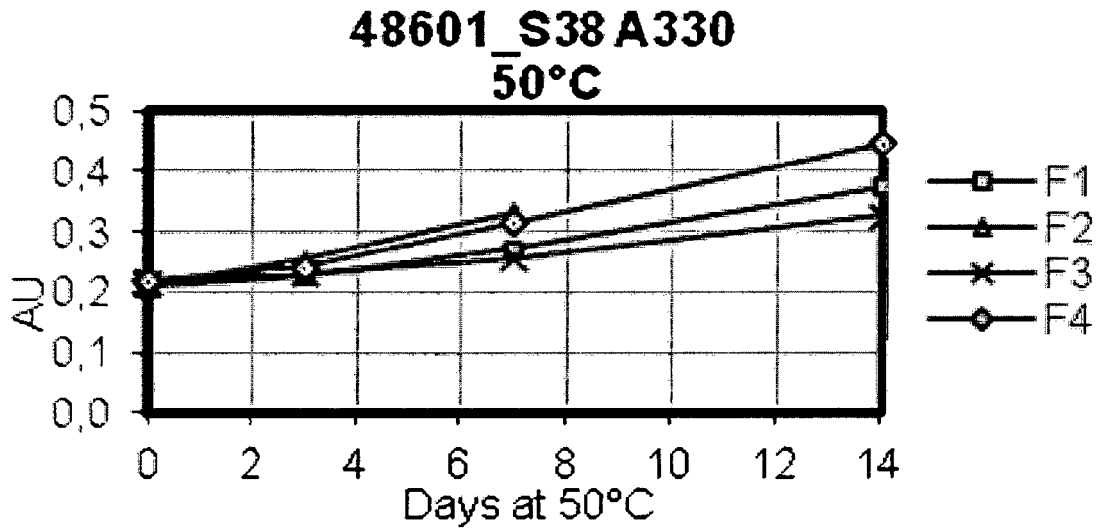

48601_S38 A330
25 °C
0,3
0,2
0,1
0,0
AU
0
2
4
6
8
10
12
14
Days at 25 °C
F1
F2
F3
F4

FIGURE 11 (cont)



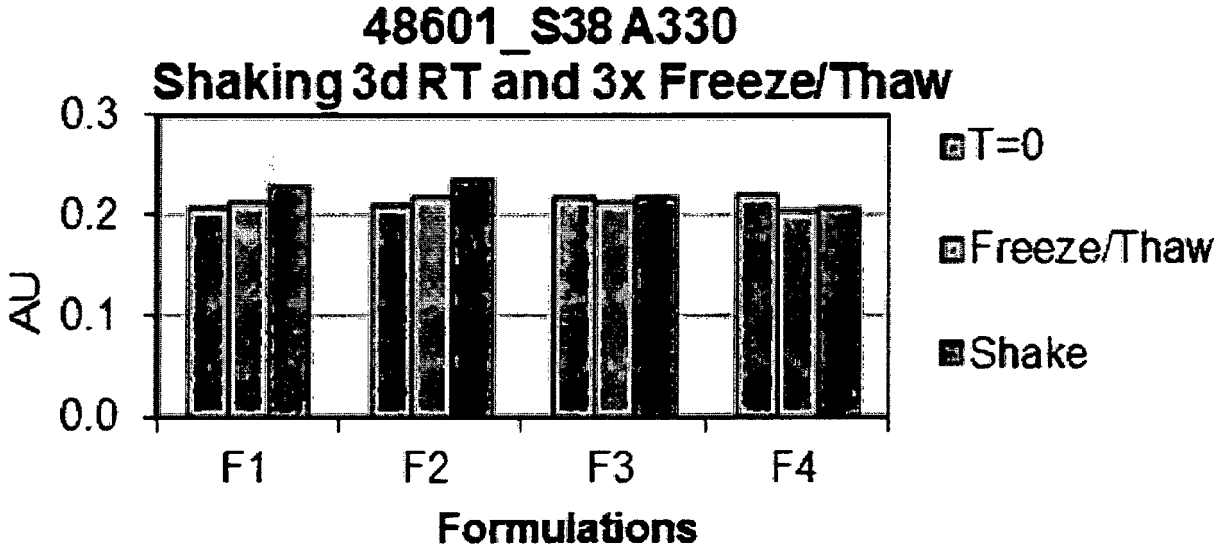


FIGURE 12

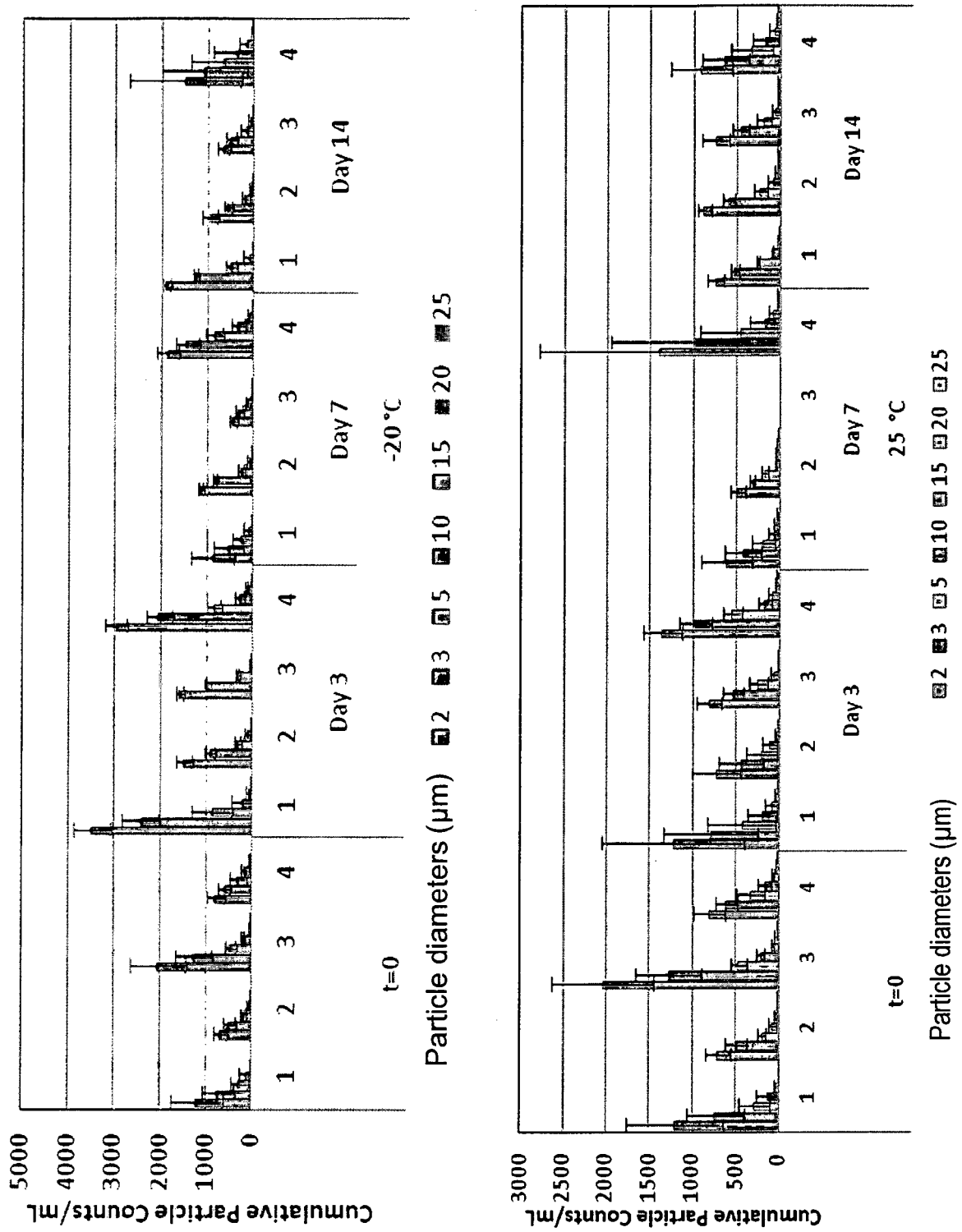

Cumulative Particle Counts/mL
5000
4000
3000
2000
1000
0
t=0
Day 3
Day 7
Day 14
-20 °C
1 2 3 4 1 2 3 4 1 2 3 4
Particle diameters (µm)
2 3 5 10 15 20 25
Cumulative Particle Counts/mL
3000
2500
2000
1500
1000
500
0
t=0
Day 3
Day 7
Day 14
25 °C
1 2 3 4 1 2 3 4 1 2 3 4
Particle diameters (µm)
2 3 5 10 15 20 25

FIGURE 12 (cont)

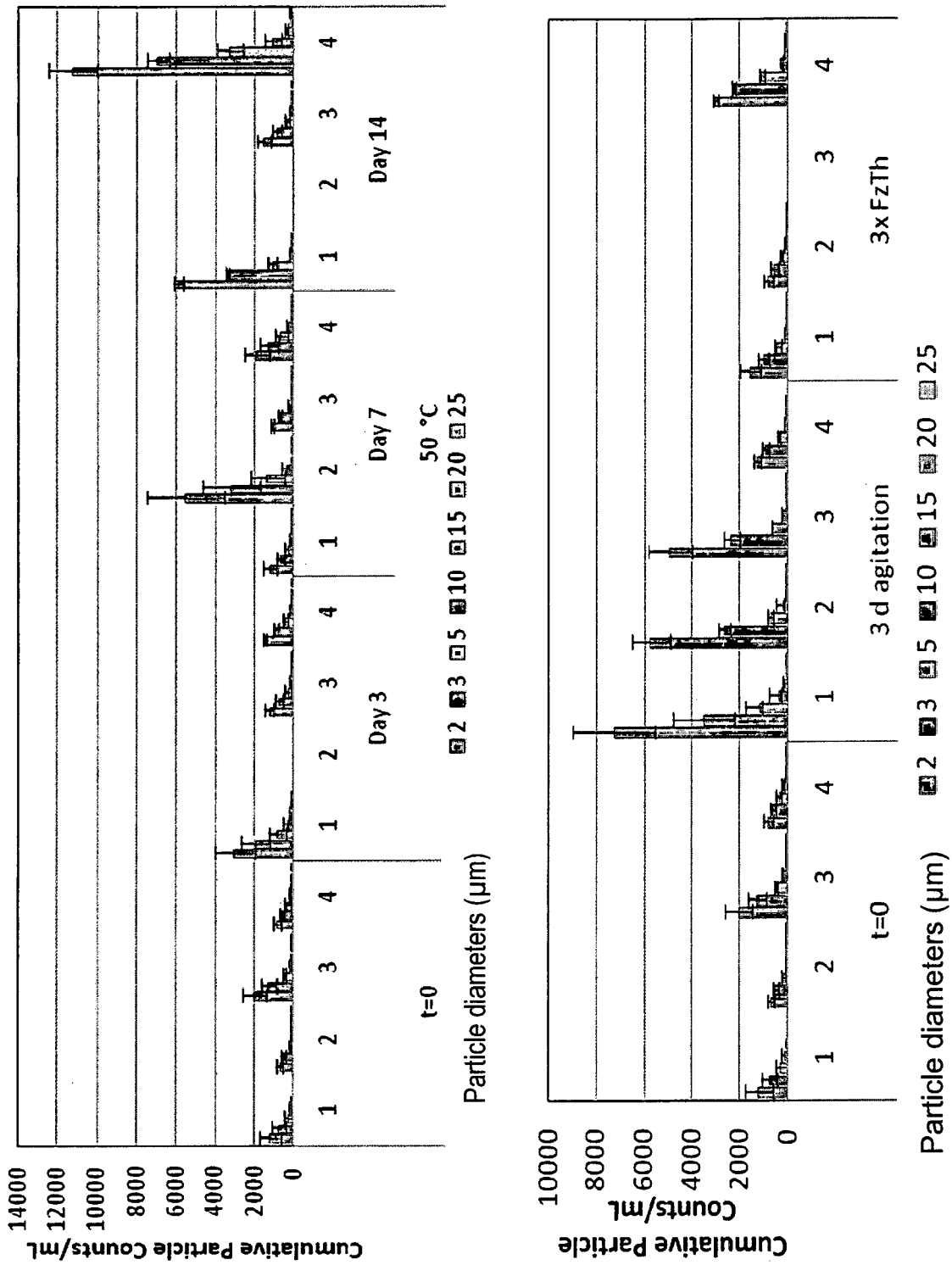
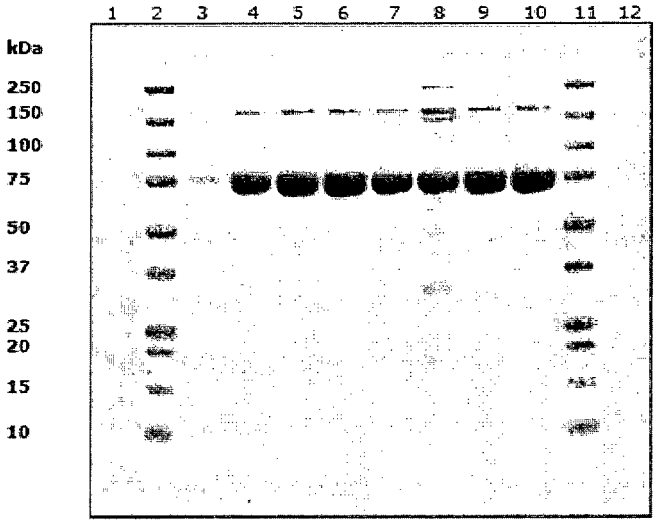


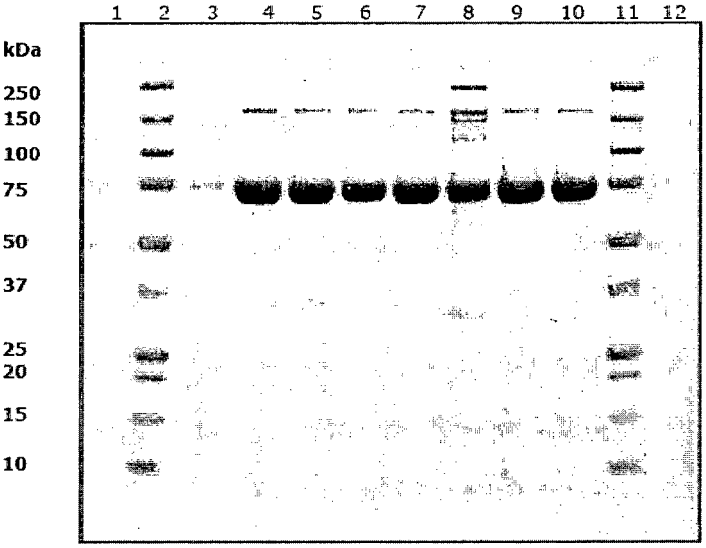
FIGURE 13

(A) F1 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB1, t=0 Control	5
6	FB1, t=14 day -20ºC	5
7	FB1, t=14 day 25ºC	5
8	FB1, t=14 day 50ºC	5
9	FB1, 3 Day Agitation	5
10	FB1, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

(B) F4 t=0, 14 days at -20°C, 25°C, 50°C. 3x Freeze-thaw and 3d agitation



Lane	Sample	Load (mg)
1	----------	----
2	Marker	----
3	Sensitivity Sample	0.1
4	Reference Sample	5
5	FB4, t=0 Control	5
6	FB4, t=14 day -20□C	5
7	FB4, t=14 day 25□C	5
8	FB4, t=14 day 50□C	----
9	FB4, 3 Day Agitation	5
10	FB4, 3x Freeze/Thaw	5
11	Marker	----
12	----------	----

FIGURE 14A

-20°C condition

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3d -20°C	0.7%	97.7%	1.6%	7428
F2 3d -20°C	0.8%	97.8%	1.4%	7354
F3 3d -20°C	0.8%	97.4%	1.8%	7563
F4 3d -20°C	0.8%	97.6%	1.5%	7005
F1 7d -20°C	0.6%	98.0%	1.4%	7597
F2 7d -20°C	1.8%	96.5%	1.7%	4378
F3 7d -20°C	1.2%	97.2%	1.6%	7641
F4 7d -20°C	1.1%	97.3%	1.6%	7183
F1 14d -20°C	0.8%	97.6%	1.6%	7809
F2 14d -20°C	0.9%	97.5%	1.6%	7902
F3 14d -20°C	0.7%	97.8%	1.5%	7569
F4 14d -20°C	0.9%	97.4%	1.7%	7237

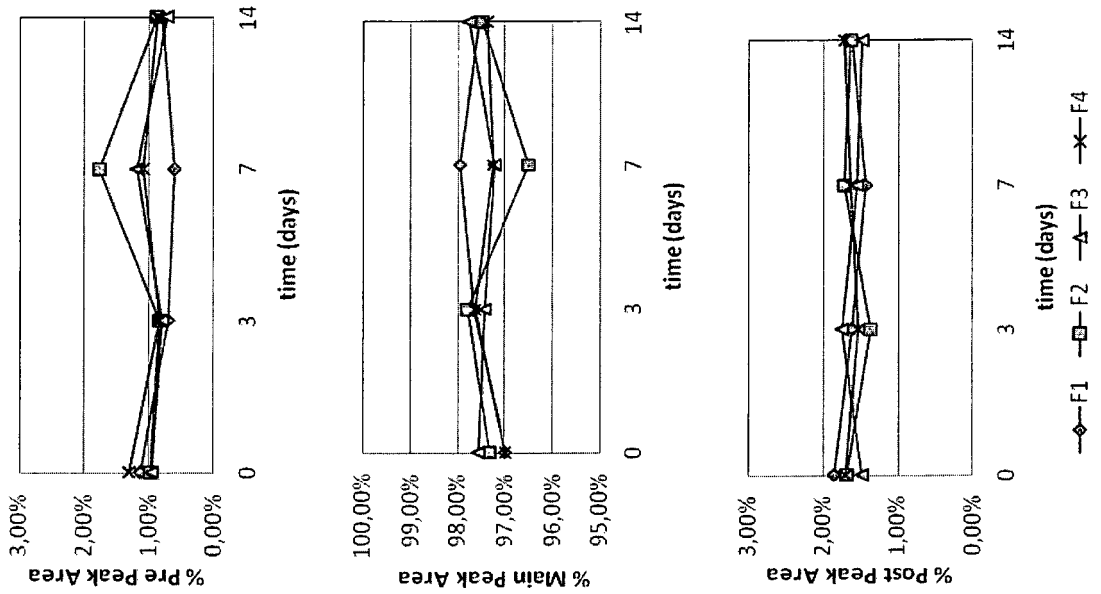


FIGURE 14B

25°C condition

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3d 25°C	0.8%	97.6%	1.6%	6628
F2 3d 25°C	0.9%	97.4%	1.6%	7554
F3 3d 25°C	0.8%	97.7%	1.5%	7364
F4 3d 25°C	0.9%	97.5%	1.6%	7010
F1 7d 25°C	1.0%	97.2%	1.8%	7753
F2 7d 25°C	1.2%	97.1%	1.7%	7416
F3 7d 25°C	1.0%	97.3%	1.6%	7520
F4 7d 25°C	1.1%	97.2%	1.7%	6902
F1 14d 25°C	1.1%	97.0%	2.0%	7790
F2 14d 25°C	1.4%	96.9%	1.8%	7835
F3 14d 25°C	1.3%	96.7%	2.0%	7624
F4 14d 25°C	1.5%	96.6%	1.9%	7255

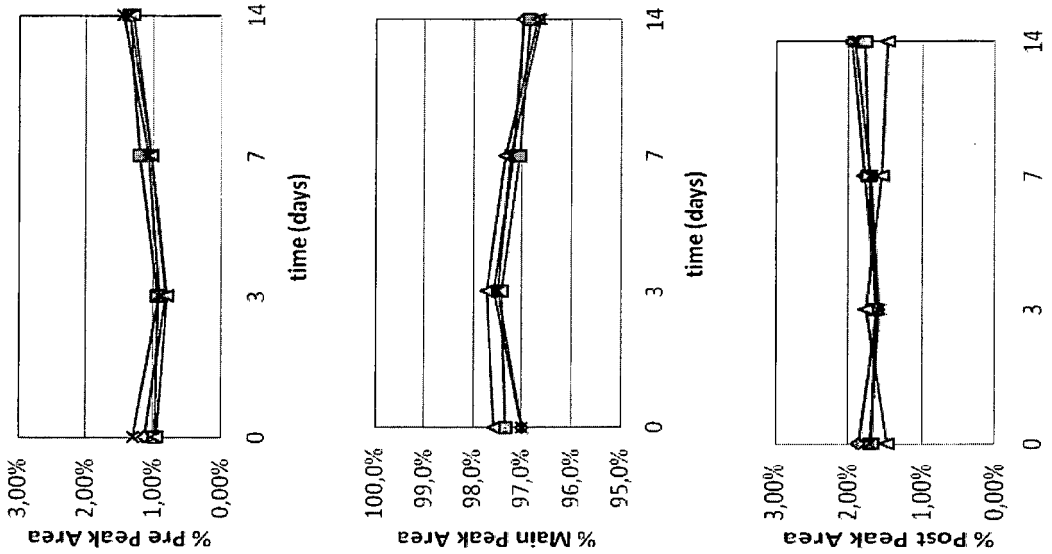


FIGURE 14C

3x FzTh and 3d agitation

Formulation and Condition	Peak Percentages (%)			Total Peak Area
	Pre Peaks	Main Peak	Post Peaks	
F1 t=0 control	1.1%	97.0%	1.9%	7667
F2 t=0 control	1.0%	97.3%	1.7%	7434
F3 t=0 control	1.0%	97.6%	1.5%	7497
F4 t=0 control	1.3%	97.0%	1.7%	6390
F1 3x FzTh	0.7%	97.8%	1.5%	7919
F2 3x FzTh	1.0%	97.6%	1.5%	7912
F3 3x FzTh	0.8%	97.8%	1.4%	7848
F4 3x FzTh	0.9%	97.5%	1.6%	7261
F1 3d agitation	0.9%	97.5%	1.6%	7680
F2 3d agitation	1.0%	97.4%	1.6%	7722
F3 3d agitation	1.0%	97.5%	1.5%	7574
F4 3d agitation	0.9%	97.4%	1.7%	7131

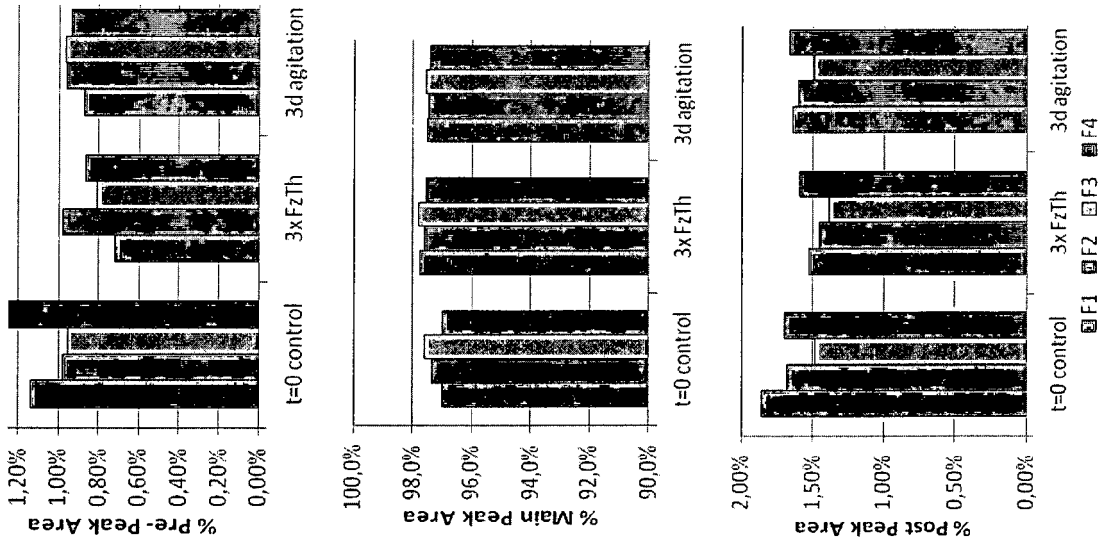
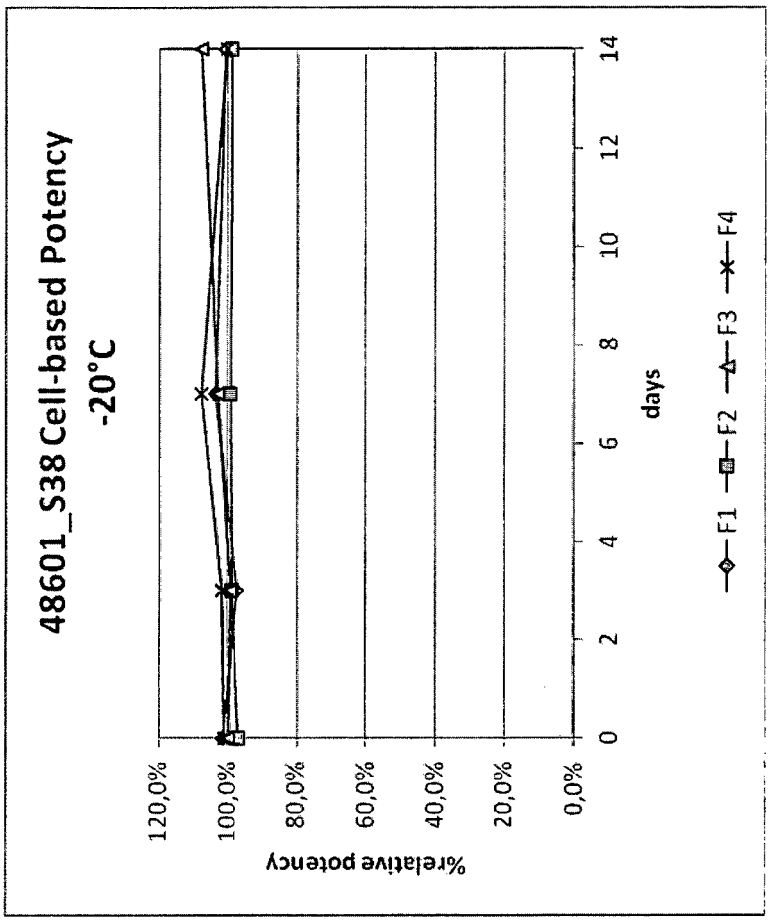
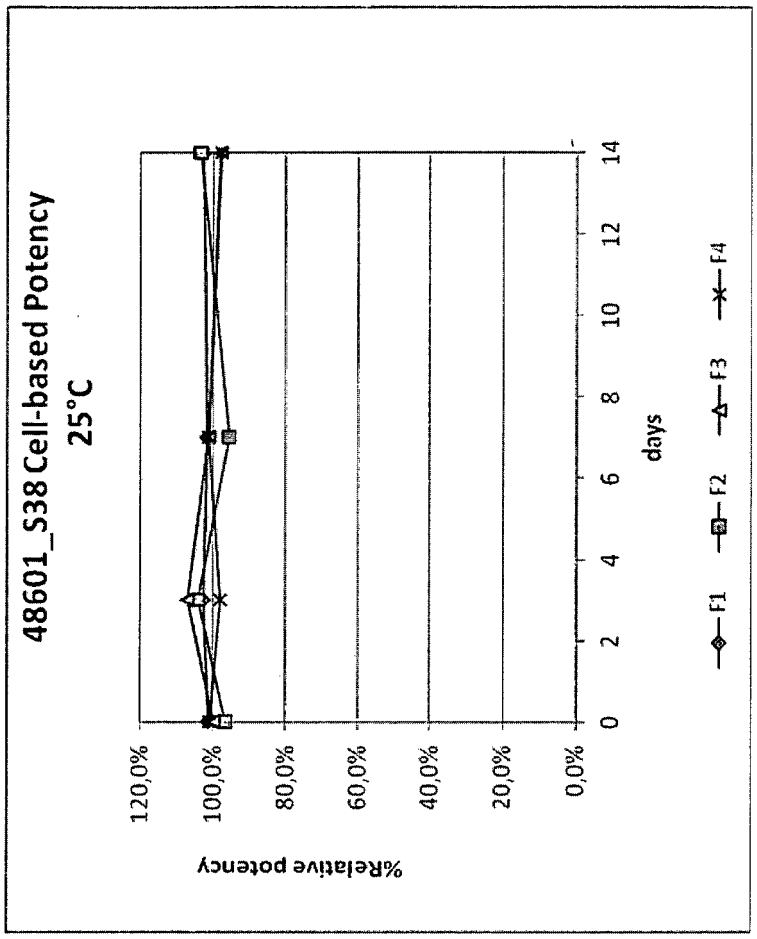


FIGURE 15A



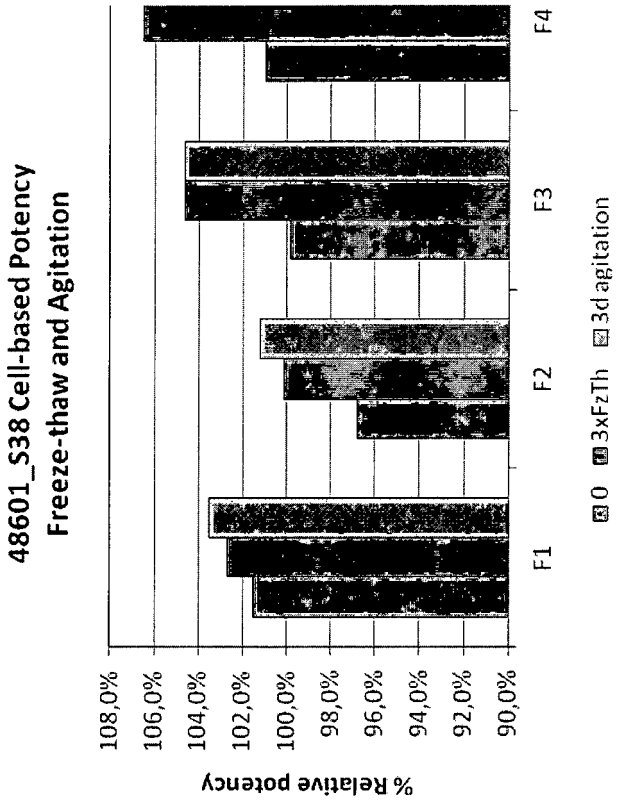
Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3d -20°C	97.3%	98.8%	99.2%	101.6%
7d -20°C	103.7%	99.3%	102.9%	107.9%
14d -20°C	100.7%	98.9%	107.9%	100.1%

FIGURE 15B



Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3d 25°C	102.7%	104.1%	107.1%	98.0%
7d 25°C	101.7%	95.7%	101.4%	101.2%
14d 25°C	102.6%	103.6%	98.2%	97.7%

FIGURE 15C



Condition and timepoint	Relative Potency (%)			
	F1	F2	F3	F4
t=0 control	101.5%	96.8%	99.8%	101.0%
3x FzTh	102.7%	100.1%	104.6%	106.5%
3d agitation	103.5%	101.2%	97.6%	95.5%