Fig. 1A

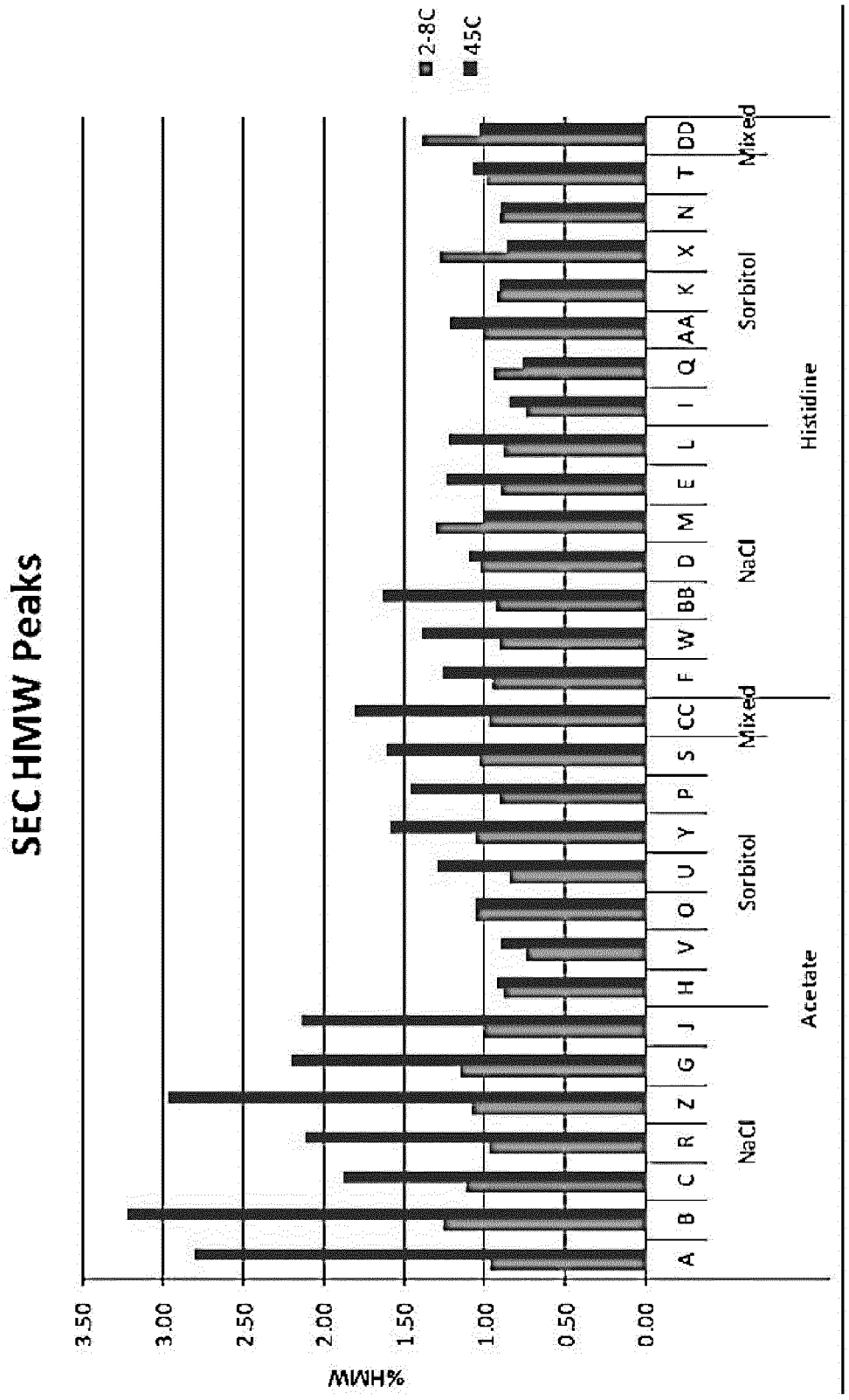

SEC HMW Peaks
2-8C
45C
MWH%
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Sorbitol
Mixed
Acetate
Histidine

Fig. 1B

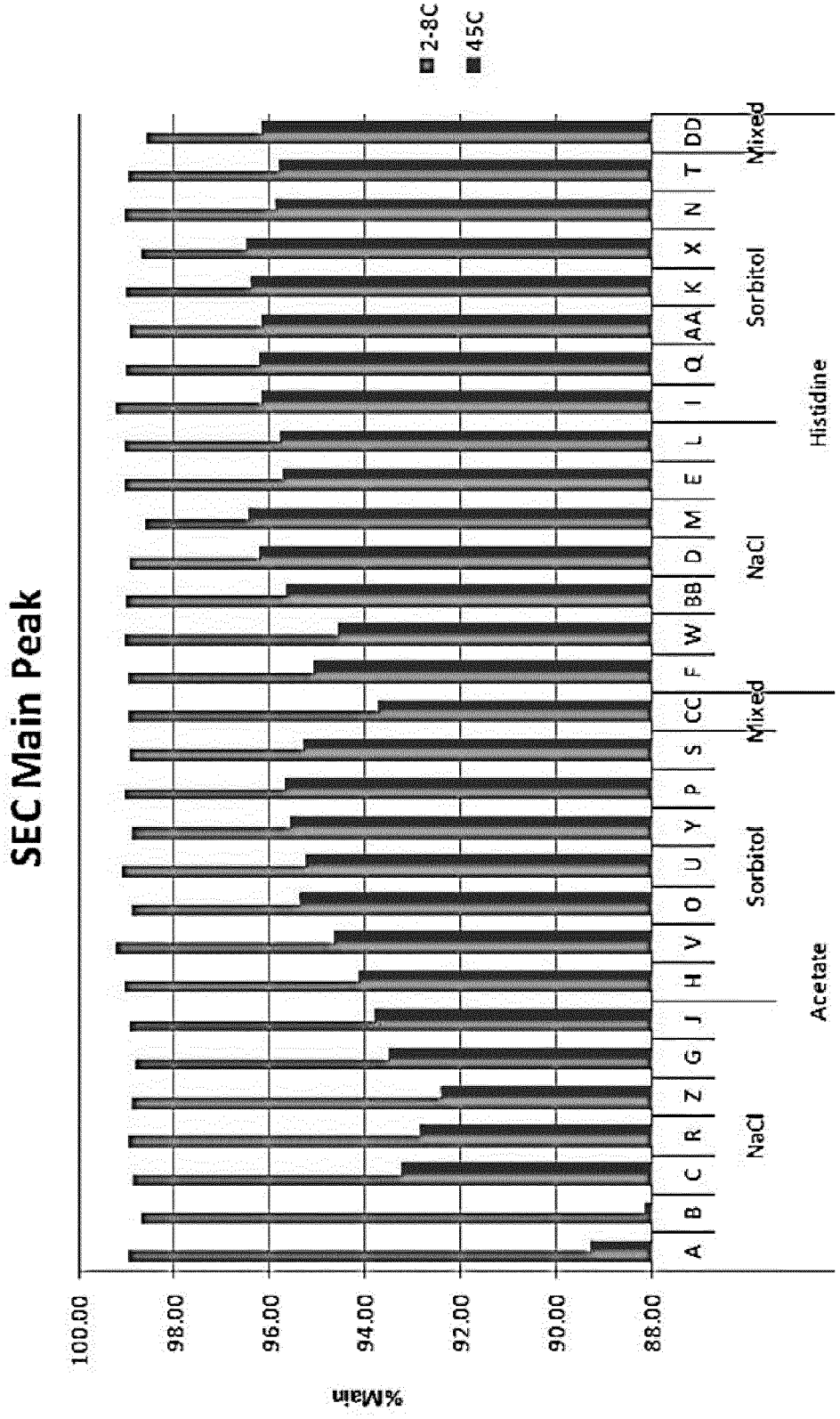

2-8C
45C
SEC Main Peak
%Main
100.00
98.00
96.00
94.00
92.00
90.00
88.00
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Sorbitol
Mixed
Acetate
Histidine

Fig. 1C

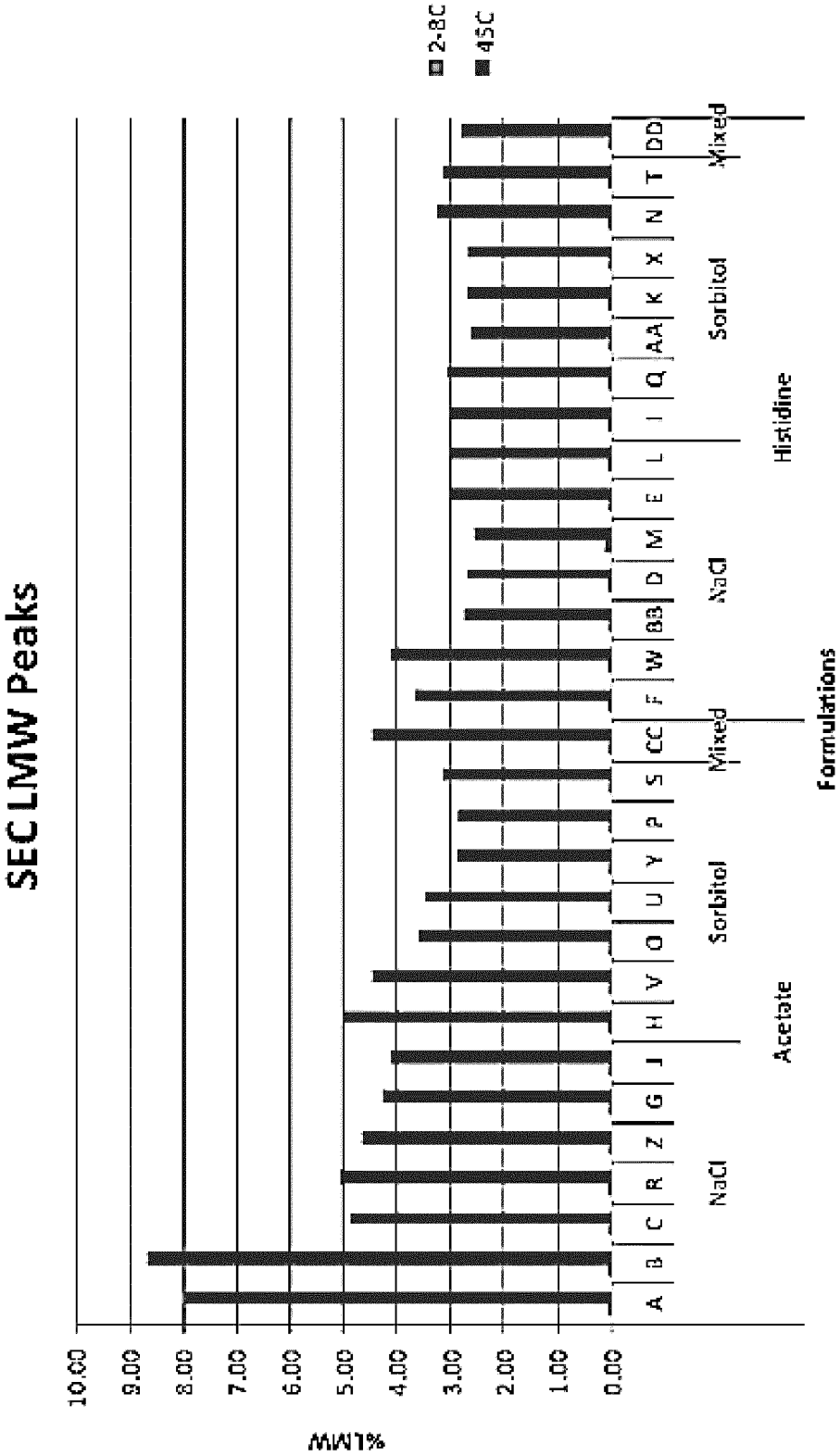

SEC LMW Peaks
2-8C
45C
%LMW
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Acetate
Sorbitol
Mixed
NaCl
Histidine
Sorbitol
Mixed
Formulations

Fig. 2A

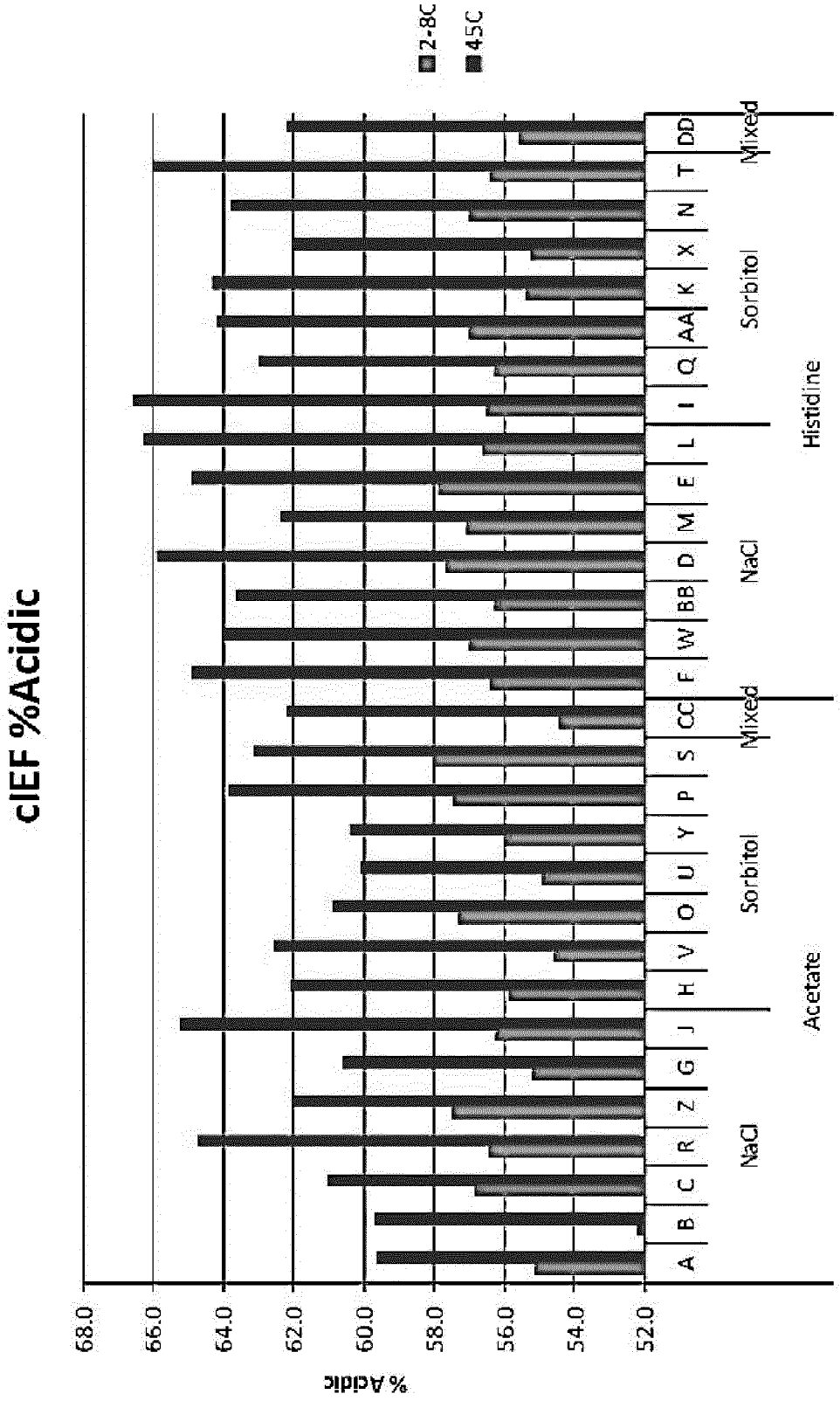

cIEF %Acidic
2-8C
45C
% Acidic
68.0
66.0
64.0
62.0
60.0
58.0
56.0
54.0
52.0
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Sorbitol
Mixed
Acetate
Histidine

Fig. 2B

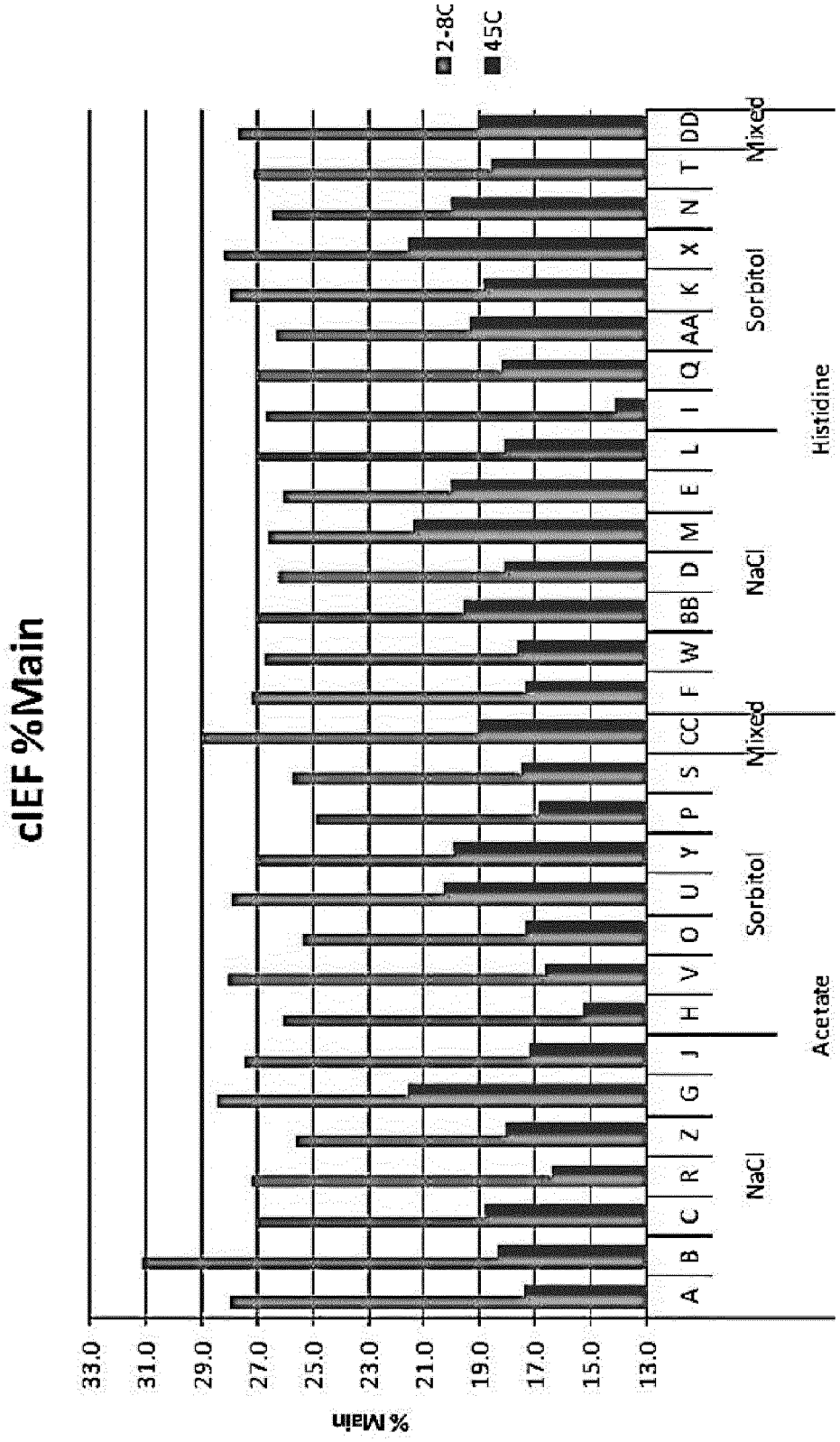

cIEF %Main
% Main
33.0
31.0
29.0
27.0
25.0
23.0
21.0
19.0
17.0
15.0
13.0
2-8C
45C
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Sorbitol
Mixed
Acetate
Histidine

Fig. 2C

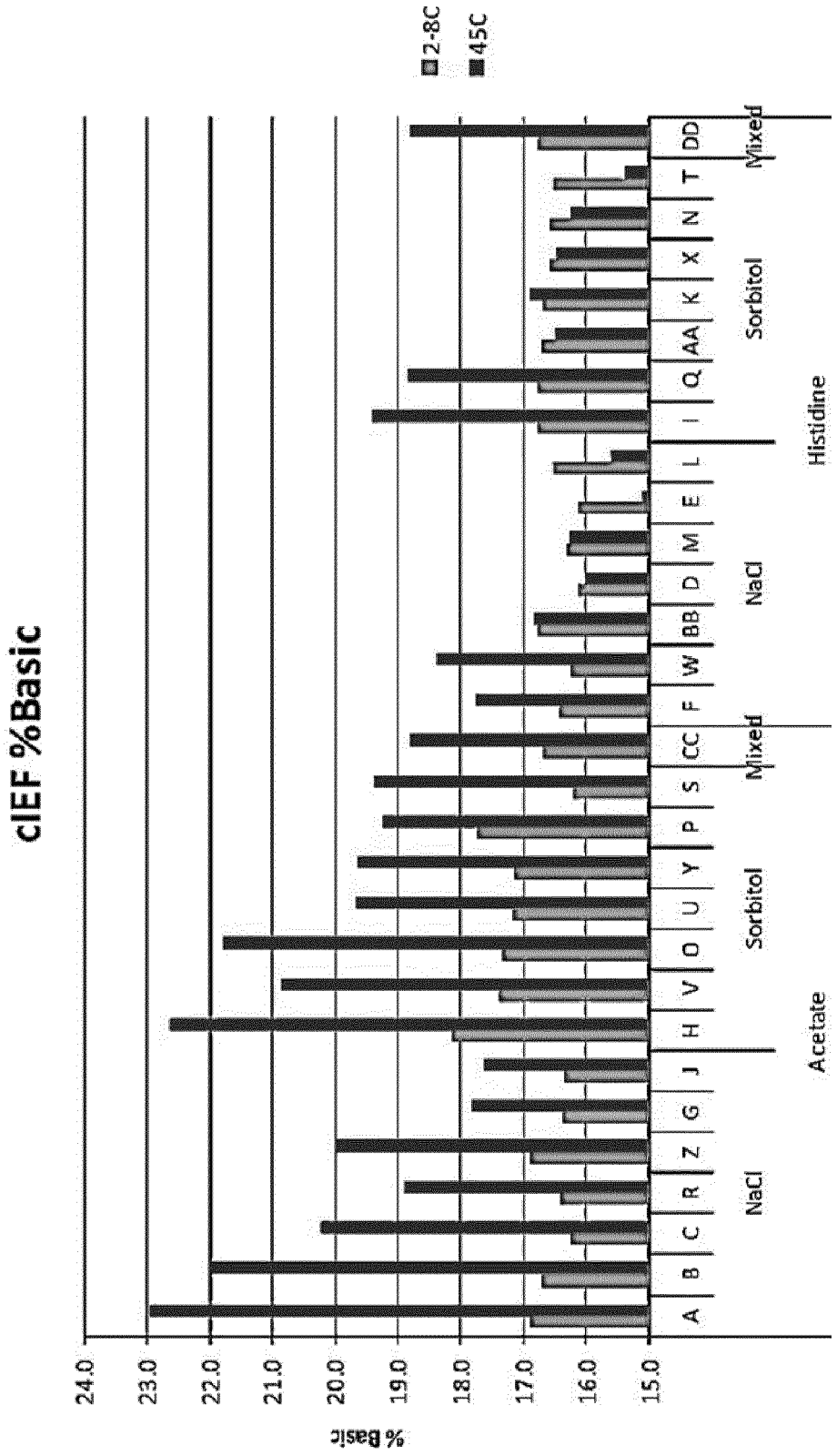

cIEF %Basic
% Basic
2-8C
45C
24.0
23.0
22.0
21.0
20.0
19.0
18.0
17.0
16.0
15.0
A
B
C
R
Z
G
J
H
V
O
U
Y
P
S
CC
F
W
BB
D
M
E
L
I
Q
AA
K
X
N
T
DD
NaCl
Sorbitol
Mixed
Acetate
Histidine

Fig. 3

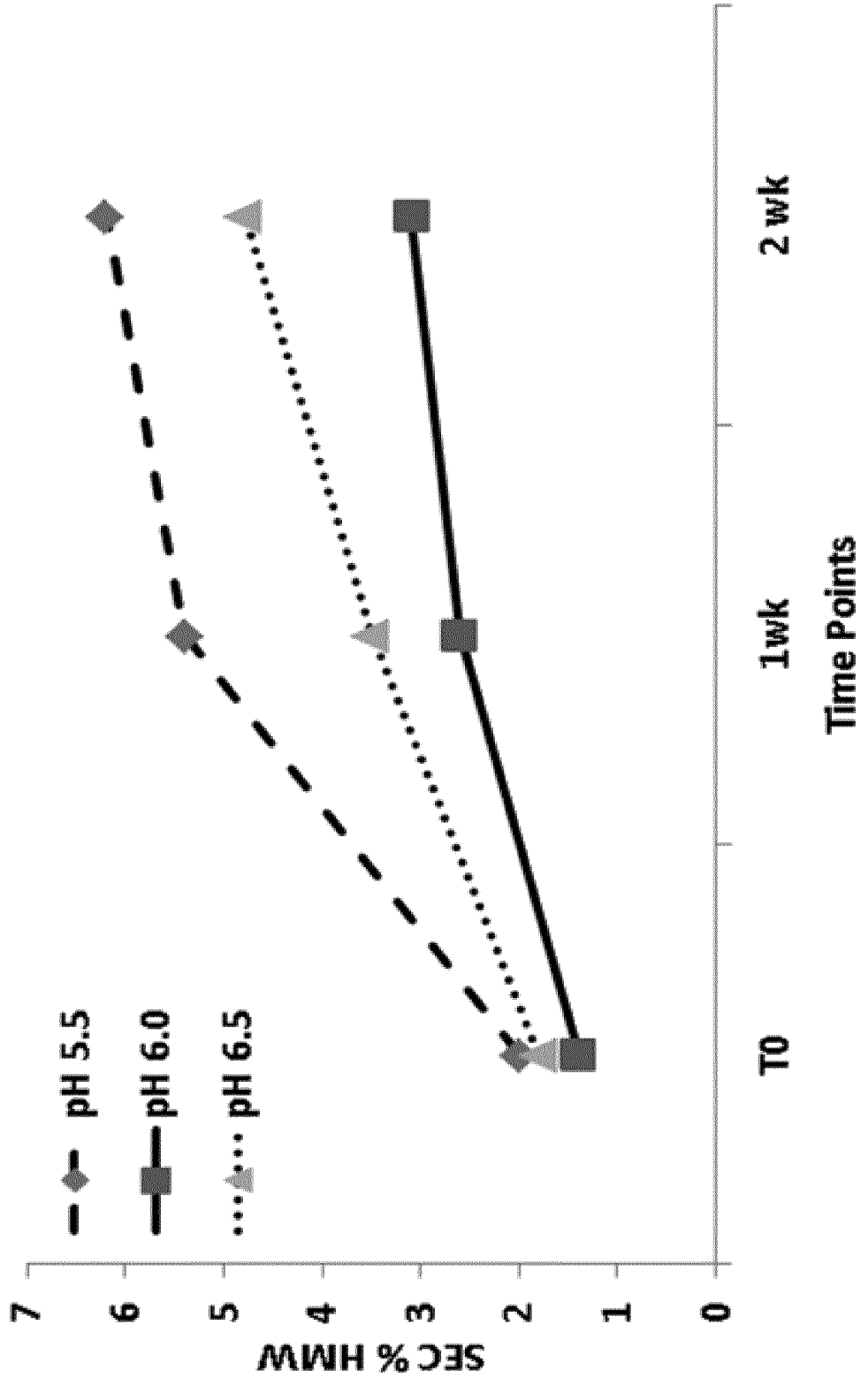


Fig. 4

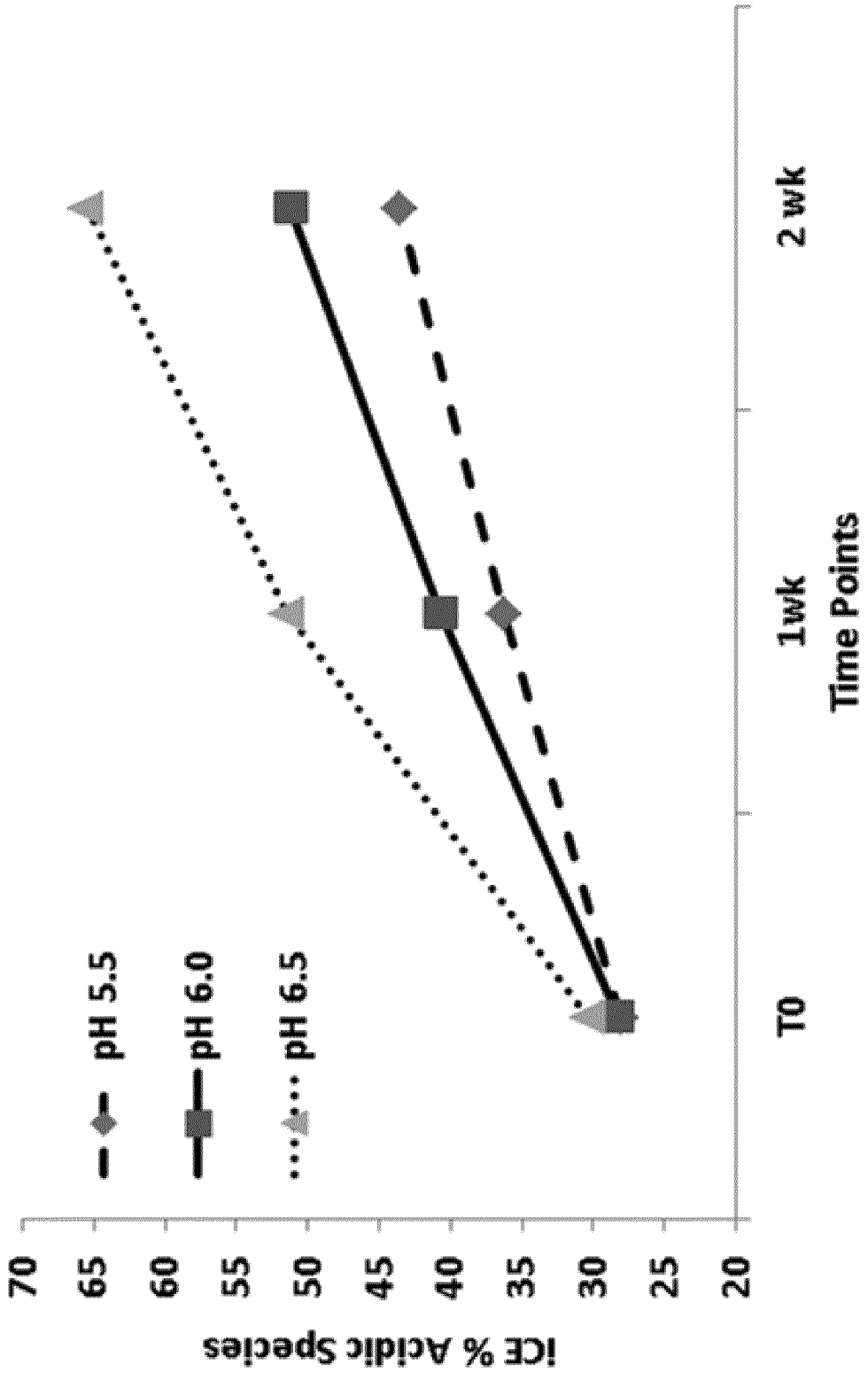

iCE % Acidic Species
70
65
60
55
50
45
40
35
30
25
20
T0
1wk
2 wk
Time Points
pH 5.5
pH 6.0
pH 6.5

Fig. 5A

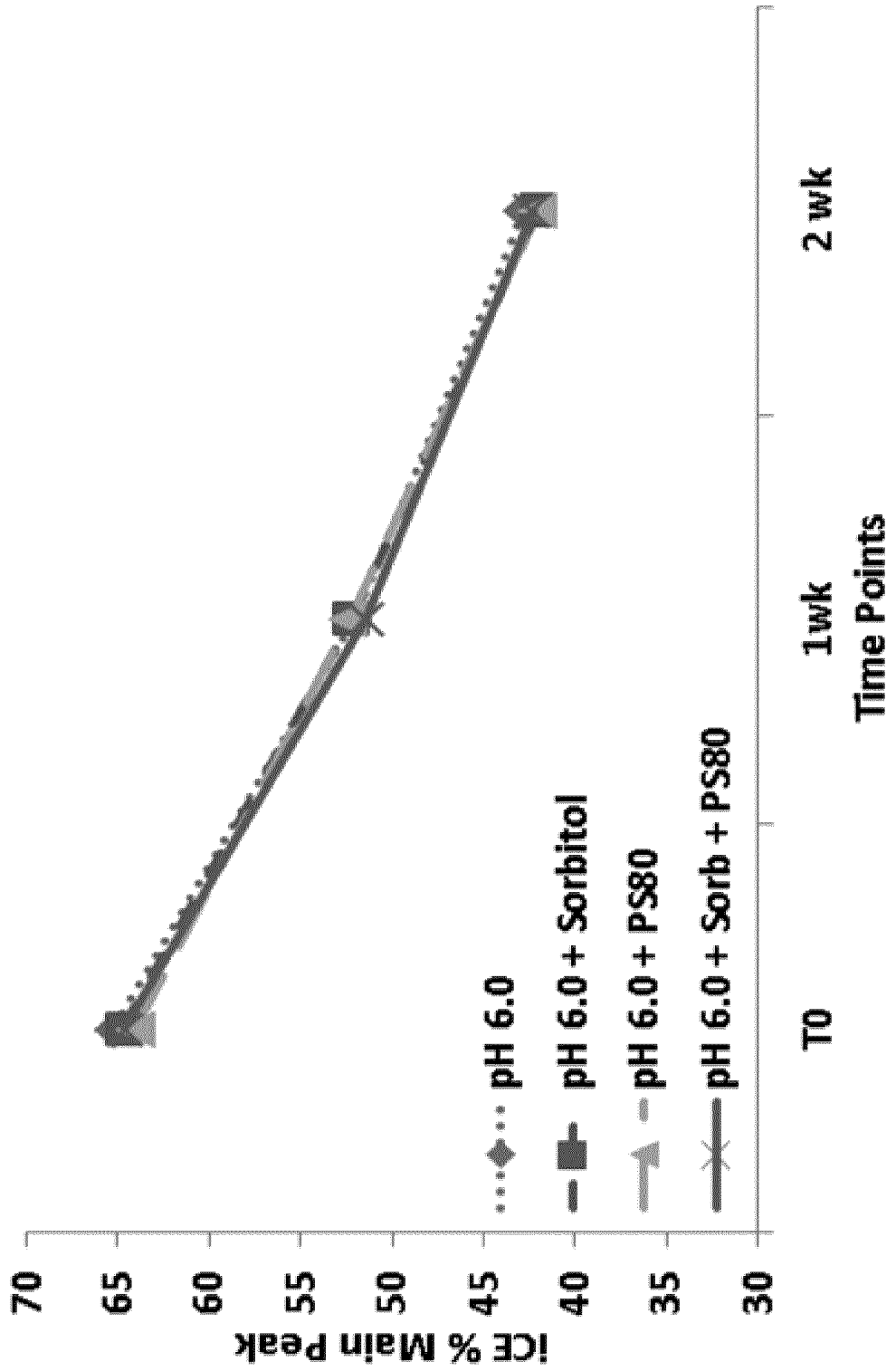

iCE % Main Peak
70
65
60
55
50
45
40
35
30
T0
1wk
2 wk
Time Points
pH 6.0
pH 6.0 + Sorbitol
pH 6.0 + PS80
pH 6.0 + Sorb + PS80

Fig. 5B

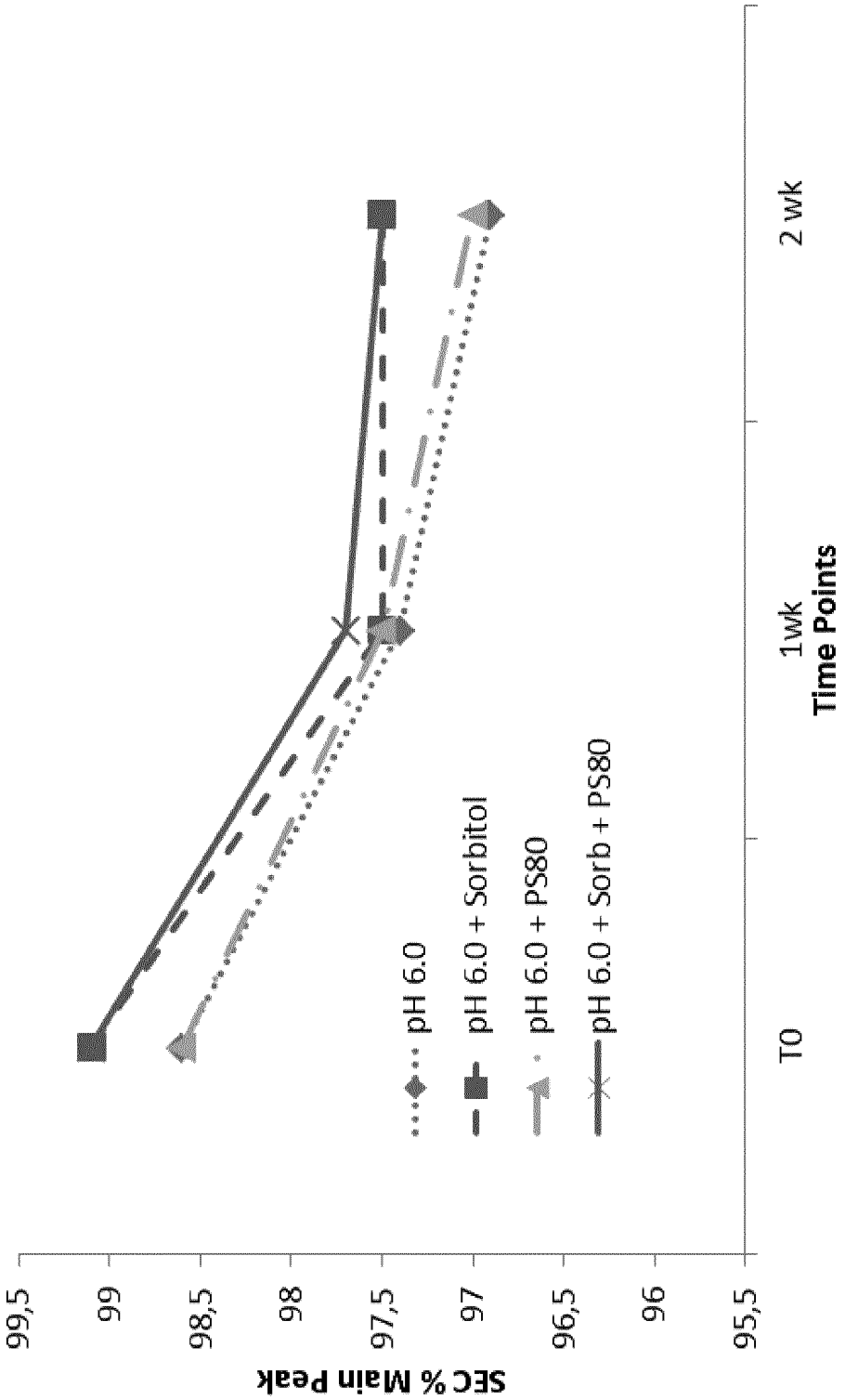

SEC % Main Peak
99,5
99
98,5
98
97,5
97
96,5
96
95,5
T0
1wk
2 wk
Time Points
pH 6.0
pH 6.0 + Sorbitol
pH 6.0 + PS80
pH 6.0 + Sorb + PS80

Fig. 6

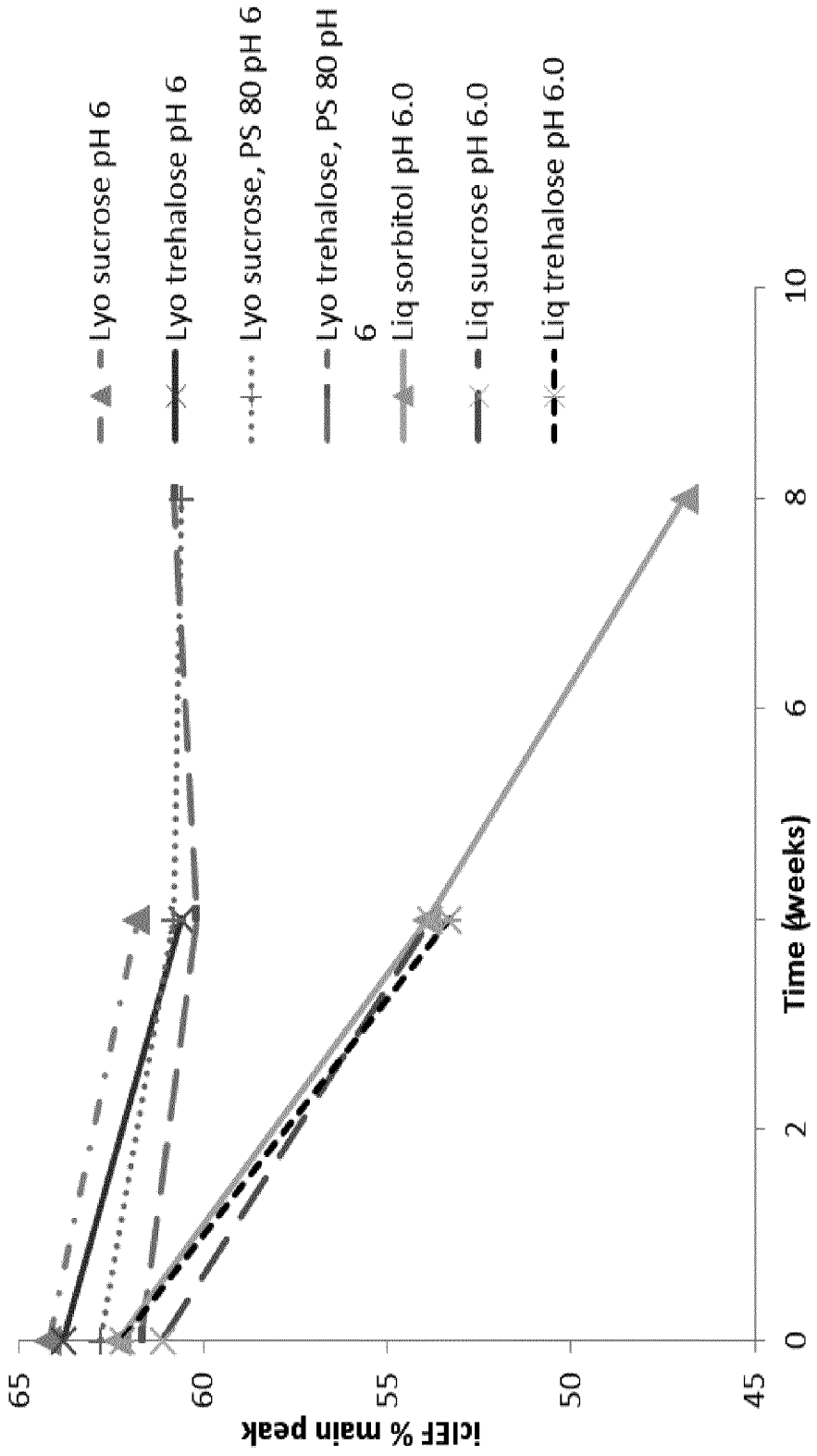

Lyo sucrose pH 6
Lyo trehalose pH 6
Lyo sucrose, PS 80 pH 6
Lyo trehalose, PS 80 pH 6
Liq sorbitol pH 6.0
Liq sucrose pH 6.0
Liq trehalose pH 6.0
icIEF % main peak
65
60
55
50
45
0
2
6
8
10
Time (weeks)

Fig. 7

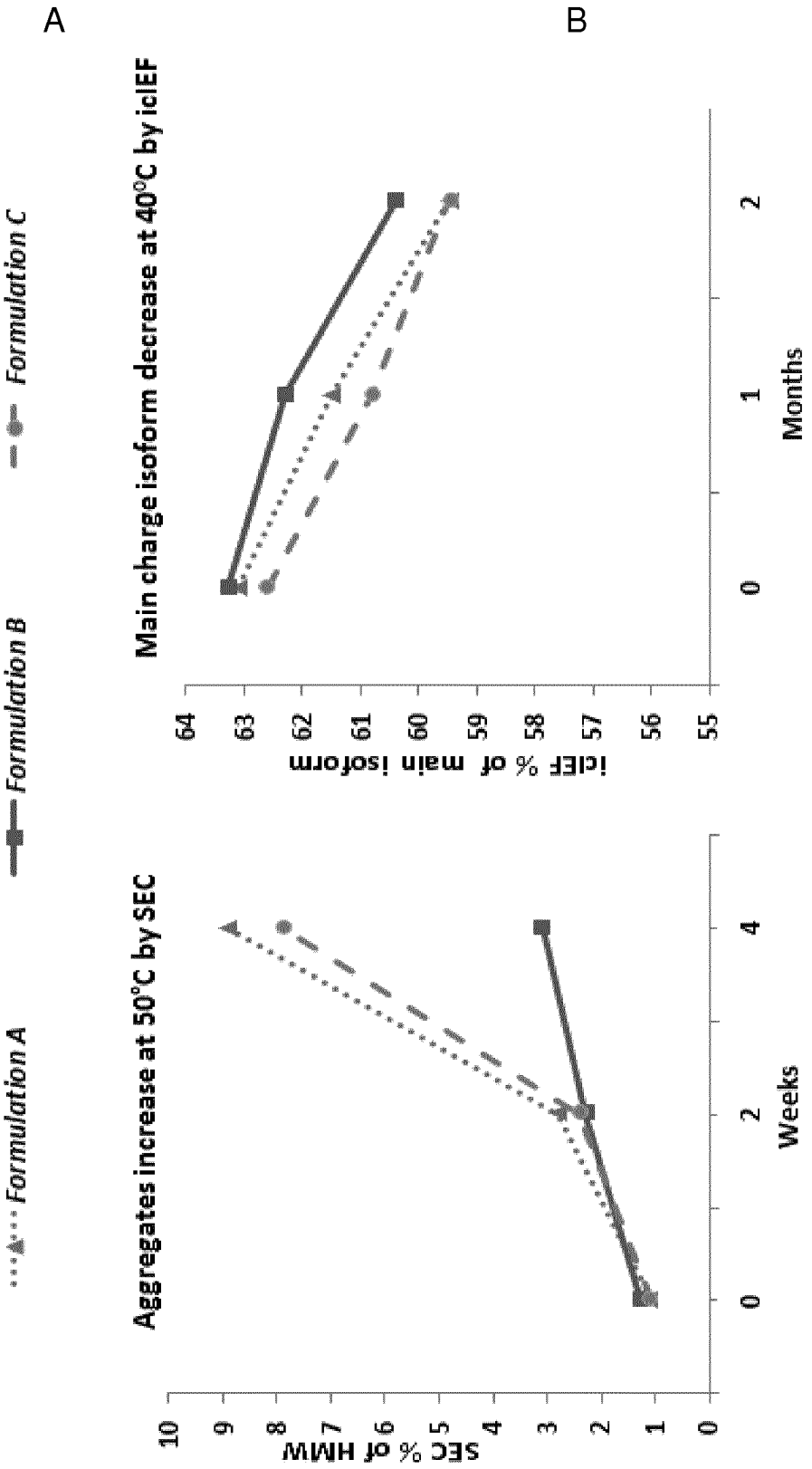

A
B
Formulation A
Formulation B
Formulation C
Aggregates increase at 50°C by SEC
SEC % of HMW
Weeks
Main charge isoform decrease at 40°C by icIEF
icIEF % of main isoform
Months

Fig. 8

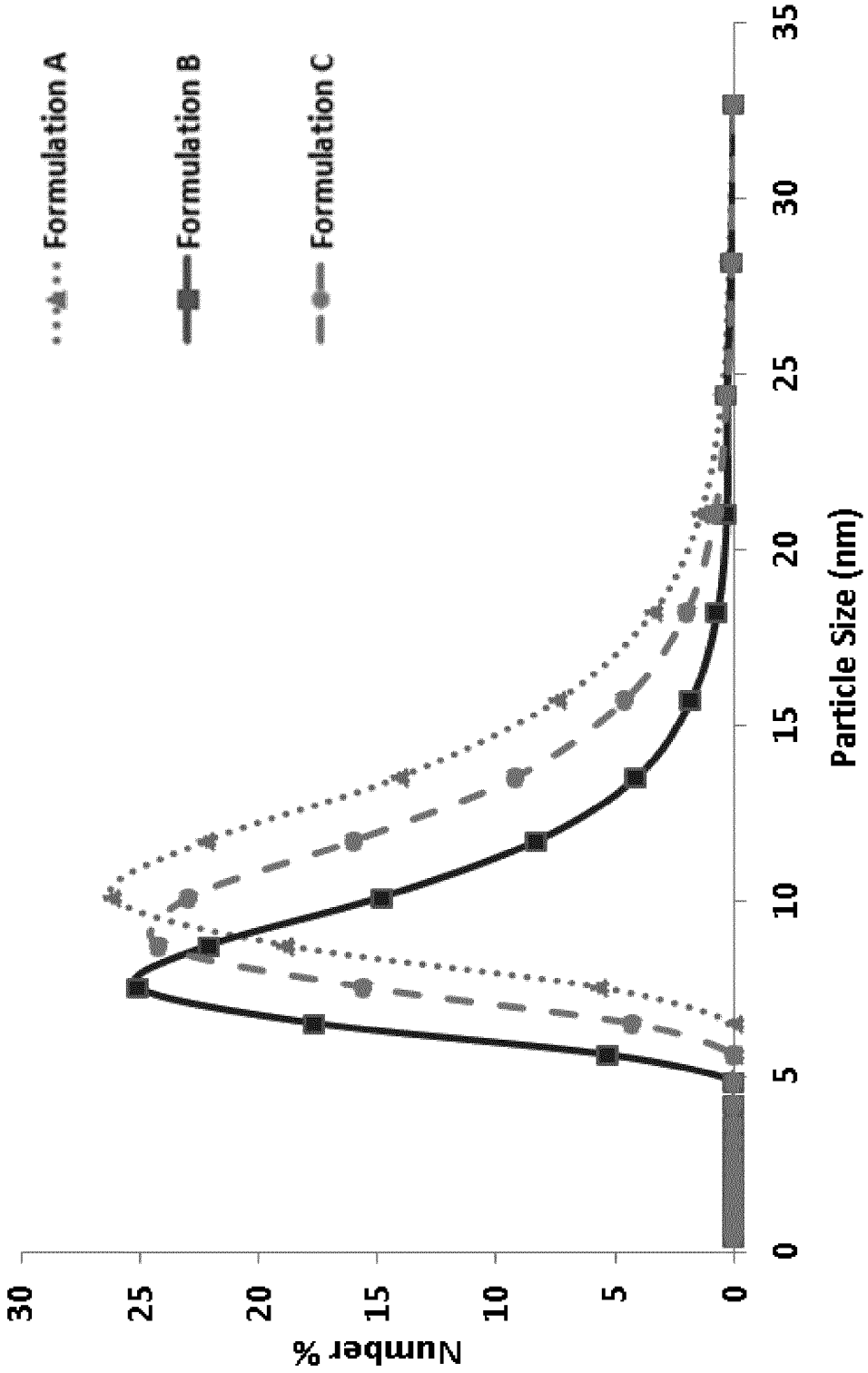

Formulation A
Formulation B
Formulation C
Number %
0
5
10
15
20
25
30
Particle Size (nm)
0
5
10
15
20
25
30
35

Fig. 9

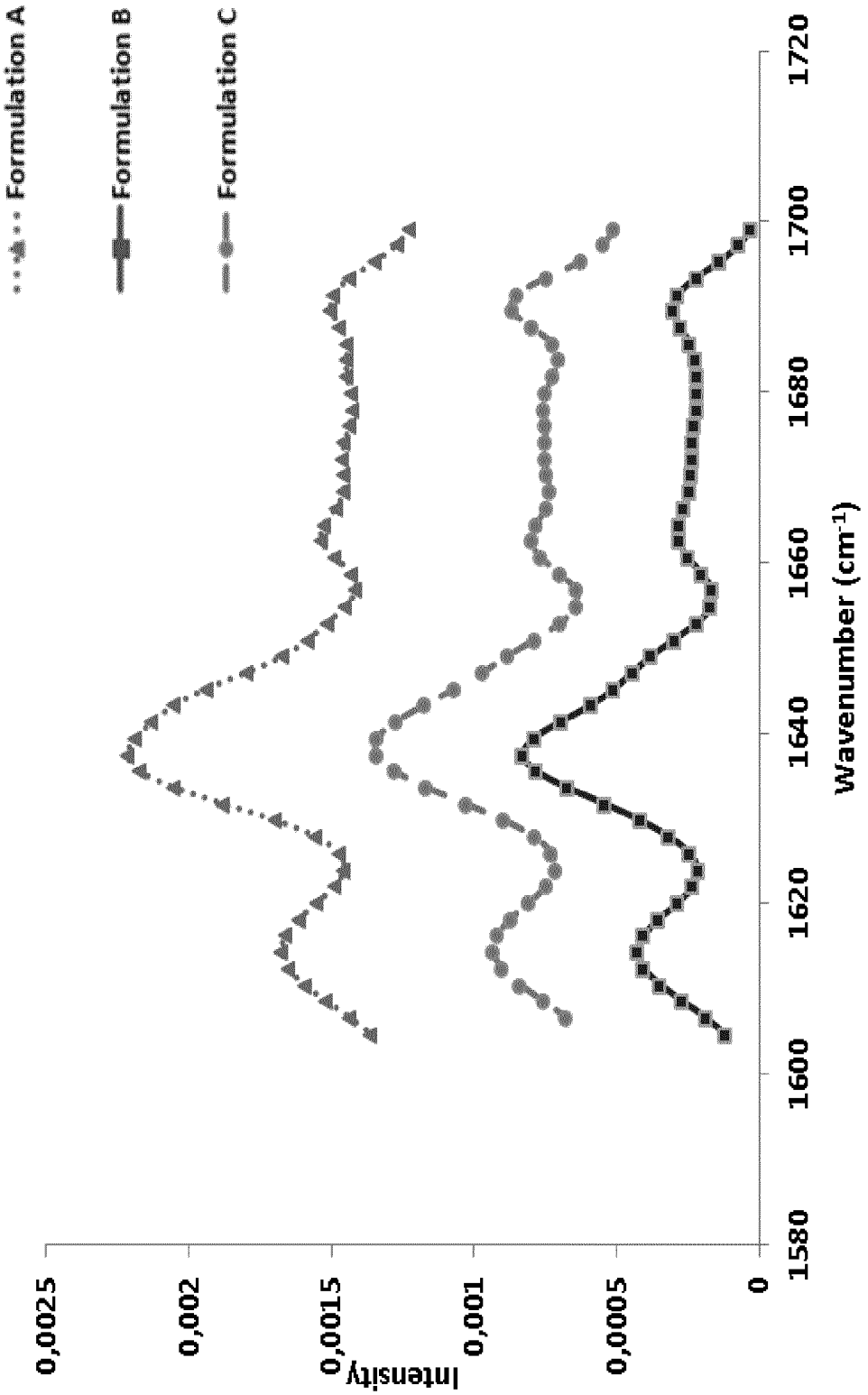
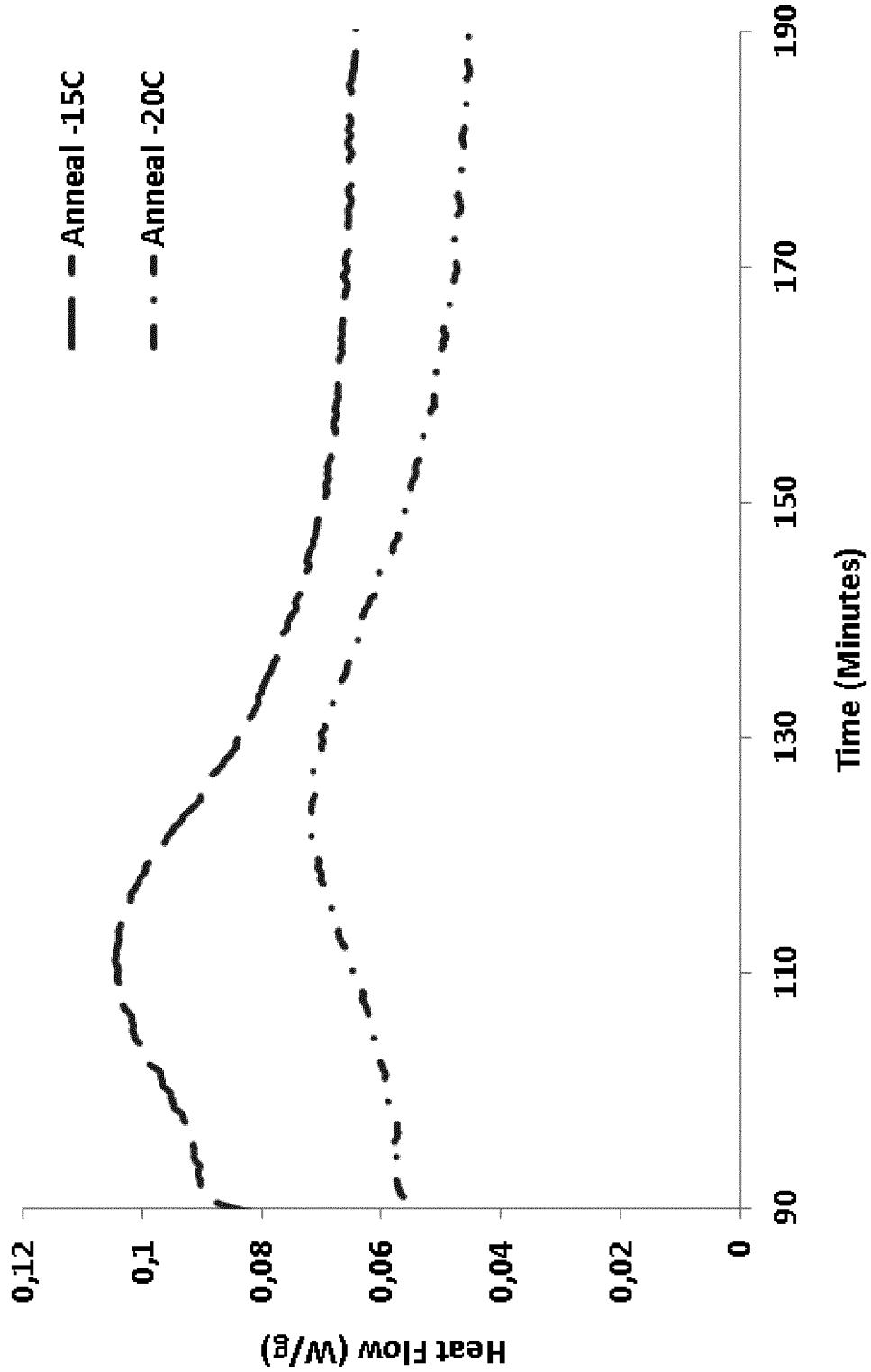

Formulation A
Formulation B
Formulation C
Intensity
0,0025
0,002
0,0015
0,001
0,0005
0
1580
1600
1620
1640
1660
1680
1700
1720
Wavenumber (cm-1)

Fig. 10


Anneal -15C
Anneal -20C
Heat Flow (W/g)
0,12
0,1
0,08
0,06
0,04
0,02
0
90
110
130
150
170
190
Time (Minutes)

# Fig. 11

VH:

```
                          |--CDR1--|                |--CDR2--|                                                |--------CDR3---------|
QVQLVESGGGVVQPGRSLRLSCVASGFTVSNDGMHWVRQAPGKGLEWVALIWYDGVNKNYADSVKGRFTISRDKSKNTLYLQMNSLRAEDTAVYYCARRPGT-------FYGLDVWGQGTTVTVSS VH1015-114 (1)
EVQLLESGGGLVQPGGSLRLSCAASGFTFSNYAMSWVRQAPGKGLEWVSSISGSGDYTYYTDSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARSPWG---------YYLDSWGQGTLVTVSS VH1015-011 (5)
EVQLLESGGGLVQPGGSLRLSCAASGFTFSSYAMSWVRQAPGKGLEWVSAISGSGDSTNYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCAKDGYFL------LWYFDLWGRGTLVTVSS VH1015-017 (9)
EVQLLESGGGLVQPGGSLRLSCAASGFTFSSYGMSWVRQAPGKGLEWVSVISGSGGTTYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCAKAPWT---------YYFDYWGQGTLVTVSS VH1015-042 (13)
EVQLLESGGGLVQPGGSLRLSCAASGFTFNNYAMSWVRQAPGKGLEWVSSISGSGGRTYYADSVKGRFTISRDNSKNTLFLQMNSLRAEDTAVYYCAKTPWG---------YYFDYWGQGTLVTVSS VH1015-092 (17)
EVQLLESGGGLVQPGGSLRLSCAASGFTFSNYAMSWVRQAPAKGLDWVSGISGSGVTTYYADSVKGRFTISRDNSKDTLYLQMNSLRAEDTAVYFCAKTPWG---------YYFDYWGQGILVAVSS VH1015-101 (21)
QVQLVESGGGVVQPGRSLRLSCAASGFTFSRYAMHWVRQAPGKGLEWVAVISNDGYNDYYADSVKGRFTVSRDNSKNTLYLQMNSLRAEDTAVYYCARDGQLG------RGYFDYWGQGTLVTVSS VH1015-025 (25)
QVQLVESGGGVVQPGRSLRLSCPASGFTFSIYAMHWVRQAPGKGLEWVAVVSNDGYNKYYADSVKGRFTISRDNSKDTLYLQMNSLRAEDTAVYYCARDGQLG------RGYFDYWGQGTLVTVSS VH1015-109 (29)
QVQLVQSGAEVRKPGSSVKVSCKASGGSFNNYFIFWVRQAPGQGFEWMGRIIPILGITAYAQKFQGRVTITADKSTSTAYMELNSLRSEDTAVYYCAGGDD------LD--AFDIWGQGTMVSVSS VH1015-098 (33)
QVQLVESGGGVVQPGRSLRLSCAGSGFTFNRYAMYWVRQAPGKGLDWVAVISNDGINKYYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARDHTMV------RGAFDYWGQGTLVTVSS VH1015-111(37)
```

VL:

```
                          |-CDR1--|                |CDR2|                                  |---CDR3----|
EIVLTQSPGTLSLSPGERATLSCRASQSVSSSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGSS--LTFGGGTKVEIK VL1015-114 (41)
DIQMTQSPPSLSASAGDRVTITCRASQGISS-RLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYP-YTFGQGTKLEIK VL1015-011 (45)
EIVLTQSPGTLSLSPGERATLSCRASQSVRSSYLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGSSP-RTFGQGTKVEIK VL1015-017 (49)
EIVLTQSPGTLSLSPGERATLSCRASQSVGSSSLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFAVYYCQQYGSSP-RTFGQGTKVEIK VL1015-042 (53)
DIQMTQSPSSLSASVGDRVTITCRASQGISS-RLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYP-YTFGQGTKLEIK VL1015-092 (57)
DIQMTQSPSSLSASVGDRVTITCRASQGISS-WLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYPLYTFGQGTKLEIK VL1015-101 (61)
EIVLTQSPATLSLSPGERATLSCRASQSVSS-YLAWYQQKPGQAPRLLIYDASNRATGIPARFSGSGSGTDFTLTISSLEPEDFAVYYCQQRSNWP-LTFGGGTKVEIK VL1015-025 (65)
EIVLTQSPATLSLSPGERAILSCRASQSVSS-YLAWYQQKPGQAPRLLIYDASNRATGIPARFSGSGSGTDFTLTISSLEPEDFAVYYCQQRSNWP-LTFGGGTKVEIK VL1015-109 (69)
DIQMTQSPSSLSASVGDRVTITCRASQGISS-WLAWYQQKPEKAPKSLIYAASSLQSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYCQQYNSYP-YTFGQGTKLEIK VL1015-098 (73)
EIVLTQSPATLSLSPGERATLSCRASQSVSS-YLAWYQQKPGQAPRLLIYDASNRATGIPARFSGSGSGTDFTLTISSLEPEDFAVYYCQQRSNWP-LTFGGGTKVEIK VL1015-111 (77)
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Fig. 12

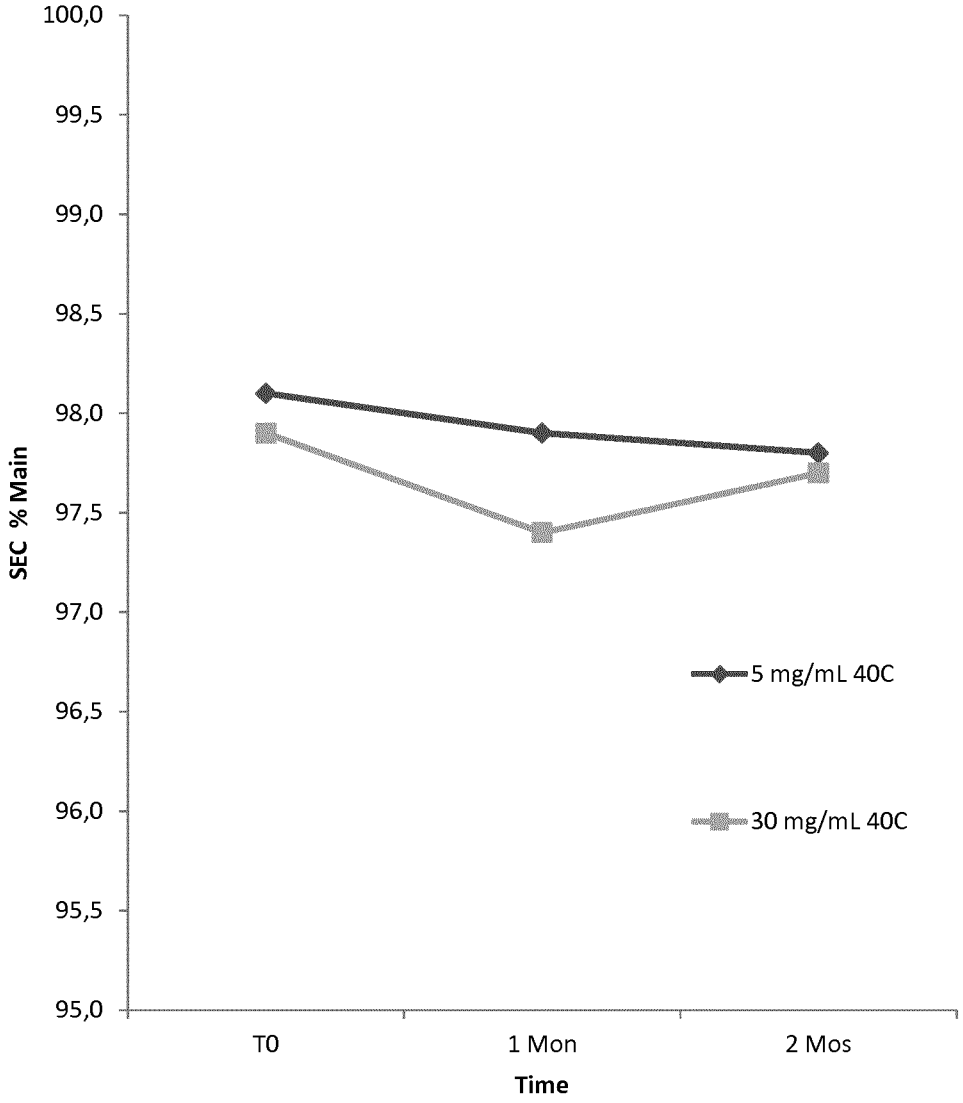

100,0
99,5
99,0
98,5
98,0
97,5
97,0
96,5
96,0
95,5
95,0
SEC % Main
5 mg/mL 40C
30 mg/mL 40C
T0
1 Mon
2 Mos
Time

Fig. 13

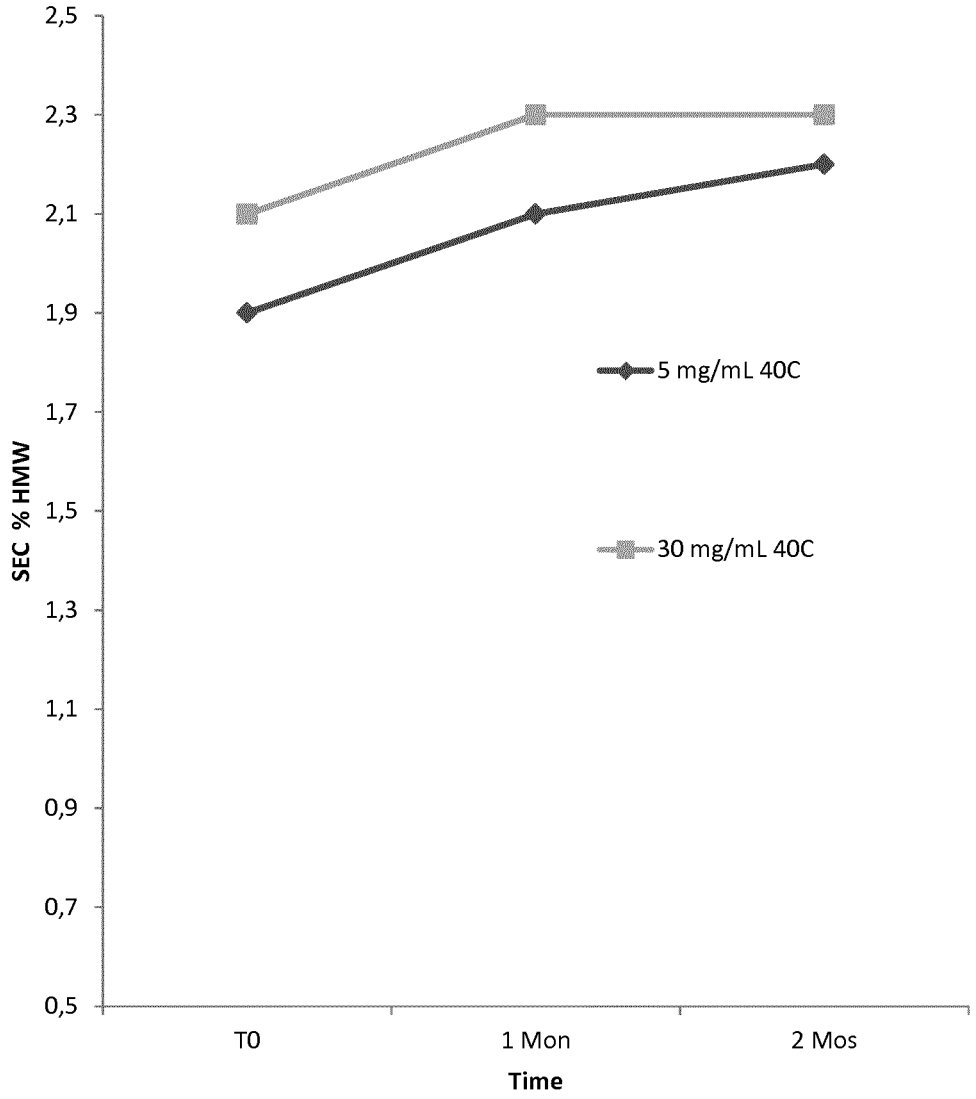

2,5
2,3
2,1
1,9
1,7
1,5
1,3
1,1
0,9
0,7
0,5
SEC % HMW
5 mg/mL 40C
30 mg/mL 40C
T0
1 Mon
2 Mos
Time

Fig. 14

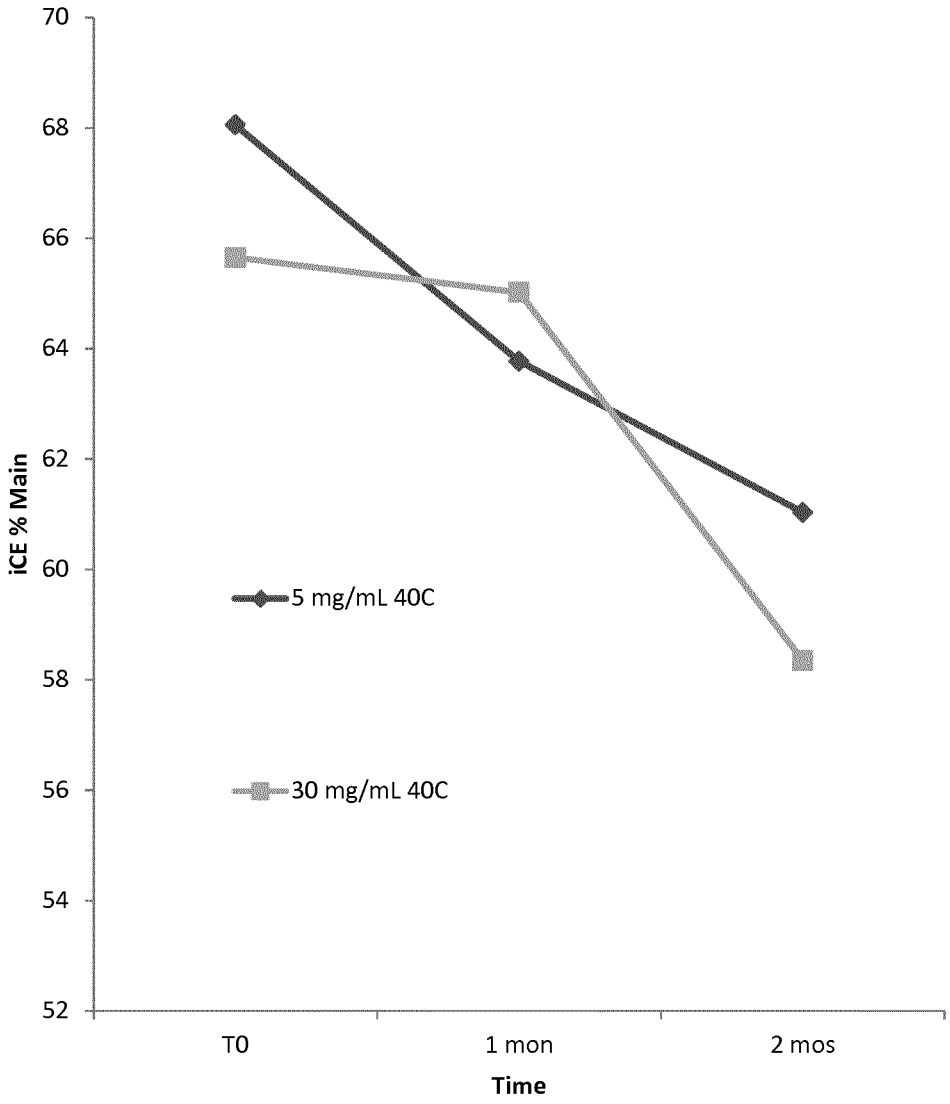

70
68
66
64
62
60
58
56
54
52
iCE % Main
5 mg/mL 40C
30 mg/mL 40C
T0
1 mon
2 mos
Time

Fig. 15

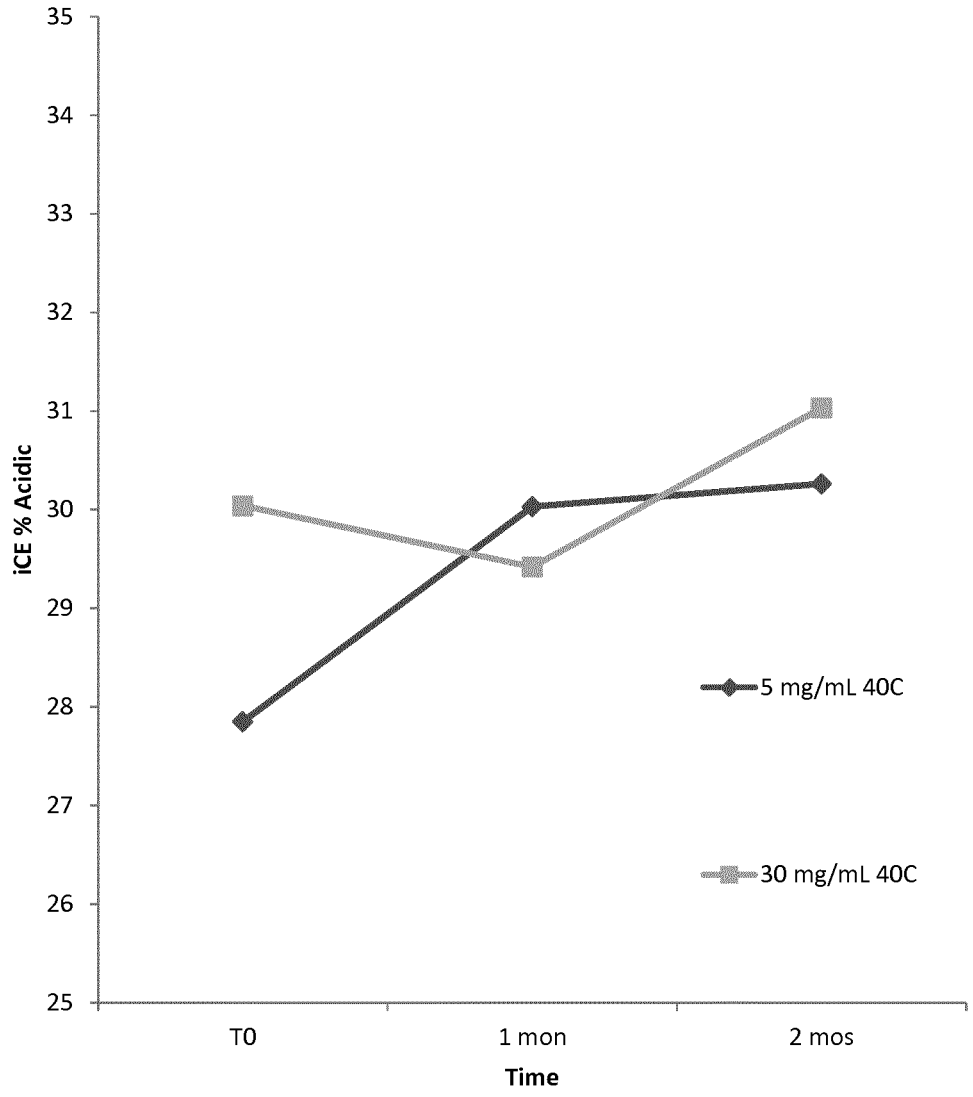

35
34
33
32
31
30
29
28
27
26
25
iCE % Acidic
T0
1 mon
2 mos
Time
5 mg/mL 40C
30 mg/mL 40C

Fig. 16

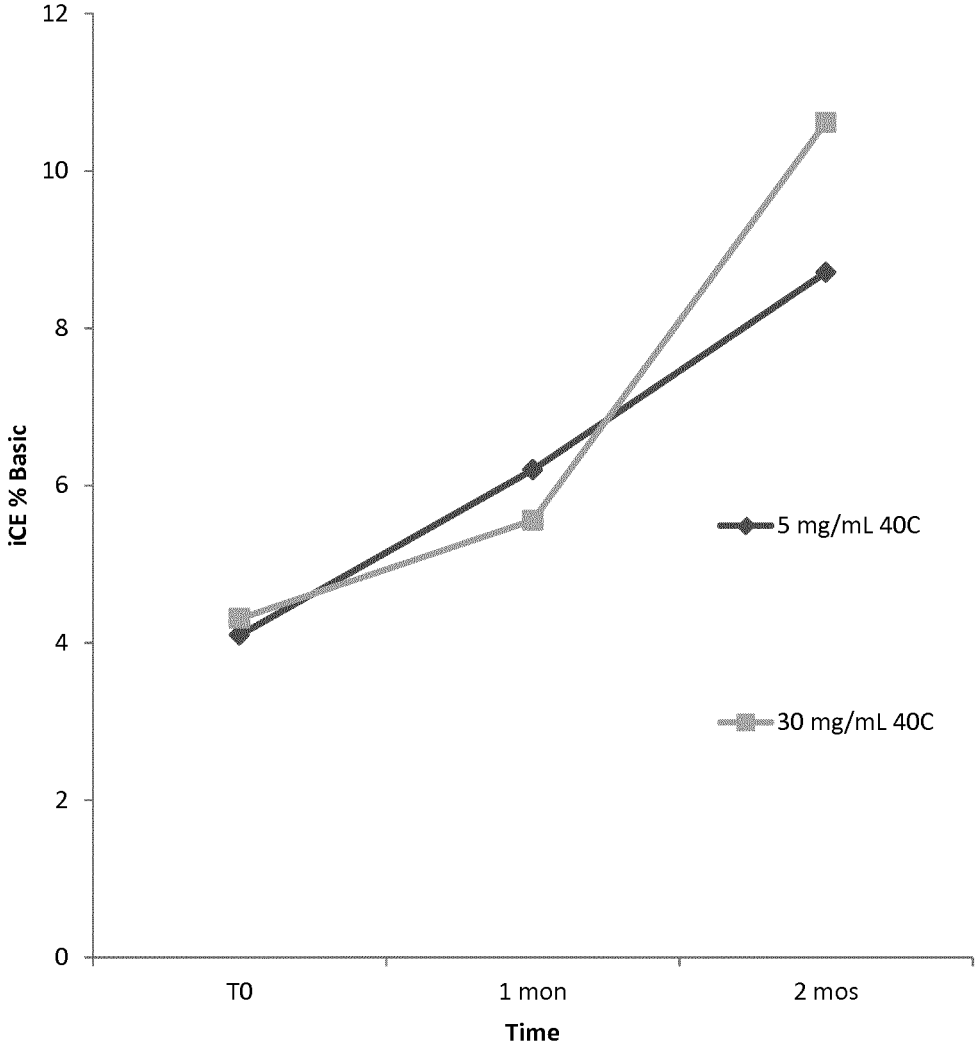


Fig. 17

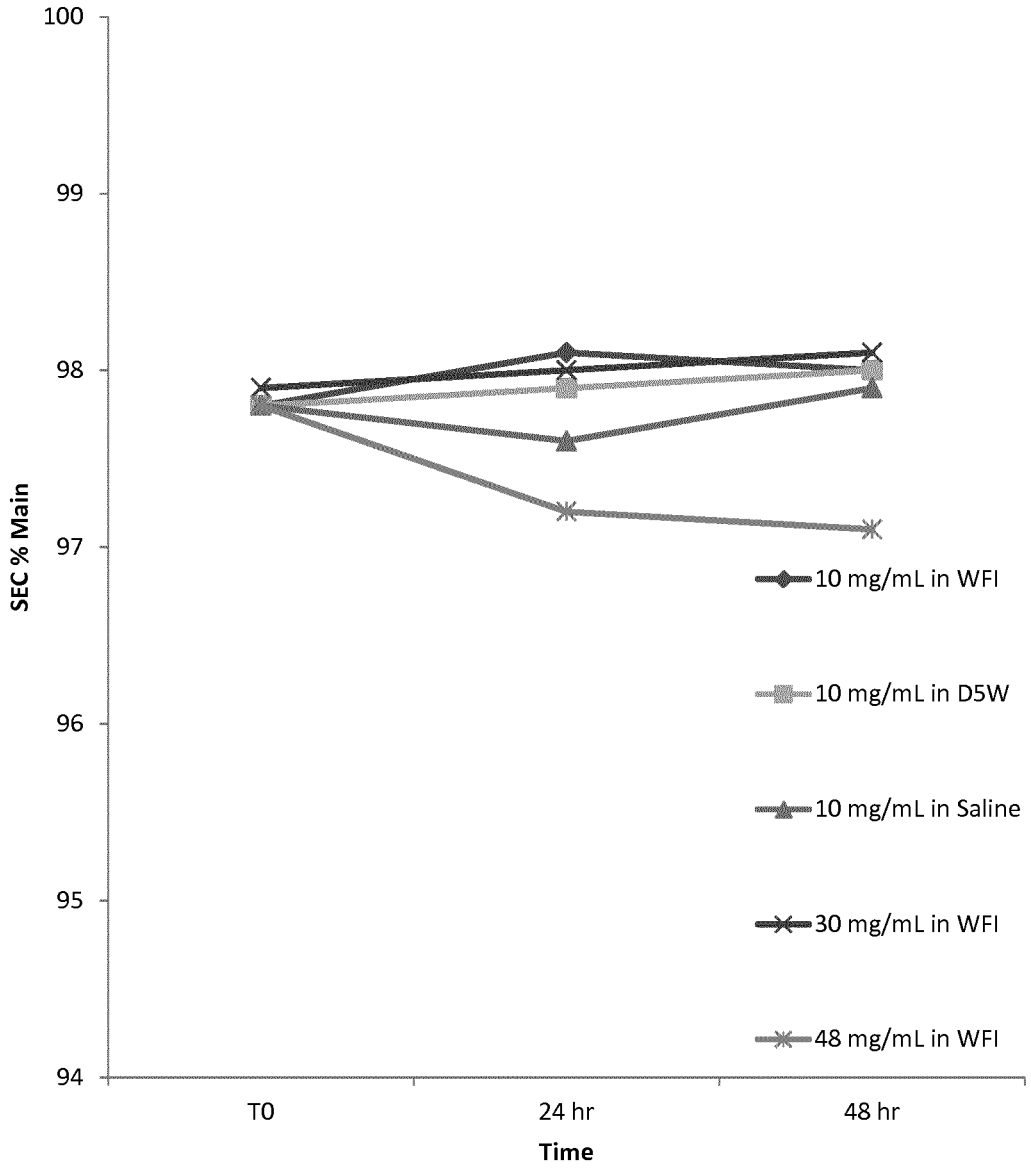

100
99
98
97
96
95
94
SEC % Main
T0
24 hr
48 hr
Time
10 mg/mL in WFI
10 mg/mL in D5W
10 mg/mL in Saline
30 mg/mL in WFI
48 mg/mL in WFI

Fig. 18

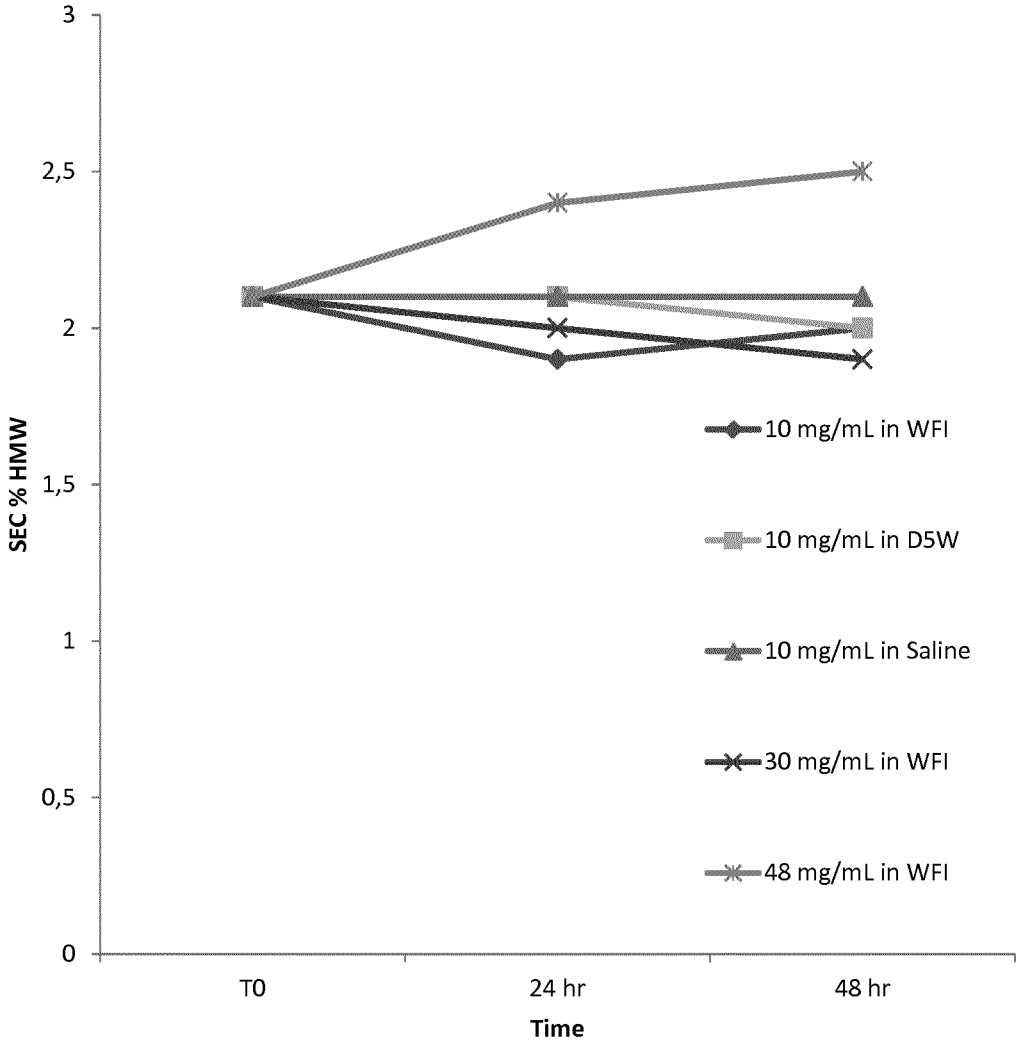

3
2,5
2
1,5
1
0,5
0
SEC % HMW
T0
24 hr
48 hr
Time
10 mg/mL in WFI
10 mg/mL in D5W
10 mg/mL in Saline
30 mg/mL in WFI
48 mg/mL in WFI

Fig. 19

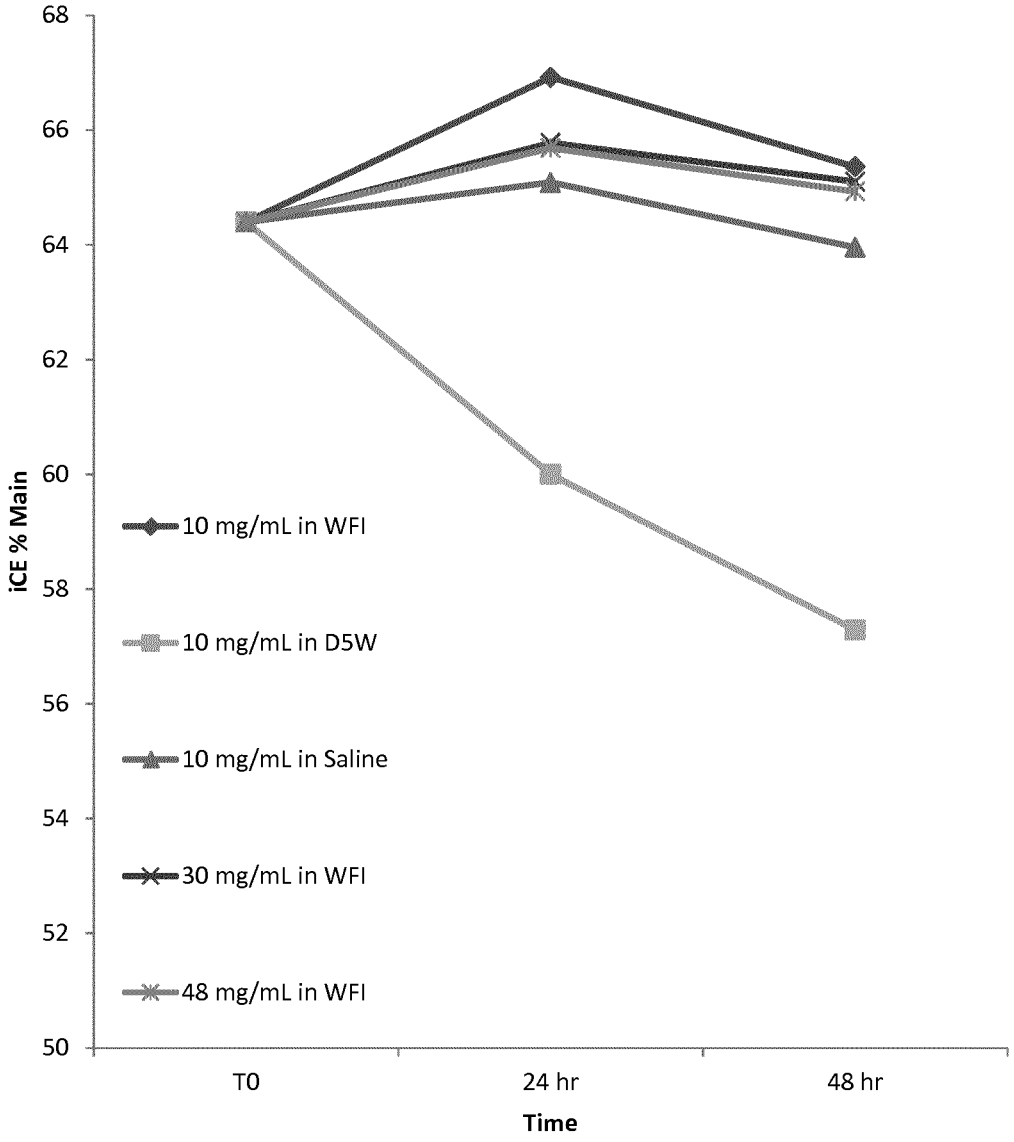

68
66
64
62
60
58
56
54
52
50
iCE % Main
10 mg/mL in WFI
10 mg/mL in D5W
10 mg/mL in Saline
30 mg/mL in WFI
48 mg/mL in WFI
T0
24 hr
48 hr
Time

Fig. 20

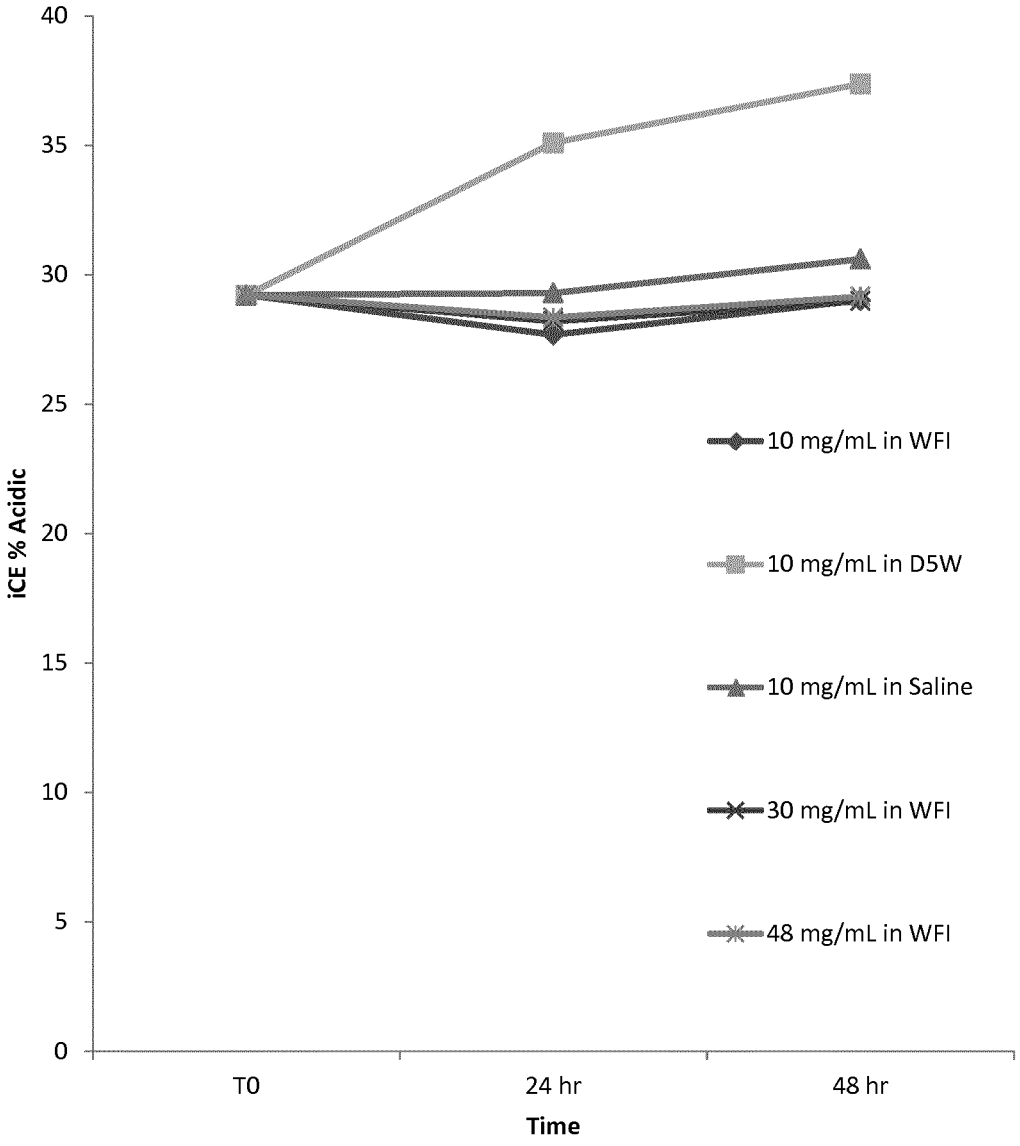

40
35
30
25
20
15
10
5
0
iCE % Acidic
T0
24 hr
48 hr
Time
10 mg/mL in WFI
10 mg/mL in D5W
10 mg/mL in Saline
30 mg/mL in WFI
48 mg/mL in WFI

Fig. 21

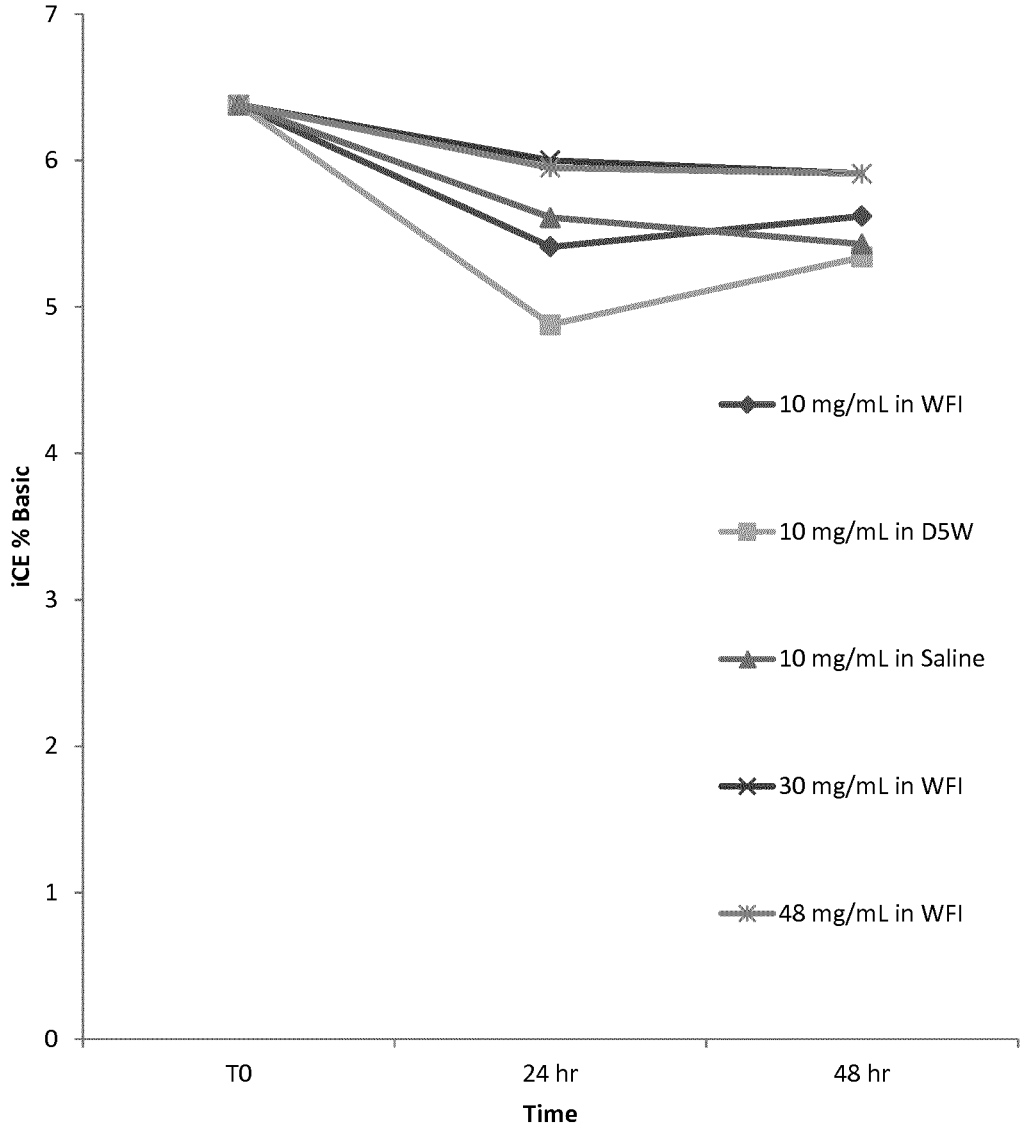

7
6
5
4
3
2
1
0
iCE % Basic
T0
24 hr
48 hr
Time
10 mg/mL in WFI
10 mg/mL in D5W
10 mg/mL in Saline
30 mg/mL in WFI
48 mg/mL in WFI

Fig. 22

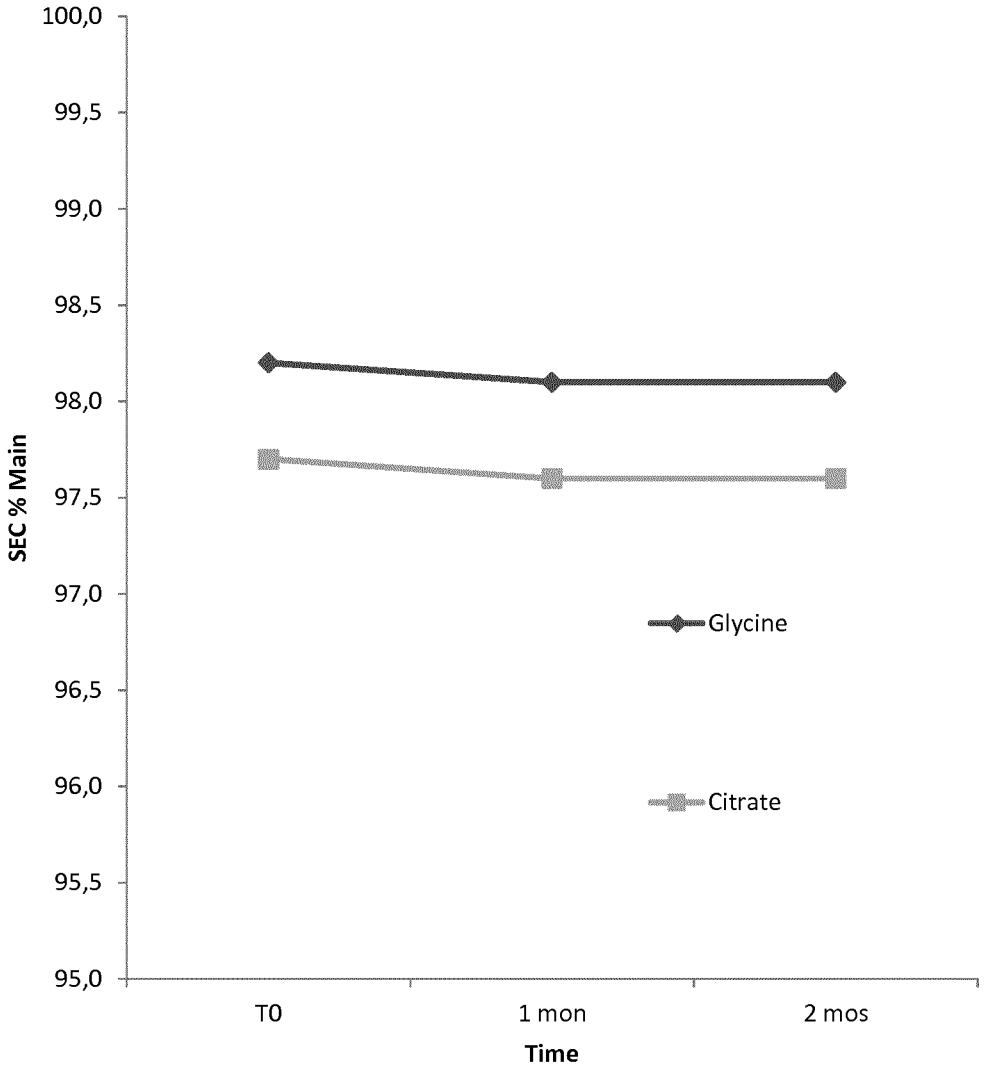

100,0
99,5
99,0
98,5
98,0
97,5
97,0
96,5
96,0
95,5
95,0
SEC % Main
Glycine
Citrate
T0
1 mon
2 mos
Time

Fig. 23

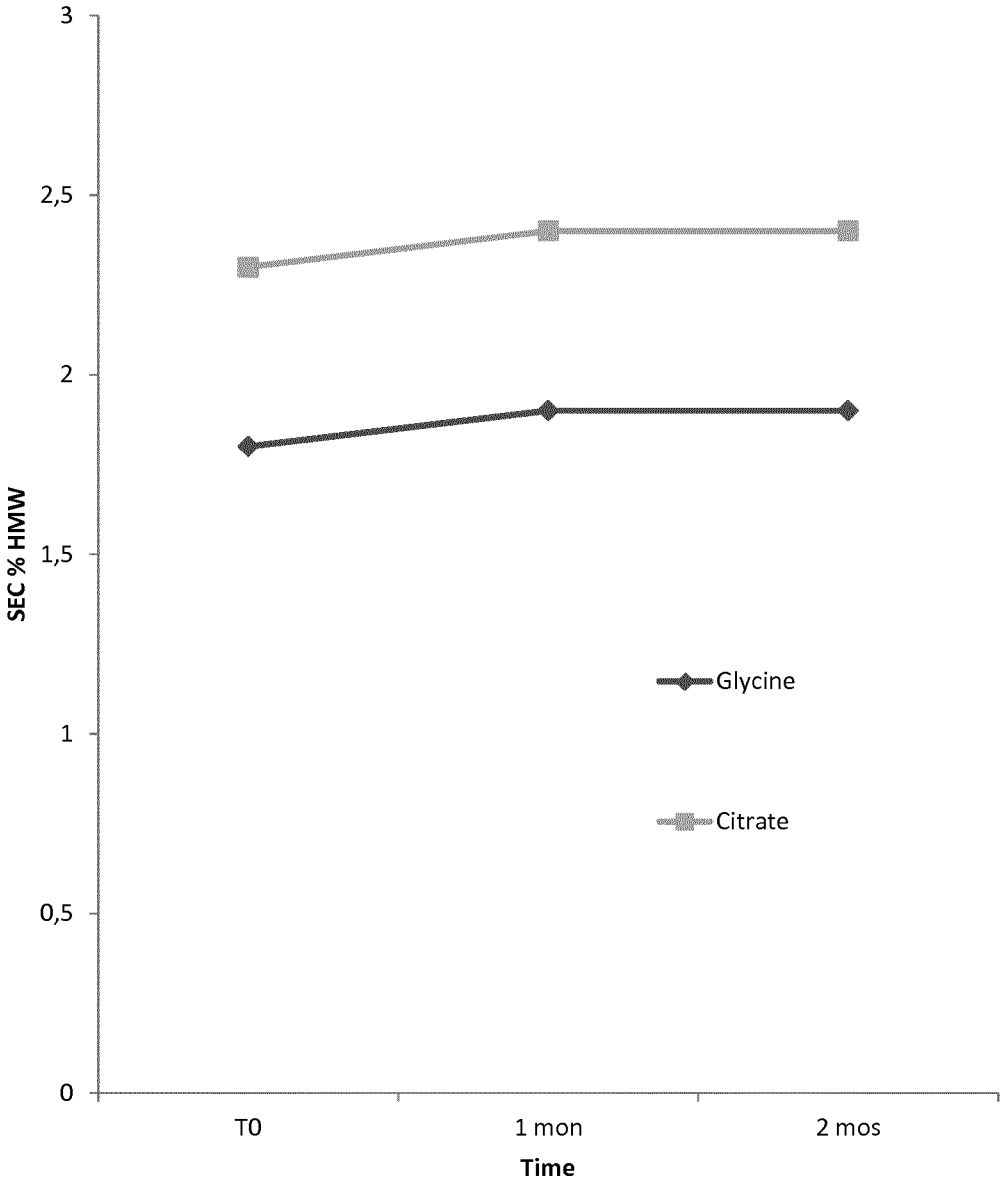


Fig. 24

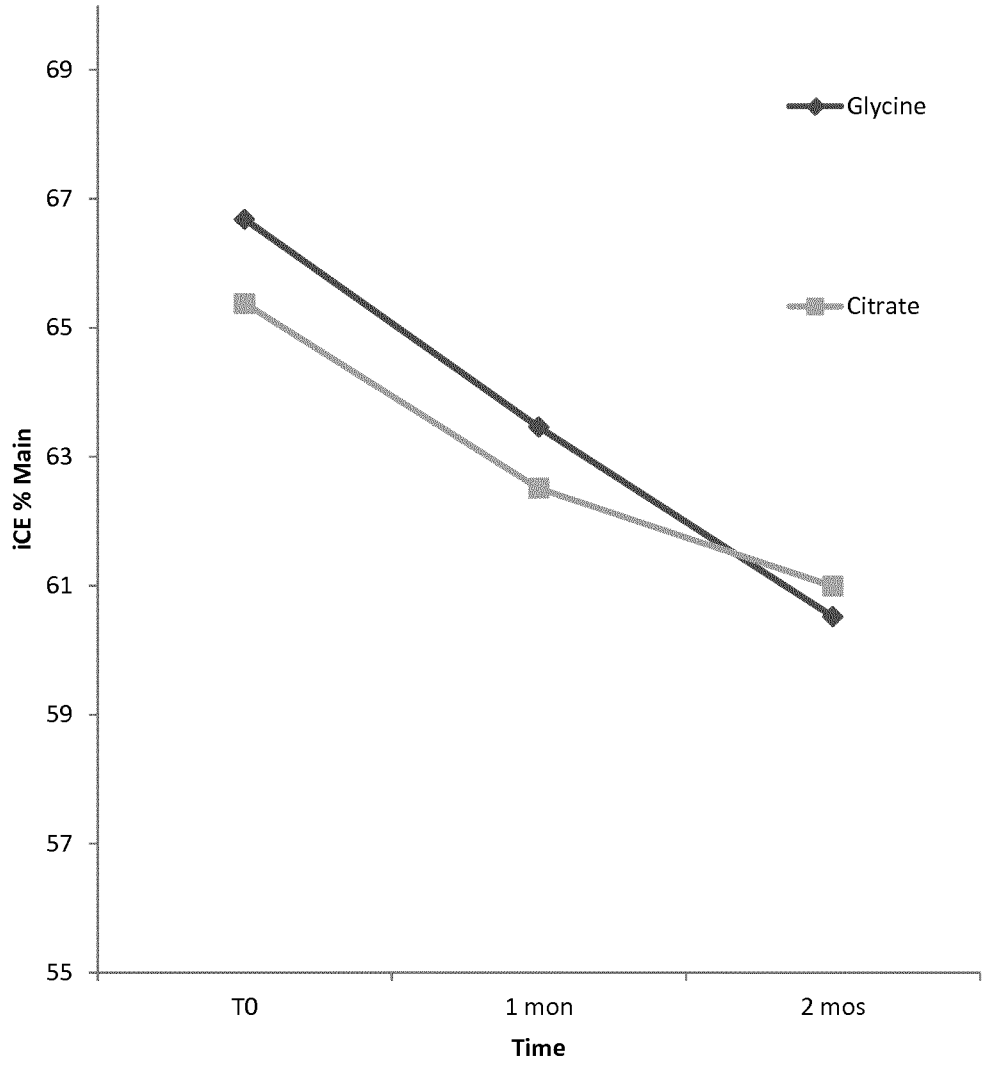

69
67
65
63
61
59
57
55
iCE % Main
Glycine
Citrate
T0
1 mon
2 mos
Time

Fig. 25

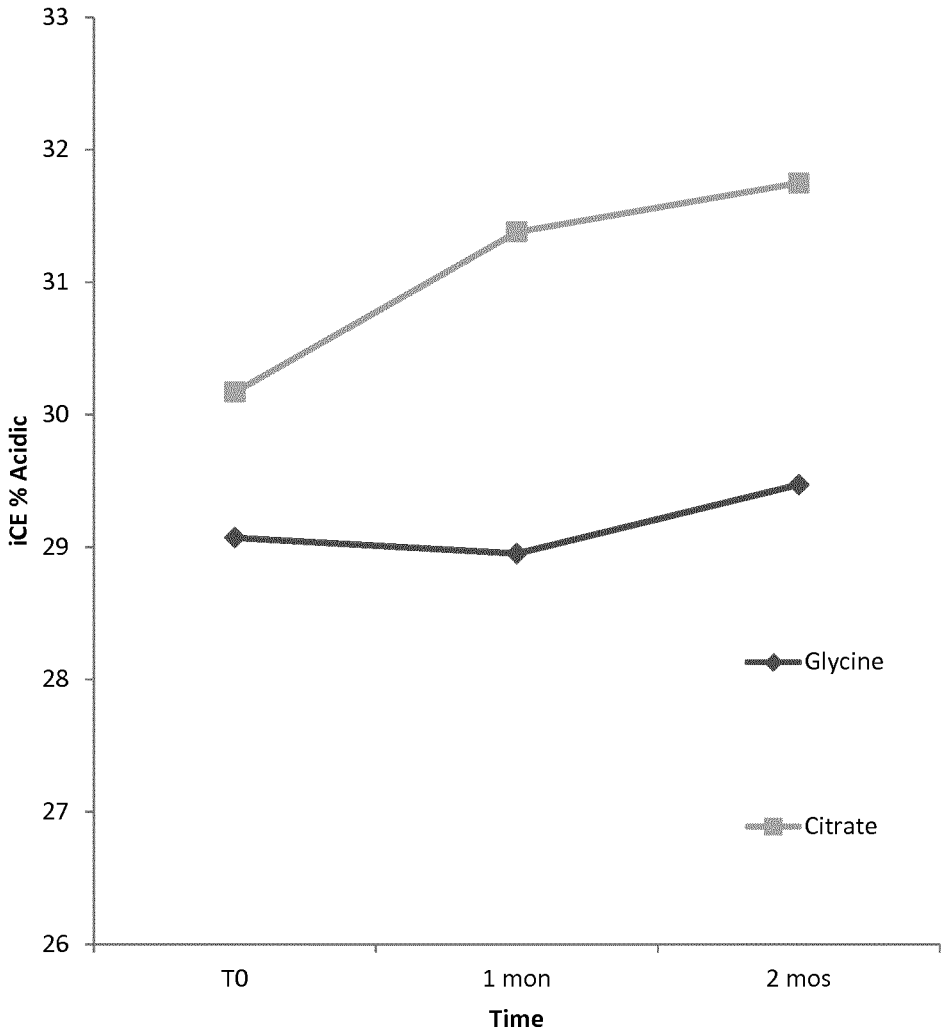

33
32
31
30
29
28
27
26
iCE % Acidic
T0
1 mon
2 mos
Time
Glycine
Citrate

Fig. 26

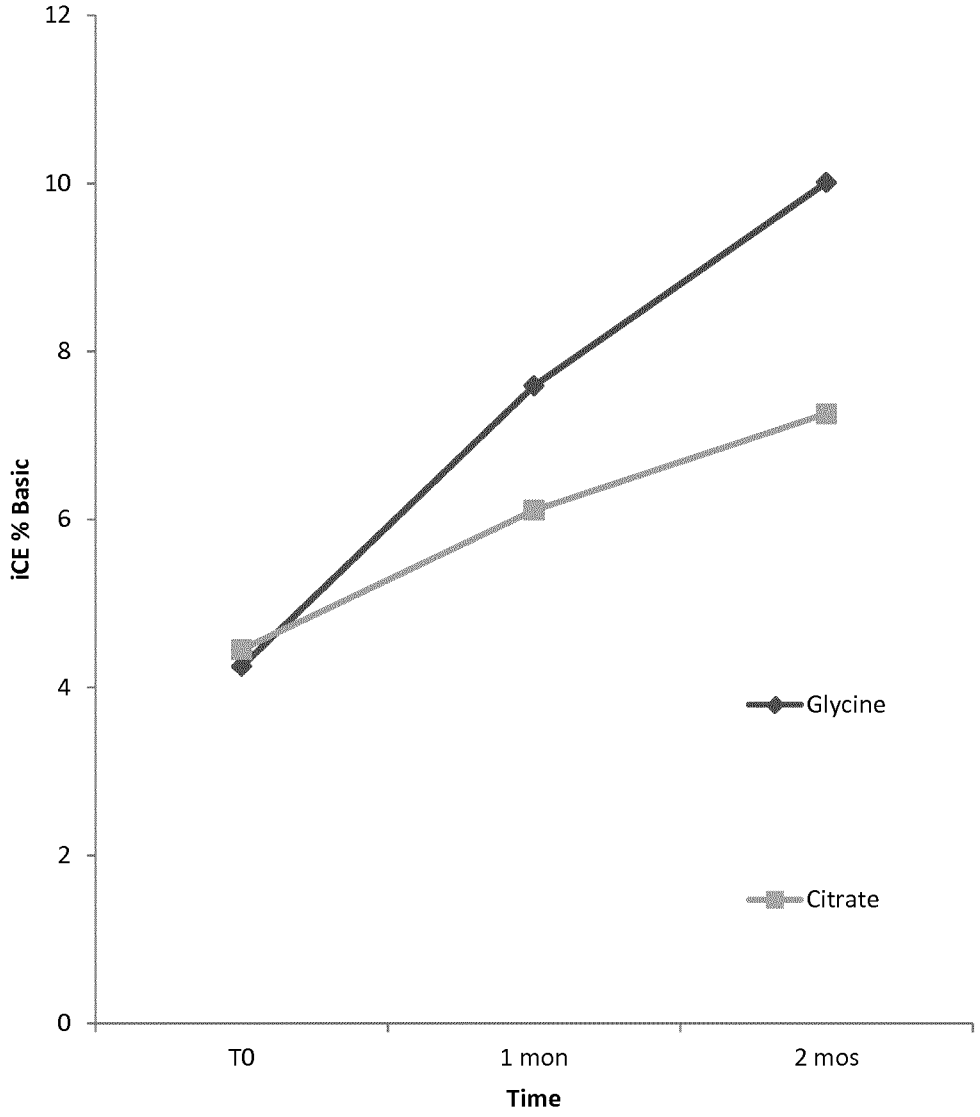


Fig. 27

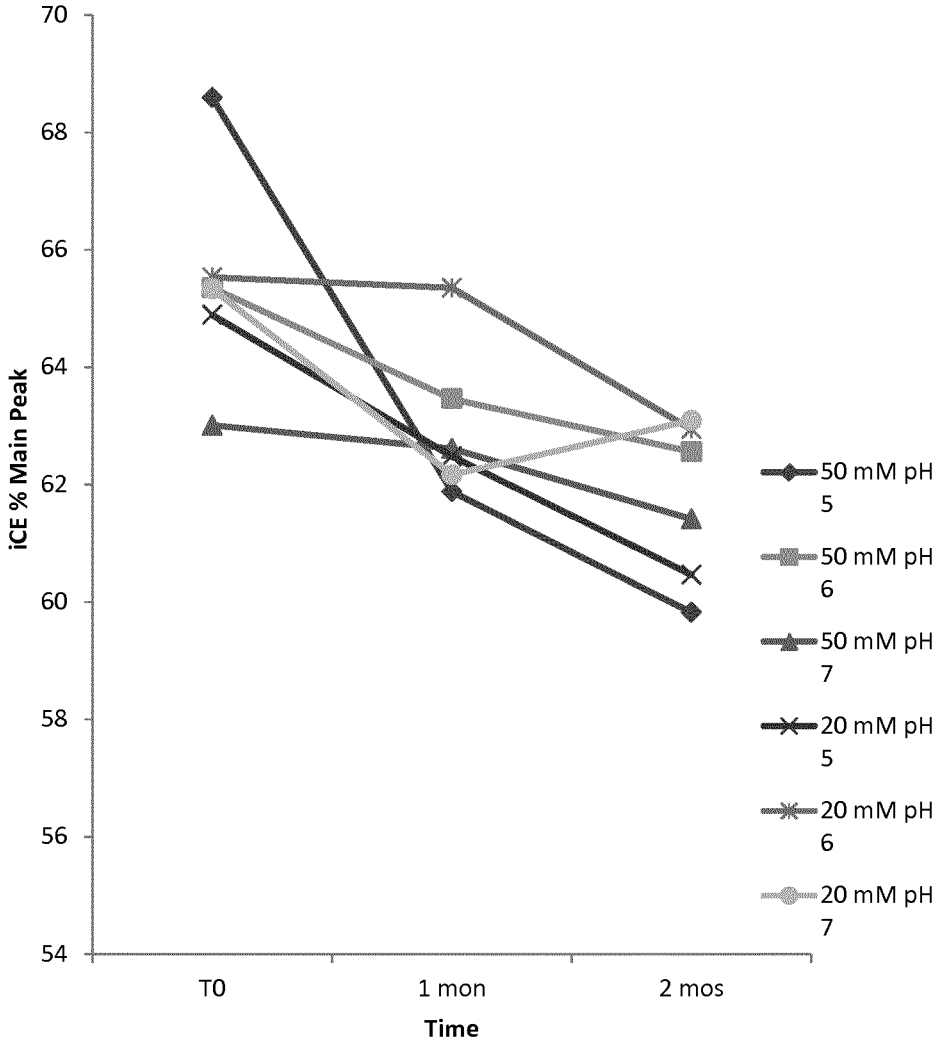

70
68
66
64
62
60
58
56
54
iCE % Main Peak
T0
1 mon
2 mos
Time
50 mM pH 5
50 mM pH 6
50 mM pH 7
20 mM pH 5
20 mM pH 6
20 mM pH 7

Fig. 28

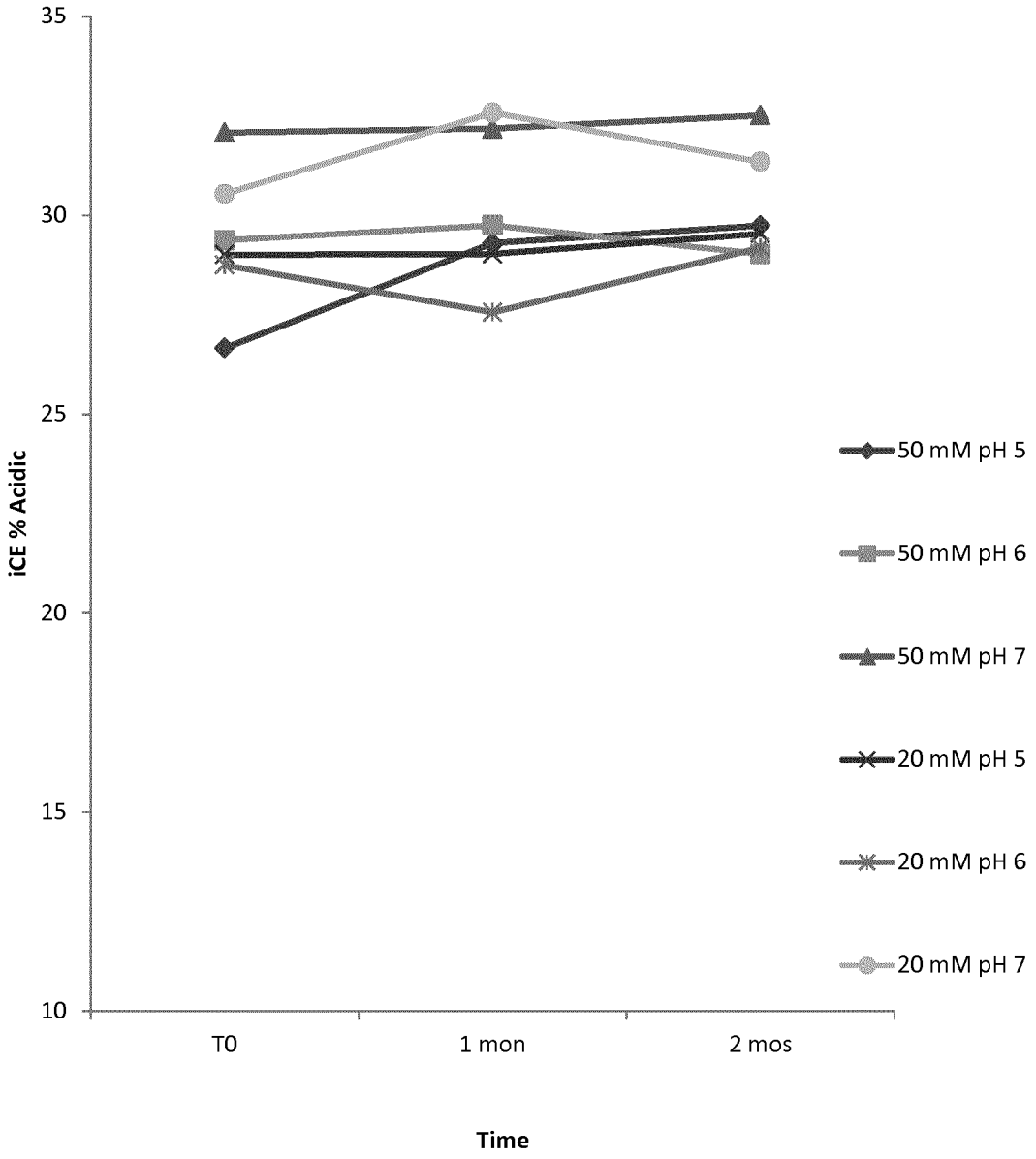

35
30
25
20
15
10
iCE % Acidic
T0
1 mon
2 mos
Time
50 mM pH 5
50 mM pH 6
50 mM pH 7
20 mM pH 5
20 mM pH 6
20 mM pH 7

Fig. 29

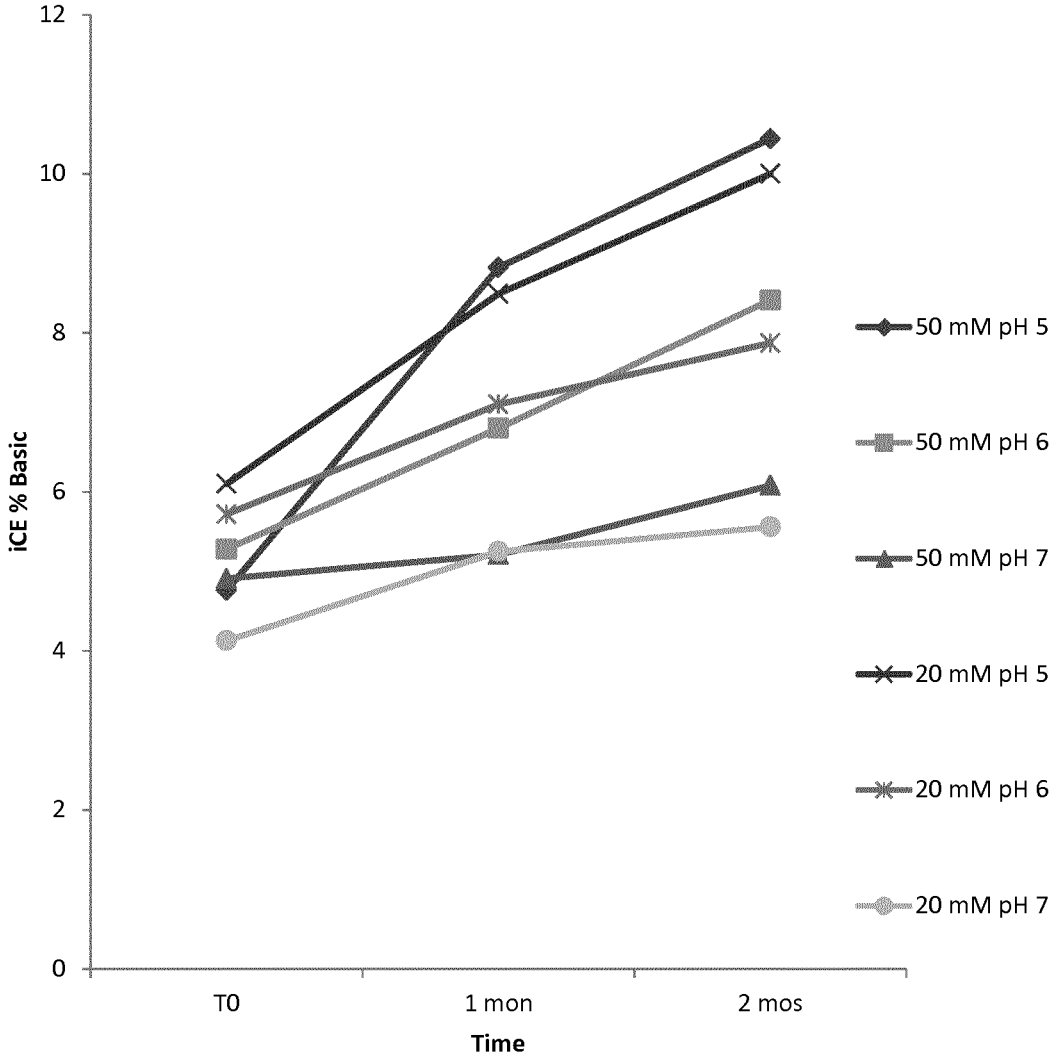

12
10
8
6
4
2
0
iCE % Basic
T0
1 mon
2 mos
Time
50 mM pH 5
50 mM pH 6
50 mM pH 7
20 mM pH 5
20 mM pH 6
20 mM pH 7

Fig. 30

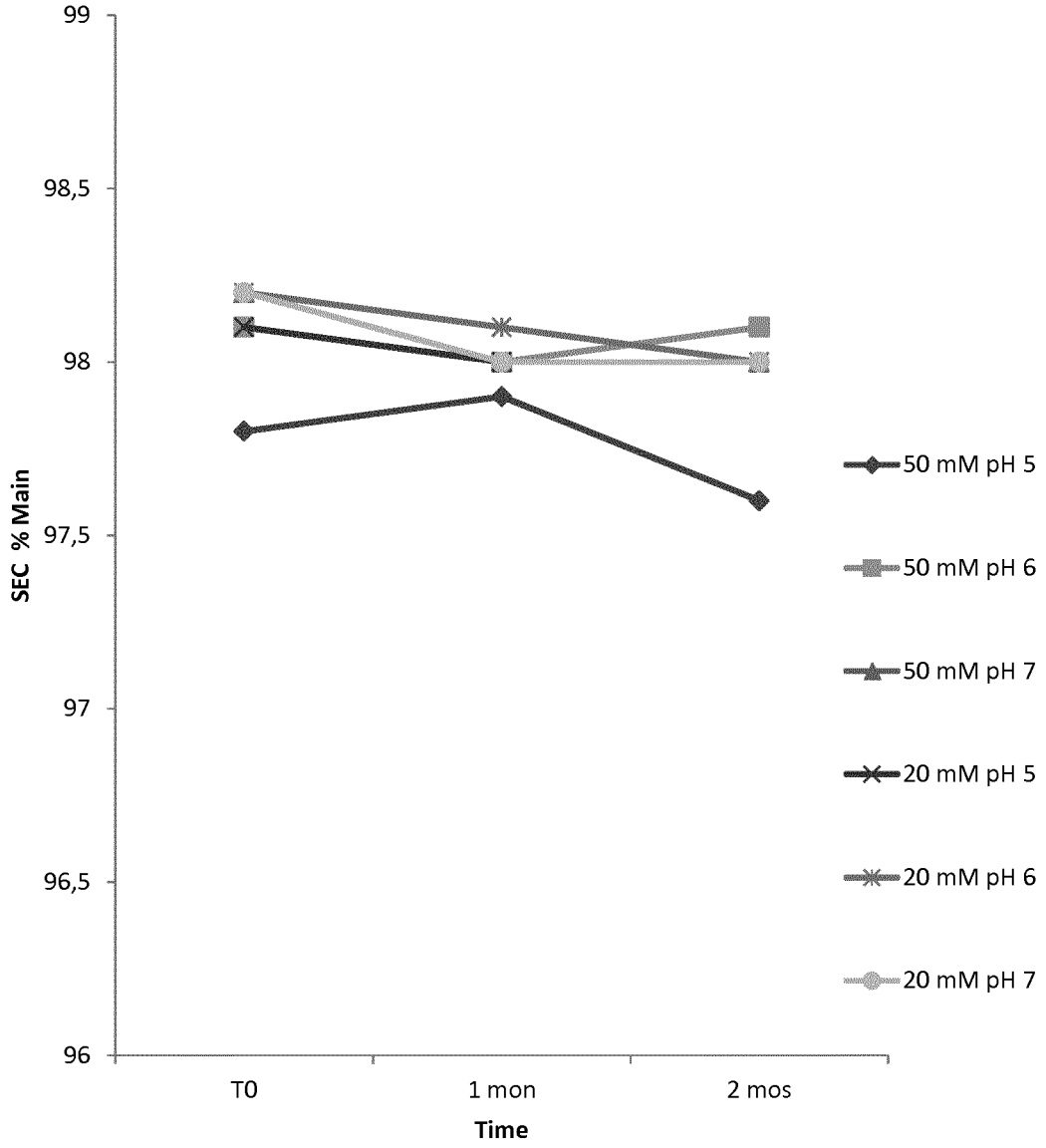
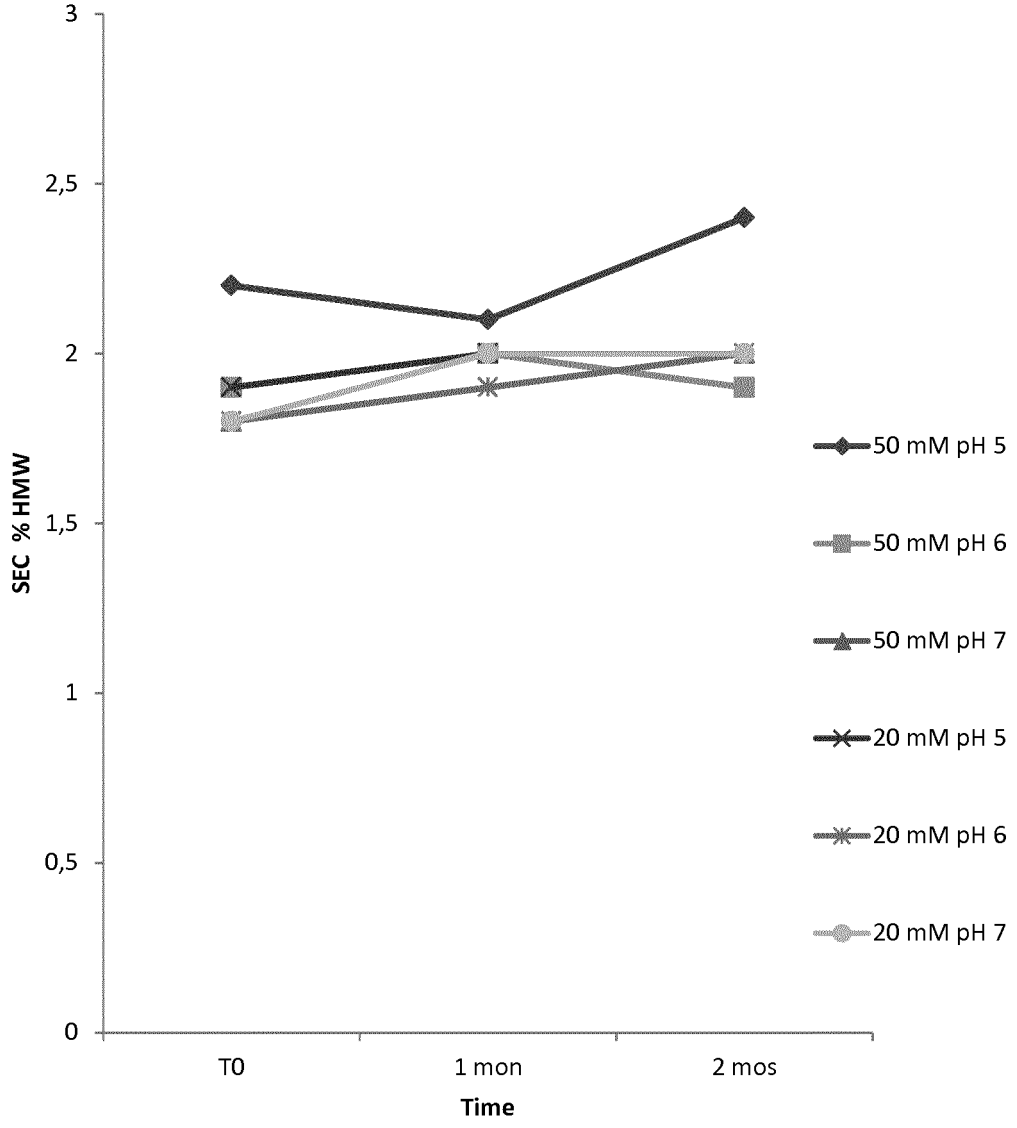

99
98,5
98
97,5
97
96,5
96
SEC % Main
T0
1 mon
2 mos
Time
50 mM pH 5
50 mM pH 6
50 mM pH 7
20 mM pH 5
20 mM pH 6
20 mM pH 7

Fig. 31


3
2,5
2
1,5
1
0,5
0
SEC % HMW
T0
1 mon
2 mos
Time
50 mM pH 5
50 mM pH 6
50 mM pH 7
20 mM pH 5
20 mM pH 6
20 mM pH 7