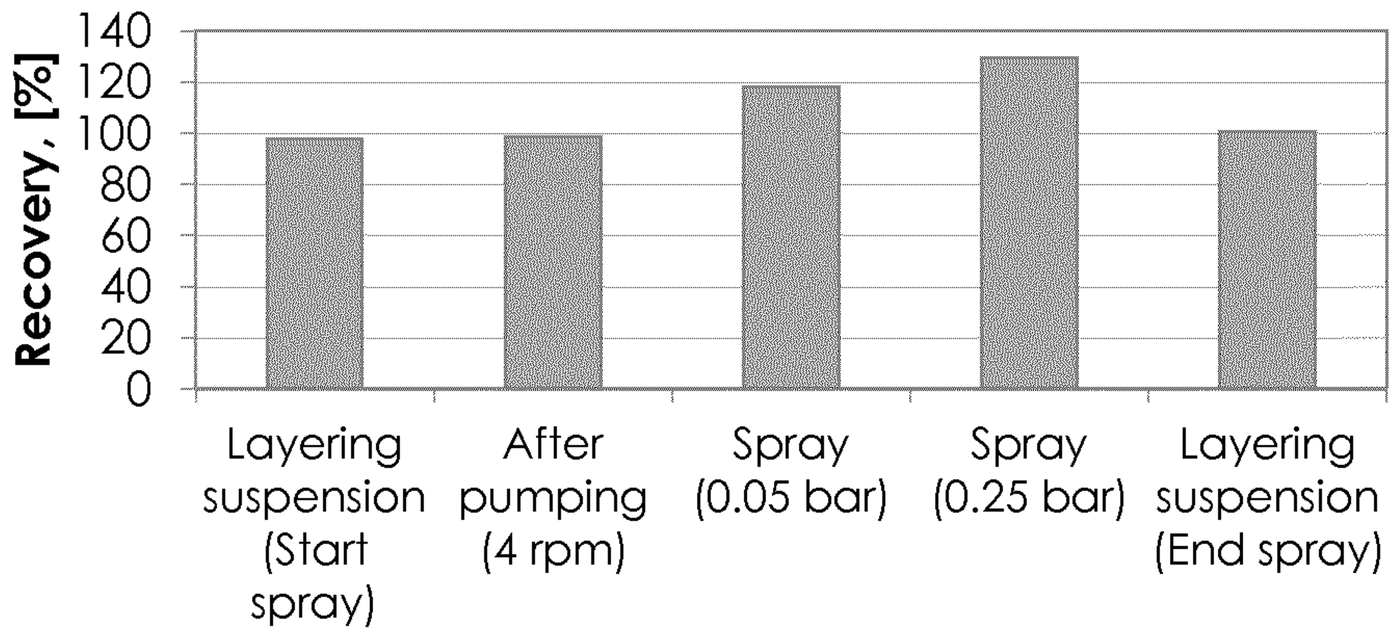
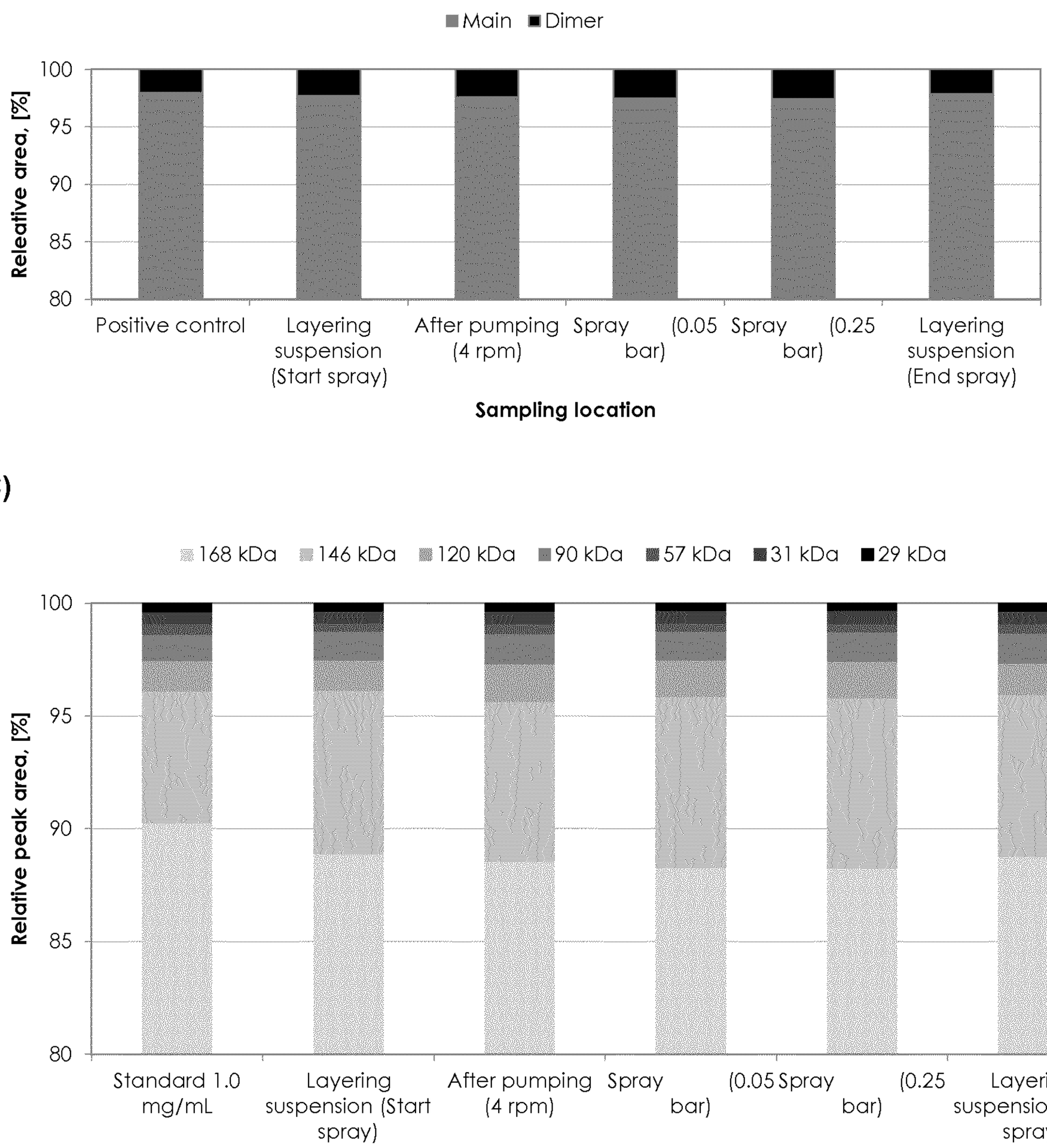
Figure 1

(A)


Recovery, [%]
140
120
100
80
60
40
20
0
Layering suspension (Start spray)
After pumping (4 rpm)
Spray (0.05 bar)
Spray (0.25 bar)
Layering suspension (End spray)
Sampling location

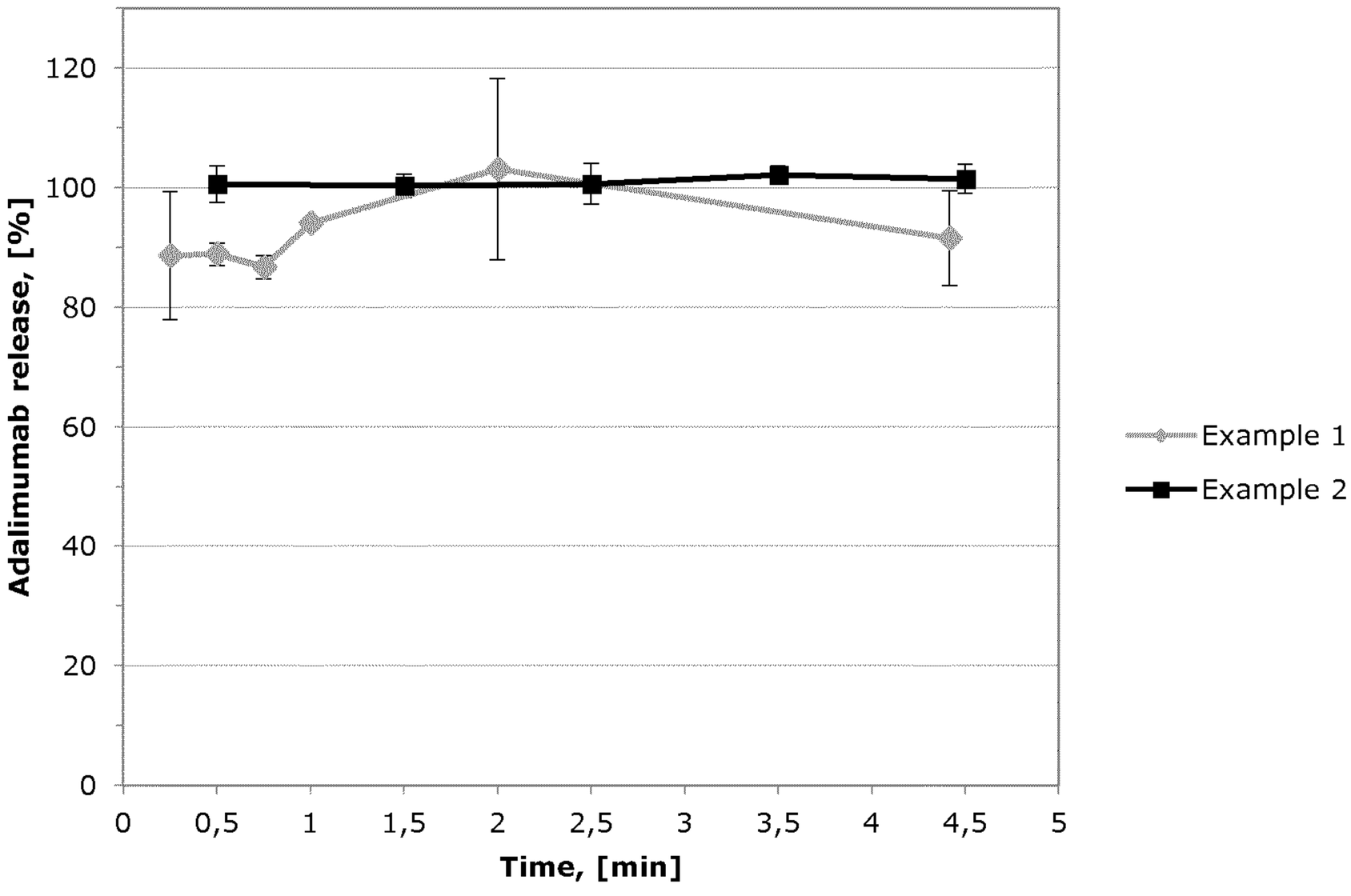
(B)


Main
Dimer
Releative area, [%]
100
95
90
85
80
Positive control
Layering suspension (Start spray)
After pumping (4 rpm)
Spray (0.05 bar)
Spray (0.25 bar)
Layering suspension (End spray)
Sampling location

(C)

168 kDa
146 kDa
120 kDa
90 kDa
57 kDa
31 kDa
29 kDa
Relative peak area, [%]
100
95
90
85
80
Standard 1.0 mg/mL
Layering suspension (Start spray)
After pumping (4 rpm)
Spray (0.05 bar)
Spray (0.25 bar)
Layering suspension (End spray)

Figure 2


120
100
80
60
40
20
0
Adalimumab release, [%]
0
0,5
1
1,5
2
2,5
3
3,5
4
4,5
5
Time, [min]
Example 1
Example 2

5

Figure 3

(A)

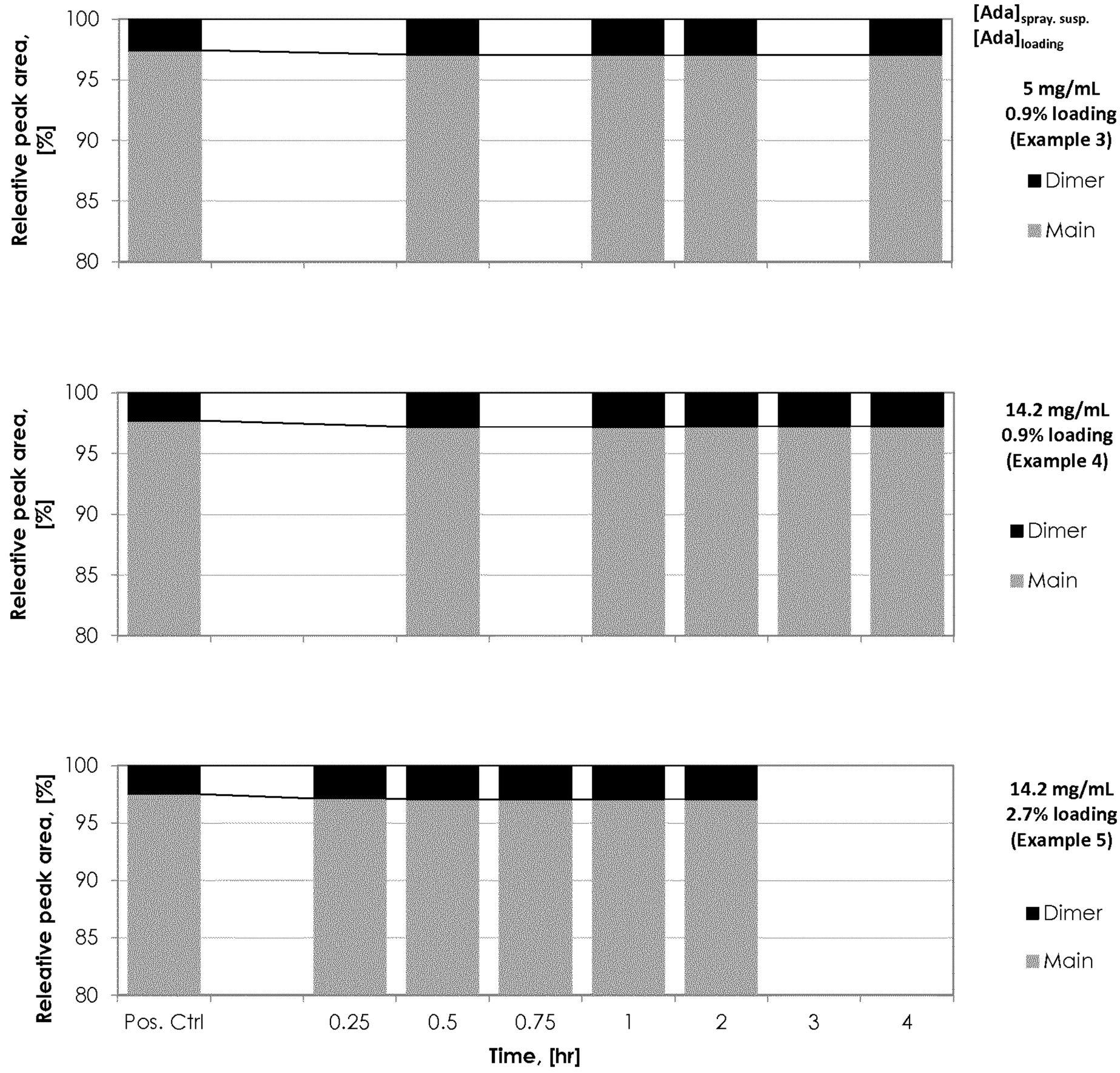

Releative peak area, [%]
100
95
90
85
80
[Ada]spray. susp.
[Ada]loading
5 mg/mL
0.9% loading
(Example 3)
Dimer
Main
14.2 mg/mL
0.9% loading
(Example 4)
Dimer
Main
14.2 mg/mL
2.7% loading
(Example 5)
Dimer
Main
Pos. Ctrl
0.25
0.5
0.75
1
2
3
4
Time, [hr]

Figure 3

(B)

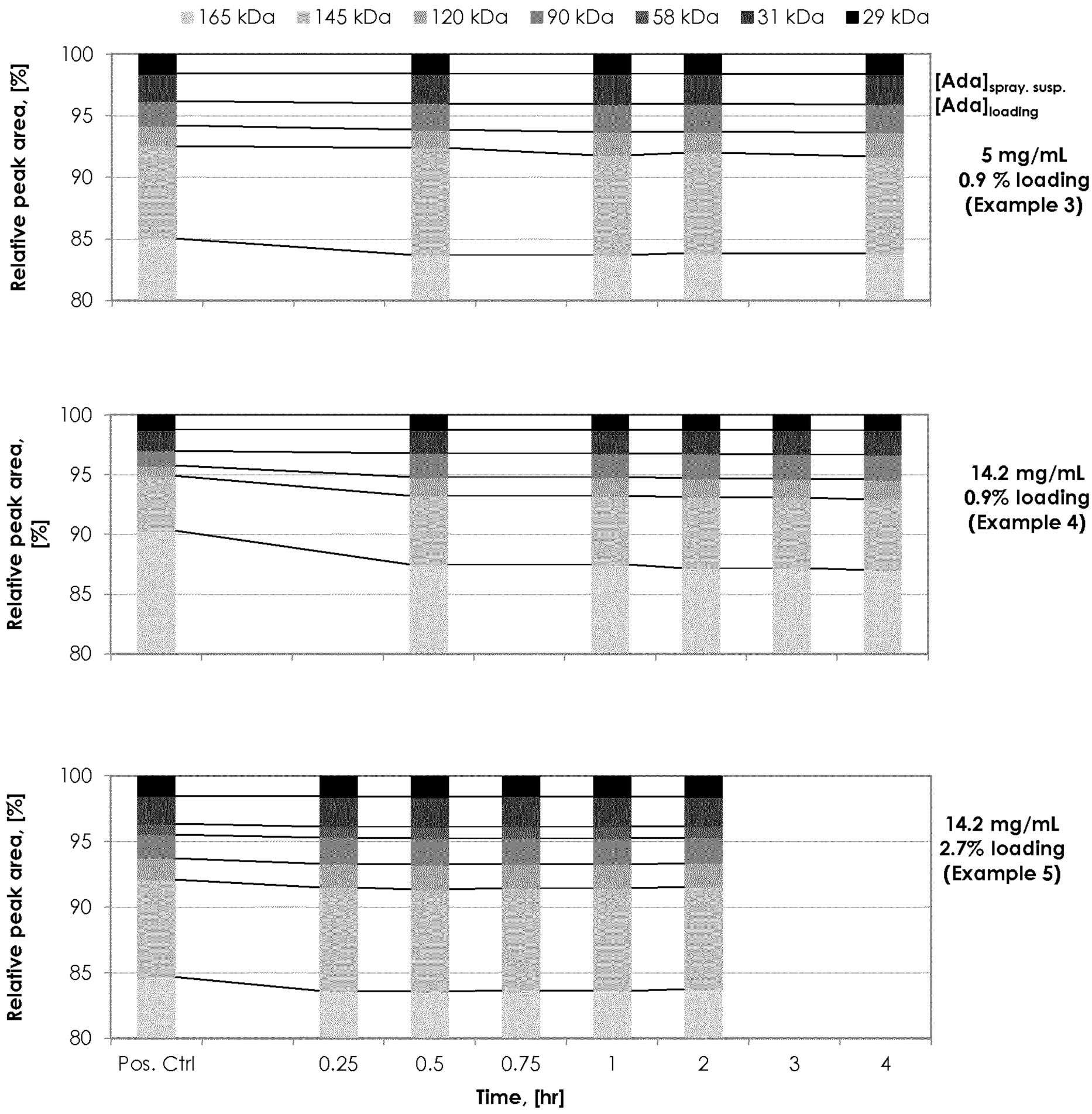
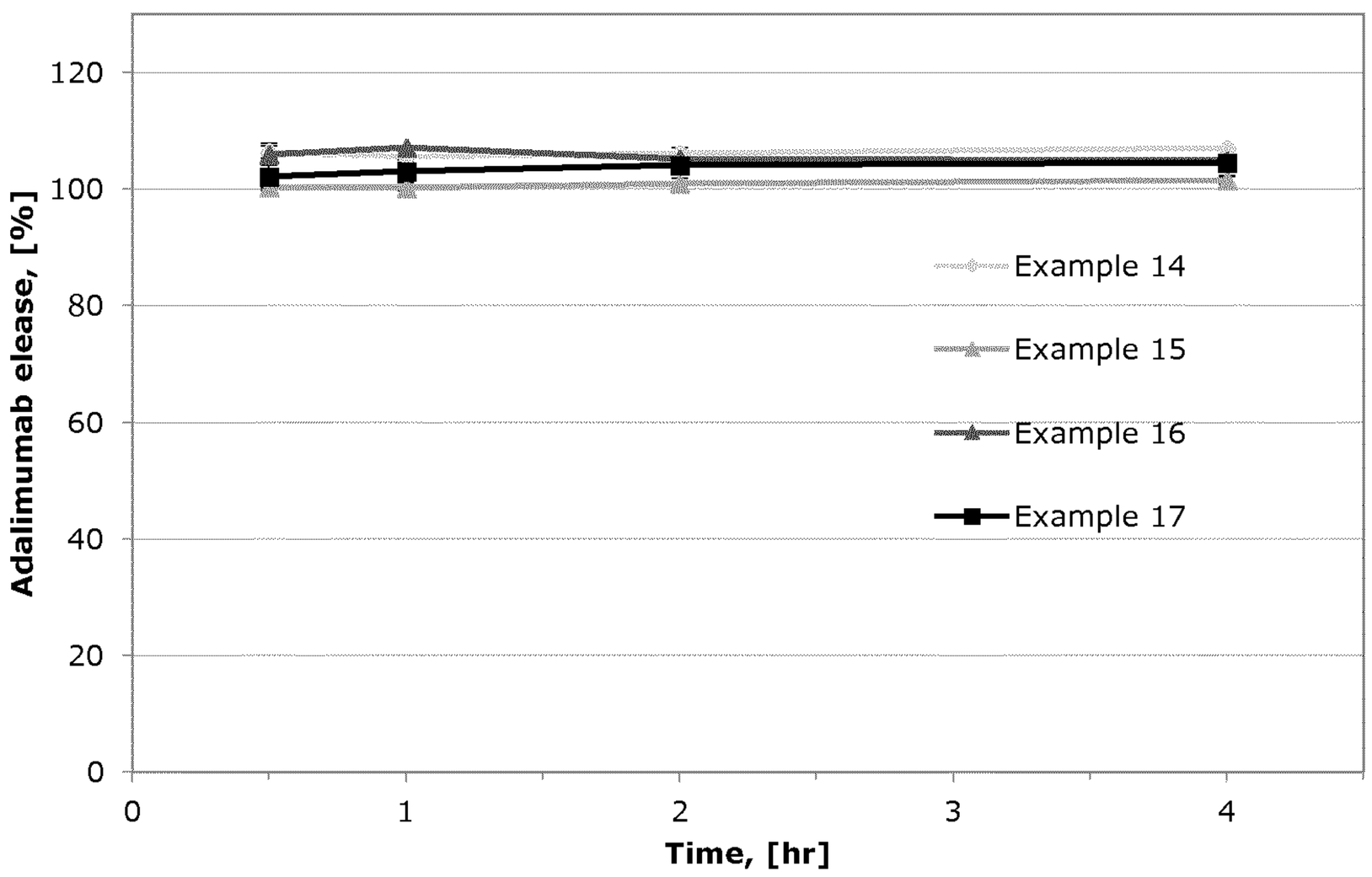

165 kDa
145 kDa
120 kDa
90 kDa
58 kDa
31 kDa
29 kDa
Relative peak area, [%]
100
95
90
85
80
[Ada]spray. susp.
[Ada]loading
5 mg/mL
0.9 % loading
(Example 3)
Relative peak area, [%]
14.2 mg/mL
0.9% loading
(Example 4)
Relative peak area, [%]
14.2 mg/mL
2.7% loading
(Example 5)
Pos. Ctrl
0.25
0.5
0.75
1
2
3
4
Time, [hr]

Figure 4

(A)

Formulation	ADA conc. susp (mg/mL)	Anti-tacking (%)	Reached loading (%)	Drying
Example 14	50	10% Syloid® 244 FP	0.86	24h/40°C
Example 15	25	10% Syloid® 244 FP	1.40	24h/40°C
Example 16	25	10% GMS	1.53	24h/40°C
Example 17	25	20% Syloid® 244 FP	1.24	24h/40°C

(B)



(C)

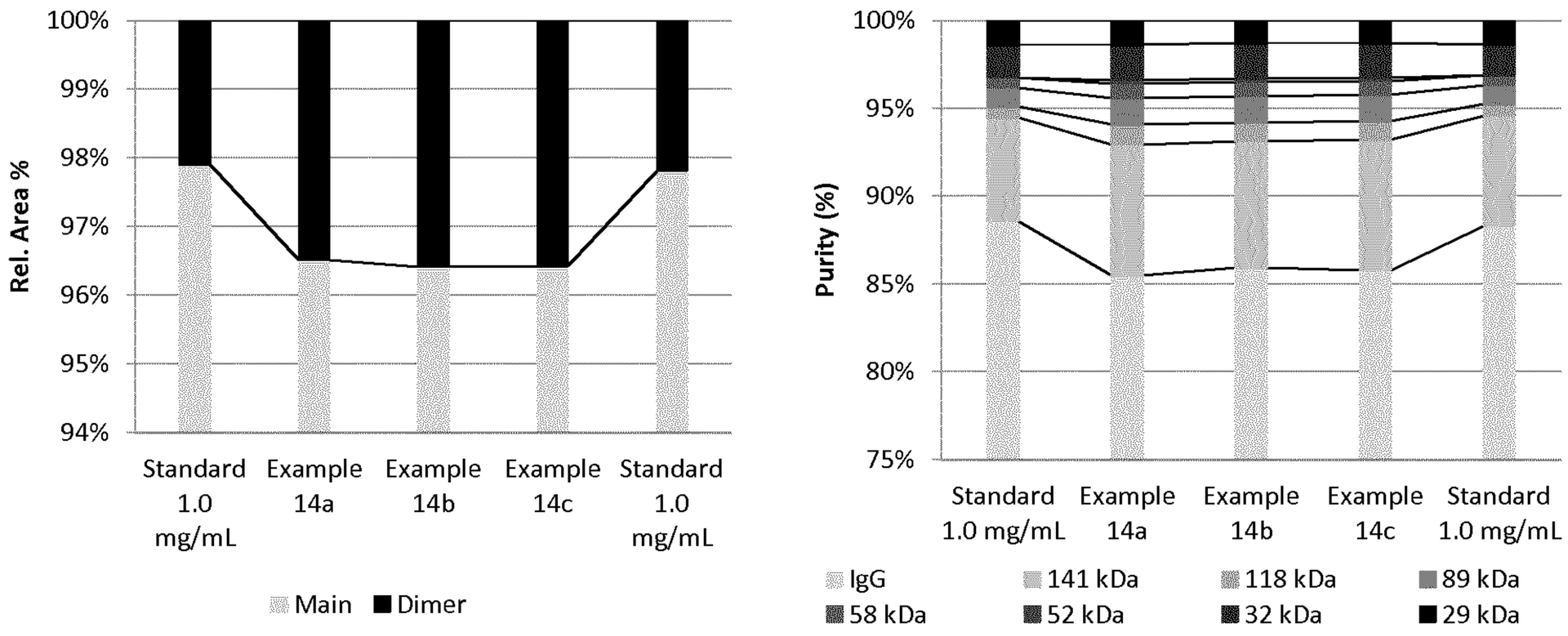
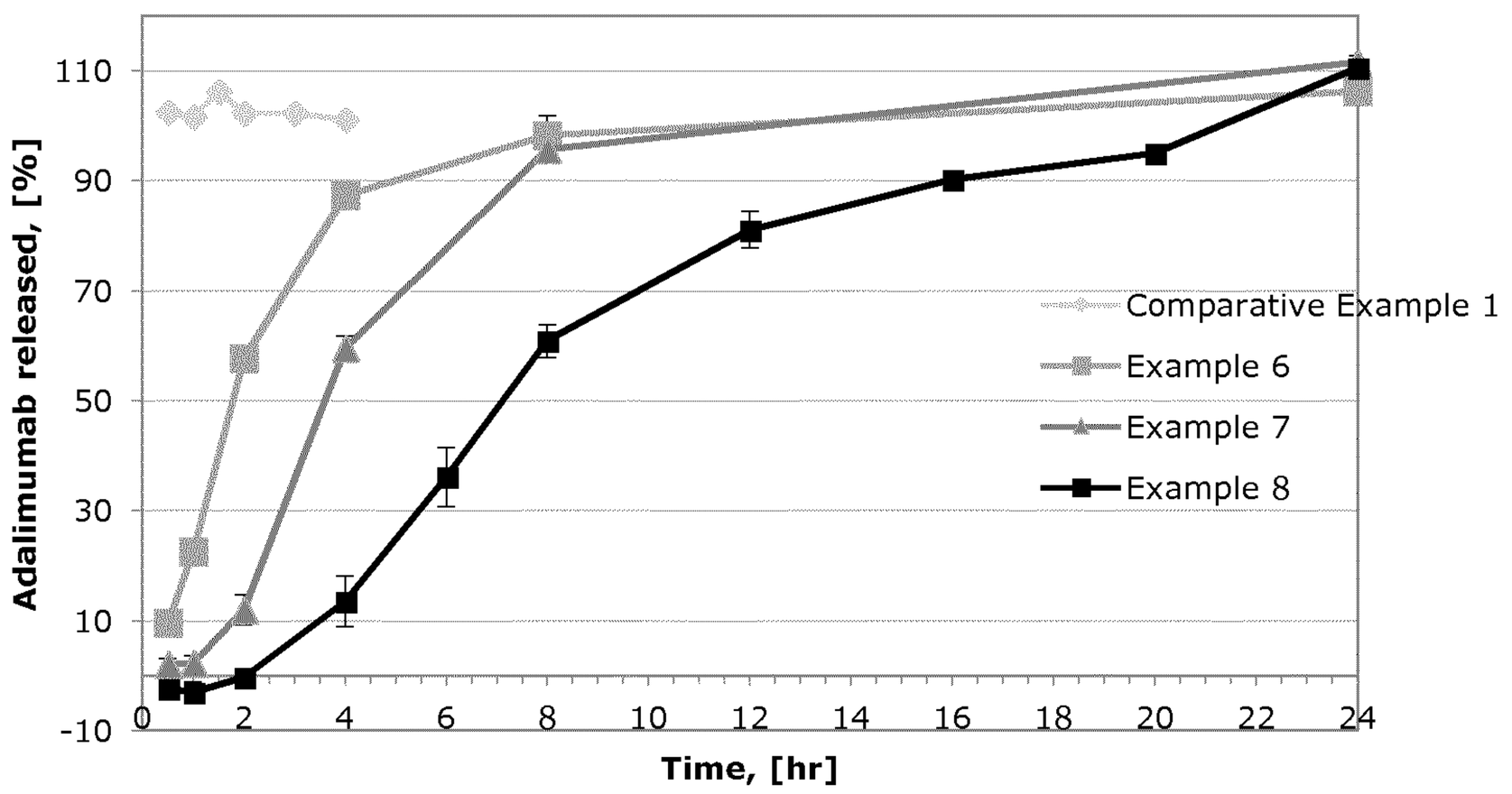


Figure 5

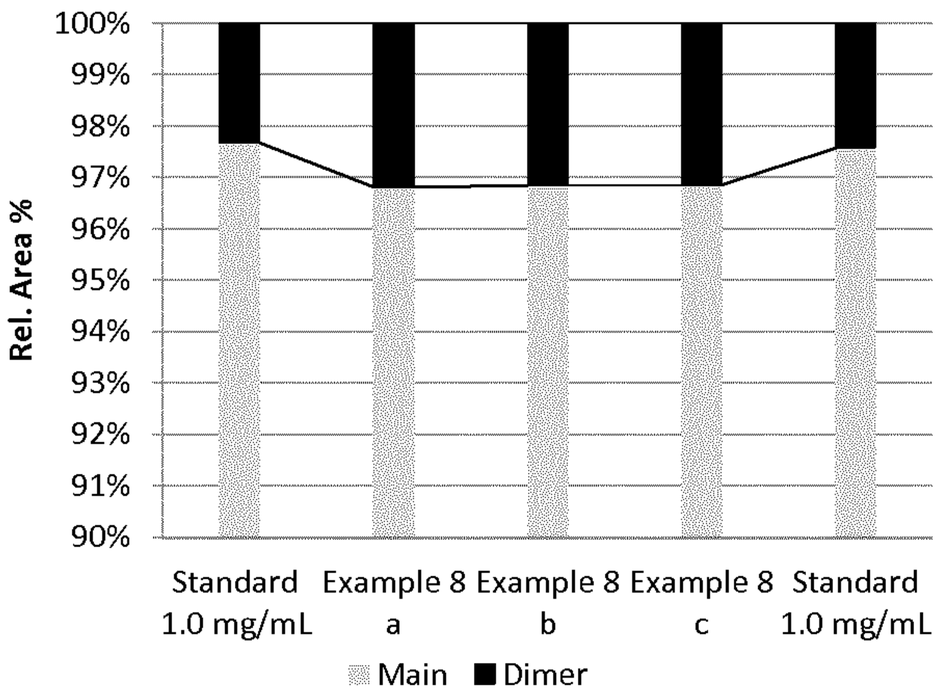
(A)

Batch	Core	Reached polymer weight gain (%)	Final adalimumab loading (%)
Comparative Example 1	Suglets	n.a	2.196
Example 6	Comparative example 1	6.89	2.02
Example 7	Comparative Example 1	14.63	1.85
Example 8	Comparative Example 1	23.14	1.80

(B)



(C)



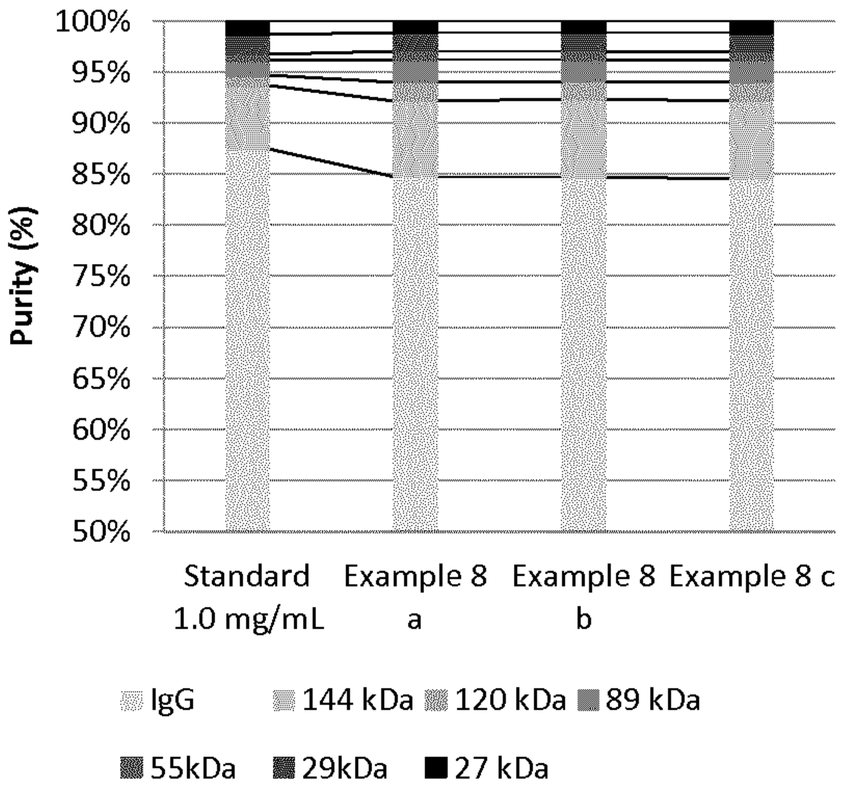


Figure 6

(A)

Batch	Plasticizer[1)]	Coalescence enhancer (Lauroglycol™ 90) (%)	Curing conditions	Reached polymer weight gain (%)	Final adalimumab loading (%)
Example 9	25% TEC	0	2h/60°C oven	16.32	1.94
			24h/60°C oven	17.12	1.93
Example 10	25% DBS	0	2h/60°C oven	17.71	1.83
			24h/60°C oven	16.95	1.84
Example 11	25% DBS	10	1h/60°C oven	11.73	1.68
			2.5h/60°C oven	11.38	1.69
			24h/60°C oven	11.56	1.68

(B)

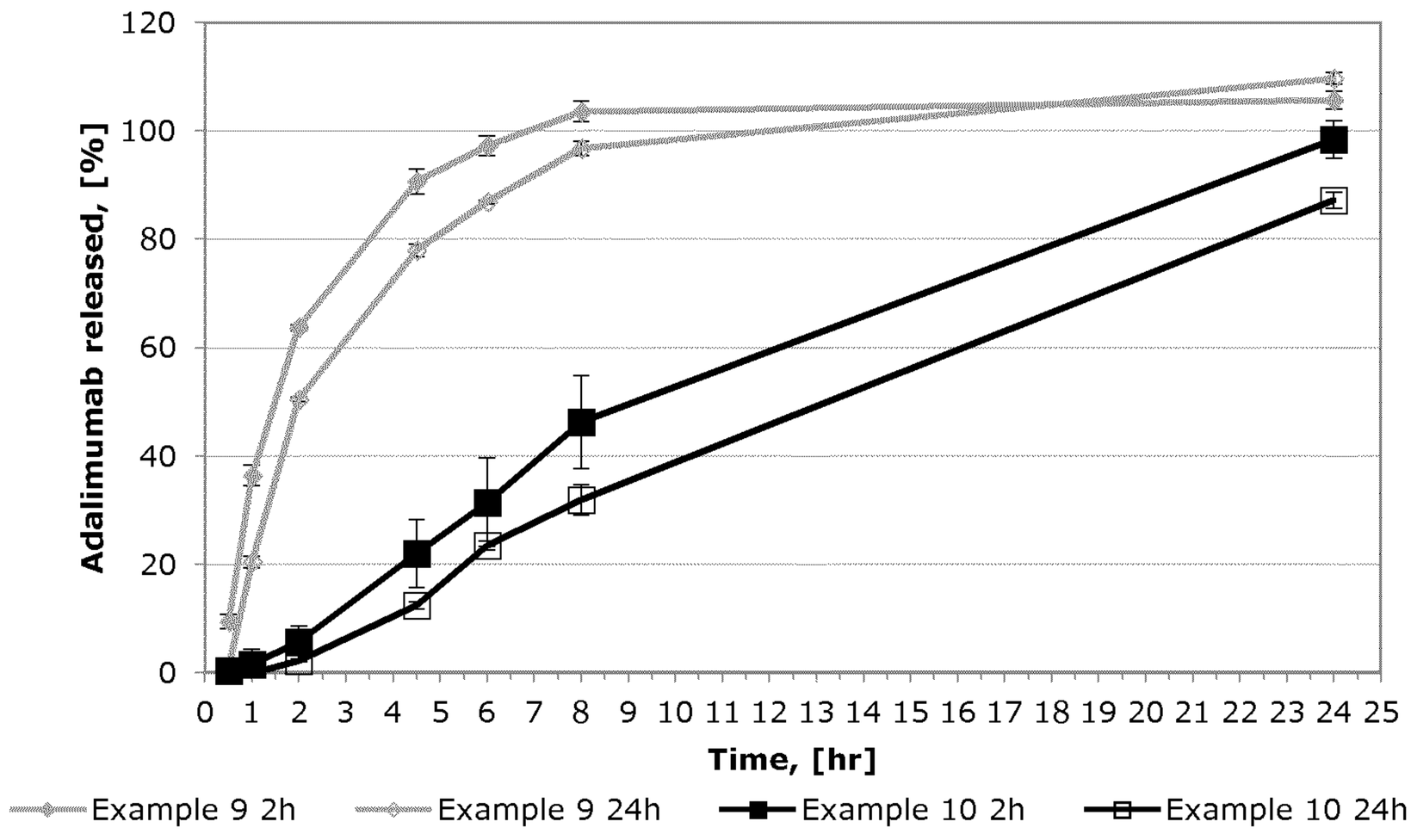


Figure 6

(C)

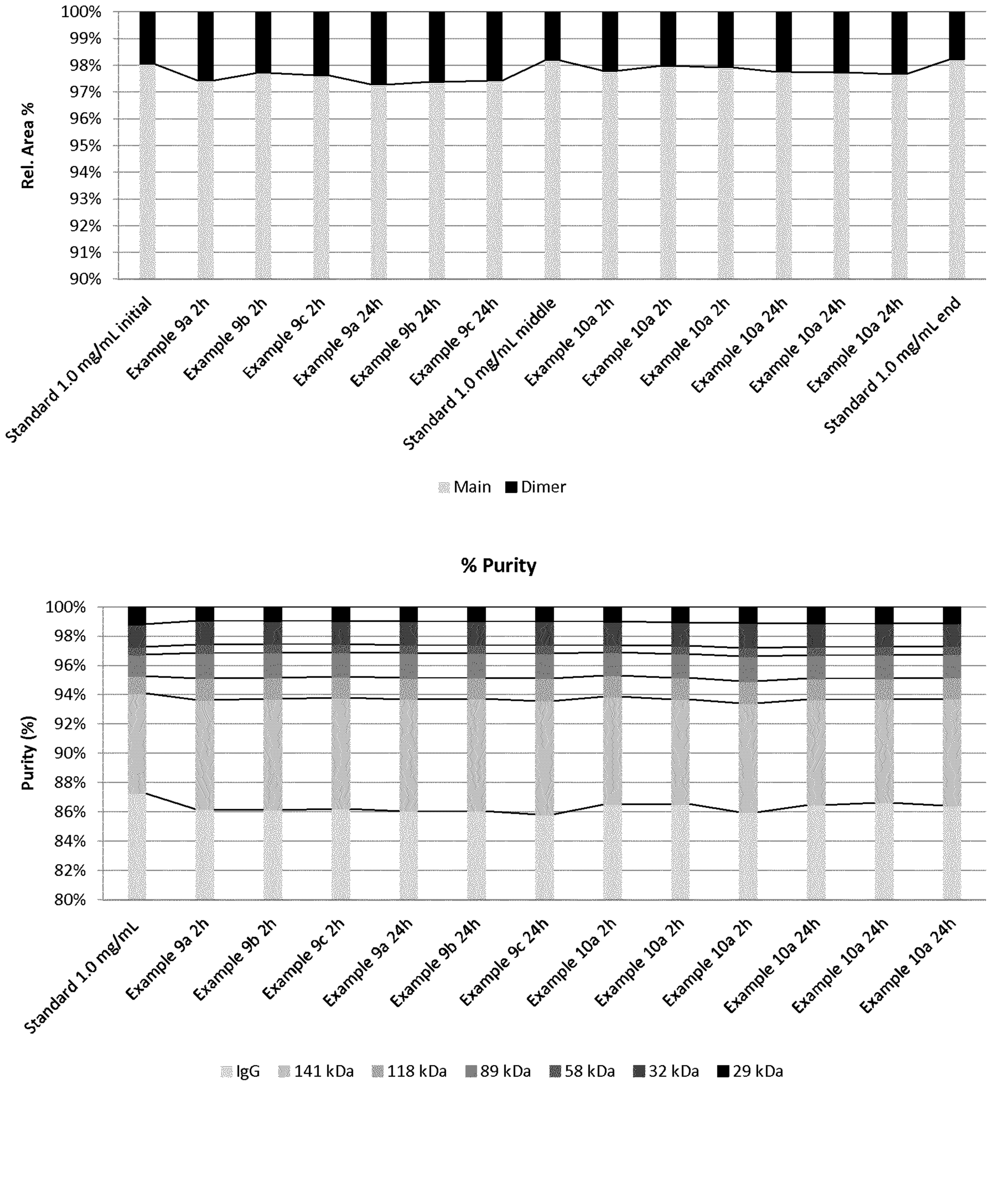
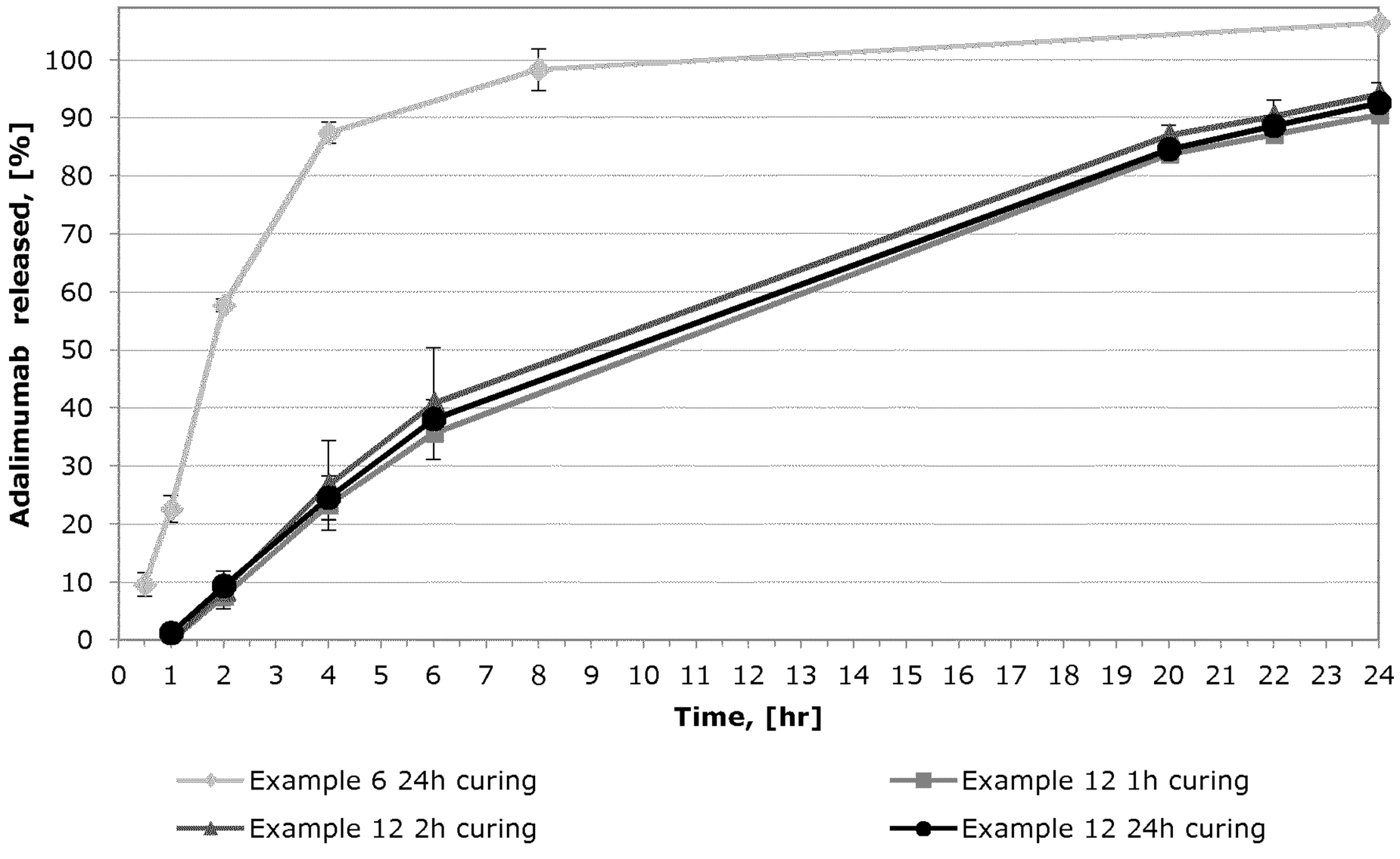

100%
99%
98%
97%
96%
95%
94%
93%
92%
91%
90%
Rel. Area %
Standard 1.0 mg/mL initial
Example 9a 2h
Example 9b 2h
Example 9c 2h
Example 9a 24h
Example 9b 24h
Example 9c 24h
Standard 1.0 mg/mL middle
Example 10a 2h
Example 10a 2h
Example 10a 2h
Example 10a 24h
Example 10a 24h
Example 10a 24h
Standard 1.0 mg/mL end
Main
Dimer
% Purity
100%
98%
96%
94%
92%
90%
88%
86%
84%
82%
80%
Purity (%)
Standard 1.0 mg/mL
Example 9a 2h
Example 9b 2h
Example 9c 2h
Example 9a 24h
Example 9b 24h
Example 9c 24h
Example 10a 2h
Example 10a 2h
Example 10a 2h
Example 10a 24h
Example 10a 24h
Example 10a 24h
IgG
141 kDa
118 kDa
89 kDa
58 kDa
32 kDa
29 kDa

Figure 7

(A)

Batch	Lauroglycol™ 90 (%), based on polymer	Reached polymer weight gain (%)	Final adalimumab loading (%)
Example 6	0	6.89	1.61
Example 12	5	5.35	1.81

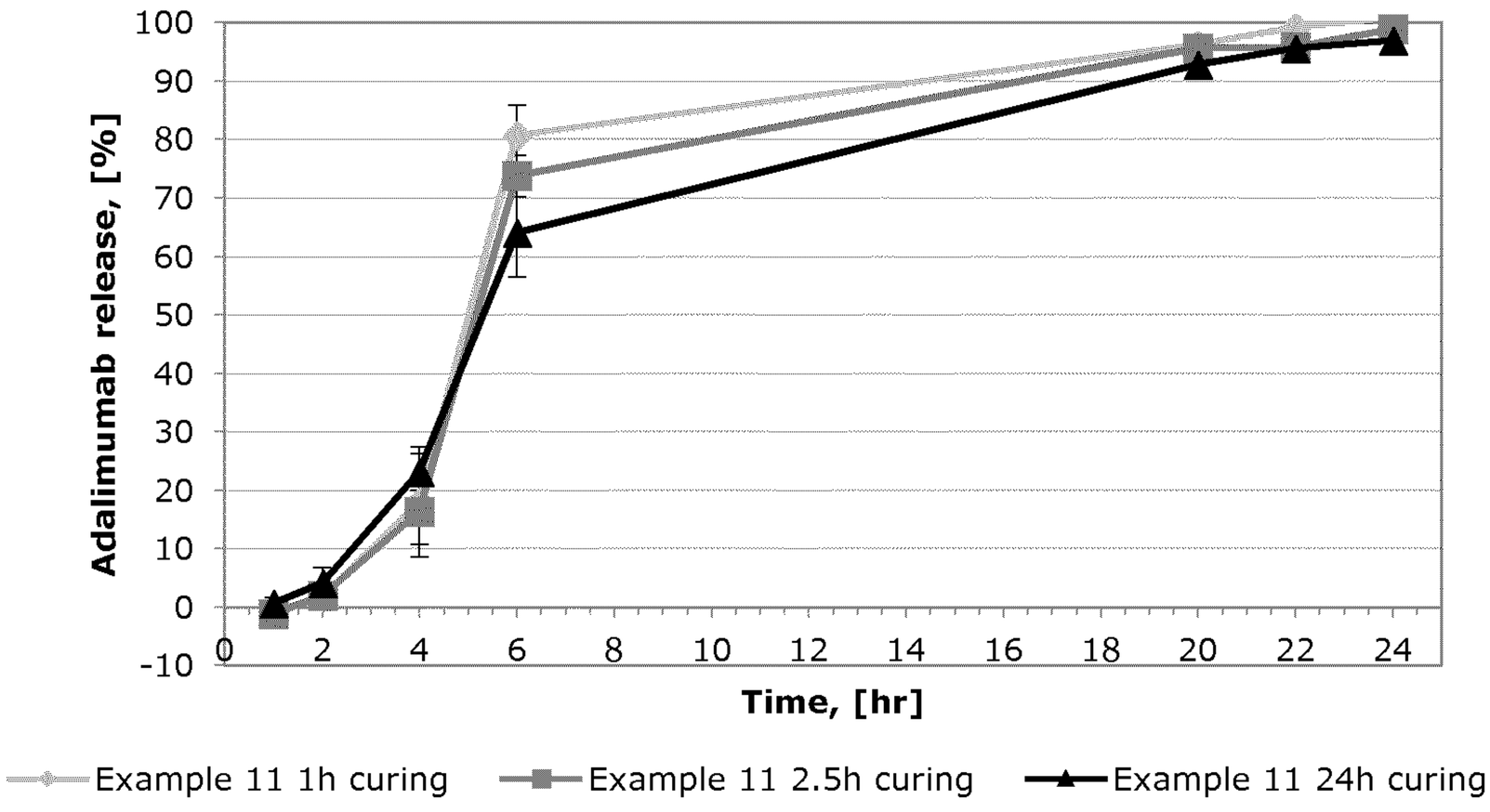
(B)



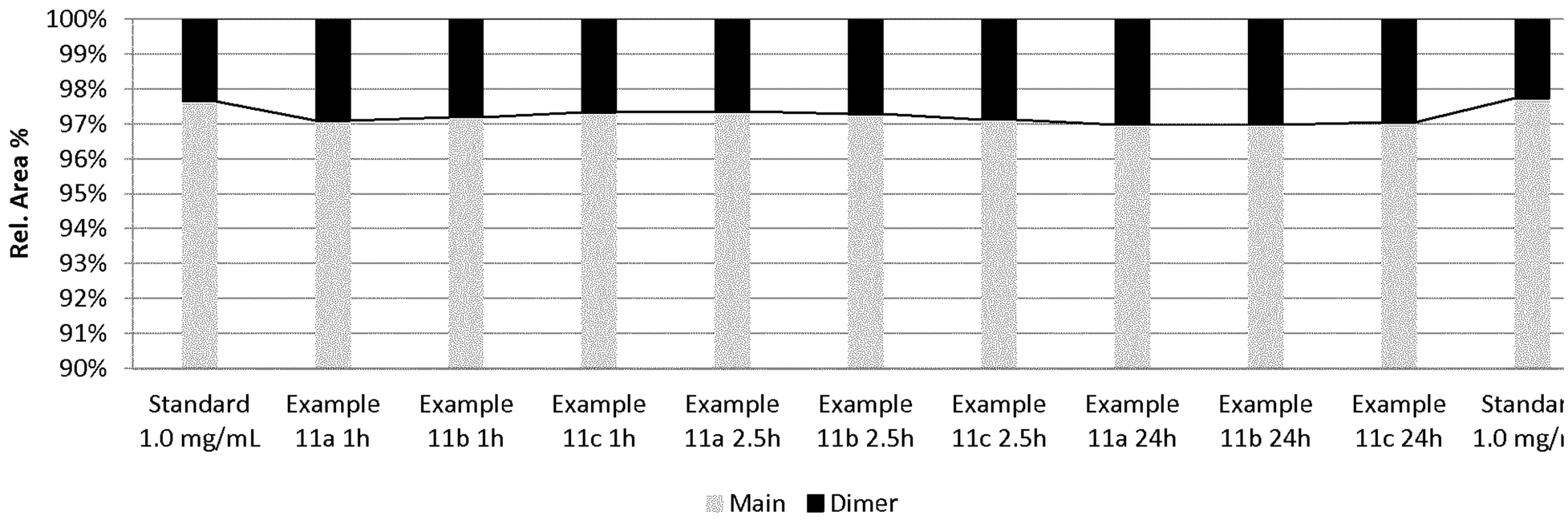
5

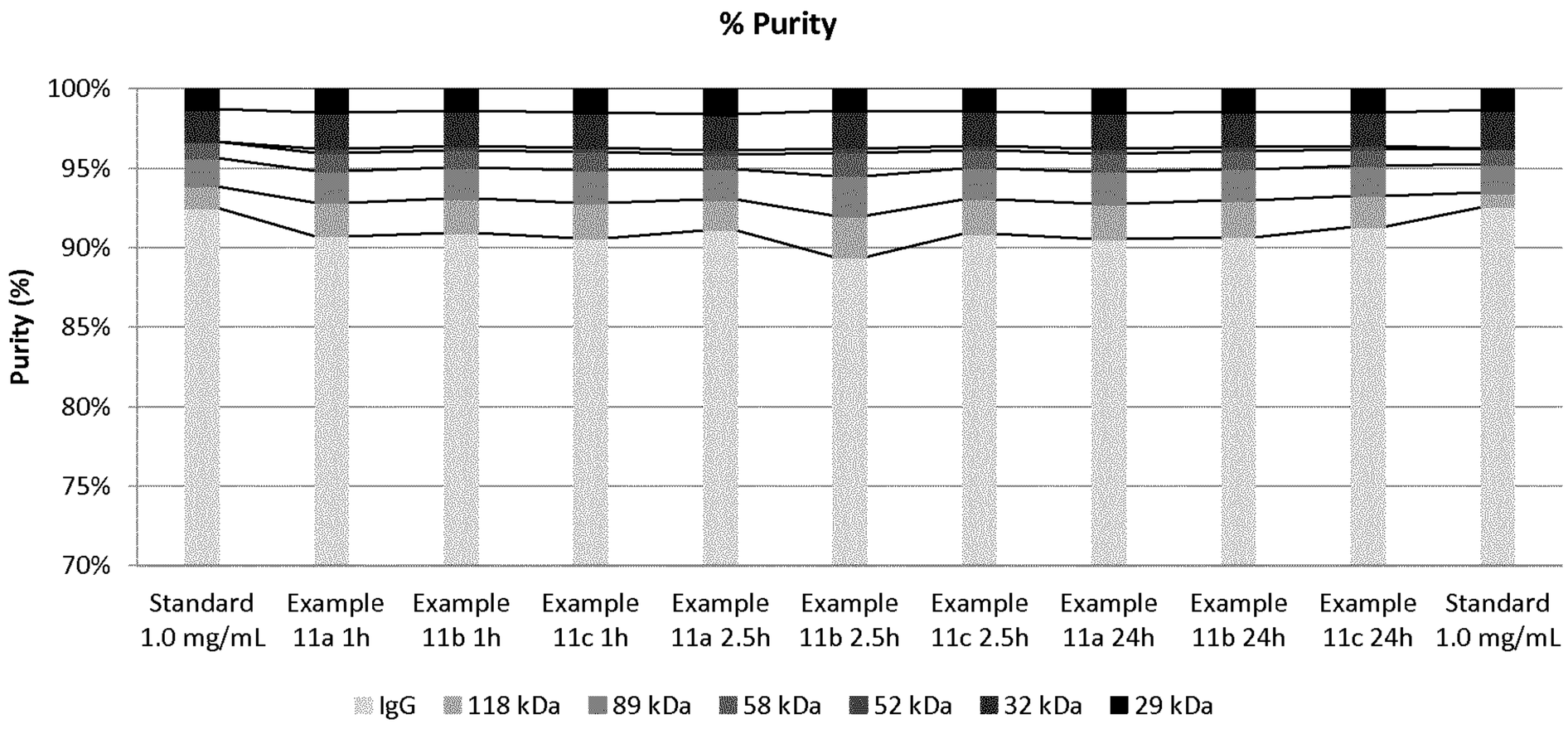
Figure 8

(A)


Adalimumab release, [%]
100
90
80
70
60
50
40
30
20
10
0
-10
0
2
4
6
8
10
12
14
16
18
20
22
24
Time, [hr]
Example 11 1h curing
Example 11 2.5h curing
Example 11 24h curing

(B)

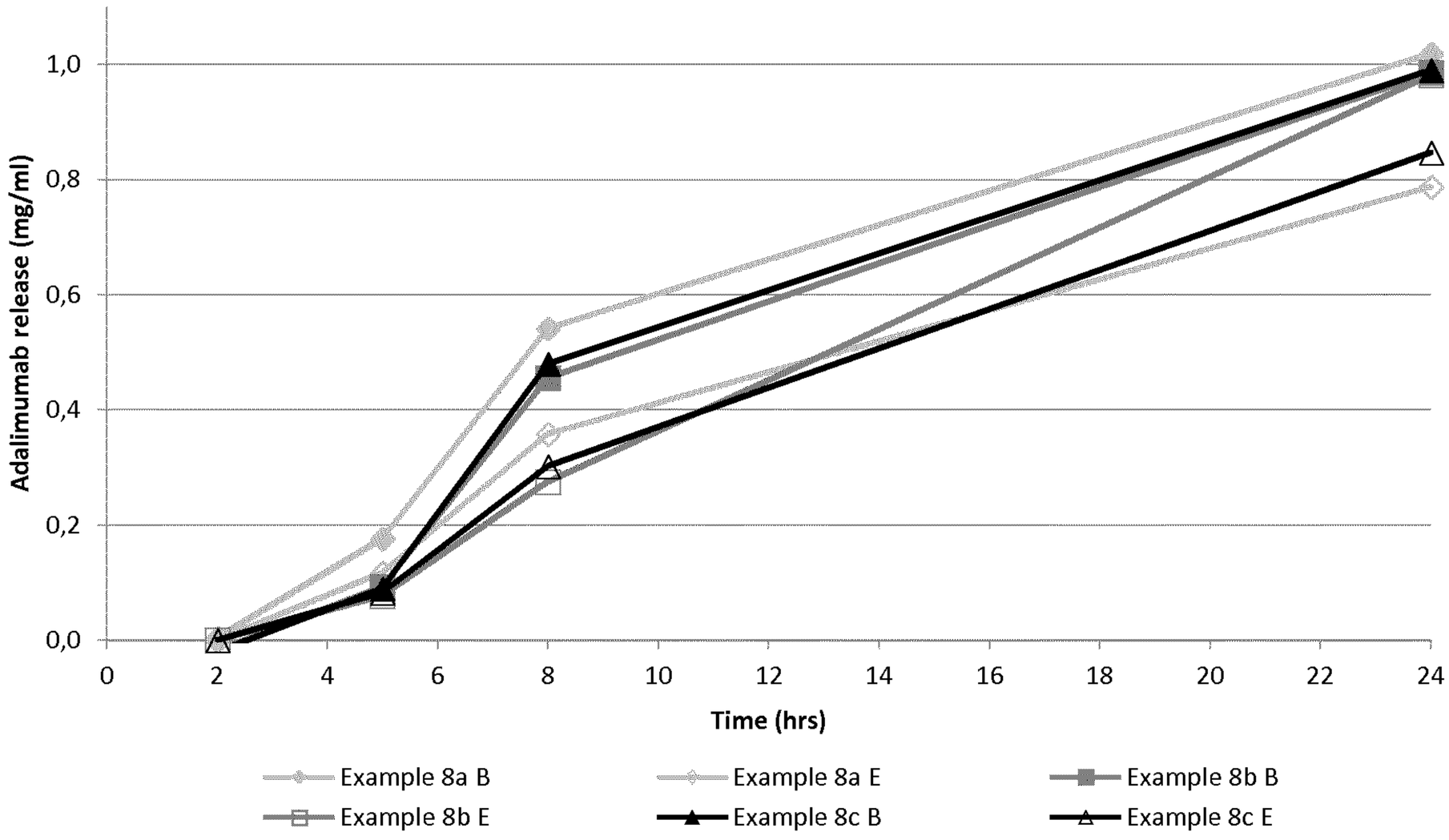

Rel. Area %
100%
99%
98%
97%
96%
95%
94%
93%
92%
91%
90%
Standard 1.0 mg/mL
Example 11a 1h
Example 11b 1h
Example 11c 1h
Example 11a 2.5h
Example 11b 2.5h
Example 11c 2.5h
Example 11a 24h
Example 11b 24h
Example 11c 24h
Standar 1.0 mg/
Main
Dimer


% Purity
Purity (%)
100%
95%
90%
85%
80%
75%
70%
Standard 1.0 mg/mL
Example 11a 1h
Example 11b 1h
Example 11c 1h
Example 11a 2.5h
Example 11b 2.5h
Example 11c 2.5h
Example 11a 24h
Example 11b 24h
Example 11c 24h
Standard 1.0 mg/mL
IgG
118 kDa
89 kDa
58 kDa
52 kDa
32 kDa
29 kDa

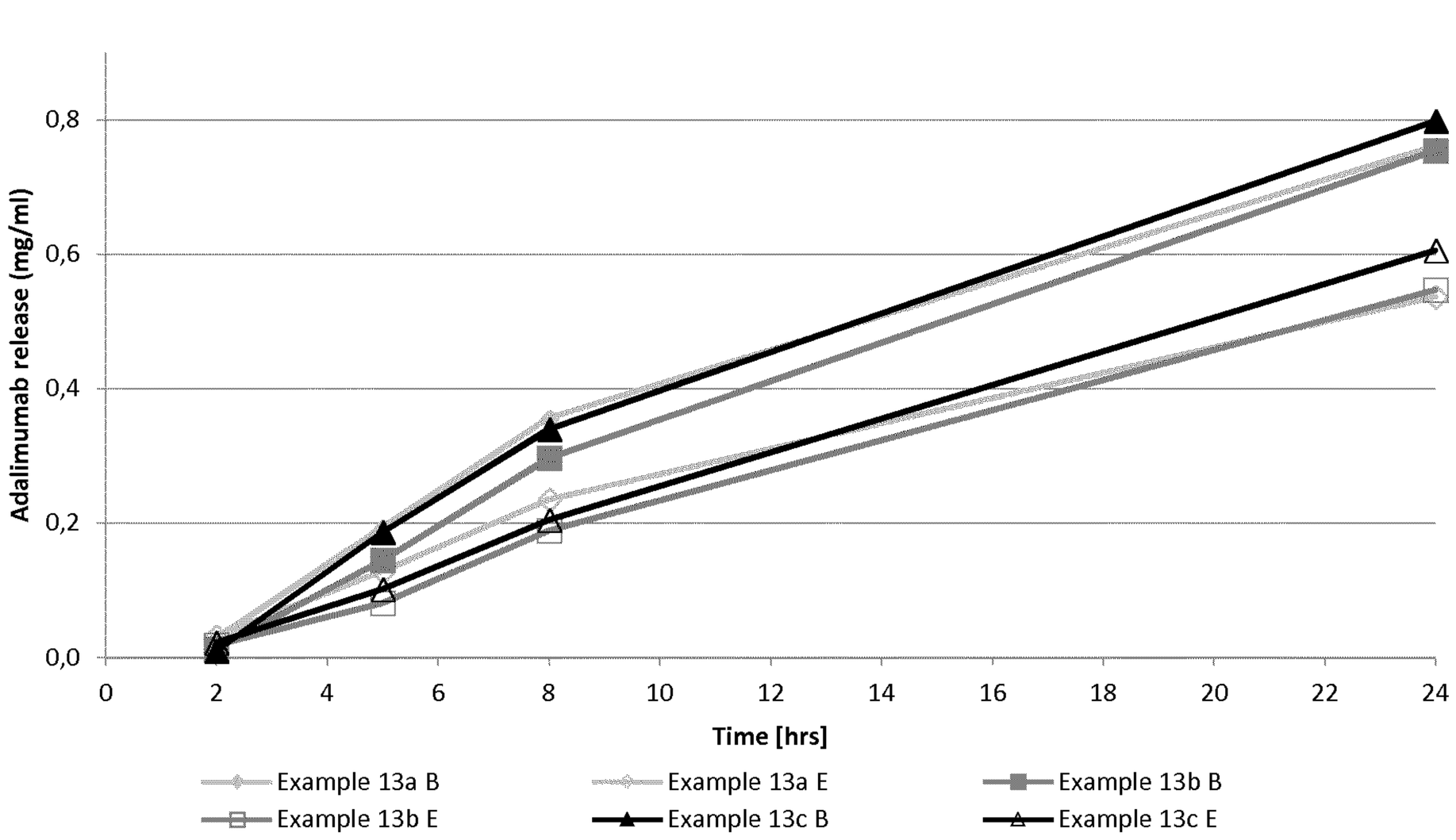
5

Figure 9

(A)


Adalimumab release (mg/ml)
1,0
0,8
0,6
0,4
0,2
0,0
0
2
4
6
8
10
12
14
16
18
20
22
24
Time (hrs)
Example 8a B
Example 8a E
Example 8b B
Example 8b E
Example 8c B
Example 8c E

(B)


Adalimumab release (mg/ml)
0,8
0,6
0,4
0,2
0,0
0
2
4
6
8
10
12
14
16
18
20
22
24
Time [hrs]
Example 13a B
Example 13a E
Example 13b B
Example 13b E
Example 13c B
Example 13c E