FIG. 1

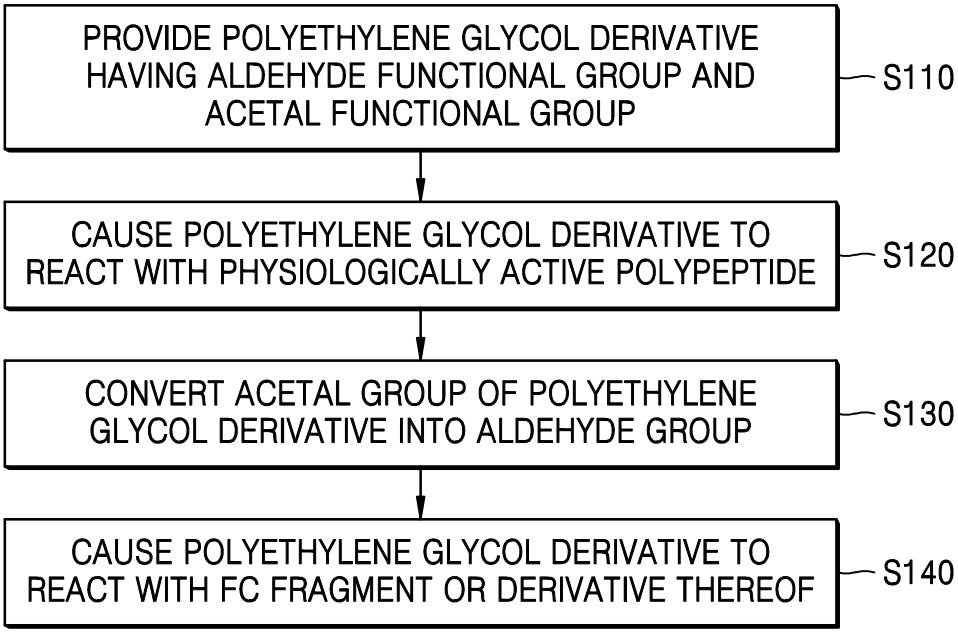

PROVIDE POLYETHYLENE GLYCOL DERIVATIVE HAVING ALDEHYDE FUNCTIONAL GROUP AND ACETAL FUNCTIONAL GROUP
S110
CAUSE POLYETHYLENE GLYCOL DERIVATIVE TO REACT WITH PHYSIOLOGICALLY ACTIVE POLYPEPTIDE
S120
CONVERT ACETAL GROUP OF POLYETHYLENE GLYCOL DERIVATIVE INTO ALDEHYDE GROUP
S130
CAUSE POLYETHYLENE GLYCOL DERIVATIVE TO REACT WITH FC FRAGMENT OR DERIVATIVE THEREOF
S140

FIG. 2A

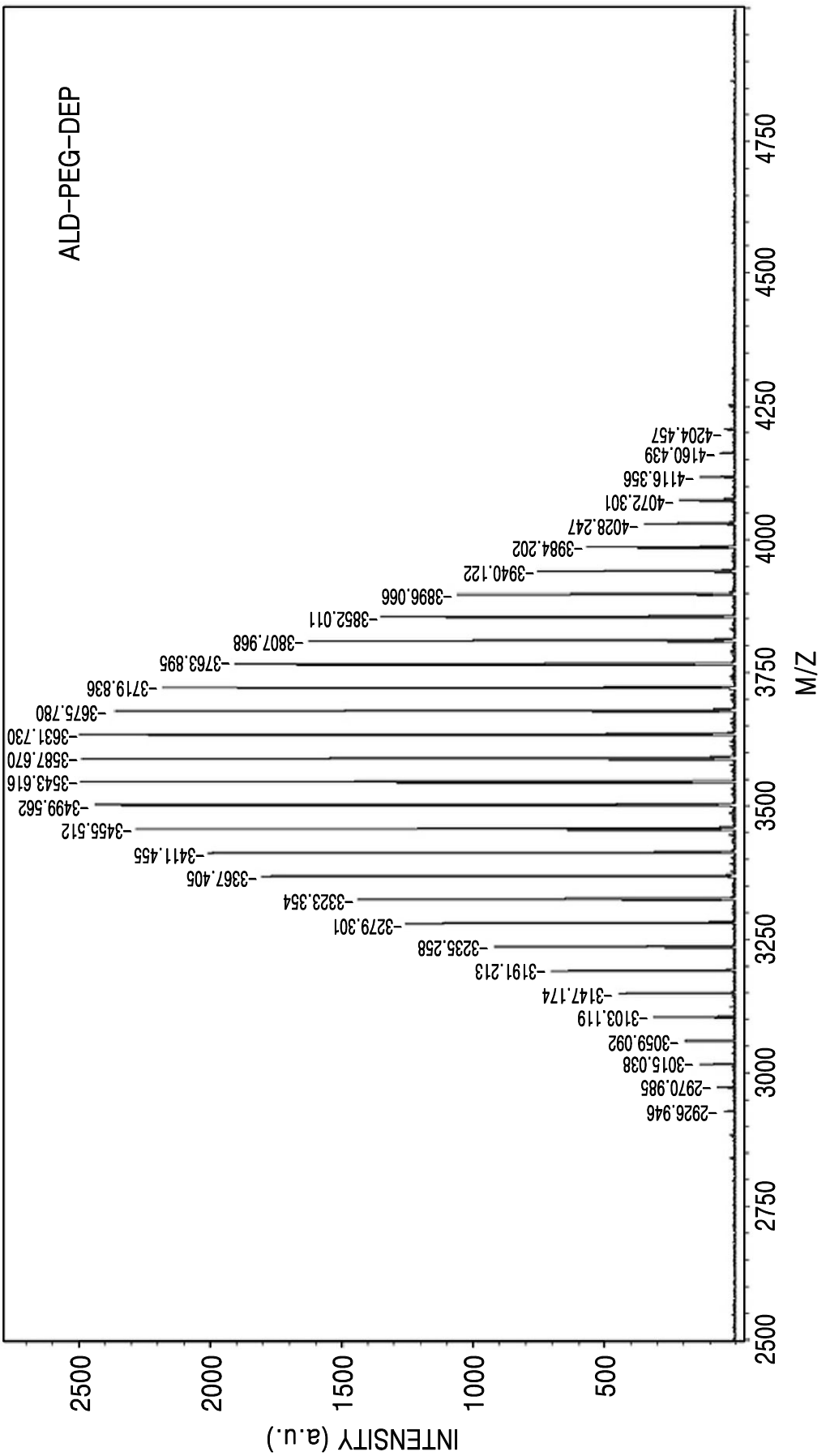

ALD-PEG-DEP
INTENSITY (a.u.)
M/Z
2500
2000
1500
1000
500
2750
3000
3250
3500
3750
4000
4250
4500
4750
-2926.946
-2970.985
-3015.038
-3059.092
-3103.119
-3147.174
-3191.213
-3235.258
-3279.301
-3323.354
-3367.405
-3411.455
-3455.512
-3499.562
-3543.616
-3587.670
-3631.730
-3675.780
-3719.836
-3763.895
-3807.968
-3852.011
-3896.066
-3940.122
-3984.202
-4028.247
-4072.301
-4116.356
-4160.439
-4204.457

FIG. 2B

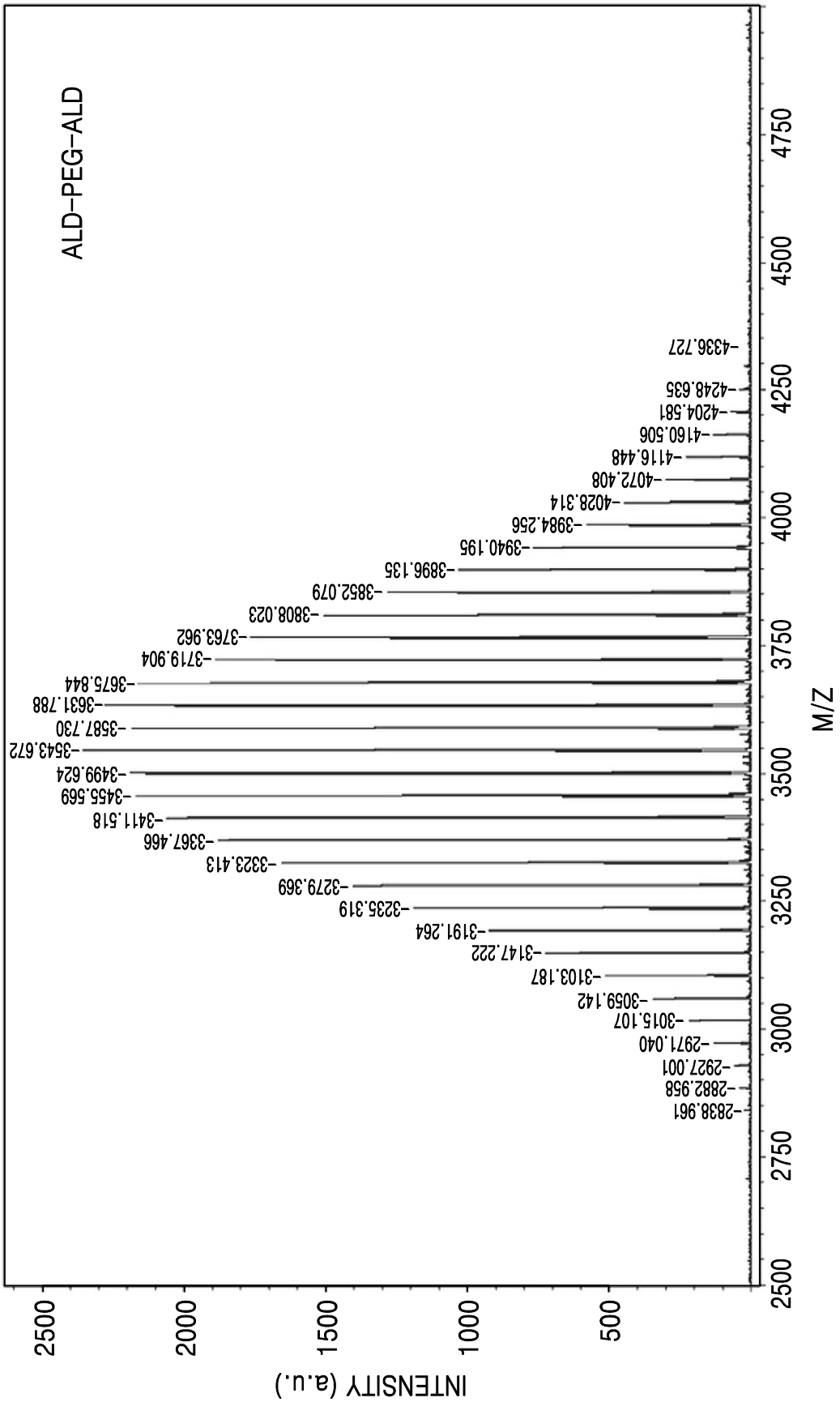

ALD-PEG-ALD
INTENSITY (a.u.)
M/Z
2500
2000
1500
1000
500
2500
2750
3000
3250
3500
3750
4000
4250
4500
4750
2838.961
2882.958
2927.001
2971.040
3015.107
3059.142
3103.187
3147.222
3191.264
3235.319
3279.369
3323.413
3367.466
3411.518
3455.569
3499.624
3543.672
3587.730
3631.788
3675.844
3719.904
3763.962
3808.023
3852.079
3896.135
3940.195
3984.256
4028.314
4072.408
4116.448
4160.506
4204.581
4248.635
4336.727

FIG. 3A

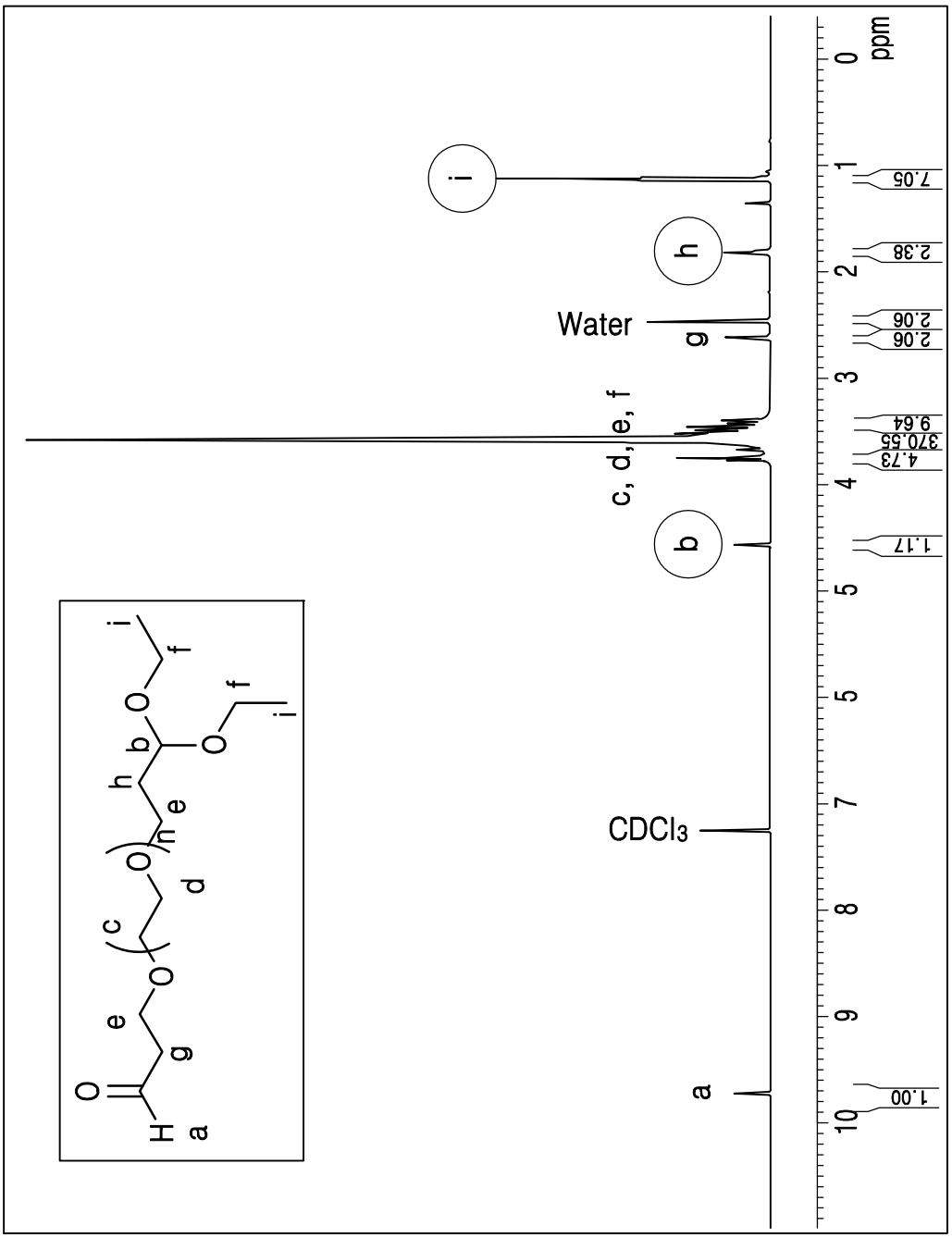

a
CDCl3
b
c, d, e, f
Water
g
h
i
ppm
1.00
7.05
2.38
2.06
2.06
9.64
370.55
4.73
1.17

FIG. 3B

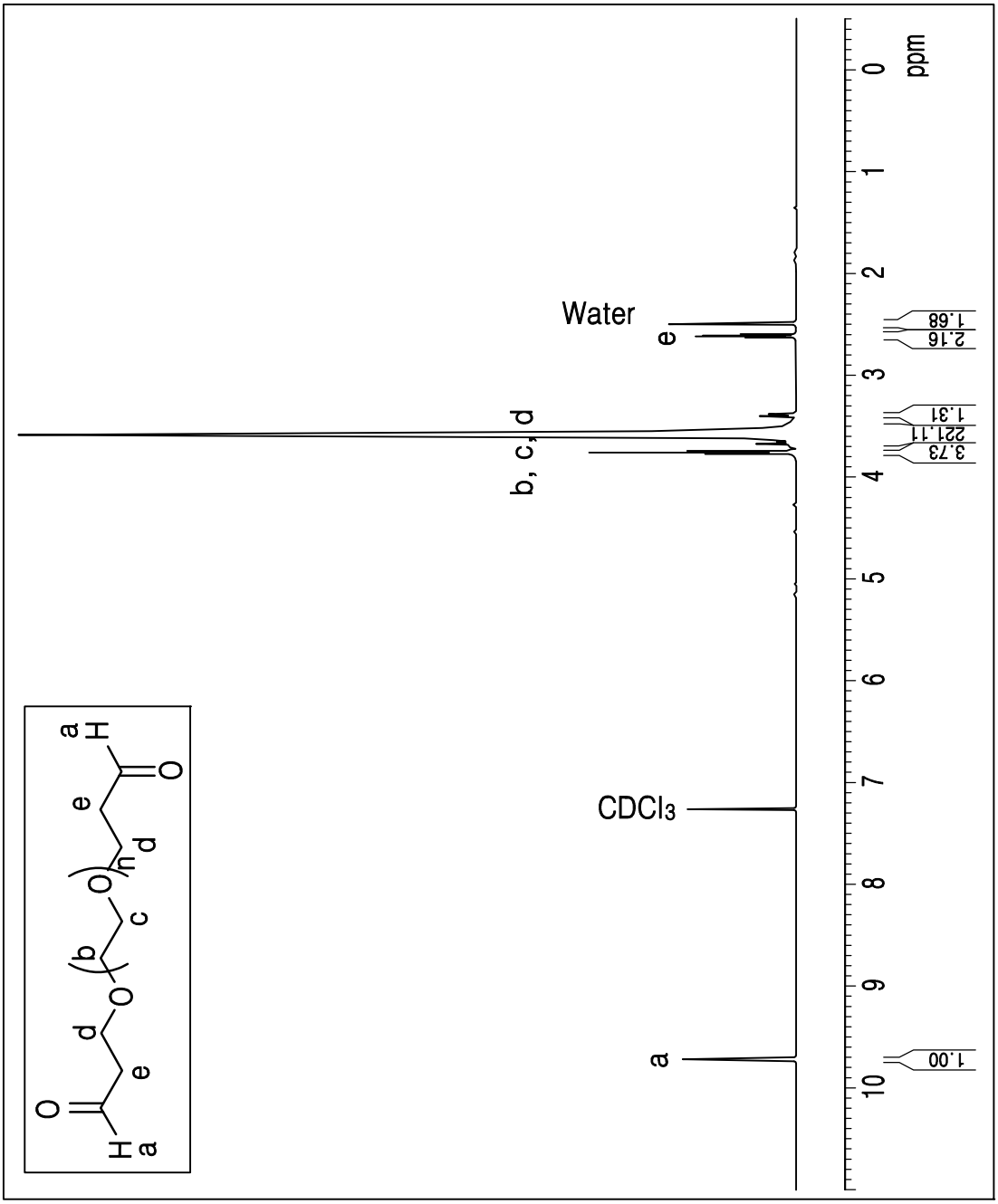

Water
b, c, d
CDCl3
a
e
ppm
0
1
2
3
4
5
6
7
8
9
10
1.00
3.73
221.11
1.31
2.16
1.68

FIG. 3C

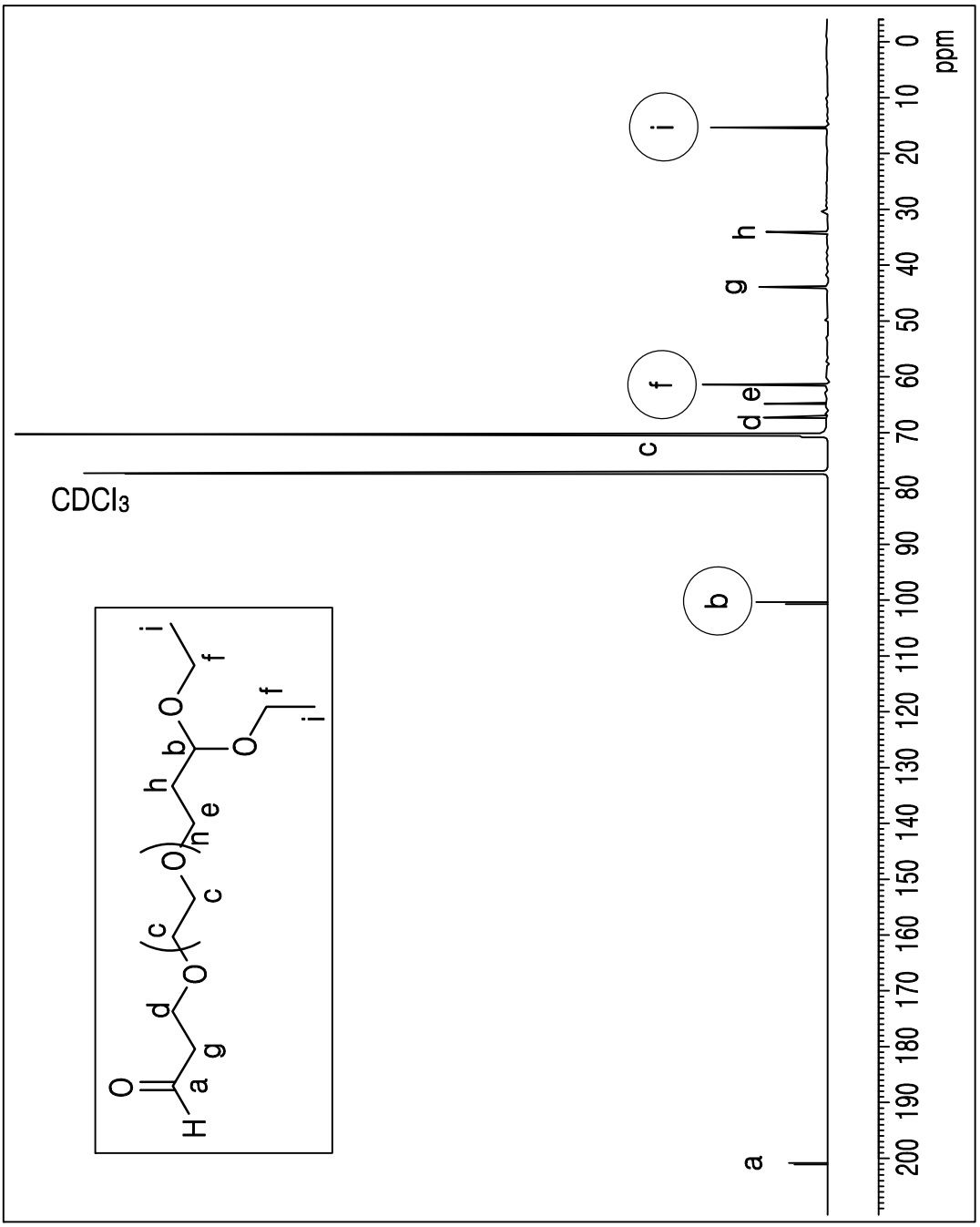

CDCl3
a
b
c
d
e
f
g
h
i
ppm
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200

FIG. 3D

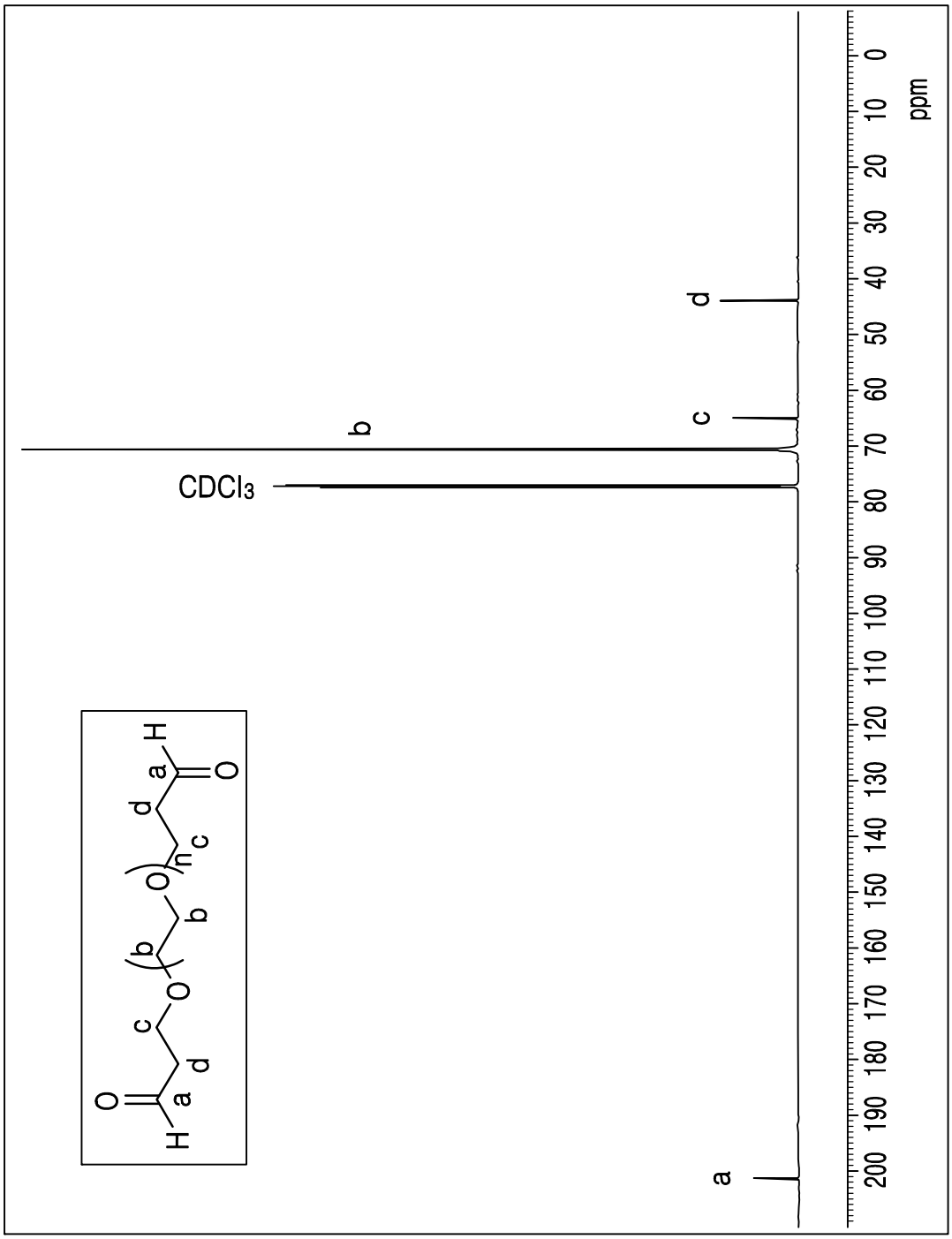

CDCl3
a
b
c
d
ppm
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200

FIG. 4A

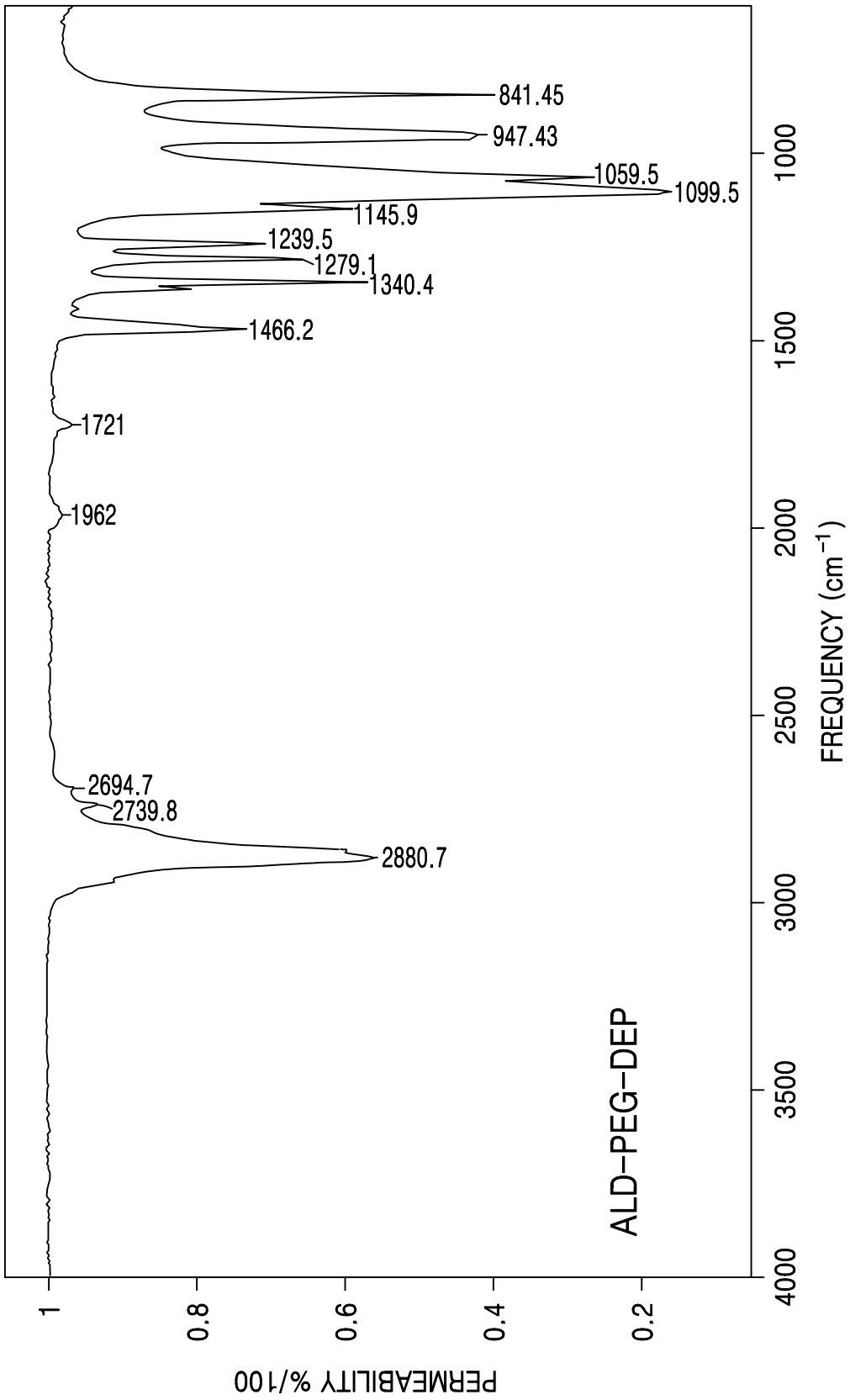

841.45
947.43
1059.5
1099.5
1145.9
1239.5
1279.1
1340.4
1466.2
1721
1962
2694.7
2739.8
2880.7
ALD-PEG-DEP
PERMEABILITY %/100
FREQUENCY (cm^{-1})
1
0.8
0.6
0.4
0.2
4000
3500
3000
2500
2000
1500
1000

FIG. 4B

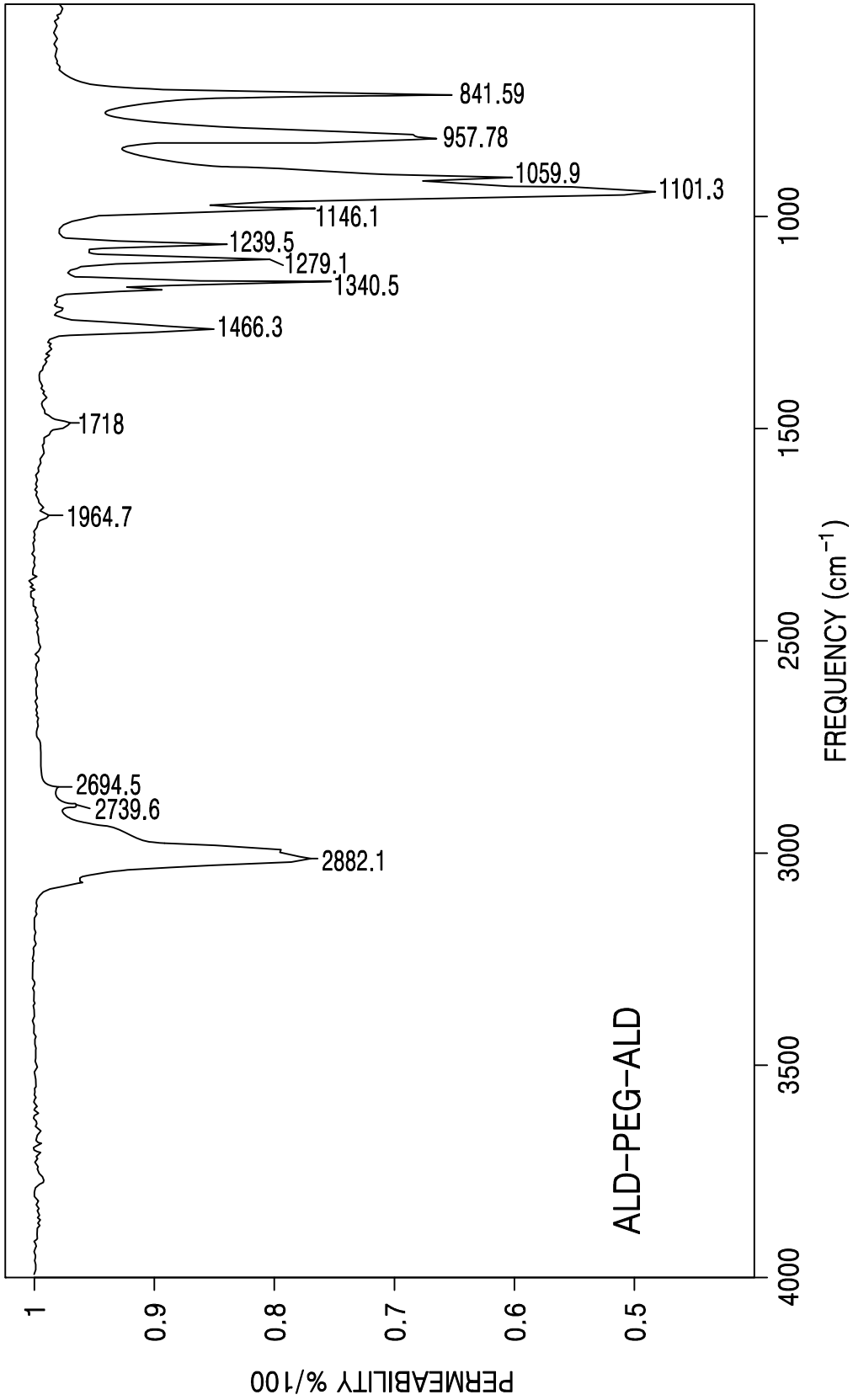
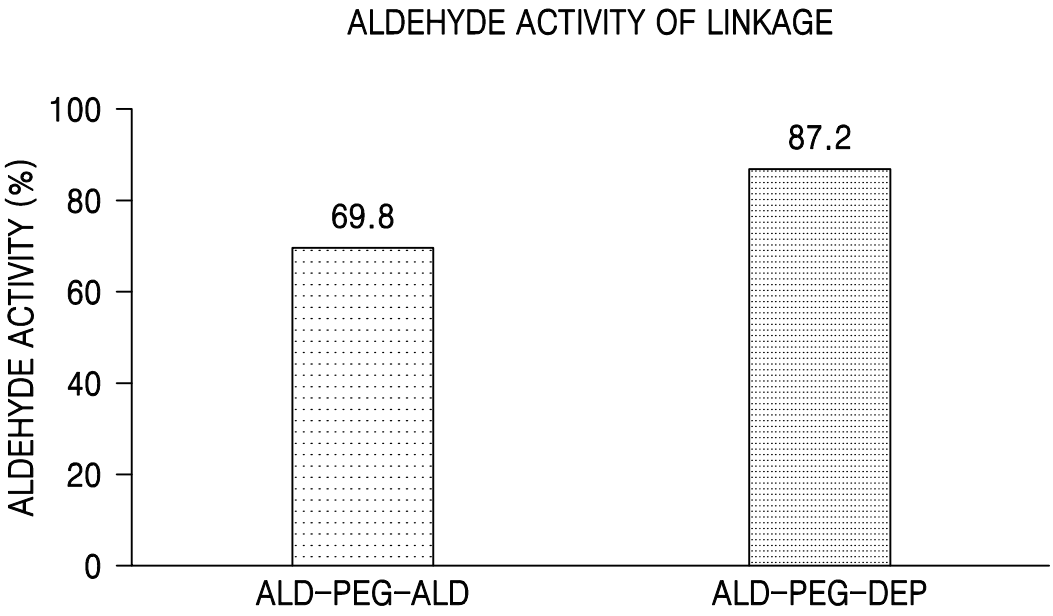

841.59
957.78
1059.9
1101.3
1146.1
1239.5
1279.1
1340.5
1466.3
1718
1964.7
2694.5
2739.6
2882.1
ALD-PEG-ALD
PERMEABILITY %/100
1
0.9
0.8
0.7
0.6
0.5
4000
3500
3000
2500
1500
1000
FREQUENCY (cm^{-1})

FIG. 5


ALDEHYDE ACTIVITY OF LINKAGE
ALDEHYDE ACTIVITY (%)
100
80
60
40
20
0
69.8
87.2
ALD-PEG-ALD
ALD-PEG-DEP