
Sugar biosynthesis
Flippase
Polymerase
Glycosyltra nsferases
Initial glycosyltrans ferases
CPS regulatory genes (wzg,wzh,wzd,wte)

Fig. 1

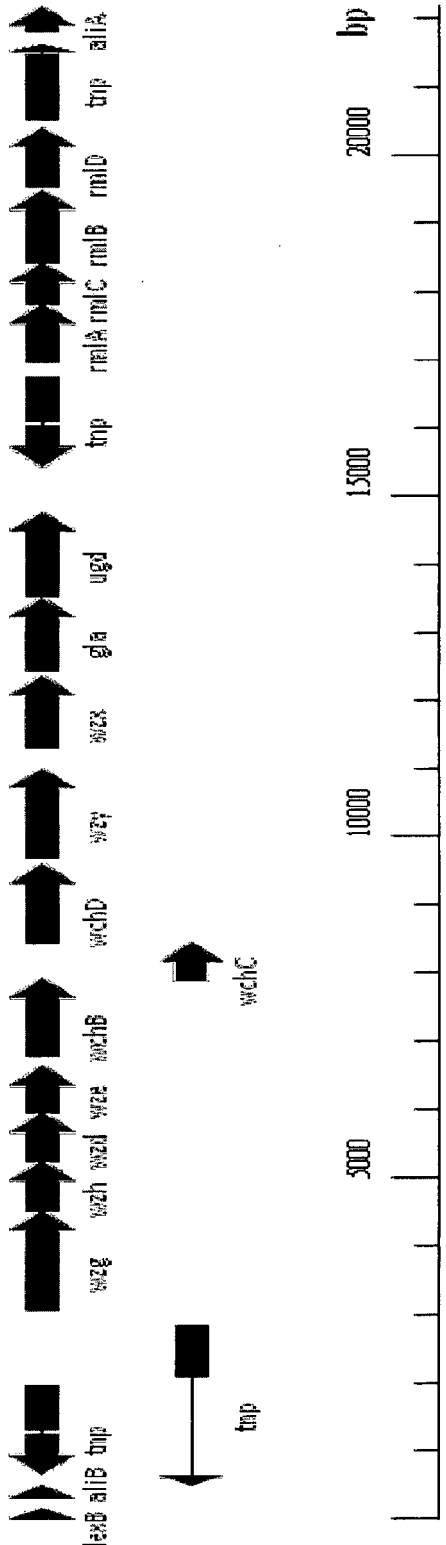
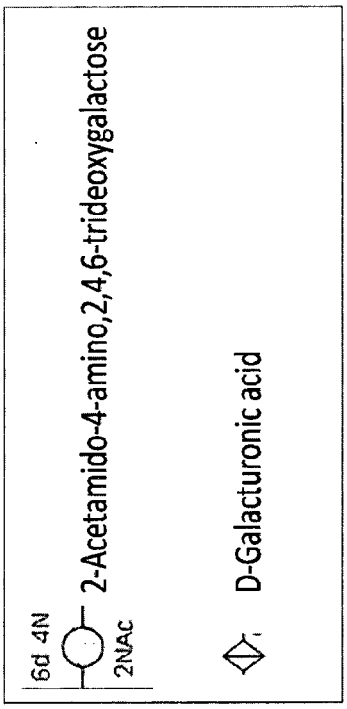

dexB
aliB
tnp
wzg
wzh
wzd
wze
wchB
wchC
wchD
wzy
wzx
gla
ugd
tnp
rmlA
rmlC
rmlB
rmlD
tnp
aliA
tnp
3000
10000
15000
20000
bp

Fig. 2


6d 4N
2NAc
2-Acetamido-4-amino,2,4,6-trideoxygalactose
D-Galacturonic acid

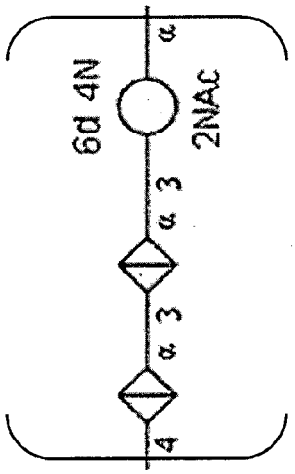
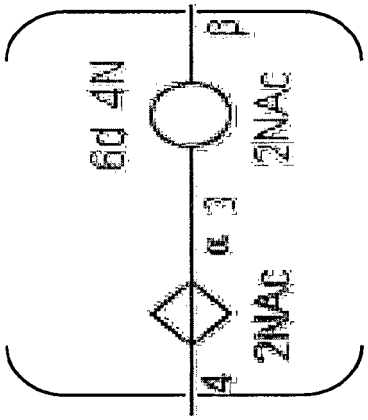

6d 4N
2NAc
α
α 3
α 3
4

Fig. 3


6d 4N
2NAc
4
α 1
β
2NAc

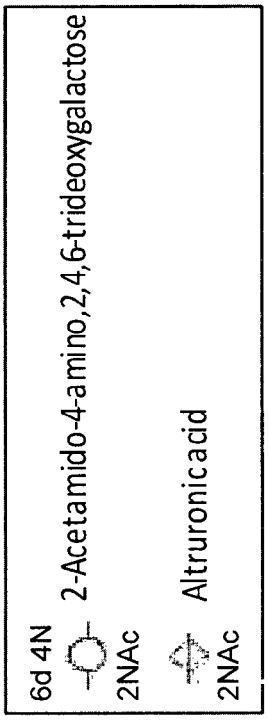
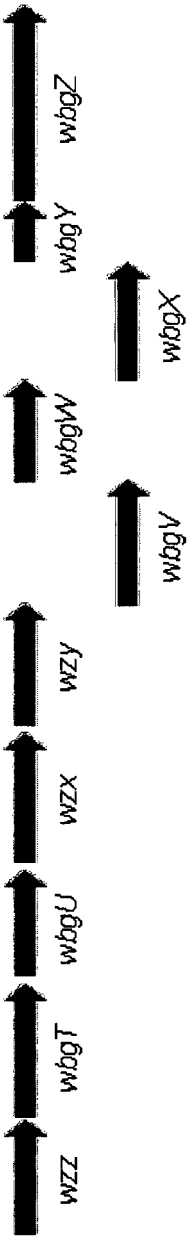

6d 4N
2NAc
2-Acetamido-4-amino,2,4,6-trideoxygalactose
Altruronic acid
2NAc

Fig. 4


wzz
wbgT
wbgU
wzx
wzy
wbgV
wbgW
wbgX
wbgY
wbgZ

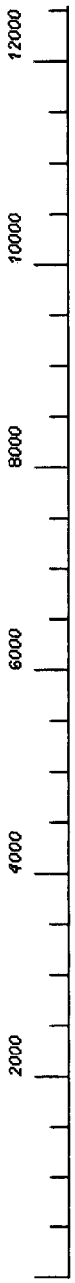

2000
4000
6000
8000
10000
12000

Fig. 5

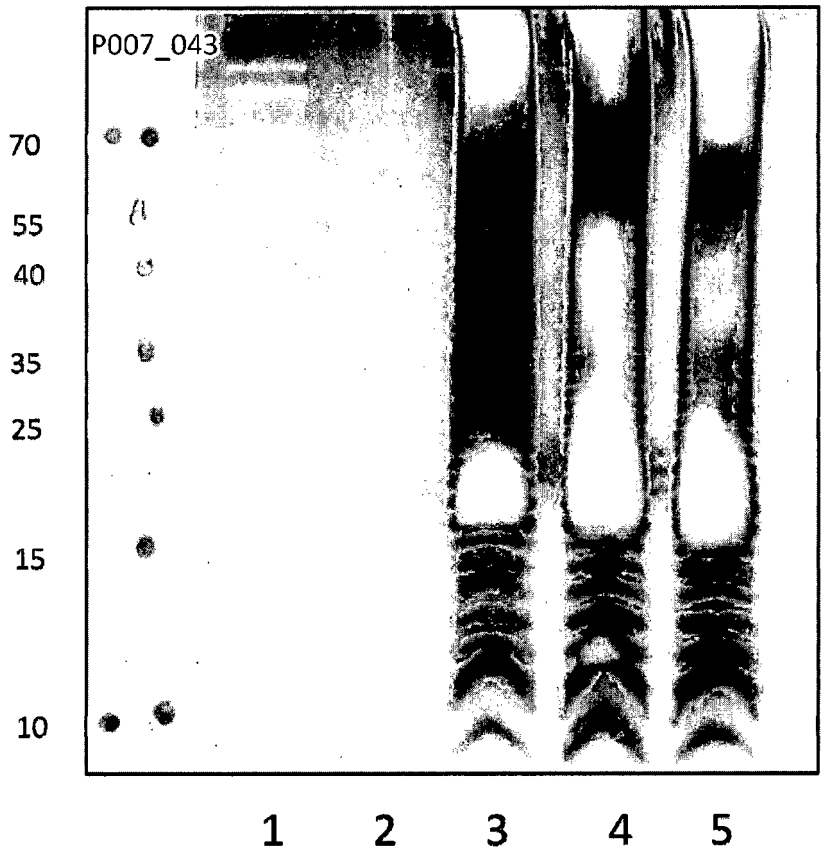


Fig. 6

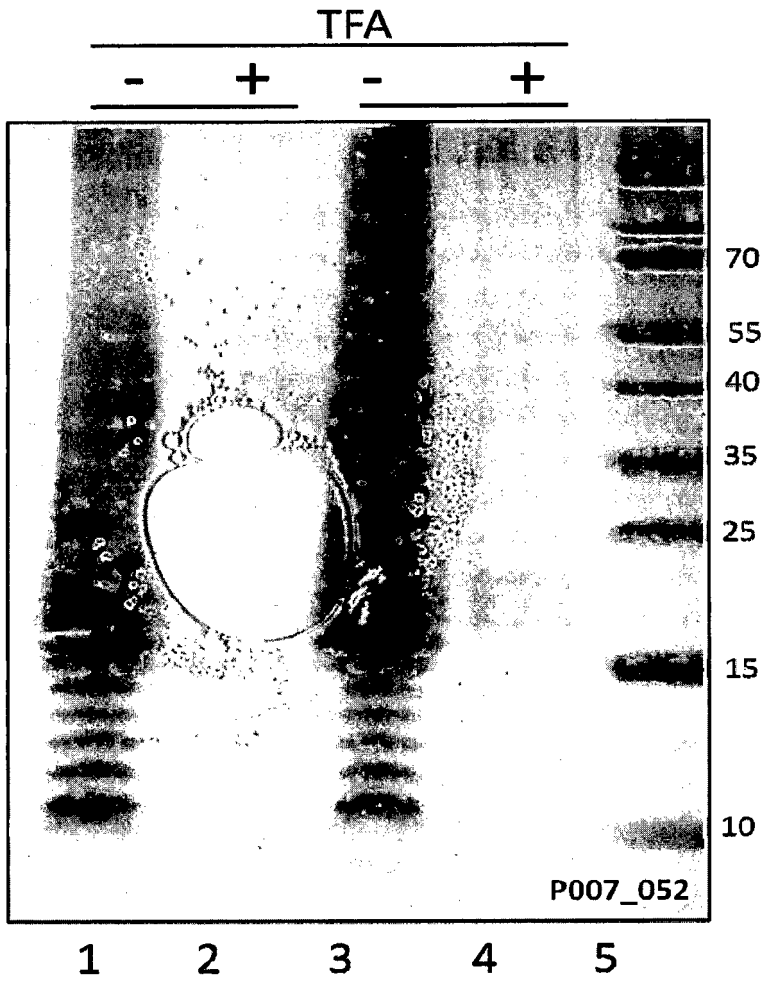


Fig. 7

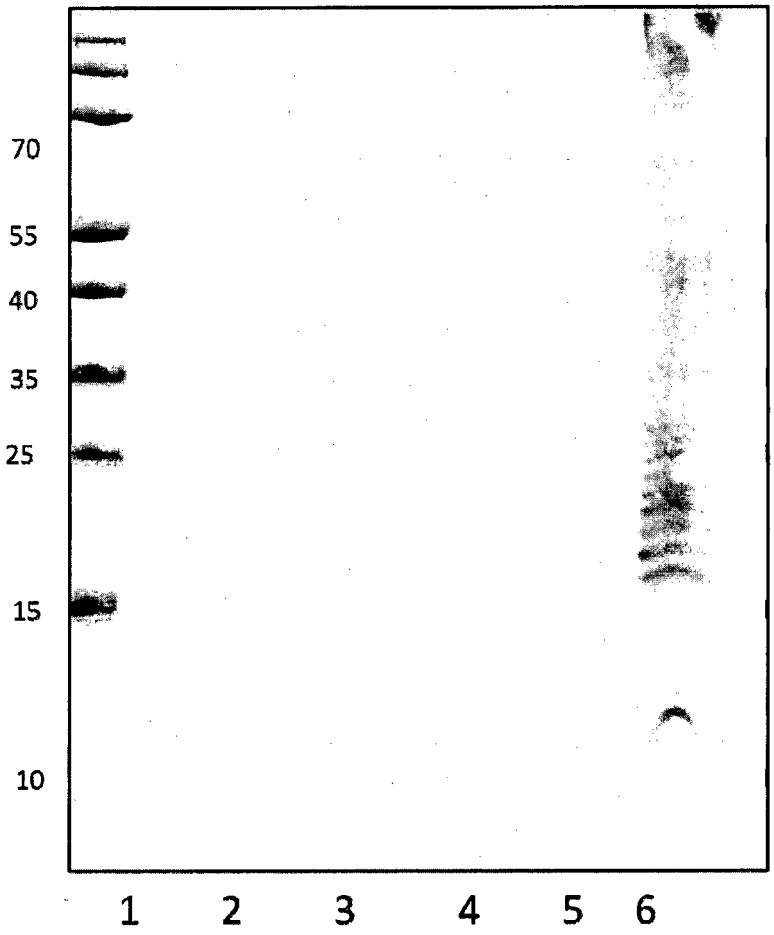


Fig. 8

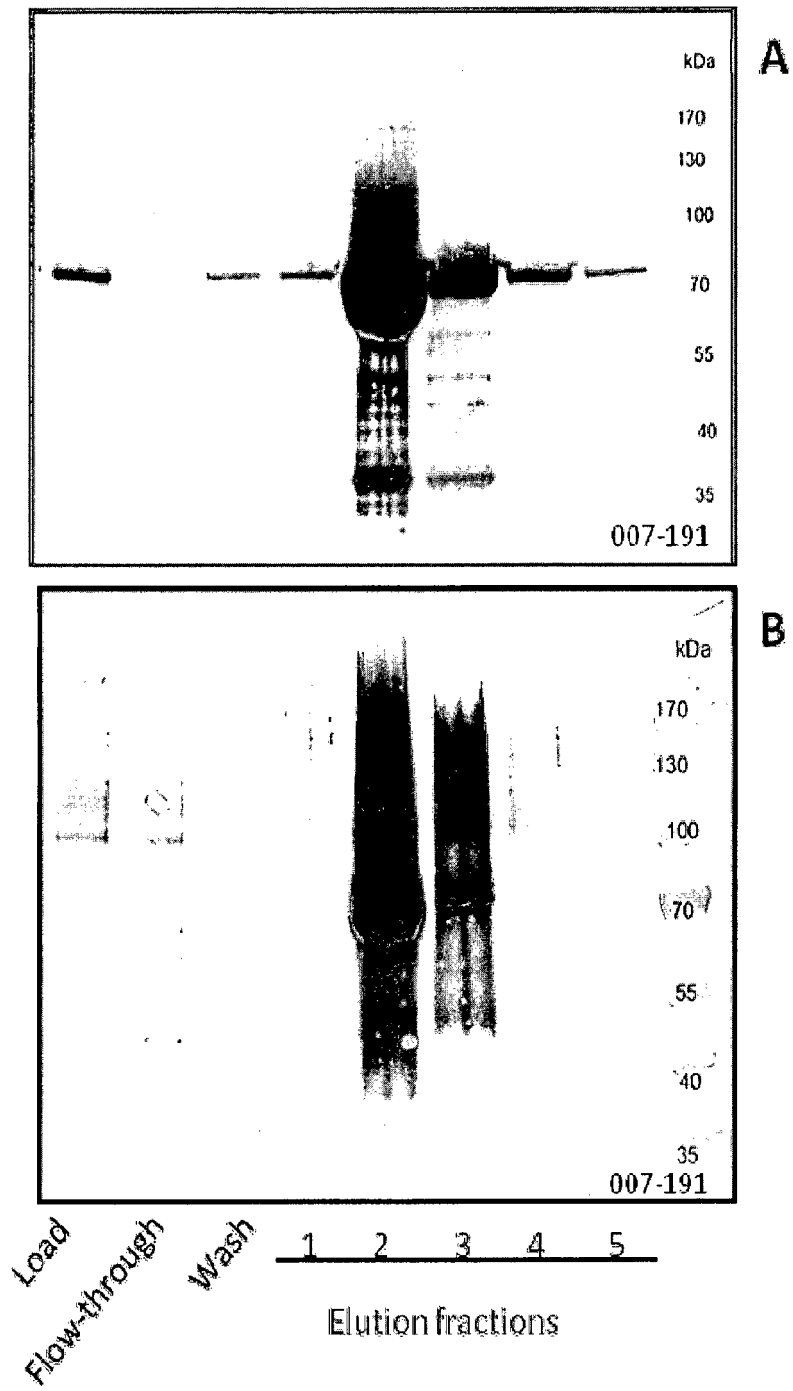
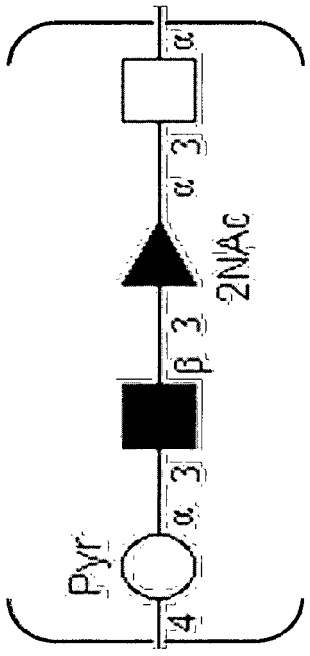

A
kDa
170
130
100
70
55
40
35
007-191
B
kDa
170
130
100
70
55
40
35
007-191
Load
Flow-through
Wash
1
2
3
4
5
Elution fractions

Fig. 9


Pyr
4
α 3
β 3
α 3
2NAc
α

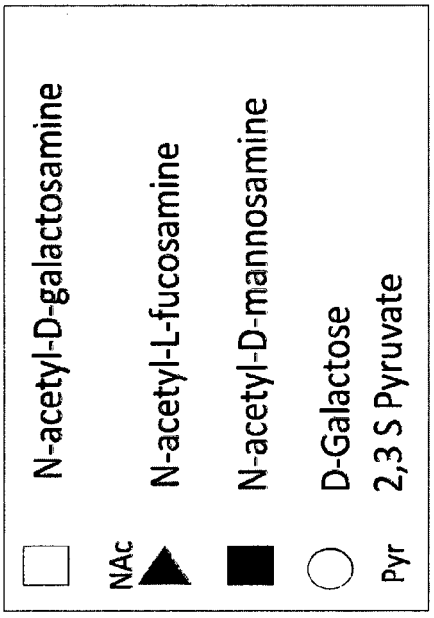

N-acetyl-D-galactosamine
NAc
N-acetyl-L-fucosamine
N-acetyl-D-mannosamine
D-Galactose
Pyr
2,3 S Pyruvate

Fig. 10

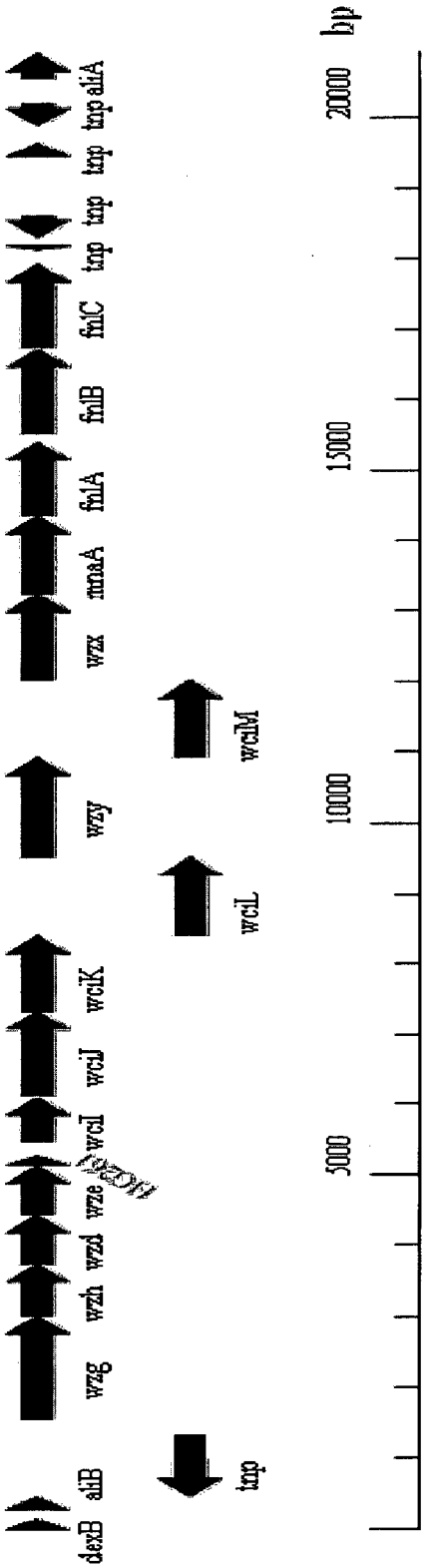

dexB
alsB
wzg
wzh
wzd
wze
wclI
wclJ
wclK
wclL
wclM
wzy
wzx
manA
fnlA
fnlB
fnlC
tnp
tnp
tnp
tnp
tnp
alsA
5000
10000
15000
20000
bp

Fig. 11

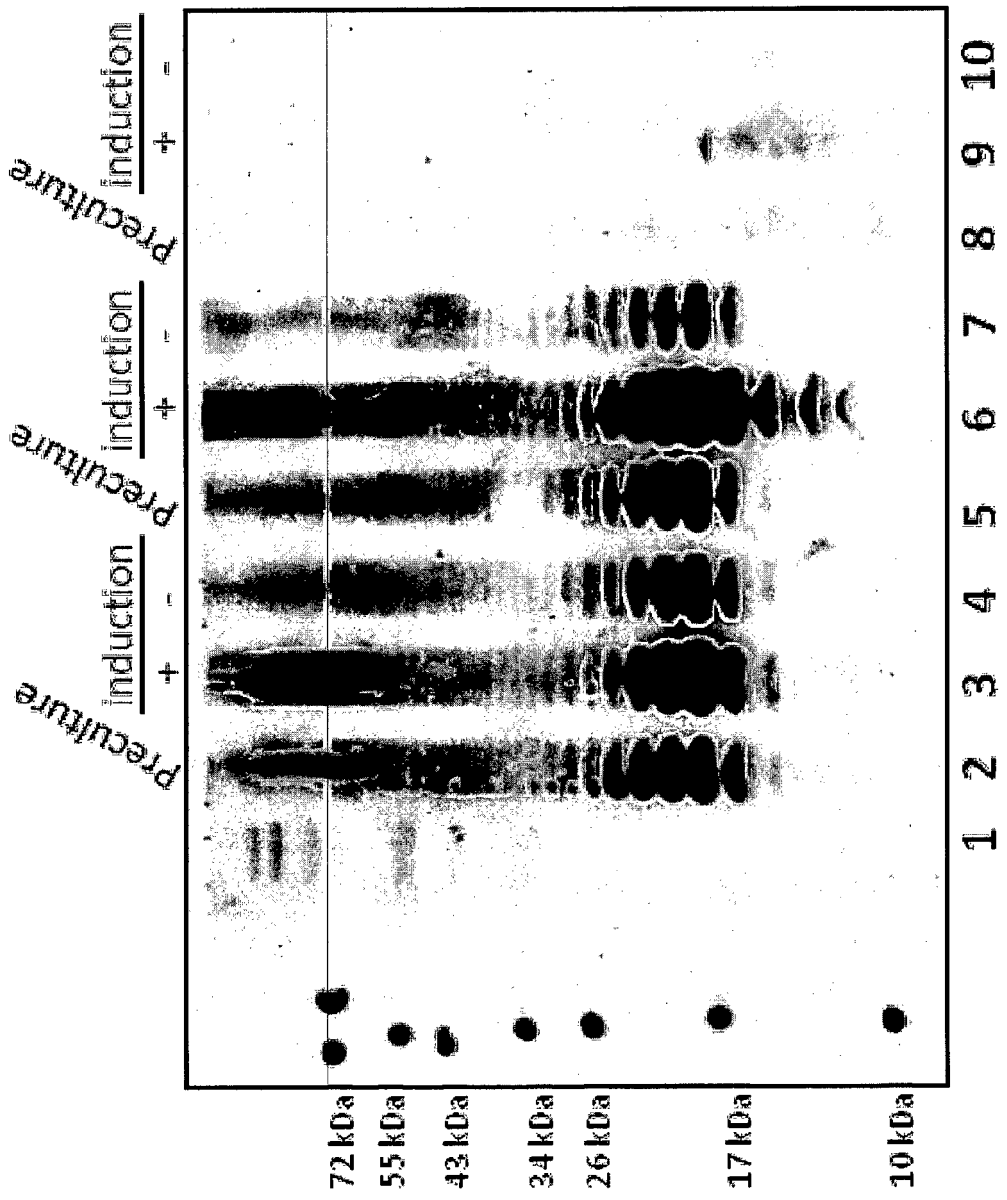

Preculture
induction
+
-
Preculture
induction
+
-
Preculture
induction
+
-
1 2 3 4 5 6 7 8 9 10
72 kDa
55 kDa
43 kDa
34 kDa
26 kDa
17 kDa
10 kDa

Fig. 12

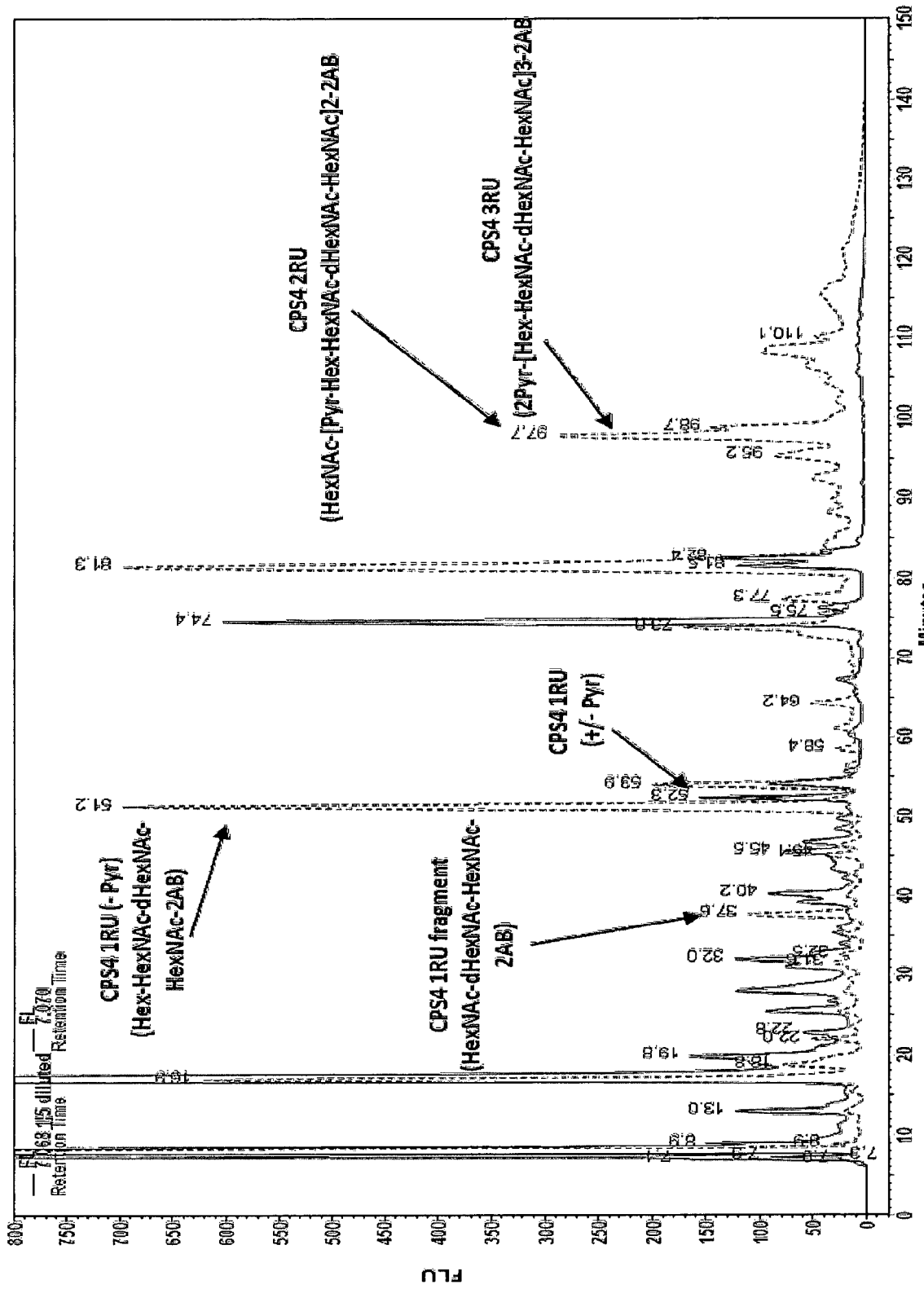

CPS4 2RU
(HexNAc-[Pyr-Hex-HexNAc-dHexNAc-HexNAc]2-2AB
CPS4 3RU
(2Pyr-[Hex-HexNAc-dHexNAc-HexNAc]3-2AB
CPS4 1RU (+/- Pyr)
CPS4 1RU (- Pyr)
(Hex-HexNAc-dHexNAc-HexNAc-2AB)
CPS4 1RU fragment
(HexNAc-dHexNAc-HexNAc-2AB)
FLU
Minutes
Retention Time
Retention Time
FL
FL
7.068
7.079
105 diluted

Fig. 13A

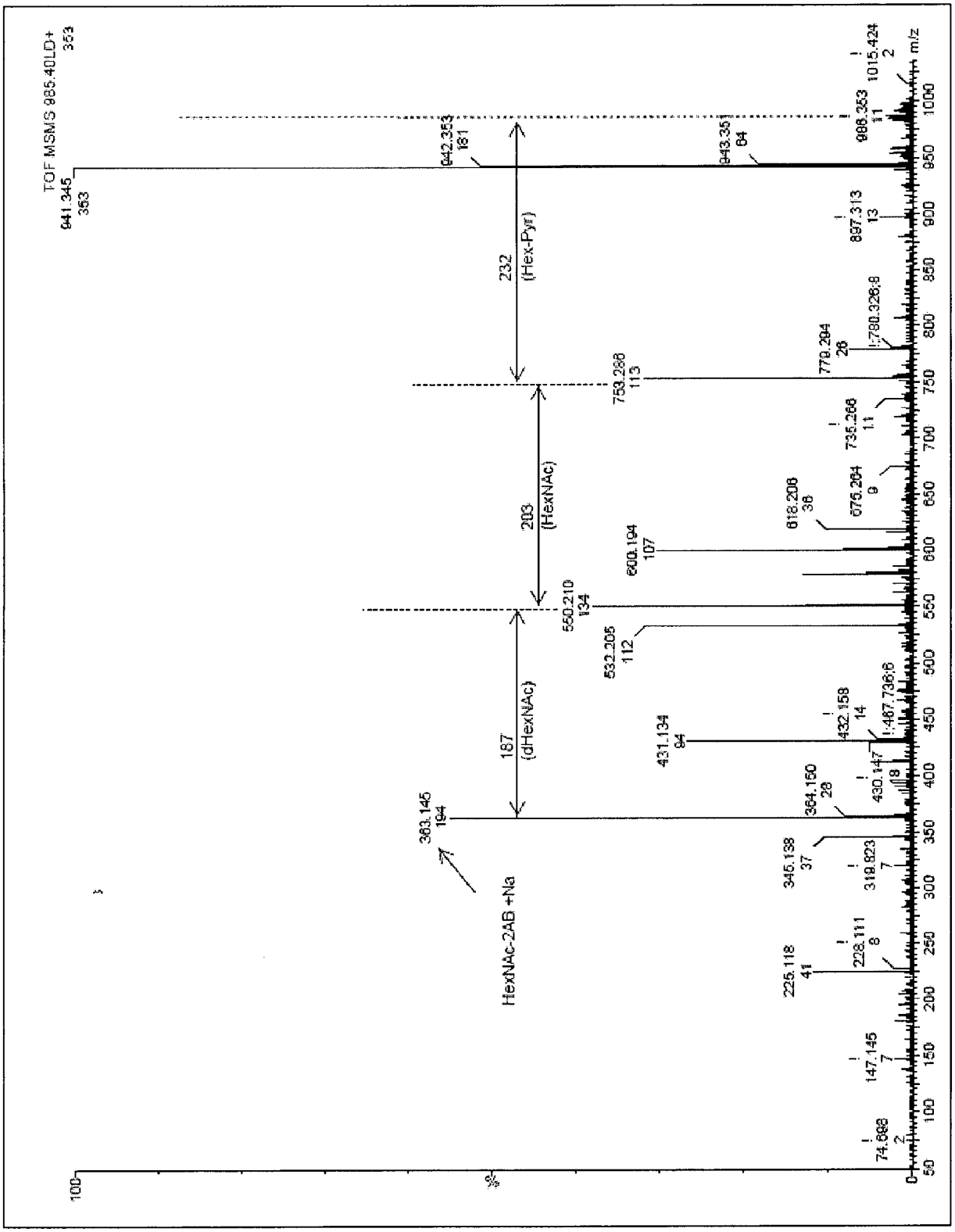

TOF MSMS 985.40LD+ 353
641.345 353
642.353 181
643.351 64
988.353 11
1015.424 2
897.313 13
780.326:8
779.284 26
753.288 113
735.266 1.1
676.264 9
618.206 38
600.194 107
550.210 134
532.205 112
431.134 94
432.158 14
1:467.736:6
430.147 18
364.150 28
363.145 194
345.138 37
319.823 7
228.111 8
225.118 41
147.145 7
74.868 2
232 (Hex-Pyr)
203 (HexNAc)
187 (dHexNAc)
HexNAc-2AB +Na
100
%
0
50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 850 900 950 1000 m/z

Fig. 13B

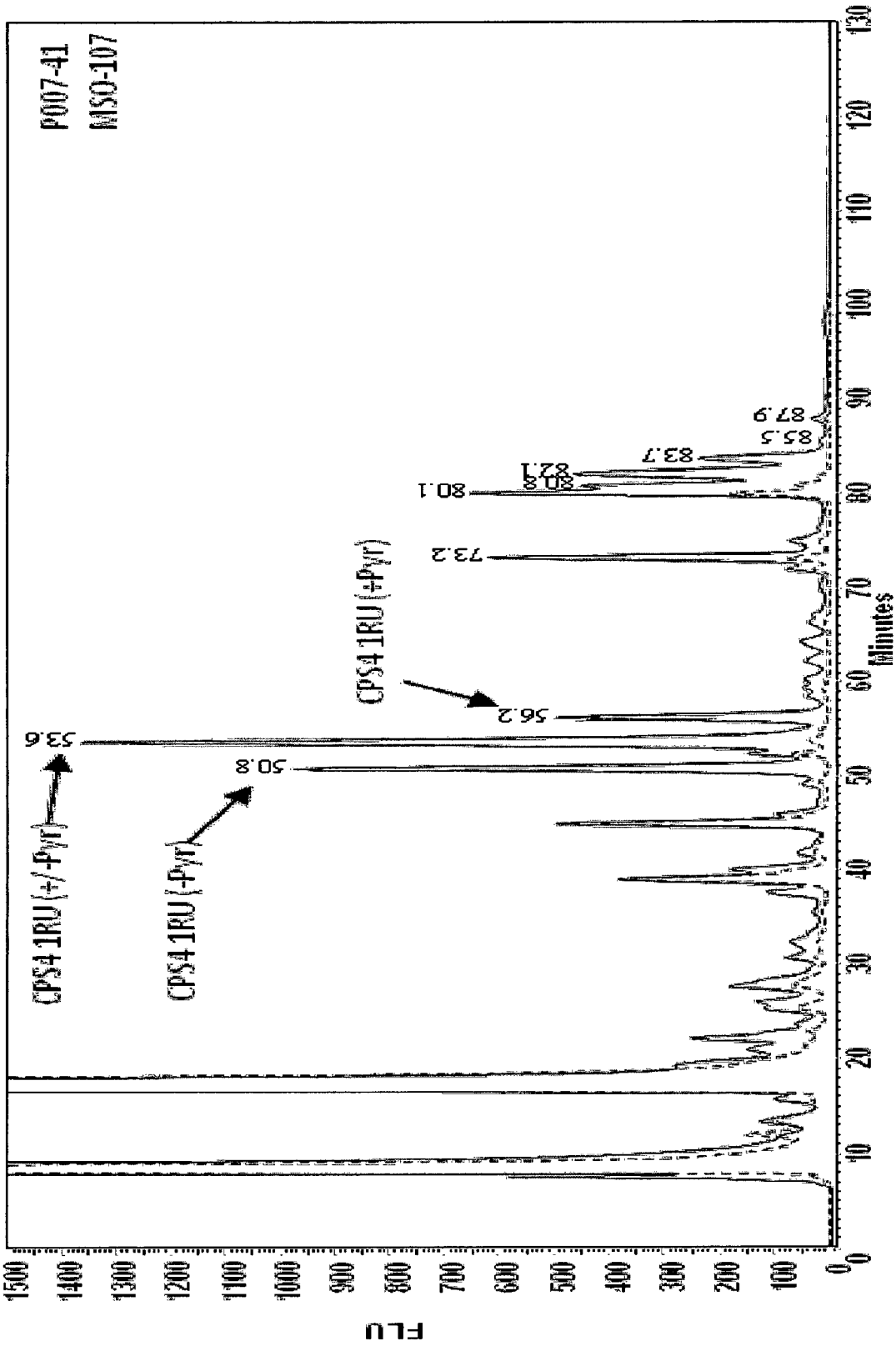

P007-41
MSO-107
CPS4 1RU (+/-Pyr)
CPS4 1RU (-Pyr)
CPS4 1RU (+Pyr)
53.6
50.8
56.2
73.2
80.1
80.8
82.1
83.7
85.5
87.9
FLU
Minutes

Fig. 14

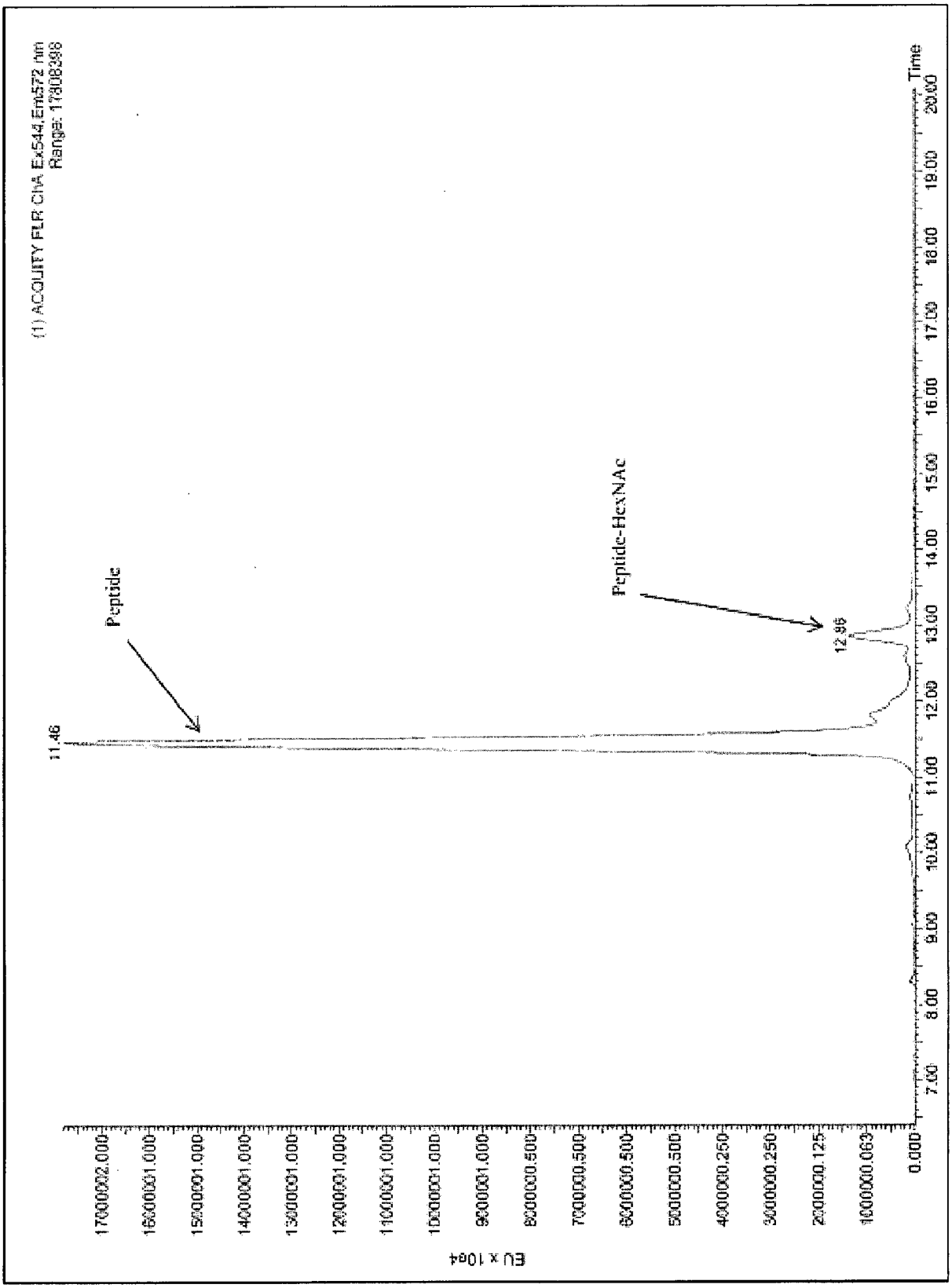

(1) ACQUITY FLR ChA Ex544,Em572 /nm
Range: 17808398
Peptide
11.46
Peptide-HexNAc
12.96
EU x 10e4
Time
17000002.000
16000001.000
15000001.000
14000001.000
13000001.000
12000001.000
11000001.000
10000001.000
9000001.000
8000000.500
7000000.500
6000000.500
5000000.500
4000000.250
3000000.250
2000000.125
1000000.063
0.000
7.00
8.00
9.00
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
18.00
19.00
20.00

Fig. 15A

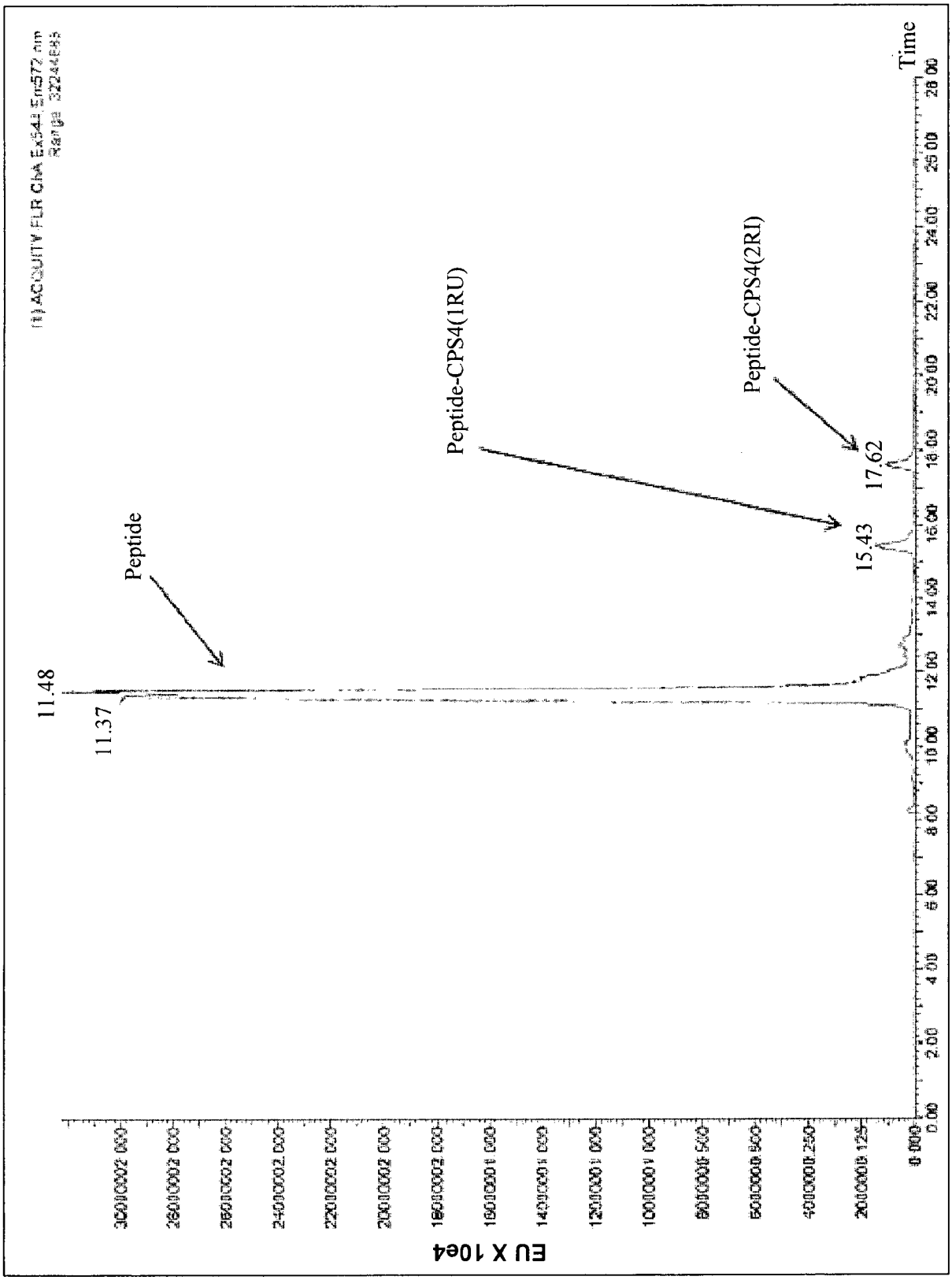

Peptide
Peptide-CPS4(1RU)
Peptide-CPS4(2RI)
11.48
11.37
15.43
17.62
Time
EU X 10e4

Fig. 15B

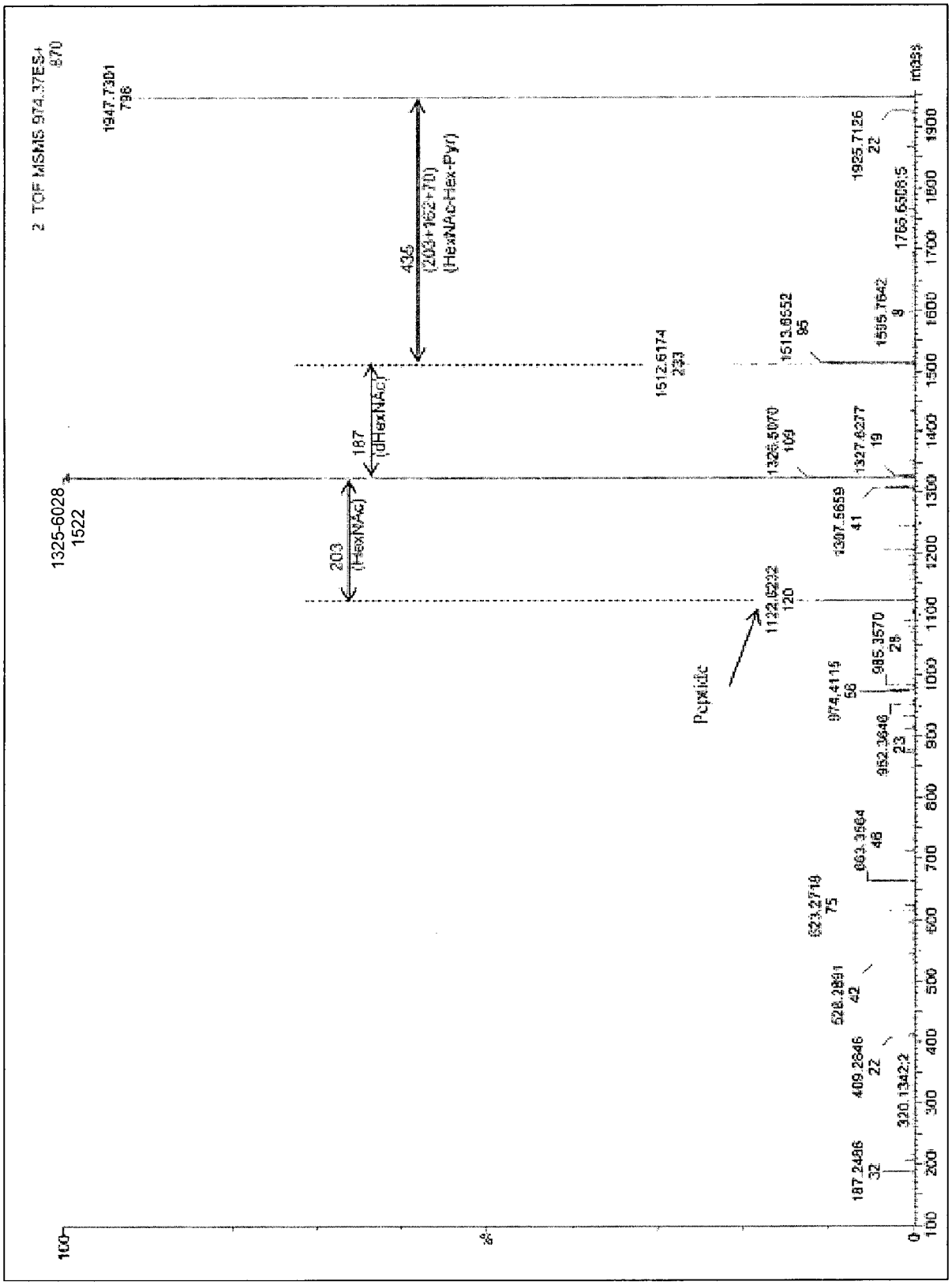

2 TOF MSMS 974.37ES+
870
1947.7301
796
435
(203+162+70)
(HexNAc-Hex-Pyr)
1512.6174
233
1513.6552
85
1595.7642
9
1765.6566
5
1925.7126
22
1325.6028
1522
187
(dHexNAc)
203
(HexNAc)
1326.6070
109
1327.6277
19
1397.5659
41
1122.6232
120
Peptide
974.4115
58
985.3570
28
952.3646
23
863.3564
46
823.2719
75
528.2891
42
409.2846
22
320.1342.2
187.2486
32
m/z
%
100
0
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900

Fig. 15C

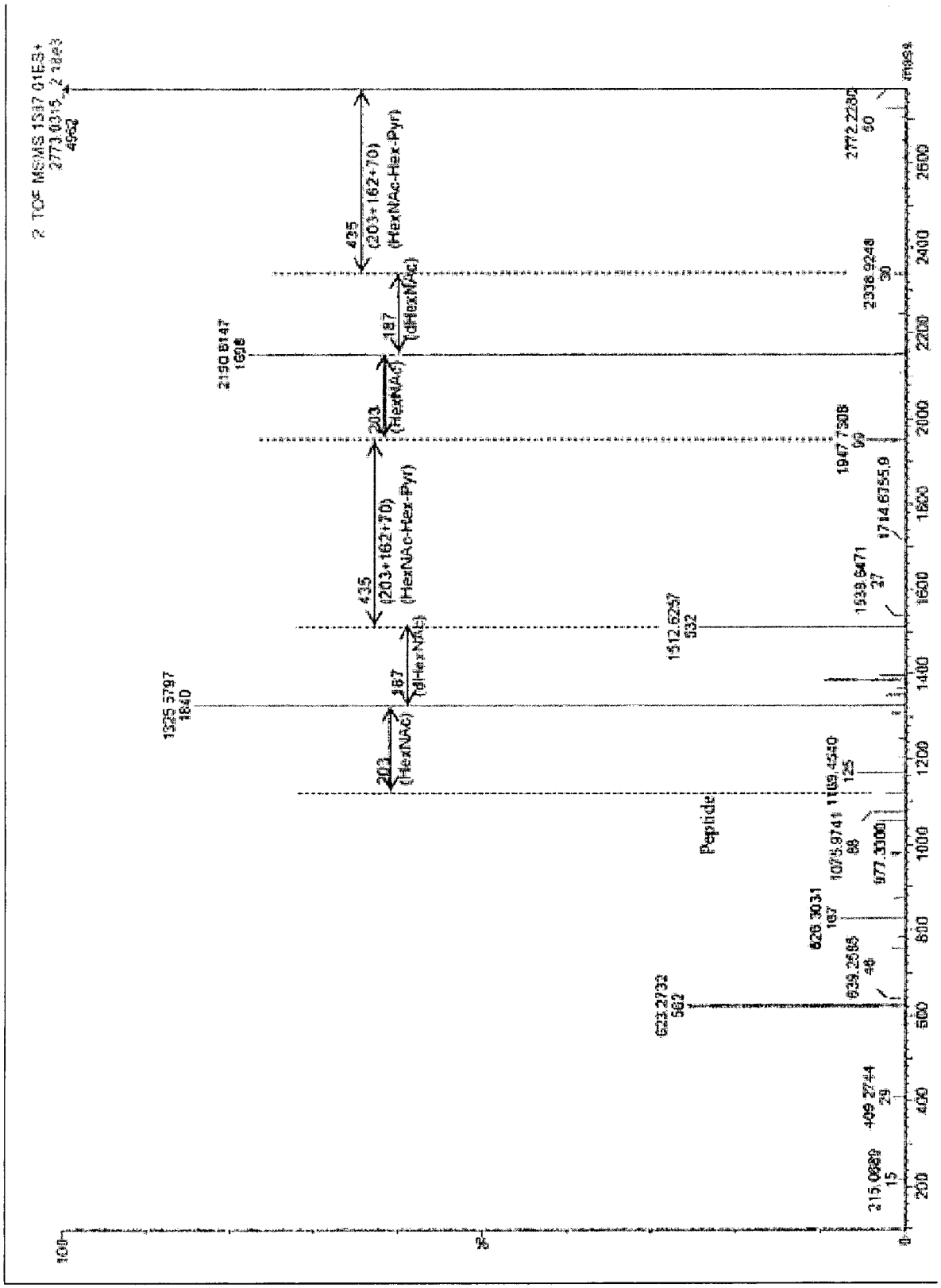

Peptide
435
(203+162+70)
(HexNAc-Hex-Pyr)
187
(dHexNAc)
203
(HexNAc)
435
(203+162+70)
(HexNAc-Hex-Pyr)
187
(dHexNAc)
203
(HexNAc)

Fig. 15D

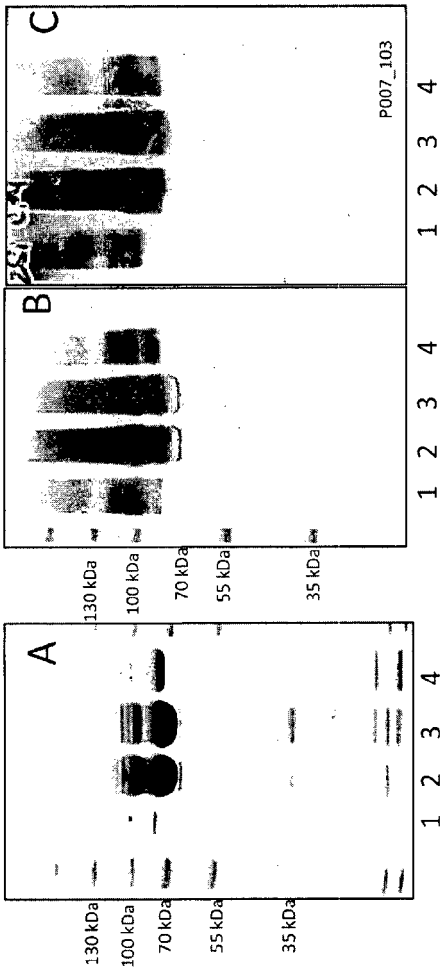


Fig. 16

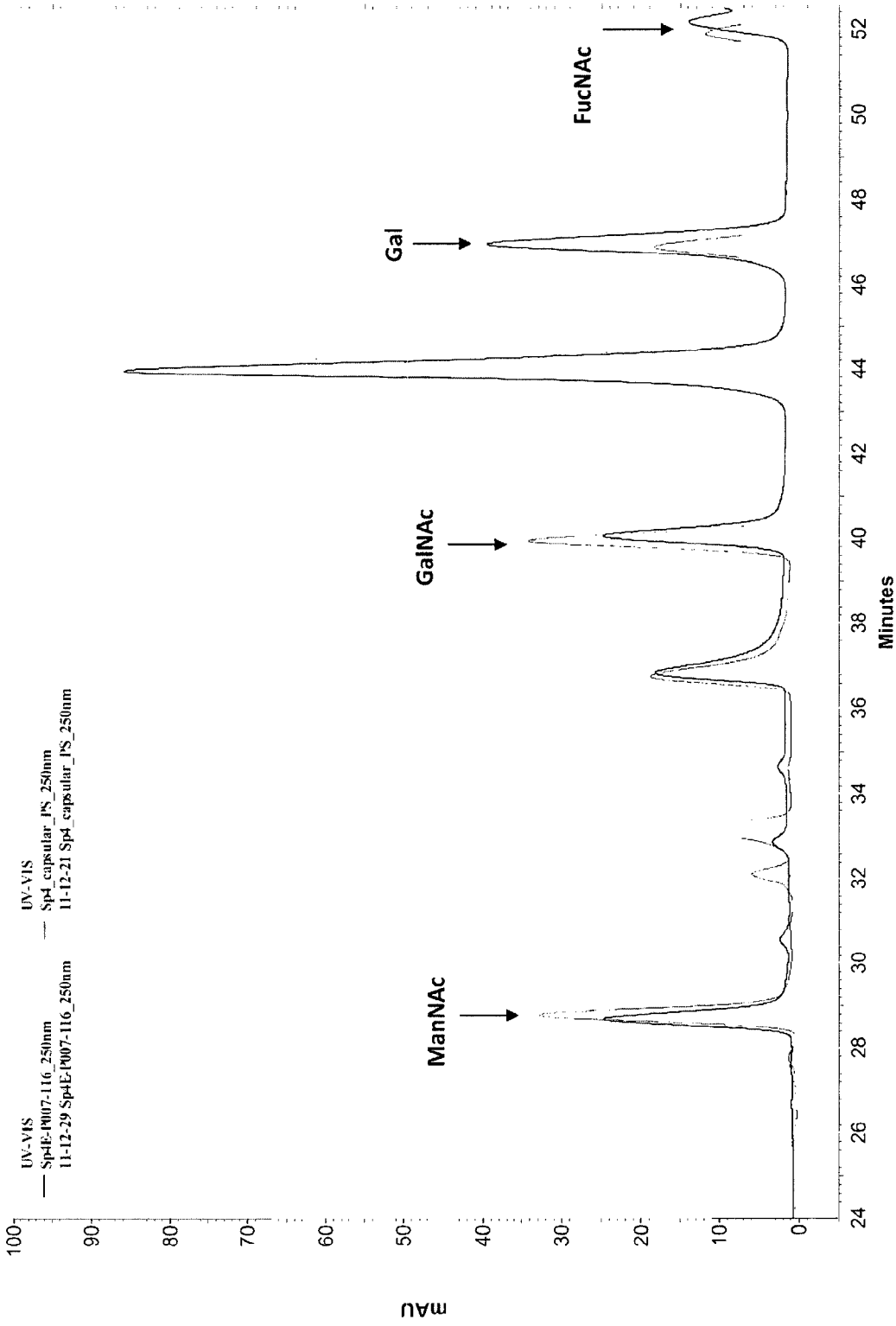

UV-VIS
Sp4E-P007-116_250nm
11-12-29 Sp4E-P007-116_250nm
UV-VIS
Sp4_capsular_PS_250nm
11-12-21 Sp4_capsular_PS_250nm
ManNAc
GalNAc
Gal
FucNAc
mAU
Minutes

Fig. 17

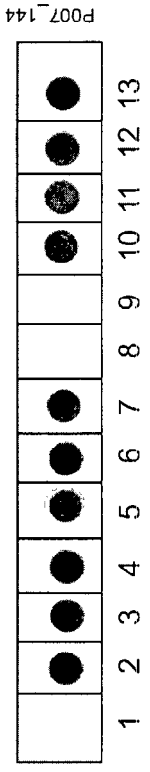


Fig. 18

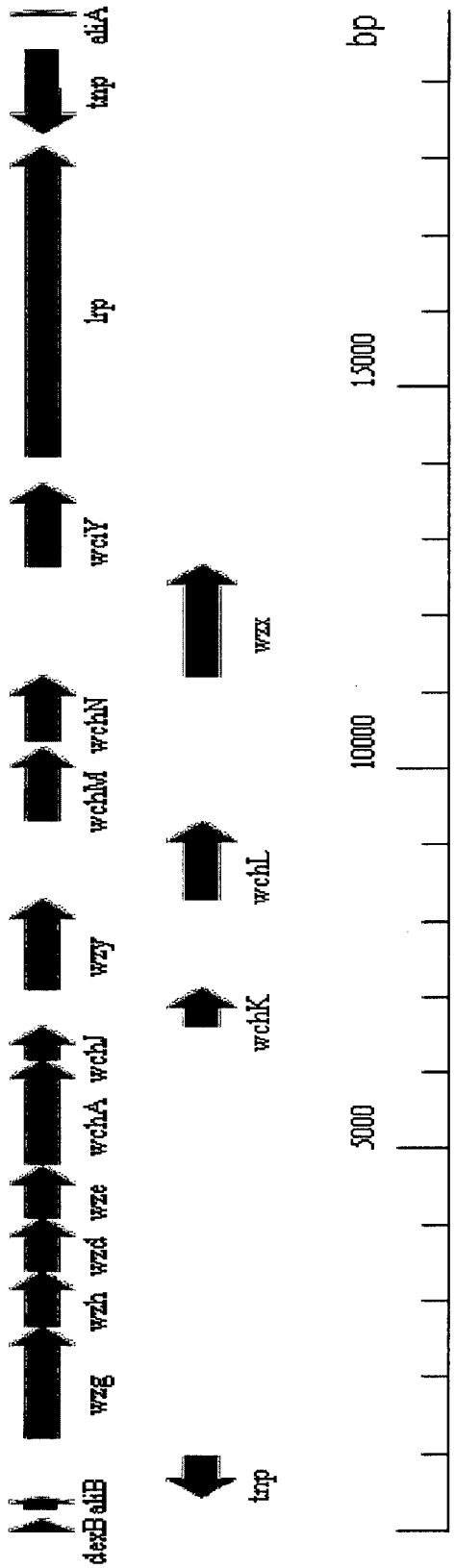

dexB
aliB
wzg
wzh
wzd
wze
wchA
wchJ
wzy
wchK
wchL
wchM
wchN
wzx
wciY
trp
tmp
aliA
5000
10000
15000
bp

Fig. 19

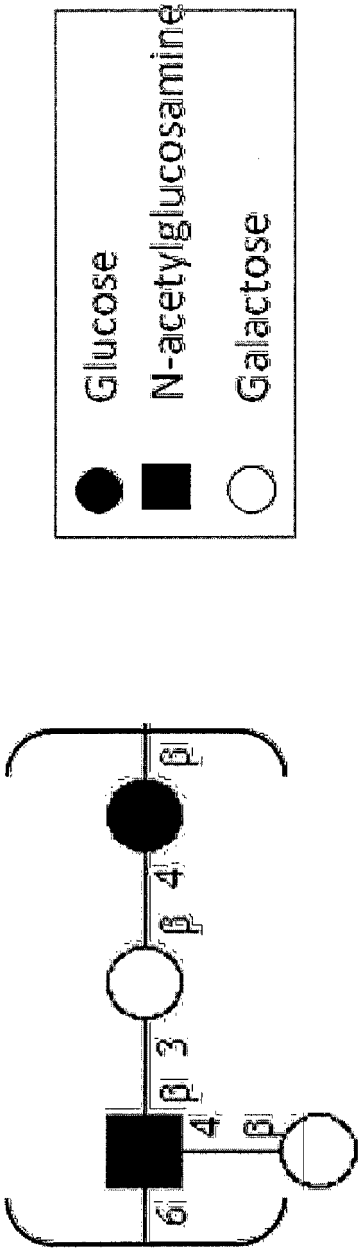

Glucose
N-acetylglucosamine
Galactose
β1
4
β1
3
β1
4
β1
6

Fig. 20

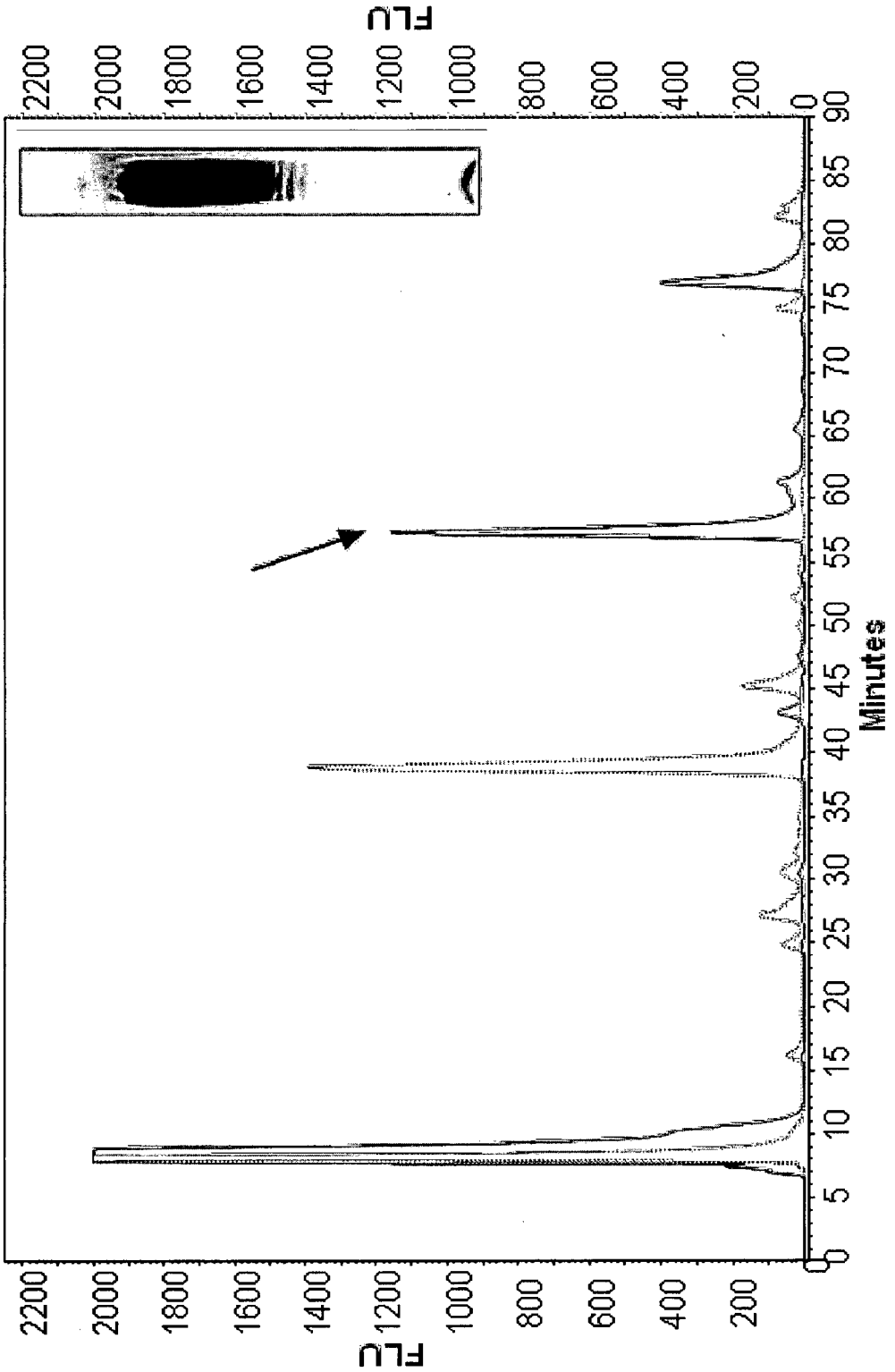

FLU
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
Minutes

Fig. 21A

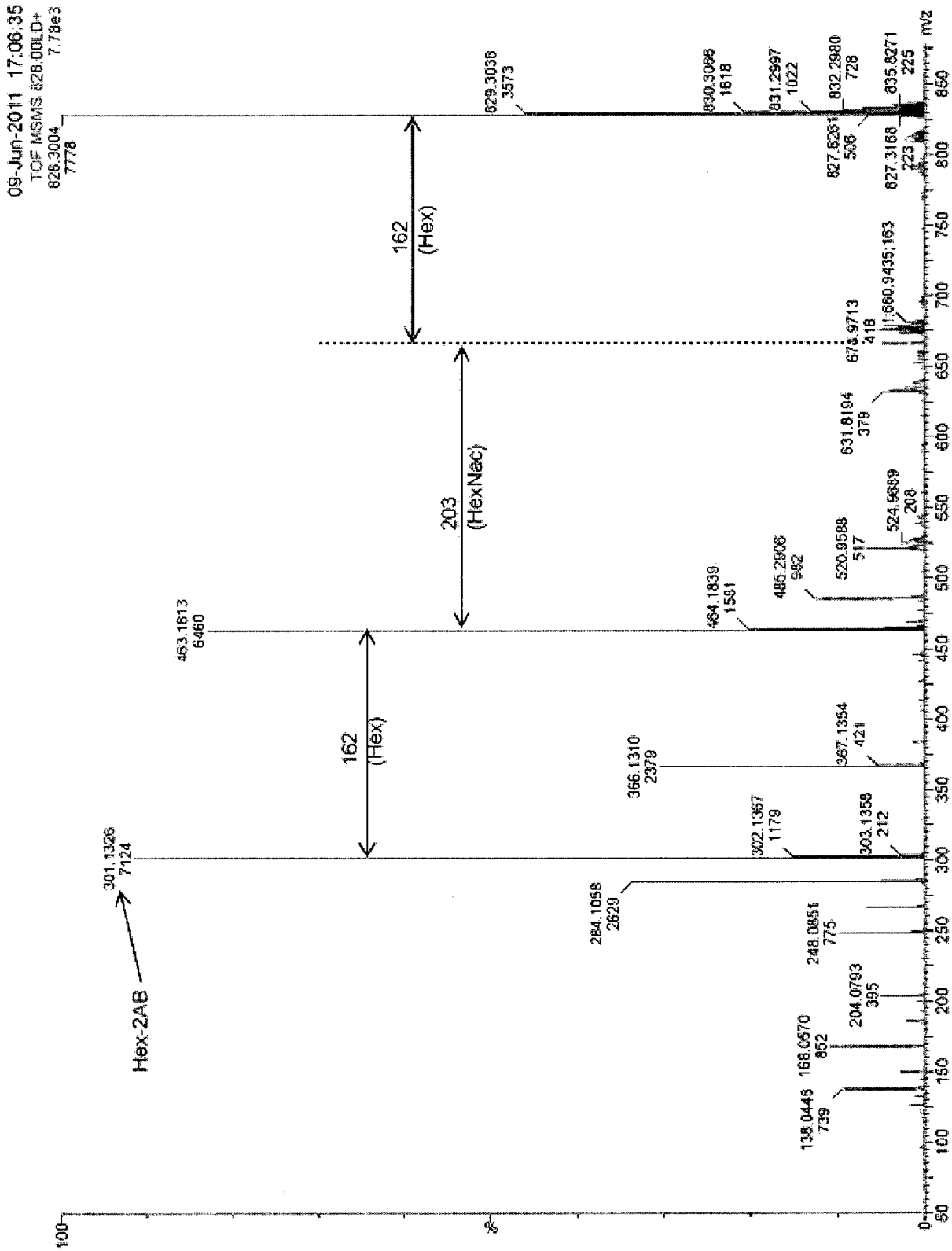

09-Jun-2011 17:06:35
TOF MSMS 828.00LD+
7.78e3
828.3004
7778
629.3036
3573
830.3068
1618
831.2997
1022
832.2980
728
835.8271
225
827.6261
506
827.3168
223
660.9435
163
673.9713
418
631.8194
379
524.9889
208
520.9588
517
485.2906
982
464.1839
1581
463.1613
6460
367.1354
421
366.1310
2379
303.1358
212
302.1367
1179
301.1326
7124
284.1058
2620
248.0851
775
204.0793
395
168.0570
852
138.0448
739
162
(Hex)
203
(HexNac)
162
(Hex)
Hex-2AB
%
m/z

Fig. 21B

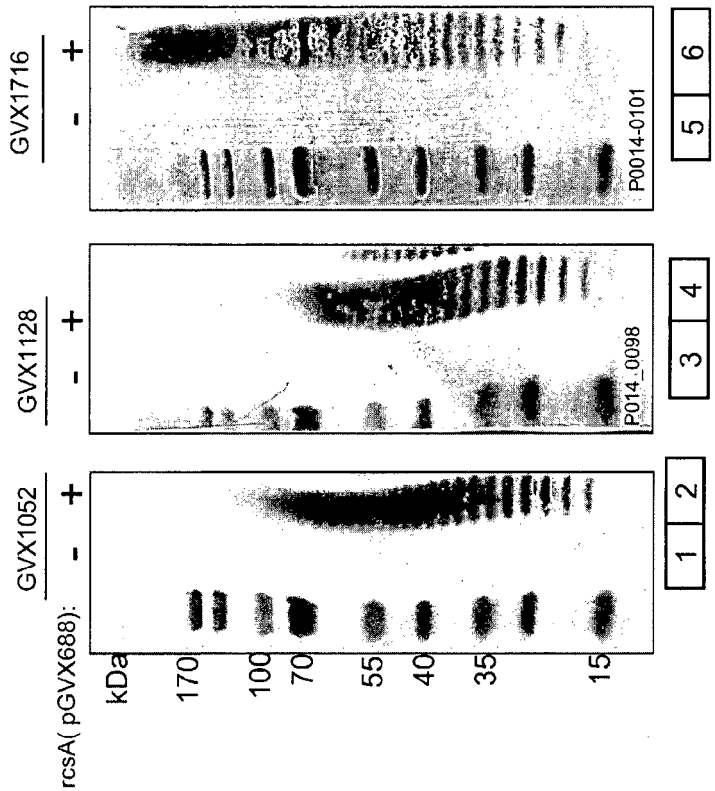

GVX1716
- +
GVX1128
- +
GVX1052
- +
rcsA(pGVX688):
kDa
170
100
70
55
40
35
15
P0014-0101
P014_0098
1 2
3 4
5 6

Fig. 22

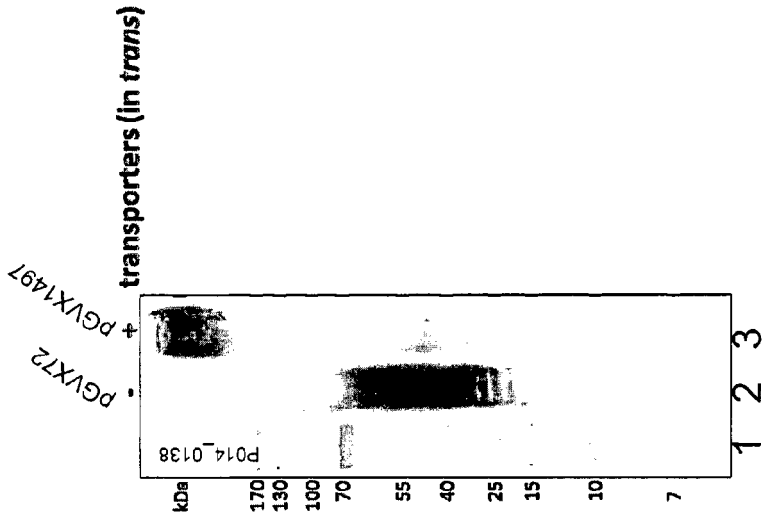

transporters (in trans)
+ pGVX1497
- pGVX72
P014_0138
kDa
170
130
100
70
55
40
25
15
10
7
1 2 3

Fig. 23

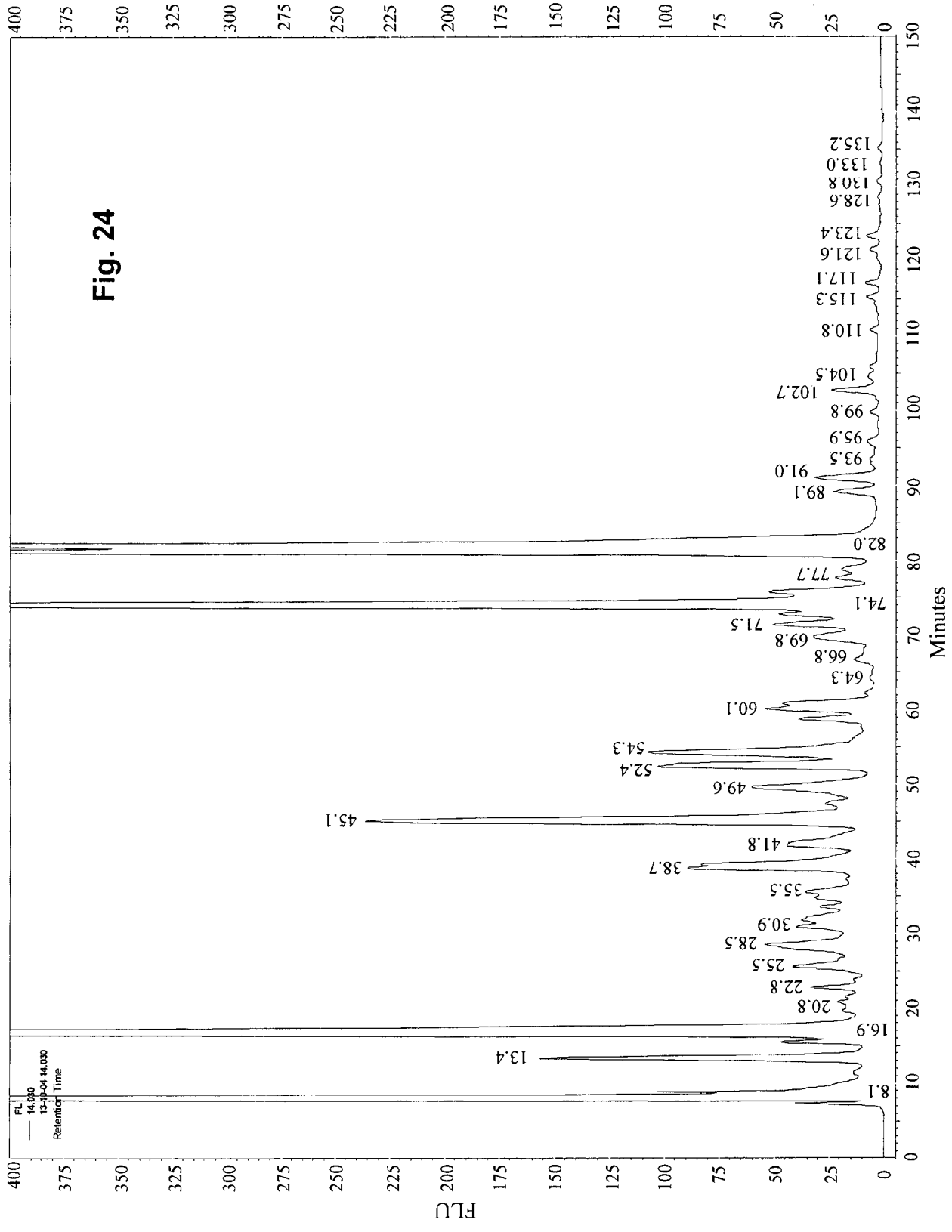

FLU
Minutes
FL
14.030
13-10-04 14.030
Retention Time
8.1
13.4
16.9
20.8
22.8
25.5
28.5
30.9
35.5
38.7
41.8
45.1
49.6
52.4
54.3
60.1
64.3
66.8
69.8
71.5
74.1
77.7
82.0
89.1
91.0
93.5
95.9
99.8
102.7
104.5
110.8
115.3
117.1
121.6
123.4
128.6
130.8
133.0
135.2

Fig. 24