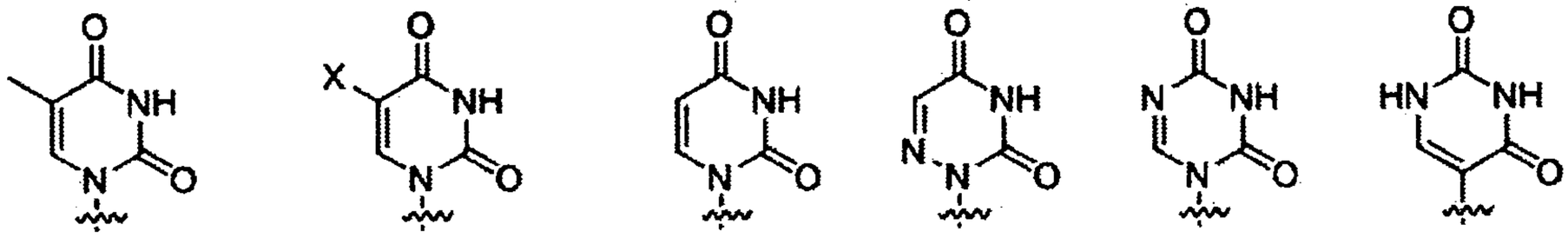
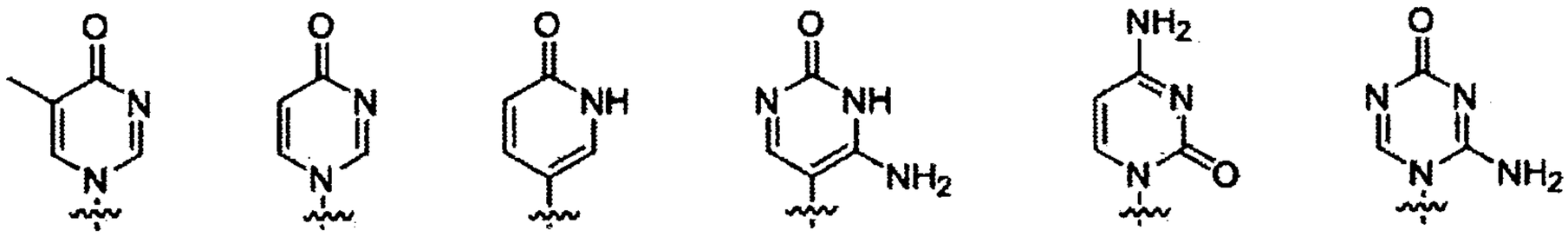
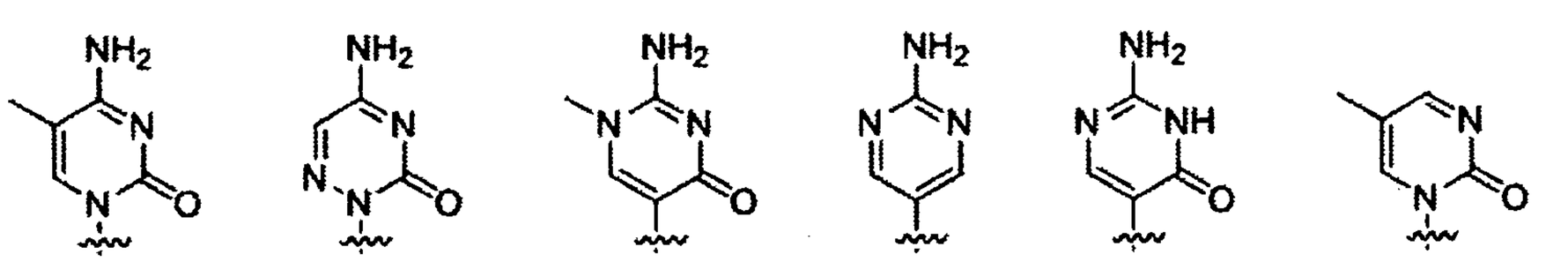
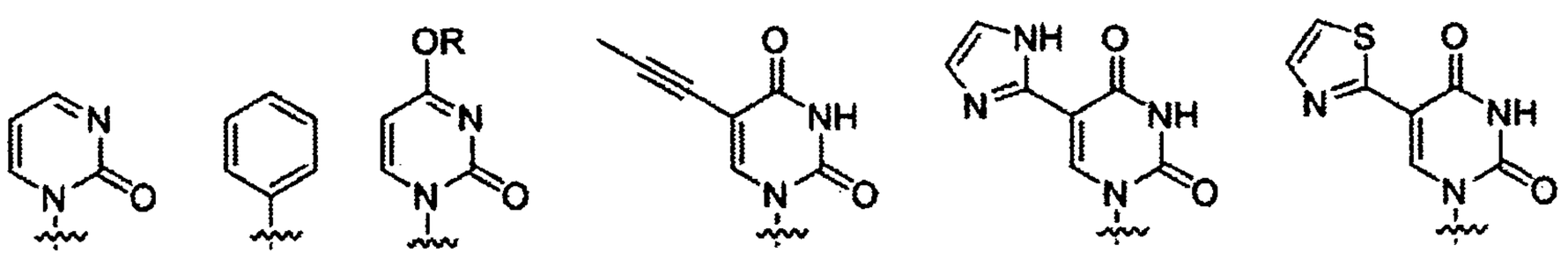
Fig. 1a









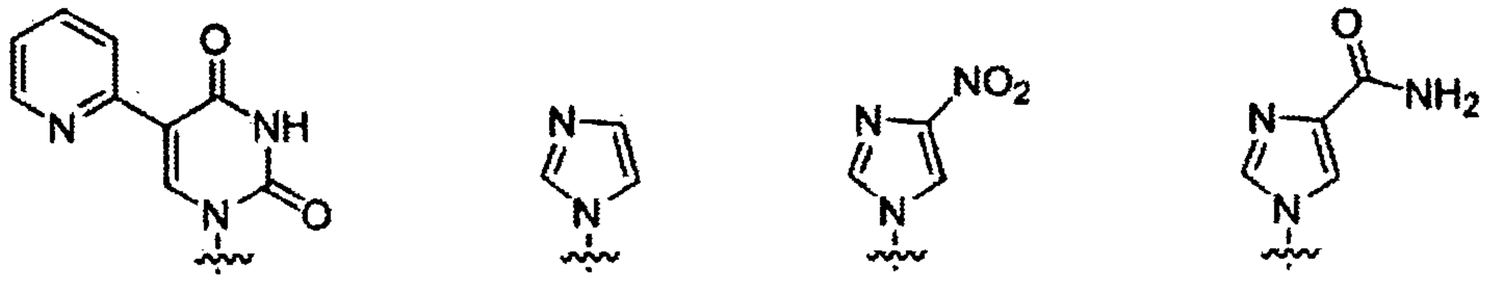
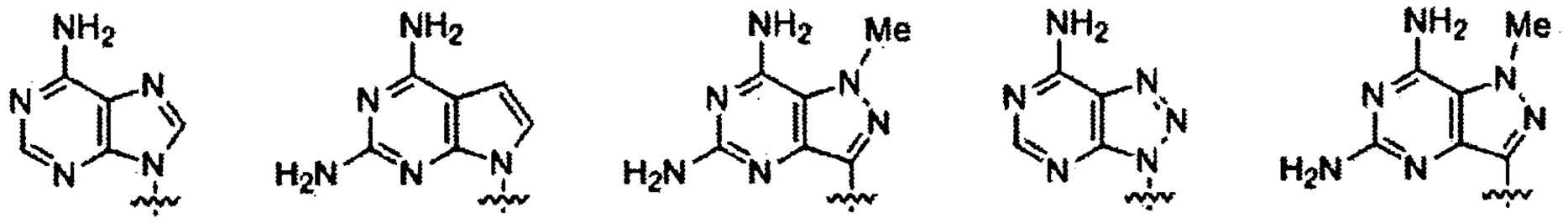


Fig. 1b



Adenine

Guanine

6-O-methylguanine

Fig. 1c

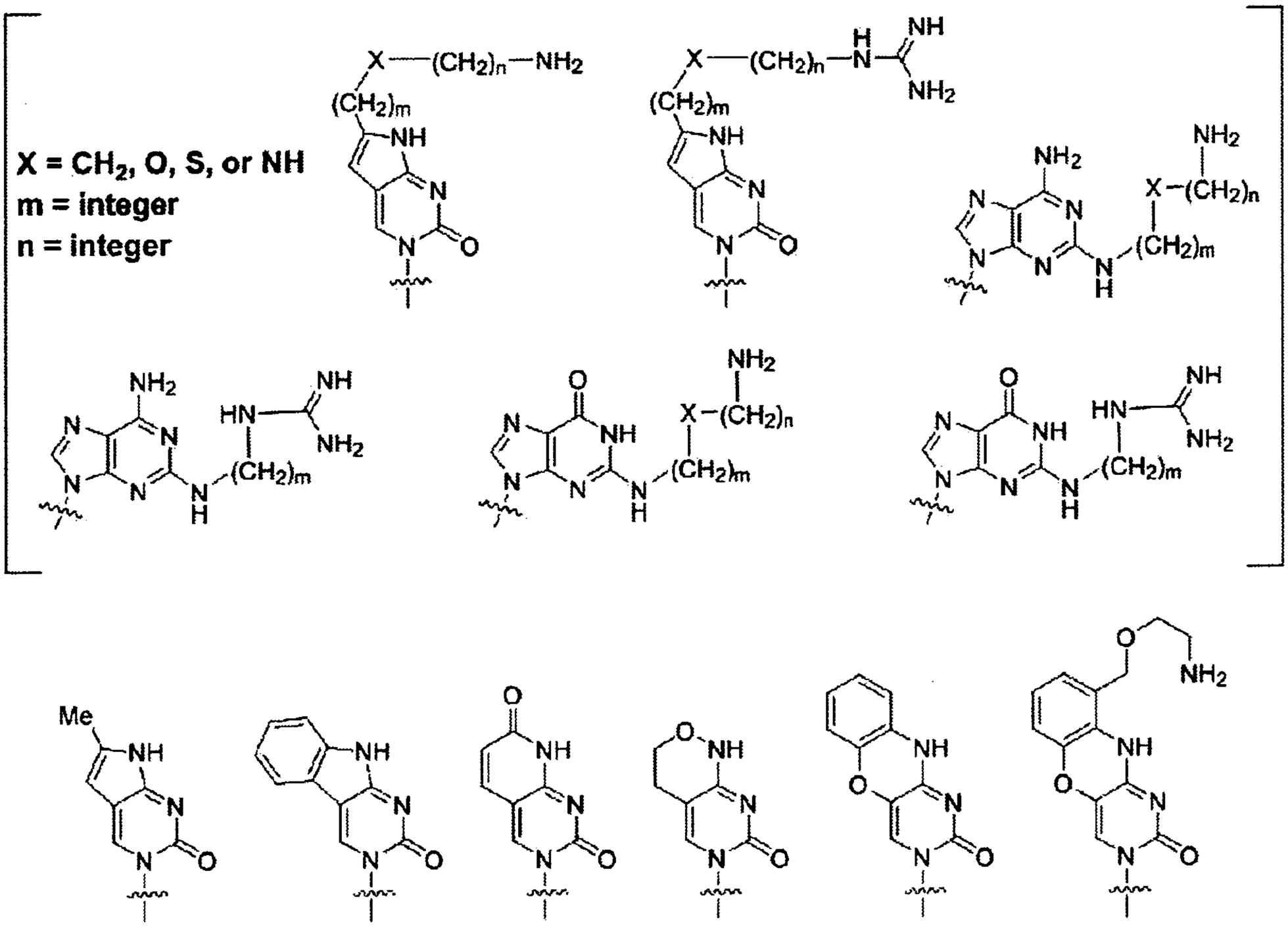
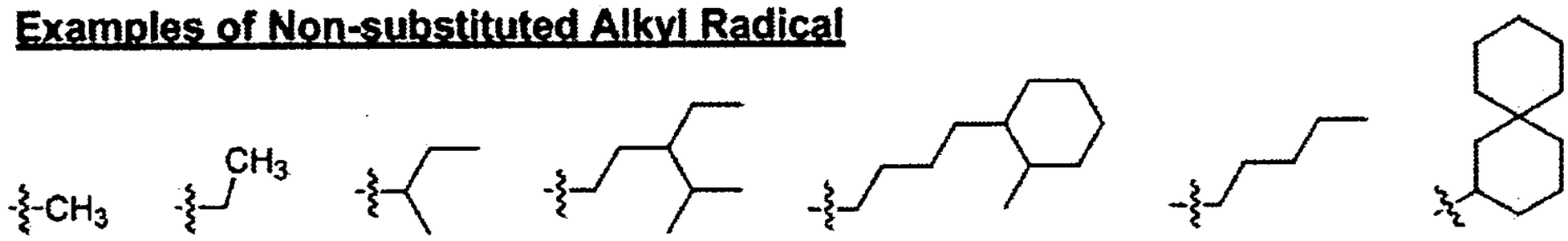


Fig. 2a

Examples of Non-substituted Alkyl Radical



Examples of Substituted Alkyl Radical

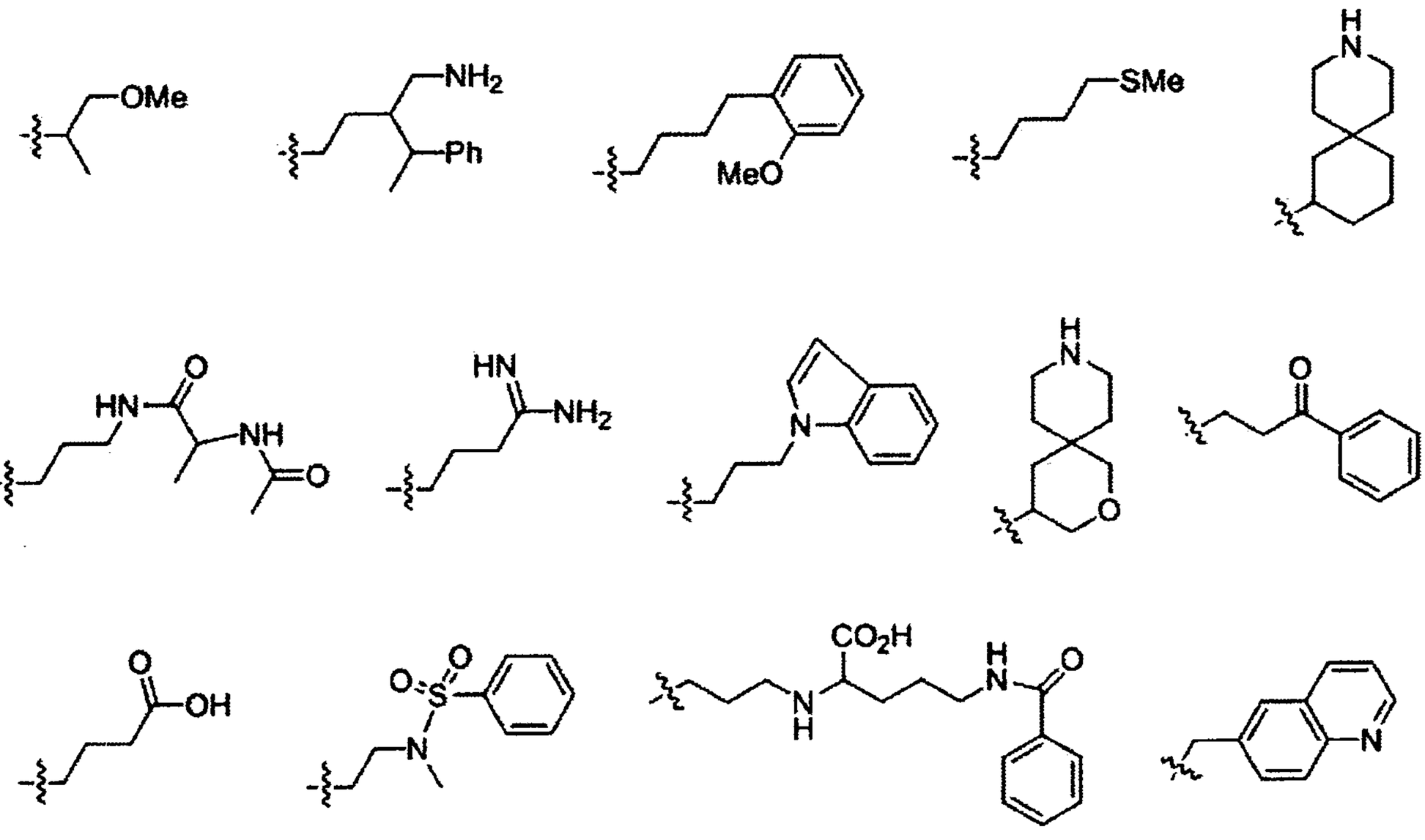
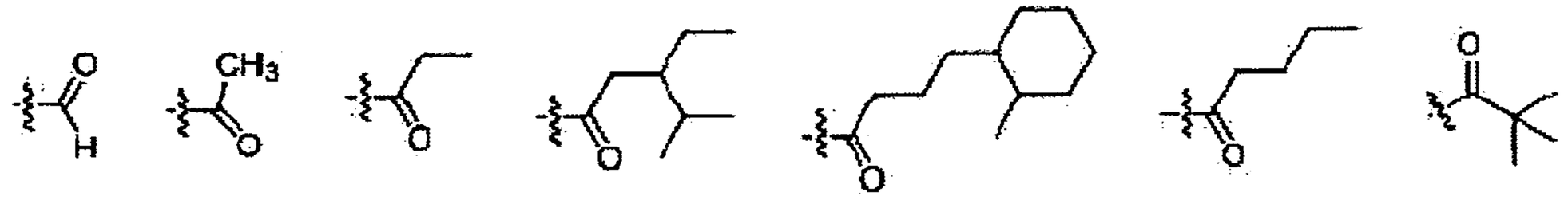
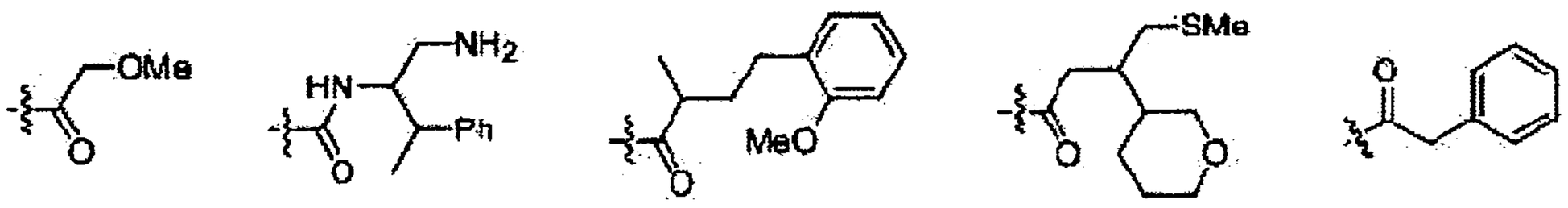


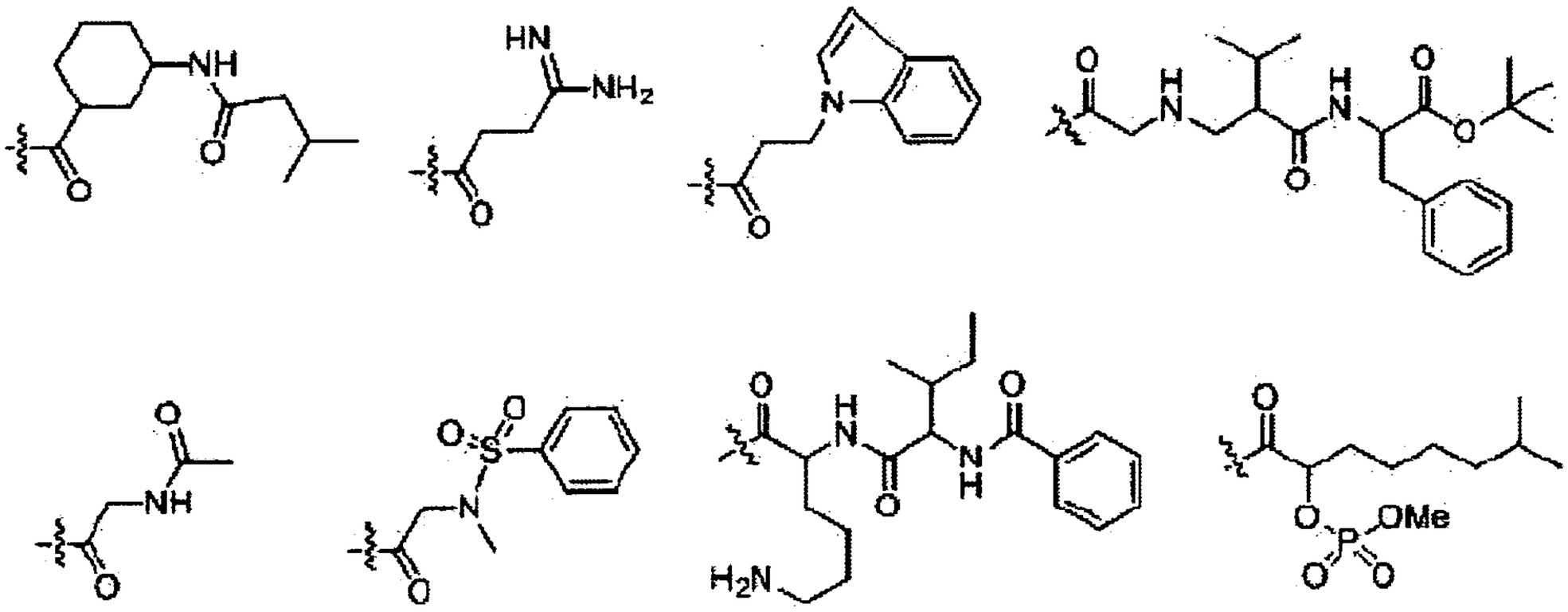
Fig. 2b

Examples of Non-substituted Alkylacyl Radical



Examples of Substituted Alkylacyl Radical





Examples of Substituted or Non-substituted Arylacyl Radical

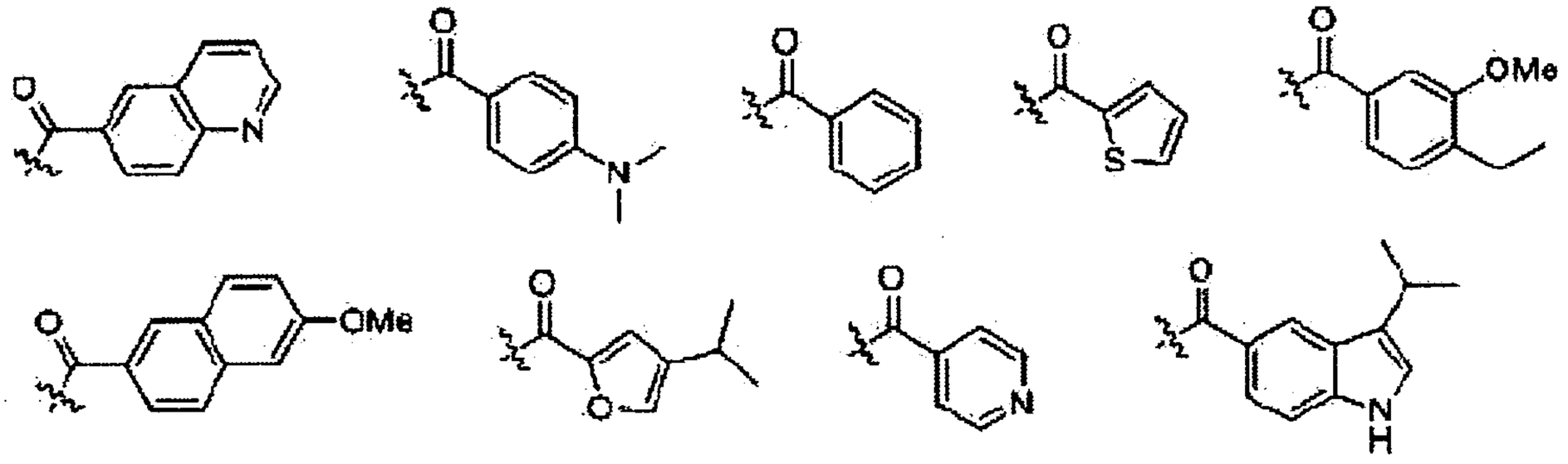
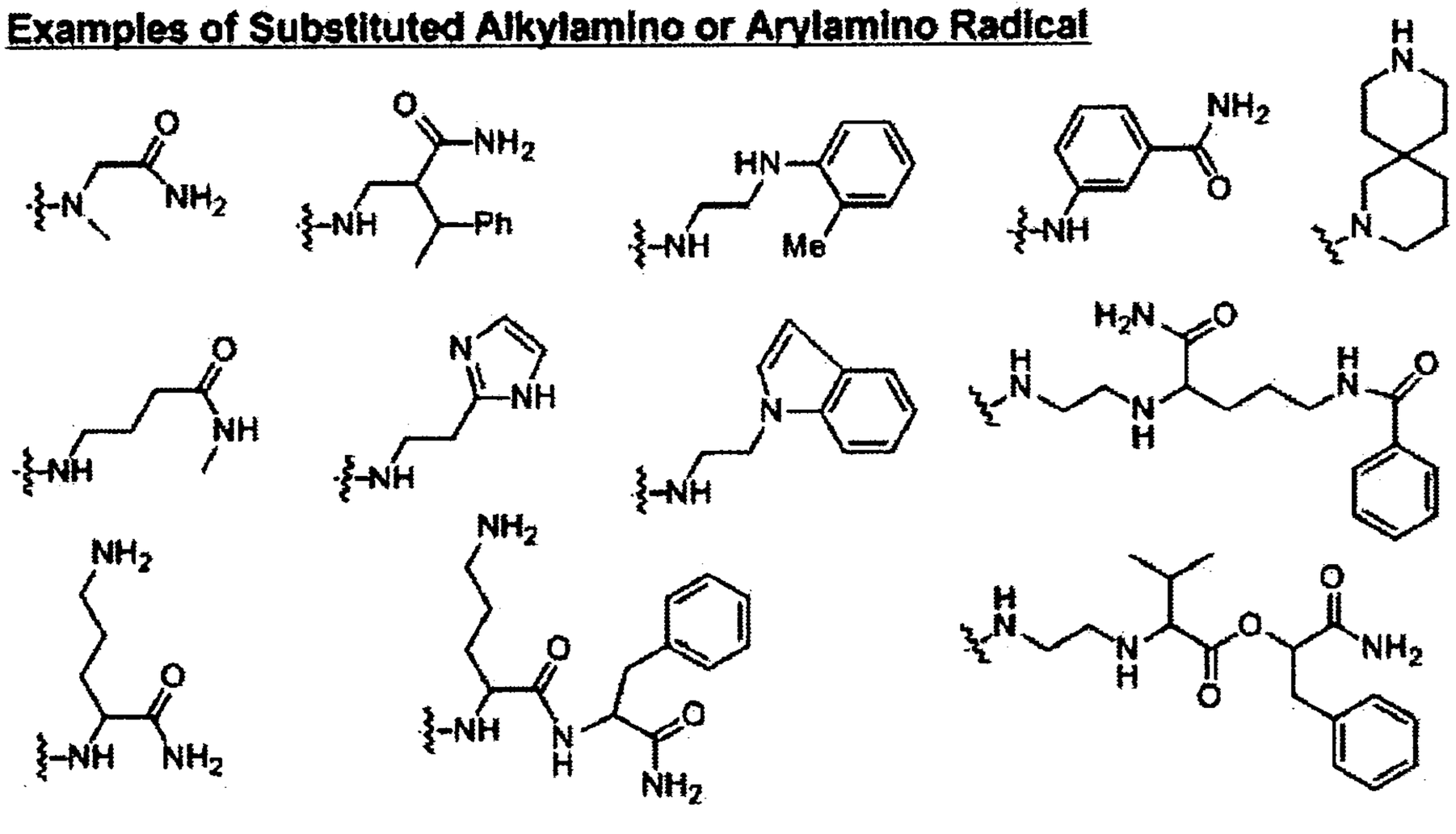
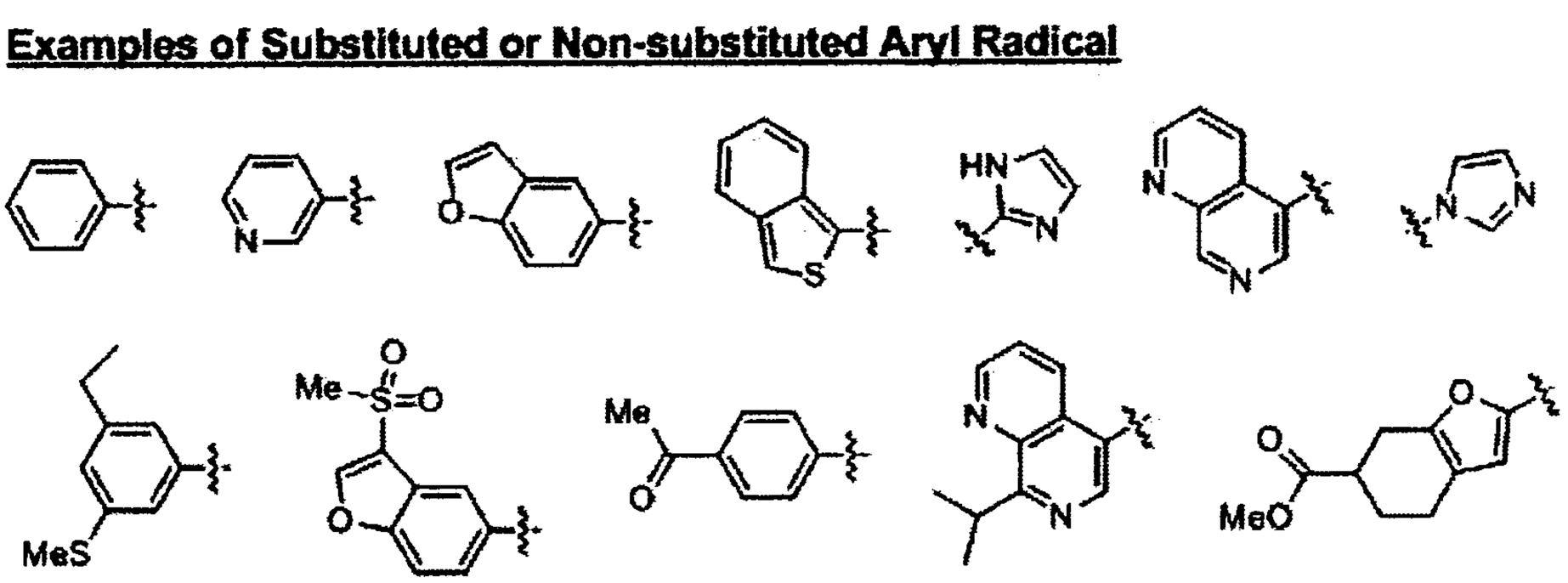


Fig. 2c

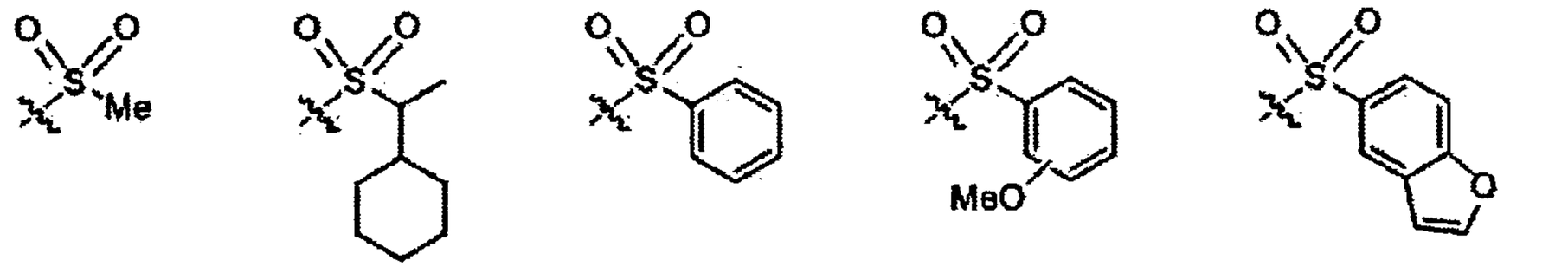
Examples of Substituted Alkylamino or Arylamino Radical



Examples of Substituted or Non-substituted Aryl Radical



Examples of Substituted or Non-substituted Alkylsulfonyl or Arylsulfonyl Radical



Examples of Substituted or Non-substituted Alkyl- or Aryl-phosphonyl Radical

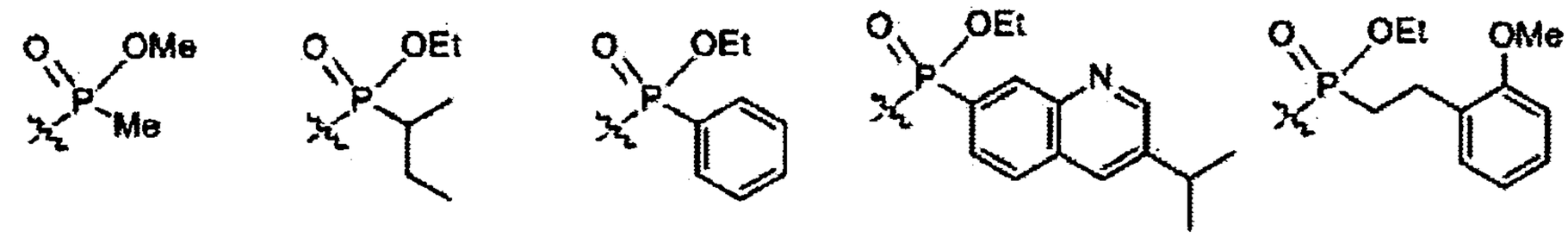
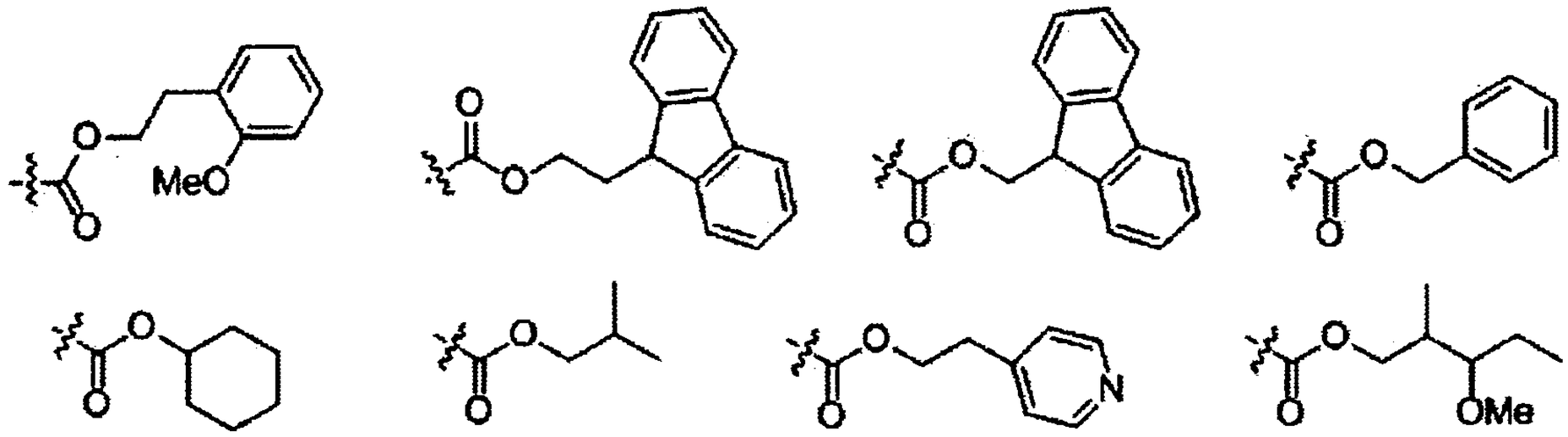
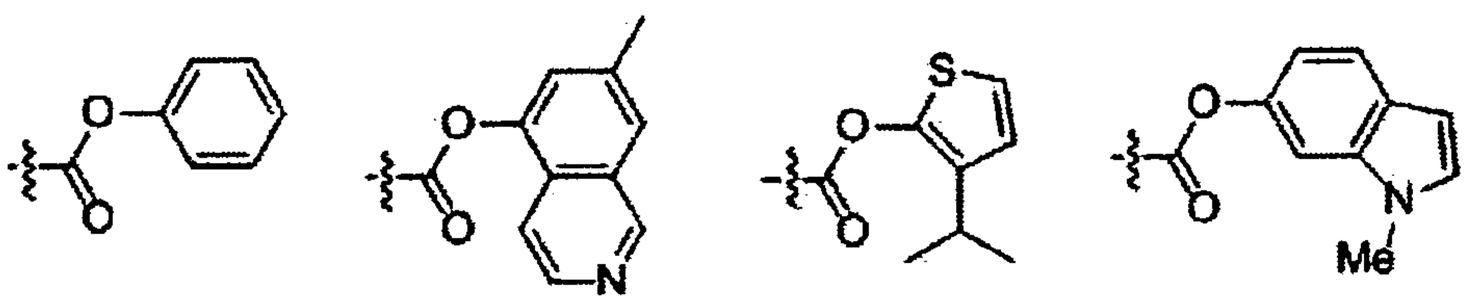


Fig. 2d

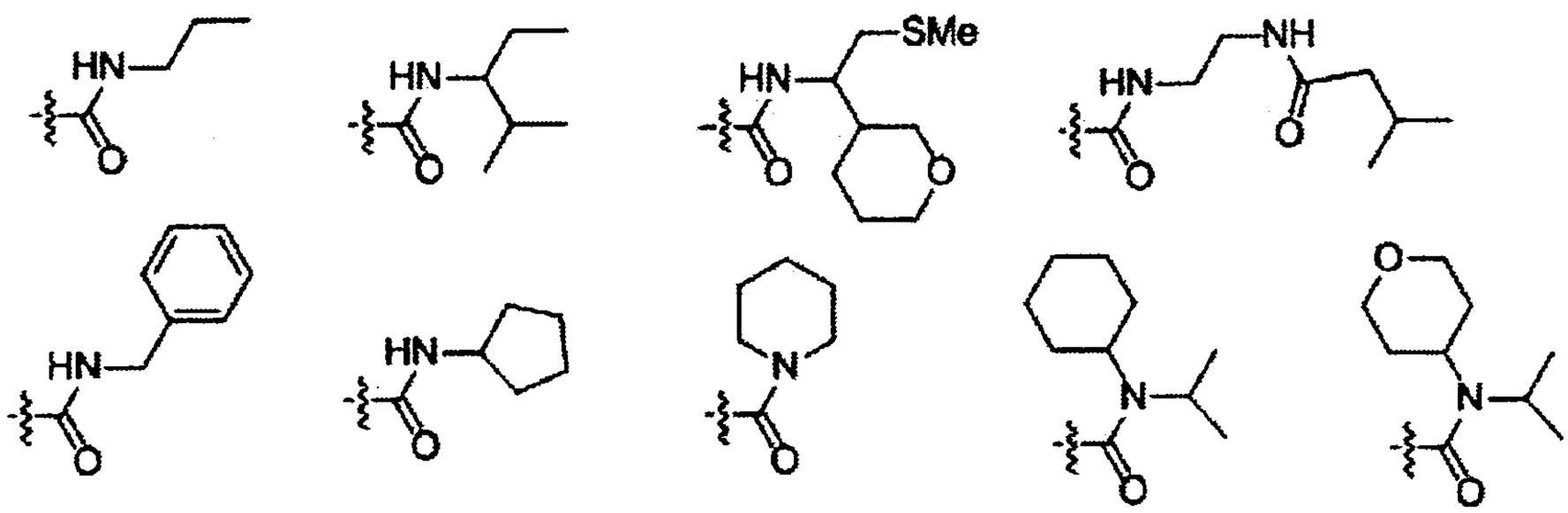
Examples of Substituted or Non-substituted Alkyloxycarbonyl Radical



Examples of Substituted or Non-substituted Aryloxycarbonyl Radical



Examples of Substituted or Non-substituted Alkylaminocarbonyl Radical



Examples of Substituted or Non-substituted Arylaminocarbonyl Radical

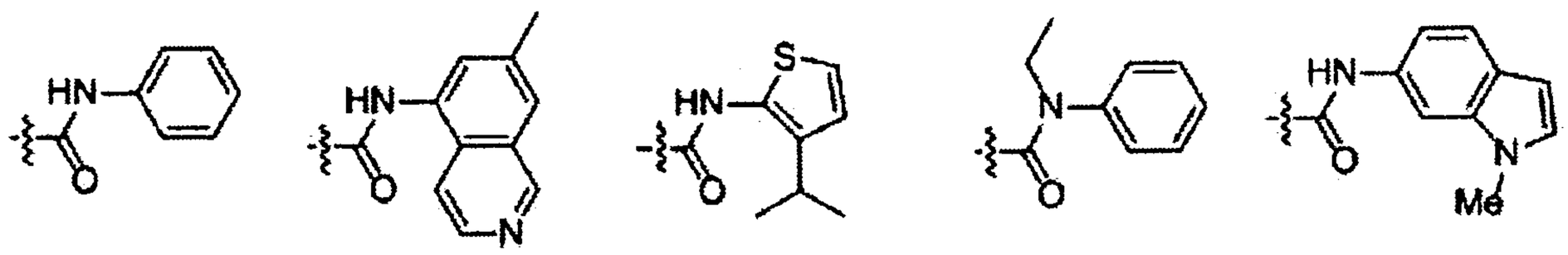
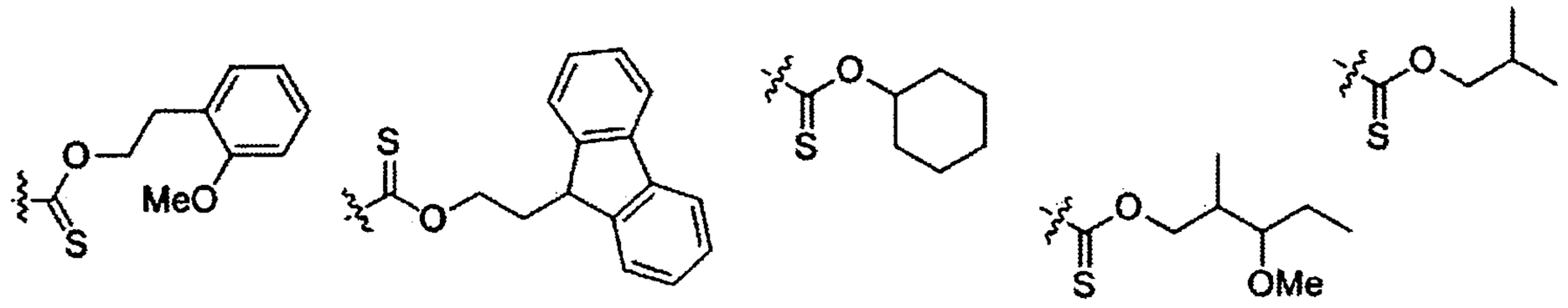
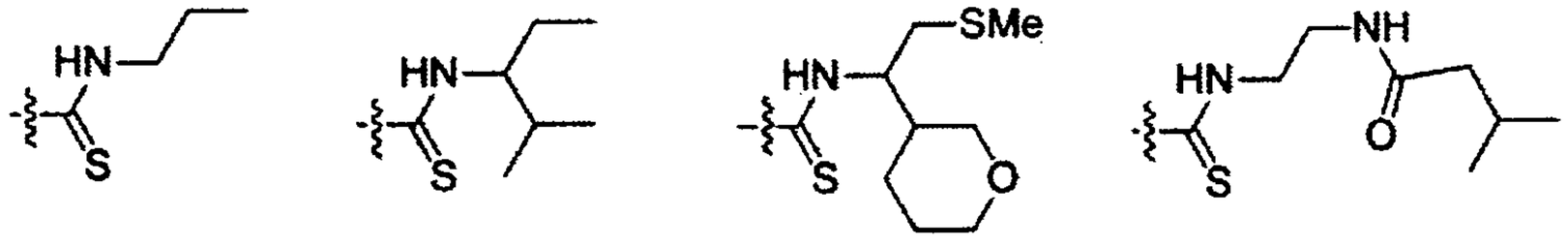


Fig. 2e

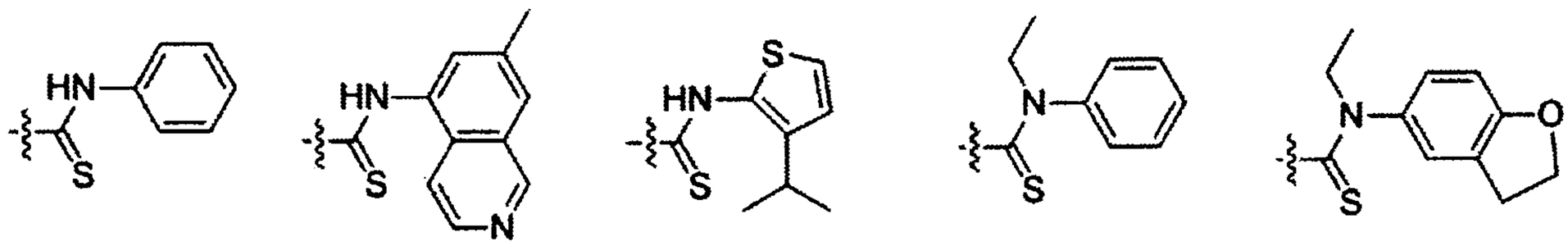
Examples of Substituted or Non-substituted Alkyloxythiocarbonyl Radical



Examples of Substituted or Non-substituted Alkylaminothiocarbonyl Radical



Examples of Substituted or Non-substituted Arylaminothiocarbonyl Radical



Examples of Substituted or Non-substituted Aryloxythiocarbonyl Radical

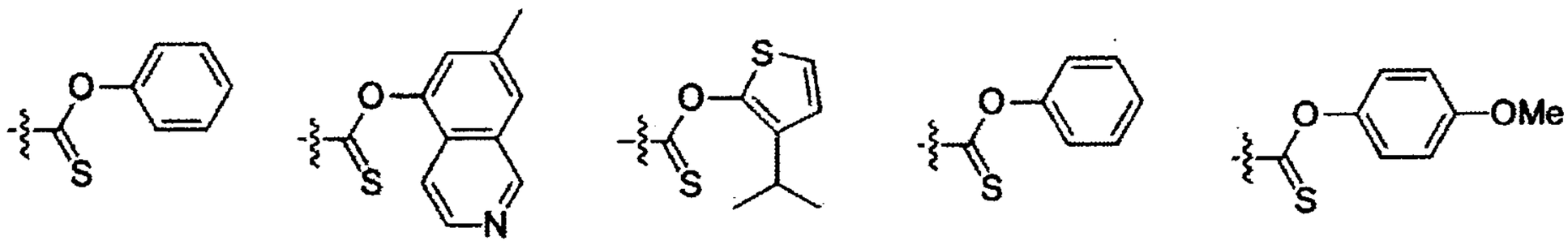
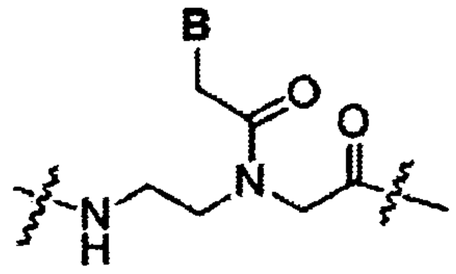


Fig. 3

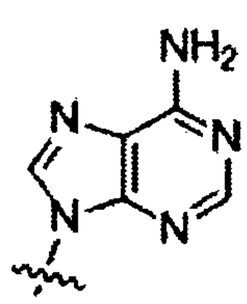
PNA Monomer



B : Nucleobase
X : O (oxygen atom)
m : Integer
n : Integer

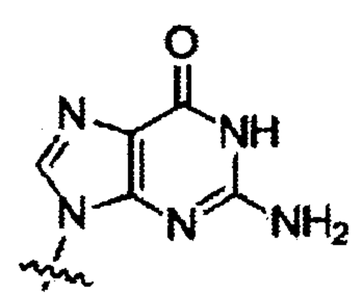
Adenine

B =



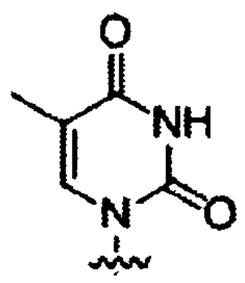
Guanine

B =



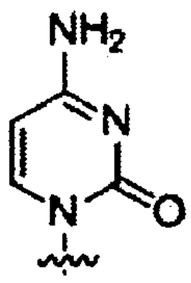
Thymine

B =



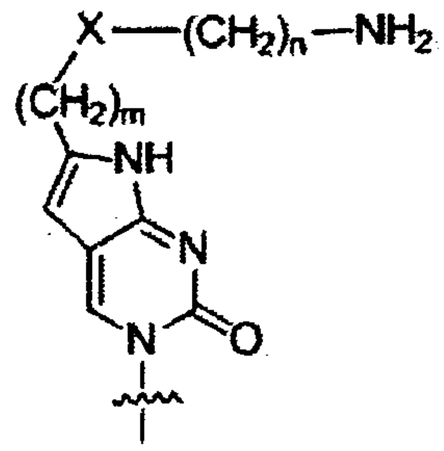
Cytosine

B =



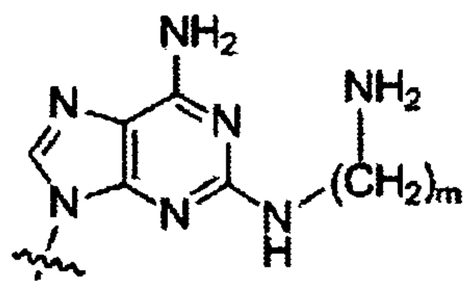
Modified Cytosine

C(mXn) : **B** =



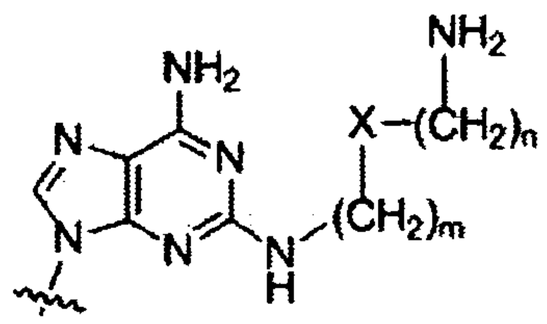
Modified Adenine

A(m) : **B** =



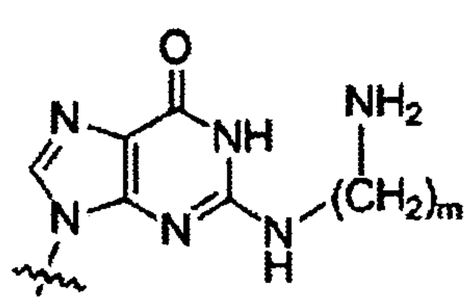
A(mXn) :

B =



Modified Guanine

G(m) : **B** =



G(mXn) :

B =

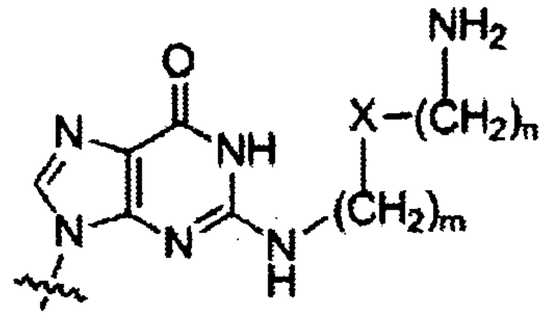


Fig. 4

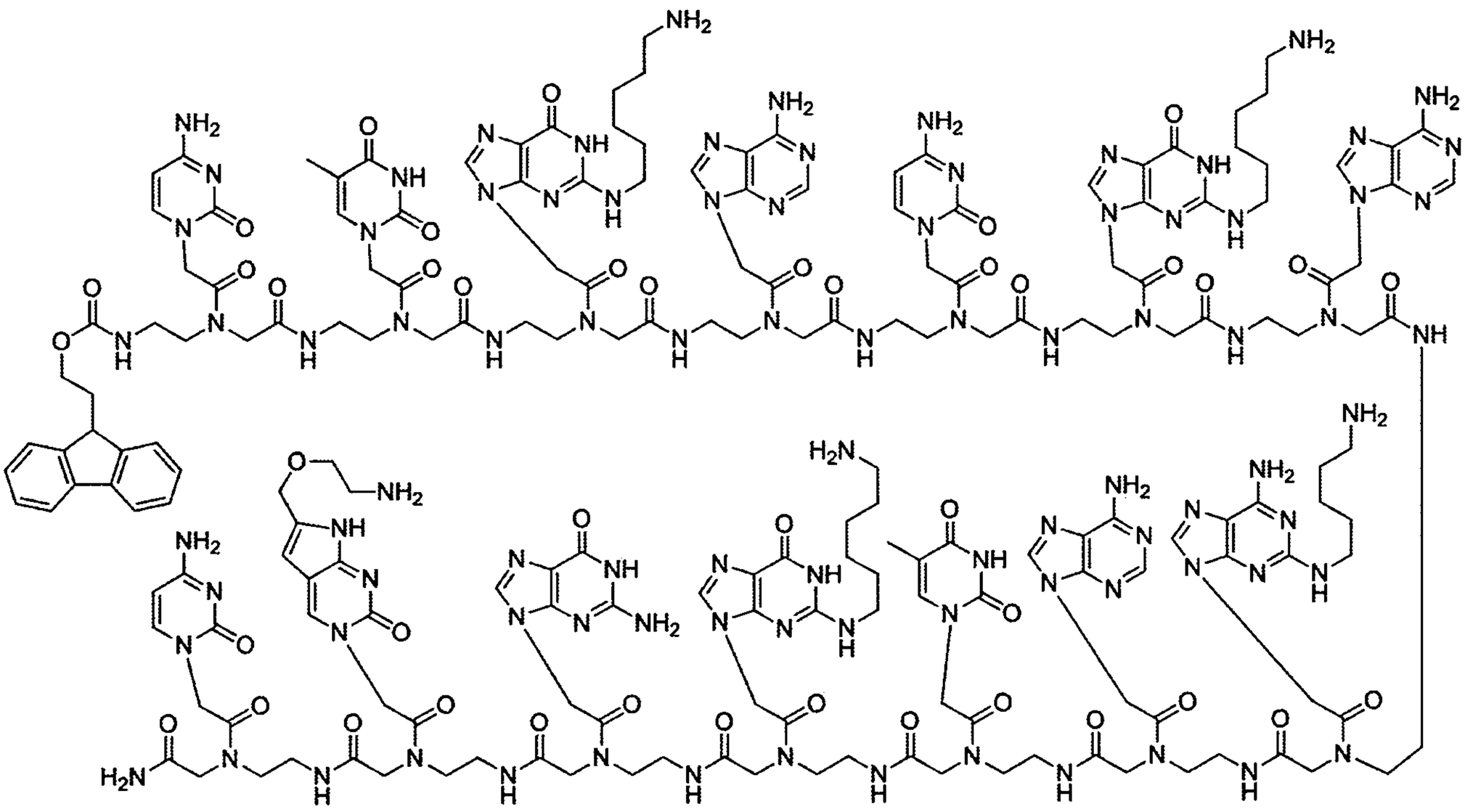
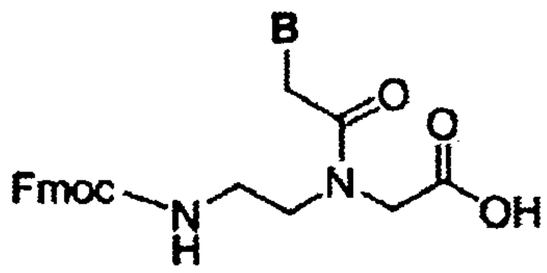
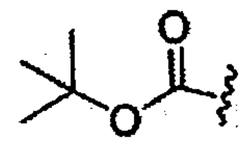


Fig. 5

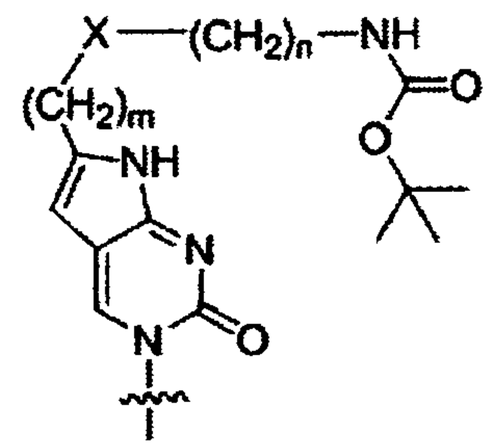
Fmoc-PNA Monomer



B : Nucleobase with protecting group(s)
X : methylene, oxygen, sulfur, or Boc-protected amino
m : Integer
n : Integer

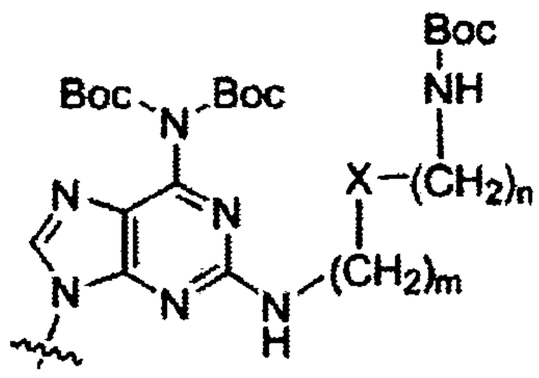
Boc- 

Modified Cytosine

C(mXn) : B = 

Modified Adenine

A(mXn) :

B = 

Modified Guanine

G(mXn) :

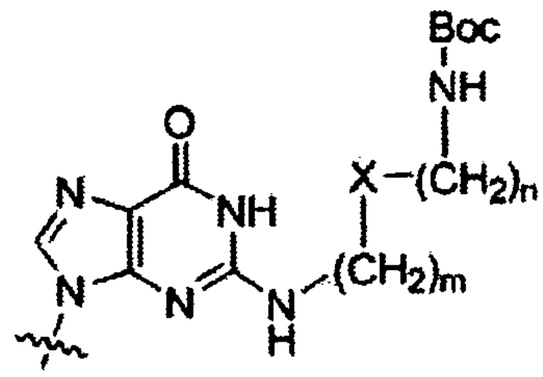
B = 

Fig. 6a

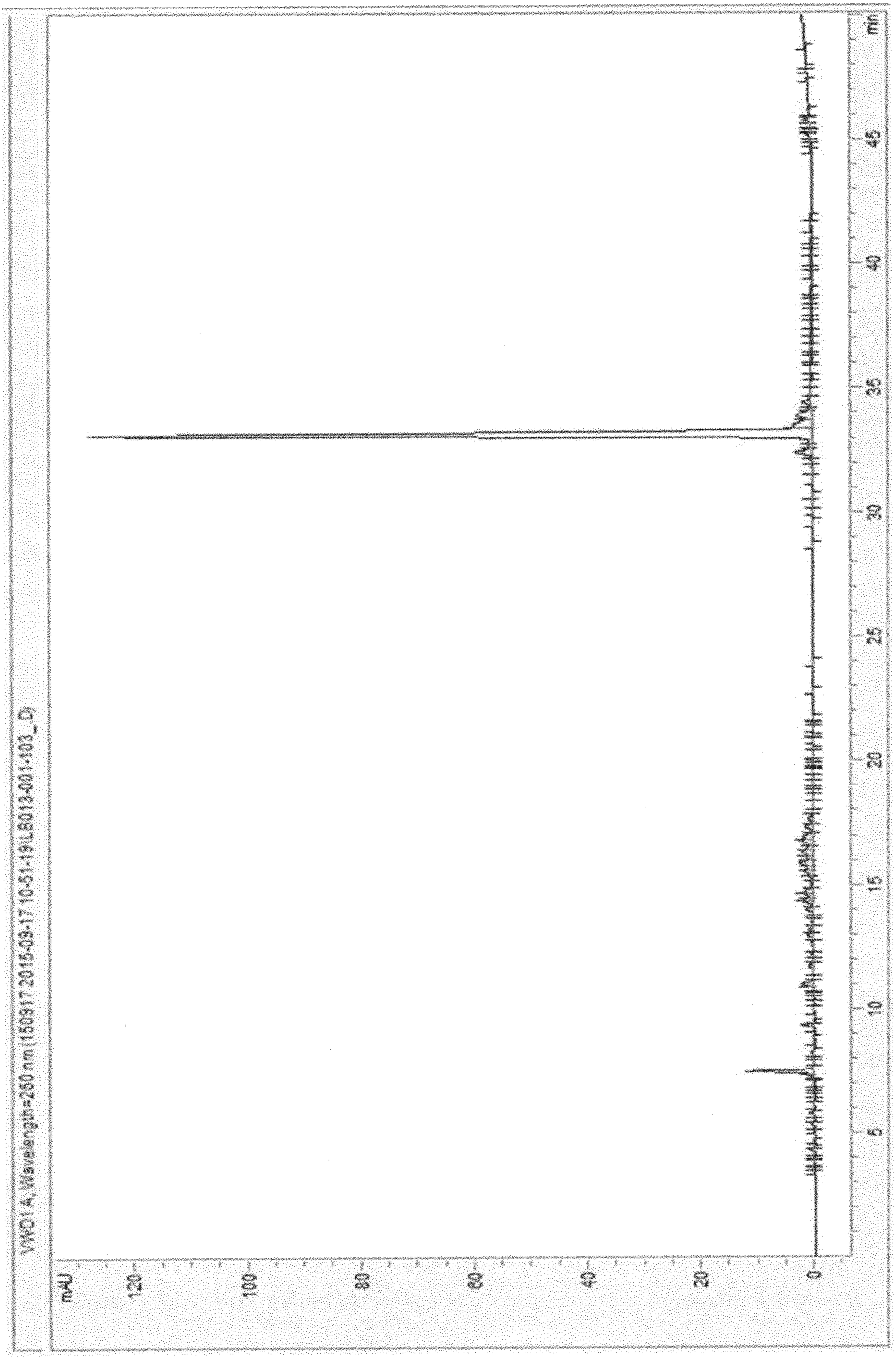

mAU
120
100
80
60
40
20
0
min
45
40
35
30
25
20
15
10
5
VWD1 A, Wavelength=260 nm (150917 2015-09-17 10-51-19\LB013-001-103_D)

Fig. 6b

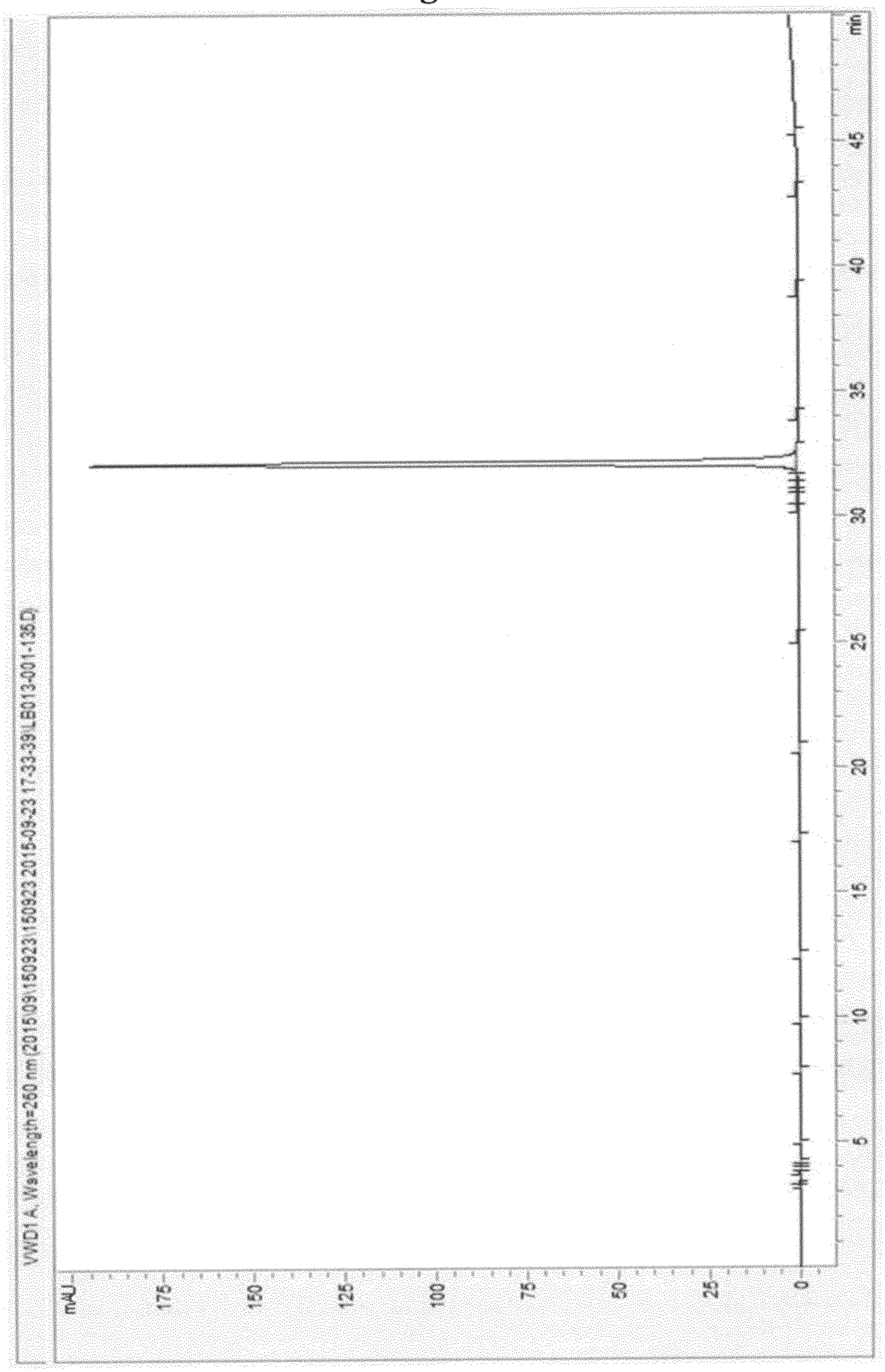

VWD1 A, Wavelength=250 nm (2015\03\15\052320150323-17-33-38-BD12-001-25D.D)
min
0
5
10
15
20
25
30
35
40

Fig. 7

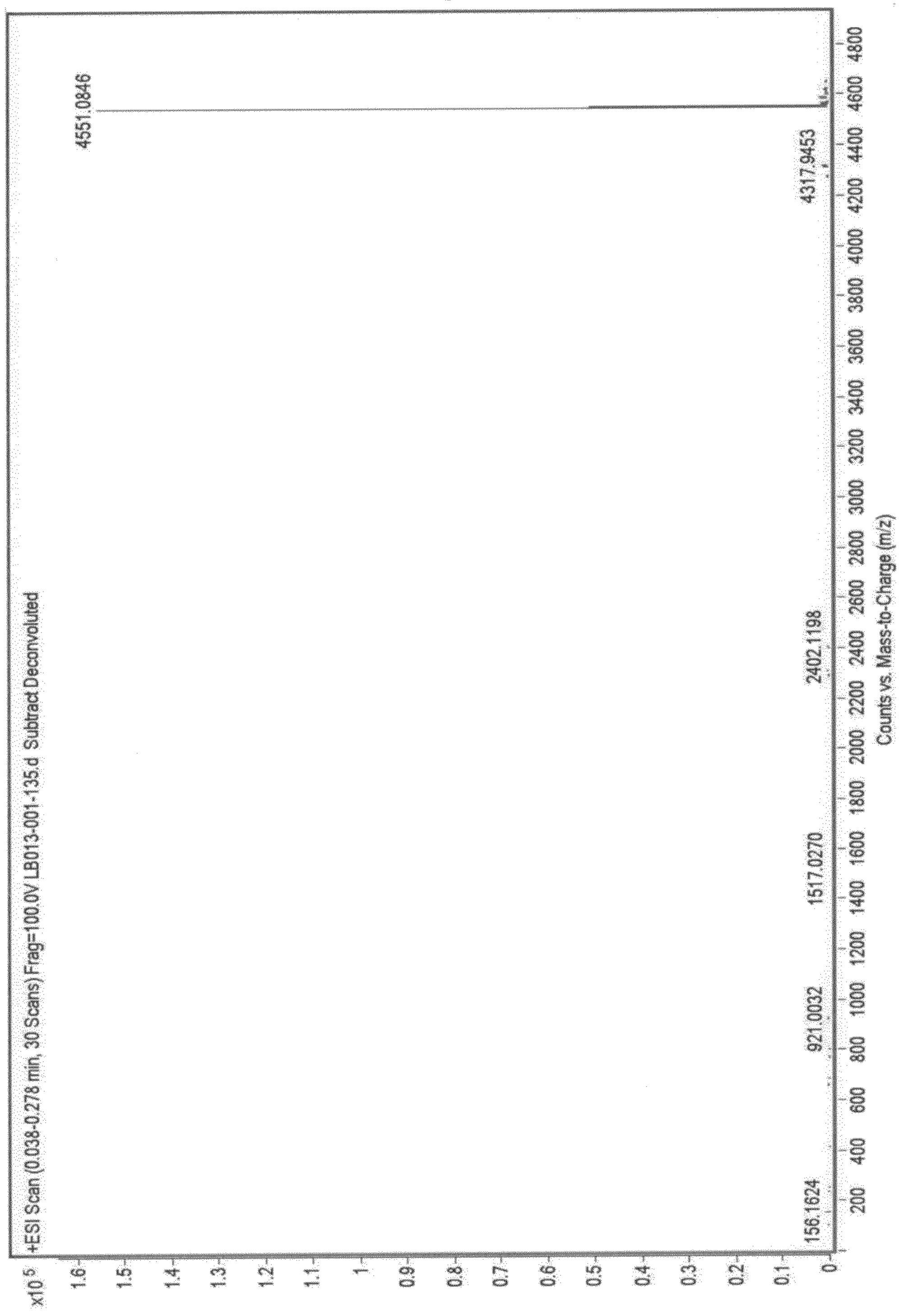

4551.0846
4317.9453
4800
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
2402.1198
1517.0270
921.0032
156.1624
x10^5
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
+ESI Scan (0.038-0.278 min, 30 Scans) Frag=100.0V LB013-001-135.d Subtract Deconvoluted
Counts vs. Mass-to-Charge (m/z)

Fig. 8

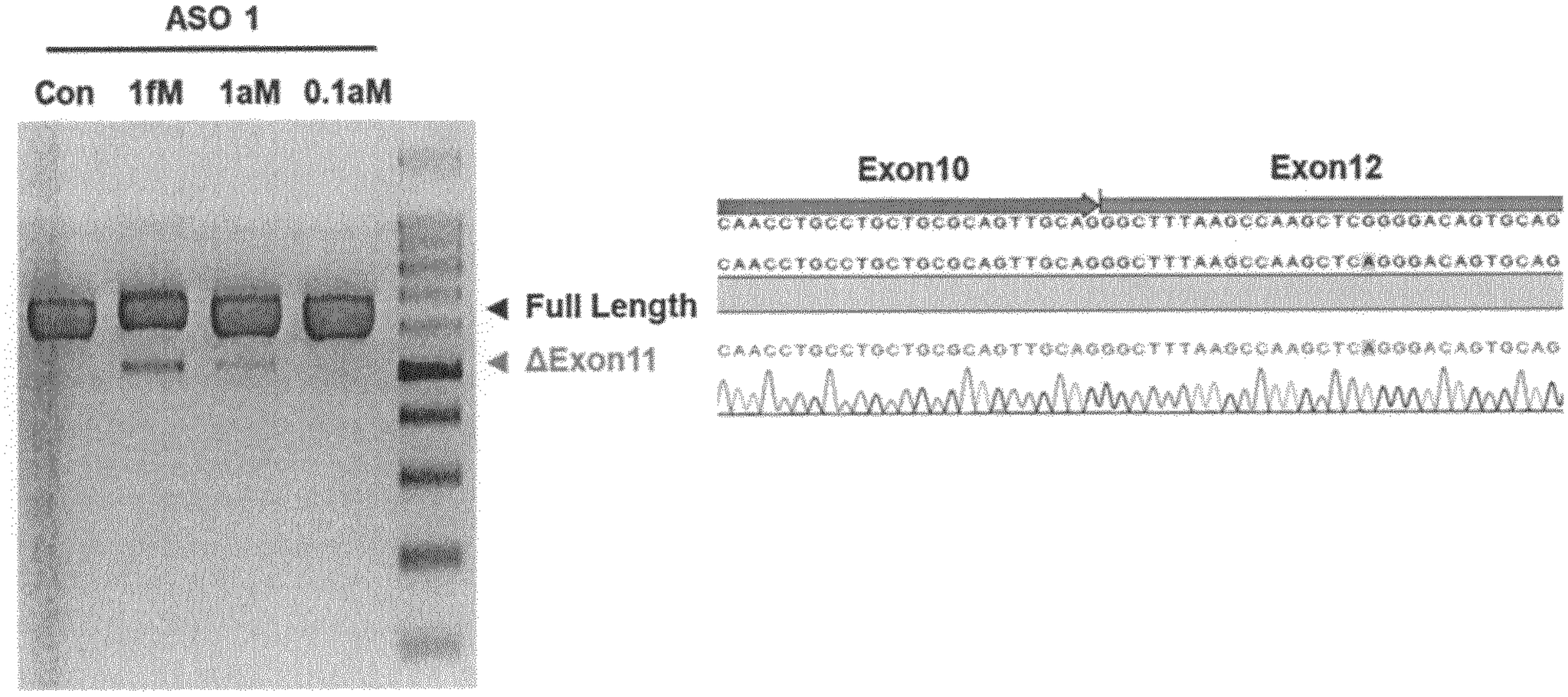

ASO 1
Con
1fM
1aM
0.1aM
Full Length
ΔExon11
Exon10
Exon12
CAACCTGCCTGCTGCGCAGTTGCAGGGCTTTAAGCCAAGCTCGGGGACAGTGCAG
CAACCTGCCTGCTGCGCAGTTGCAGGGCTTTAAGCCAAGCTCAGGGACAGTGCAG
CAACCTGCCTGCTGCGCAGTTGCAGGGCTTTAAGCCAAGCTCAGGGACAGTGCAG

Fig. 9

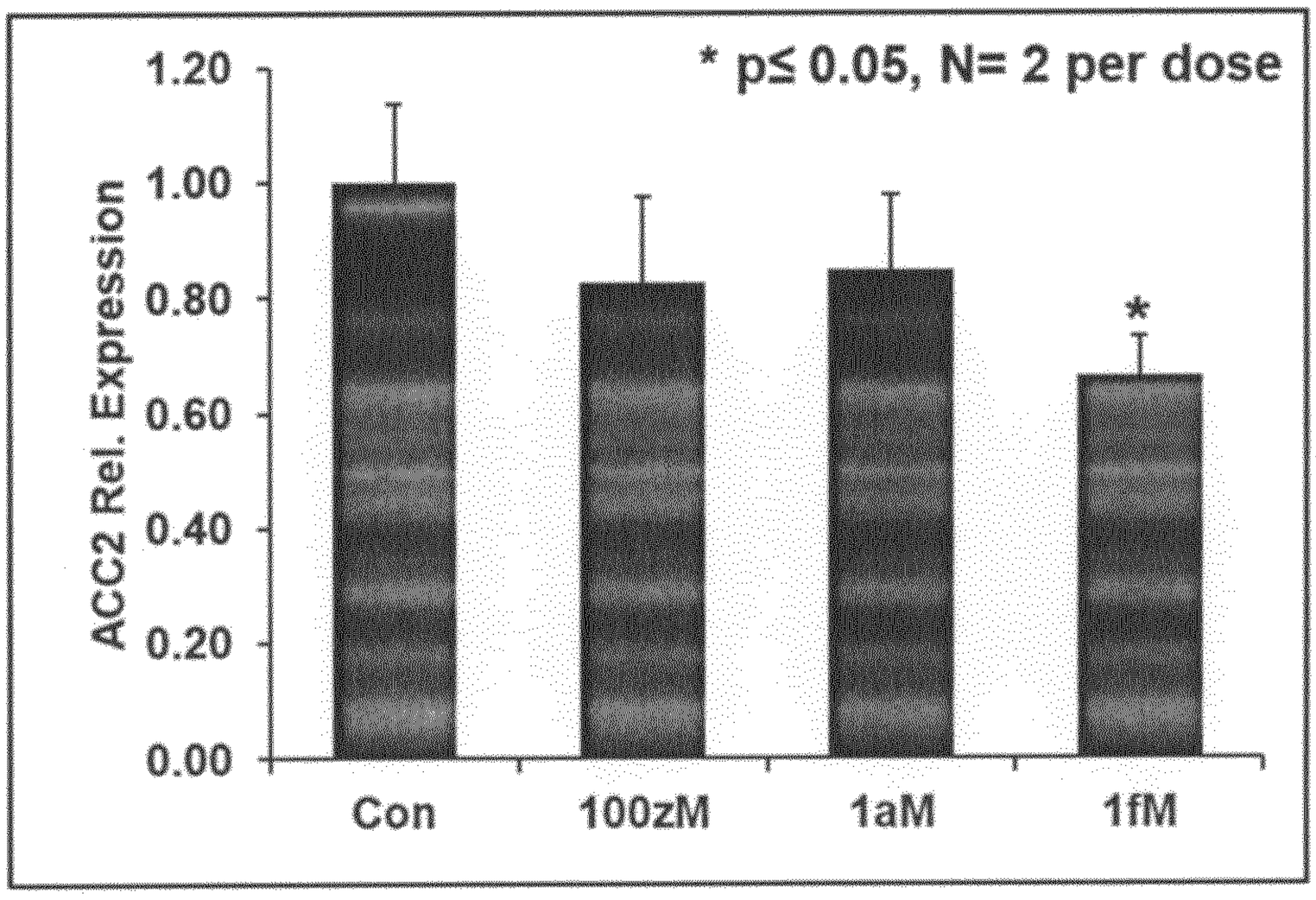

* p≤ 0.05, N= 2 per dose
ACC2 Rel. Expression
1.20
1.00
0.80
0.60
0.40
0.20
0.00
*
Con
100zM
1aM
1fM

Fig. 10

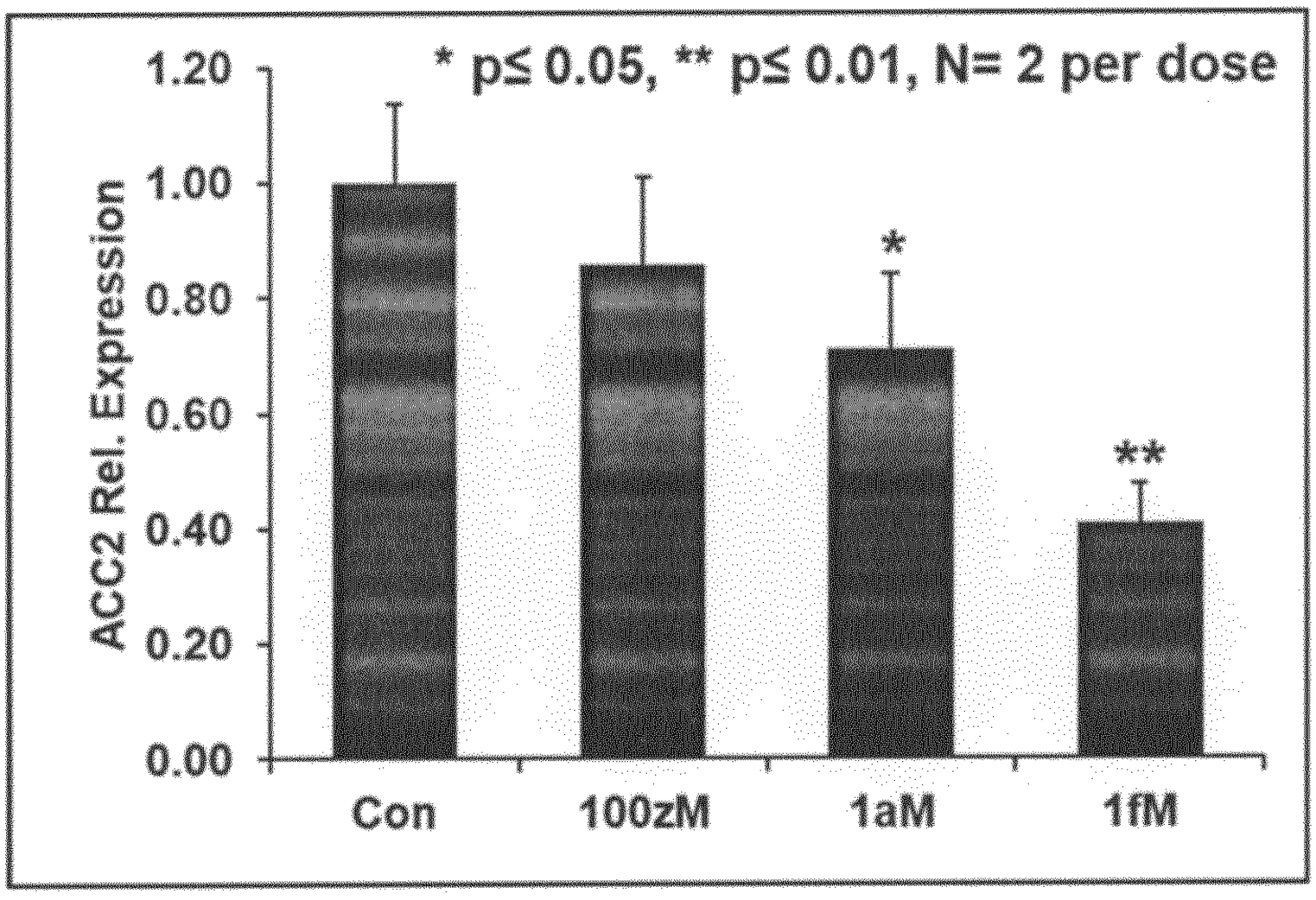
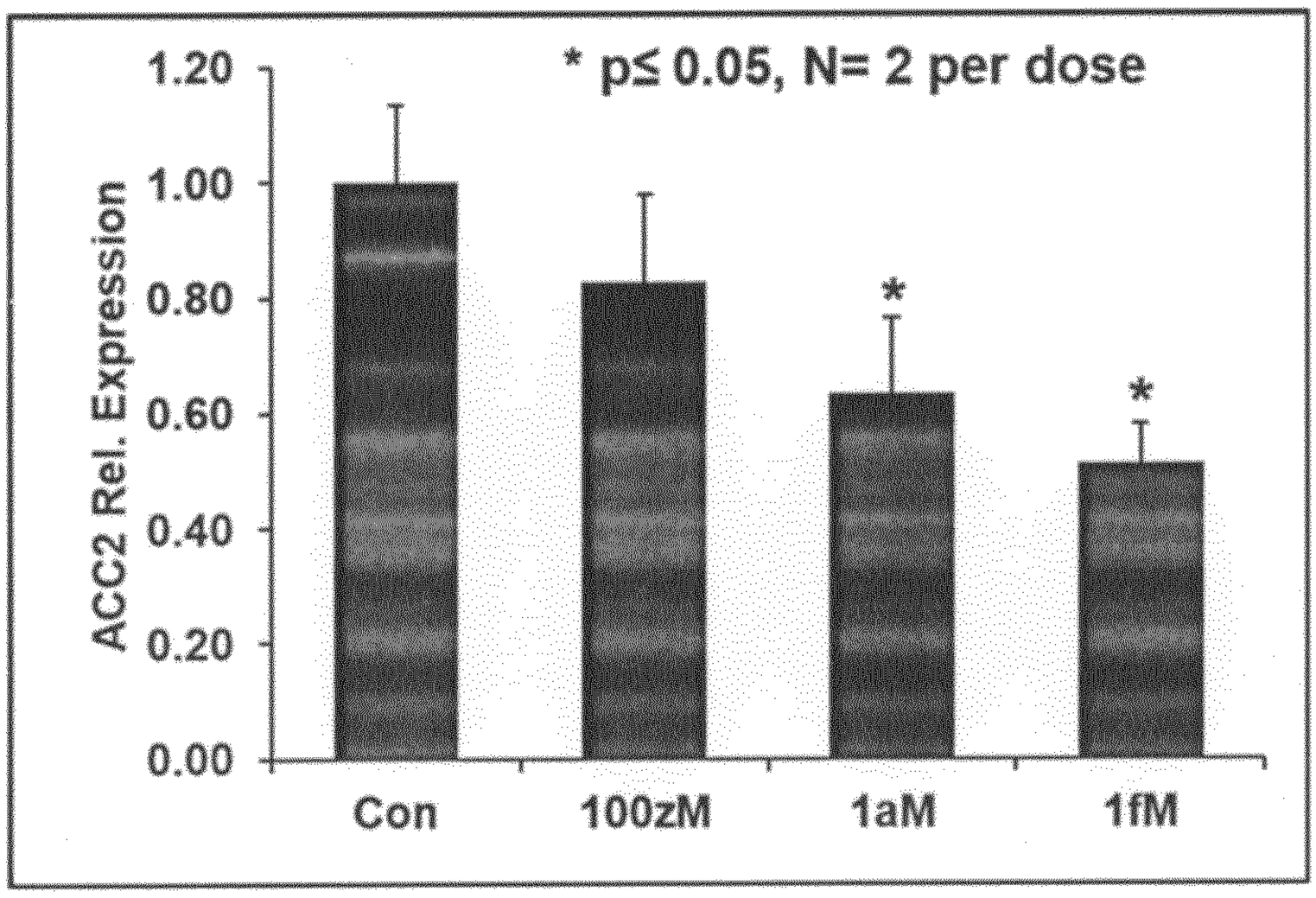

* p≤ 0.05, ** p≤ 0.01, N= 2 per dose
ACC2 Rel. Expression
1.20
1.00
0.80
0.60
0.40
0.20
0.00
*
**
Con
100zM
1aM
1fM

Fig. 11


* p≤ 0.05, N= 2 per dose
ACC2 Rel. Expression
1.20
1.00
0.80
0.60
0.40
0.20
0.00
*
*
Con
100zM
1aM
1fM