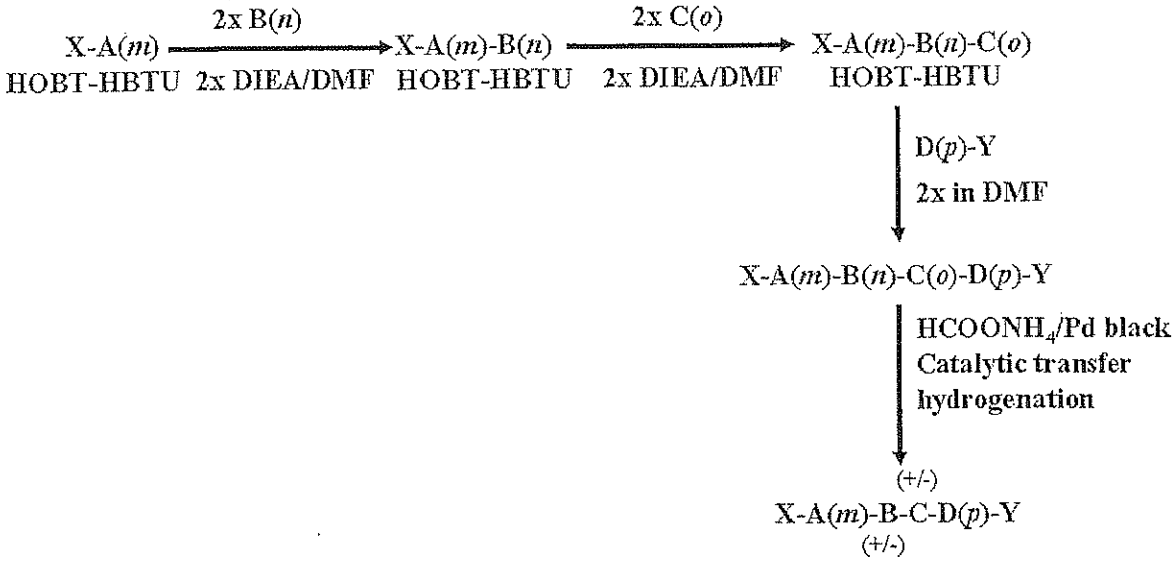

2x B(n)
2x C(o)
X-A(m)
HOBT-HBTU
2x DIEA/DMF
X-A(m)-B(n)
HOBT-HBTU
2x DIEA/DMF
X-A(m)-B(n)-C(o)
HOBT-HBTU
D(p)-Y
2x in DMF
X-A(m)-B(n)-C(o)-D(p)-Y
HCOONH4/Pd black
Catalytic transfer
hydrogenation
(+/-)
X-A(m)-B-C-D(p)-Y
(+/-)

Fig. 1

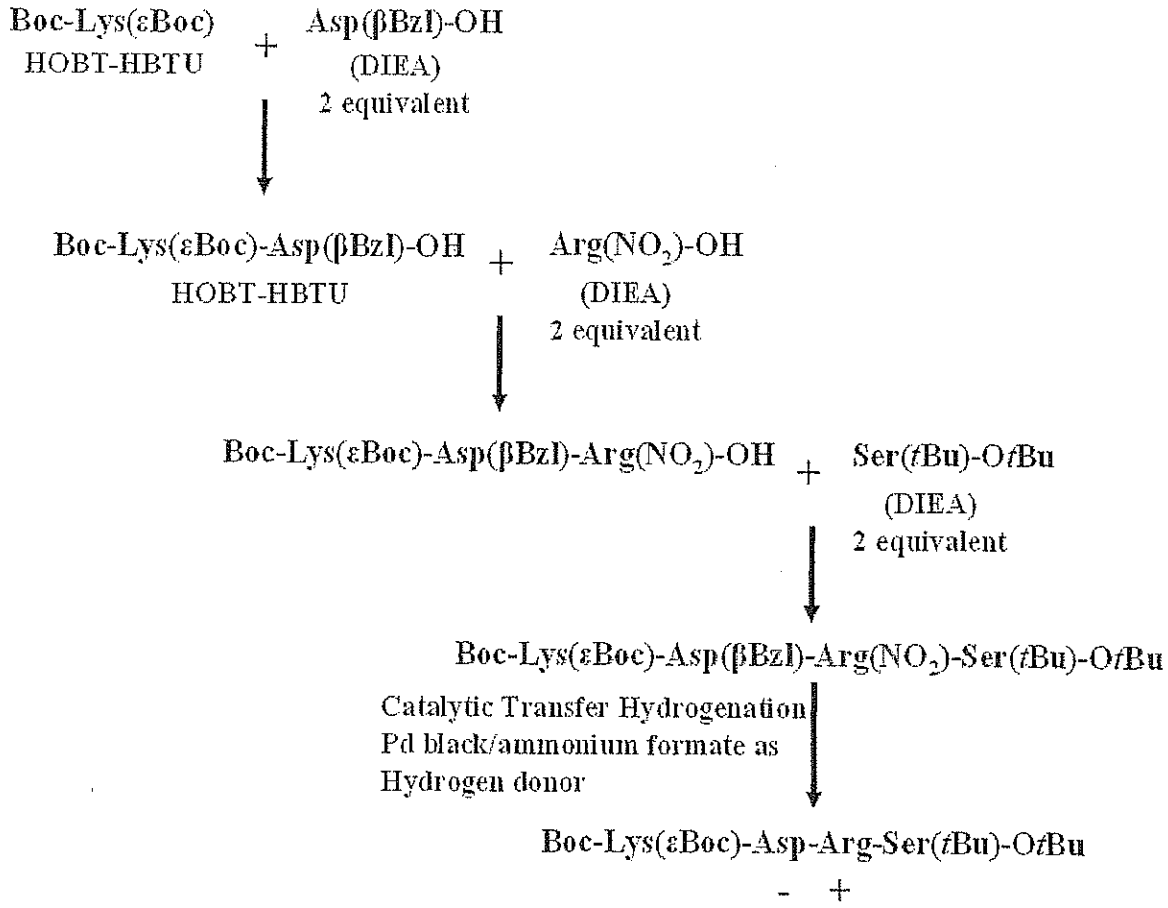

Boc-Lys(εBoc)
HOBT-HBTU
+
Asp(βBzl)-OH
(DIEA)
2 equivalent
Boc-Lys(εBoc)-Asp(βBzl)-OH
HOBT-HBTU
+
Arg(NO2)-OH
(DIEA)
2 equivalent
Boc-Lys(εBoc)-Asp(βBzl)-Arg(NO2)-OH
+
Ser(tBu)-OtBu
(DIEA)
2 equivalent
Boc-Lys(εBoc)-Asp(βBzl)-Arg(NO2)-Ser(tBu)-OtBu
Catalytic Transfer Hydrogenation
Pd black/ammonium formate as
Hydrogen donor
Boc-Lys(εBoc)-Asp-Arg-Ser(tBu)-OtBu
- +

Fig. 2

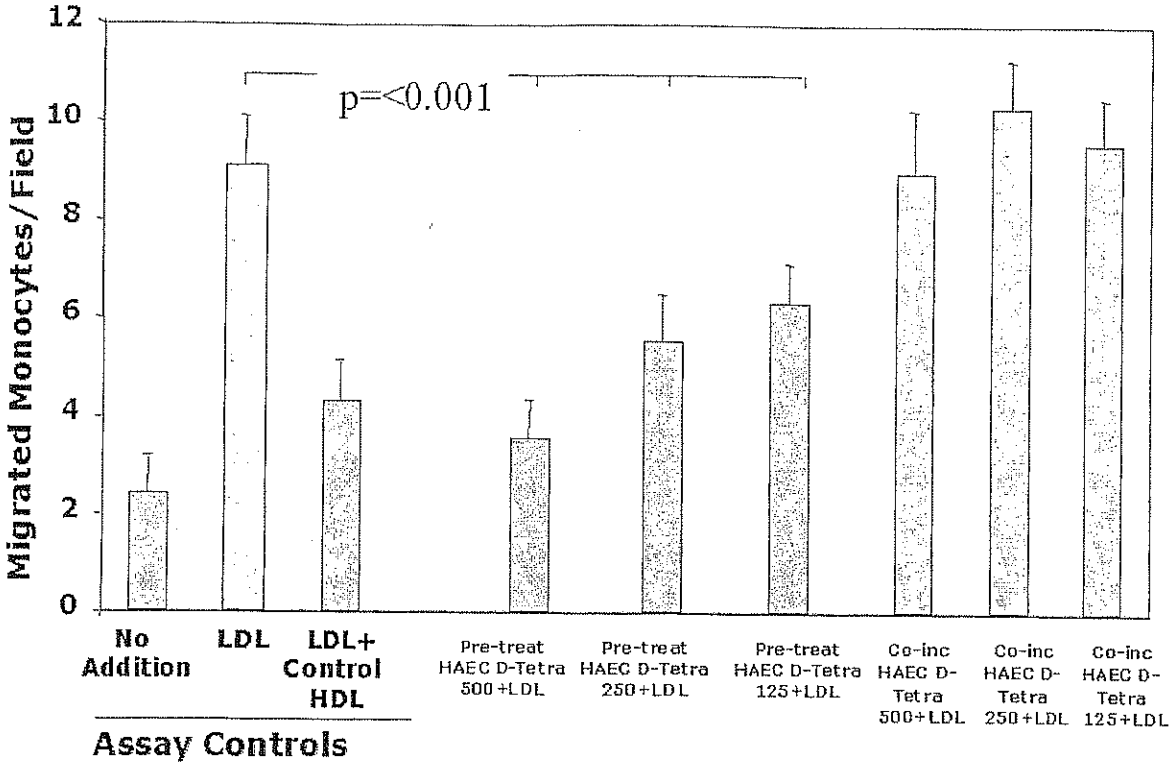

Migrated Monocytes/Field
12
10
8
6
4
2
0
p=<0.001
No Addition
LDL
LDL+ Control HDL
Pre-treat HAEC D-Tetra 500+LDL
Pre-treat HAEC D-Tetra 250+LDL
Pre-treat HAEC D-Tetra 125+LDL
Co-inc HAEC D-Tetra 500+LDL
Co-inc HAEC D-Tetra 250+LDL
Co-inc HAEC D-Tetra 125+LDL
Assay Controls

Fig. 3

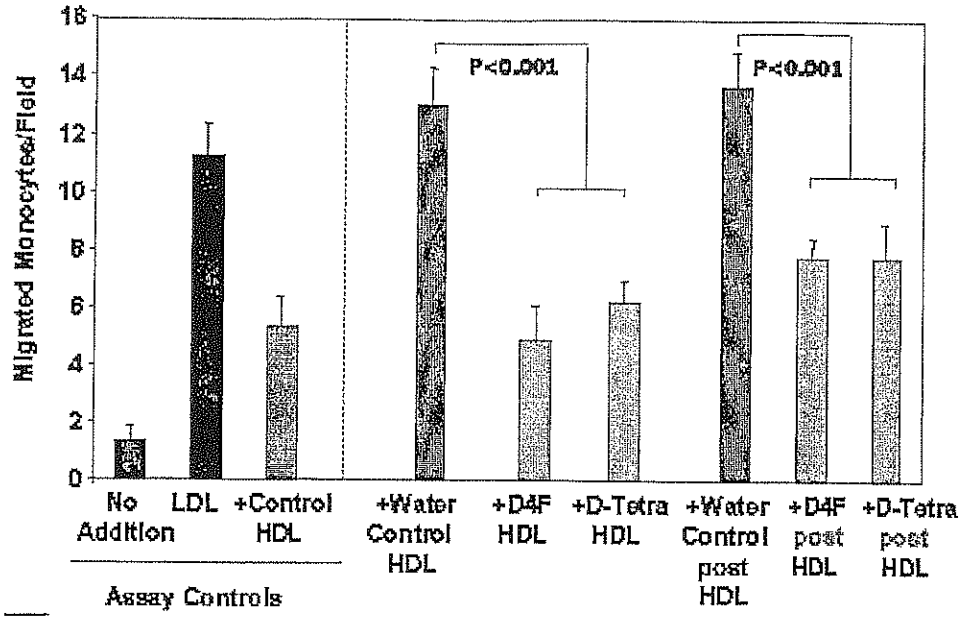

Migrated Monocytes/Field
16
14
12
10
8
6
4
2
0
P<0.001
P<0.001
No Addition
LDL
+Control HDL
+Water Control HDL
+D4F HDL
+D-Tetra HDL
+Water Control post HDL
+D4F post HDL
+D-Tetra post HDL
Assay Controls

Fig. 4

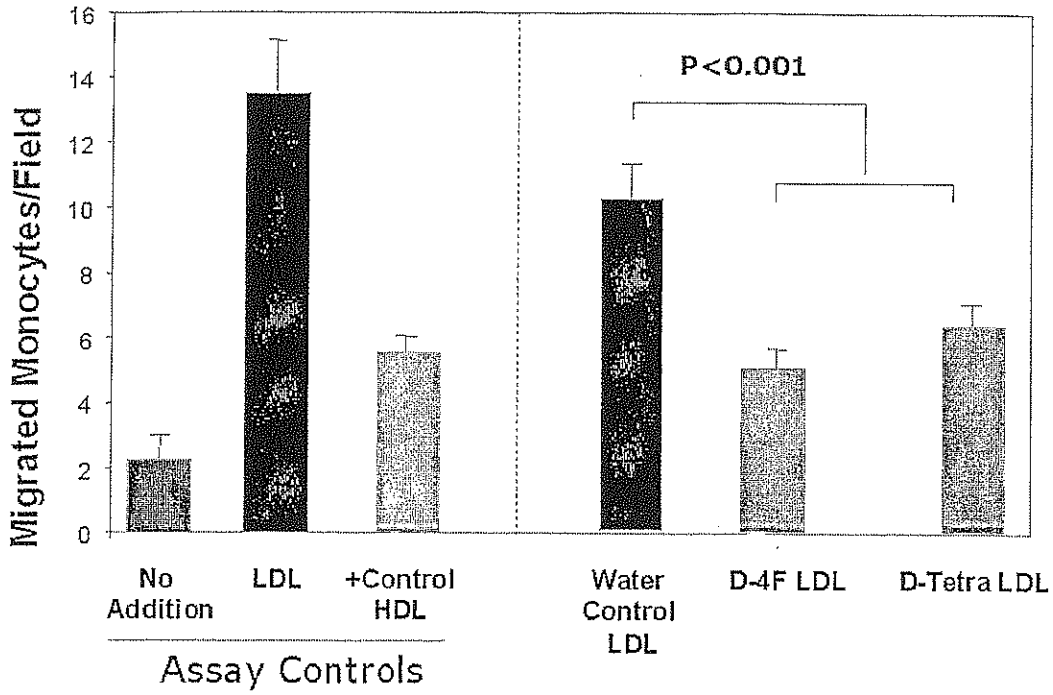

Migrated Monocytes/Field
16
14
12
10
8
6
4
2
0
P<0.001
No Addition
LDL
+Control HDL
Water Control LDL
D-4F LDL
D-Tetra LDL
Assay Controls

Fig. 5

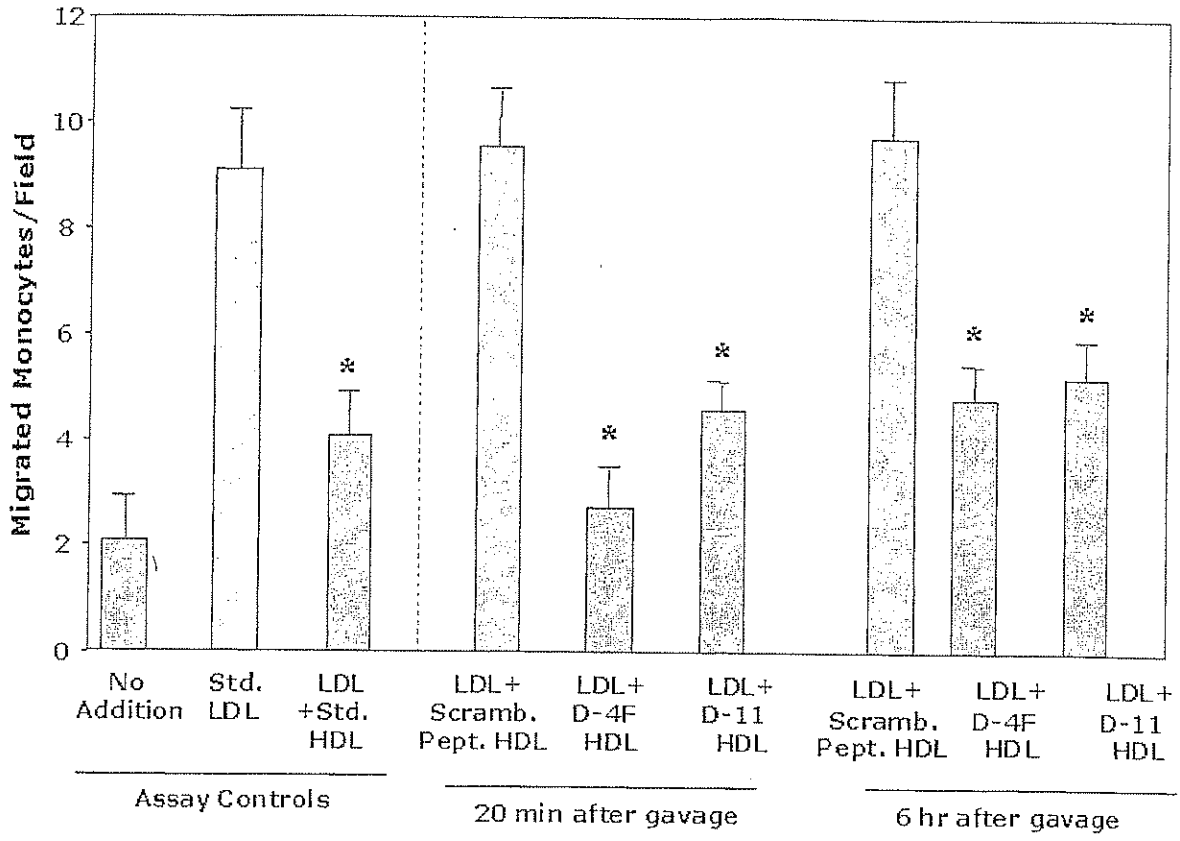

Migrated Monocytes/Field
12
10
8
6
4
2
0
*
*
*
*
*
No Addition
Std. LDL
LDL +Std. HDL
LDL+ Scramb. Pept. HDL
LDL+ D-4F HDL
LDL+ D-11 HDL
LDL+ Scramb. Pept. HDL
LDL+ D-4F HDL
LDL+ D-11 HDL
Assay Controls
20 min after gavage
6 hr after gavage

Fig. 6

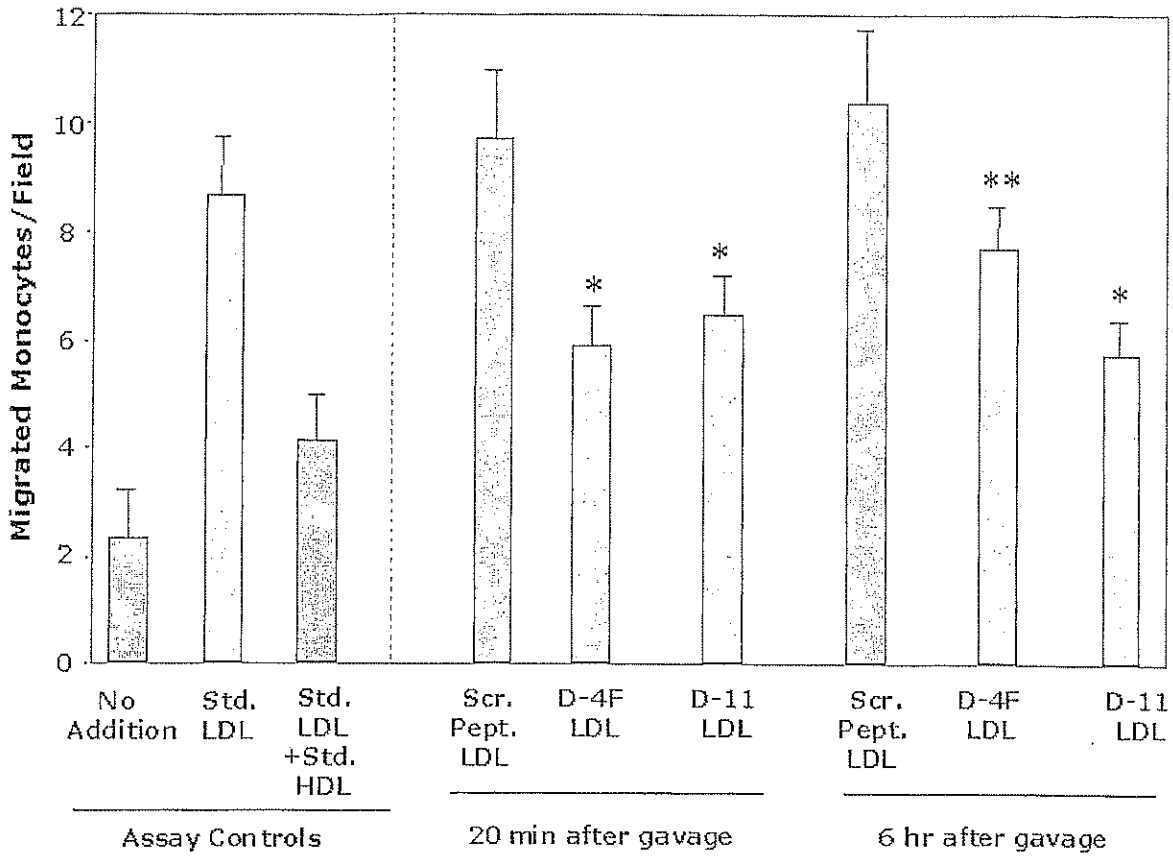

Migrated Monocytes/Field
12
10
8
6
4
2
0
*
*
*
**
*
No Addition
Std. LDL
Std. LDL +Std. HDL
Scr. Pept. LDL
D-4F LDL
D-11 LDL
Scr. Pept. LDL
D-4F LDL
D-11 LDL
Assay Controls
20 min after gavage
6 hr after gavage

Fig. 7

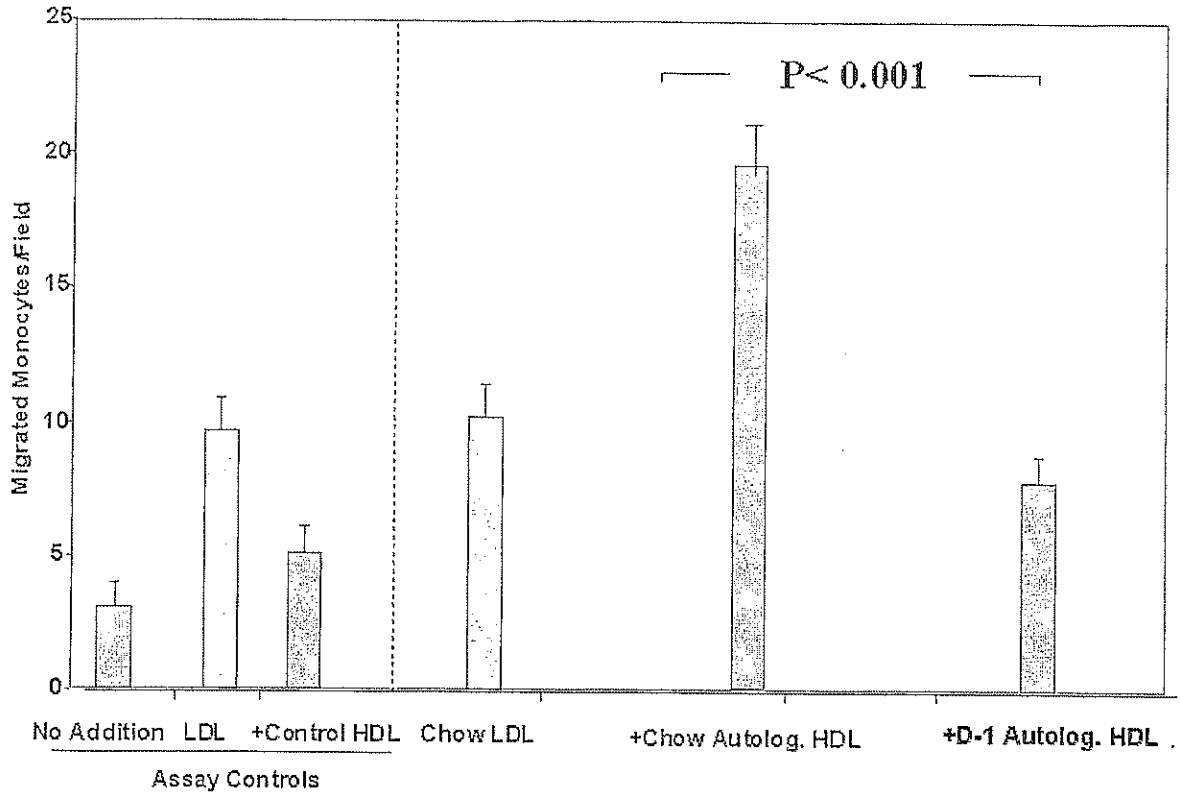

25
20
15
10
5
0
Migrated Monocytes/Field
P< 0.001
No Addition
LDL
+Control HDL
Chow LDL
+Chow Autolog. HDL
+D-1 Autolog. HDL
Assay Controls

Fig. 8

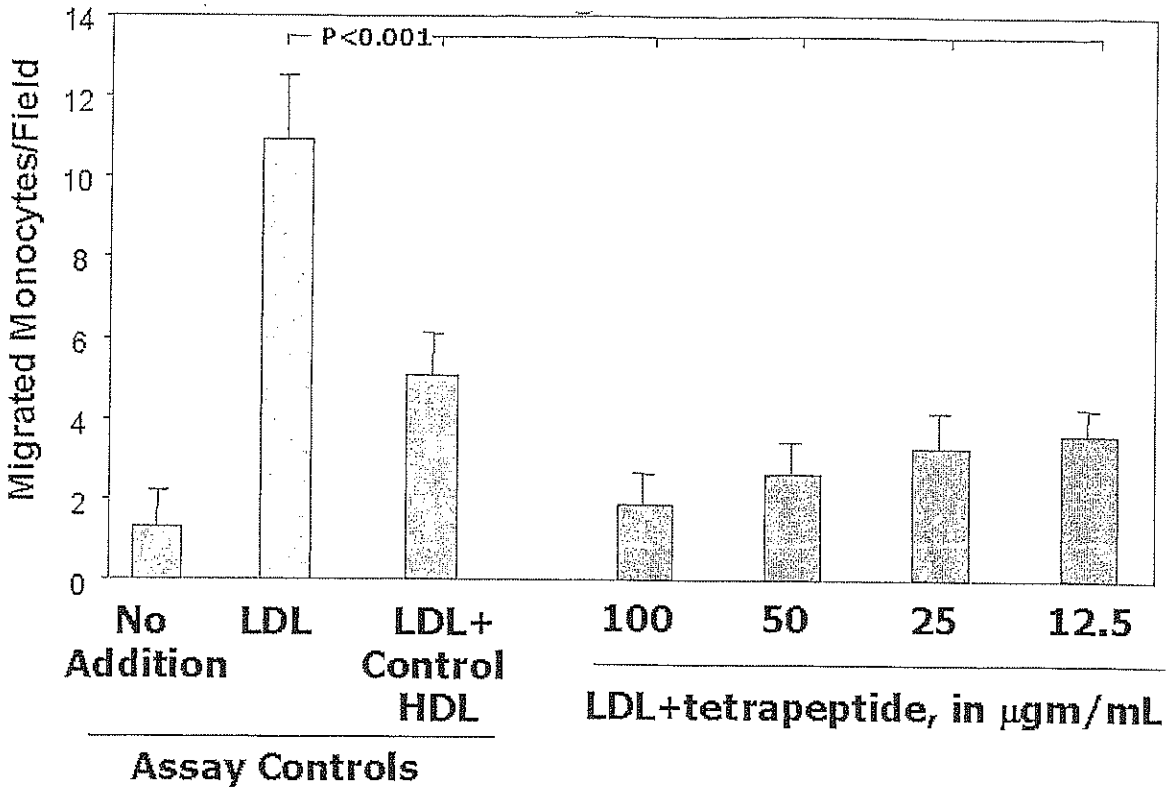

Migrated Monocytes/Field
14
12
10
8
6
4
2
0
P<0.001
No Addition
LDL
LDL+ Control HDL
100
50
25
12.5
Assay Controls
LDL+tetrapeptide, in µgm/mL

Fig. 9

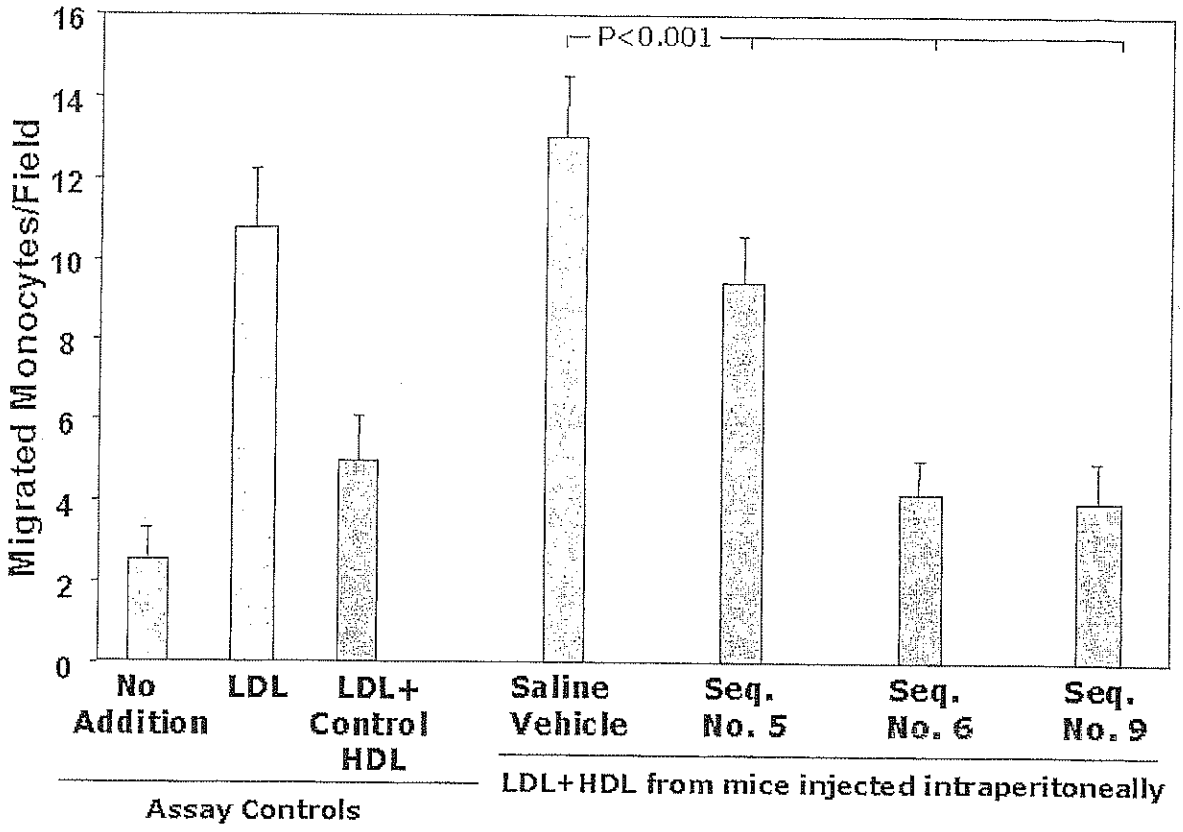

Migrated Monocytes/Field
16
14
12
10
8
6
4
2
0
P<0.001
No Addition
LDL
LDL+ Control HDL
Saline Vehicle
Seq. No. 5
Seq. No. 6
Seq. No. 9
Assay Controls
LDL+HDL from mice injected intraperitoneally

Fig. 10

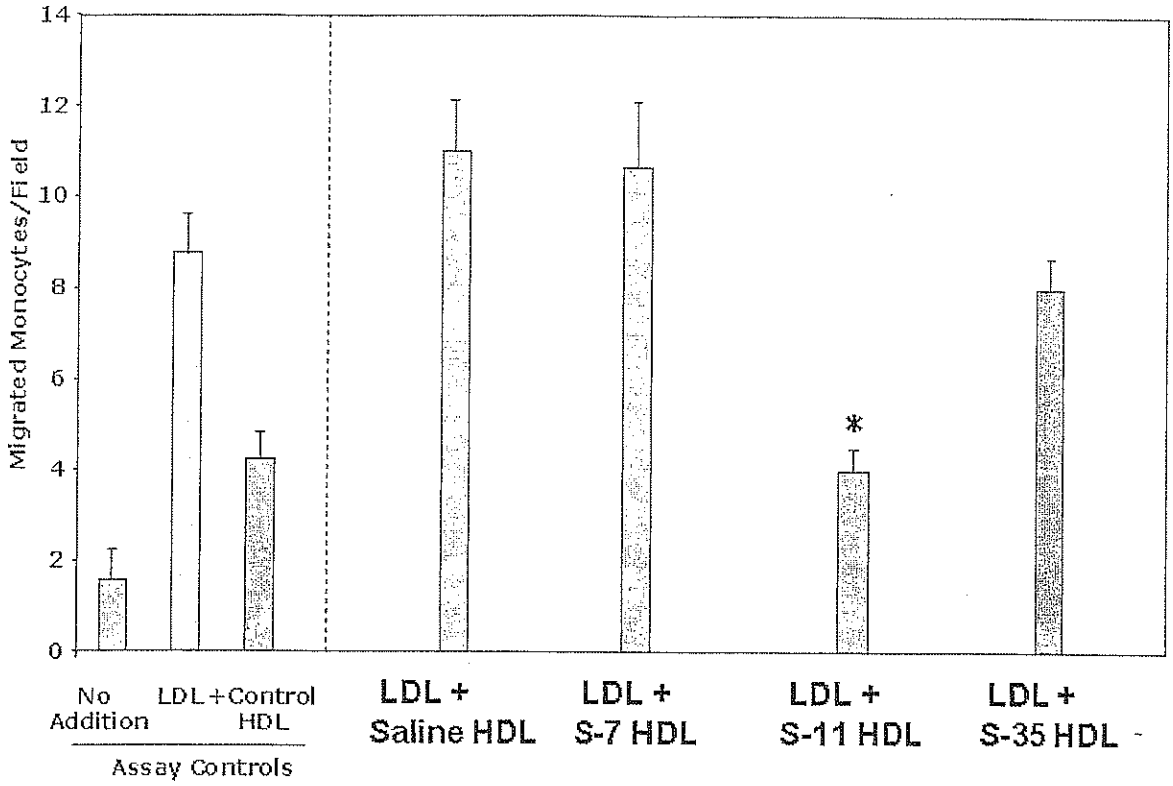

Migrated Monocytes/Field
14
12
10
8
6
4
2
0
*
No Addition
LDL + Control HDL
Assay Controls
LDL + Saline HDL
LDL + S-7 HDL
LDL + S-11 HDL
LDL + S-35 HDL

Fig. 11

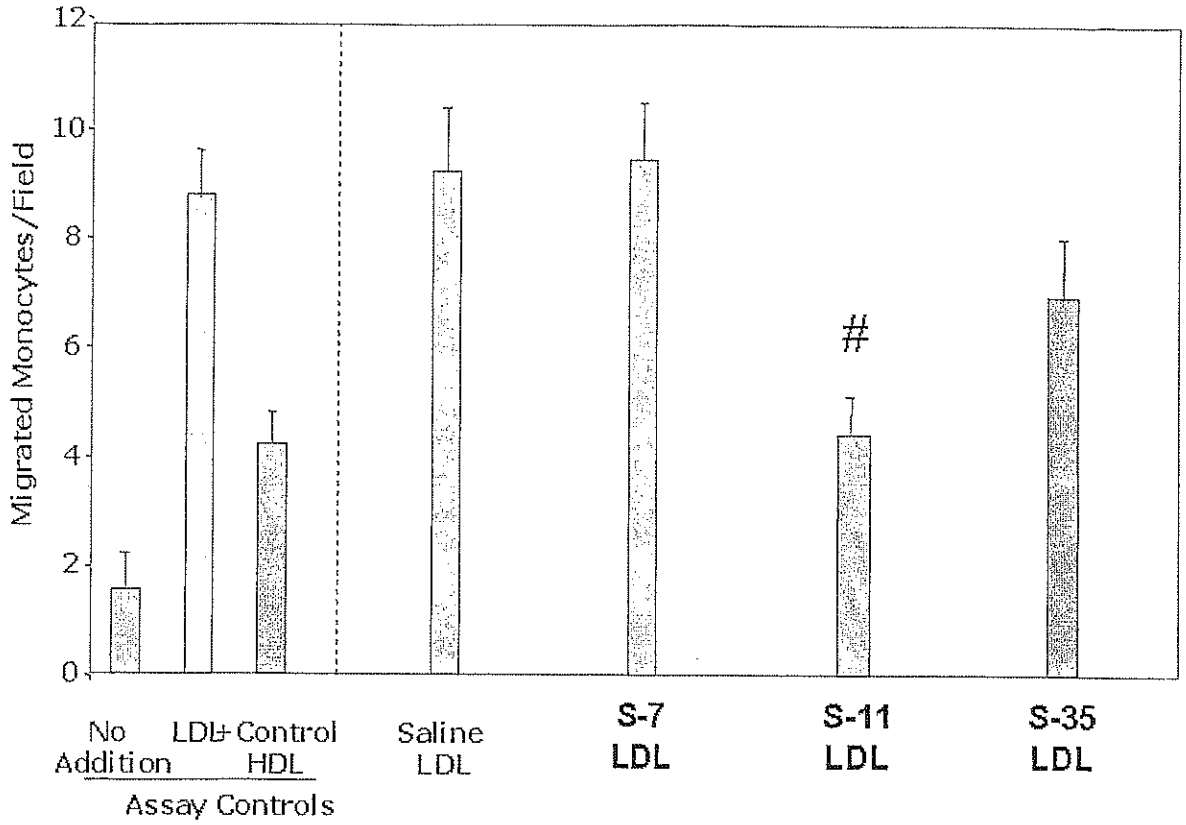

12
10
8
6
4
2
0
Migrated Monocytes/Field
#
No Addition
LDL+ Control HDL
Assay Controls
Saline LDL
S-7 LDL
S-11 LDL
S-35 LDL

Fig. 12

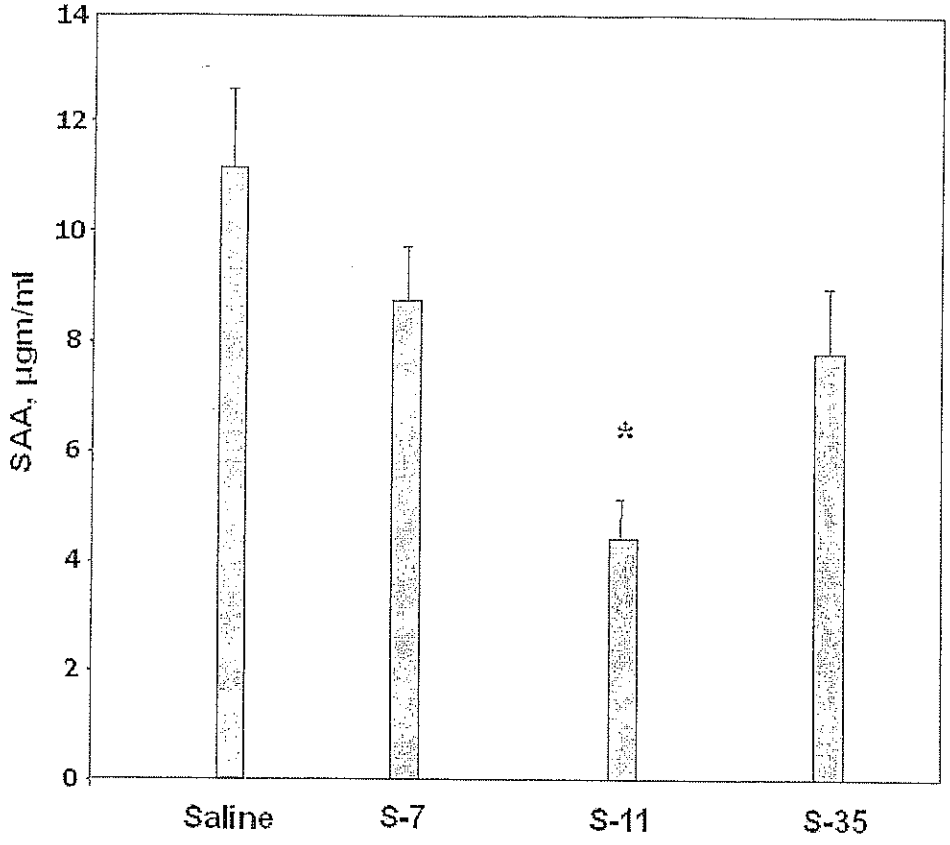


Fig. 13

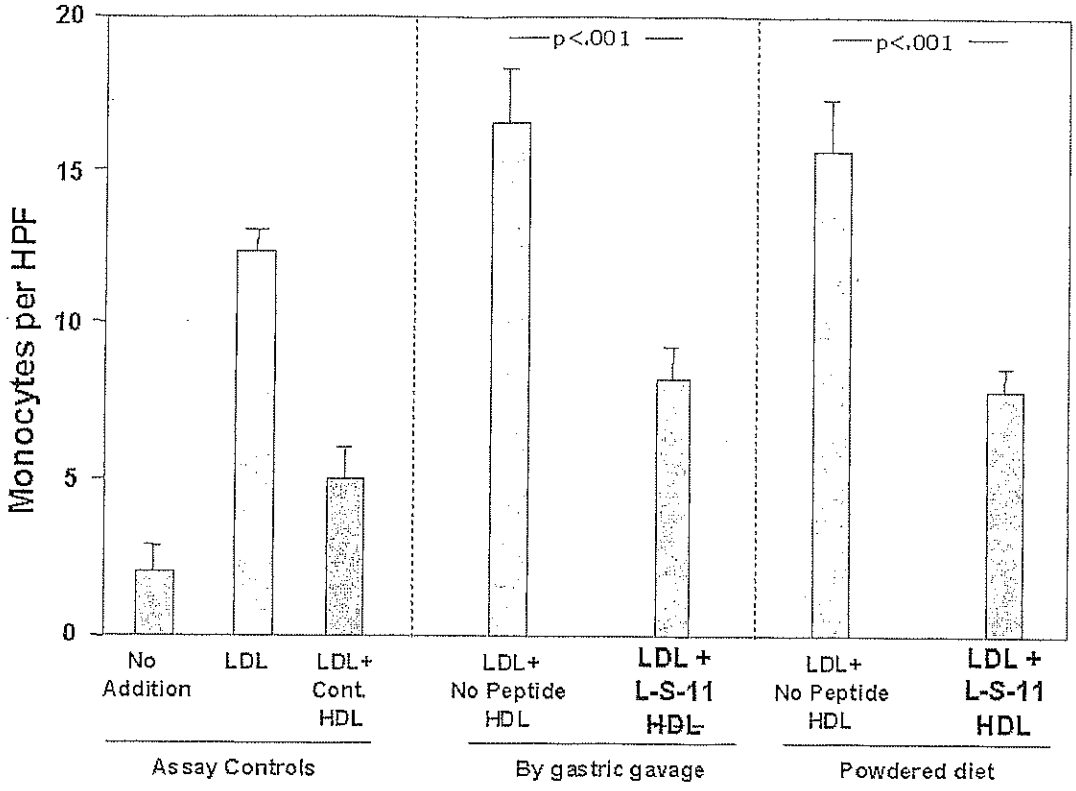

20
15
10
5
0
Monocytes per HPF
p<.001
p<.001
No Addition
LDL
LDL+ Cont. HDL
LDL+ No Peptide HDL
LDL + L-S-11 HDL
LDL+ No Peptide HDL
LDL + L-S-11 HDL
Assay Controls
By gastric gavage
Powdered diet

Fig. 14

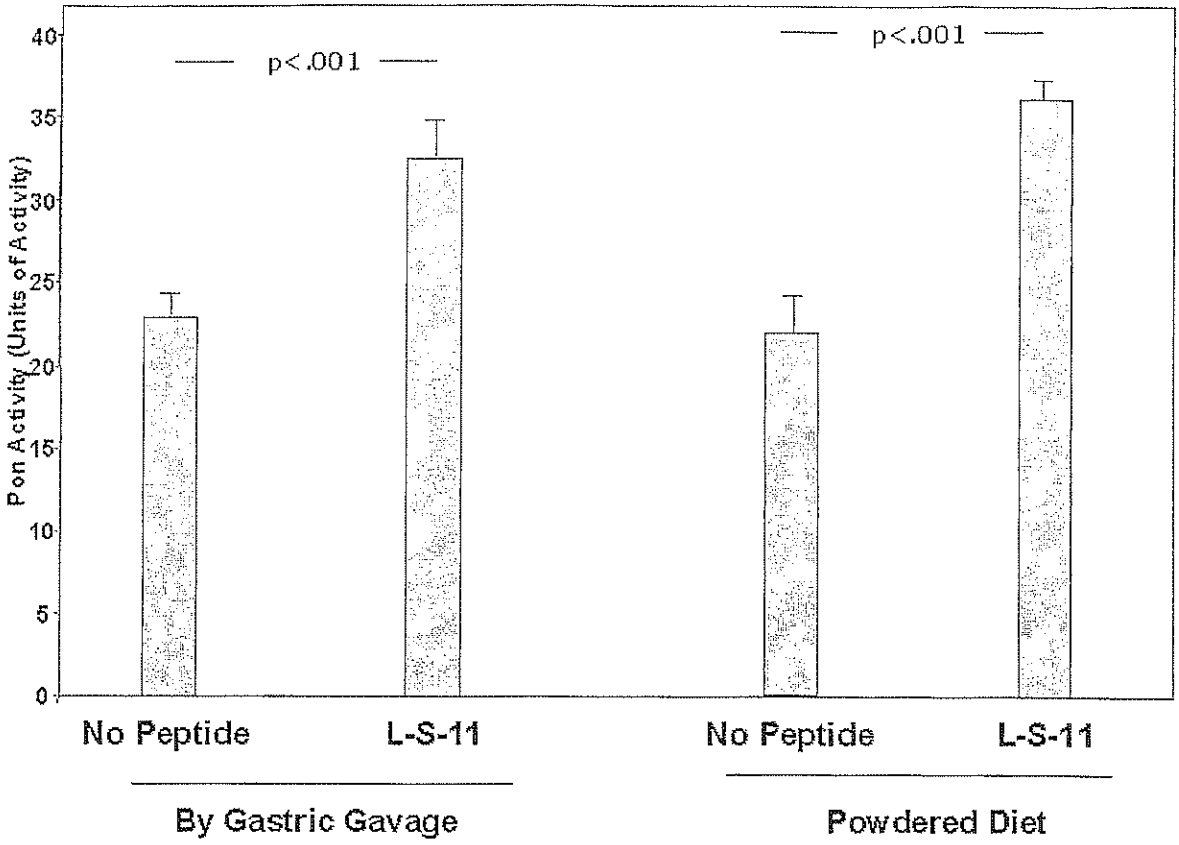

p<.001
p<.001
Pon Activity (Units of Activity)
0
5
10
15
20
25
30
35
40
No Peptide
L-S-11
No Peptide
L-S-11
By Gastric Gavage
Powdered Diet

Fig. 15

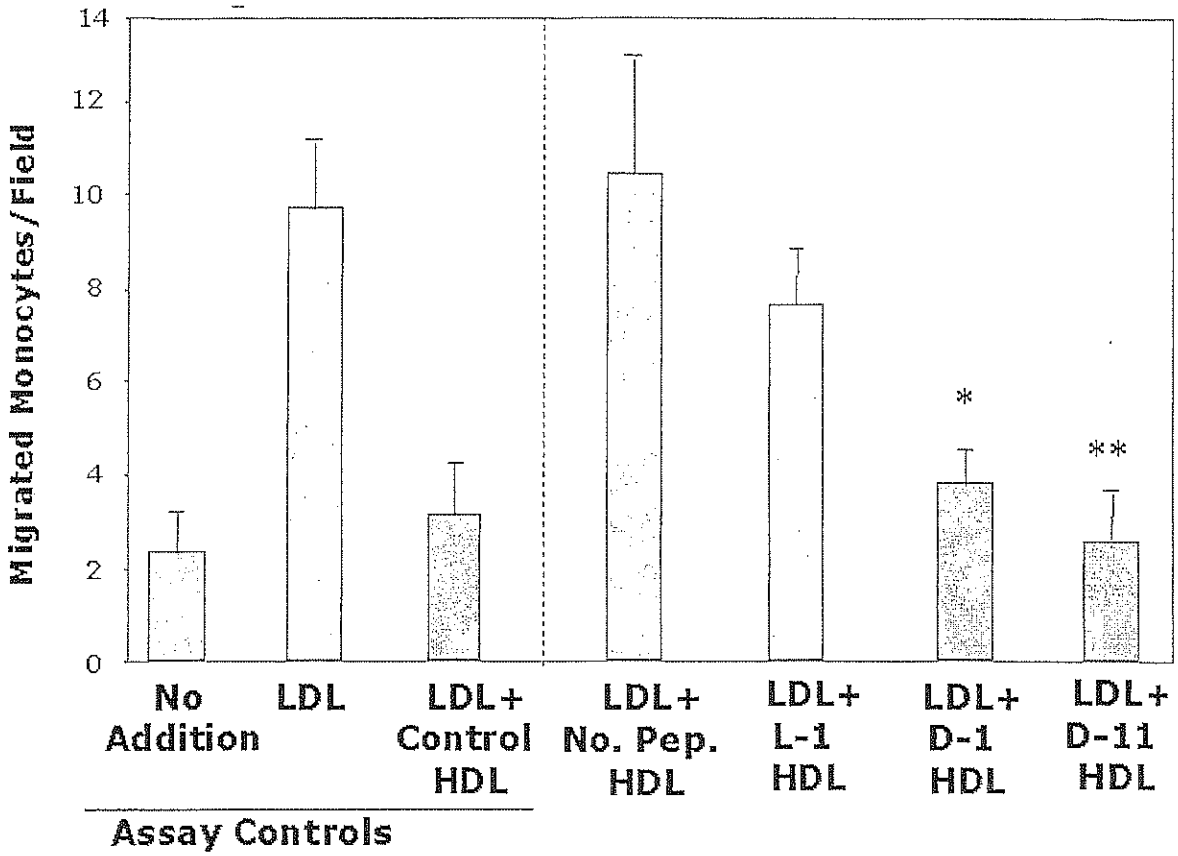

Migrated Monocytes/Field
14
12
10
8
6
4
2
0
*
**
No Addition
LDL
LDL+ Control HDL
LDL+ No. Pep. HDL
LDL+ L-1 HDL
LDL+ D-1 HDL
LDL+ D-11 HDL
Assay Controls

Fig. 16

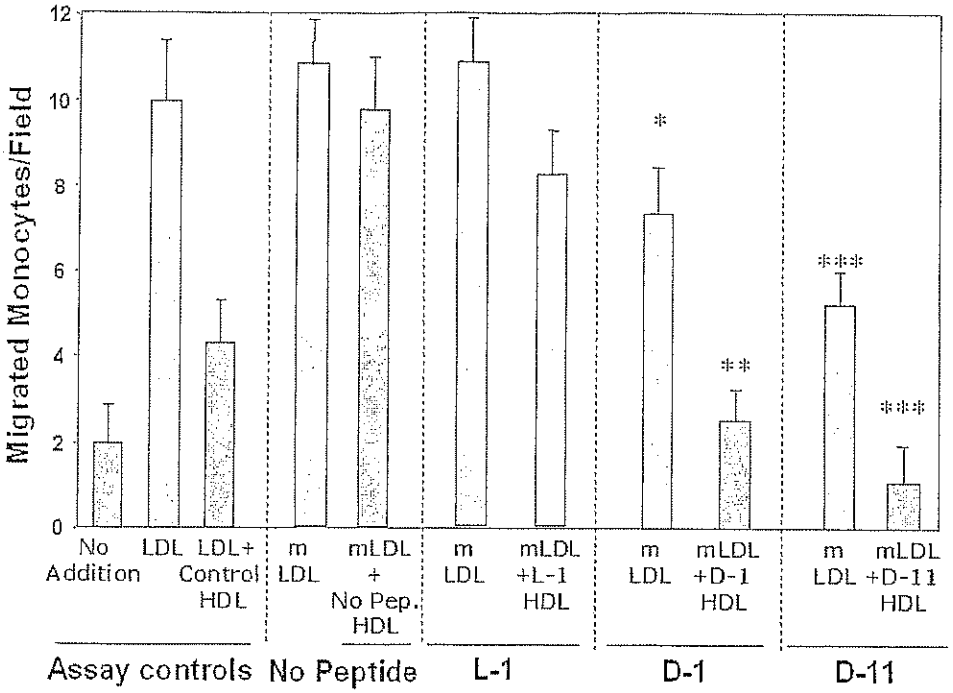

Migrated Monocytes/Field
12
10
8
6
4
2
0
No Addition
LDL
LDL+ Control HDL
m LDL
mLDL + No Pep. HDL
m LDL
mLDL +L-1 HDL
m LDL
mLDL +D-1 HDL
m LDL
mLDL +D-11 HDL
*
**
***
***
Assay controls
No Peptide
L-1
D-1
D-11

Fig. 17

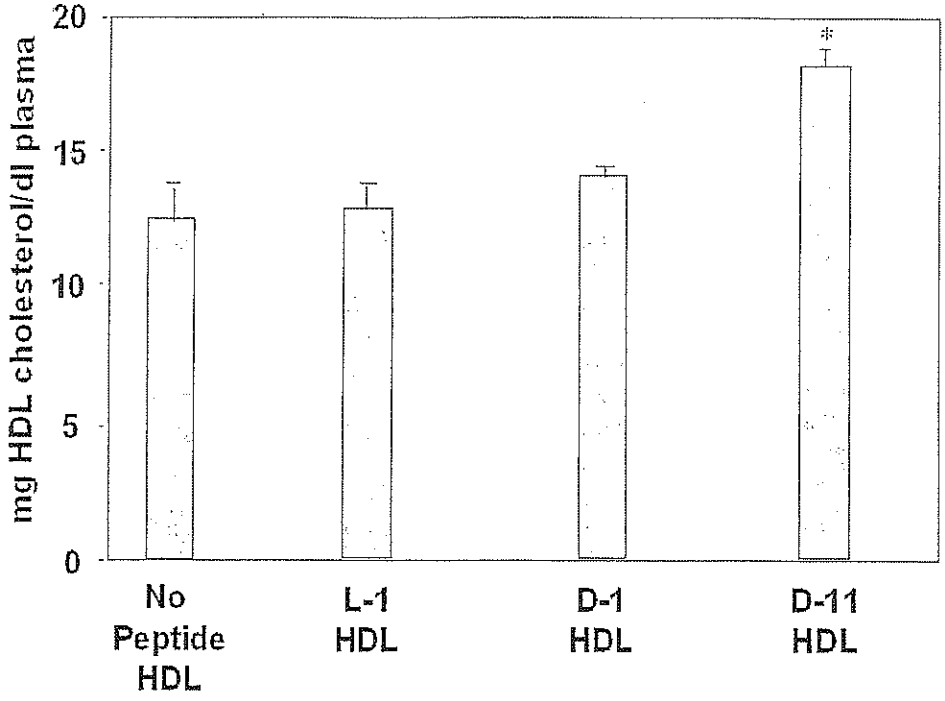

mg HDL cholesterol/dl plasma
20
15
10
5
0
*
No Peptide HDL
L-1 HDL
D-1 HDL
D-11 HDL

Fig. 18

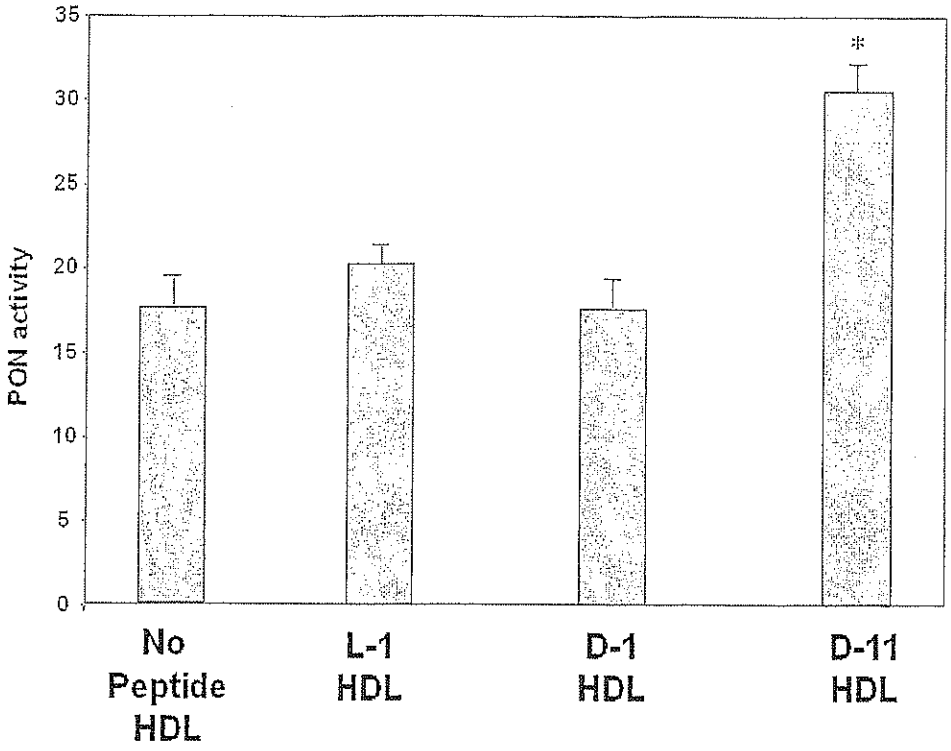

35
30
25
20
15
10
5
0
PON activity
*
No Peptide HDL
L-1 HDL
D-1 HDL
D-11 HDL

Fig. 19

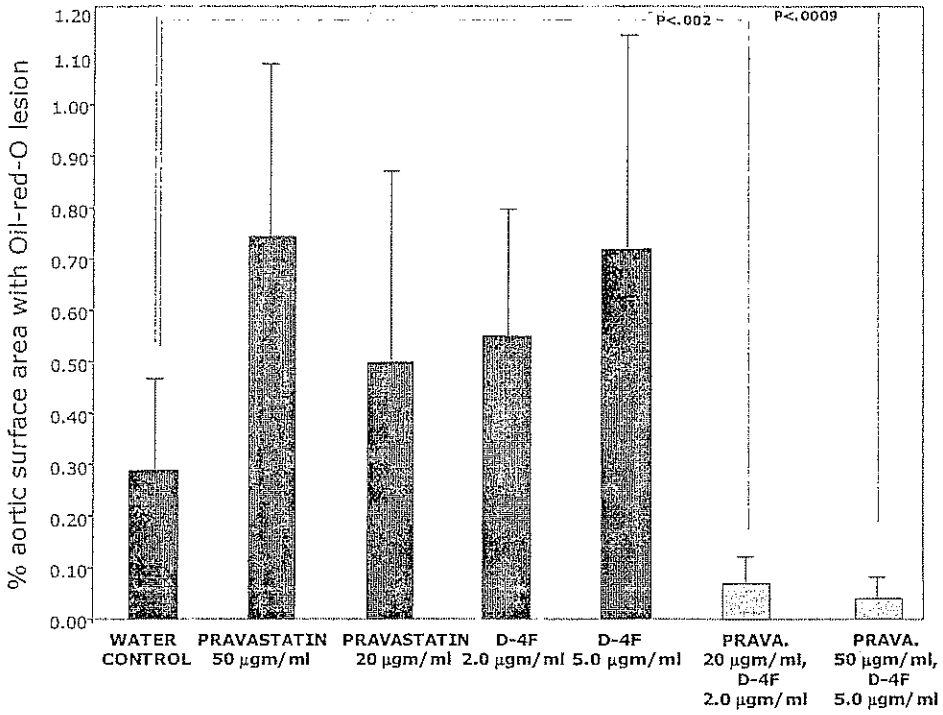

% aortic surface area with Oil-red-O lesion
1.20
1.10
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
P<.002
P<.0009
WATER CONTROL
PRAVASTATIN 50 µgm/ml
PRAVASTATIN 20 µgm/ml
D-4F 2.0 µgm/ml
D-4F 5.0 µgm/ml
PRAVA. 20 µgm/ml, D-4F 2.0 µgm/ml
PRAVA. 50 µgm/ml, D-4F 5.0 µgm/ml

Fig. 20

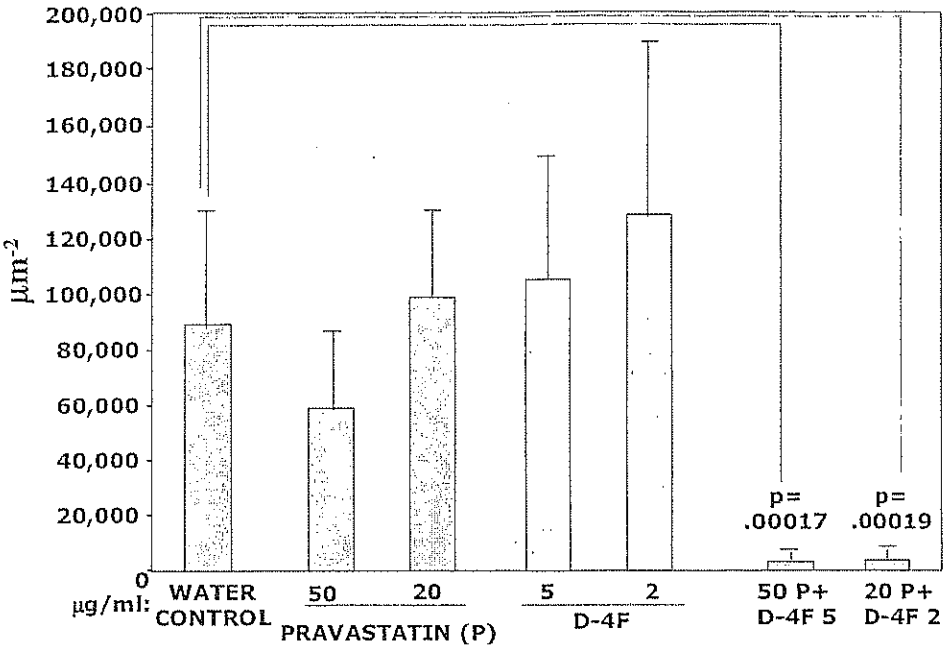

200,000
180,000
160,000
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
µm-2
p= .00017
p= .00019
µg/ml:
WATER CONTROL
50
20
5
2
PRAVASTATIN (P)
D-4F
50 P+ D-4F 5
20 P+ D-4F 2

Fig. 21

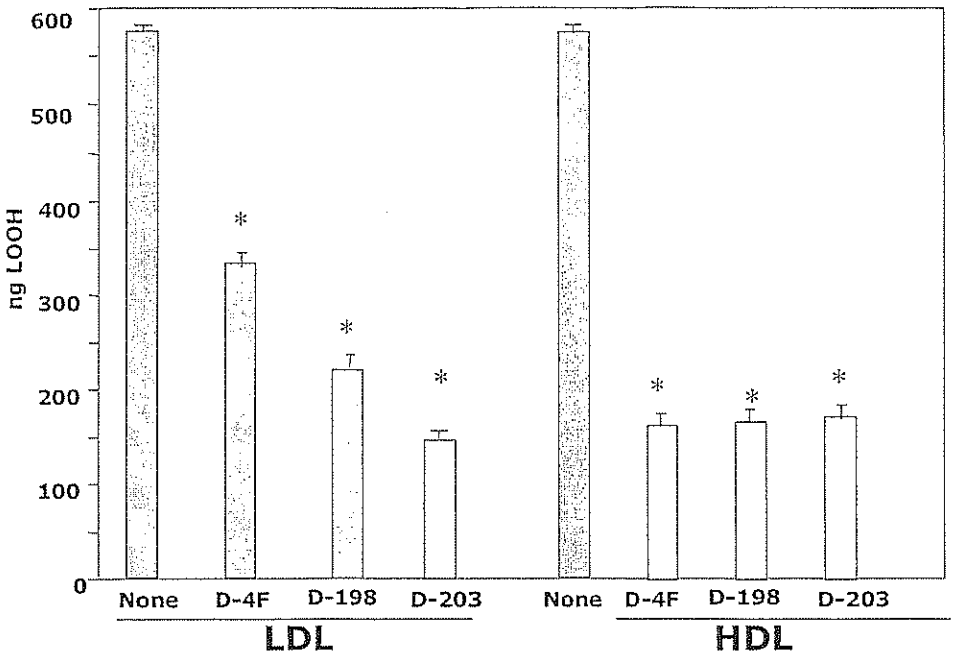

600
500
400
300
200
100
0
ng LOOH
*
*
*
*
*
*
None
D-4F
D-198
D-203
None
D-4F
D-198
D-203
LDL
HDL

Fig. 22

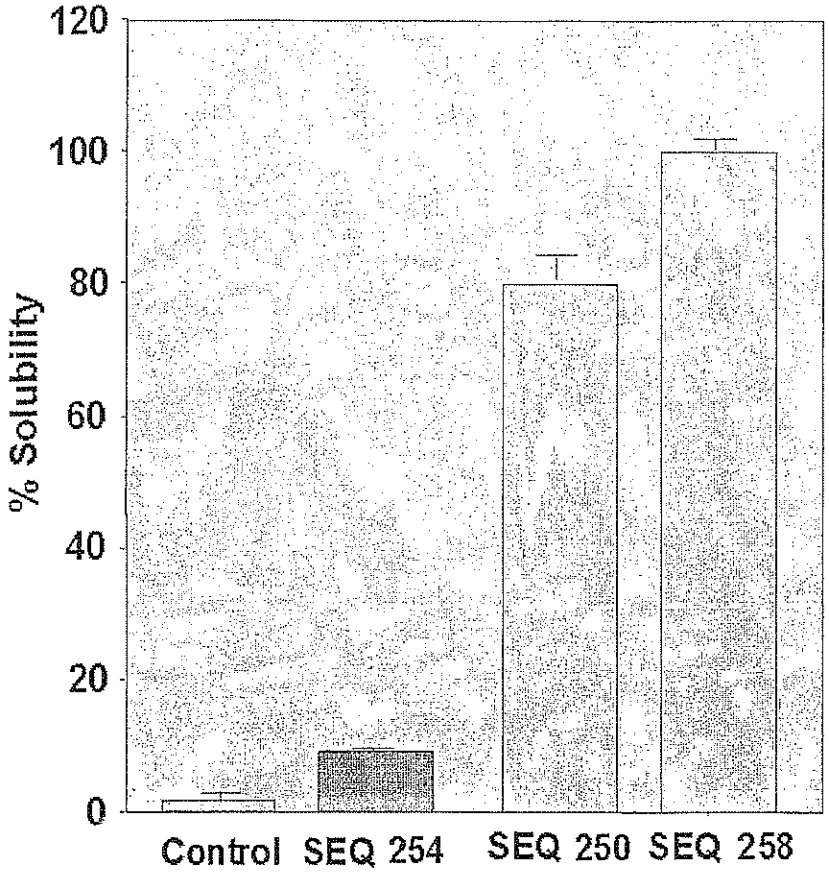

120
100
80
60
40
20
0
% Solubility
Control
SEQ 254
SEQ 250
SEQ 258

Fig. 23

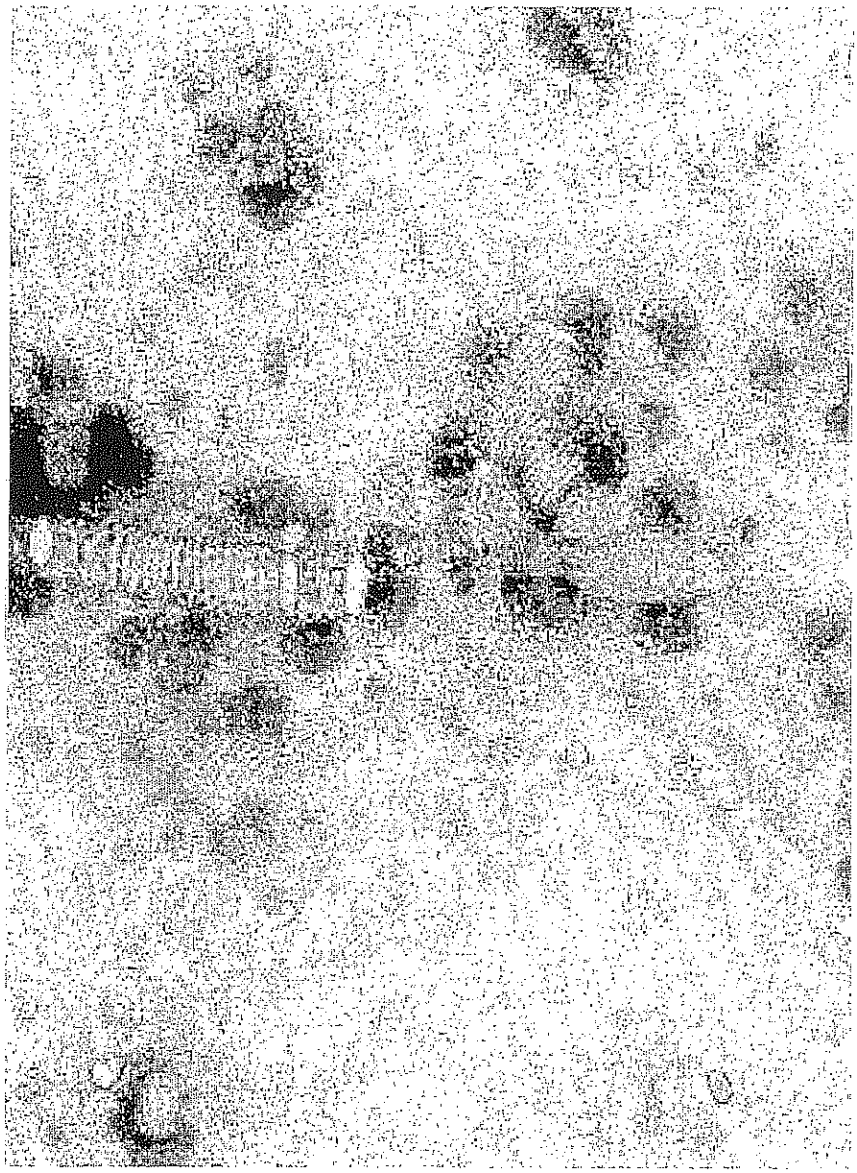


Fig. 24

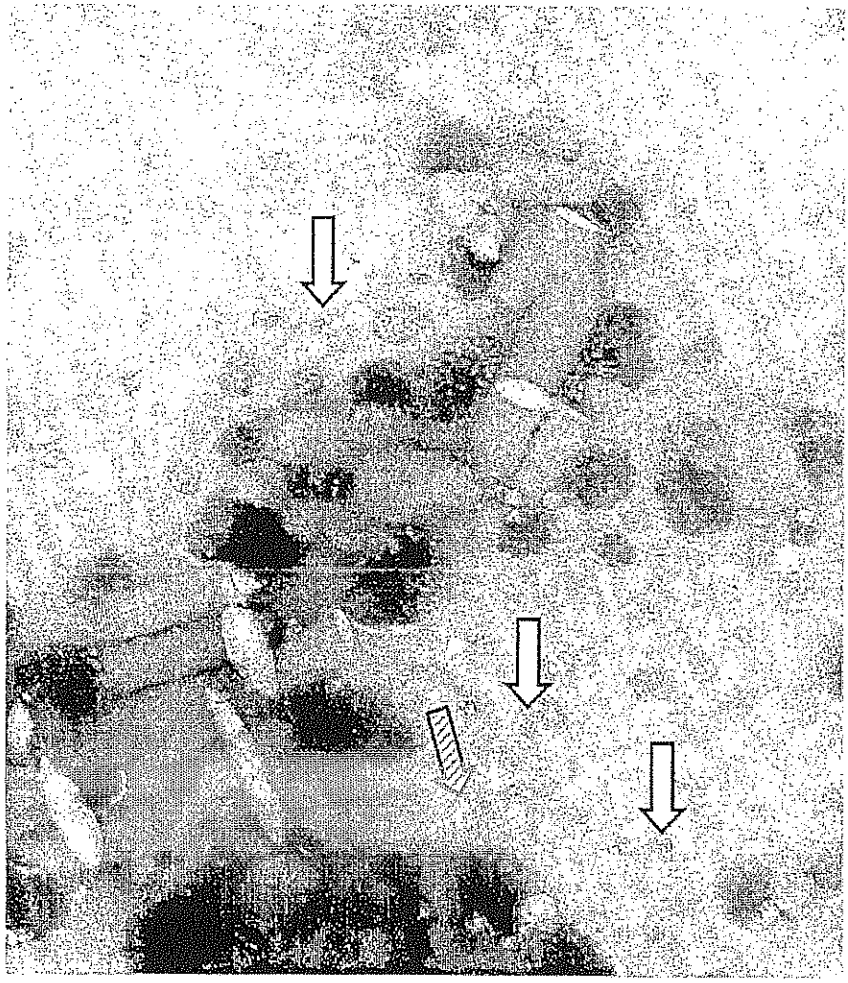


Fig. 25

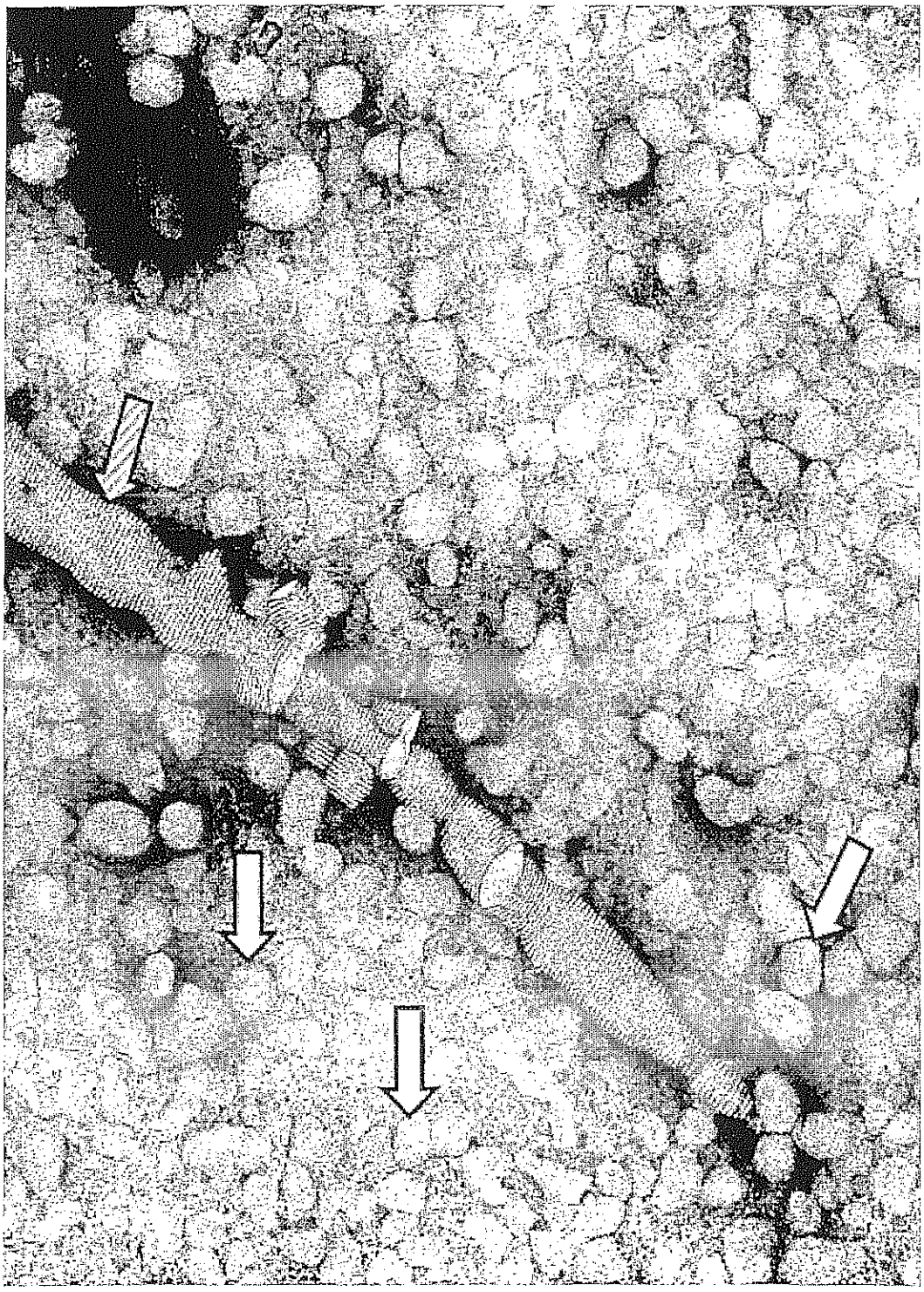


Fig. 26

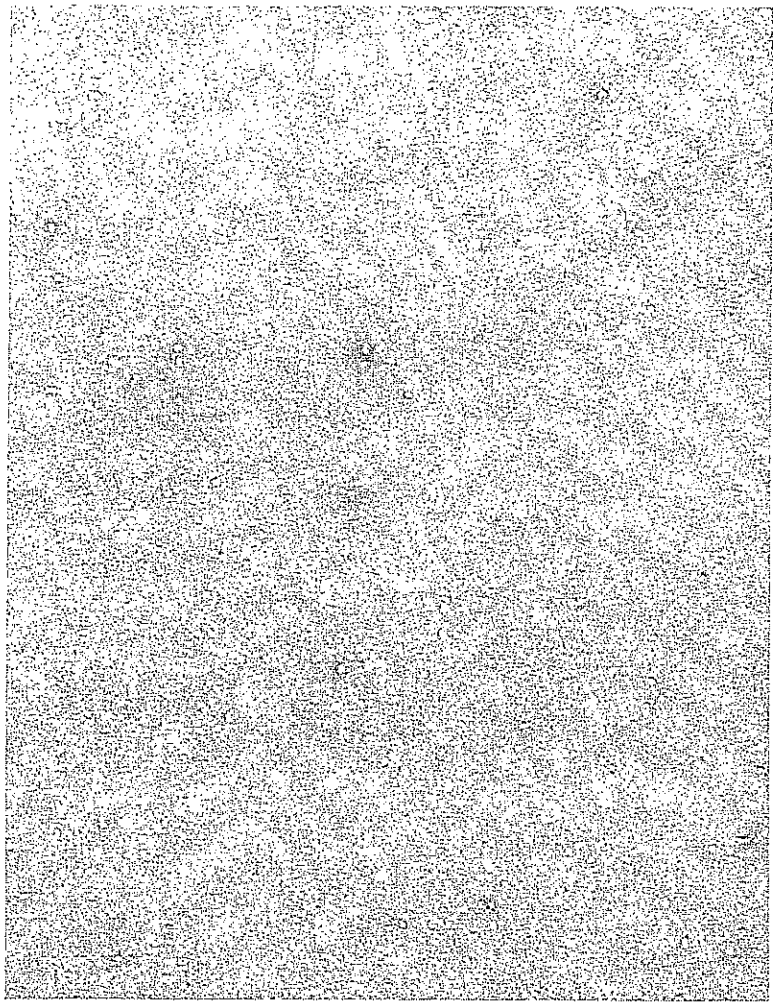


Fig. 27

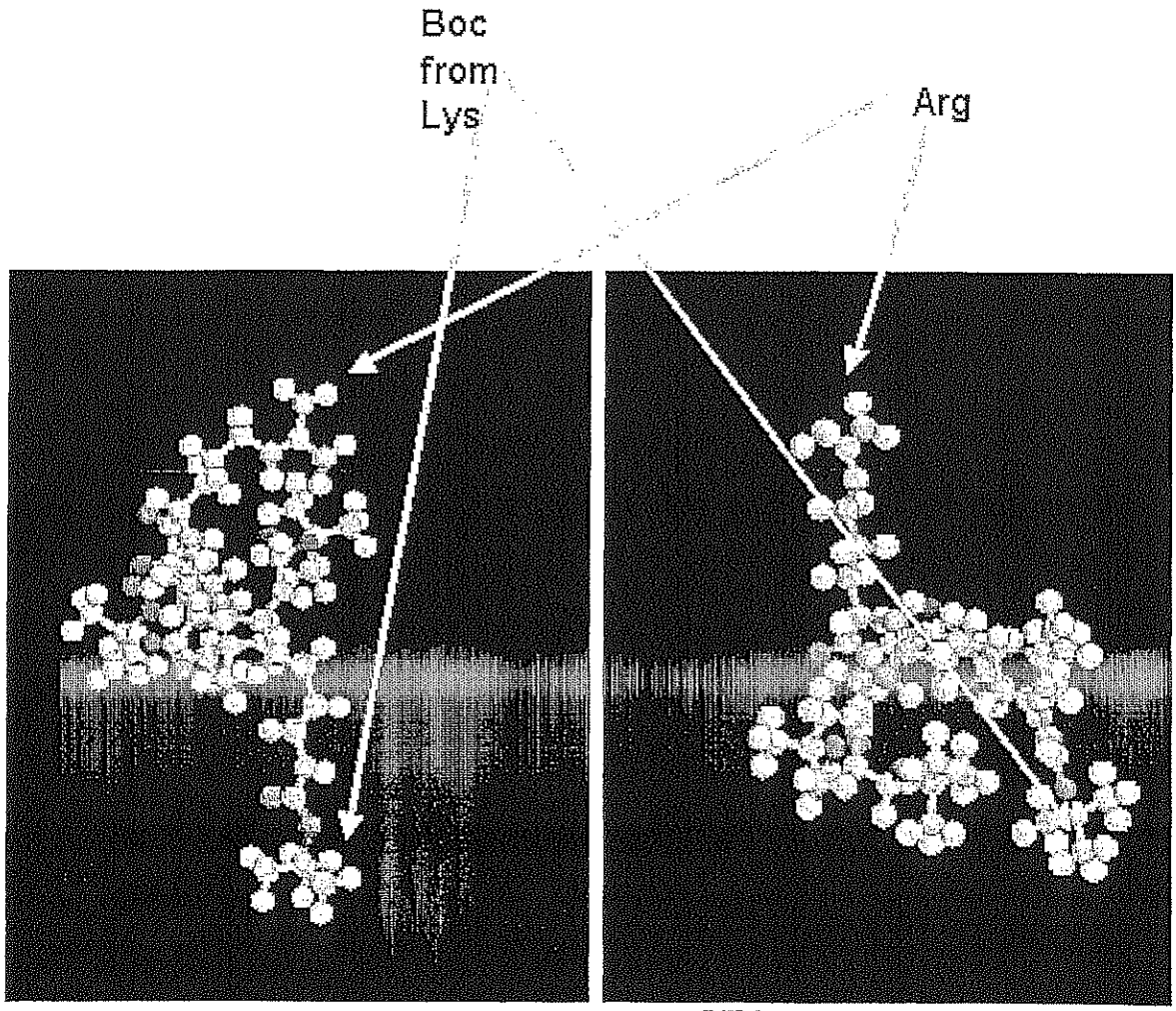


Fig. 28

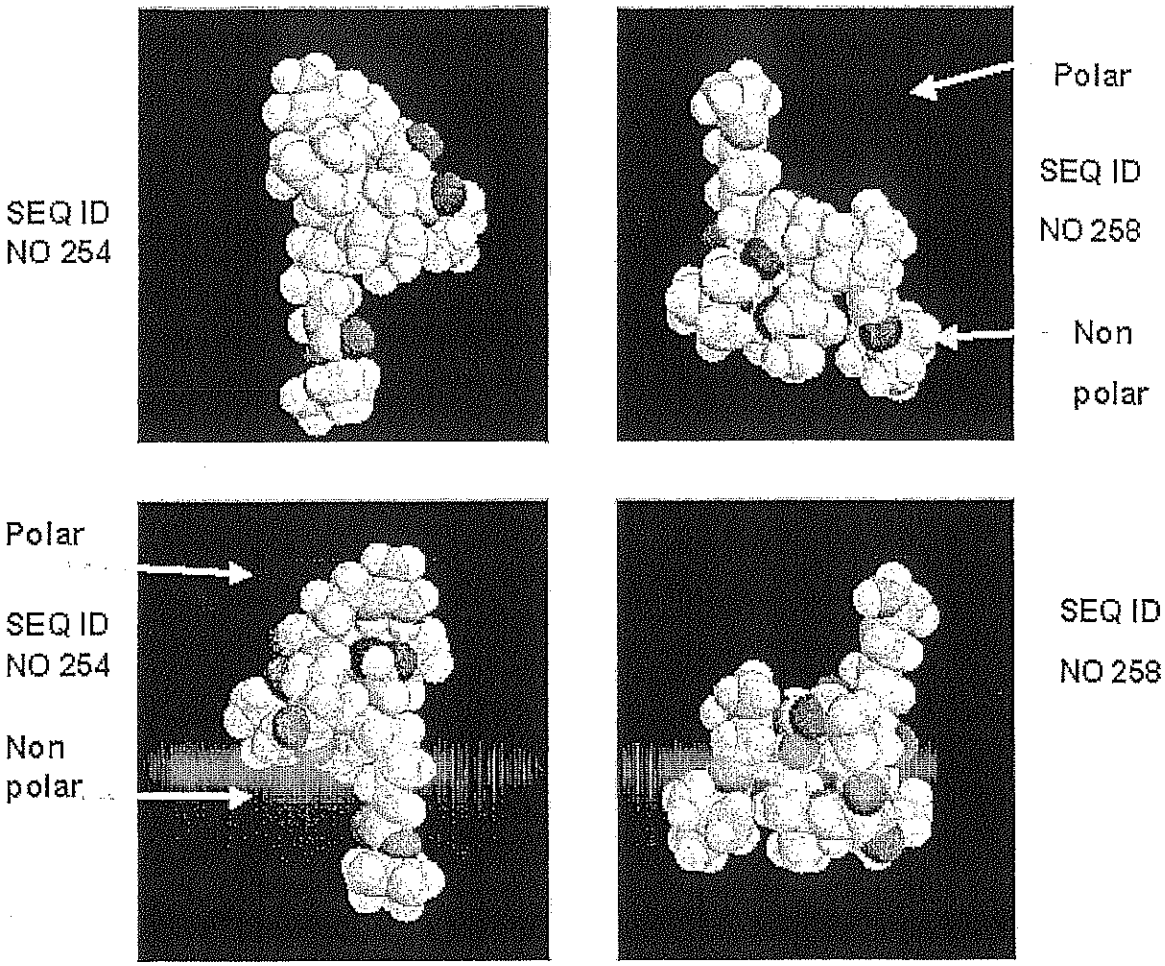
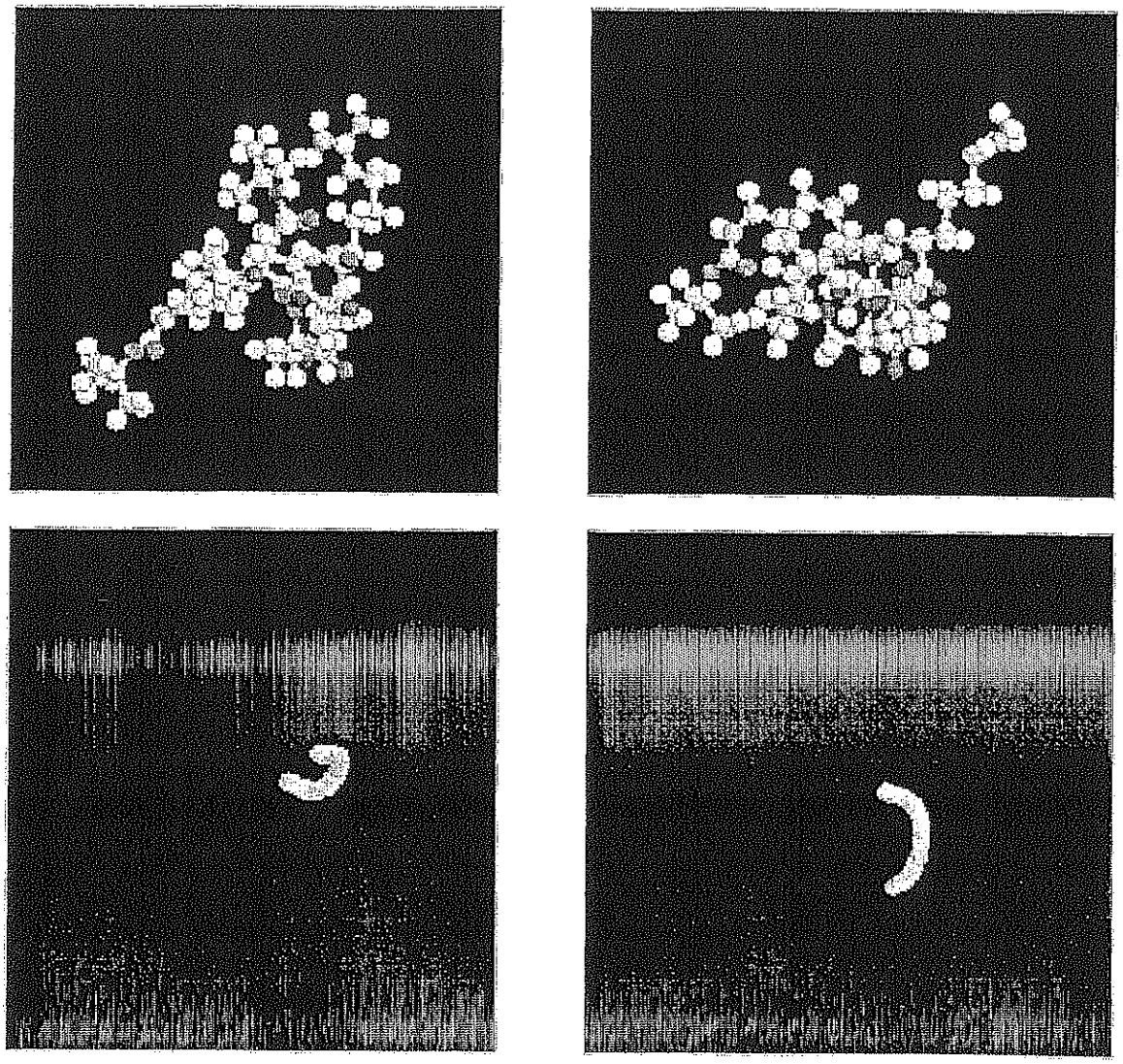

SEQ ID
NO 254
Polar
SEQ ID
NO 258
Non
polar
Polar
SEQ ID
NO 254
Non
polar
SEQ ID
NO 258

Fig. 29



SEQ ID NO 254

SEQ ID NO 258

Fig. 30

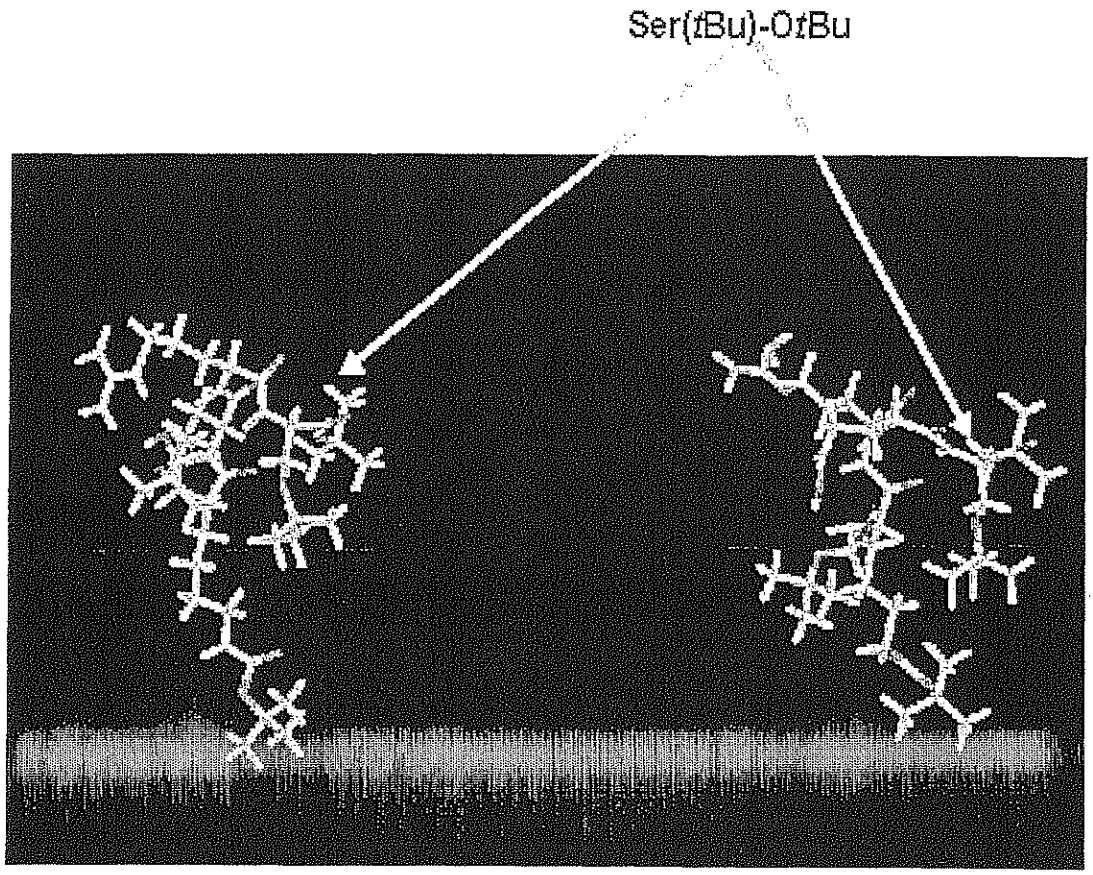


Fig. 31

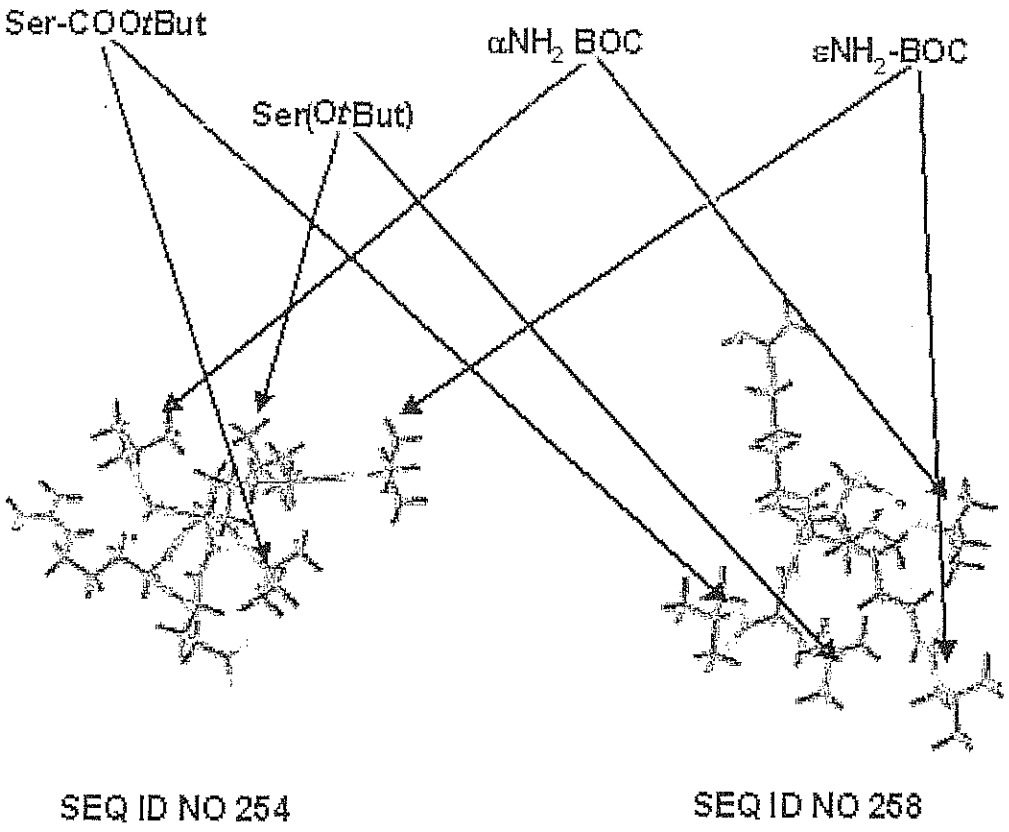

Ser-COOtBut
αNH2 BOC
εNH2-BOC
Ser(OtBut)
SEQ ID NO 254
SEQ ID NO 258

Fig. 32

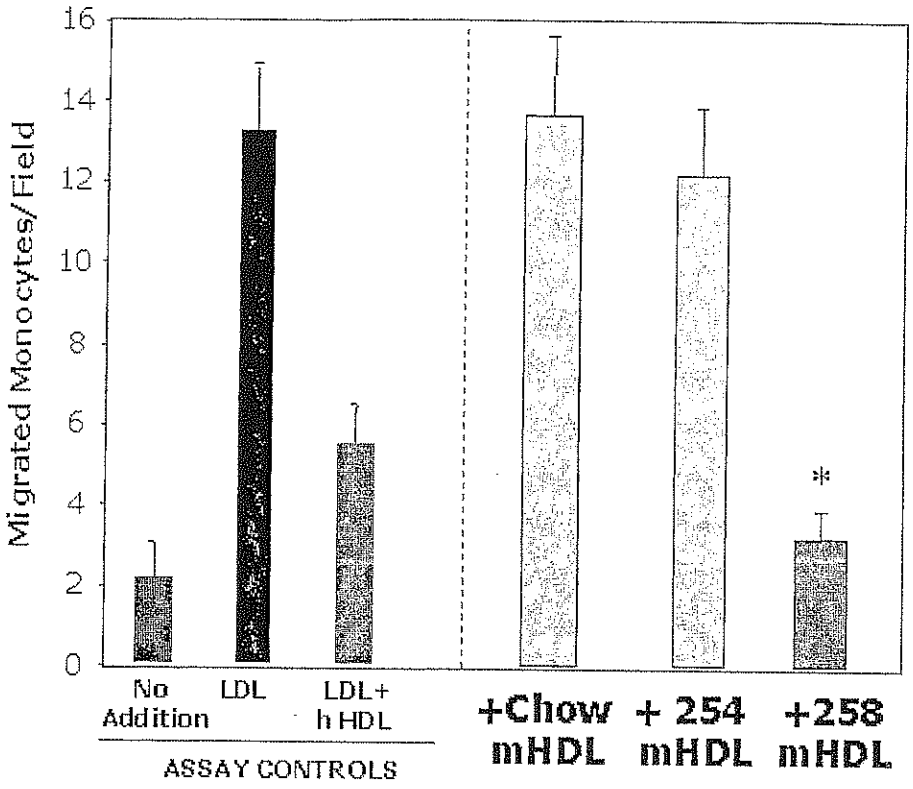

Migrated Monocytes/Field
16
14
12
10
8
6
4
2
0
*
No Addition
LDL
LDL+ h HDL
ASSAY CONTROLS
+Chow mHDL
+ 254 mHDL
+258 mHDL

Fig. 33

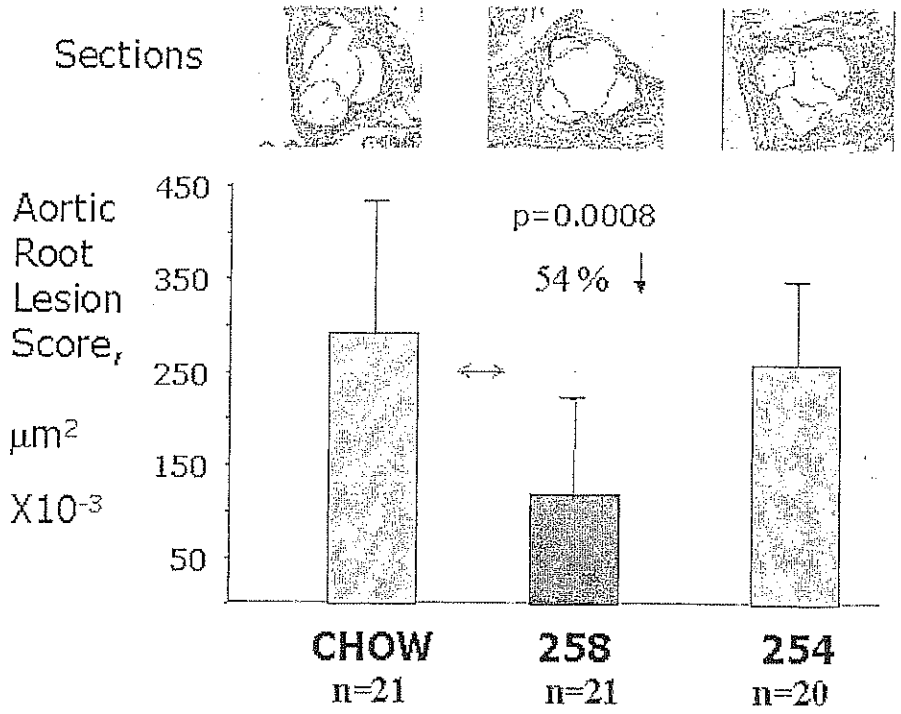

Sections
Aortic Root Lesion Score,
µm²
X10⁻³
450
350
250
150
50
p=0.0008
54 %
CHOW
n=21
258
n=21
254
n=20

Fig. 34

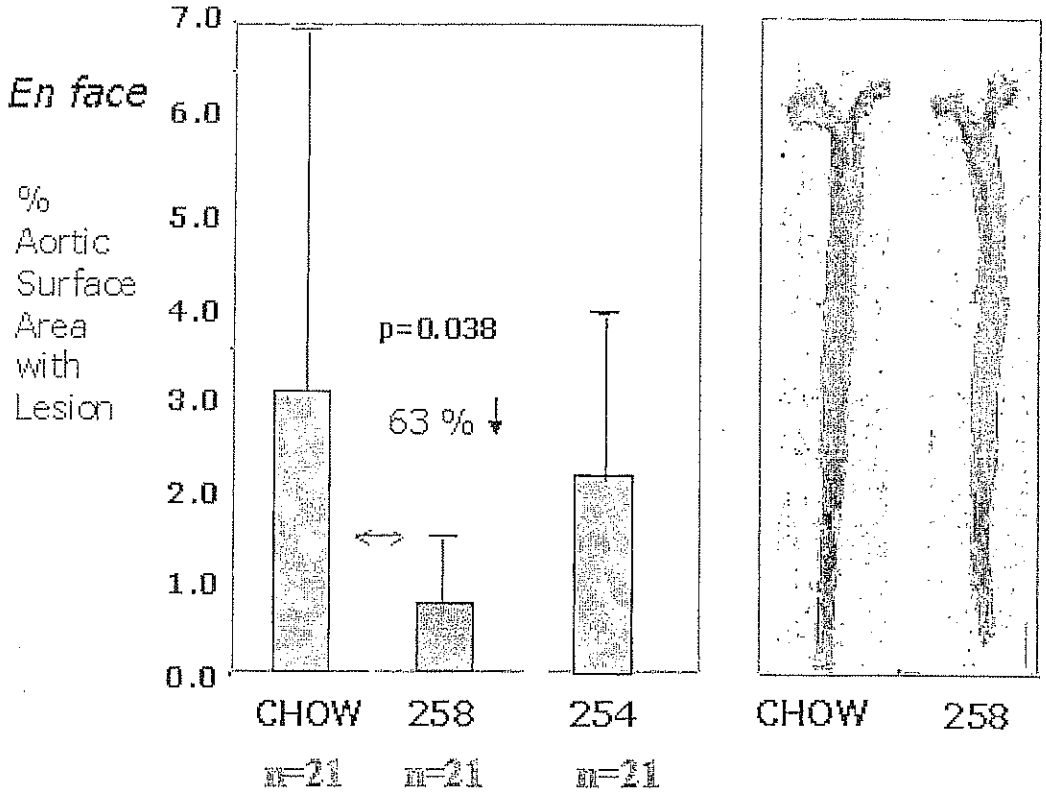

En face
% Aortic Surface Area with Lesion
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
p=0.038
63 %
CHOW
258
254
n=21
n=21
n=21
CHOW
258

Fig. 35

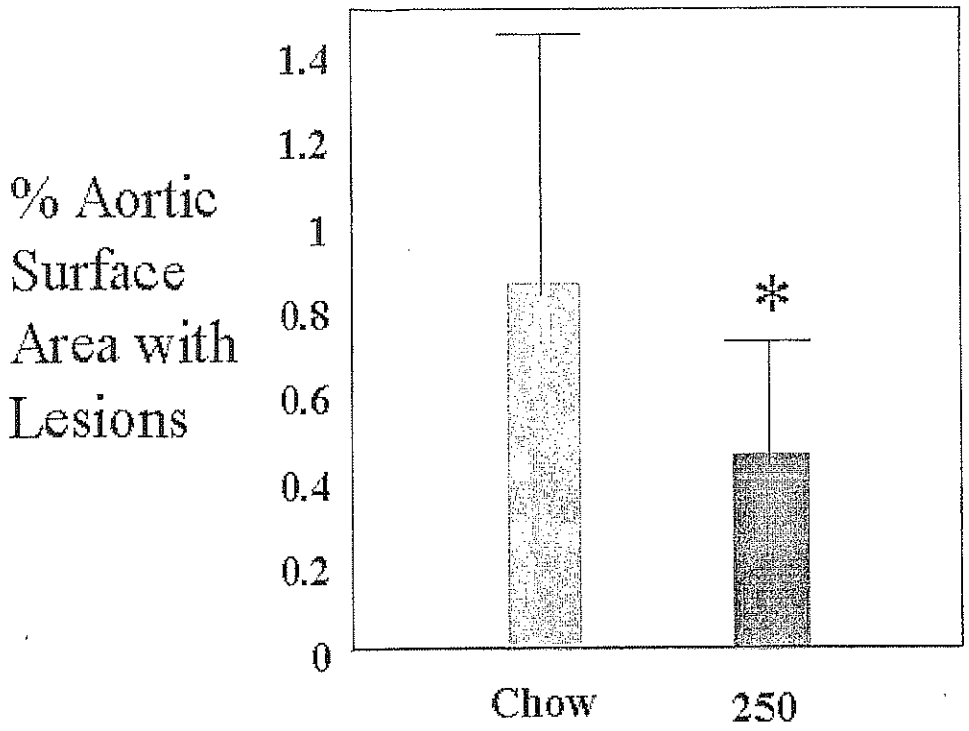


Fig. 36