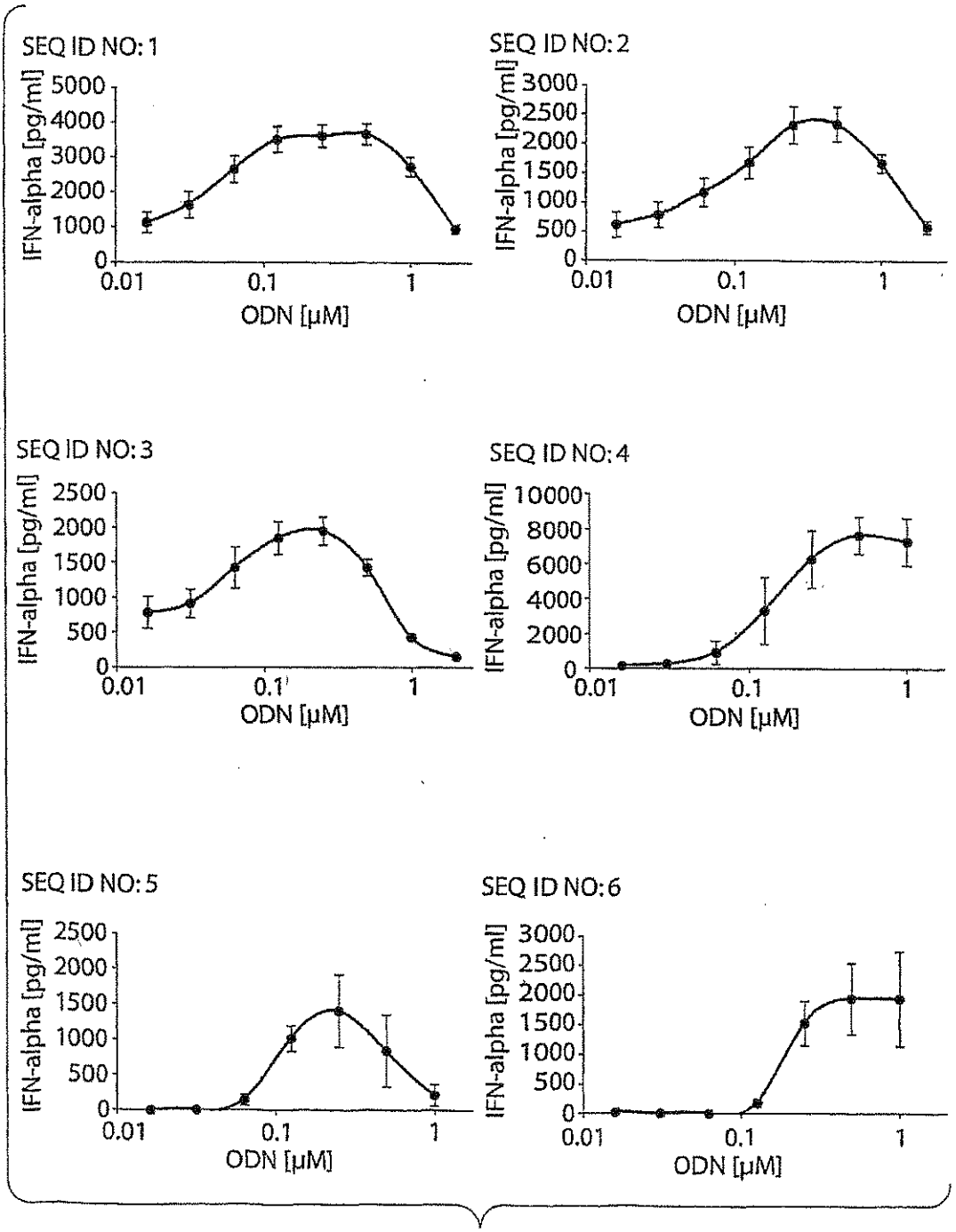

SEQ ID NO: 1
IFN-alpha [pg/ml]
5000
4000
3000
2000
1000
0
0.01
0.1
1
ODN [μM]
SEQ ID NO: 2
IFN-alpha [pg/ml]
3000
2500
2000
1500
1000
500
0
0.01
0.1
1
ODN [μM]
SEQ ID NO: 3
IFN-alpha [pg/ml]
2500
2000
1500
1000
500
0
0.01
0.1
1
ODN [μM]
SEQ ID NO: 4
IFN-alpha [pg/ml]
10000
8000
6000
4000
2000
0
0.01
0.1
1
ODN [μM]
SEQ ID NO: 5
IFN-alpha [pg/ml]
2500
2000
1500
1000
500
0
0.01
0.1
1
ODN [μM]
SEQ ID NO: 6
IFN-alpha [pg/ml]
3000
2500
2000
1500
1000
500
0
0.01
0.1
1
ODN [μM]

Fig. 1

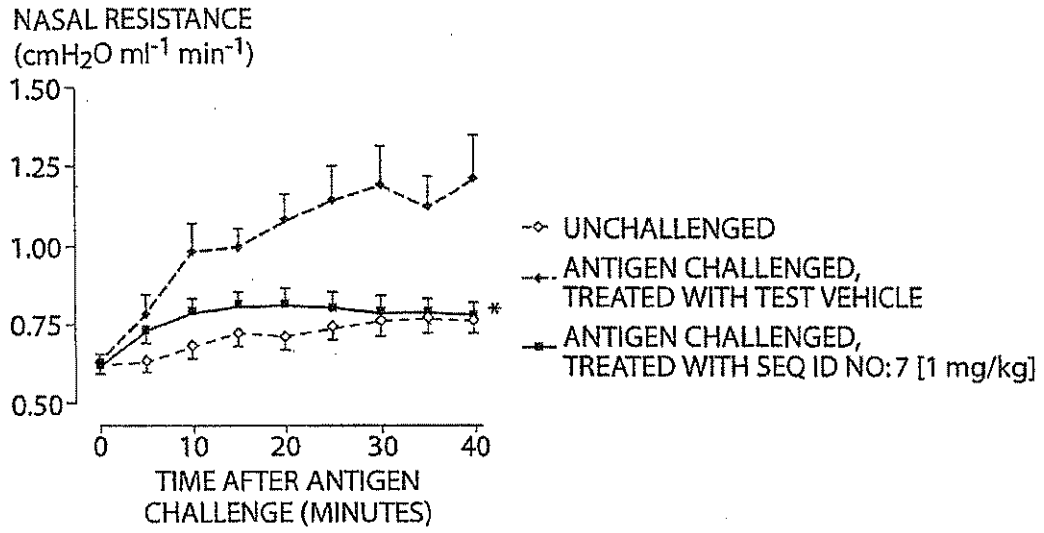

NASAL RESISTANCE
(cmH2O ml-1 min-1)
1.50
1.25
1.00
0.75
0.50
0
10
20
30
40
TIME AFTER ANTIGEN CHALLENGE (MINUTES)
*
UNCHALLENGED
ANTIGEN CHALLENGED, TREATED WITH TEST VEHICLE
ANTIGEN CHALLENGED, TREATED WITH SEQ ID NO:7 [1 mg/kg]

Fig. 2A

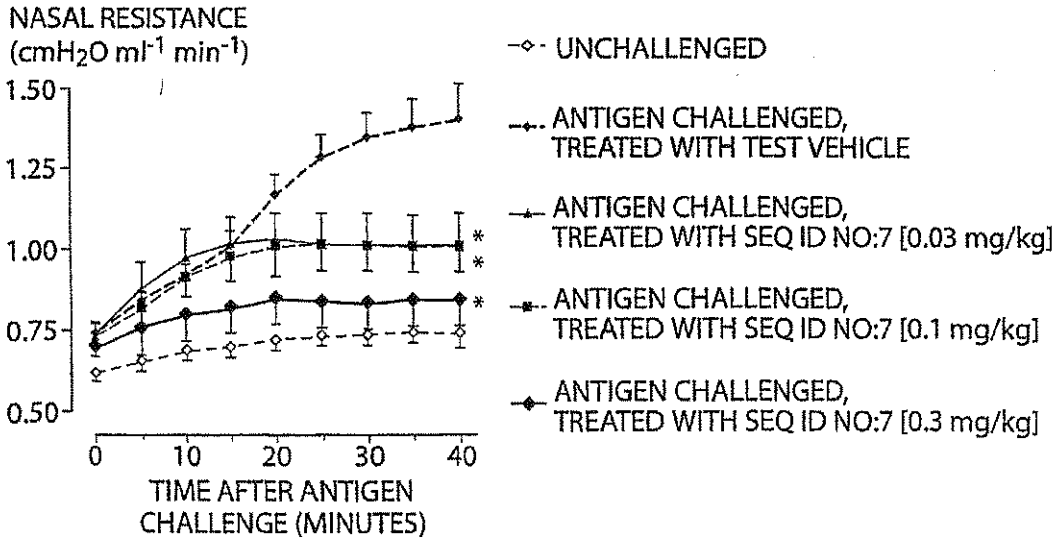

NASAL RESISTANCE
(cmH2O ml-1 min-1)
1.50
1.25
1.00
0.75
0.50
0
10
20
30
40
TIME AFTER ANTIGEN CHALLENGE (MINUTES)
*
*
*
UNCHALLENGED
ANTIGEN CHALLENGED, TREATED WITH TEST VEHICLE
ANTIGEN CHALLENGED, TREATED WITH SEQ ID NO:7 [0.03 mg/kg]
ANTIGEN CHALLENGED, TREATED WITH SEQ ID NO:7 [0.1 mg/kg]
ANTIGEN CHALLENGED, TREATED WITH SEQ ID NO:7 [0.3 mg/kg]

Fig. 2B

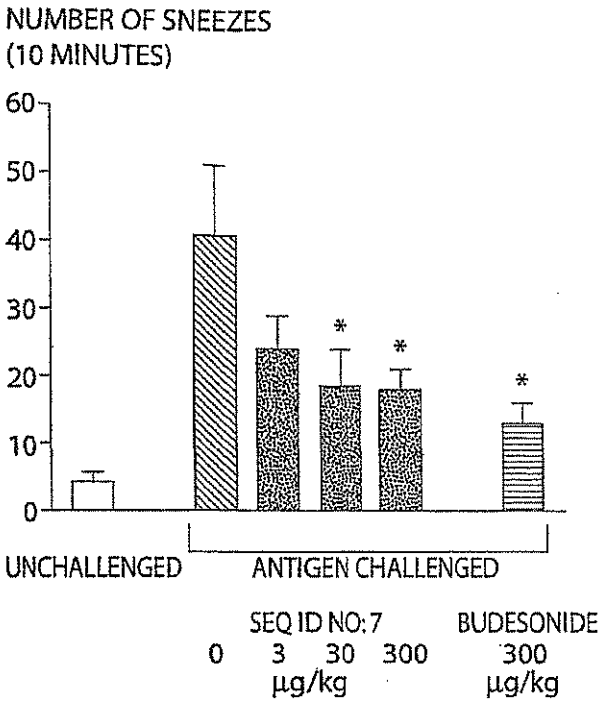

NUMBER OF SNEEZES
(10 MINUTES)
60
50
40
30
20
10
0
*
*
*
UNCHALLENGED
ANTIGEN CHALLENGED
SEQ ID NO:7
0 3 30 300
µg/kg
BUDESONIDE
300
µg/kg

Fig. 3A

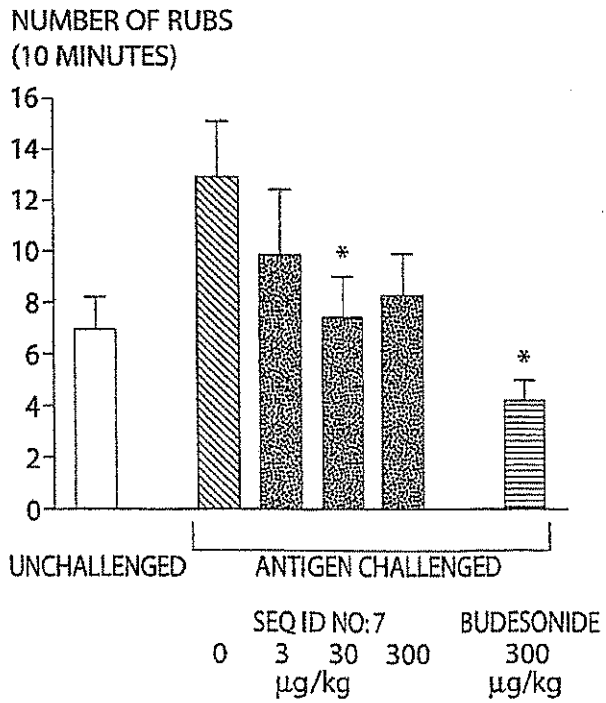

NUMBER OF RUBS
(10 MINUTES)
16
14
12
10
8
6
4
2
0
*
*
UNCHALLENGED
ANTIGEN CHALLENGED
SEQ ID NO:7
0 3 30 300
µg/kg
BUDESONIDE
300
µg/kg

Fig. 3B

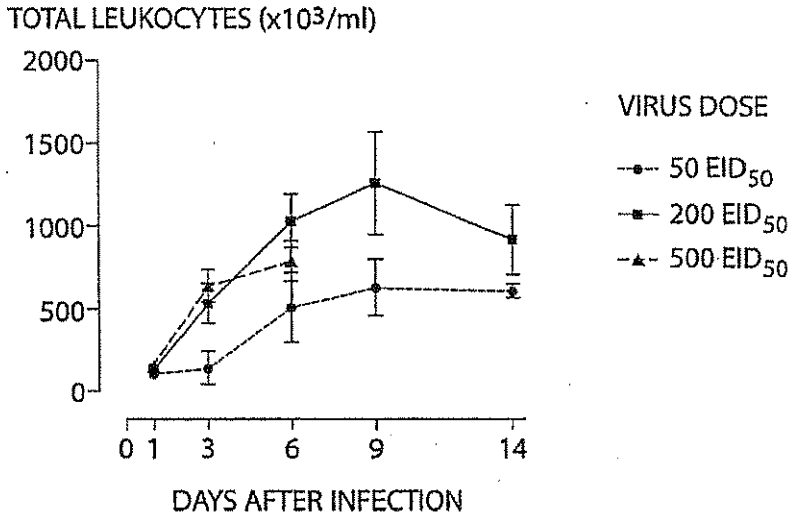

TOTAL LEUKOCYTES (x10³/ml)
2000
1500
1000
500
0
0 1 3 6 9 14
DAYS AFTER INFECTION
VIRUS DOSE
50 EID50
200 EID50
500 EID50

Fig. 4

A	UNINFECTED	UNTREATED
B	VIRUS INFECTED	TEST VEHICLE
C	VIRUS INFECTED	SEQ ID NO:1 0.03 mg/kg
D	VIRUS INFECTED	SEQ ID NO:1, 0.3 mg/kg
E	VIRUS INFECTED	SEQ ID NO:1, 3 mg/kg
F	VIRUS INFECTED	SEQ ID NO:2, 0.03 mg/kg
G	VIRUS INFECTED	SEQ ID NO:2, 0.3 mg/kg
H	VIRUS INFECTED	SEQ ID NO:2, 3 mg/kg
I	VIRUS INFECTED	SEQ ID NO:3, 0.03 mg/kg
J	VIRUS INFECTED	SEQ ID NO:3, 0.3 mg/kg
K	VIRUS INFECTED	SEQ ID NO:3, 3 mg/kg

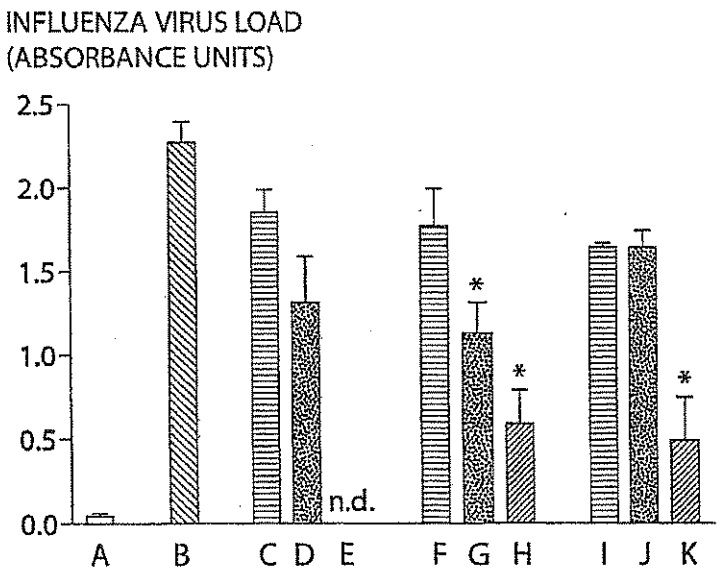
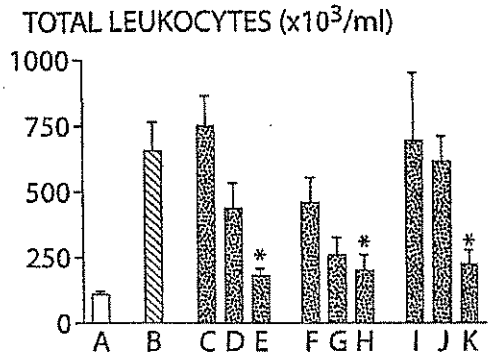
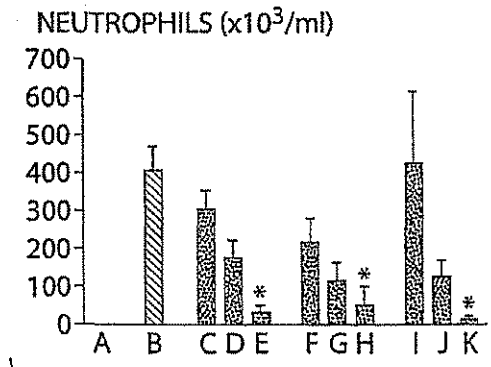


Fig. 5



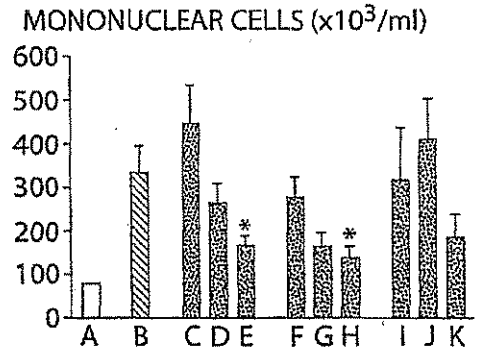
A UNINFECTED UNTREATED
B VIRUS INFECTED TEST VEHICLE
C VIRUS INFECTED SEQ ID NO:1 0.03 mg/kg
D VIRUS INFECTED SEQ ID NO:1, 0.3 mg/kg
E VIRUS INFECTED SEQ ID NO:1, 3 mg/kg
F VIRUS INFECTED SEQ ID NO:2, 0.03 mg/kg
G VIRUS INFECTED SEQ ID NO:2, 0.3 mg/kg
H VIRUS INFECTED SEQ ID NO:2, 3 mg/kg
I VIRUS INFECTED SEQ ID NO:3, 0.03 mg/kg
J VIRUS INFECTED SEQ ID NO:3, 0.3 mg/kg
K VIRUS INFECTED SEQ ID NO:3, 3 mg/kg

Fig. 6A



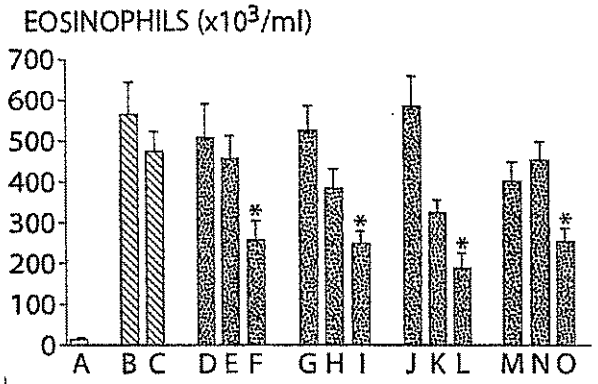
A UNINFECTED UNTREATED
B VIRUS INFECTED TEST VEHICLE
C VIRUS INFECTED SEQ ID NO:1 0.03 mg/kg
D VIRUS INFECTED SEQ ID NO:1, 0.3 mg/kg
E VIRUS INFECTED SEQ ID NO:1, 3 mg/kg
F VIRUS INFECTED SEQ ID NO:2, 0.03 mg/kg
G VIRUS INFECTED SEQ ID NO:2, 0.3 mg/kg
H VIRUS INFECTED SEQ ID NO:2, 3 mg/kg
I VIRUS INFECTED SEQ ID NO:3, 0.03 mg/kg
J VIRUS INFECTED SEQ ID NO:3, 0.3 mg/kg
K VIRUS INFECTED SEQ ID NO:3, 3 mg/kg

Fig. 6B



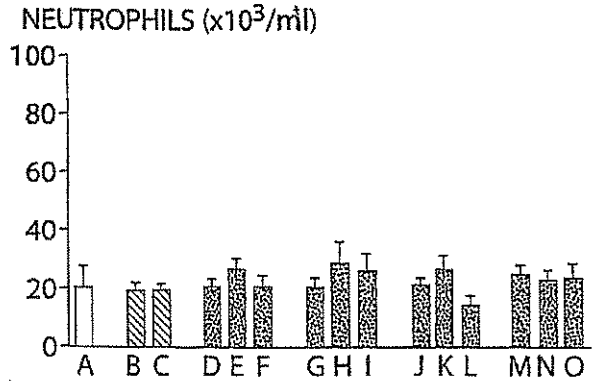
A	UNINFECTED	UNTREATED
B	VIRUS INFECTED	TEST VEHICLE
C	VIRUS INFECTED	SEQ ID NO:1 0.03 mg/kg
D	VIRUS INFECTED	SEQ ID NO:1, 0.3 mg/kg
E	VIRUS INFECTED	SEQ ID NO:1, 3 mg/kg
F	VIRUS INFECTED	SEQ ID NO:2, 0.03 mg/kg
G	VIRUS INFECTED	SEQ ID NO:2, 0.3 mg/kg
H	VIRUS INFECTED	SEQ ID NO:2, 3 mg/kg
I	VIRUS INFECTED	SEQ ID NO:3, 0.03 mg/kg
J	VIRUS INFECTED	SEQ ID NO:3, 0.3 mg/kg
K	VIRUS INFECTED	SEQ ID NO:3, 3 mg/kg

Fig. 6C



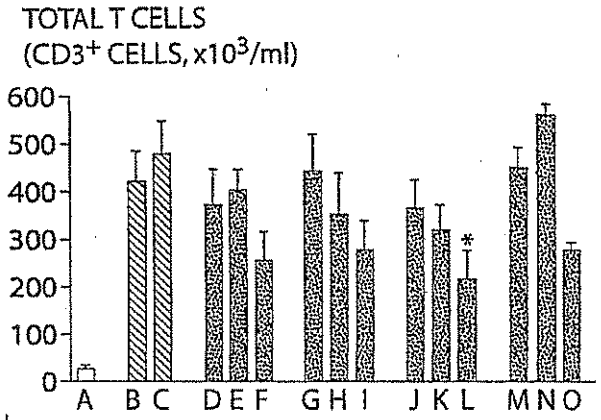
A UNCHALLENGED UNTREATED
B ANTIGEN CHALLENGED UNTREATED
C ANTIGEN CHALLENGED VEHICLE
D ANTIGEN CHALLENGED SEQ ID NO:7, 1 µg/kg
E ANTIGEN CHALLENGED SEQ ID NO:7, 10 µg/kg
F ANTIGEN CHALLENGED SEQ ID NO:7, 100 µg/kg
G ANTIGEN CHALLENGED SEQ ID NO:1, 1 µg/kg
H ANTIGEN CHALLENGED SEQ ID NO:1, 10 µg/kg
I ANTIGEN CHALLENGED SEQ ID NO:1, 100 µg/kg
J ANTIGEN CHALLENGED SEQ ID NO:2, 1 µg/kg
K ANTIGEN CHALLENGED SEQ ID NO:2, 10 µg/kg
L ANTIGEN CHALLENGED SEQ ID NO:2, 100 µg/kg
M ANTIGEN CHALLENGED SEQ ID NO:3, 1 µg/kg
N ANTIGEN CHALLENGED SEQ ID NO:3, 10 µg/kg
O ANTIGEN CHALLENGED SEQ ID NO:3, 100 µg/kg

Fig. 7A



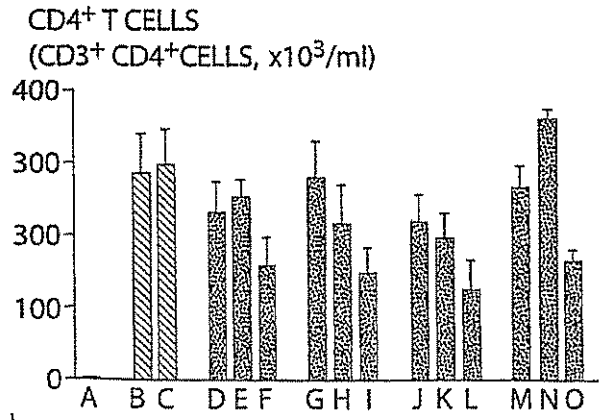
A UNCHALLENGED UNTREATED
B ANTIGEN CHALLENGED UNTREATED
C ANTIGEN CHALLENGED VEHICLE
D ANTIGEN CHALLENGED SEQ ID NO:7, 1 µg/kg
E ANTIGEN CHALLENGED SEQ ID NO:7, 10 µg/kg
F ANTIGEN CHALLENGED SEQ ID NO:7, 100 µg/kg
G ANTIGEN CHALLENGED SEQ ID NO:1, 1 µg/kg
H ANTIGEN CHALLENGED SEQ ID NO:1, 10 µg/kg
I ANTIGEN CHALLENGED SEQ ID NO:1, 100 µg/kg
J ANTIGEN CHALLENGED SEQ ID NO:2, 1 µg/kg
K ANTIGEN CHALLENGED SEQ ID NO:2, 10 µg/kg
L ANTIGEN CHALLENGED SEQ ID NO:2, 100 µg/kg
M ANTIGEN CHALLENGED SEQ ID NO:3, 1 µg/kg
N ANTIGEN CHALLENGED SEQ ID NO:3, 10 µg/kg
O ANTIGEN CHALLENGED SEQ ID NO:3, 100 µg/kg

Fig. 7B



A UNCHALLENGED UNTREATED
B ANTIGEN CHALLENGED UNTREATED
C ANTIGEN CHALLENGED VEHICLE
D ANTIGEN CHALLENGED SEQ ID NO:7, 1 µg/kg
E ANTIGEN CHALLENGED SEQ ID NO:7, 10 µg/kg
F ANTIGEN CHALLENGED SEQ ID NO:7, 100 µg/kg
G ANTIGEN CHALLENGED SEQ ID NO:1, 1 µg/kg
H ANTIGEN CHALLENGED SEQ ID NO:1, 10 µg/kg
I ANTIGEN CHALLENGED SEQ ID NO:1, 100 µg/kg
J ANTIGEN CHALLENGED SEQ ID NO:2, 1 µg/kg
K ANTIGEN CHALLENGED SEQ ID NO:2, 10 µg/kg
L ANTIGEN CHALLENGED SEQ ID NO:2, 100 µg/kg
M ANTIGEN CHALLENGED SEQ ID NO:3, 1 µg/kg
N ANTIGEN CHALLENGED SEQ ID NO:3, 10 µg/kg
O ANTIGEN CHALLENGED SEQ ID NO:3, 100 µg/kg

Fig. 8A



A UNCHALLENGED UNTREATED
B ANTIGEN CHALLENGED UNTREATED
C ANTIGEN CHALLENGED VEHICLE
D ANTIGEN CHALLENGED SEQ ID NO:7, 1 µg/kg
E ANTIGEN CHALLENGED SEQ ID NO:7, 10 µg/kg
F ANTIGEN CHALLENGED SEQ ID NO:7, 100 µg/kg
G ANTIGEN CHALLENGED SEQ ID NO:1, 1 µg/kg
H ANTIGEN CHALLENGED SEQ ID NO:1, 10 µg/kg
I ANTIGEN CHALLENGED SEQ ID NO:1, 100 µg/kg
J ANTIGEN CHALLENGED SEQ ID NO:2, 1 µg/kg
K ANTIGEN CHALLENGED SEQ ID NO:2, 10 µg/kg
L ANTIGEN CHALLENGED SEQ ID NO:2, 100 µg/kg
M ANTIGEN CHALLENGED SEQ ID NO:3, 1 µg/kg
N ANTIGEN CHALLENGED SEQ ID NO:3, 10 µg/kg
O ANTIGEN CHALLENGED SEQ ID NO:3, 100 µg/kg

Fig. 8B

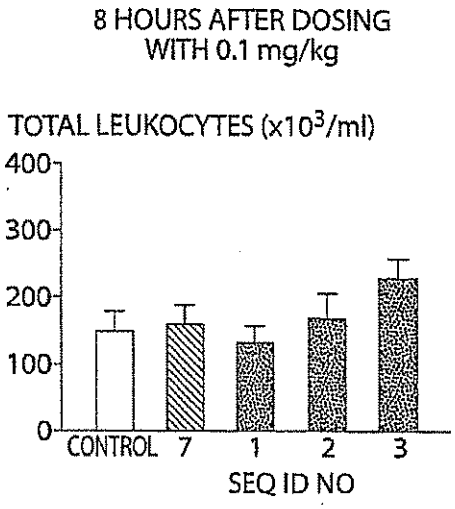


Fig 9A

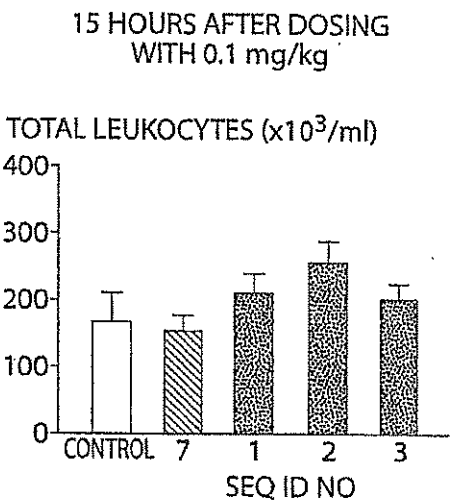


Fig 9B

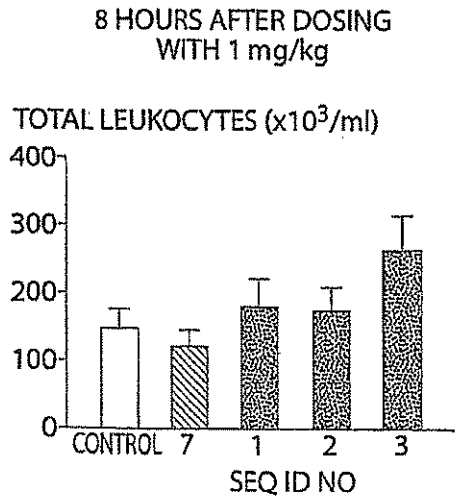


Fig 9C

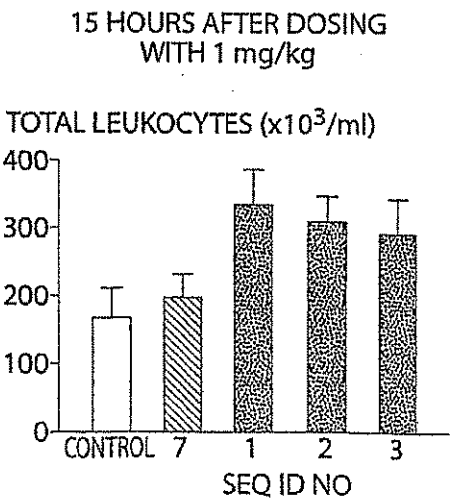


Fig 9D

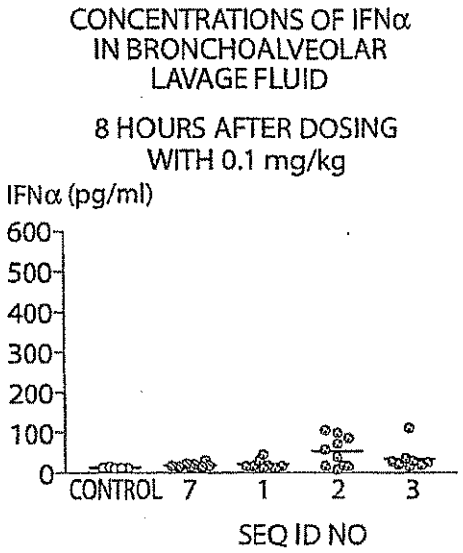


Fig. 10A

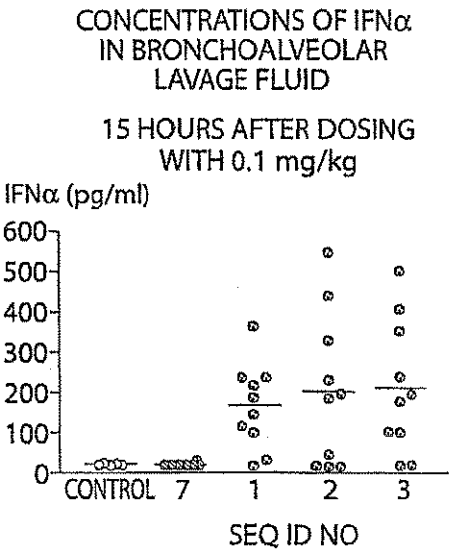


Fig. 10B

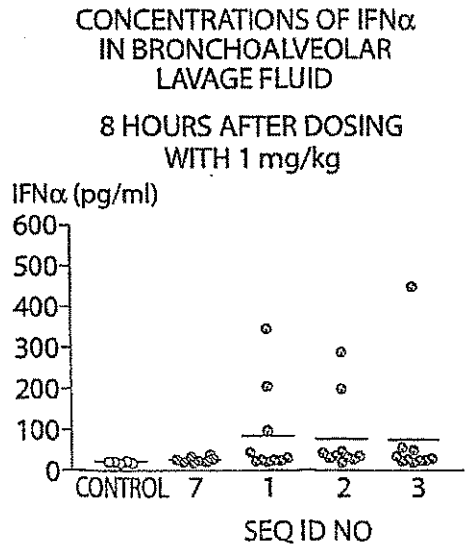


Fig. 10C

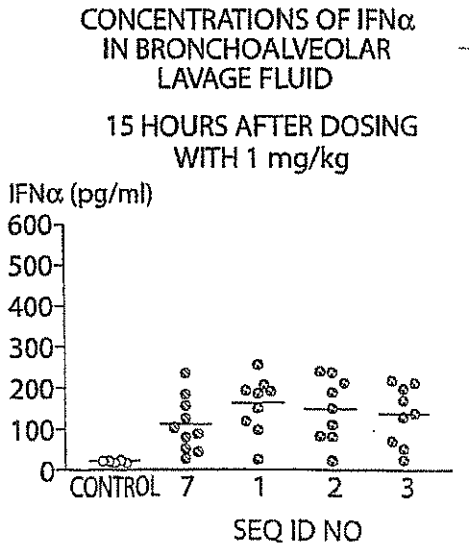


Fig. 10D

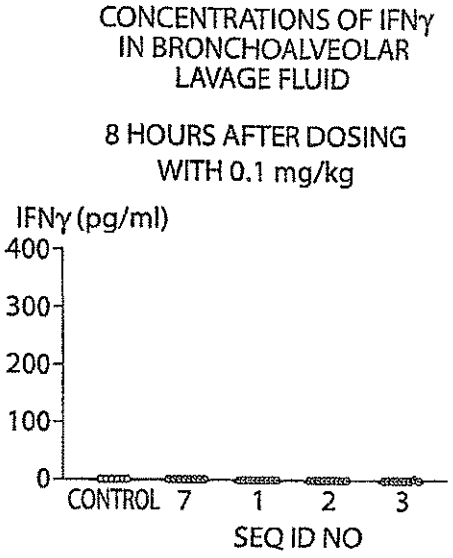


Fig. 11A

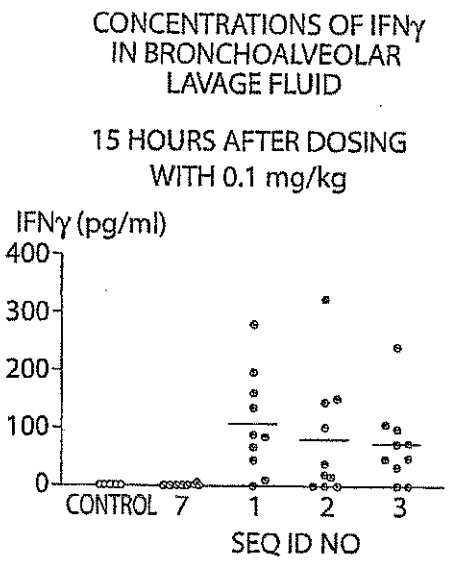


Fig. 11B

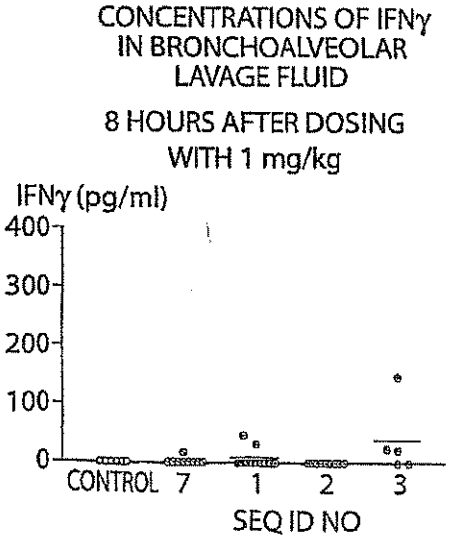


Fig. 11C

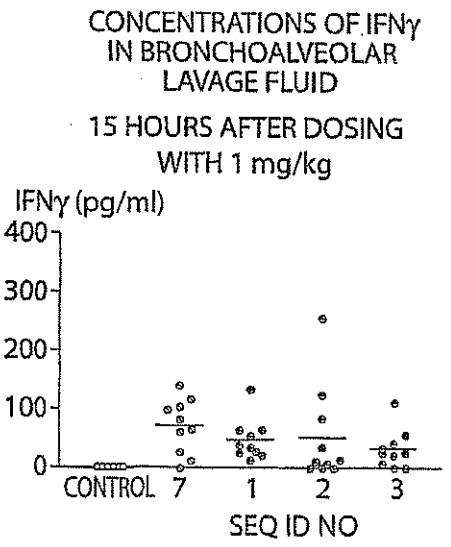


Fig. 11D

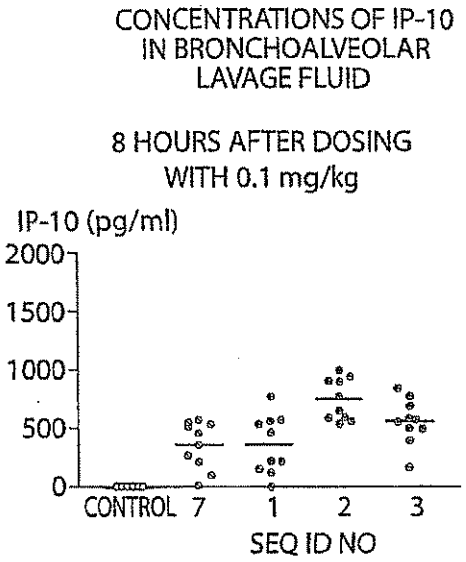


Fig. 12A

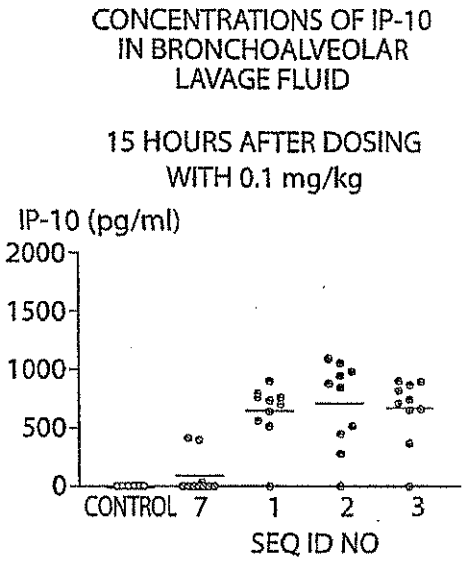


Fig. 12B

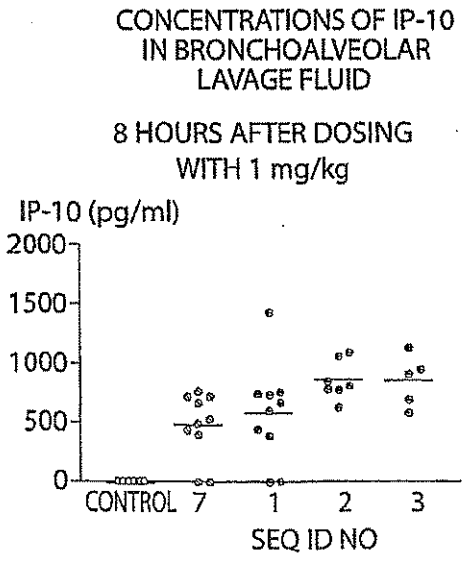


Fig. 12C

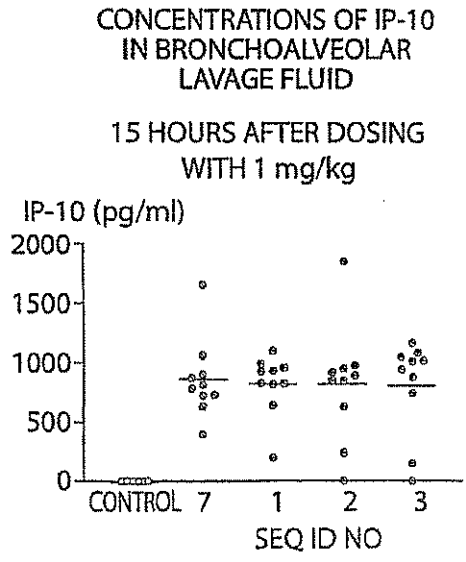


Fig. 12D

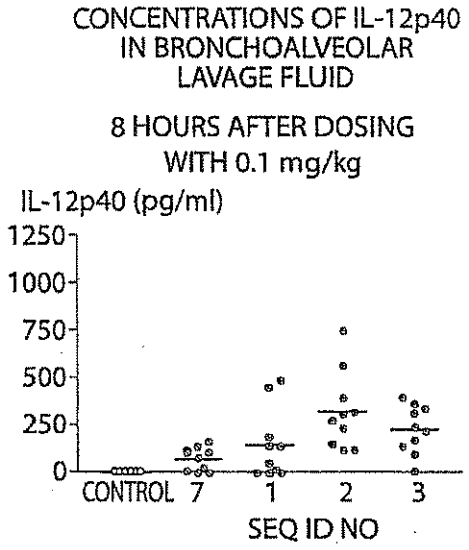


Fig. 13A

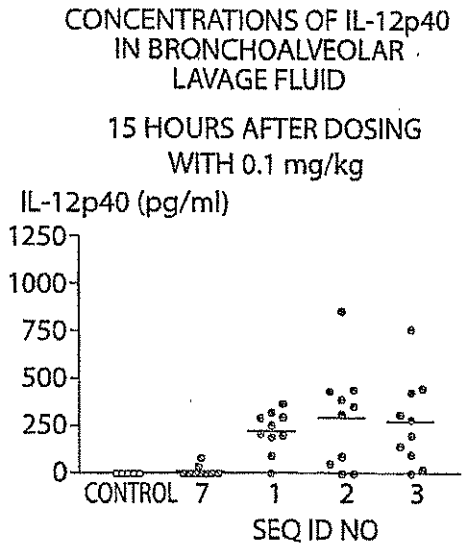


Fig. 13B

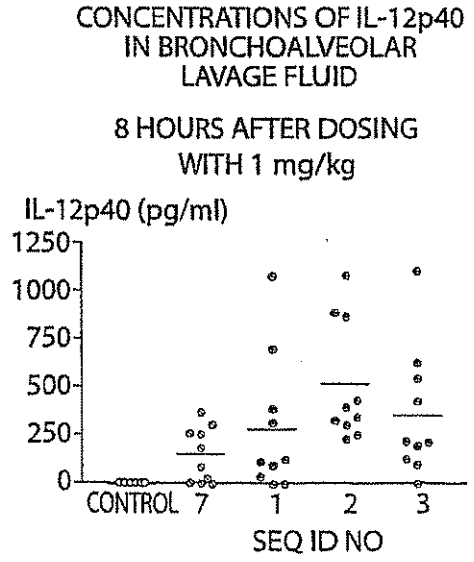


Fig. 13C

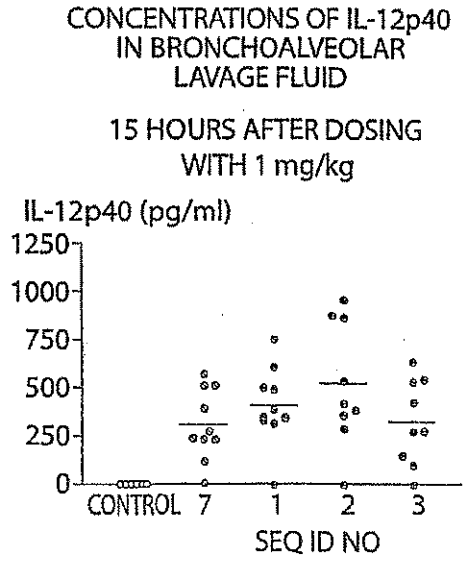


Fig. 13C

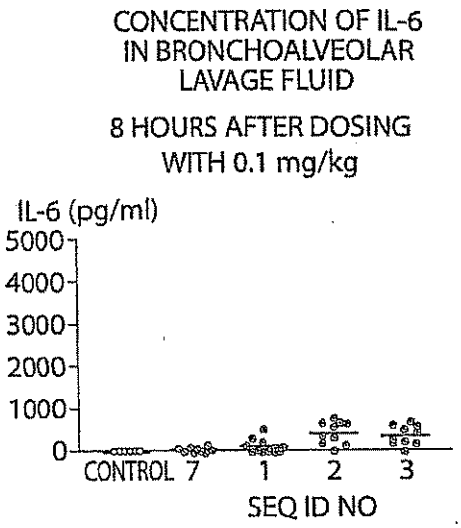


Fig. 14A

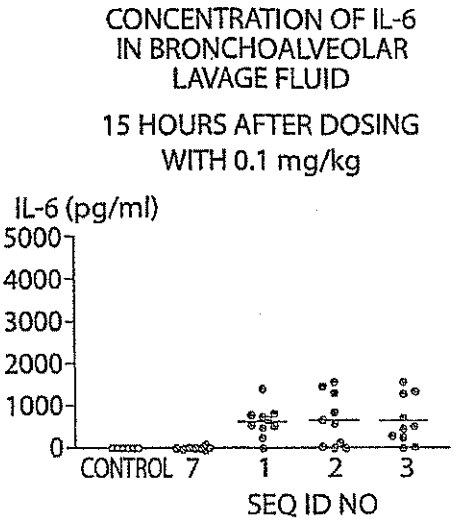


Fig. 14B

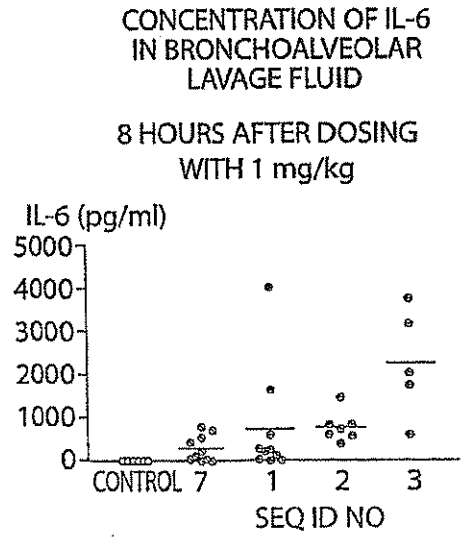


Fig. 14C

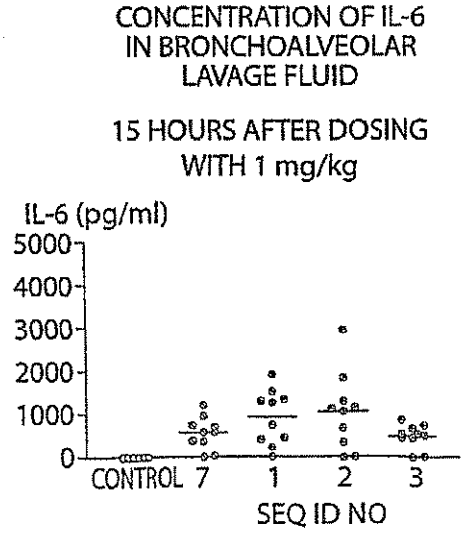


Fig. 14D

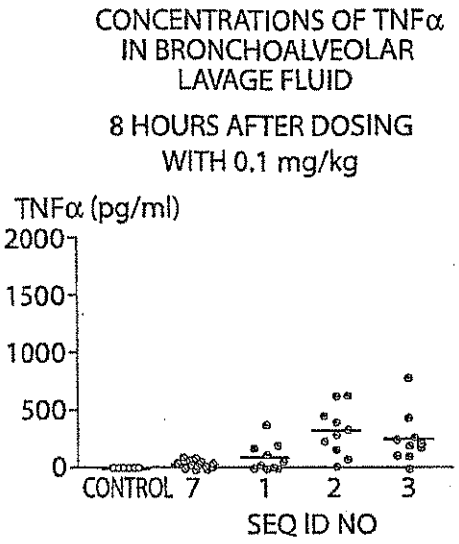


Fig. 15A

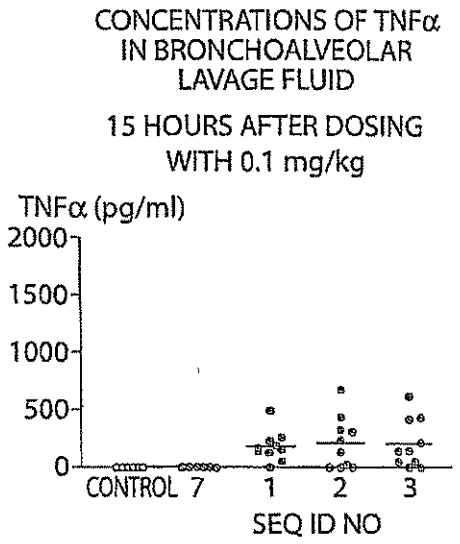


Fig. 15B

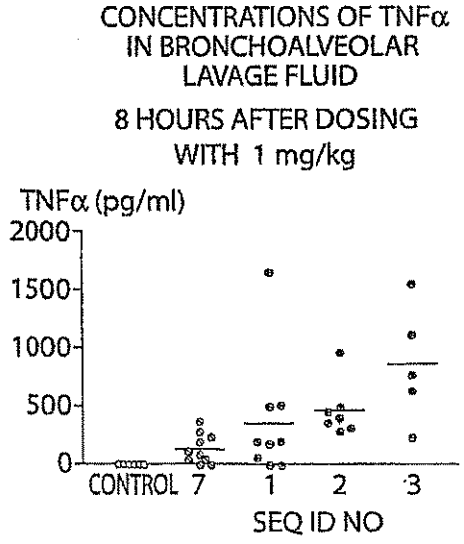


Fig. 15C

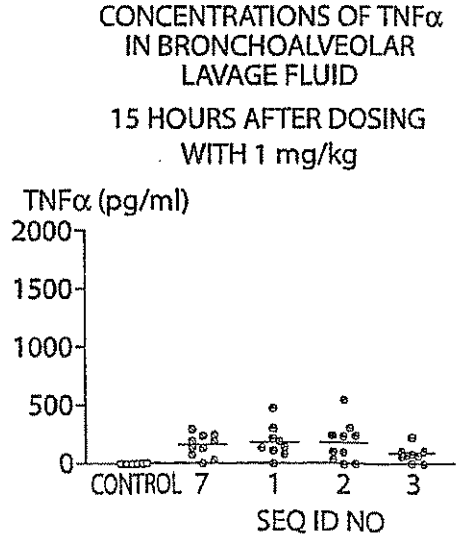


Fig. 15D

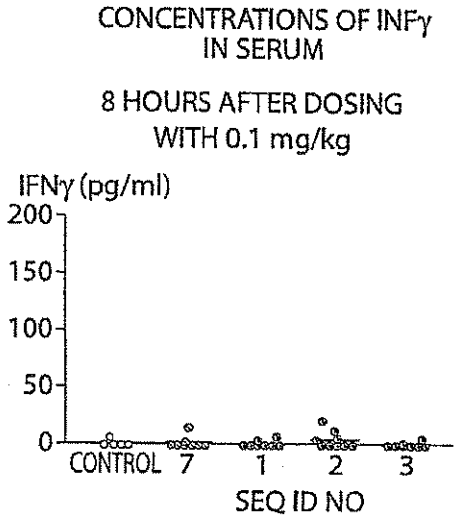


Fig. 16A

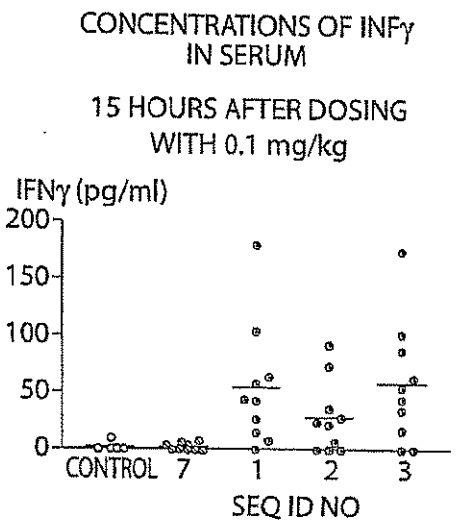


Fig. 16B

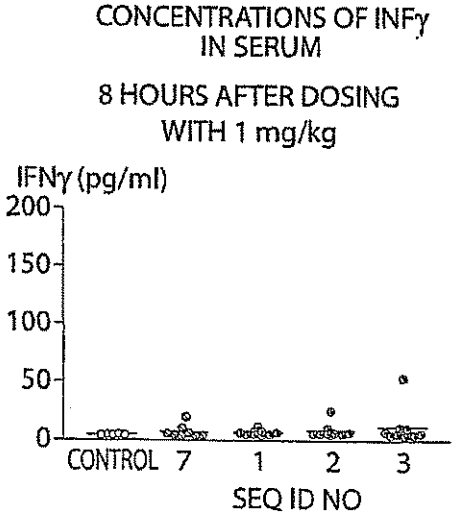


Fig. 16C

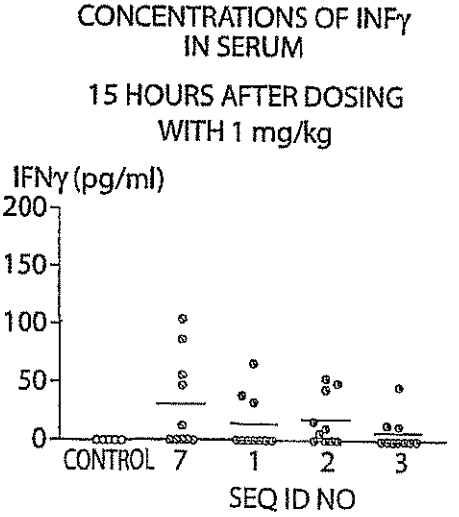


Fig. 16D

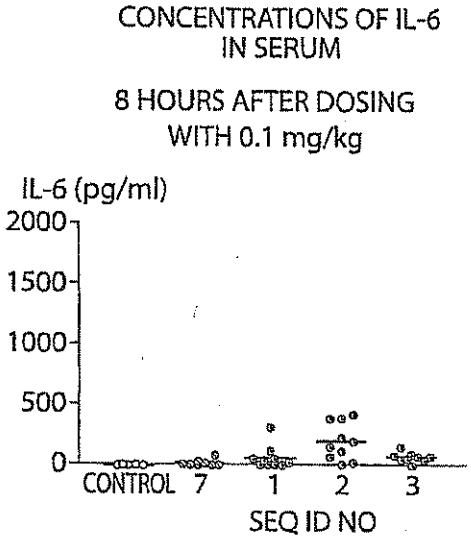


Fig. 17A

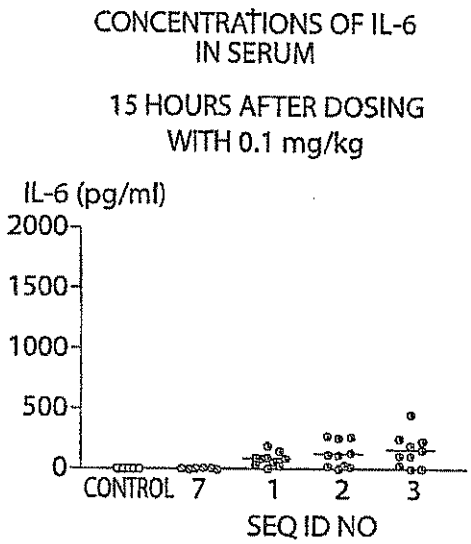


Fig. 17B

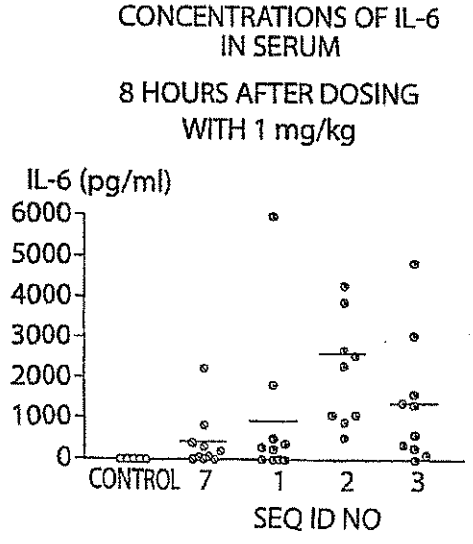


Fig. 17C

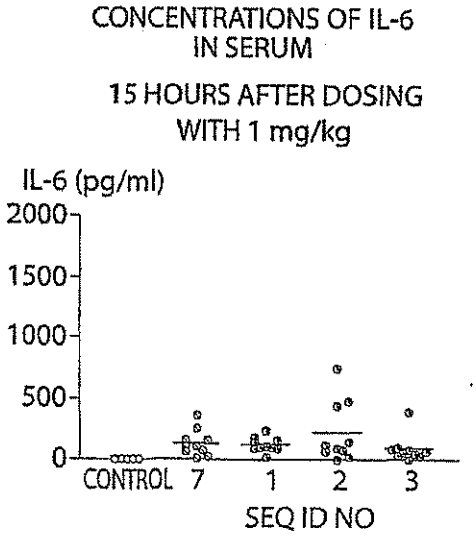


Fig. 17D

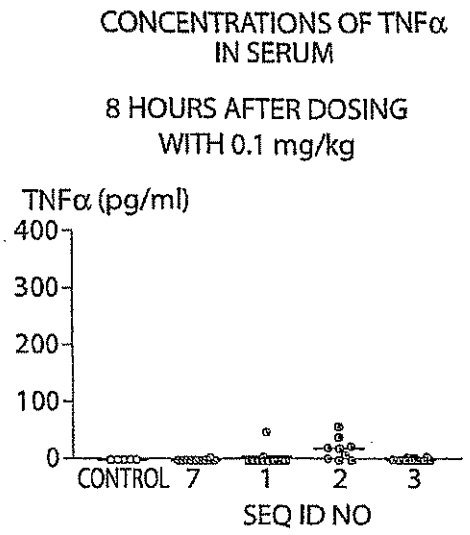


Fig. 18A

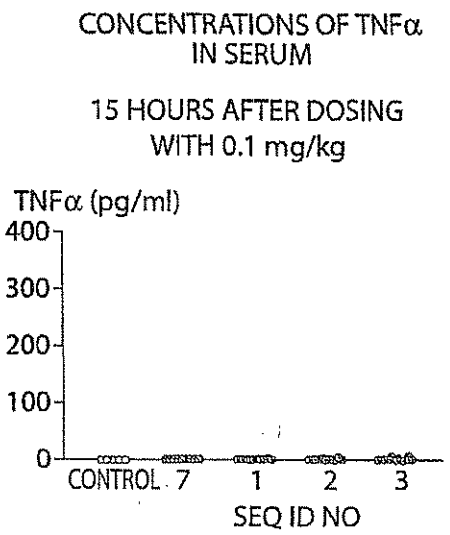


Fig. 18B

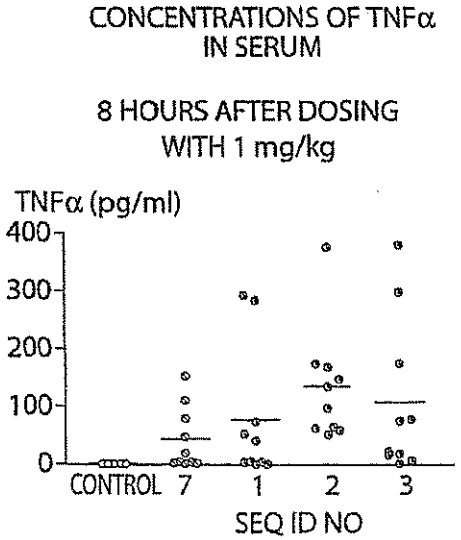


Fig. 18C

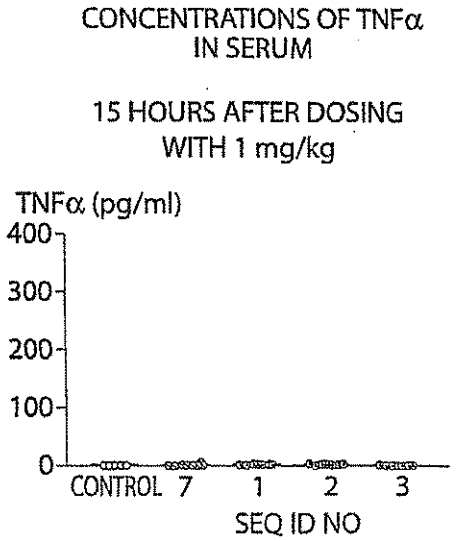


Fig. 18D

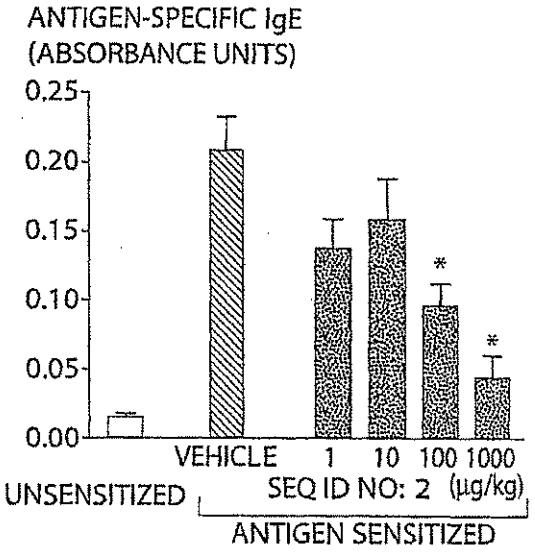


Fig. 19A

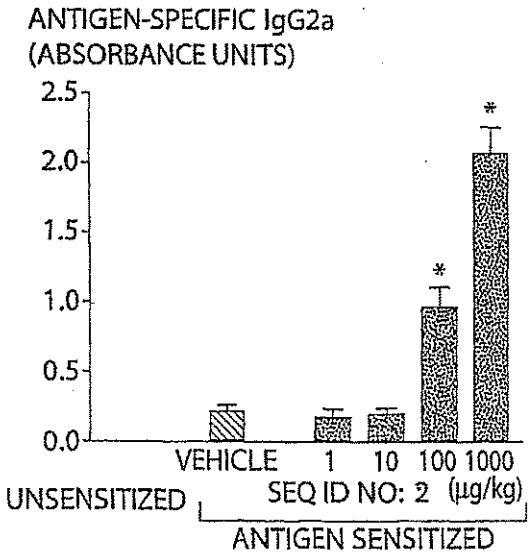


Fig. 19B

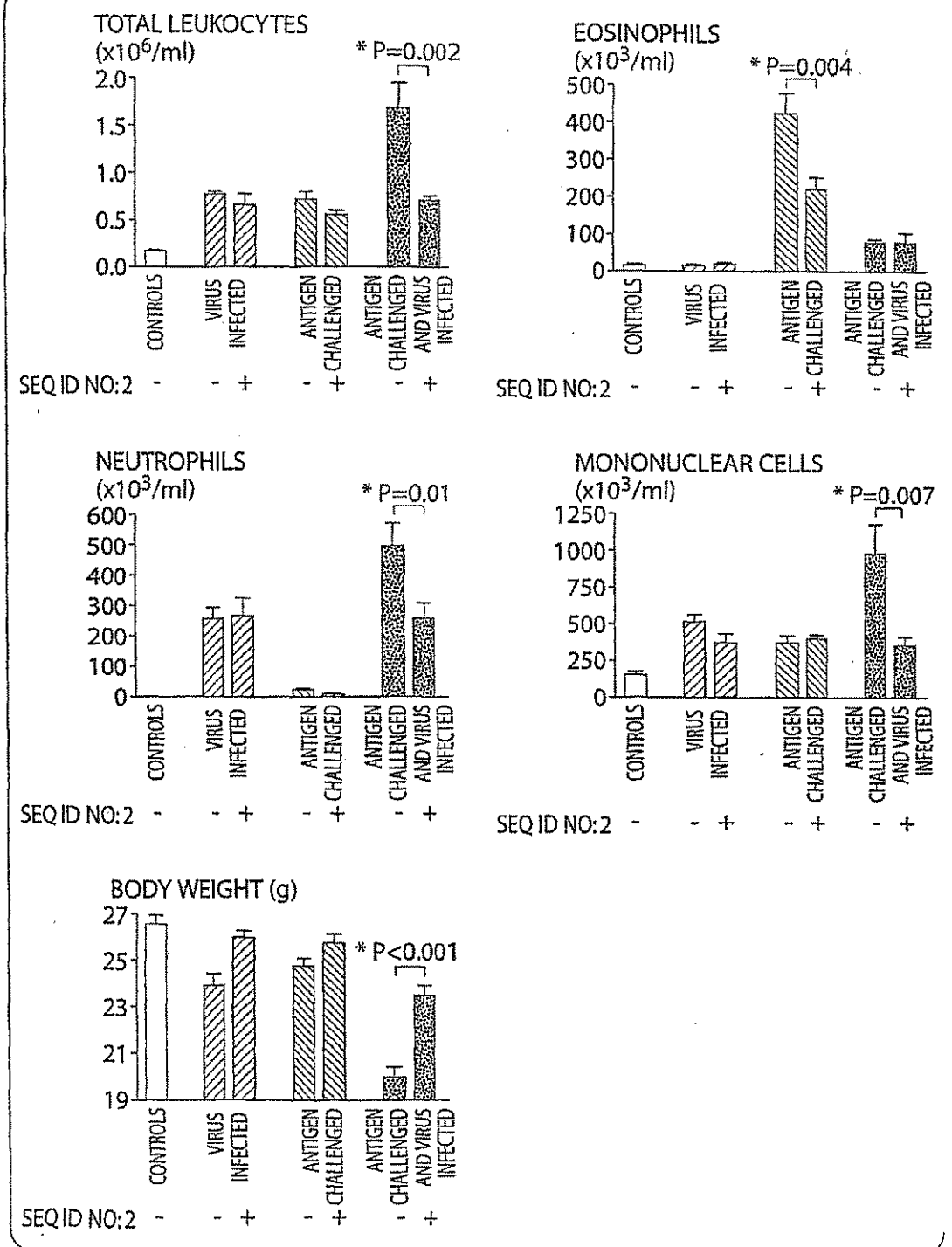

TOTAL LEUKOCYTES
(x10⁶/ml)
* P=0.002
2.0
1.5
1.0
0.5
0.0
CONTROLS
VIRUS INFECTED
ANTIGEN CHALLENGED
ANTIGEN CHALLENGED AND VIRUS INFECTED
SEQ ID NO:2 - - + - + - +
EOSINOPHILS
(x10³/ml)
* P=0.004
500
400
300
200
100
0
CONTROLS
VIRUS INFECTED
ANTIGEN CHALLENGED
ANTIGEN CHALLENGED AND VIRUS INFECTED
SEQ ID NO:2 - - + - + - +
NEUTROPHILS
(x10³/ml)
* P=0.01
600
500
400
300
200
100
0
CONTROLS
VIRUS INFECTED
ANTIGEN CHALLENGED
ANTIGEN CHALLENGED AND VIRUS INFECTED
SEQ ID NO:2 - - + - + - +
MONONUCLEAR CELLS
(x10³/ml)
* P=0.007
1250
1000
750
500
250
0
CONTROLS
VIRUS INFECTED
ANTIGEN CHALLENGED
ANTIGEN CHALLENGED AND VIRUS INFECTED
SEQ ID NO:2 - - + - + - +
BODY WEIGHT (g)
* P<0.001
27
25
23
21
19
CONTROLS
VIRUS INFECTED
ANTIGEN CHALLENGED
ANTIGEN CHALLENGED AND VIRUS INFECTED
SEQ ID NO:2 - - + - + - +

Fig. 20

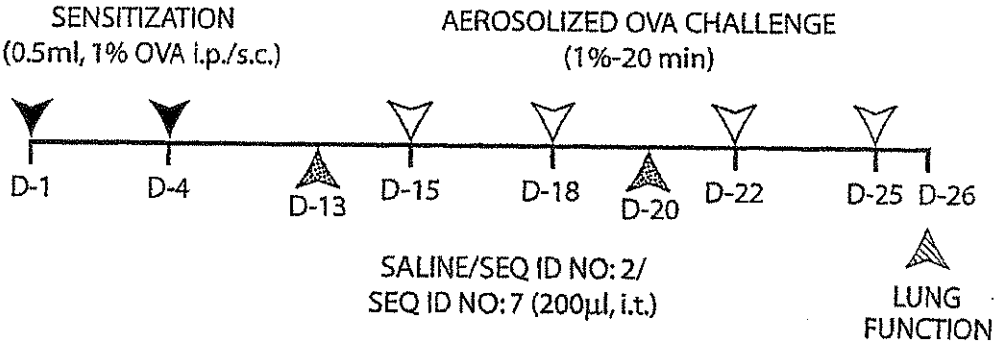

SENSITIZATION
(0.5ml, 1% OVA i.p./s.c.)
AEROSOLIZED OVA CHALLENGE
(1%-20 min)
D-1
D-4
D-13
D-15
D-18
D-20
D-22
D-25
D-26
SALINE/SEQ ID NO: 2/
SEQ ID NO: 7 (200µl, i.t.)
LUNG
FUNCTION

Fig. 21

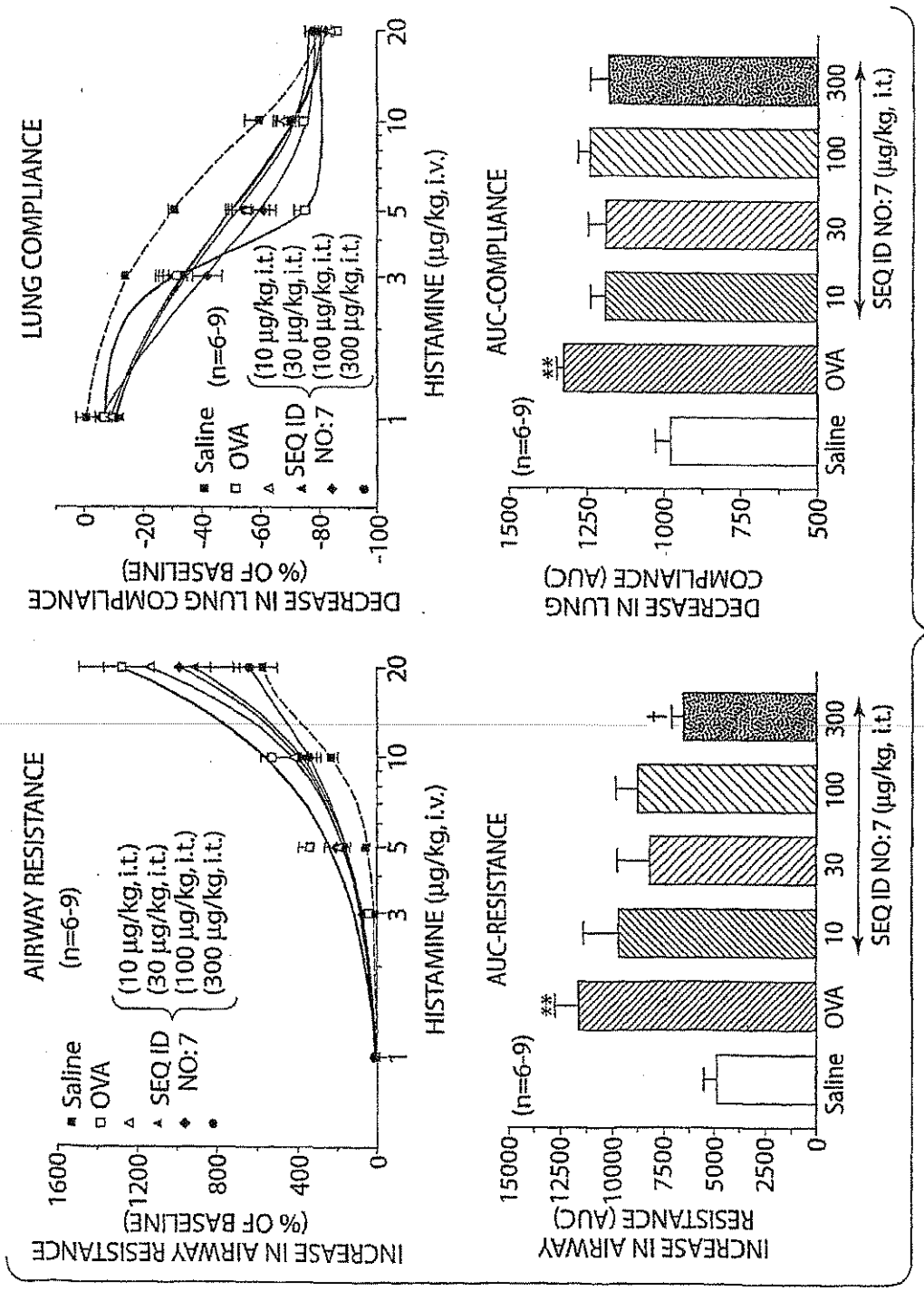

LUNG COMPLIANCE
DECREASE IN LUNG COMPLIANCE (% OF BASELINE)
HISTAMINE (µg/kg, i.v.)
Saline
OVA
SEQ ID NO:7
(n=6-9)
(10 µg/kg, i.t.)
(30 µg/kg, i.t.)
(100 µg/kg, i.t.)
(300 µg/kg, i.t.)
AUC-COMPLIANCE
DECREASE IN LUNG COMPLIANCE (AUC)
SEQ ID NO:7 (µg/kg, i.t.)
AIRWAY RESISTANCE
INCREASE IN AIRWAY RESISTANCE (% OF BASELINE)
AUC-RESISTANCE
INCREASE IN AIRWAY RESISTANCE (AUC)

Fig. 22

One-way Analysis of Variance (ANOVA)

The P value is 0.0032, considered very significant.
Variation among column means is significantly greater than expected by chance.

Dunnett Multiple Comparisons Test

Control column: OVA
If the value of q is greater than 2.632 then the P value is less than 0.05.

Comparison		Mean Difference	q	P value
OVA vs SAL		6783.6	4.311	** P<0.01
OVA vs	10upk	1943.2	1.191	ns P>0.05
OVA vs SEQ ID	30upk	3482.7	2.134	ns P>0.05
OVA vs NO:7	100upk	2900.9	1.700	ns P>0.05
OVA vs	300upk	5095.1	2.986	* P<0.05

Difference		Mean Difference	Lower 95% CI	Upper 95% CI
OVA - SAL		6783.6	2642.4	10925
OVA	-10upk	1943.2	-2351.8	6238.1
OVA SEQ ID	-30upk	3482.7	-812.18	7777.6
OVA NO:7	-100upk	2900.9	-1590.8	7392.7
OVA	-300upk	5095.1	603.3	9586.8

Assumption test: Are the standard deviations of the groups equal?

Fig. 23A

One-way Analysis of Variance (ANOVA)

The P value is 0.0001, considered extremely significant.
Variation among column means is significantly greater than expected by chance.

Dunnett Multiple Comparisons Test

Control column: OVA
If the value of q is greater than 2.632 then the P value is less than 0.05.

Comparison		Mean Difference	q	P value
OVA vs SAL		344.57	5.770	** P<0.01
OVA vs SEQ ID NO:7	10upk	135.02	2.180	ns P>0.05
OVA vs SEQ ID NO:7	30upk	133.59	2.157	ns P>0.05
OVA vs SEQ ID NO:7	100upk	81.278	1.255	ns P>0.05
OVA vs SEQ ID NO:7	300upk	142.28	2.197	ns P>0.05

Difference		Mean Difference	Lower 95% CI	Upper 95% CI
OVA - SAL		344.57	187.41	501.73
OVA - SEQ ID NO:7	-10upk	135.02	-27.982	298.01
OVA - SEQ ID NO:7	-30upk	133.59	-29.410	296.58
OVA - SEQ ID NO:7	-100upk	81.278	-89.189	251.74
OVA - SEQ ID NO:7	-300upk	142.28	-28.189	312.74

Assumption test: Are the standard deviations of the groups equal?

Fig. 23B

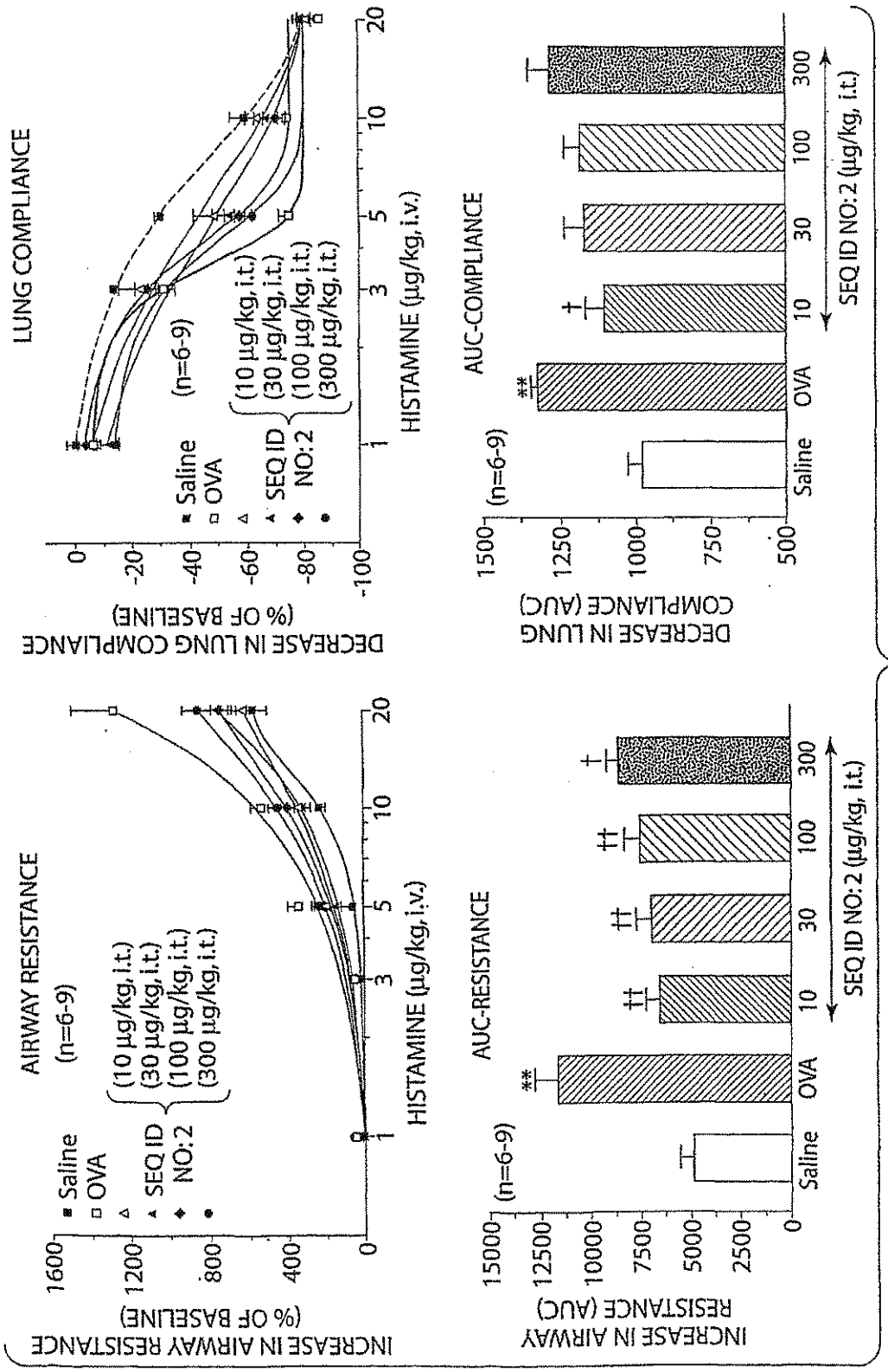

LUNG COMPLIANCE
DECREASE IN LUNG COMPLIANCE (% OF BASELINE)
HISTAMINE (µg/kg, i.v.)
Saline
OVA
SEQ ID NO: 2
(10 µg/kg, i.t.)
(30 µg/kg, i.t.)
(100 µg/kg, i.t.)
(300 µg/kg, i.t.)
(n=6-9)
AUC-COMPLIANCE
DECREASE IN LUNG COMPLIANCE (AUC)
SEQ ID NO: 2 (µg/kg, i.t.)
AIRWAY RESISTANCE
INCREASE IN AIRWAY RESISTANCE (% OF BASELINE)
AUC-RESISTANCE
INCREASE IN AIRWAY RESISTANCE (AUC)

Fig. 24

One-way Analysis of Variance (ANOVA)

The P value is < 0.0001, considered extremely significant.
Variation among column means is significantly greater than expected by chance.

Dunnett Multiple Comparisons Test

Control column: OVA
If the value of q is greater than 2.620 then the P value is less than 0.05.

Comparison		Mean Difference	q	P value
OVA vs SAL		6783.6	6.220	** P<0.01
OVA vs SEQ ID NO: 2	-10upk	5140.3	4.346	** P <0.01
OVA vs SEQ ID NO: 2	-30upk	4723.6	4.176	** P <0.01
OVA vs SEQ ID NO: 2	-100upk	4100.3	3.760	** P <0.01
OVA vs SEQ ID NO: 2	-300upk	3032.2	2.780	* P <0.05

Difference		Mean Difference	Lower 95% CI	Upper 95% CI
OVA - SAL		6783.6	3926.4	9640.8
OVA - SEQ ID NO: 2	-10upk	5140.3	2041.2	8239.3
OVA - SEQ ID NO: 2	-30upk	4723.6	1760.3	7686.8
OVA - SEQ ID NO: 2	-100upk	4100.3	1243.1	6957.5
OVA - SEQ ID NO: 2	-300upk	3032.2	175.01	5889.4

Assumption test: Are the standard deviations of the groups equal?

Fig. 25A

One-way Analysis of Variance (ANOVA)

The P value is 0.0003, considered extremely significant.
Variation among column means is significantly greater than expected by chance.

Dunnett Multiple Comparisons Test

Control column: OVA
If the value of q is greater than 2.620 then the P value is less than 0.05.

Comparison		Mean Difference	q	P value
OVA vs SAL		344.57	4.854	** P <0.01
OVA vs SEQ ID NO: 2	-10upk	217.61	2.826	* P <0.05
OVA vs SEQ ID NO: 2	-30upk	151.02	2.051	ns P >0.05
OVA vs SEQ ID NO: 2	-100upk	137.94	1.943	ns P >0.05
OVA vs SEQ ID NO: 2	-300upk	35.569	0.5011	ns P >0.05

Difference		Mean Difference	Lower 95% CI	Upper 95% CI
OVA - SAL		344.57	158.59	530.55
OVA - SEQ ID NO: 2	-10upk	217.61	15.892	419.33
OVA - SEQ ID NO: 2	-30upk	151.02	-41.864	343.90
OVA - SEQ ID NO: 2	-100upk	137.94	-48.031	323.92
OVA - SEQ ID NO: 2	-300upk	35.569	-150.41	221.55

Assumption test: Are the standard deviations of the groups equal?

Fig. 25B

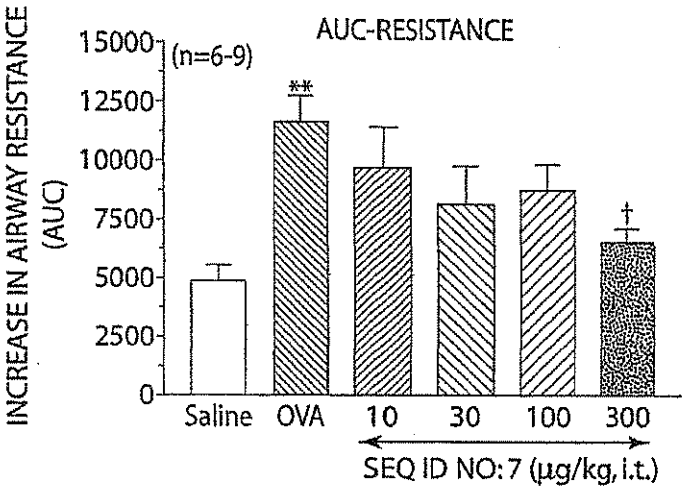


Fig. 26A

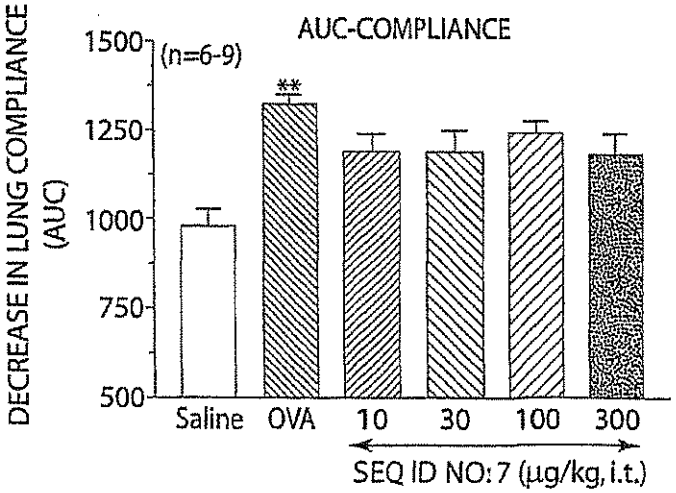


Fig. 26B

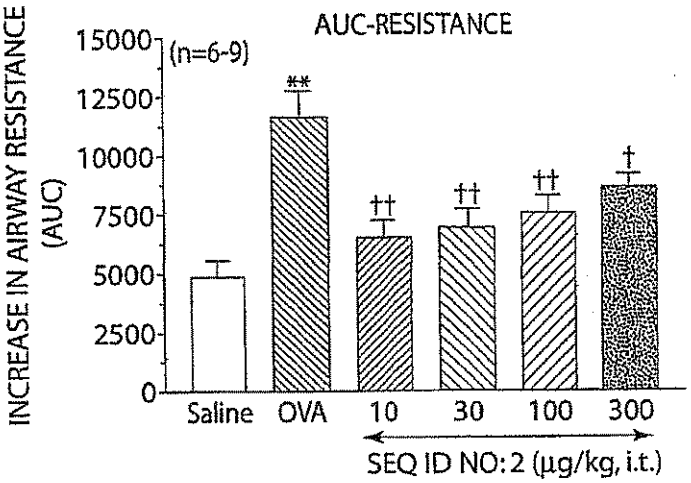


Fig. 26C

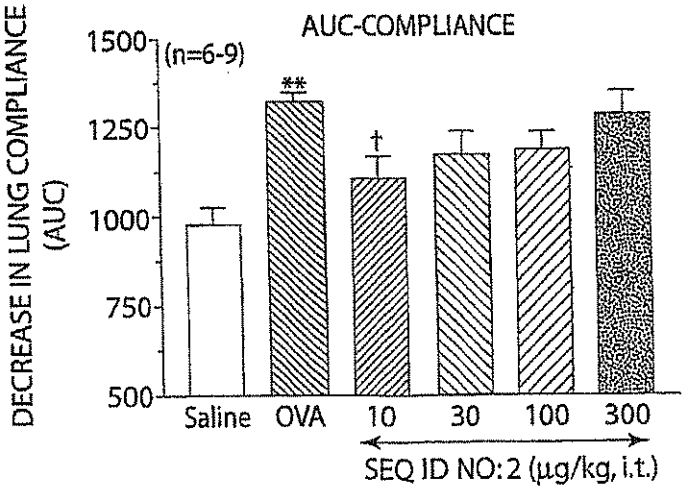


Fig. 26D

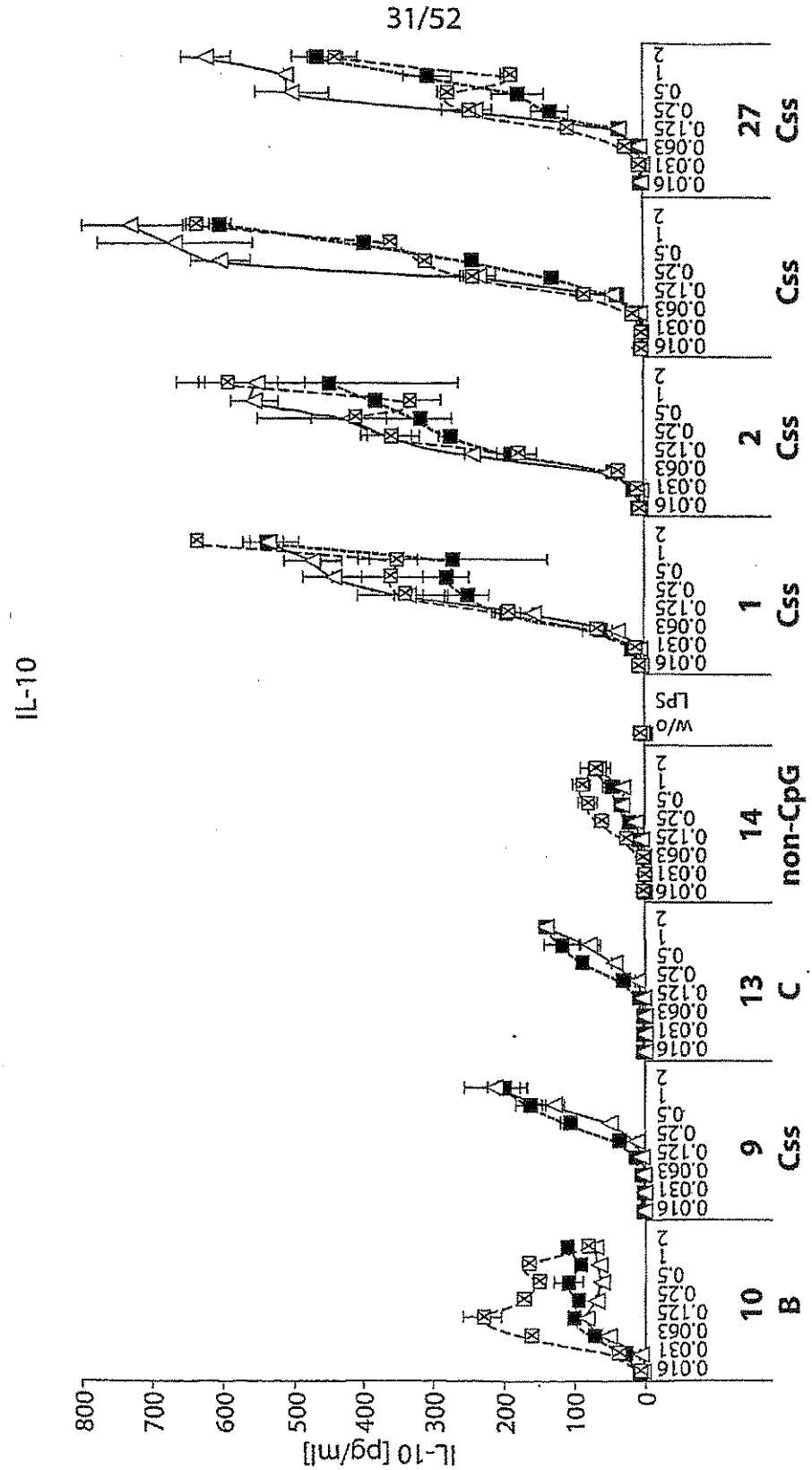

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Css
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C
14
non-CpG
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Css
2
Css
w/o LPS
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1
2

Fig. 27

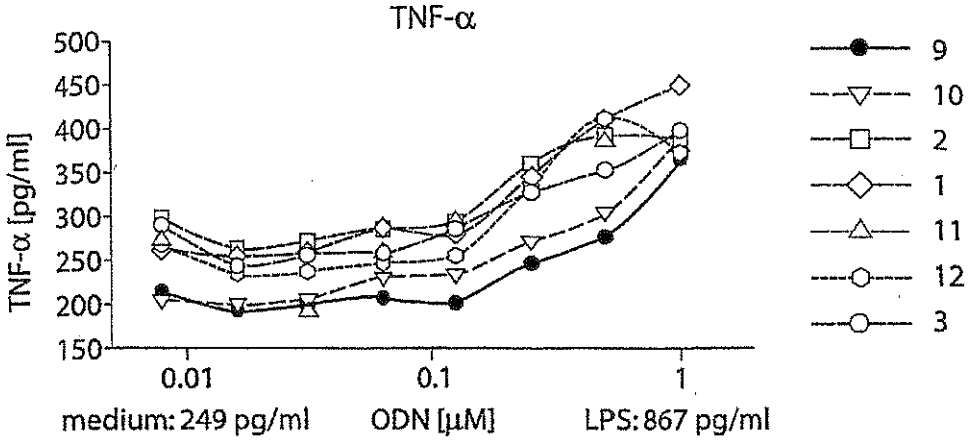


Fig. 28A

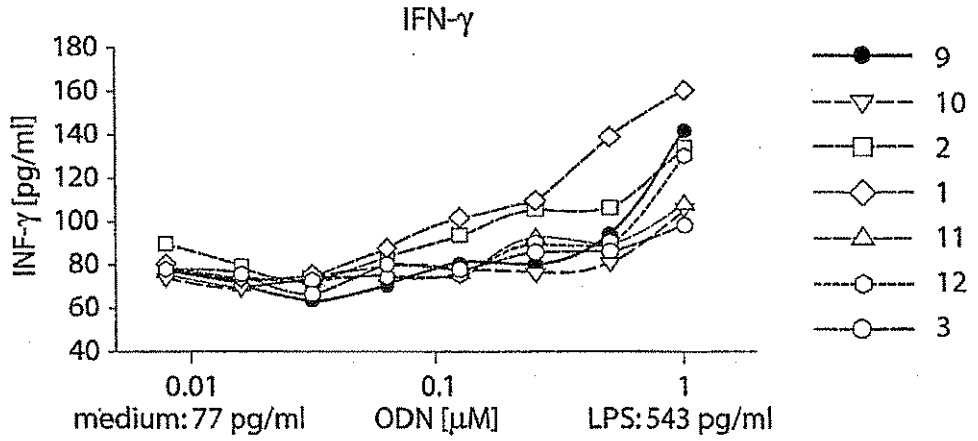


Fig. 28B

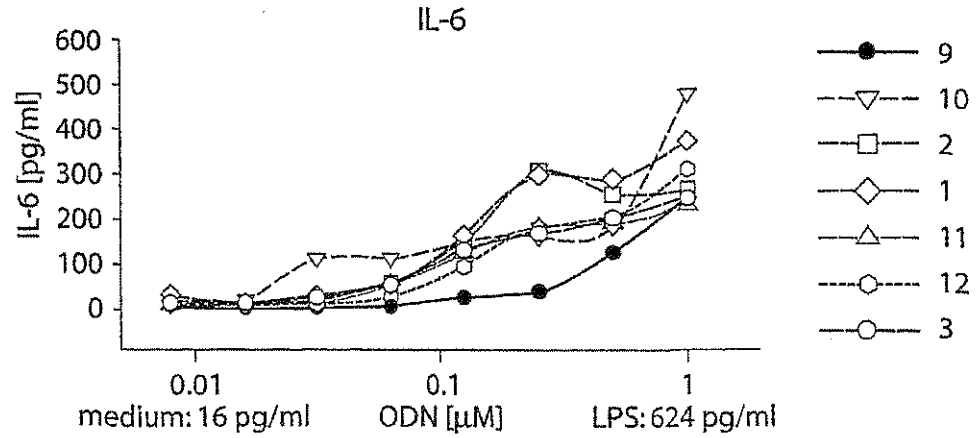


Fig. 28C

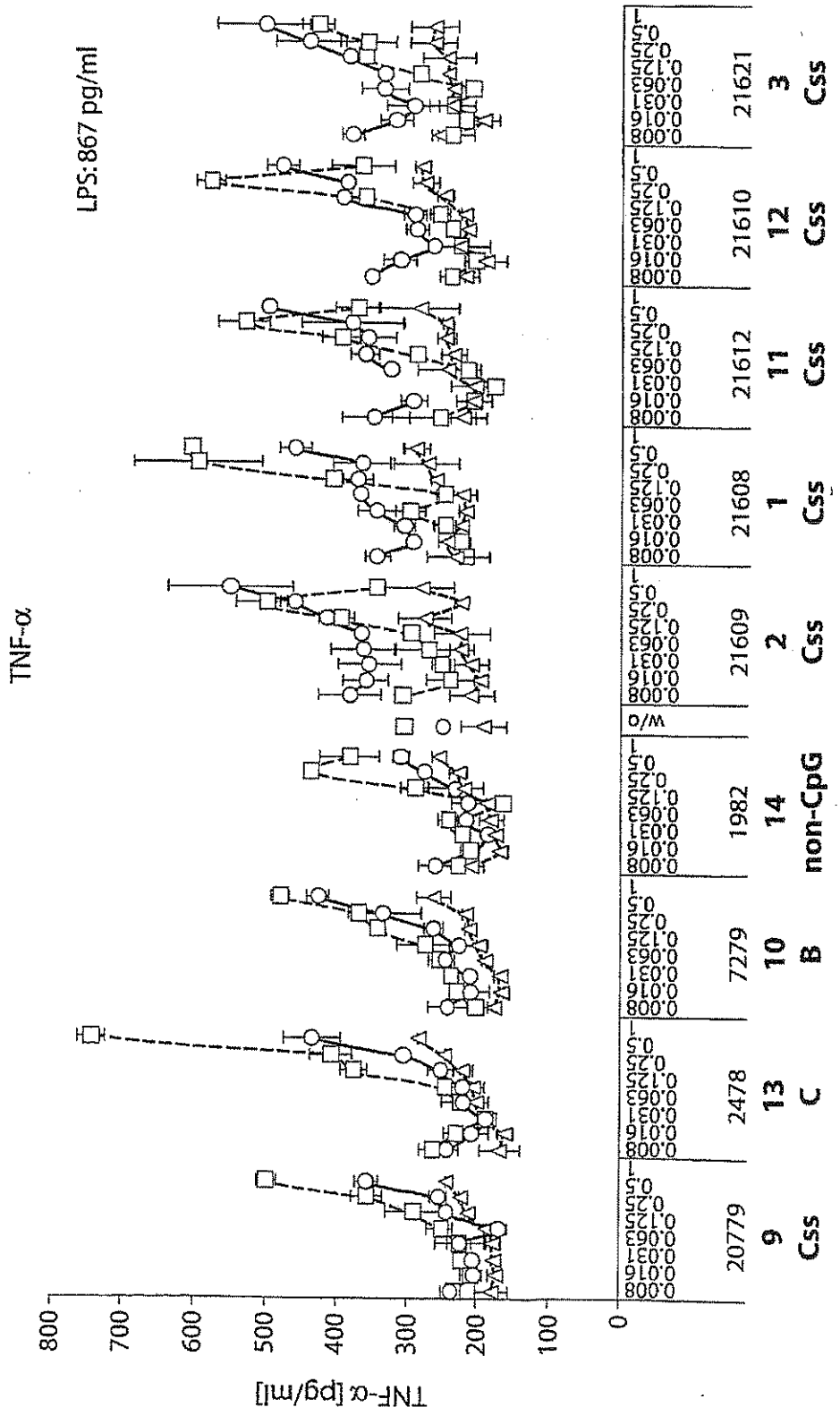

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TNF-α [pg/ml]
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400
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200
100
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13 C 2478
10 B 7279
14 non-CpG 1982
w/o
2 Css 21609
1 Css 21608
11 Css 21612
12 Css 21610
3 Css 21621
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0.063
0.125
0.25
0.5
1

Fig.29

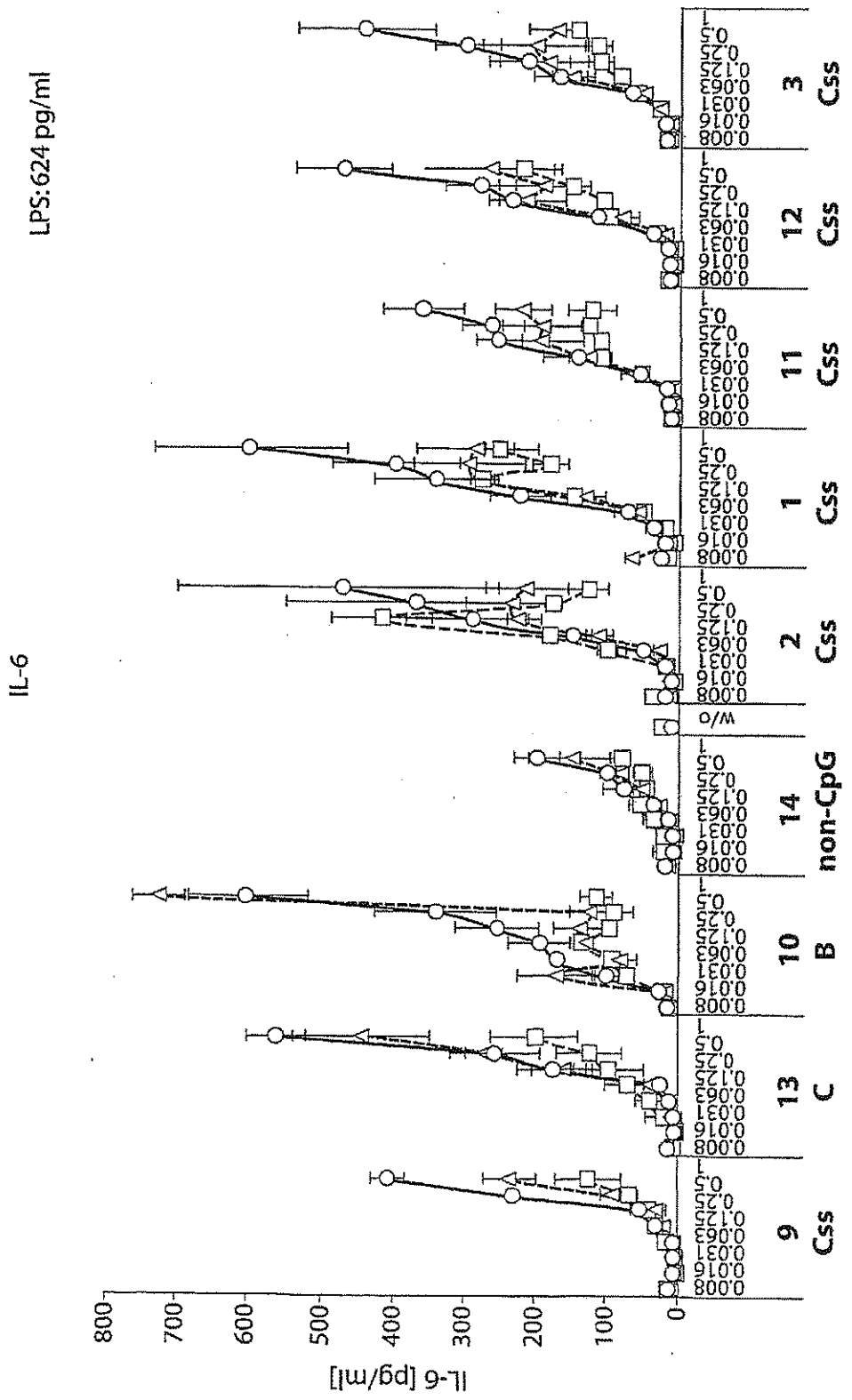

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w/o
2 Css
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0.5
1

Fig. 30

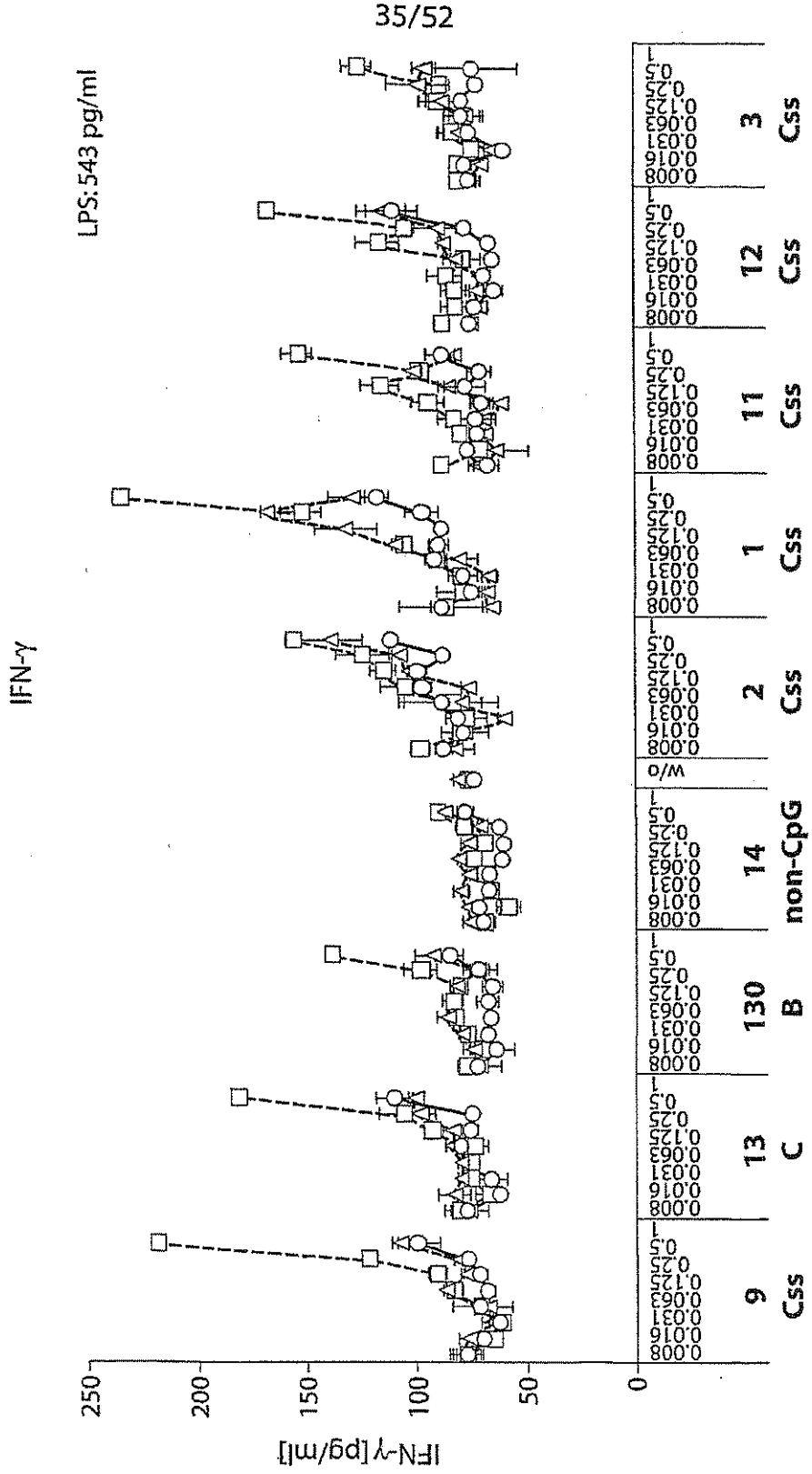

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IFN-γ
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130
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w/o
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C
B
non-CpG
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Fig. 31

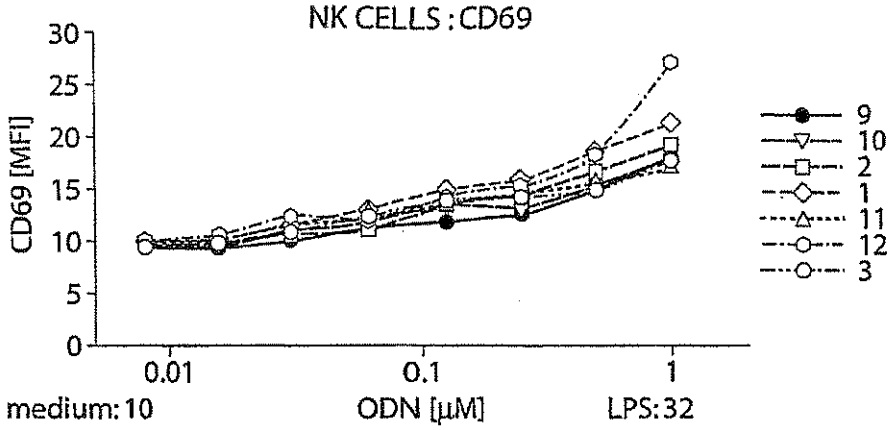


Fig. 32A

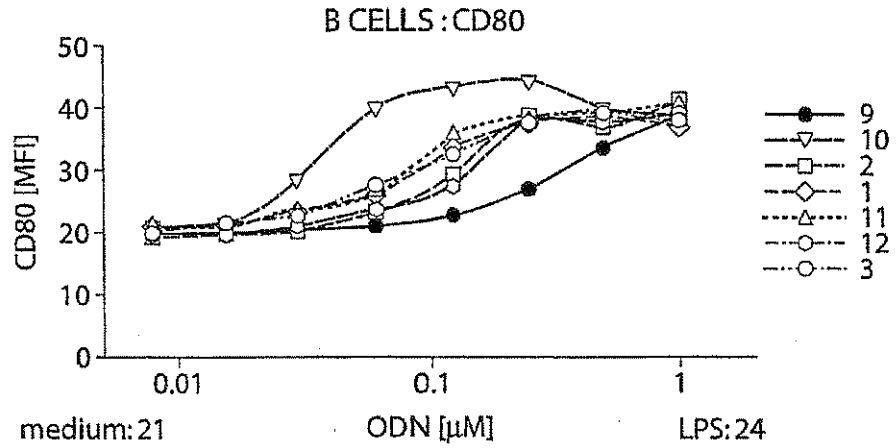


Fig. 32B

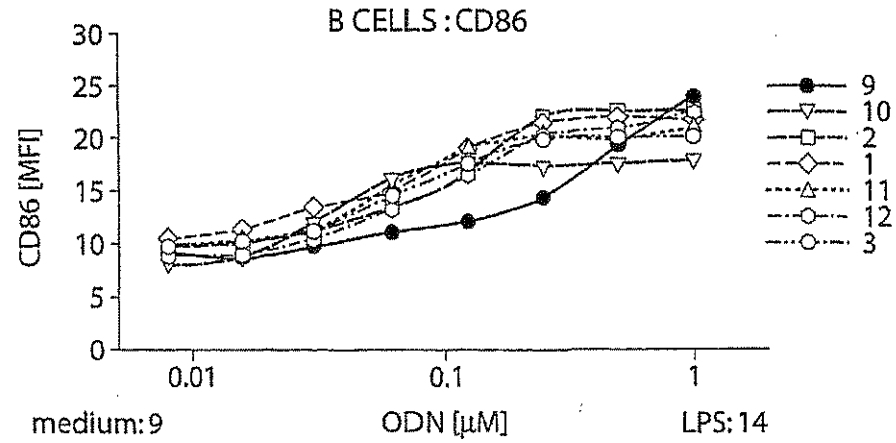


Fig. 32C

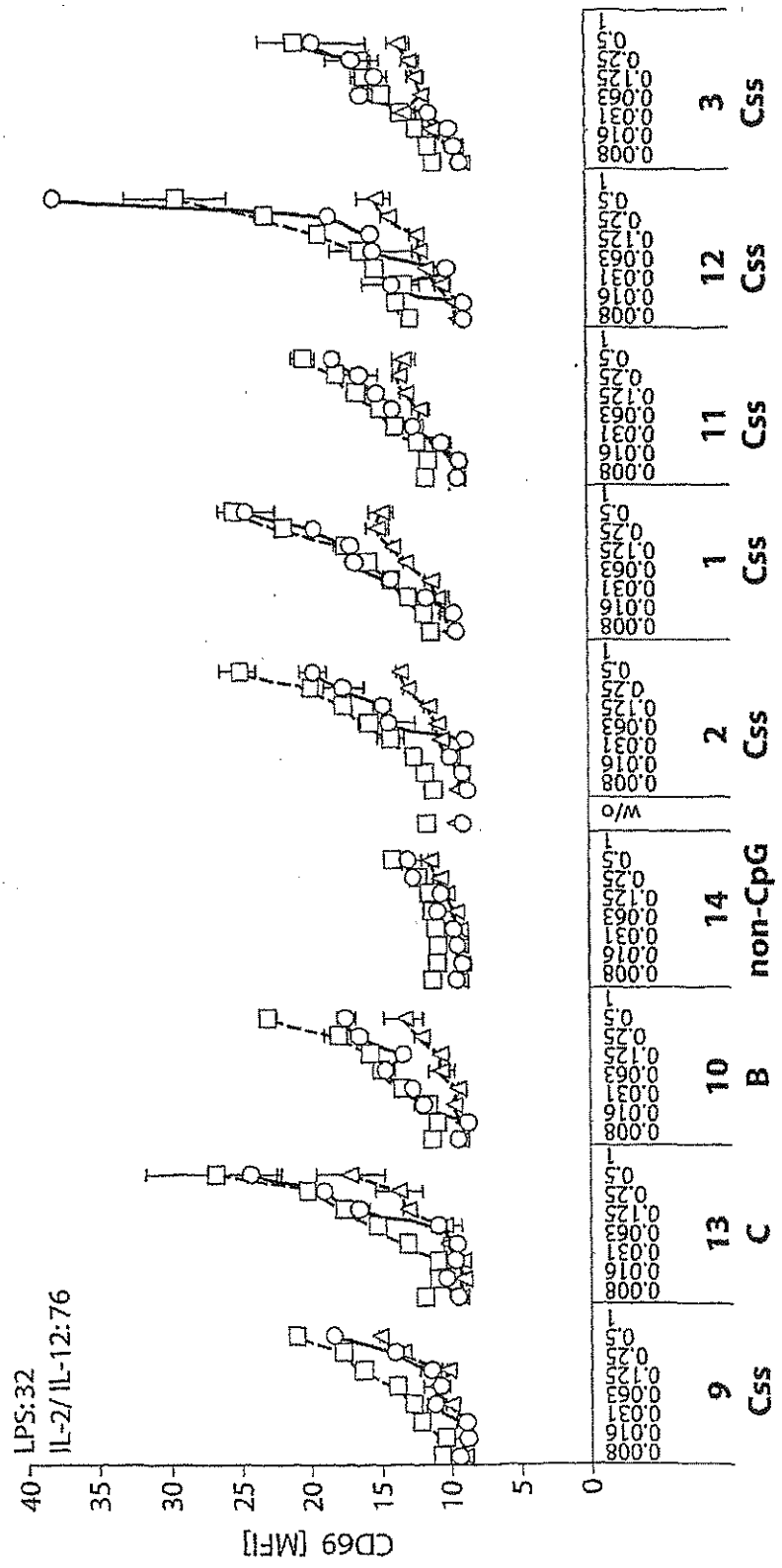

NK CELL ACTIVATION: CD69
LPS:32
IL-2/IL-12:76
CD69 [MFI]
40
35
30
25
20
15
10
5
0
9
13
10
14
2
1
11
12
3
Css
C
B
non-CpG
Css
Css
Css
Css
w/o
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 33

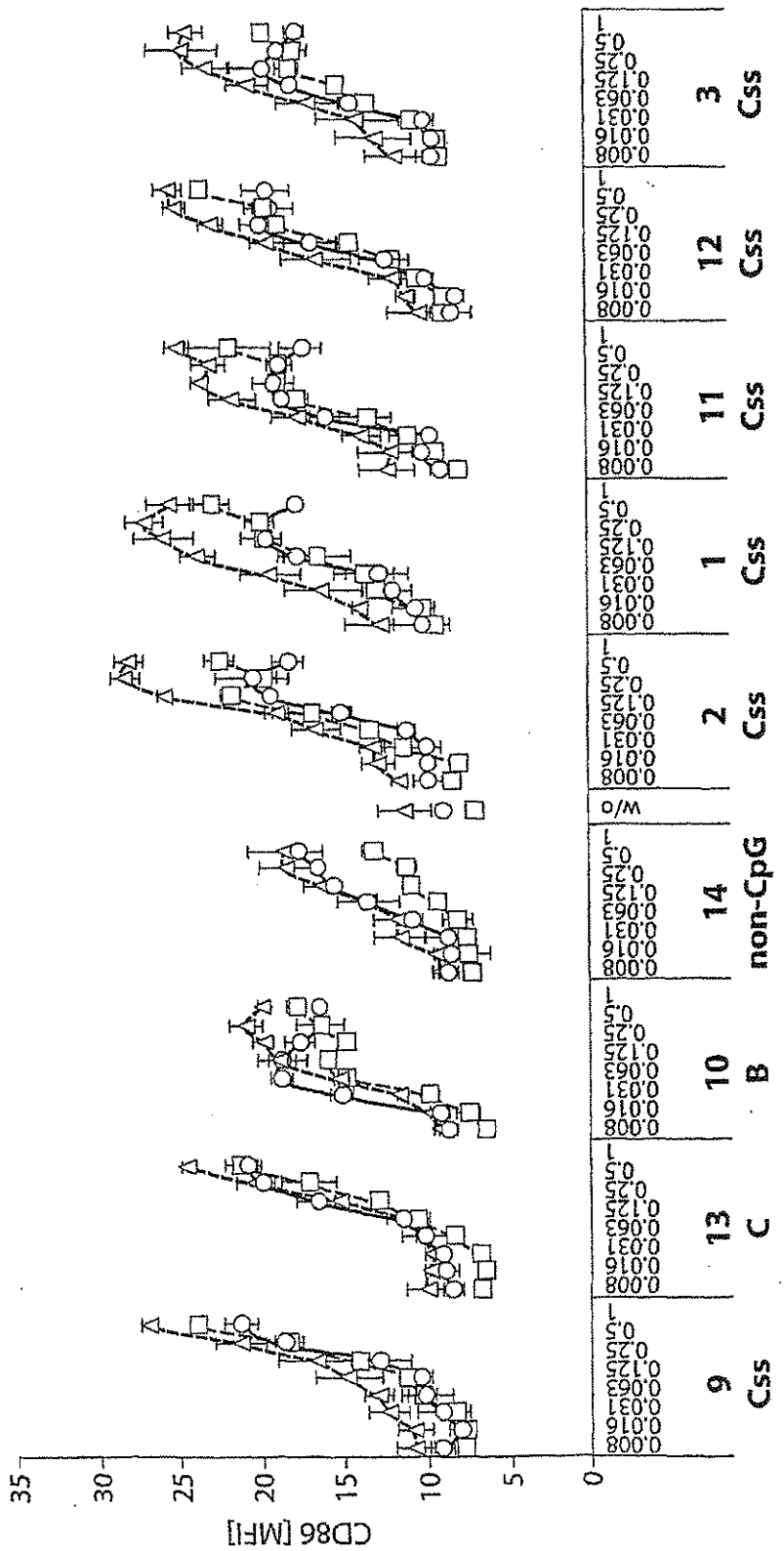

B CELL ACTIVATION:CD86
CD86 [MFI]
35
30
25
20
15
10
5
0
9 Css
13 C
10 B
14 non-CpG
w/o
2 Css
1 Css
11 Css
12 Css
3 Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 34

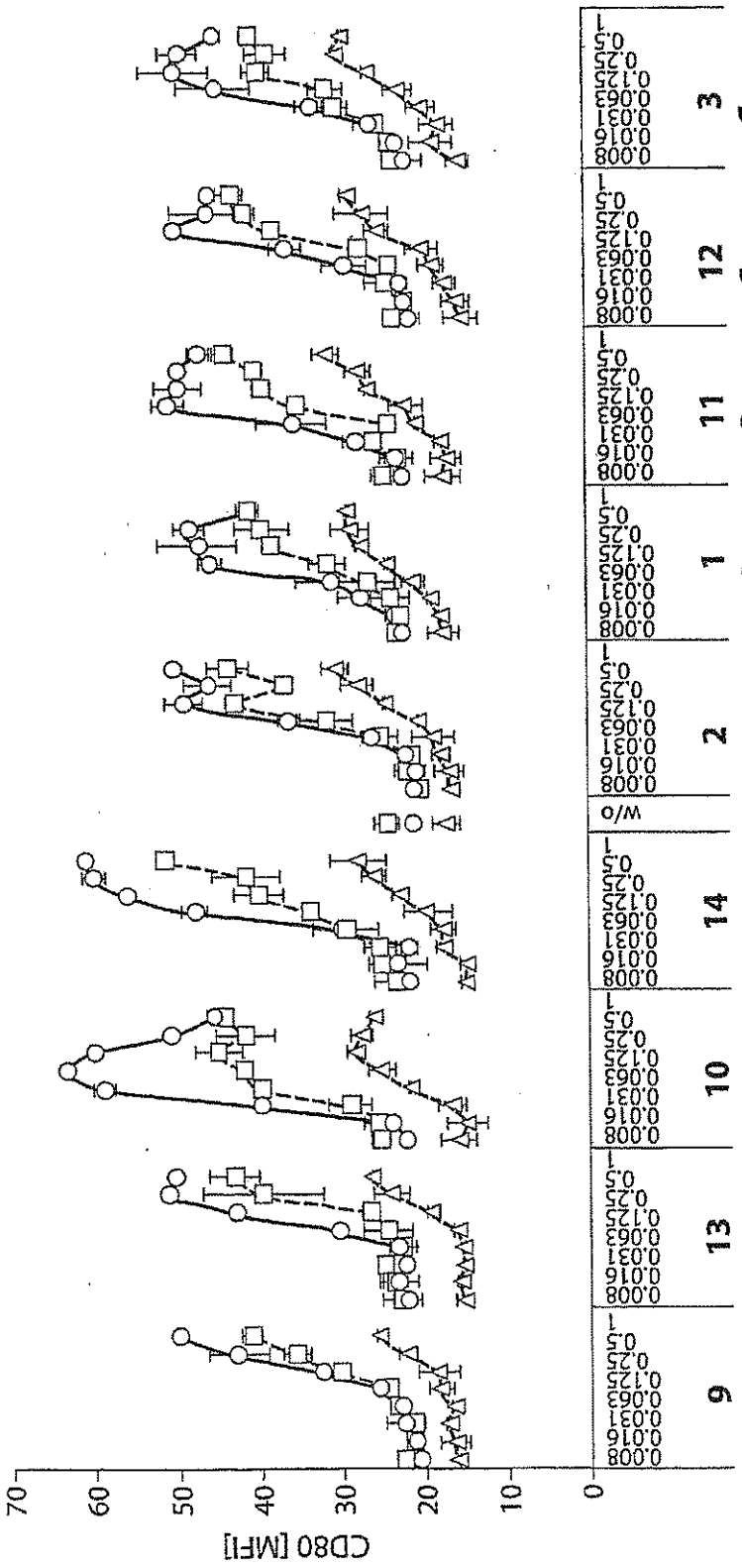

B CELL ACTIVATION: CD80
CD80 [MFI]
70
60
50
40
30
20
10
0
9
13
10
14
2
1
11
12
3
Css
C
B
non-CpG
w/o
Css
Css
Css
Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 35

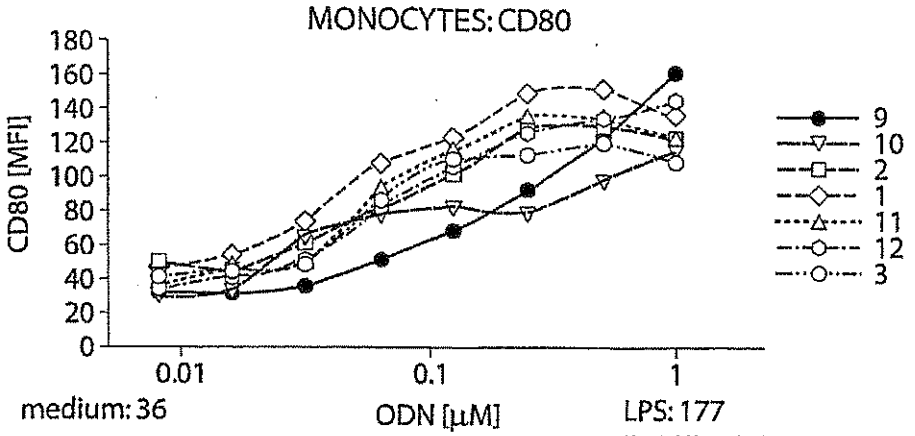


Fig. 36A

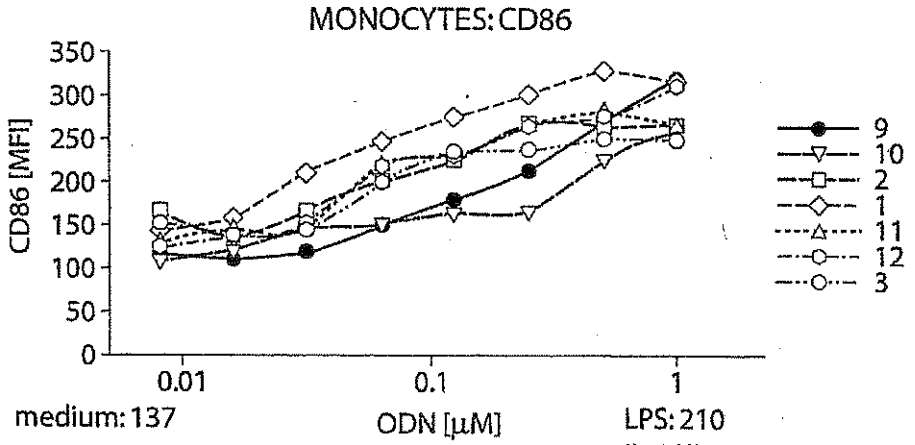


Fig. 36B

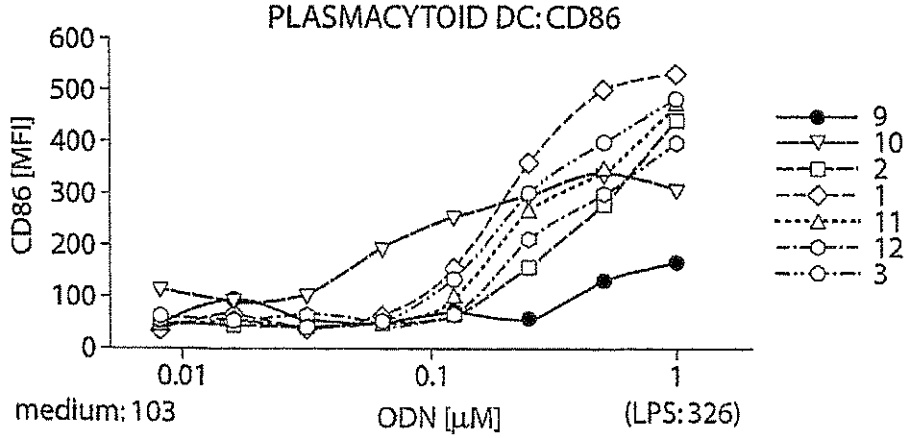


Fig. 36C

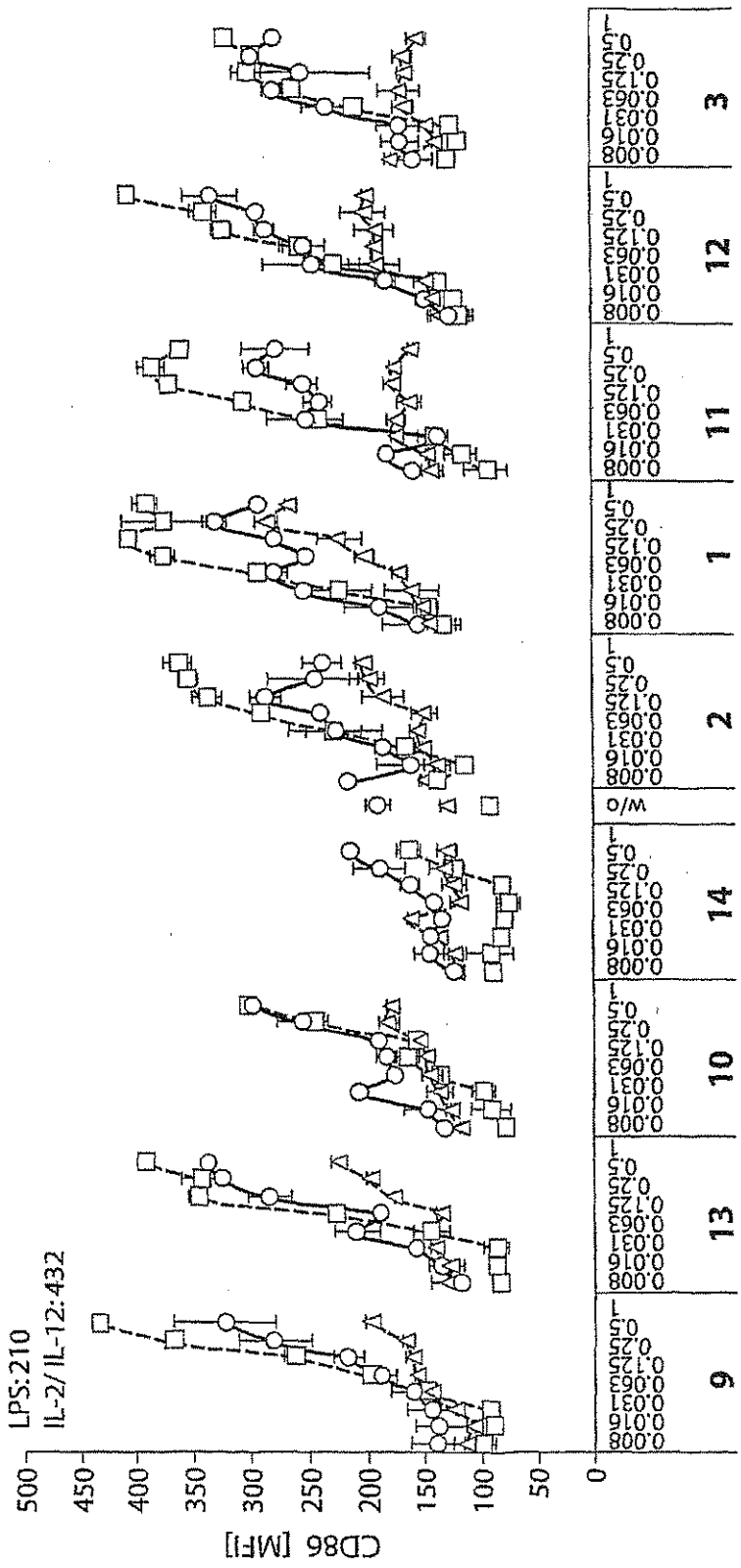

MONOCYTE ACTIVATION:CD86
LPS:210
IL-2/IL-12:432
CD86 [MFI]
500
450
400
350
300
250
200
150
100
50
0
9
13
10
14
2
1
11
12
3
Css
C
B
non-CpG
w/o
Css
Css
Css
Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 37

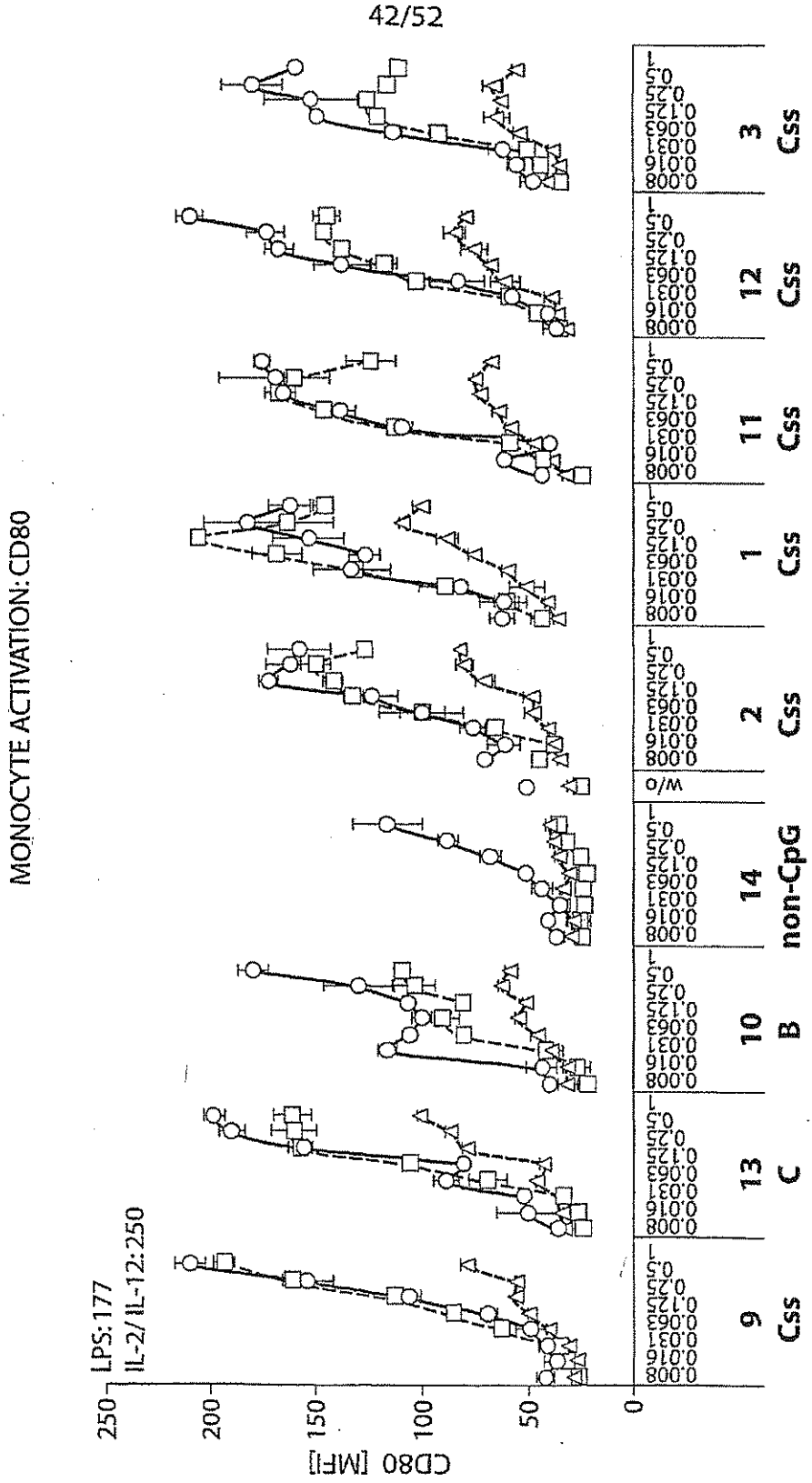

MONOCYTE ACTIVATION: CD80
LPS: 177
IL-2/IL-12: 250
CD80 [MFI]
250
200
150
100
50
0
9
13
10
14
2
1
11
12
3
Css
C
B
non-CpG
w/o
Css
Css
Css
Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 38

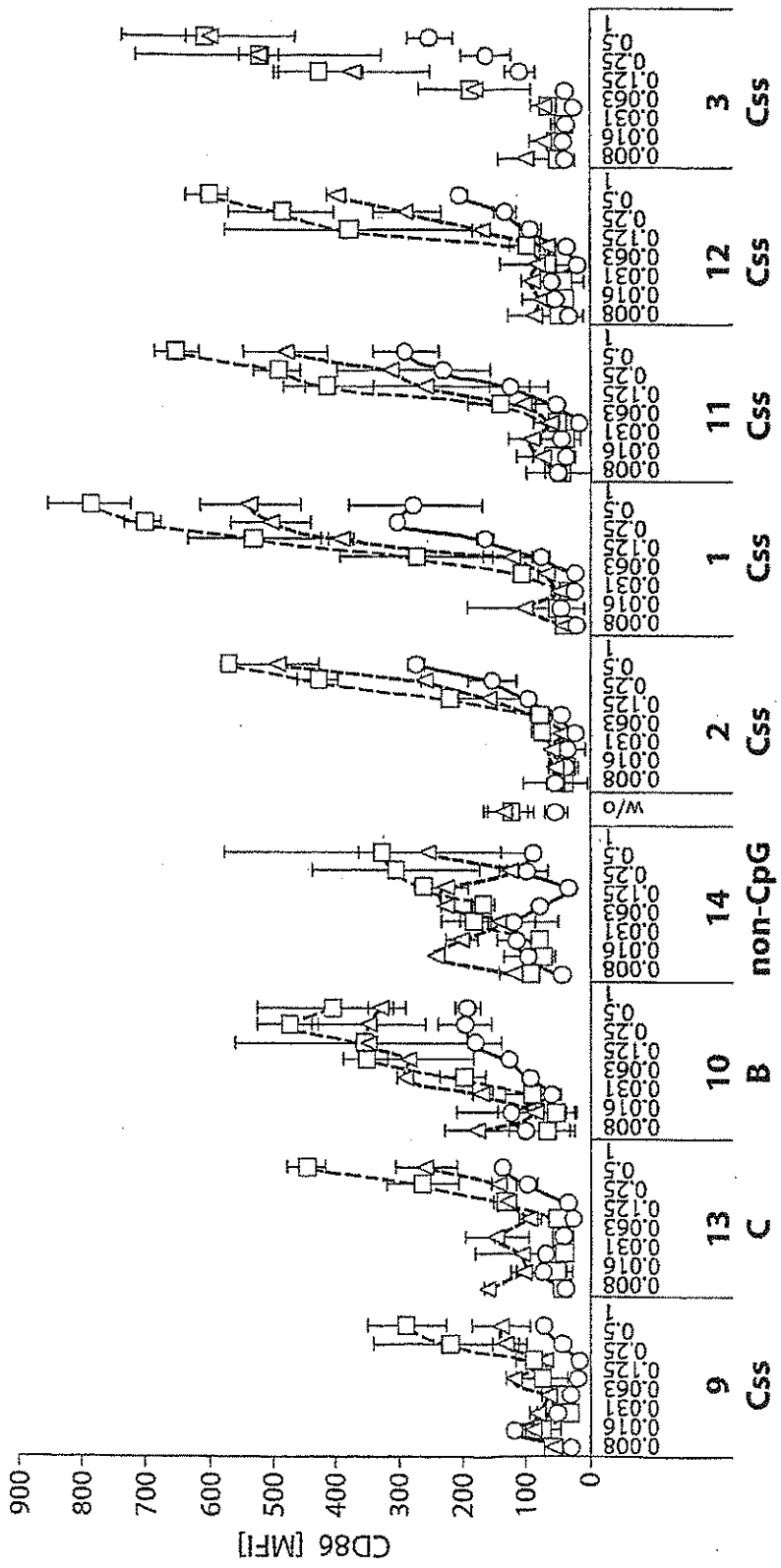

pDC ACTIVATION: CD86
CD86 [MFI]
0
100
200
300
400
500
600
700
800
900
9
13
10
14
w/o
2
1
11
12
3
Css
C
B
non-CpG
Css
Css
Css
Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 39

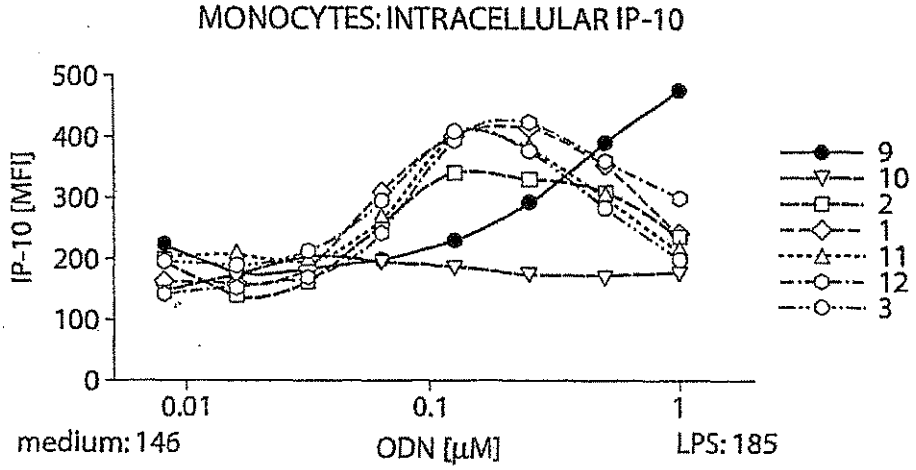


Fig. 40A

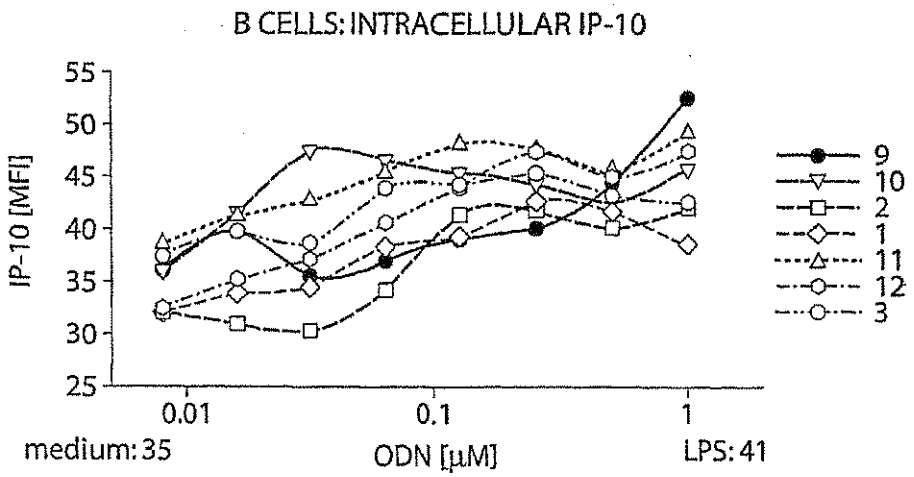


Fig. 40B

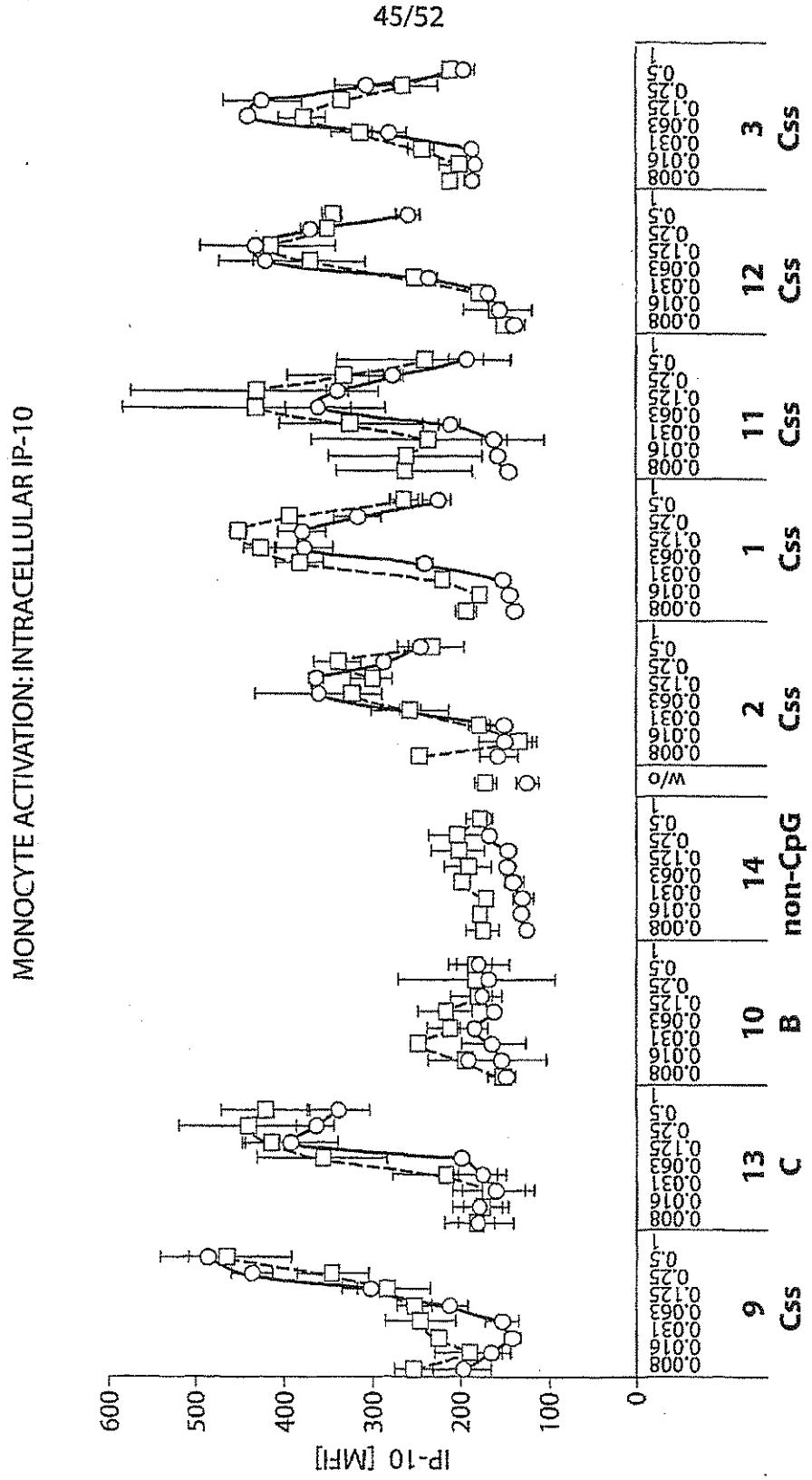

MONOCYTE ACTIVATION: INTRACELLULAR IP-10
IP-10 [MFI]
600
500
400
300
200
100
0
9 Css
13 C
10 B
14 non-CpG
w/o
2 Css
1 Css
11 Css
12 Css
3 Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 41

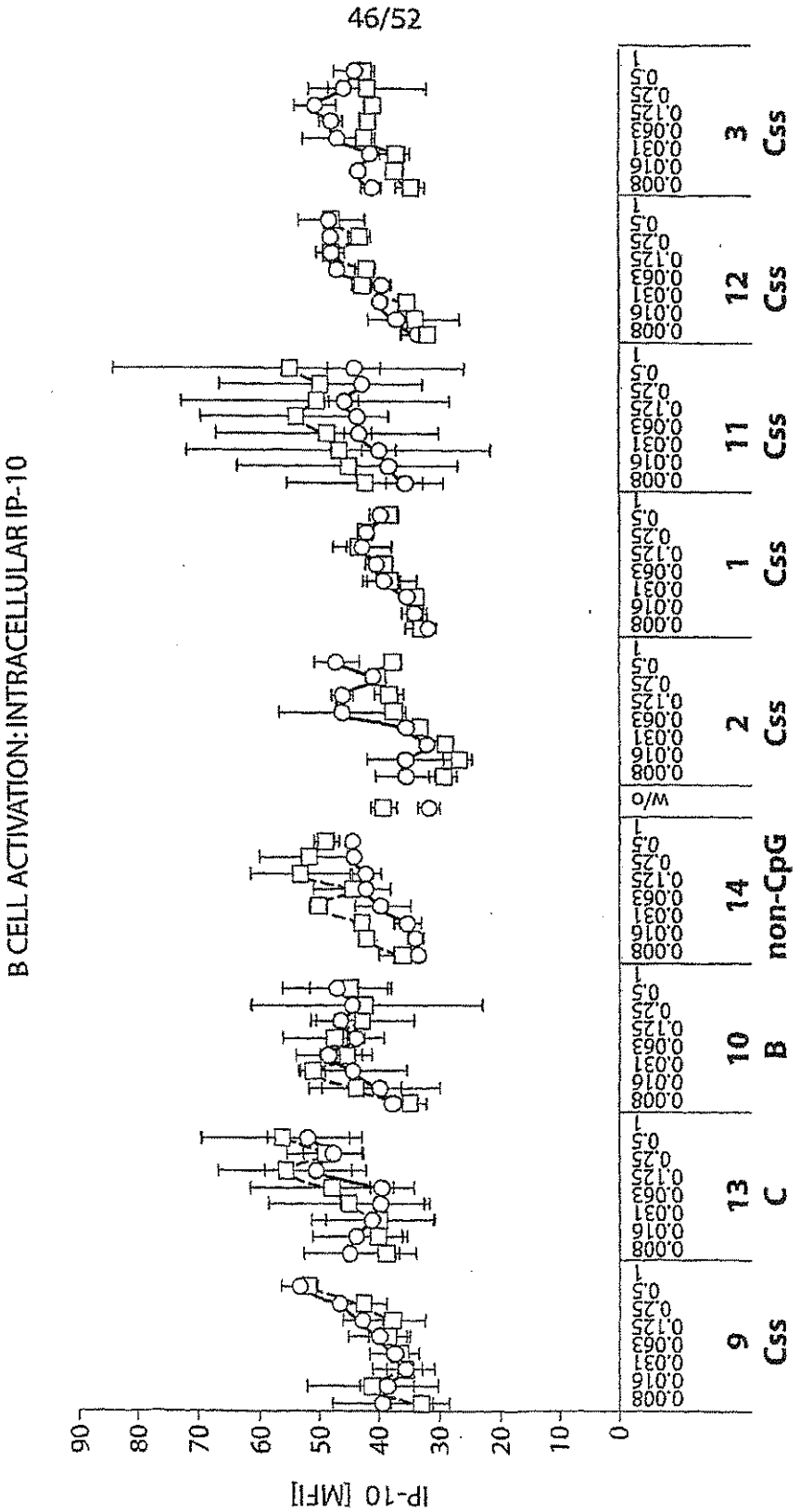

B CELL ACTIVATION:INTRACELLULAR IP-10
IP-10 [MFI]
0
10
20
30
40
50
60
70
80
90
9
13
10
14
2
1
11
12
3
Css
C
B
non-CpG
w/o
Css
Css
Css
Css
0.008
0.016
0.031
0.063
0.125
0.25
0.5
1

Fig. 42

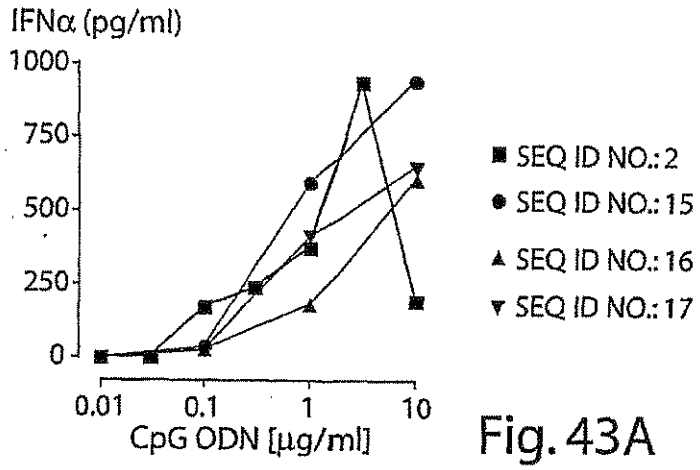


Fig. 43A

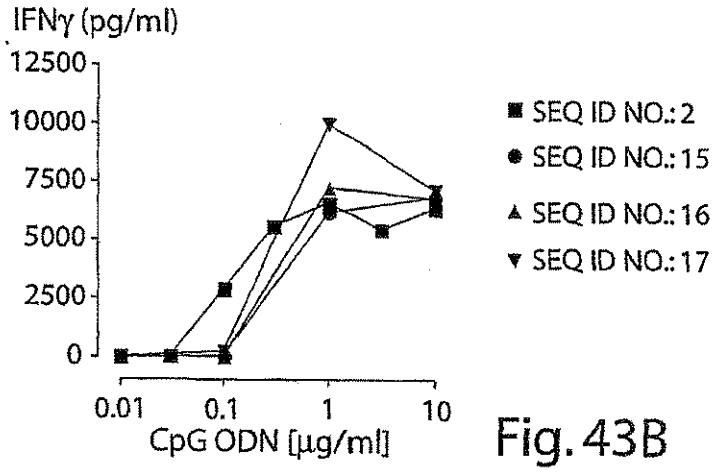


Fig. 43B

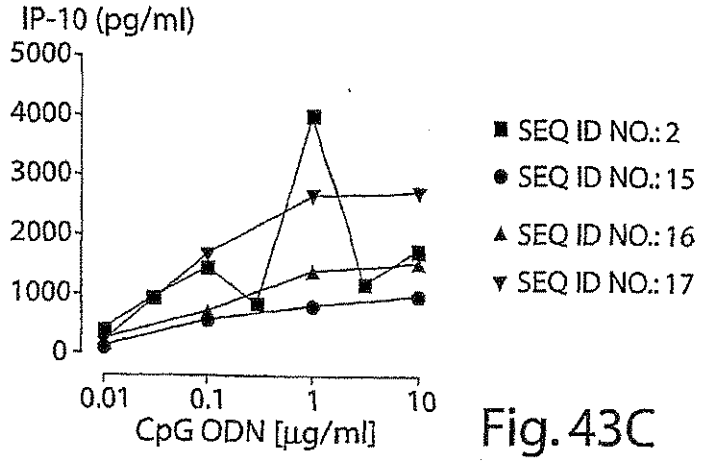


Fig. 43C

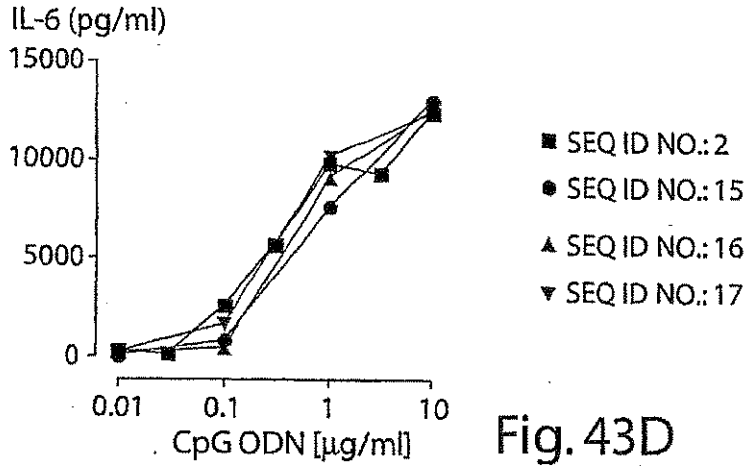


Fig. 43D

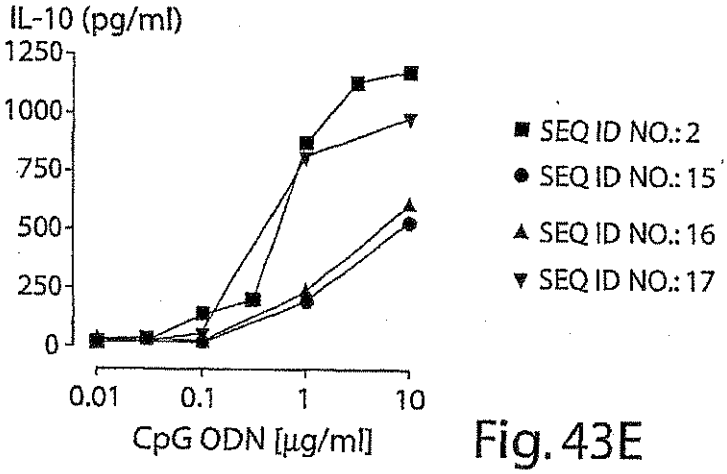


Fig. 43E

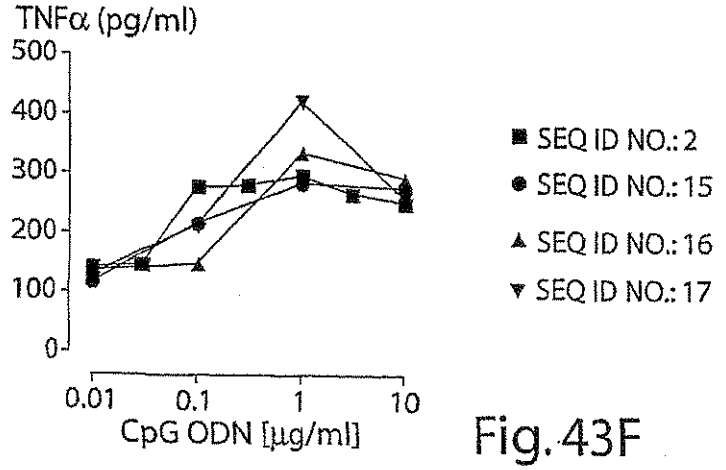


Fig. 43F

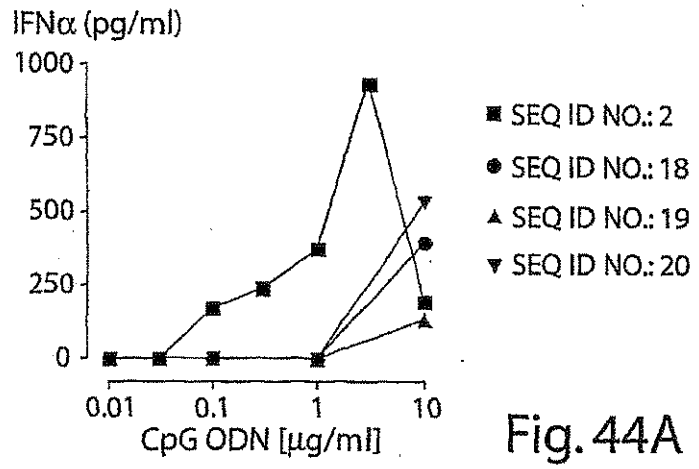


Fig. 44A

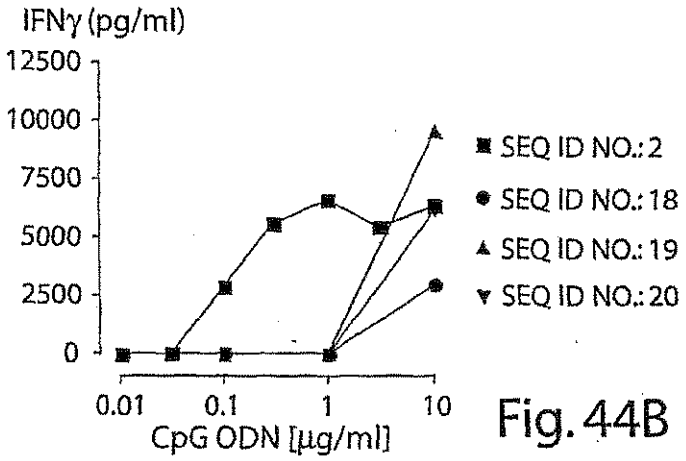


Fig. 44B

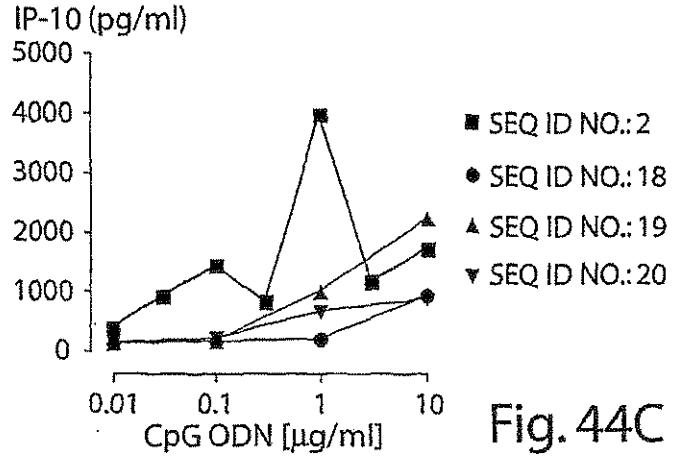


Fig. 44C

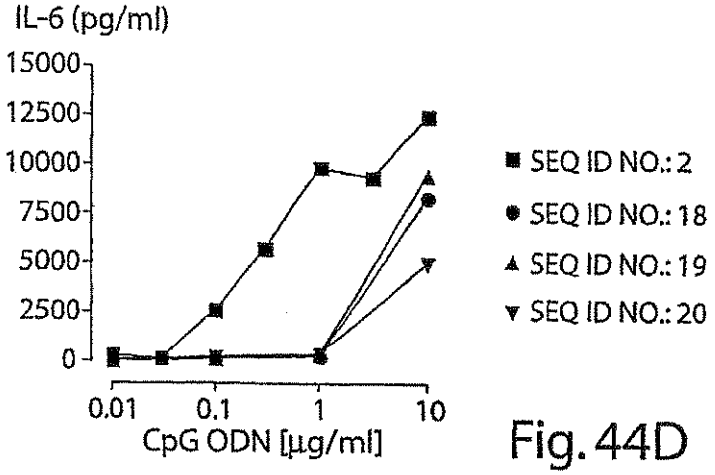


Fig. 44D

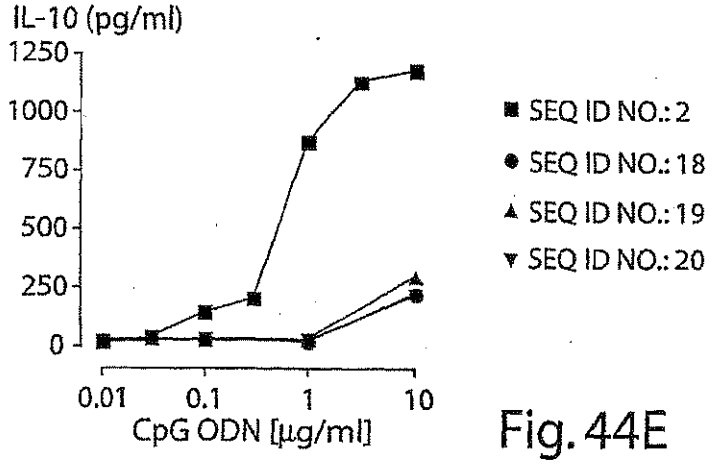


Fig. 44E

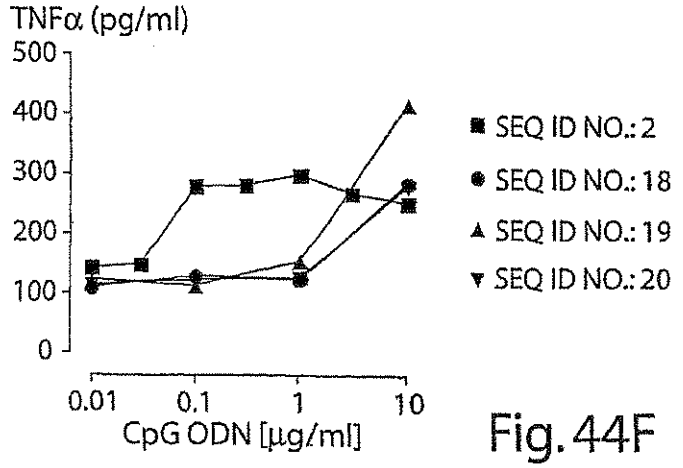


Fig. 44F

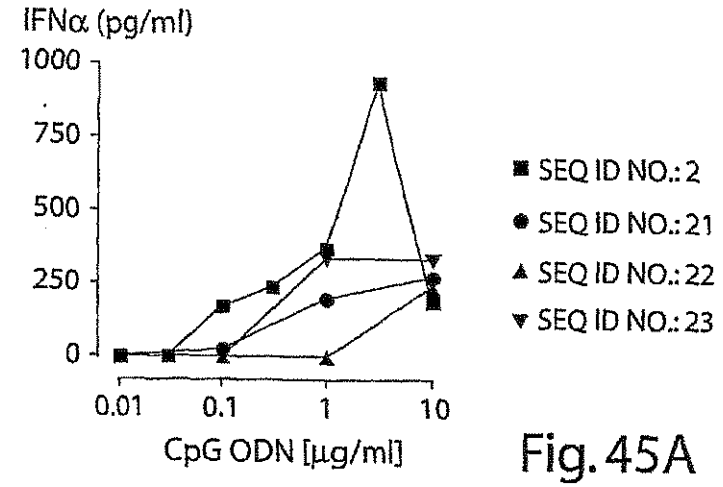


Fig. 45A

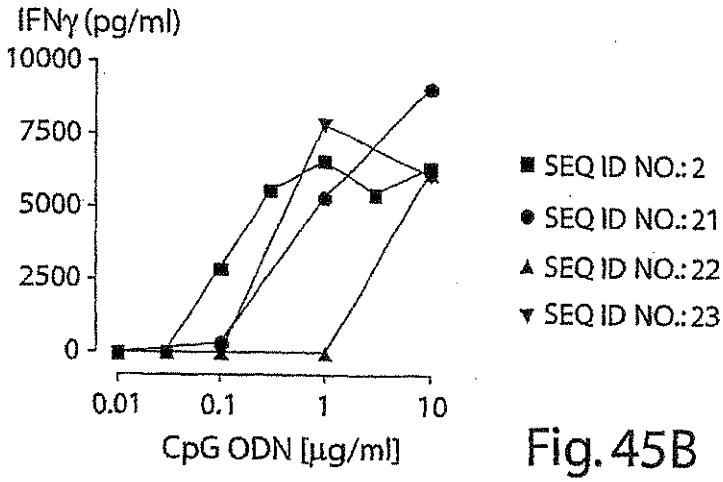


Fig. 45B

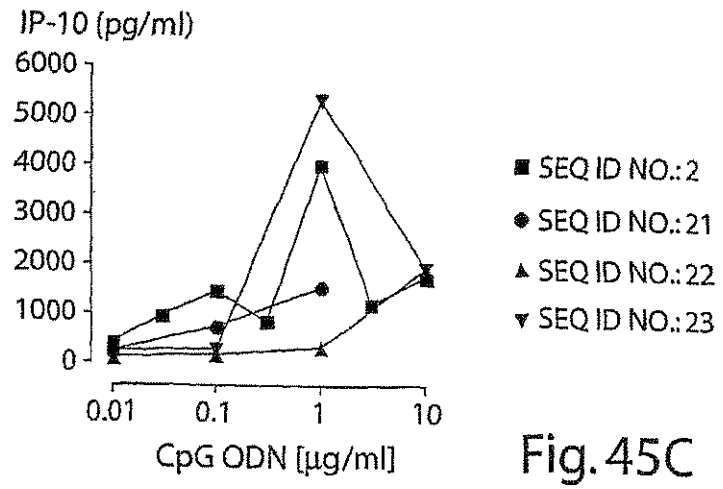


Fig. 45C

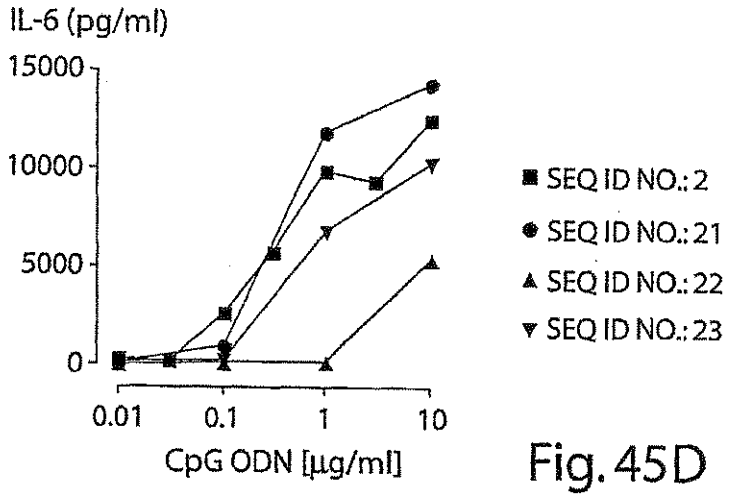


Fig. 45D

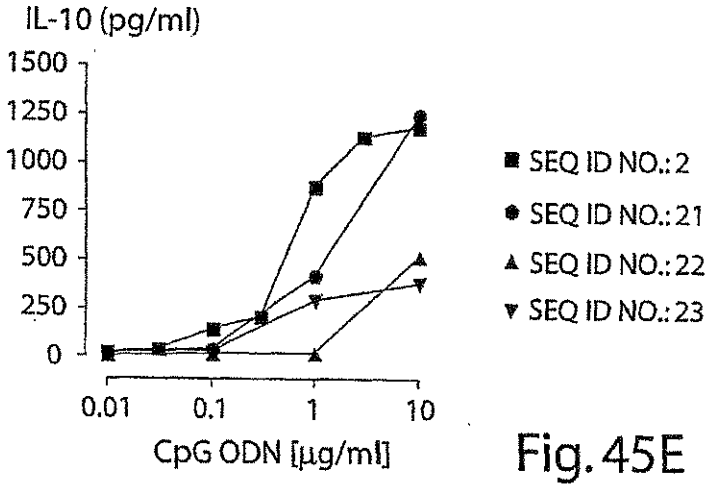


Fig. 45E

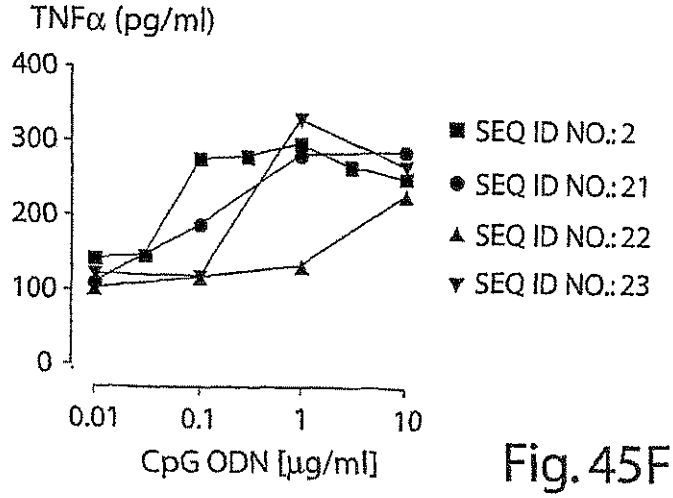


Fig. 45F

SEQUENCE LISTING

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Coley Pharmaceutical GmbH

<120> SEMI-SOFT C-CLASS IMMUNOSTIMULATORY OLIGONUCLEOTIDES

<130> C1037.70059WO00

<140> Not yet assigned
<141> 2005-10-20

<150> US 60/620,759
<151> 2004-10-20

<160> 68

<170> PatentIn version 3.3

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<210> 2
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<210> 4
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tcgtcgacga tcggcgcgcg ccg 23

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<220>
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<210> 7
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<210> 9
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<220>
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<400> 9

tcgcgacgtt cggcgcgcgc cg 22

<210> 10
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<400> 10
tcgtcgtttt gacgttttgt cgtt 24

<210> 11
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<220>
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tccaggactt ctctcaggtt 20

<210> 12
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cgtcgtcgtt cggcgcgcgc cg 22

<210> 13
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gtcgtcgttc ggcgcgcgcc g 21

<210> 14
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<400> 15
cgtcgtcgtt cggcgcgcgc cg 22

<210> 16
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gtcgtcgttc ggcgcgcgcc g 21

<210> 17
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<400> 17
tcgtcgttcg gcgcgcgccg 20

<210> 18
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<220>
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<400> 18
cgtcgttcgg cgcgcgccg 19

<210> 19
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<400> 19
gtcgttcggc gcgcgccg 18

<210> 20

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tcgttcggcg cgcgccg 17

<210> 21
<211> 22
<212> DNA
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<220>
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<400> 21
tcgtcgtcgt tcggcgcgcg cc 22

<210> 22
<211> 17
<212> DNA
<213> Artificial sequence

<220>
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<400> 22
tcgtcgtcgt tcggcgc 17

<210> 23
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<220>
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<400> 23
tcgtcgtcgt tcggcgcgcg c 21

<210> 24
<211> 17
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

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<222> (5)..(5)
<223> where n is any nucleotide

<220>

<221> misc_feature
<222> (8)..(8)
<223> where n is any nucleotide

<220>
<221> misc_feature
<222> (9)..(10)
<223> where n is any nucleotide and where any one or more n can be present or absent

<220>
<221> misc_feature
<222> (11)..(11)
<223> where n is a pyrimidine

<220>
<221> misc_feature
<222> (13)..(13)
<223> where n is any nucleotide

<400> 24
ttcgncgnnn ngncgtt 17

<210> 25
<211> 17
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<220>
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<222> (11)..(11)
<223> where n is t or c

<400> 25
ttcgtcgttt ngtcgtt 17

<210> 26
<211> 24
<212> DNA
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<220>
<221> misc_feature
<222> (4)..(4)
<223> where n is any nucleotide

<220>
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<222> (7)..(7)
<223> where n is any nucleotide

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<221> misc_feature
<222> (8)..(10)
<223> where n is any nucleotide and where any one or more n may be present or absent

<220>
<221> misc_feature
<222> (11)..(11)
<223> where n is any nucleotide

<220>
<221> misc_feature
<222> (14)..(22)
<223> where n is any nucleotide and where any one or more n may be present or absent

<400> 26
tcgncgnnnn ncgnnnnnnn nncg 24

<210> 27
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<220>
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<222> (8)..(10)
<223> where n is any nucleotide and where any one or more n may be present or absent

<220>
<221> misc_feature
<222> (18)..(20)
<223> where n is any nucleotide and where any one or more n may be present or absent

<400> 27
tcgtcgtnnn tcggcgcnnn gccg 24

<210> 28
<211> 23
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<220>
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<222> (4)..(4)
<223> where n is any nucleotide

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<222> (7)..(7)

<223> where n is any nucleotide

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<220>
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<222> (19)..(19)
<223> where n is any nucleotide

<220>
<221> misc_feature
<222> (20)..(23)
<223> where n is any nucleotide and where any one or more n may be present or absent

<400> 28
tcgncgncgn tcggcgcgnn nnn 23

<210> 29
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<213> Artificial sequence

<220>
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<400> 29
tcgtcgtttt 10

<210> 30
<211> 10
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<220>
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<223> where n is an abasic linker

<400> 30
tcgtcgttnn 10

<210> 31
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<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 31
tcgacgtcga 10

<210> 32
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<400> 32
tcgtcgacga 10

<210> 33
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<220>
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<400> 33
tcgcgacgtt 10

<210> 34
<211> 10
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<220>
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<400> 34
tcgcgtcgtt 10

<210> 35
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<220>
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<400> 35
caatatttat tg 12

<210> 36
<211> 11
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<220>
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<400> 36
ccgttttgtg g 11

<210> 37
<211> 13
<212> DNA
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<220>
<223> Synthetic oligonucleotide

<400> 37
cggcgccgtg ccg 13

<210> 38
<211> 14
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<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 38
cggcgccgtt gccg 14

<210> 39
<211> 12
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<220>
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<220>
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cggcgnncgc cg 12

<210> 40
<211> 13
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<220>
<223> Synthetic oligonucleotide

<220>
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<210> 41
<211> 14

<212> DNA
<213> Artificial sequence

<220>
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<400> 41
cggcggnncc gccg 14

<210> 42
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<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 42
cggcgtcgcc gccg 14

<210> 43
<211> 15
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 43
cgtcgacggg acggg 15

<210> 44
<211> 15
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<220>
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<400> 44
cgtcgacgtg acggg 15

<210> 45
<211> 15
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<213> Artificial sequence

<220>
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<400> 45
gagagttggg ctctc 15

<210> 46
<211> 11
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<213> Artificial sequence

<220>
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<400> 46
gtcgaggagg t 11

<210> 47
<211> 12
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<213> Artificial sequence

<220>
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taatanntat ta 12

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<212> DNA
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<220>
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<400> 48
taatatccat ta 12

<210> 49
<211> 12
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<213> Artificial sequence

<220>
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<400> 49
taatatttat ta 12

<210> 50
<211> 12
<212> DNA
<213> Artificial sequence

<220>

<223> Synthetic oligonucleotide

<400> 50
ggcgcgctgc cg 12

<210> 51
<211> 36
<212> DNA
<213> Artificial sequence

<220>
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<220>
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<223> where n is a purine

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<221> misc_feature
<222> (2)..(2)
<223> where n is not c

<220>
<221> misc_feature
<222> (5)..(6)
<223> where n is a pyrimidine

<220>
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<222> (6)..(31)
<223> where one internucleotide linkage is a 3' to 3' linkage

<220>
<221> misc_feature
<222> (7)..(18)
<223> where n is any nucleotide and where any one or more n may be present or absent

<220>
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<222> (18)..(30)
<223> where n is any nucleotide and where any one or more n may be present or absent

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<222> (31)..(32)
<223> where n is a pyrimidine

<220>
<221> misc_feature
<222> (35)..(35)
<223> where n is not c

<220>
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<222> (36)..(36)
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nncgnnnnnn nnnnnnnnnn nnnnnnnnnn nngcnn 36

<210> 52
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<212> DNA
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<220>
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<220>
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<220>
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<223> where 3 nucleotides may be present or absent

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<223> where feature may be present or absent

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<220>
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<223> where n is any nucleotide and where any one or more n may be present or absent

<220>
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<222> (25)..(36)
<223> where n is any nucleotide and where any one or more n may be present or absent

<220>
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<222> (40)..(42)
<223> where 3 nucleotides may be present or absent

<220>
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<223> where 3 nucleotides may be present or absent

<220>
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<400> 52
tcgtcgtcgt cgnnnnnnnn nnnnnnnnnn nnnnnngctg ctgctgct 48

<210> 53
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<220>
<223> Synthetic oligonucleotide

<400> 53
tcgtcgtttt a 11

<210> 54
<211> 13
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 54
cggcgccgtg ccg 13

<210> 55
<211> 13
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<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 55
cggcgtcgtg ccg 13

<210> 56
<211> 24
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<213> Artificial sequence

<220>
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<400> 56
tcgtcgtttt acggcgccgt gccg 24

<210> 57
<211> 24
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 57
tcgtcgtttt acggcgtcgt gccg 24

<210> 58
<211> 12
<212> DNA
<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 58
cggcgcgcgc cg 12

<210> 59
<211> 12
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<213> Artificial sequence

<220>
<223> Synthetic oligonucleotide

<400> 59
cggcggccgc cg 12

<210> 60
<211> 12
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<400> 60
cgacgatcgt cg 12

<210> 61
<211> 12
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<220>
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<400> 61
cgacgtacgt cg 12

<210> 62
<211> 12
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<220>
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<400> 62
cgcgcgcgcg cg 12

<210> 63
<211> 12

<212> DNA
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<220>
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<400> 63
gcgcgcgcgc gc 12

<210> 64
<211> 12
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<220>
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<400> 64
cccccgggg gg 12

<210> 65
<211> 12
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<400> 65
gggggcccc cc 12

<210> 66
<211> 10
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<213> Artificial sequence

<220>
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<400> 66
ccccggggg 10

<210> 67
<211> 10
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<220>
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<400> 67
gggggccccc 10

<210> 68
<211> 10
<212> DNA
<213> Artificial sequence

<220>
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<220>
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<222> (3)..(3)
<223> where n is inosine

<220>
<221> misc_feature
<222> (6)..(6)
<223> where n is inosine

<400> 68
tcntcntttt 10