Fig. 1A

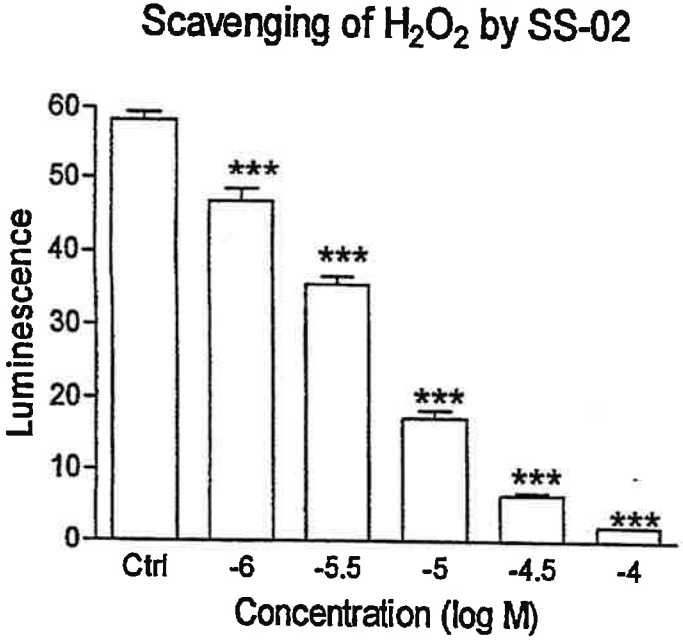

Scavenging of H_2O_2 by SS-02
Luminescence
60
50
40
30
20
10
0
***
***
***
***
***
Ctrl
-6
-5.5
-5
-4.5
-4
Concentration (log M)

Fig. 1B

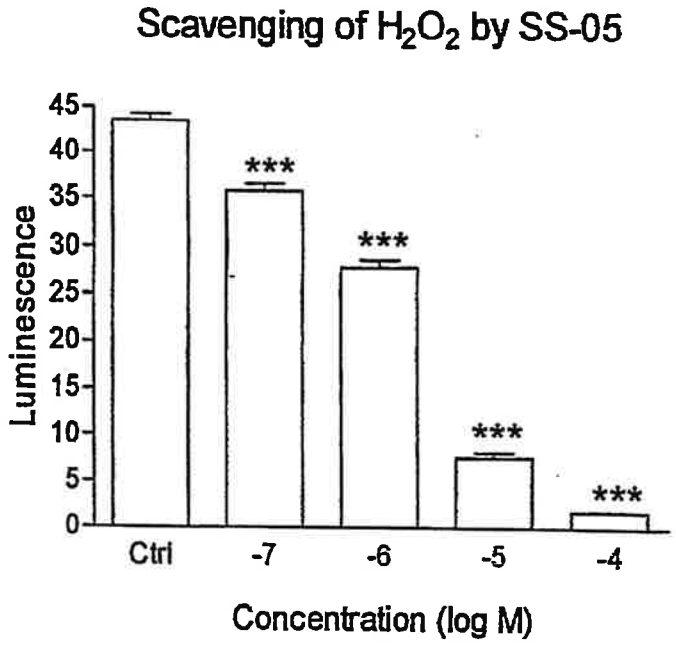

Scavenging of H_2O_2 by SS-05
Luminescence
45
40
35
30
25
20
15
10
5
0
***
***
***
***
Ctrl
-7
-6
-5
-4
Concentration (log M)

Fig. 2A

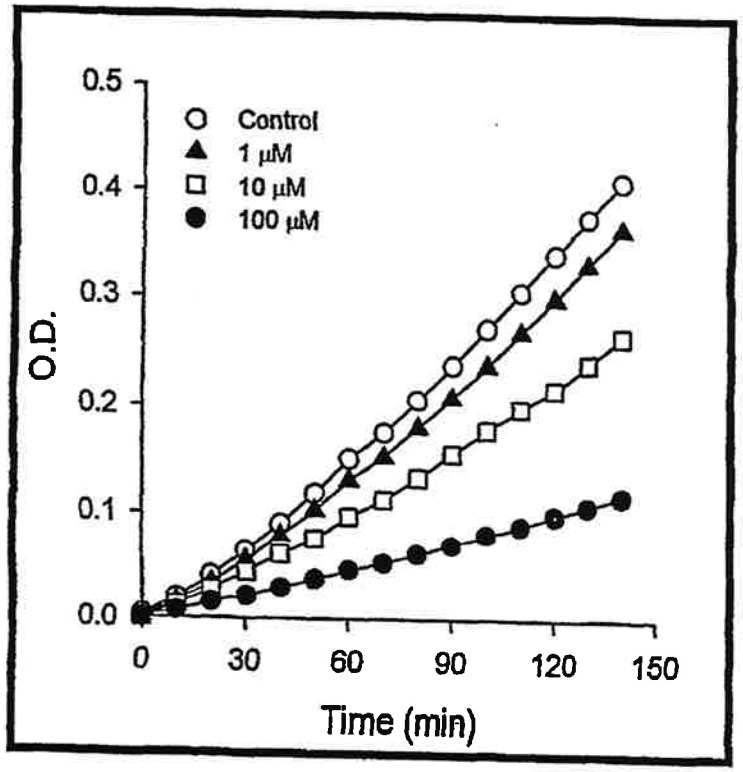

0.5
0.4
0.3
0.2
0.1
0.0
O.D.
Control
1 μM
10 μM
100 μM
0
30
60
90
120
150
Time (min)

Fig. 2B

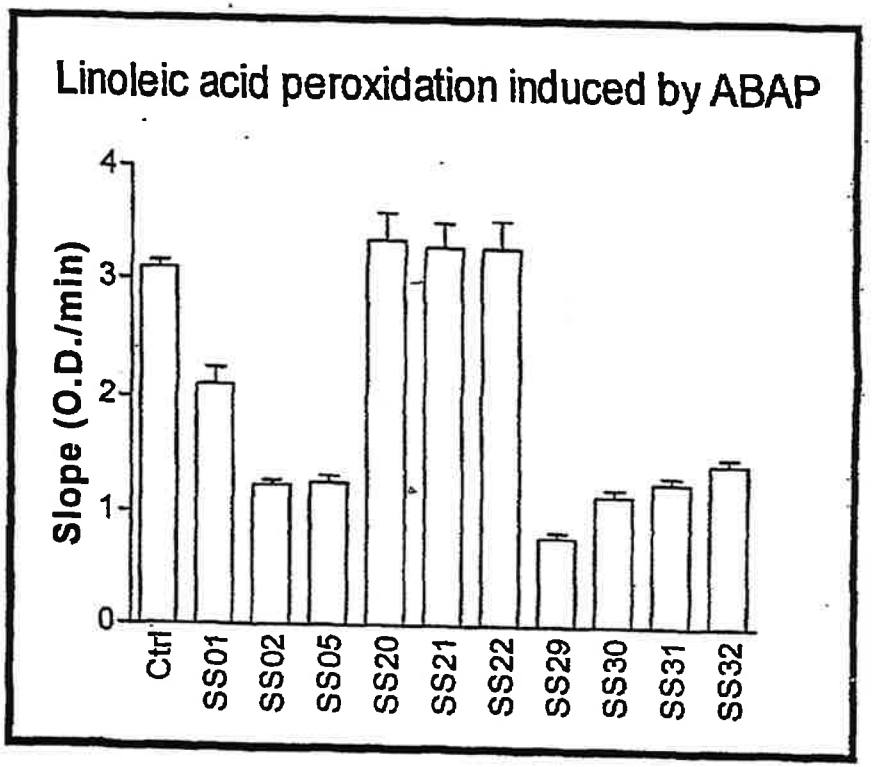

Linoleic acid peroxidation induced by ABAP
Slope (O.D./min)
4
3
2
1
0
Ctrl
SS01
SS02
SS05
SS20
SS21
SS22
SS29
SS30
SS31
SS32

Fig. 3A

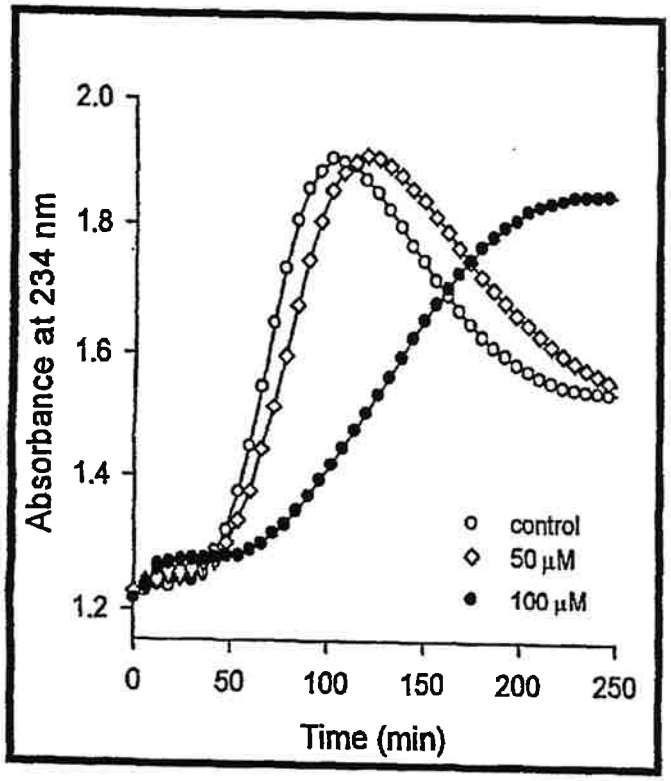

Absorbance at 234 nm
2.0
1.8
1.6
1.4
1.2
0
50
100
150
200
250
Time (min)
control
50 µM
100 µM

Fig. 3B

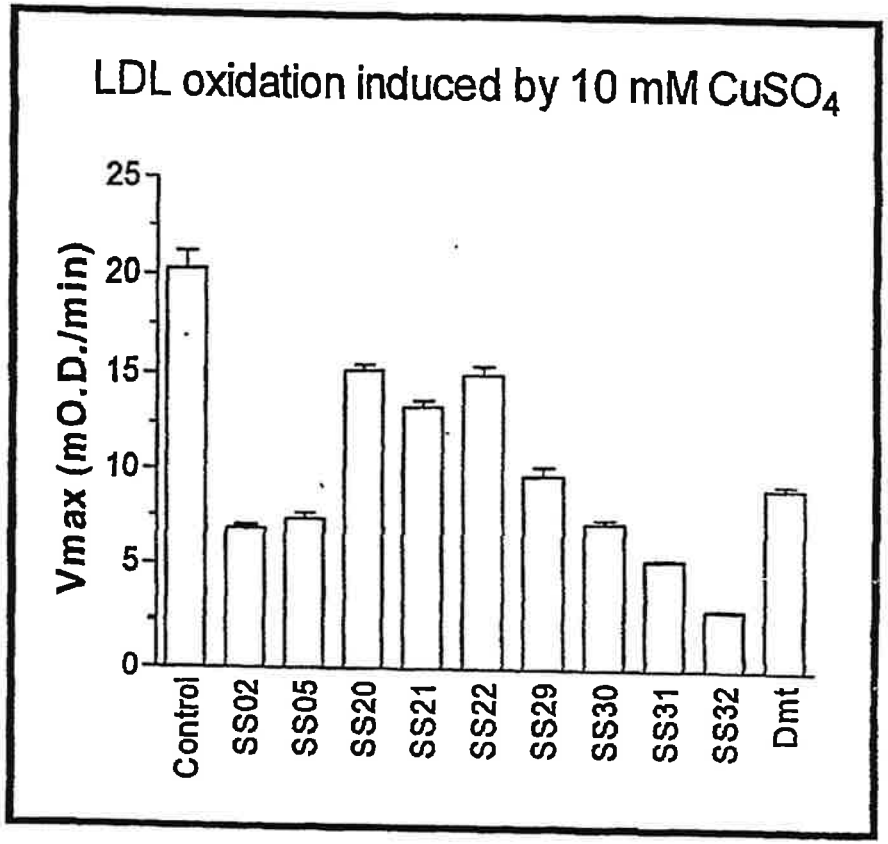

LDL oxidation induced by 10 mM CuSO4
Vmax (mO.D./min)
25
20
15
10
5
0
Control
SS02
SS05
SS20
SS21
SS22
SS29
SS30
SS31
SS32
Dmt

Fig. 4A

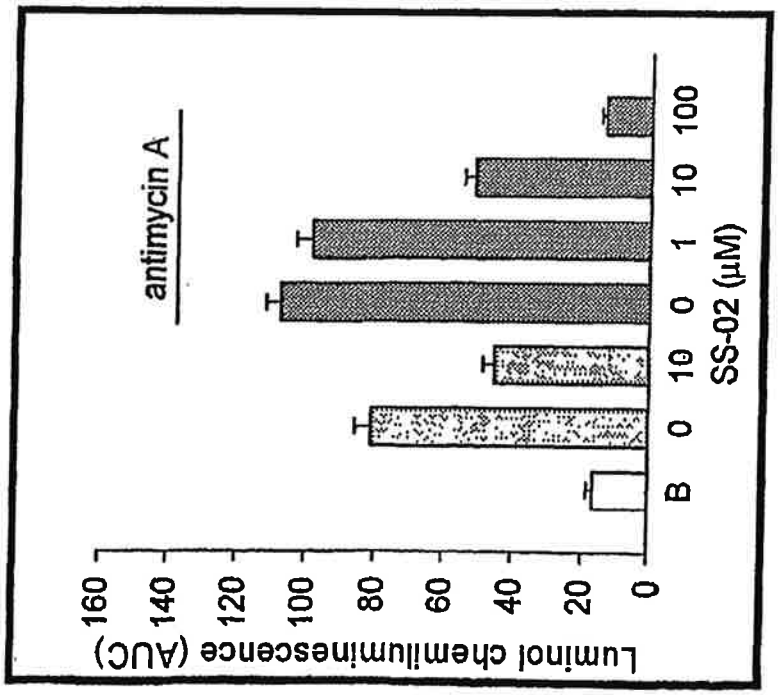

Luminol chemiluminescence (AUC)
0
20
40
60
80
100
120
140
160
antimycin A
B
0
10
0
1
10
100
SS-02 (μM)

Fig. 4B

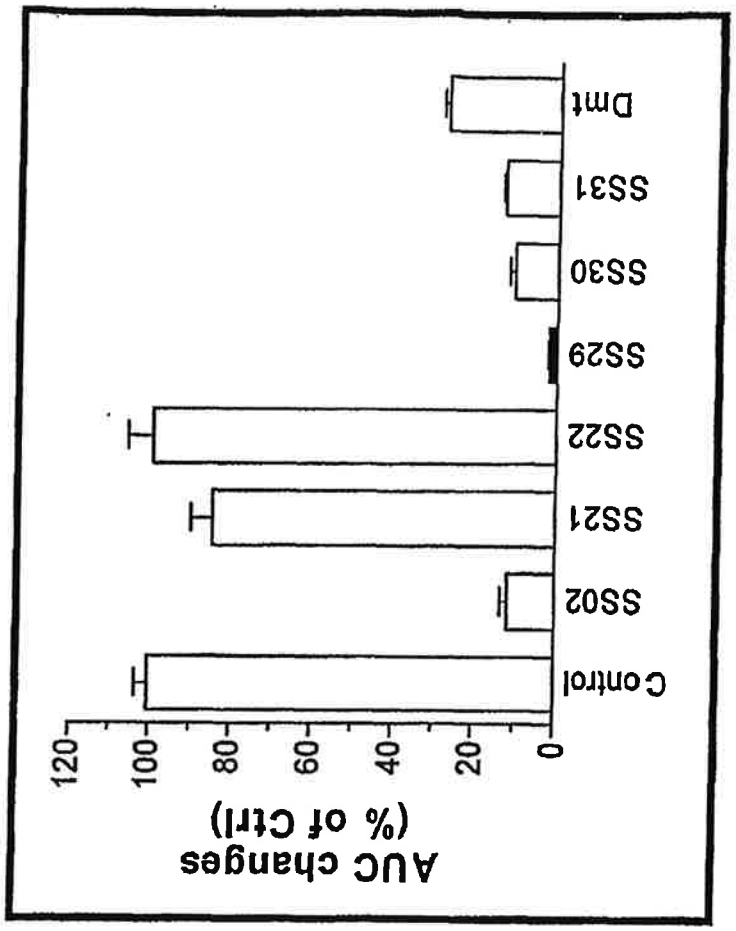

AUC changes
(% of Ctrl)
0
20
40
60
80
100
120
Control
SS02
SS21
SS22
SS29
SS30
SS31
Dmt

Fig. 5A

Spontaneous ROS production

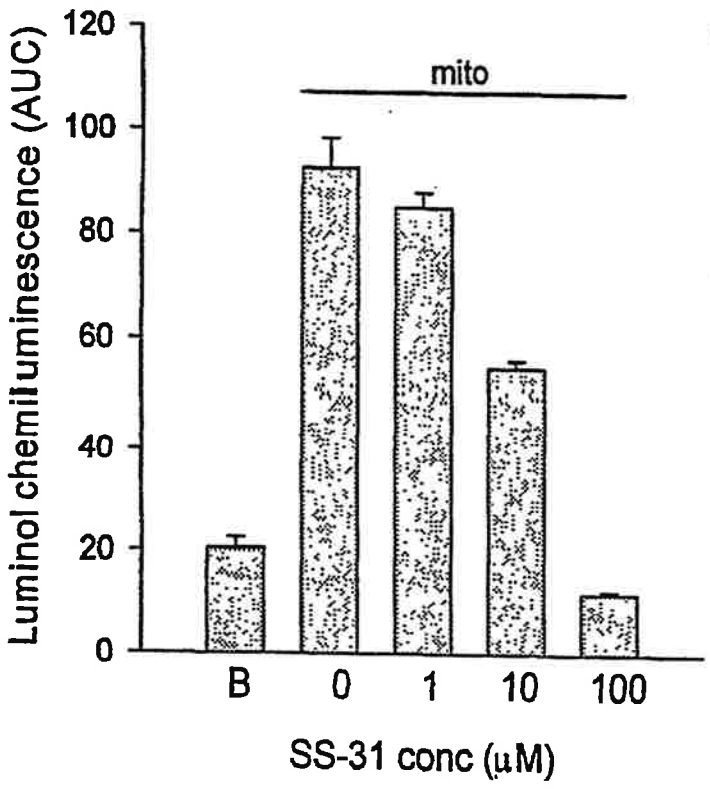


Fig. 5B

Antimycin-induced ROS production

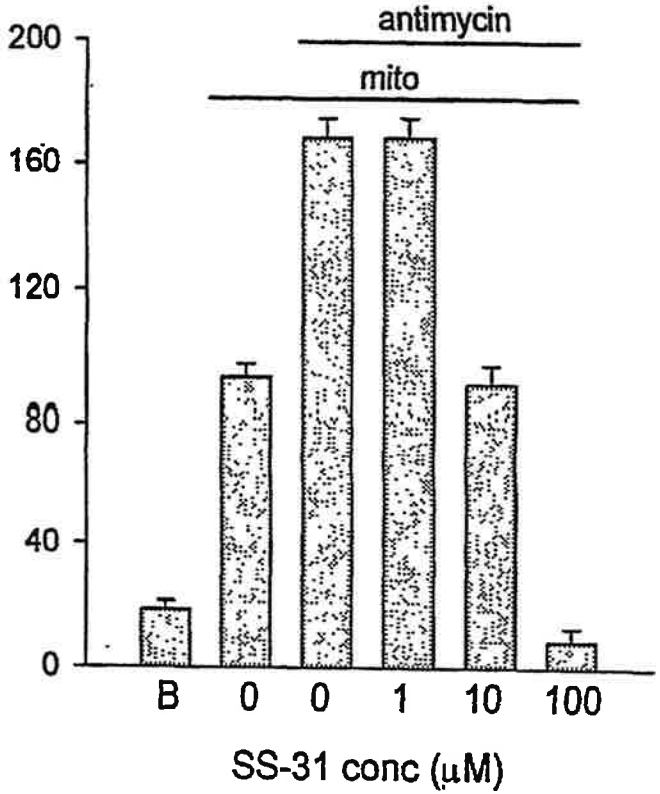


Fig. 6A

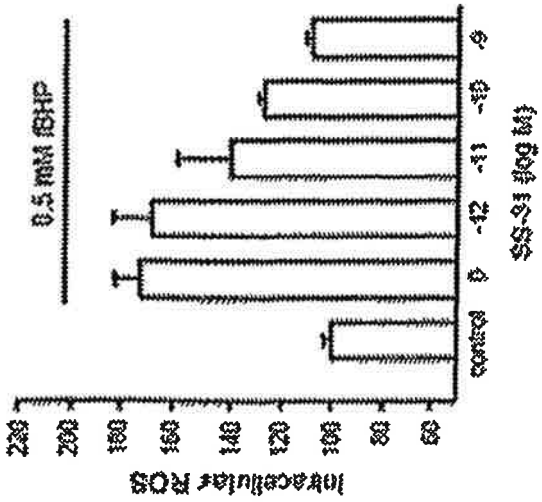


Fig. 6B

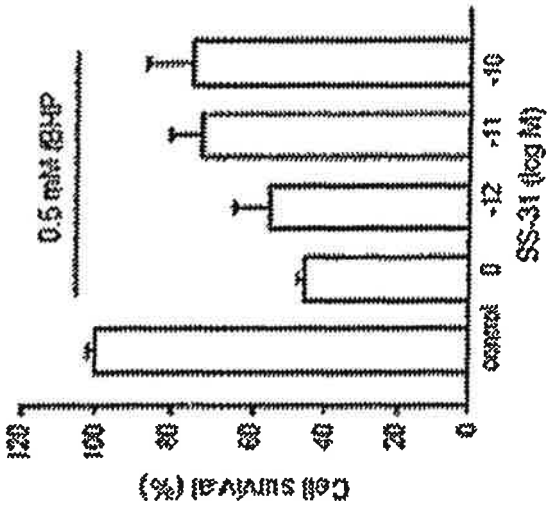


Fig. 6C

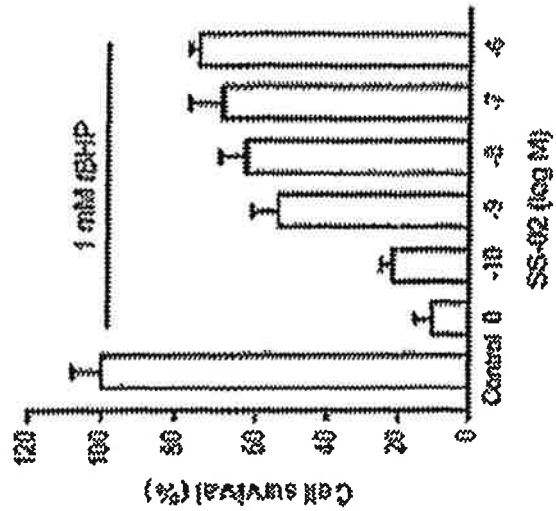


Fig. 7A

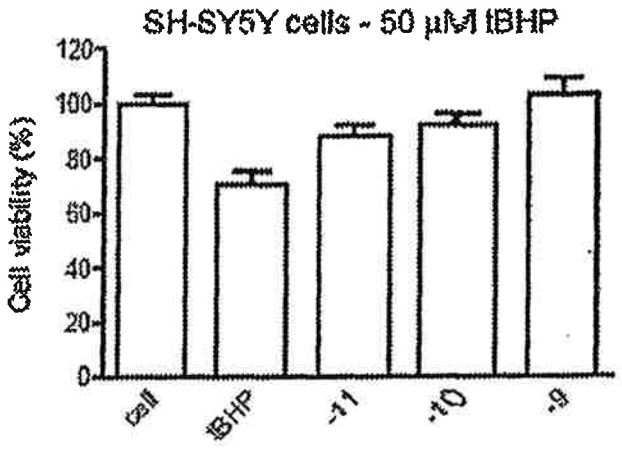

SH-SY5Y cells - 50 µM tBHP
Cell viability (%)
120
100
80
60
40
20
0
cell
tBHP
-11
-10
-9

Fig. 7B

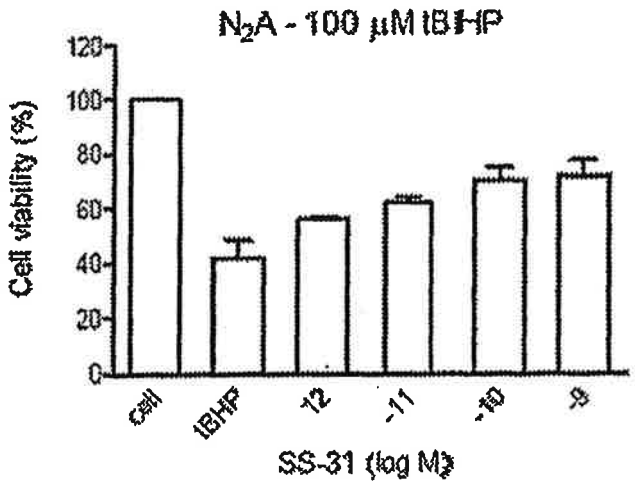

N2A - 100 µM tBHP
Cell viability (%)
120
100
80
60
40
20
0
cell
tBHP
-12
-11
-10
-9
SS-31 (log M)

Fig. 8

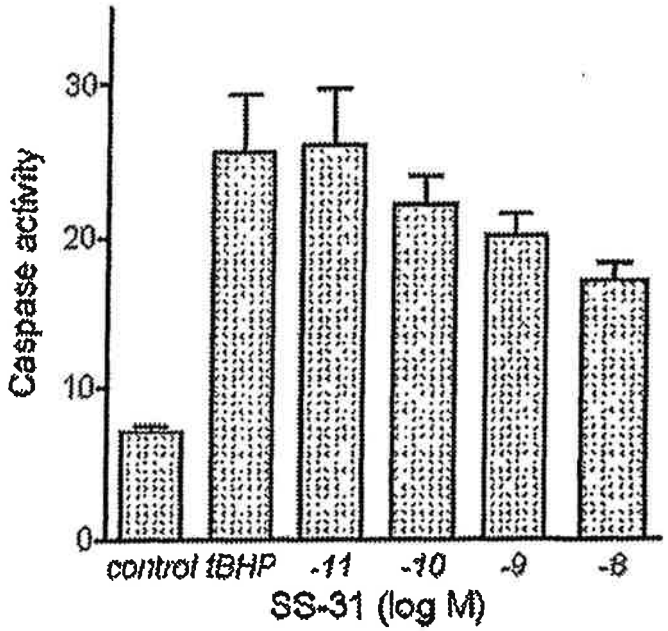
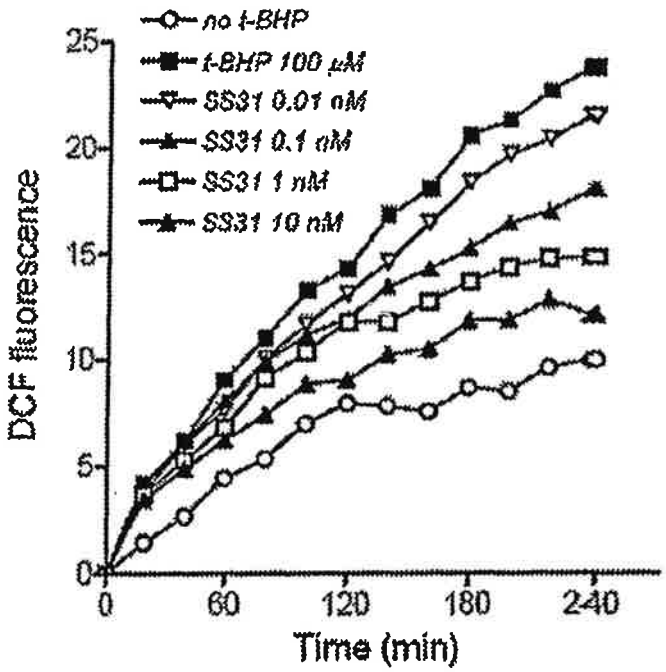


Fig. 9


no t-BHP
t-BHP 100 µM
SS31 0.01 nM
SS31 0.1 nM
SS31 1 nM
SS31 10 nM
DCF fluorescence
25
20
15
10
5
0
0
60
120
180
240
Time (min)

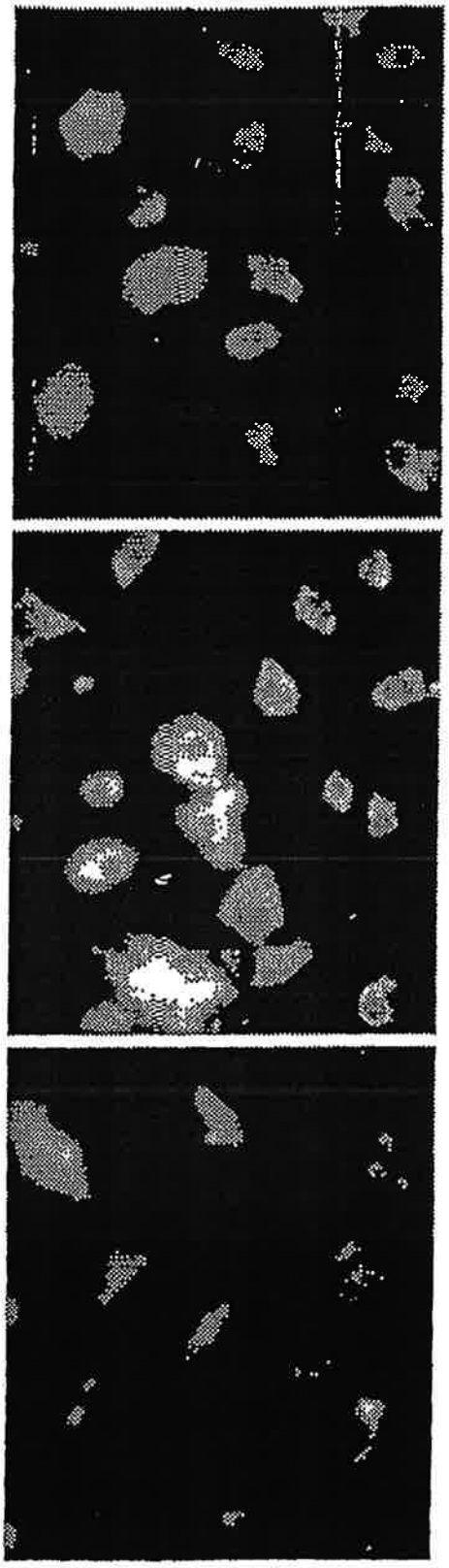


Fig. 10A

Fig. 10B

Fig. 10C

Fig. 11

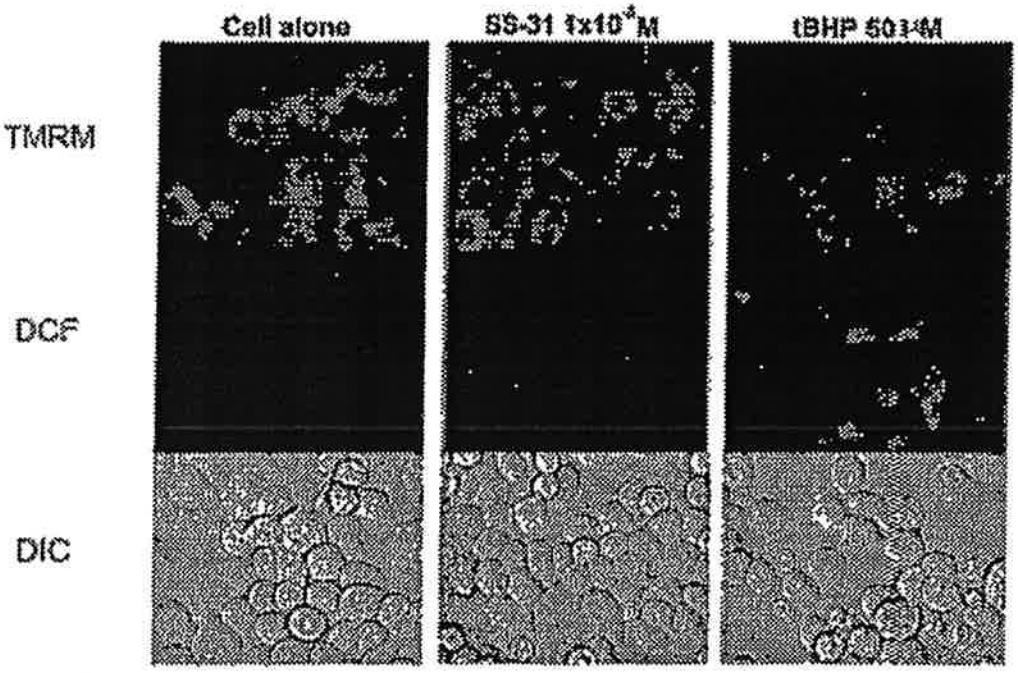


Fig. 12A1

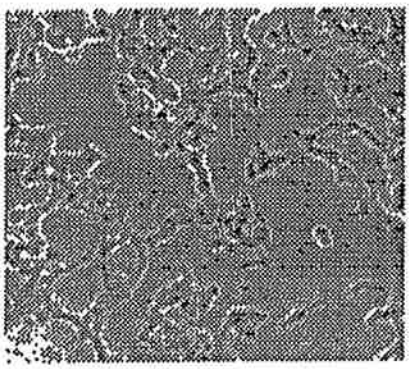


Fig. 12A2

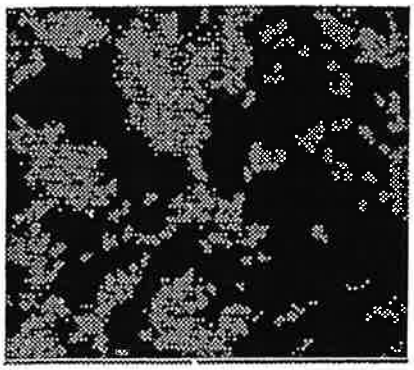


Fig. 12B1

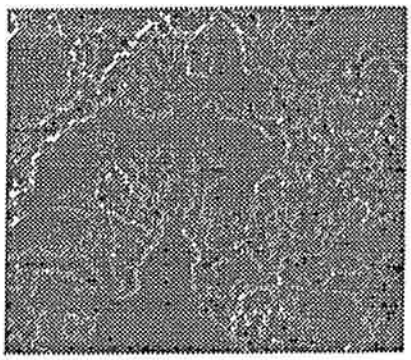


Fig. 12B2

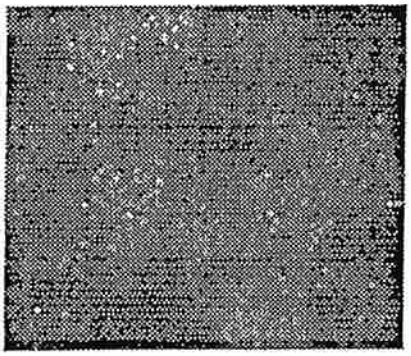


Fig. 12C1

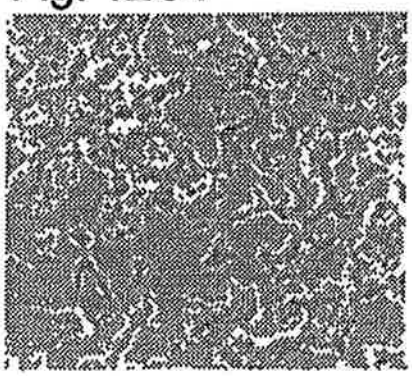


Fig. 12C2

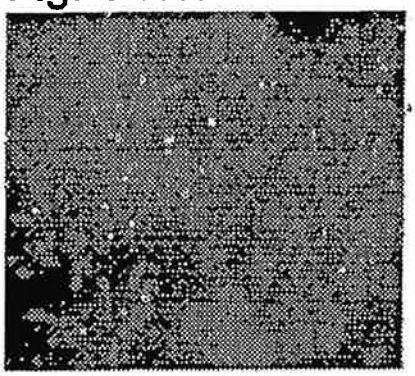


Fig. 12D

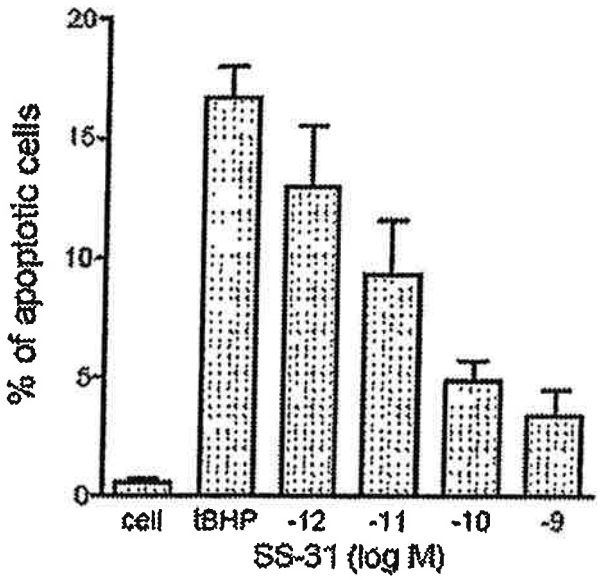


Fig. 13A

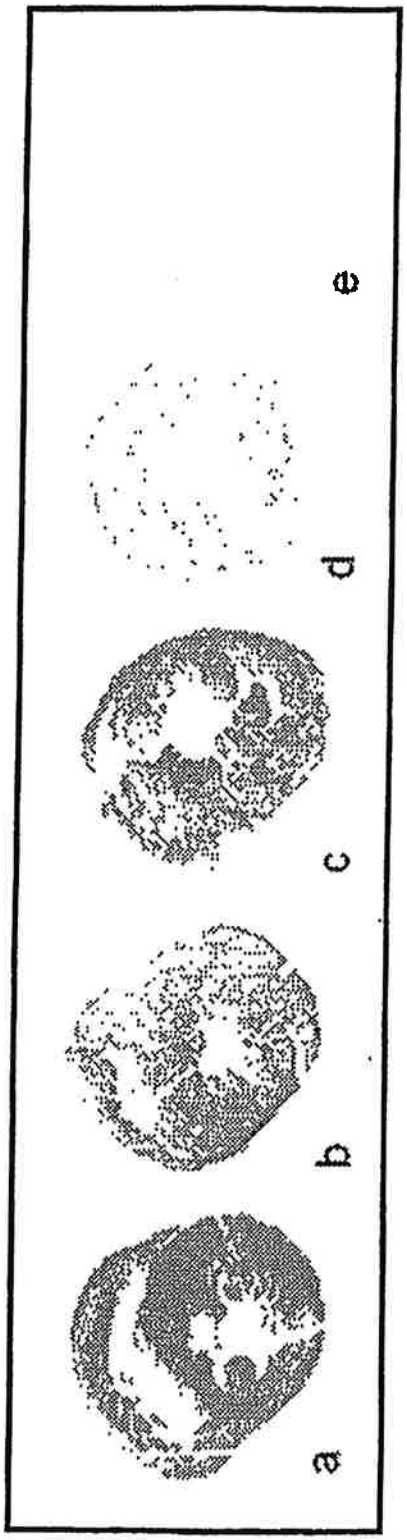


Fig. 13B

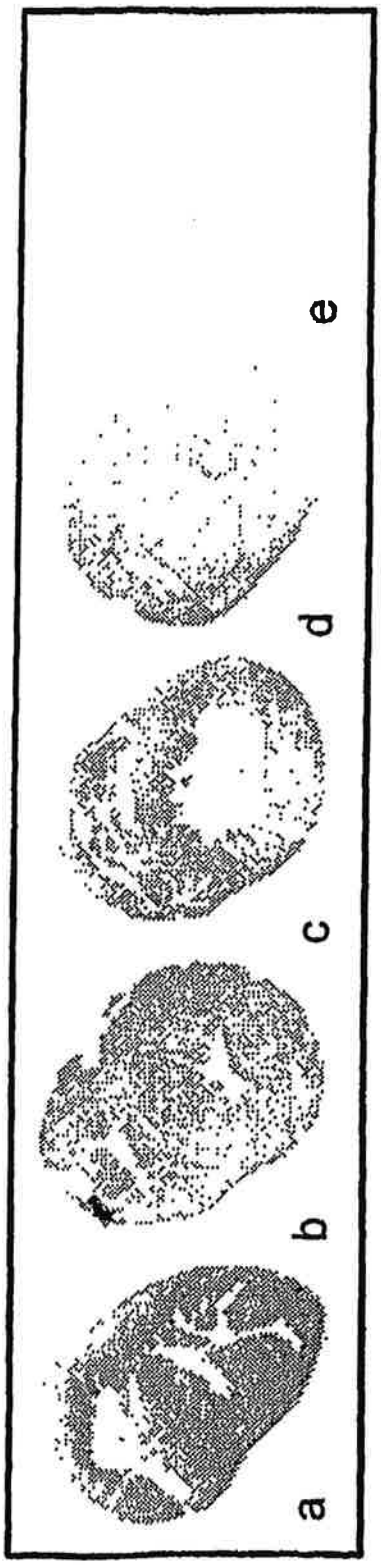


Fig. 14A

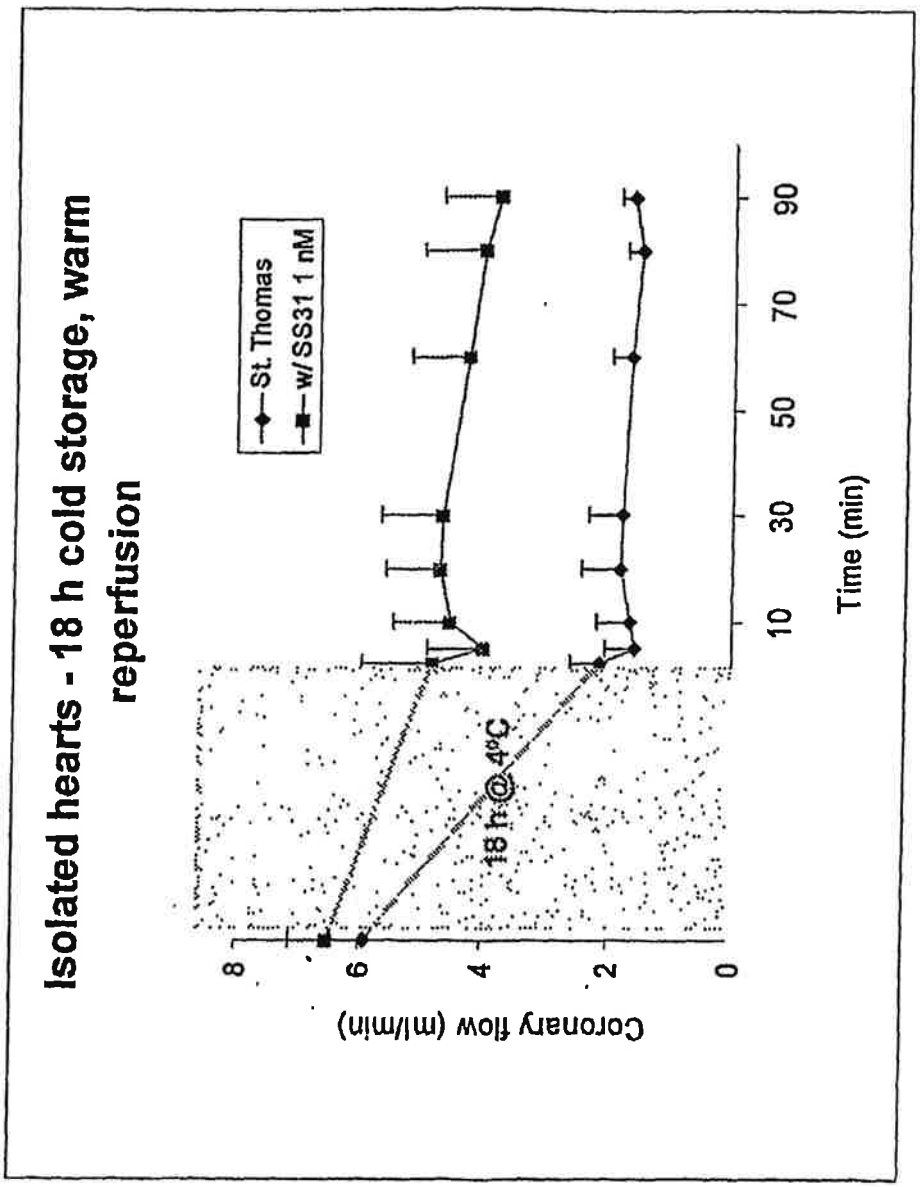

Isolated hearts - 18 h cold storage, warm reperfusion
St. Thomas
w/ SS31 1 nM
18 h @ 4°C
Coronary flow (ml/min)
0
2
4
6
8
10
30
50
70
90
Time (min)

Fig. 14b



Figure 14C

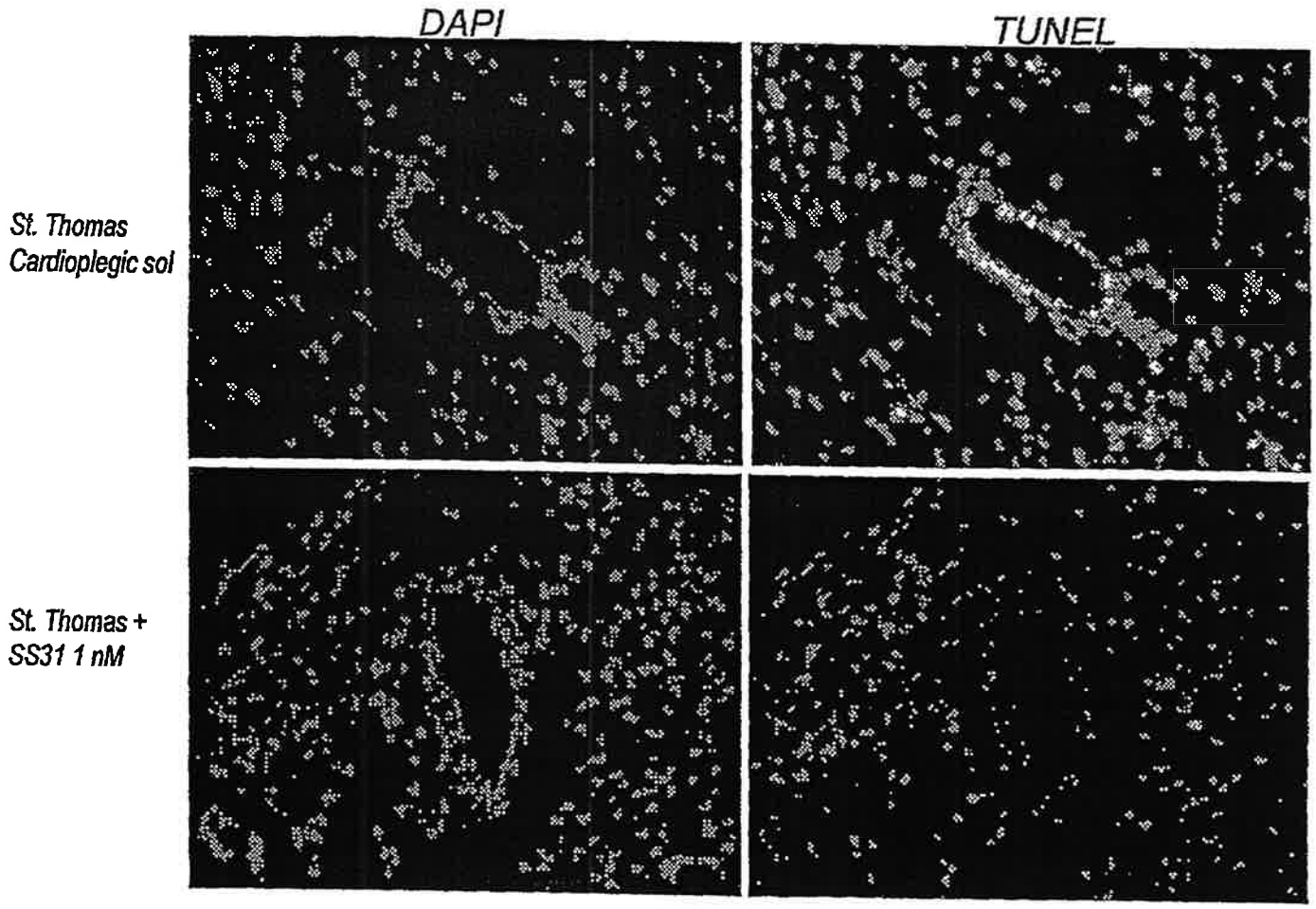


Figure 15A

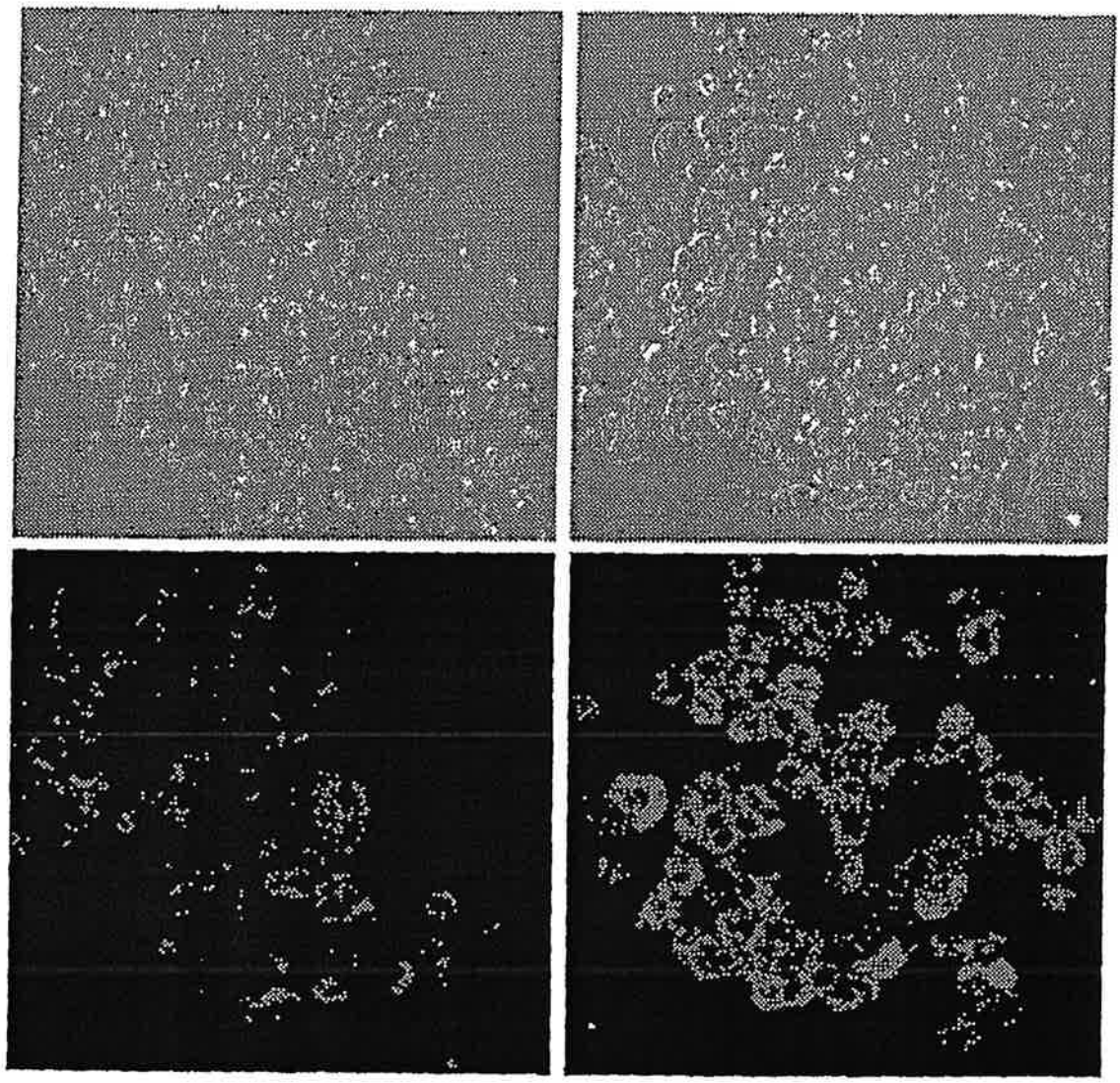
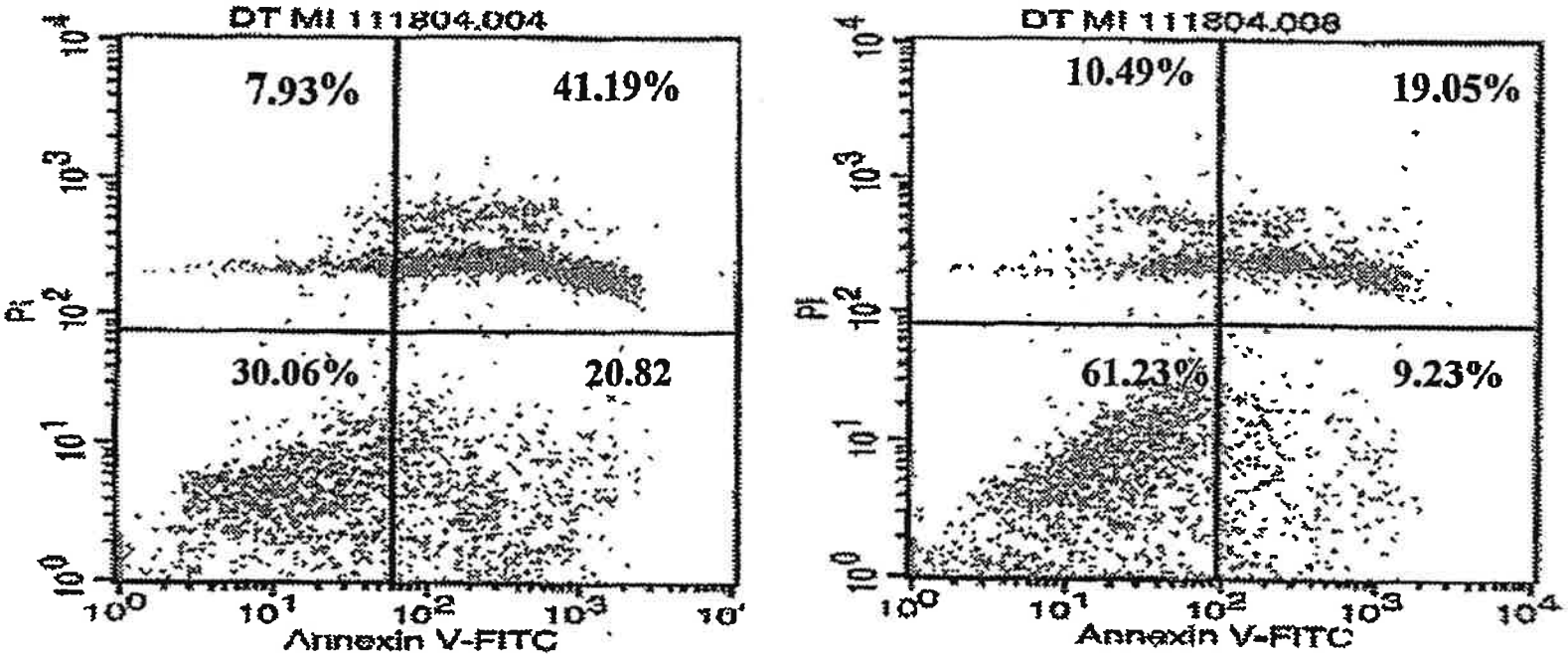


Figure 15B



Control

SS-31

Figure 16

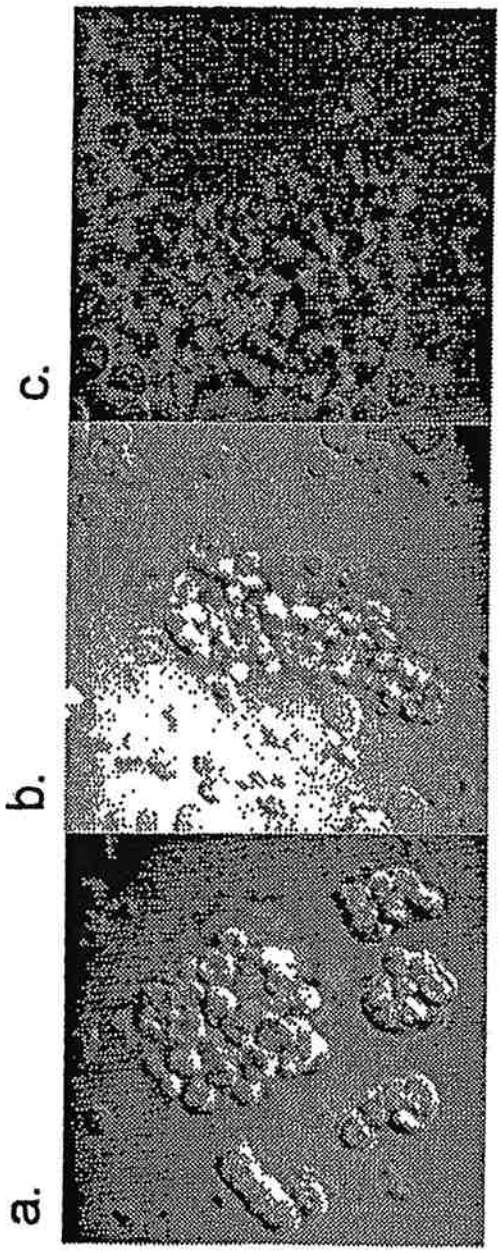


Figure 17A

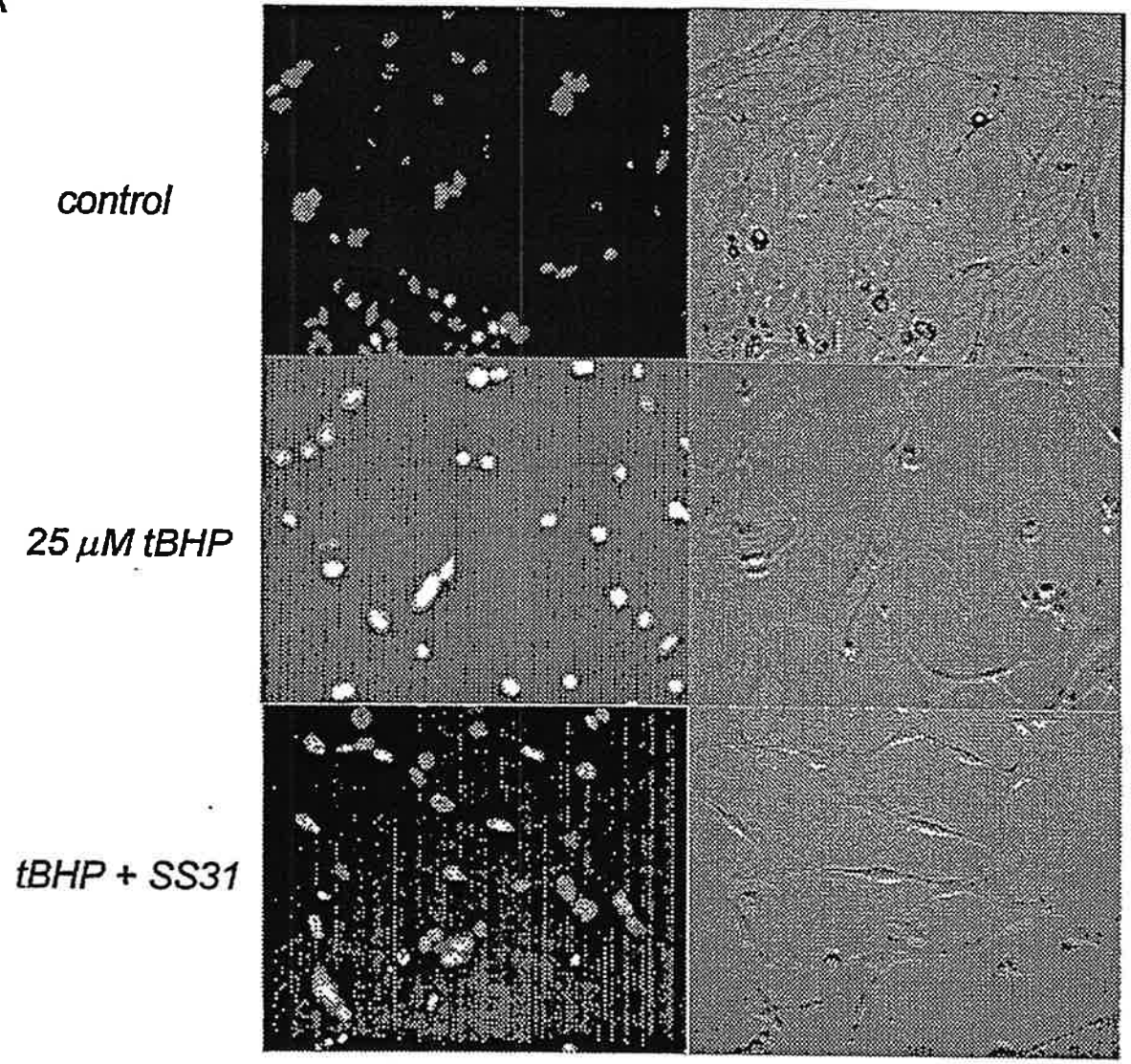


Figure 17B

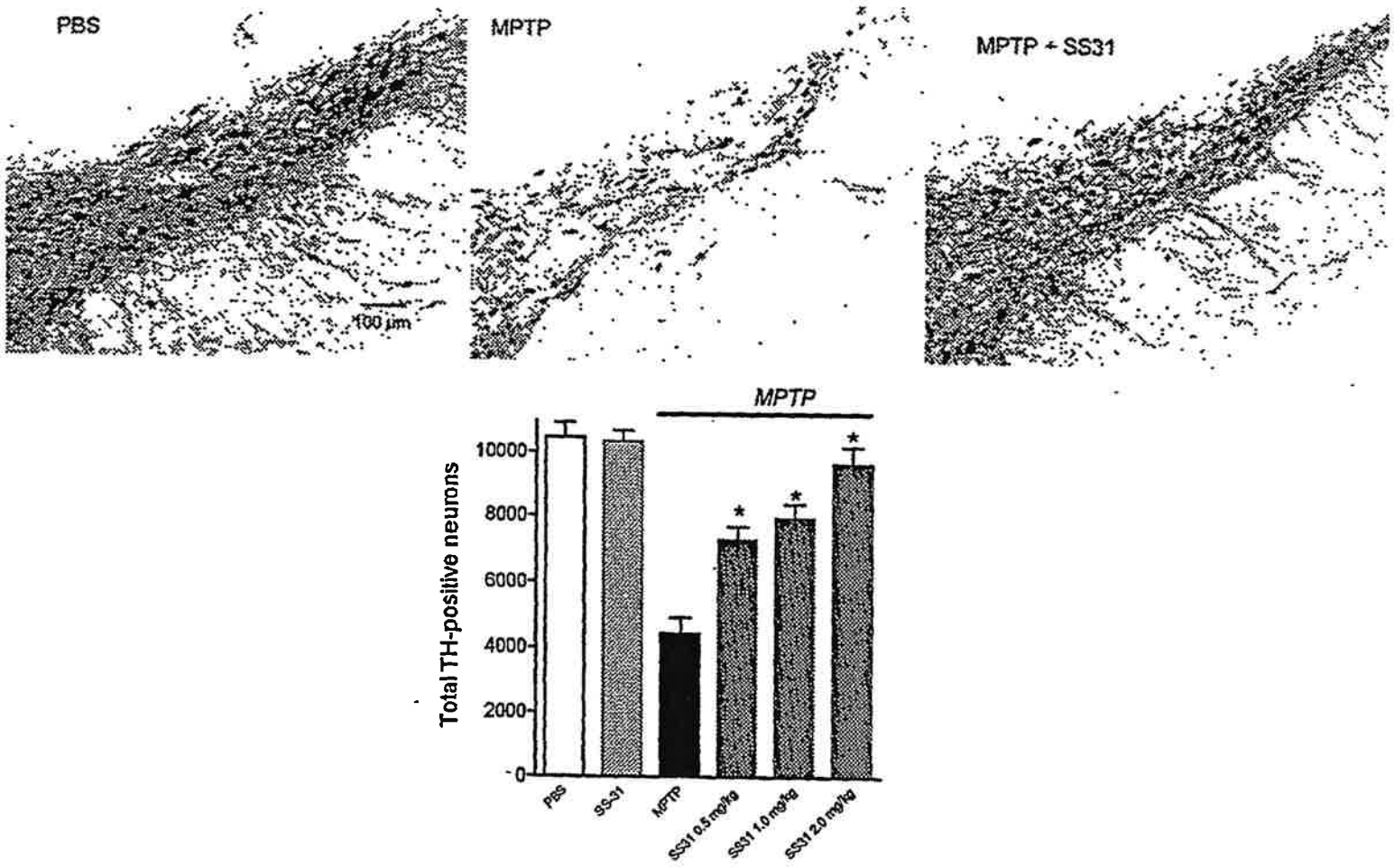

PBS
MPTP
MPTP + SS31
100 µm
MPTP
Total TH-positive neurons
10000
8000
6000
4000
2000
0
PBS
SS-31
MPTP
SS31 0.5 mg/kg
SS31 1.0 mg/kg
SS31 2.0 mg/kg

Figure 17C

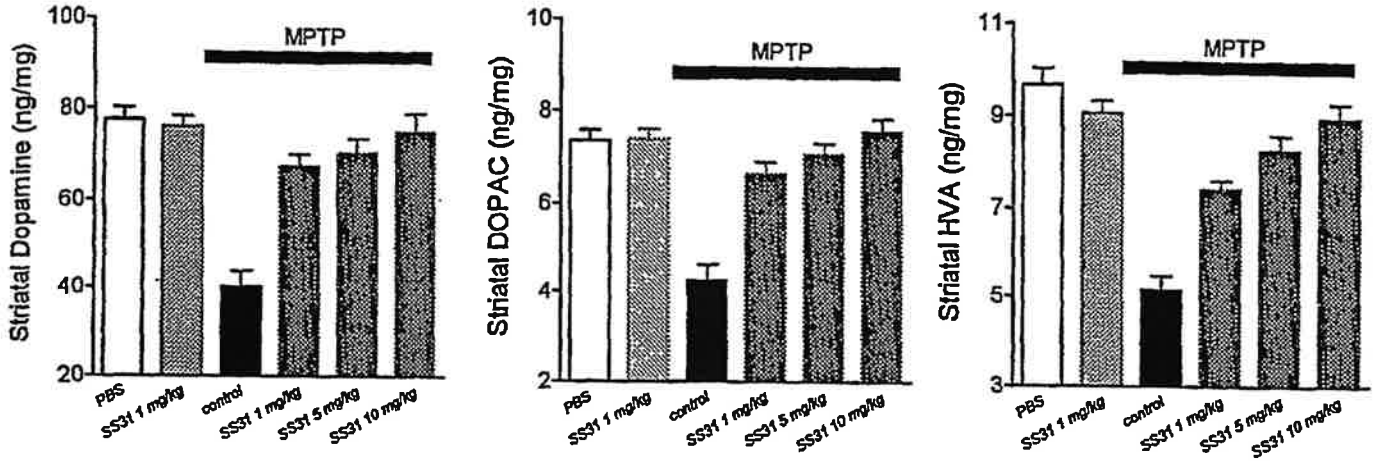

Striatal Dopamine (ng/mg)
100
80
60
40
20
MPTP
PBS
SS31 1 mg/kg
control
SS31 1 mg/kg
SS31 5 mg/kg
SS31 10 mg/kg
Striatal DOPAC (ng/mg)
10
8
6
4
2
MPTP
PBS
SS31 1 mg/kg
control
SS31 1 mg/kg
SS31 5 mg/kg
SS31 10 mg/kg
Striatal HVA (ng/mg)
11
9
7
5
3
MPTP
PBS
SS31 1 mg/kg
control
SS31 1 mg/kg
SS31 5 mg/kg
SS31 10 mg/kg

Figure 18

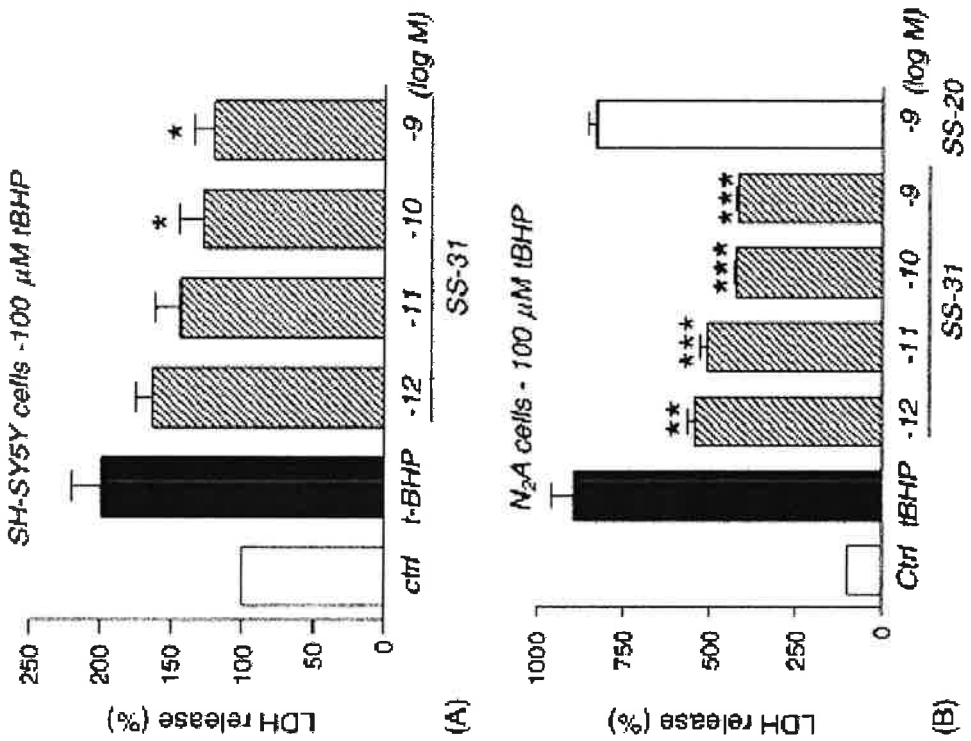

SH-SY5Y cells -100 µM tBHP
LDH release (%)
250
200
150
100
50
0
ctrl
t-BHP
-12
-11
-10
-9 (log M)
SS-31
*
*
*
(A)
N2A cells - 100 µM tBHP
LDH release (%)
1000
750
500
250
0
Ctrl
tBHP
-12
-11
-10
-9
-9 (log M)
SS-31
SS-20
**
***
***
***
(B)

Figure 19

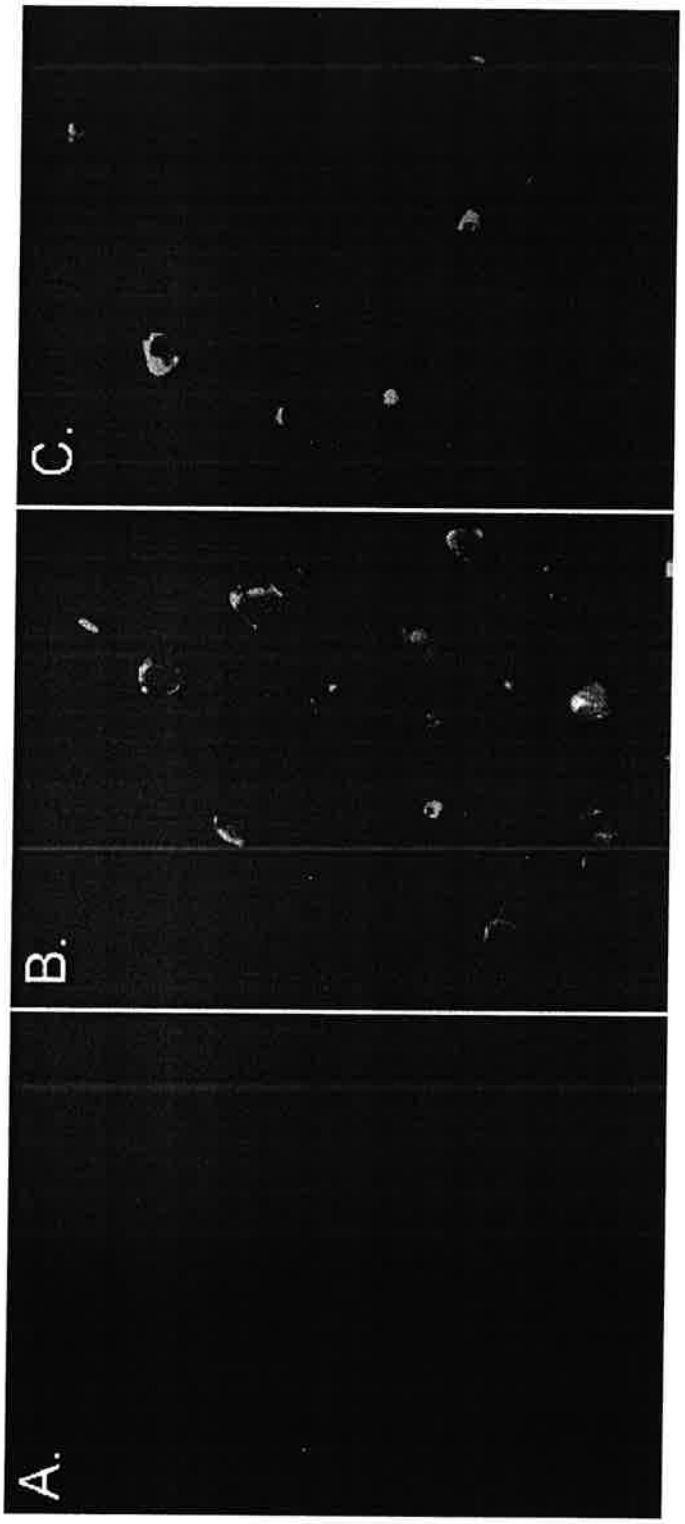
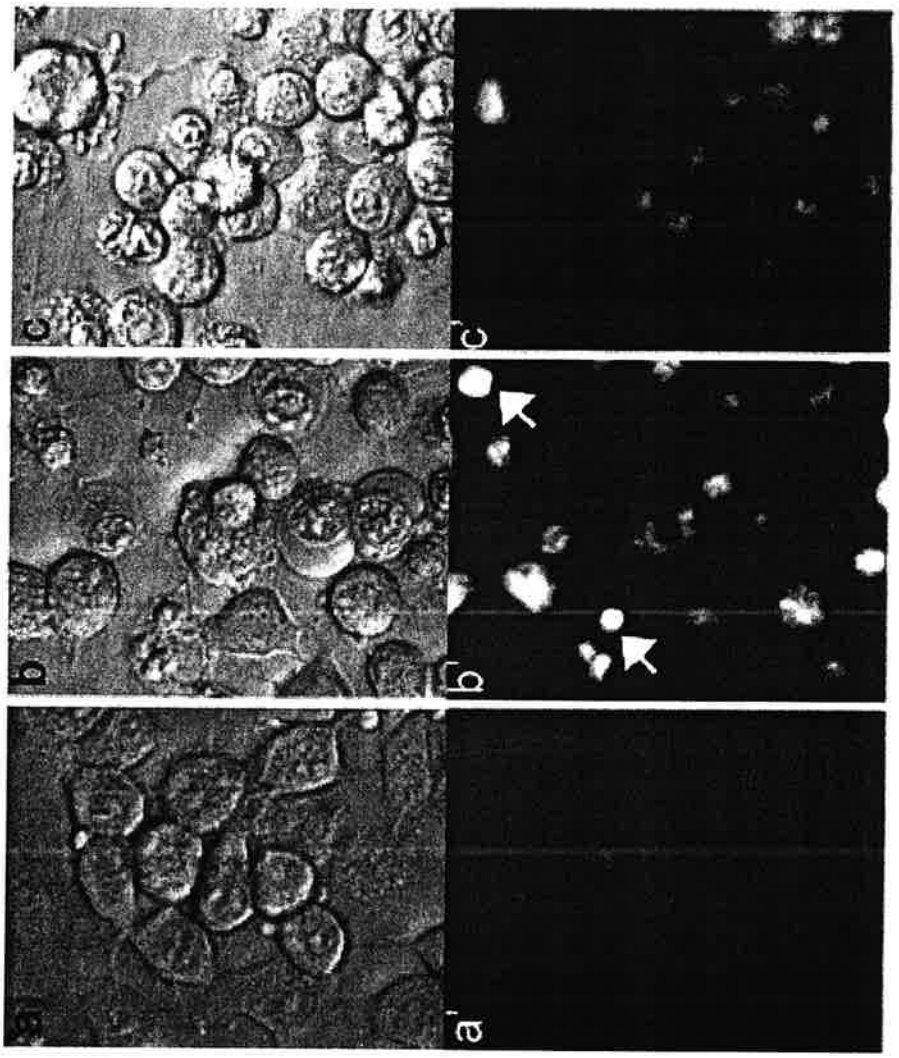


Figure 20A



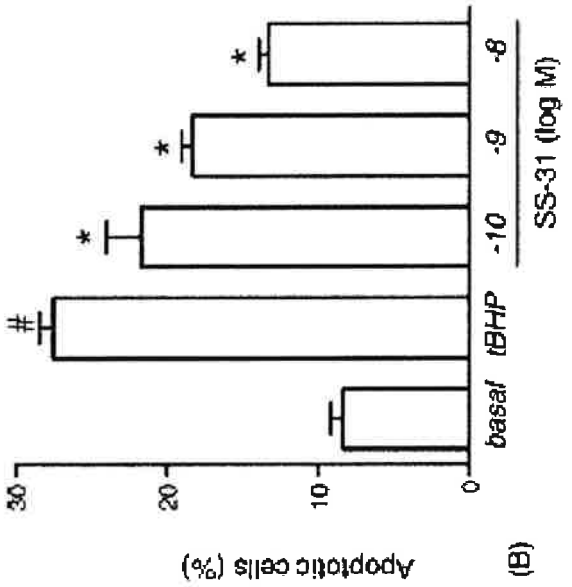


Figure 20B

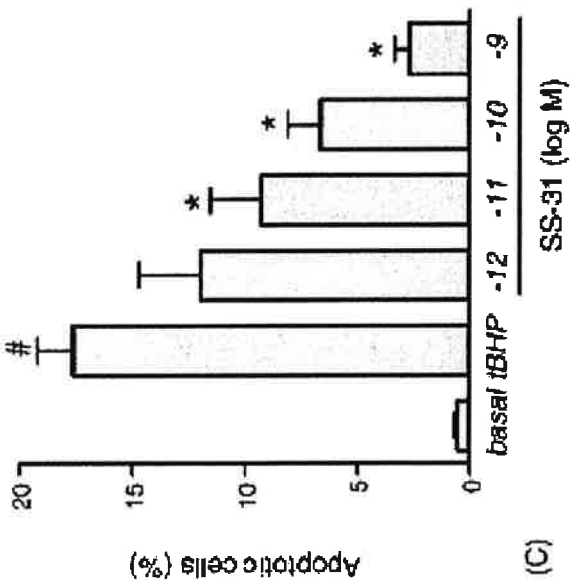


Figure 20C

Figure 21A

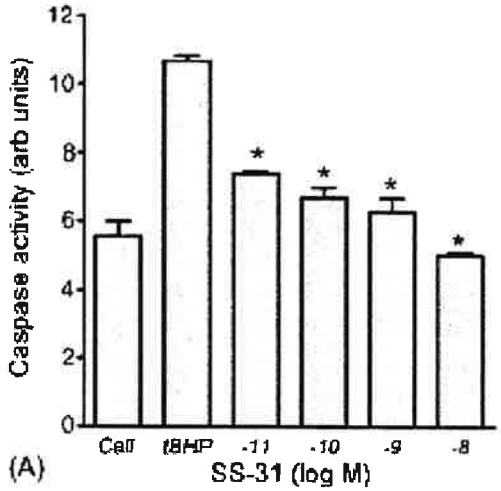


Figure 21B

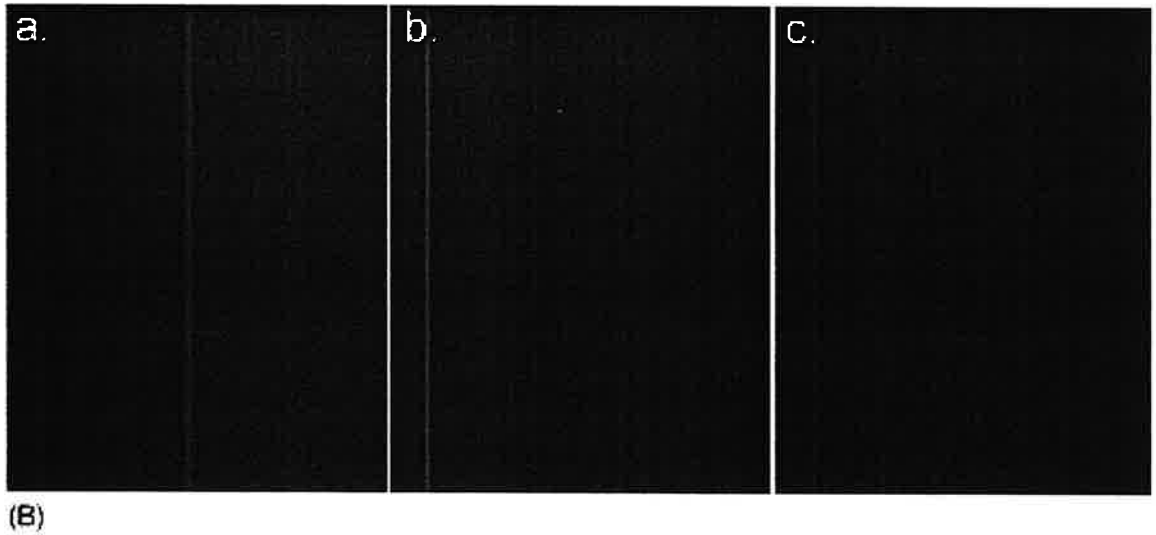


Figure 22A

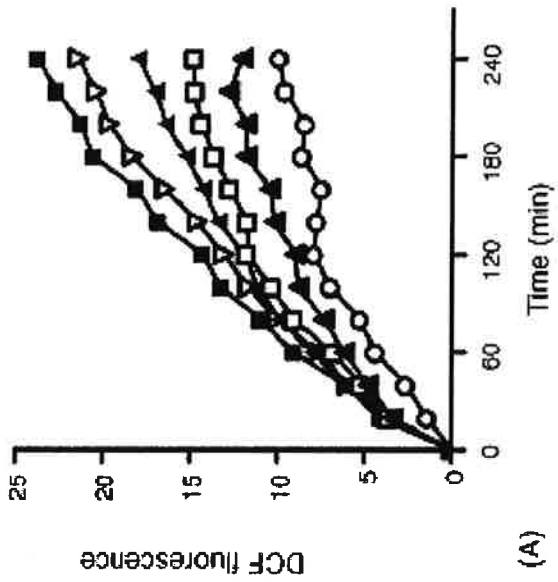


Figure 22B

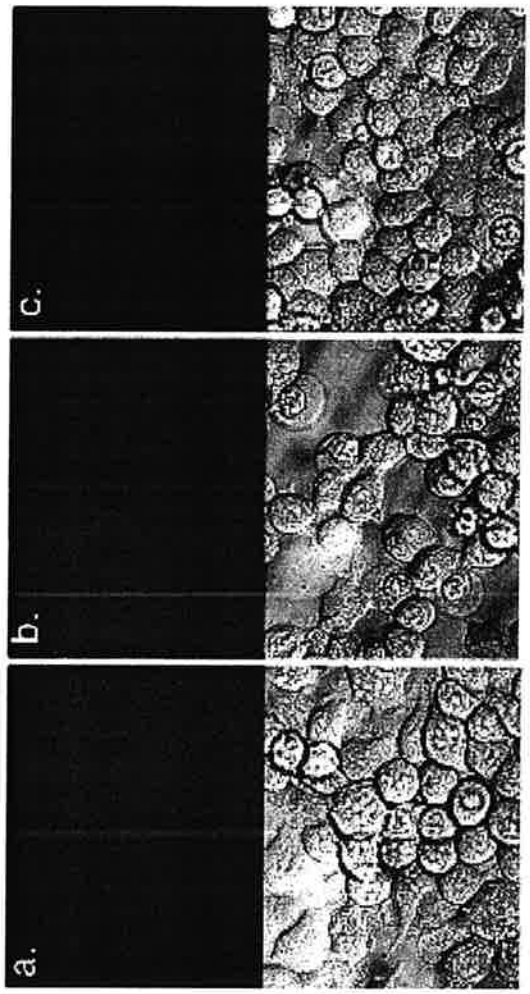


Figure 22C

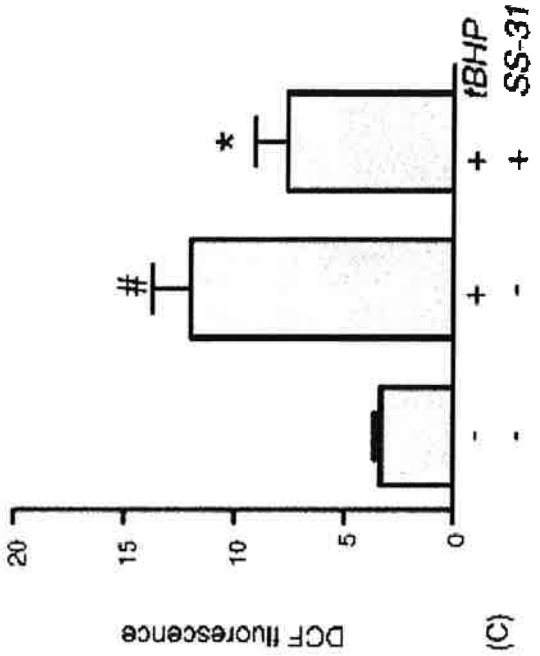


Figure 23A

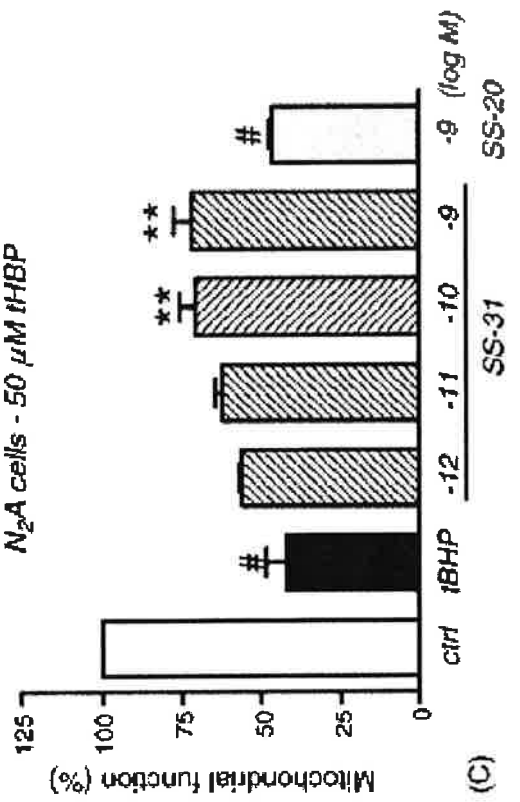

N2A cells - 50 μM tHBP
Mitochondrial function (%)
125
100
75
50
25
0
ctrl
tBHP
-12
-11
-10
-9
SS-31
-9
(log M)
SS-20
#
**
**
#
(C)

Figure 23B

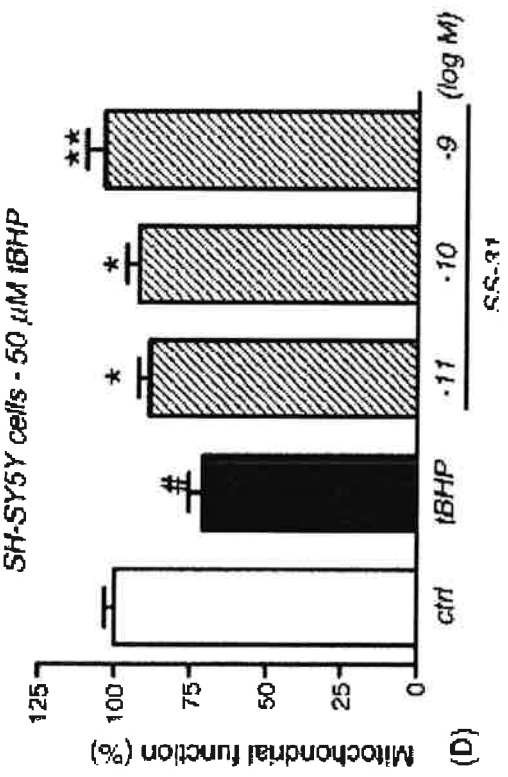

SH-SY5Y cells - 50 µM tBHP
Mitochondrial function (%)
125
100
75
50
25
0
ctrl
tBHP
-11
-10
-9
(log M)
SS-31
(D)
#
*
*
**

Figure 24

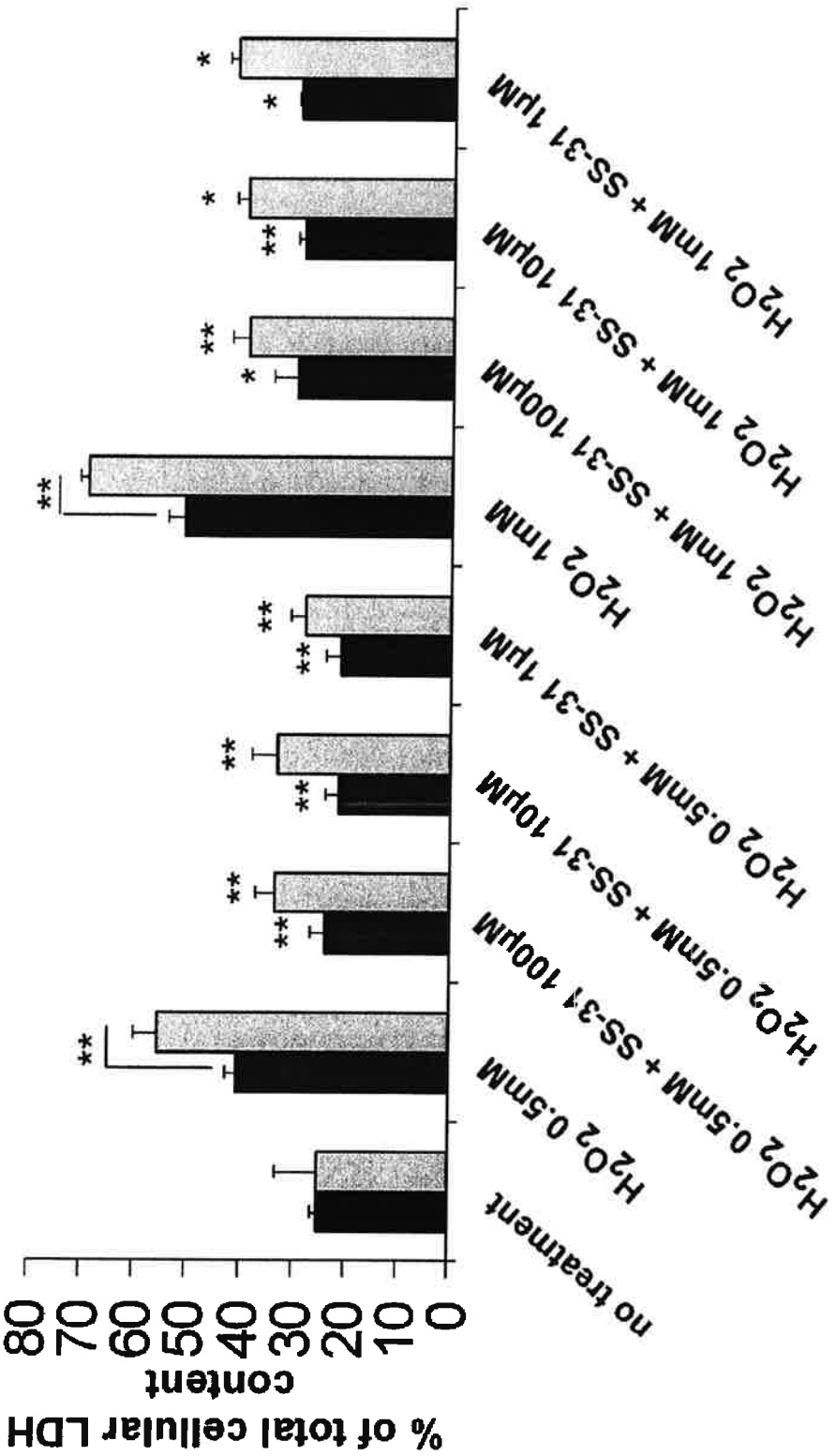

% of total cellular LDH content
80
70
60
50
40
30
20
10
0
no treatment
H2O2 0.5mM
H2O2 0.5mM + SS-31 100μM
H2O2 0.5mM + SS-31 10μM
H2O2 0.5mM + SS-31 1μM
H2O2 1mM
H2O2 1mM + SS-31 100μM
H2O2 1mM + SS-31 10μM
H2O2 1mM + SS-31 1μM

Figure 25A

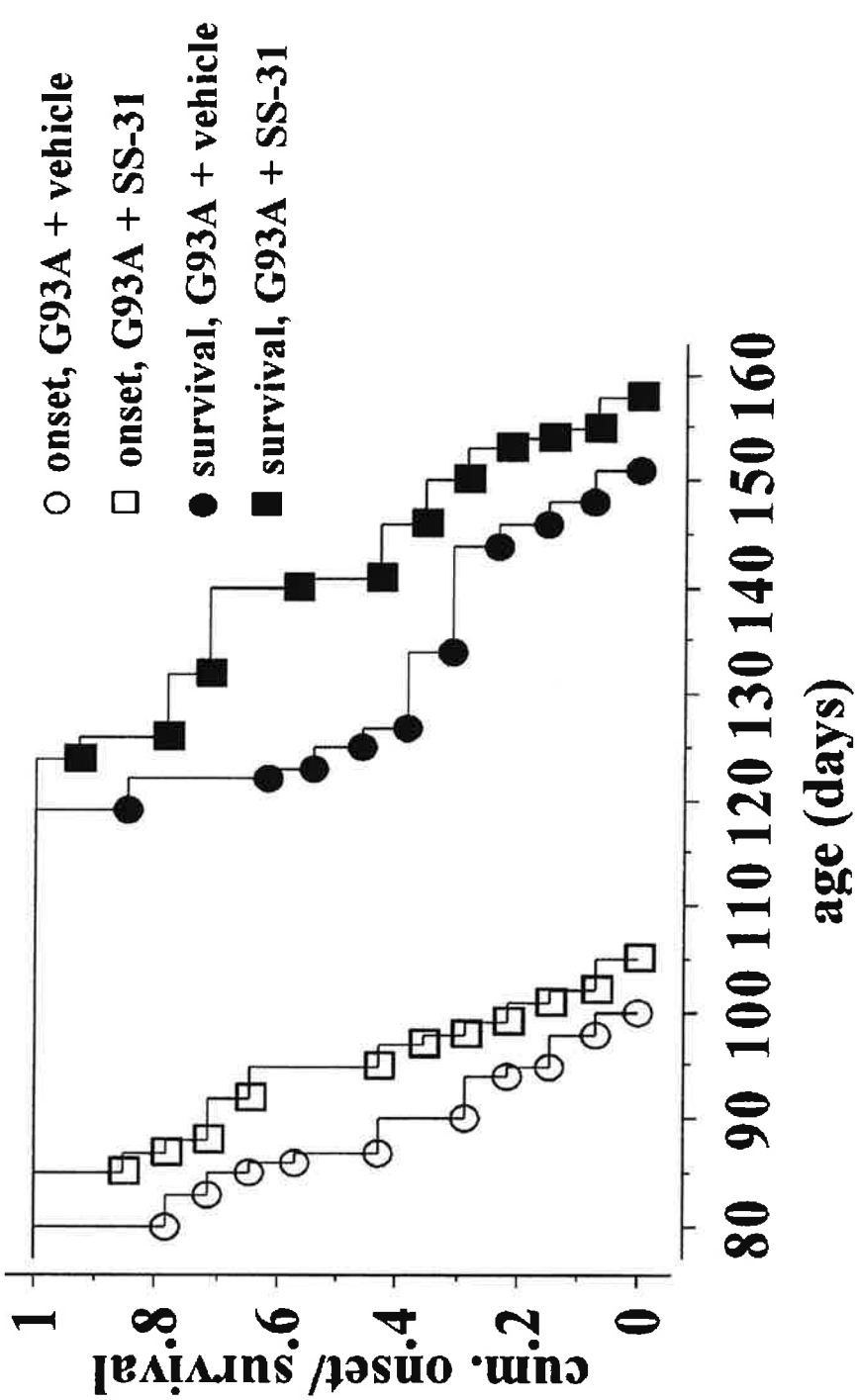

○ onset, G93A + vehicle
□ onset, G93A + SS-31
● survival, G93A + vehicle
■ survival, G93A + SS-31
cum. onset/ survival
0
.2
.4
.6
.8
1
80 90 100 110 120 130 140 150 160
age (days)

Figure 25B

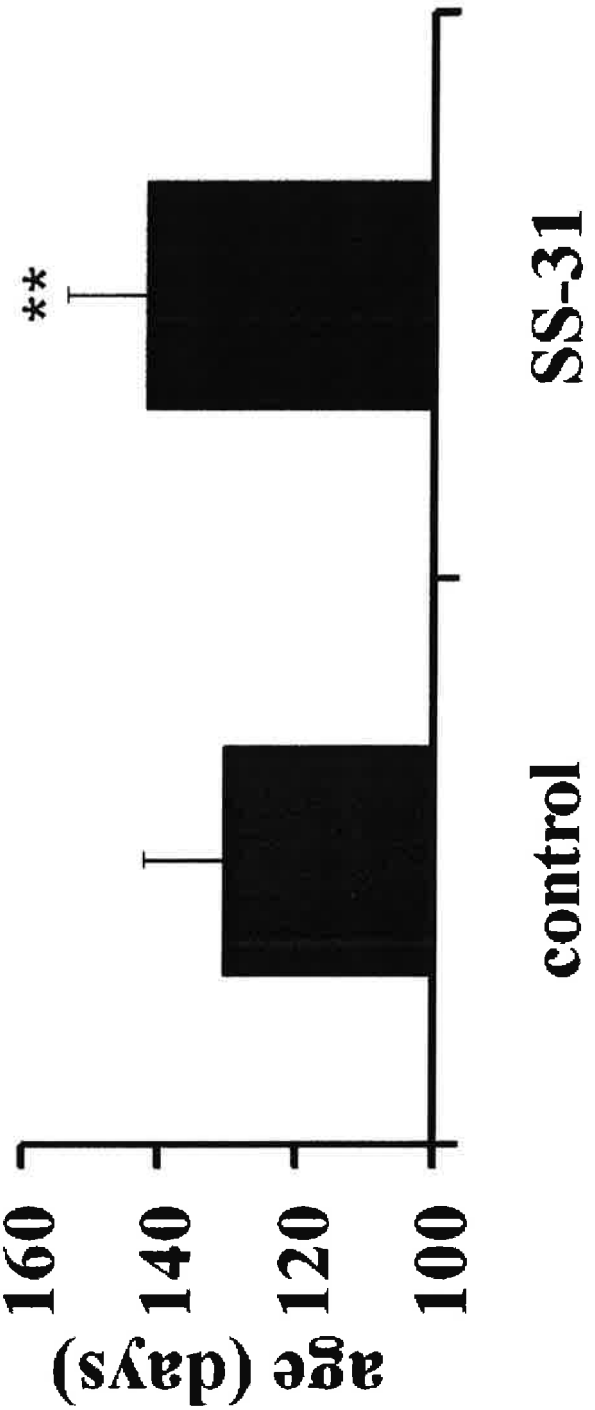


Figure 26

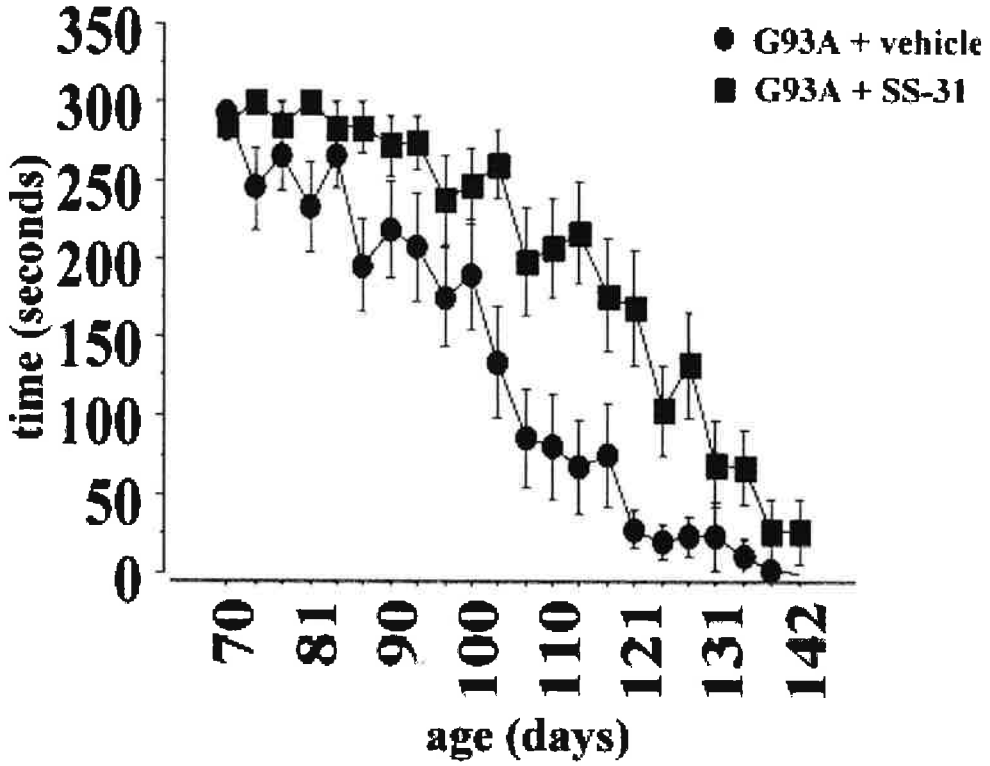

G93A + vehicle
G93A + SS-31
time (seconds)
350
300
250
200
150
100
50
0
70
81
90
100
110
121
131
142
age (days)

Figure 27

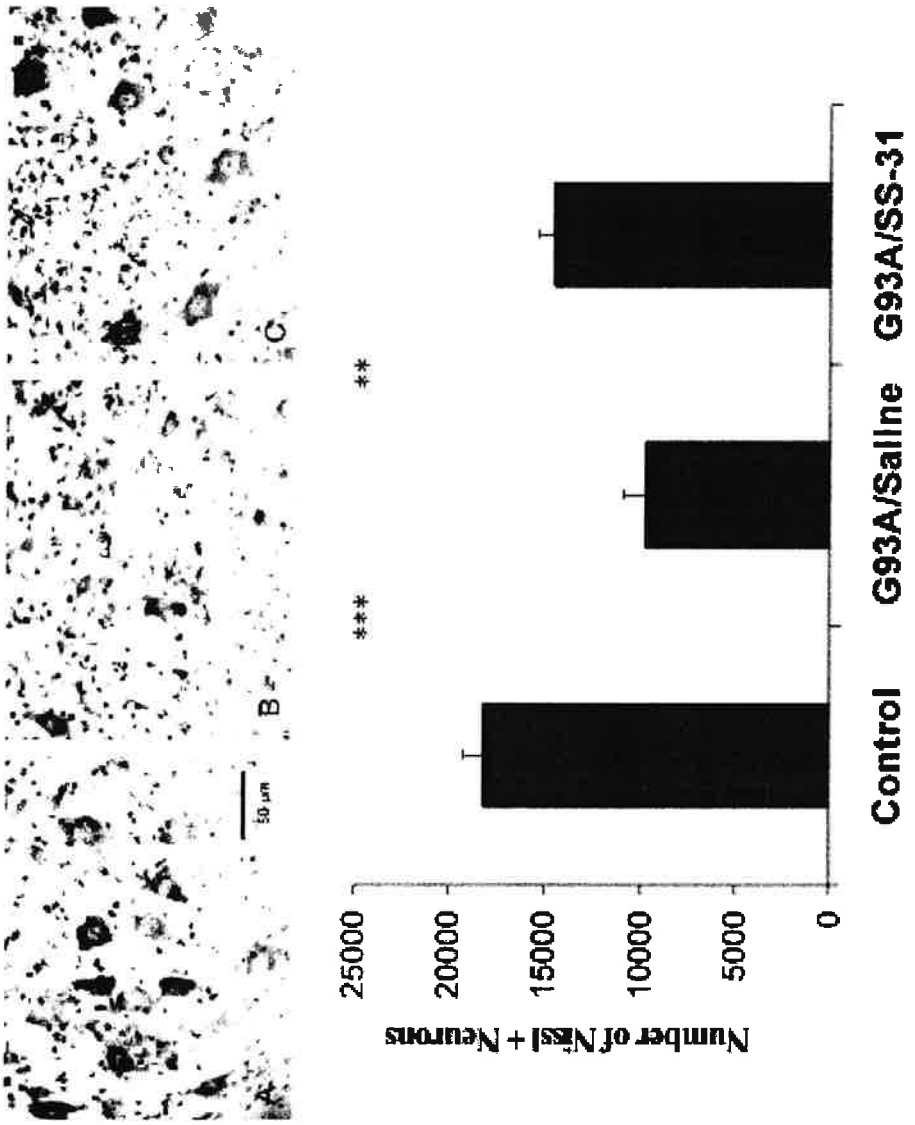

A
B
C
50 μm
***
**
Number of Nissl + Neurons
25000
20000
15000
10000
5000
0
Control
G93A/Saline
G93A/SS-31

Figure 28

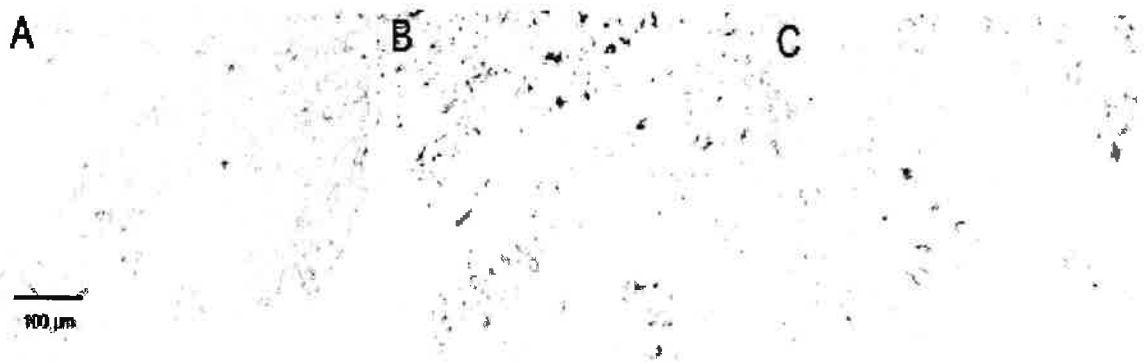


Figure 29

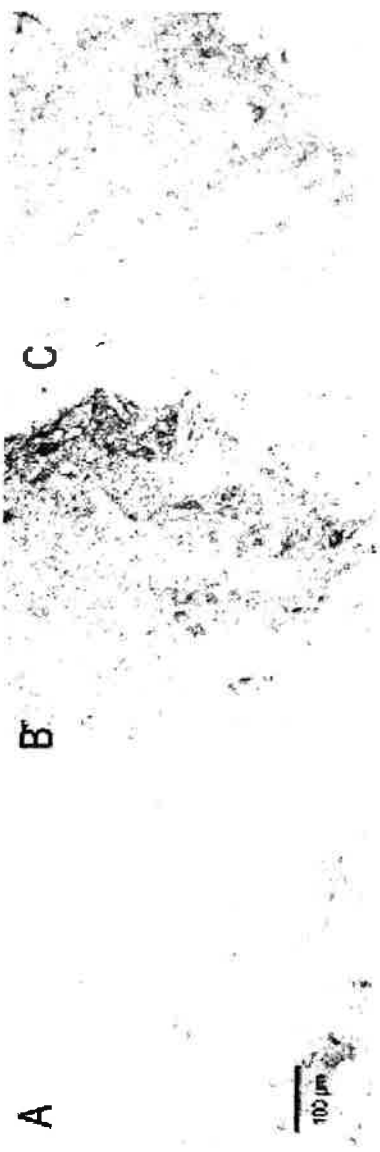


Figure 30

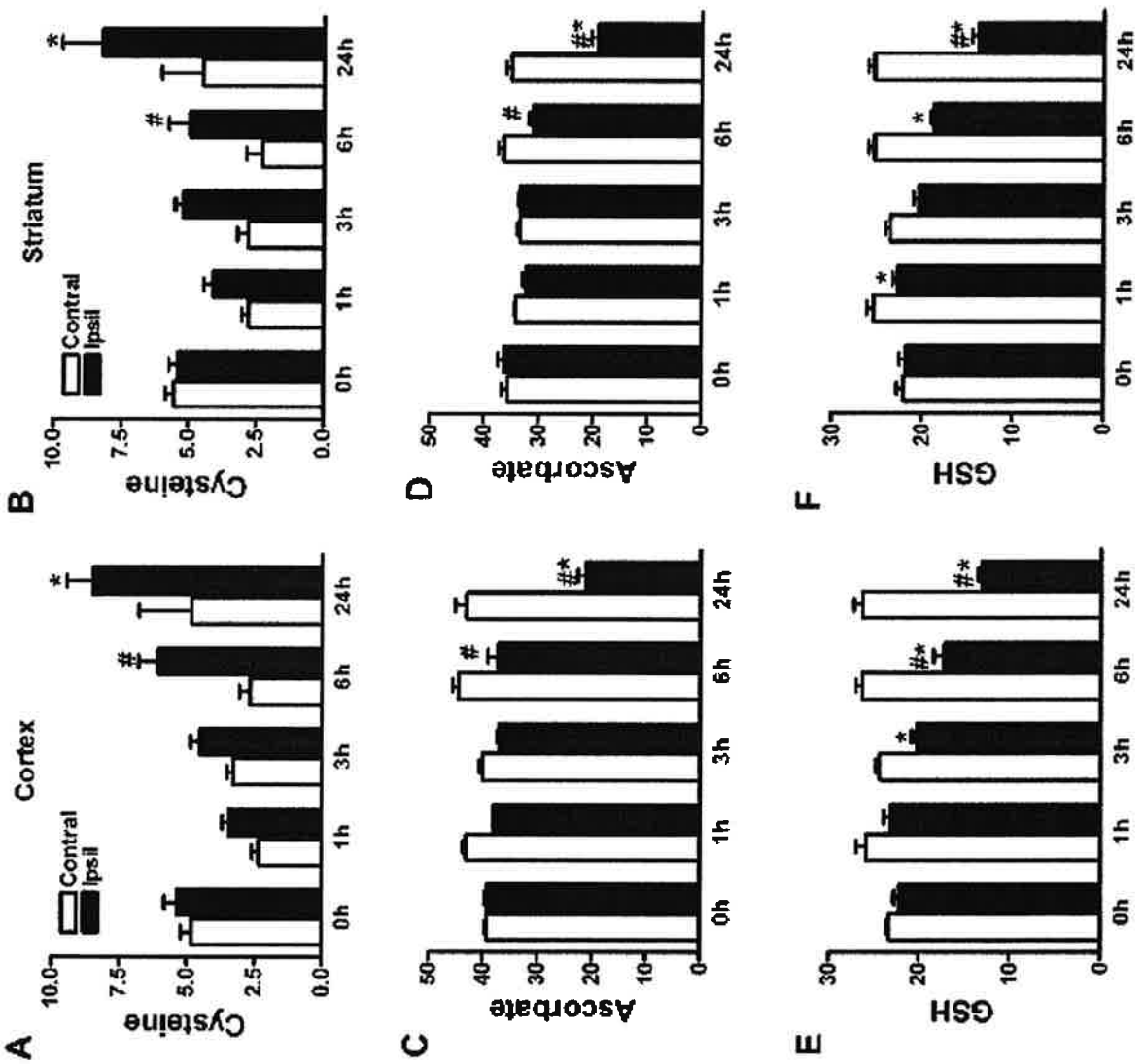
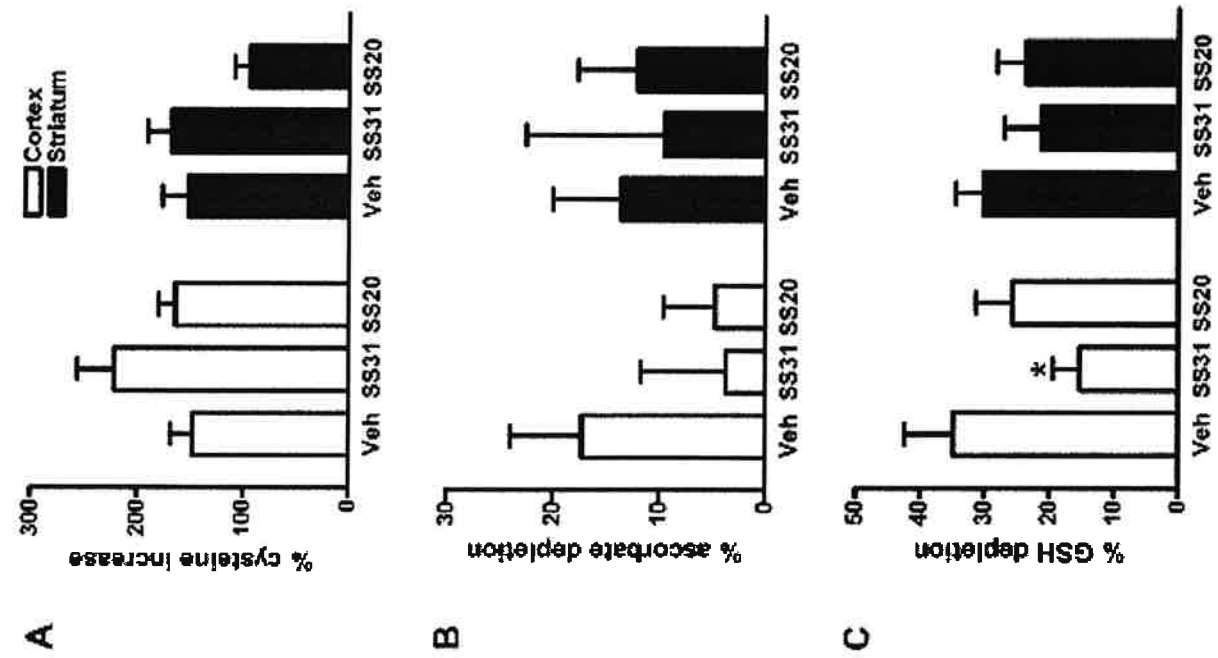
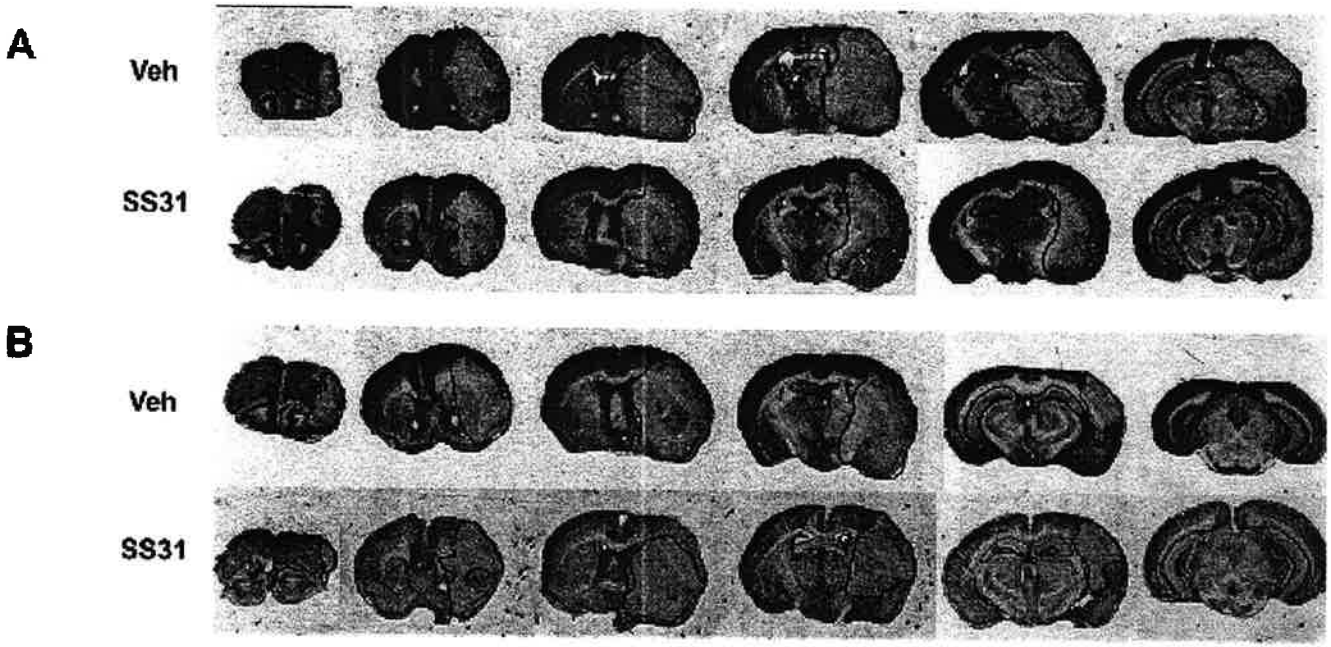

A
Cortex
Contral
Ipsil
Cystein
10.0
7.5
5.0
2.5
0.0
0h
1h
3h
6h
24h
B
Striatum
C
Ascorbate
D
E
GSH
F

Figure 31


A
Cortex
Striatum
% cysteine increase
300
200
100
0
Veh
SS31
SS20
Veh
SS31
SS20
B
% ascorbate depletion
30
20
10
0
Veh
SS31
SS20
Veh
SS31
SS20
C
% GSH depletion
50
40
30
20
10
0
*
Veh
SS31
SS20
Veh
SS31
SS20

Figures 32 A and B



Figures 32 C, D, E and F

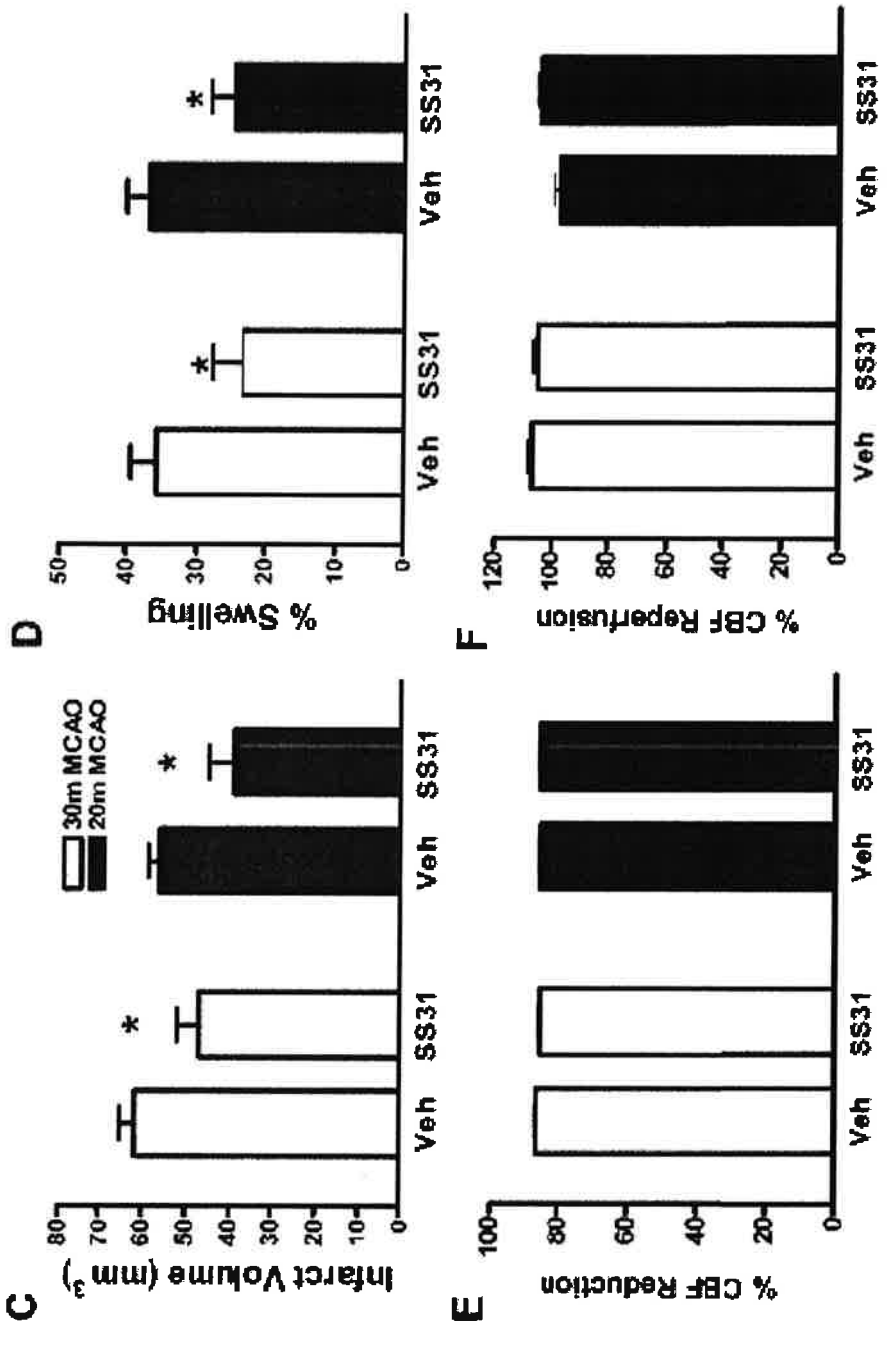


Figure 33A

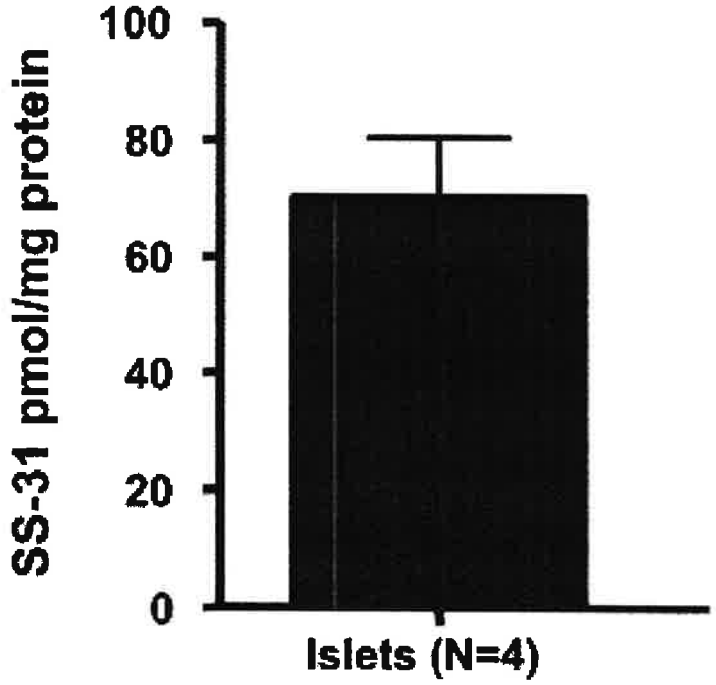


Figure 33B

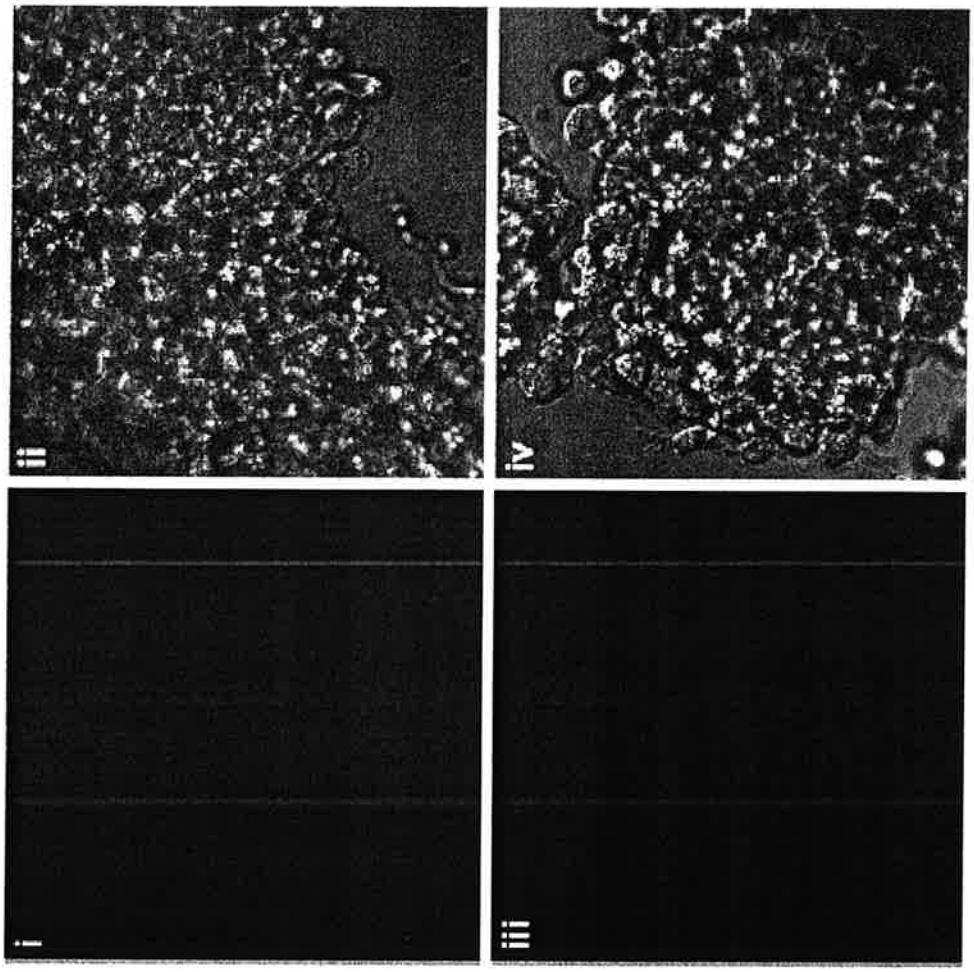


Figure 34A

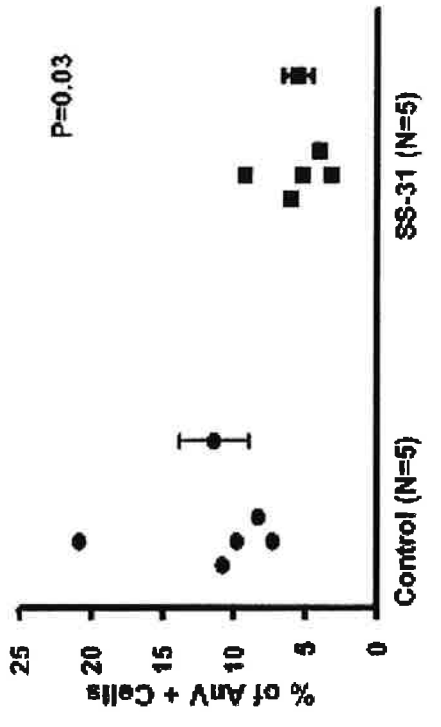


Figure 34B

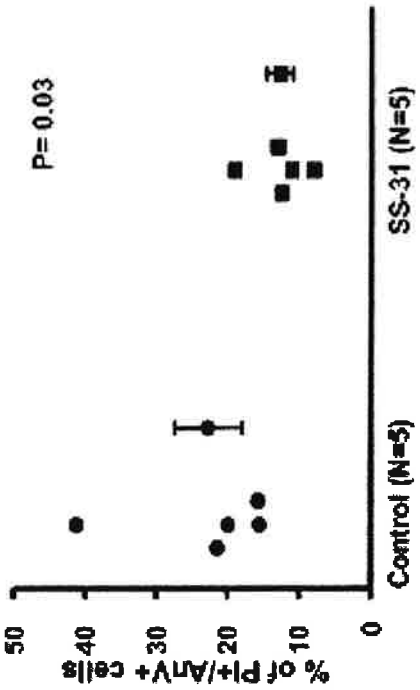


Figure 34C

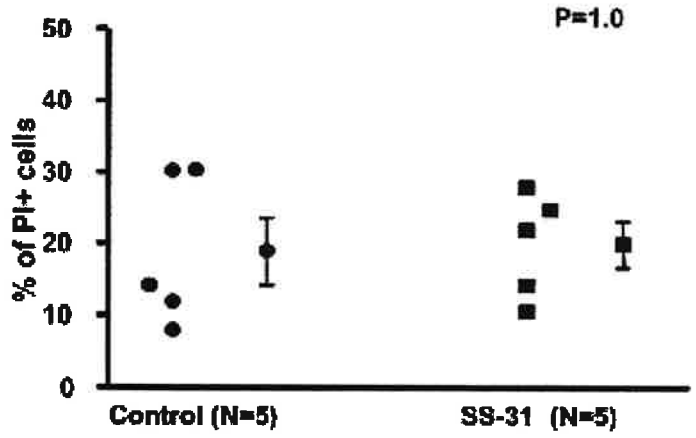


Figure 34D

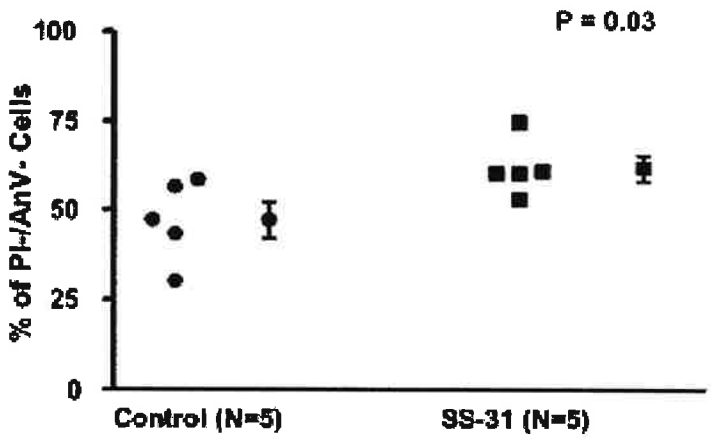


Figure 35A

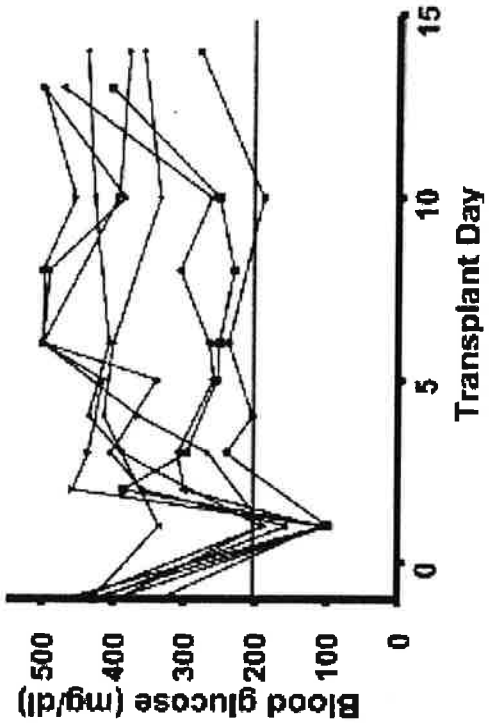

Blood glucose (mg/dl)
500
400
300
200
100
0
0
5
10
15
Transplant Day

Figure 35B

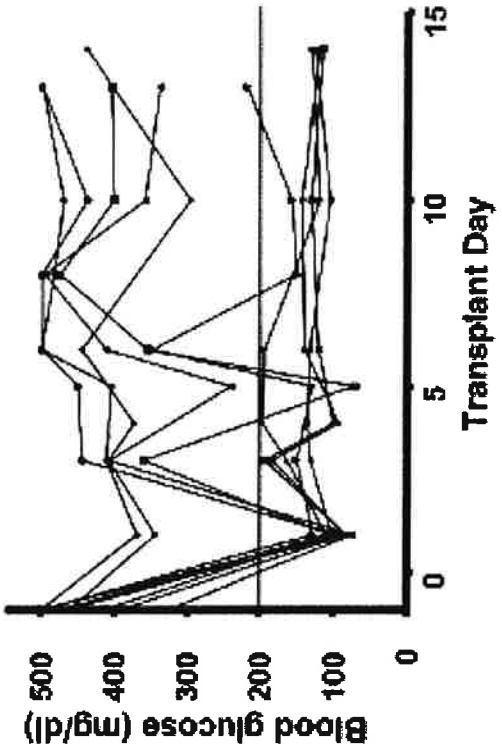

Blood glucose (mg/dl)
500
400
300
200
100
0
0
5
10
15
Transplant Day

Figure 35C

Treatment Group	Post-Transplantation				
	Day 1	Day 3	Day 5	Day 10	Day 14
Control (N=8 mice)	7/8	0/8	0/8	1/8	0/8
SS-31 Tx (N=10 mice)	8/10	5/10	6/10	5/10	5/10
P value	NS	0.02	0.007	0.09	0.02