FIG. 1

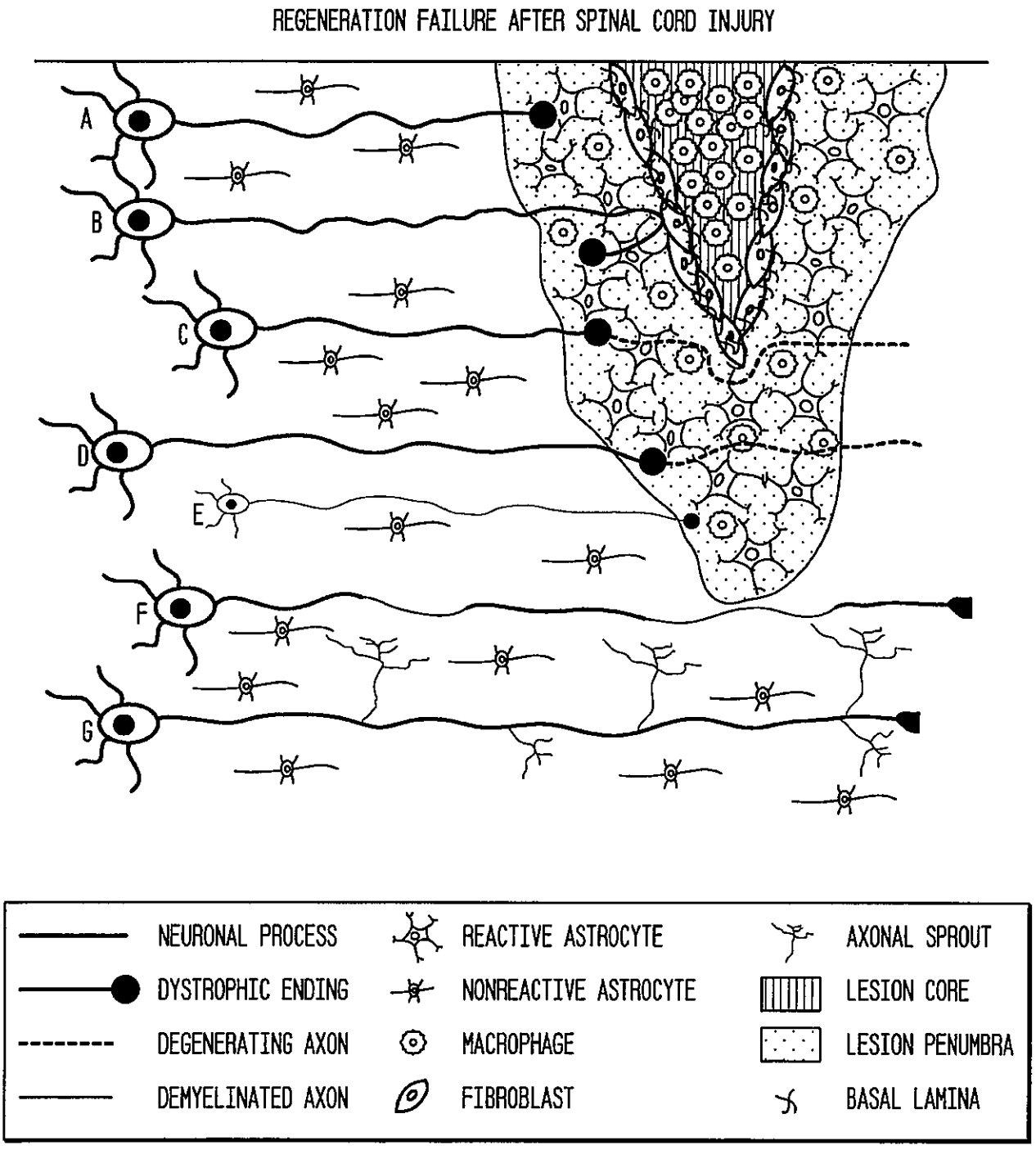

REGENERATION FAILURE AFTER SPINAL CORD INJURY
A
B
C
D
E
F
G
NEURONAL PROCESS
DYSTROPHIC ENDING
DEGENERATING AXON
DEMYELINATED AXON
REACTIVE ASTROCYTE
NONREACTIVE ASTROCYTE
MACROPHAGE
FIBROBLAST
AXONAL SPROUT
LESION CORE
LESION PENUMBRA
BASAL LAMINA

FIG. 2

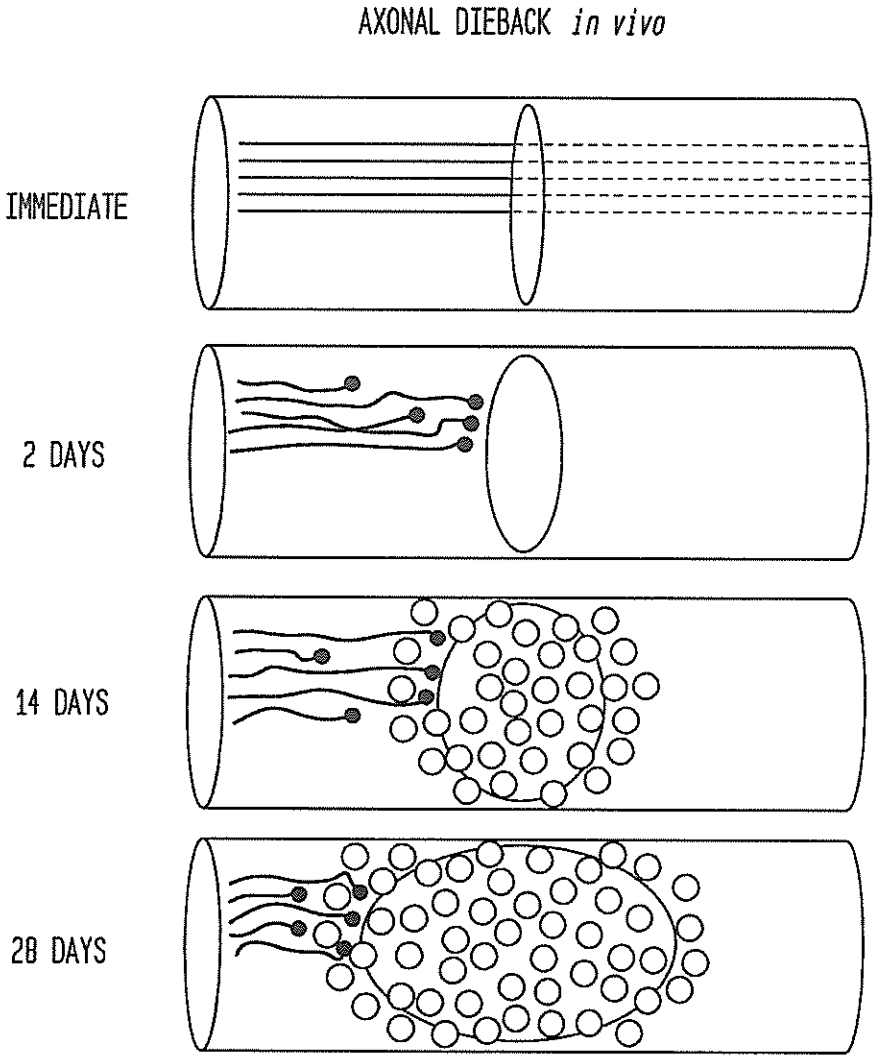


FIG. 3-1

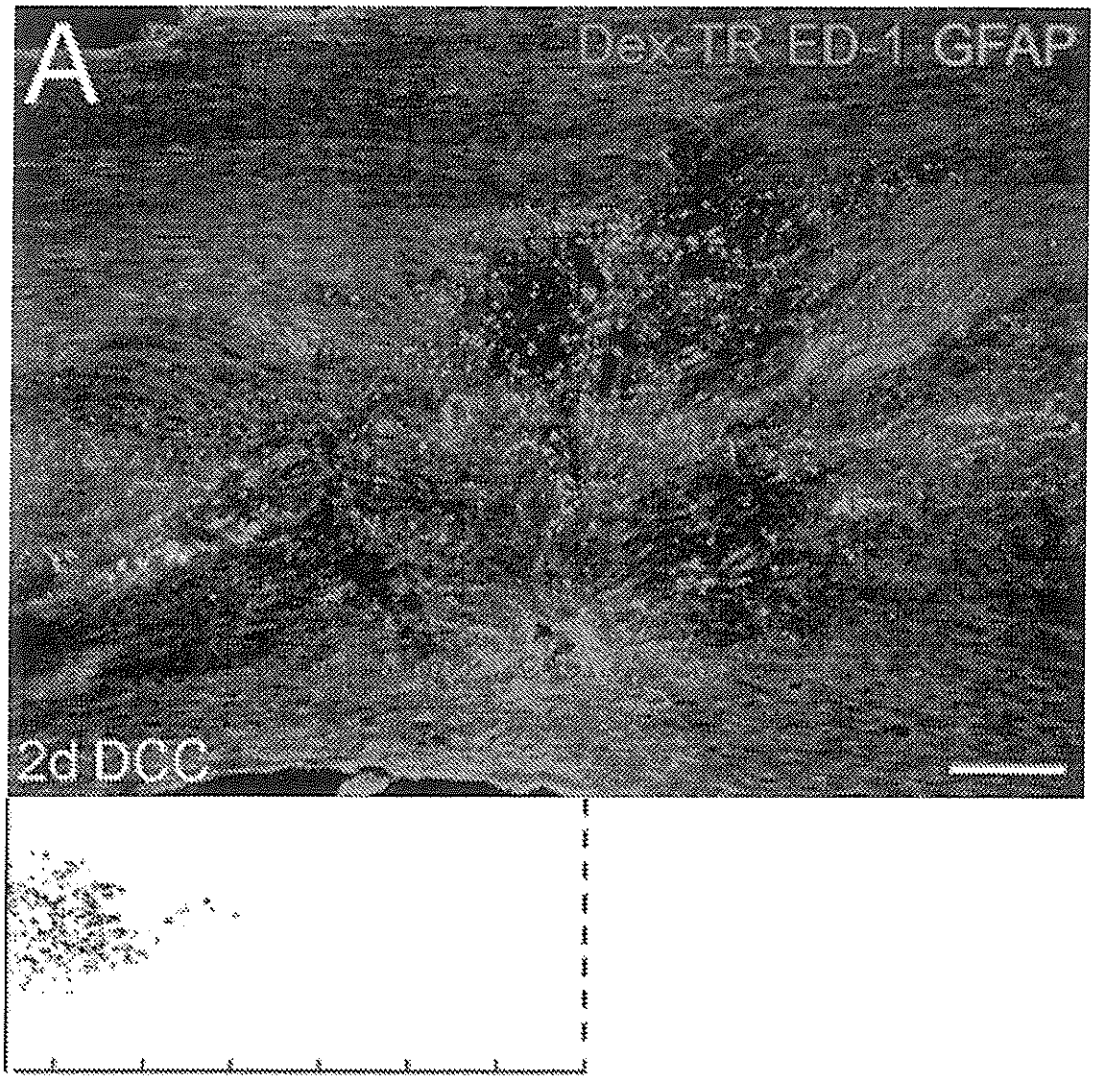


FIG. 3-2

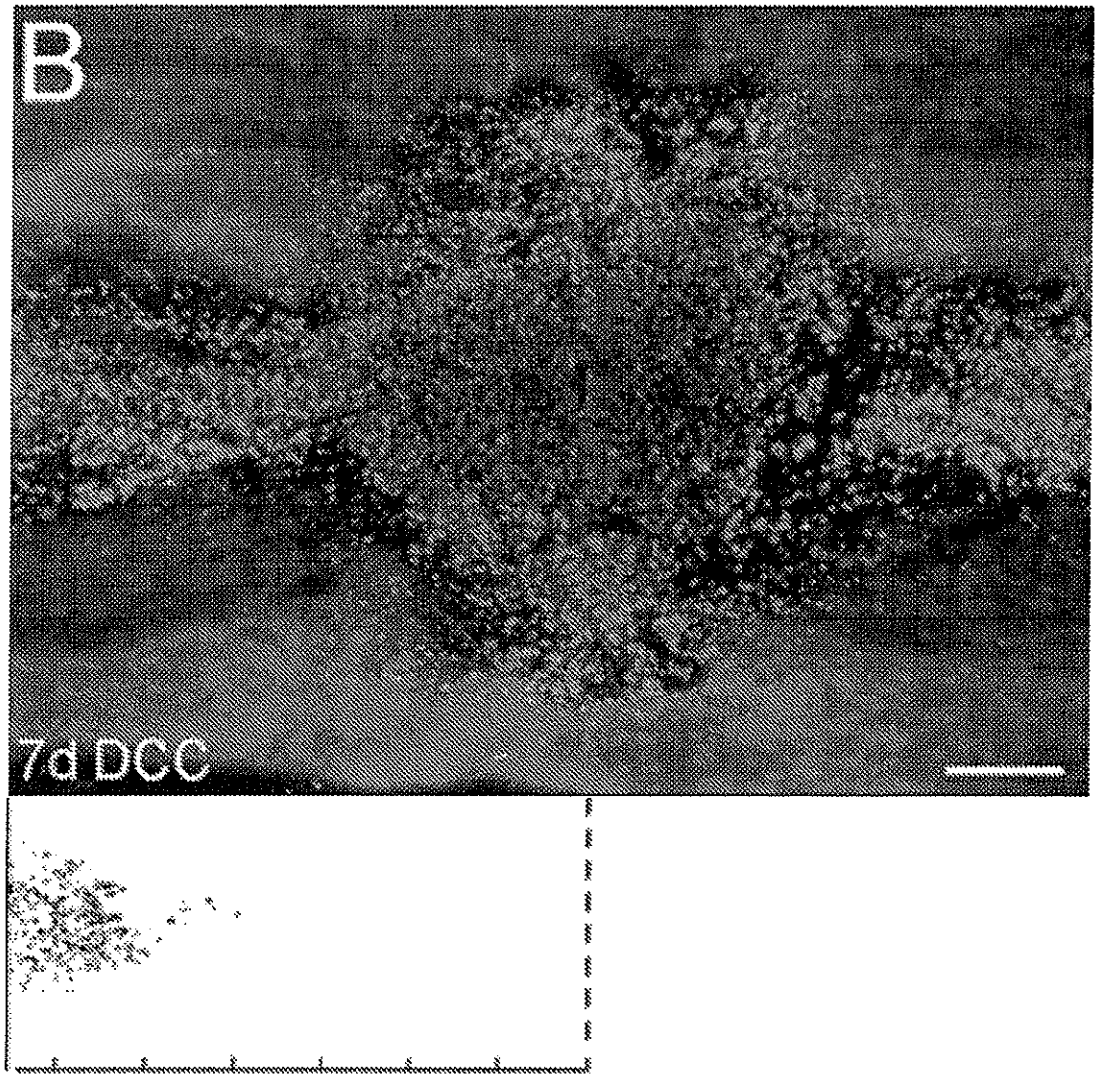


FIG. 3-3

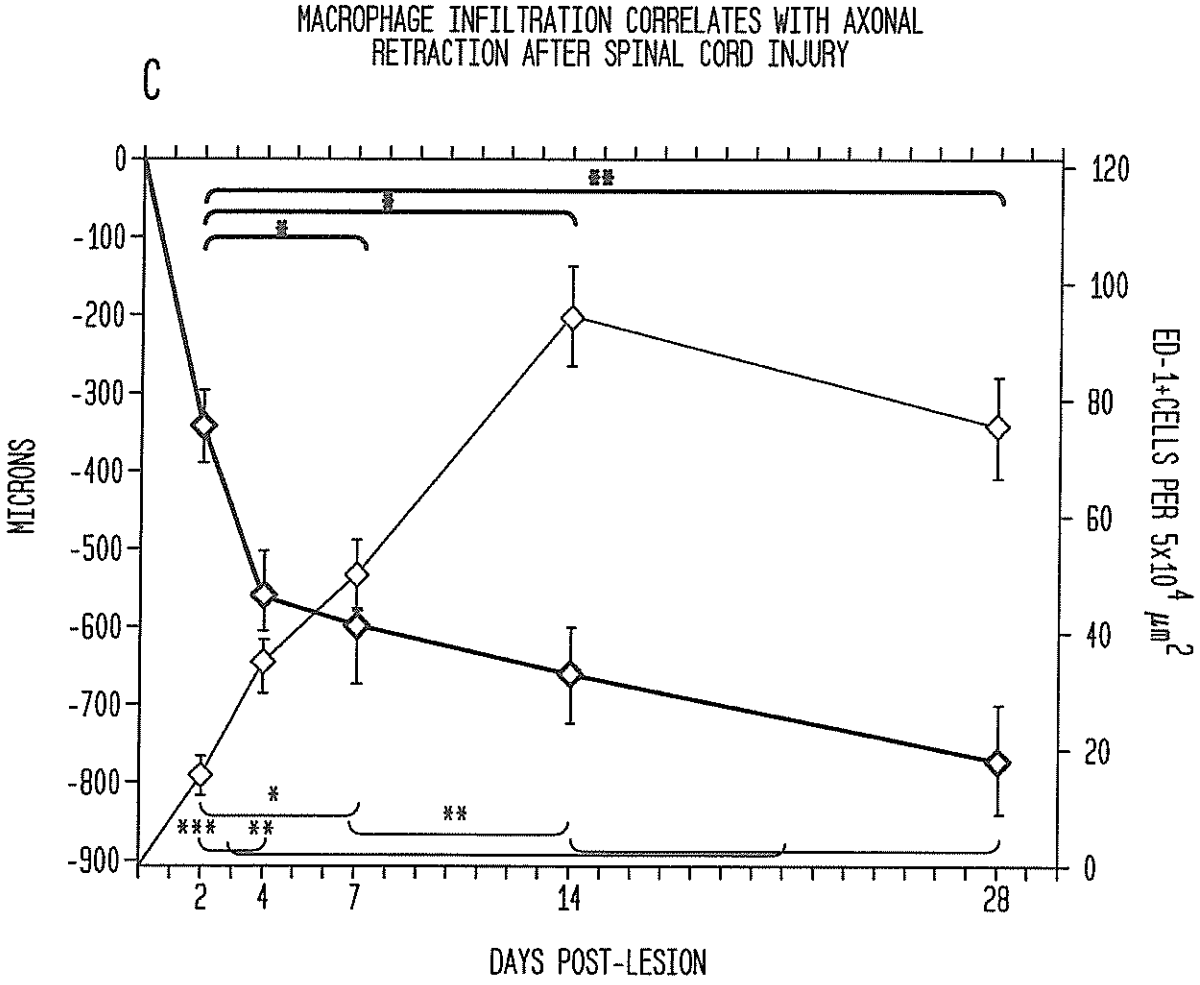

MACROPHAGE INFILTRATION CORRELATES WITH AXONAL RETRACTION AFTER SPINAL CORD INJURY
C
MICRONS
ED-1+CELLS PER 5x10^4 µm^2
DAYS POST-LESION
0
-100
-200
-300
-400
-500
-600
-700
-800
-900
120
100
80
60
40
20
0
2
4
7
14
28
*
**
***

FIG. 4-1

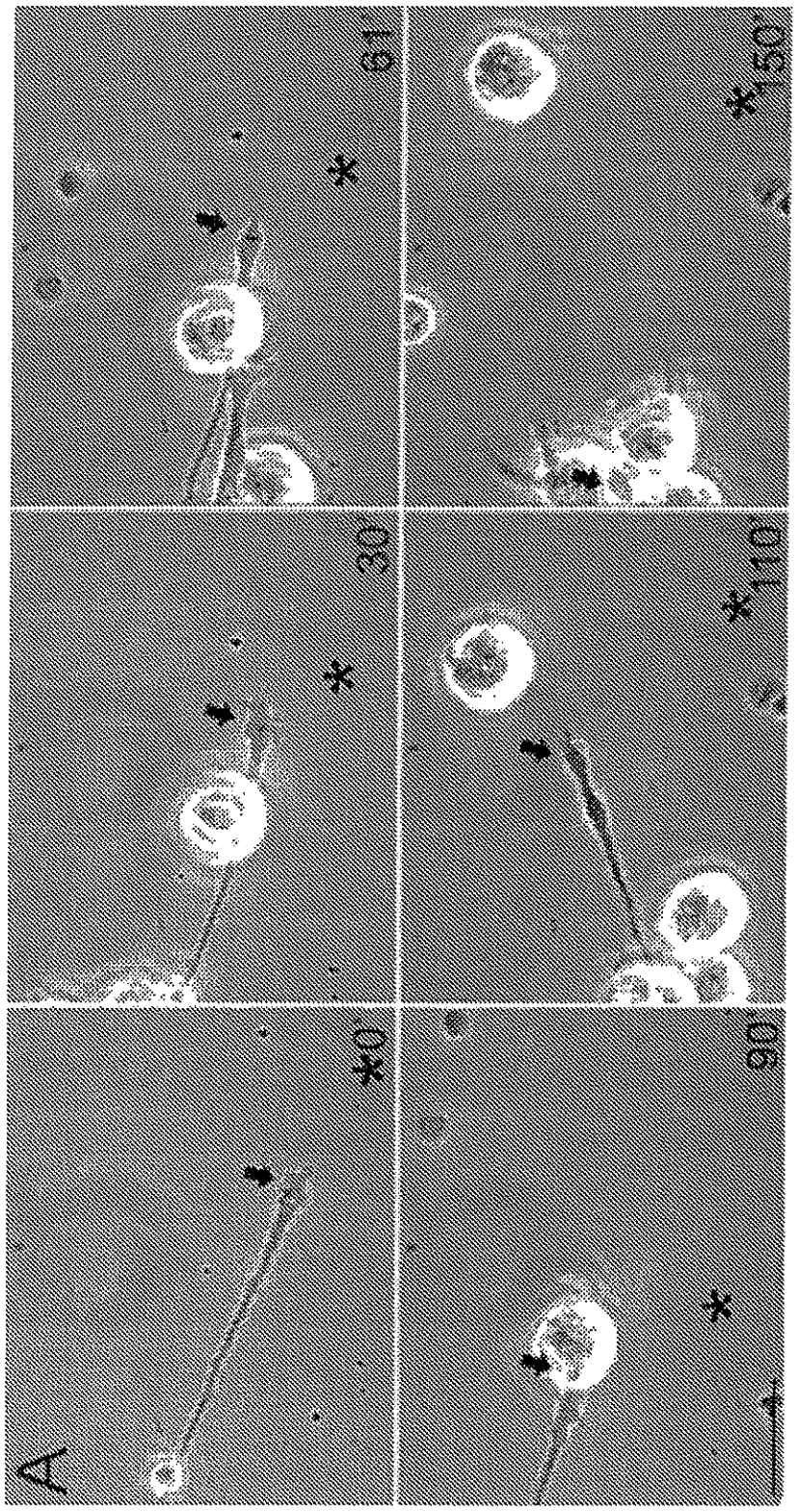


FIG. 4-2

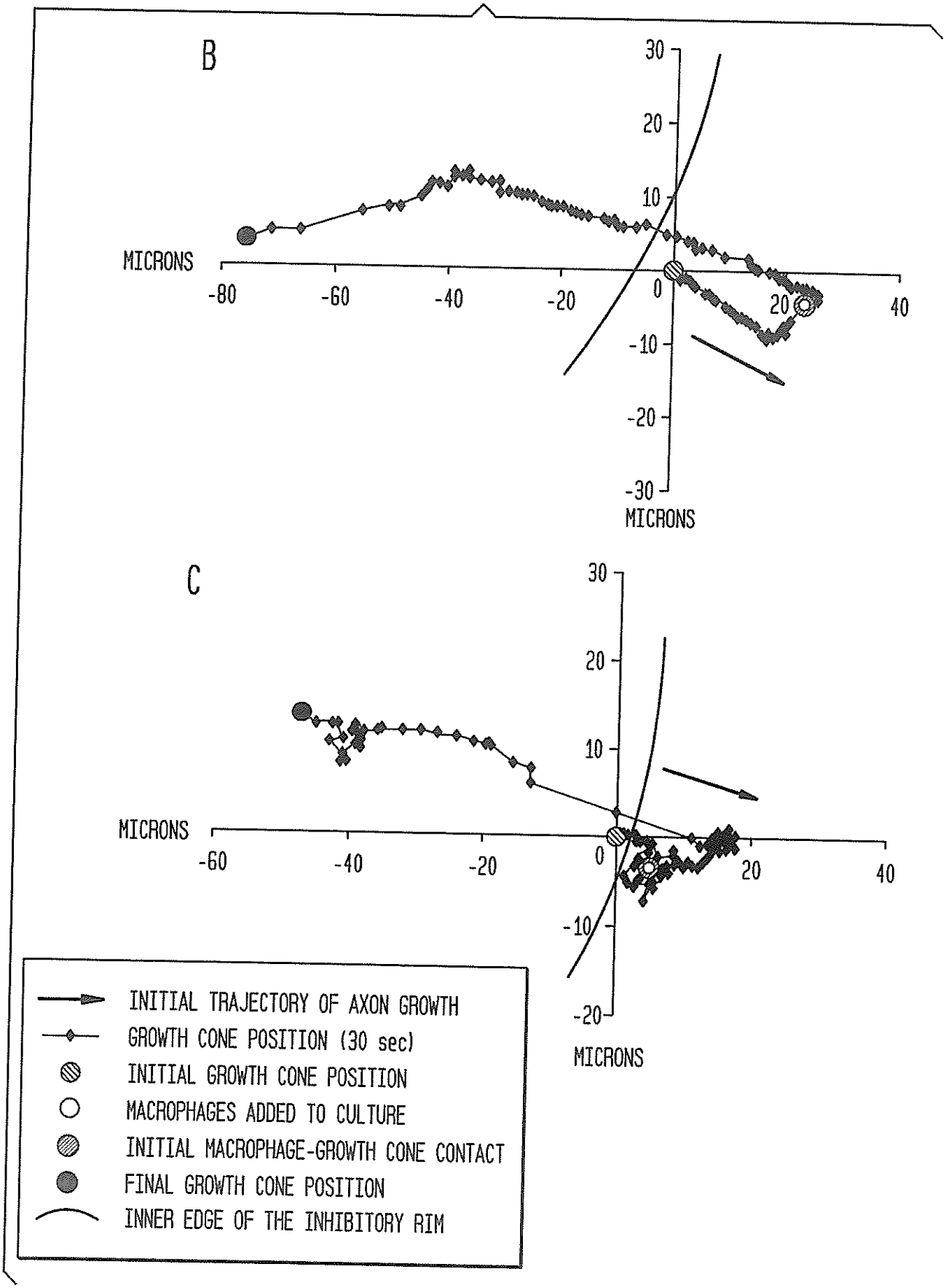

B
30
20
10
MICRONS
-80
-60
-40
-20
0
20
40
-10
-20
-30
MICRONS
C
30
20
10
MICRONS
-60
-40
-20
0
20
40
-10
-20
MICRONS
INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30 sec)
INITIAL GROWTH CONE POSITION
MACROPHAGES ADDED TO CULTURE
INITIAL MACROPHAGE-GROWTH CONE CONTACT
FINAL GROWTH CONE POSITION
INNER EDGE OF THE INHIBITORY RIM

FIG. 5

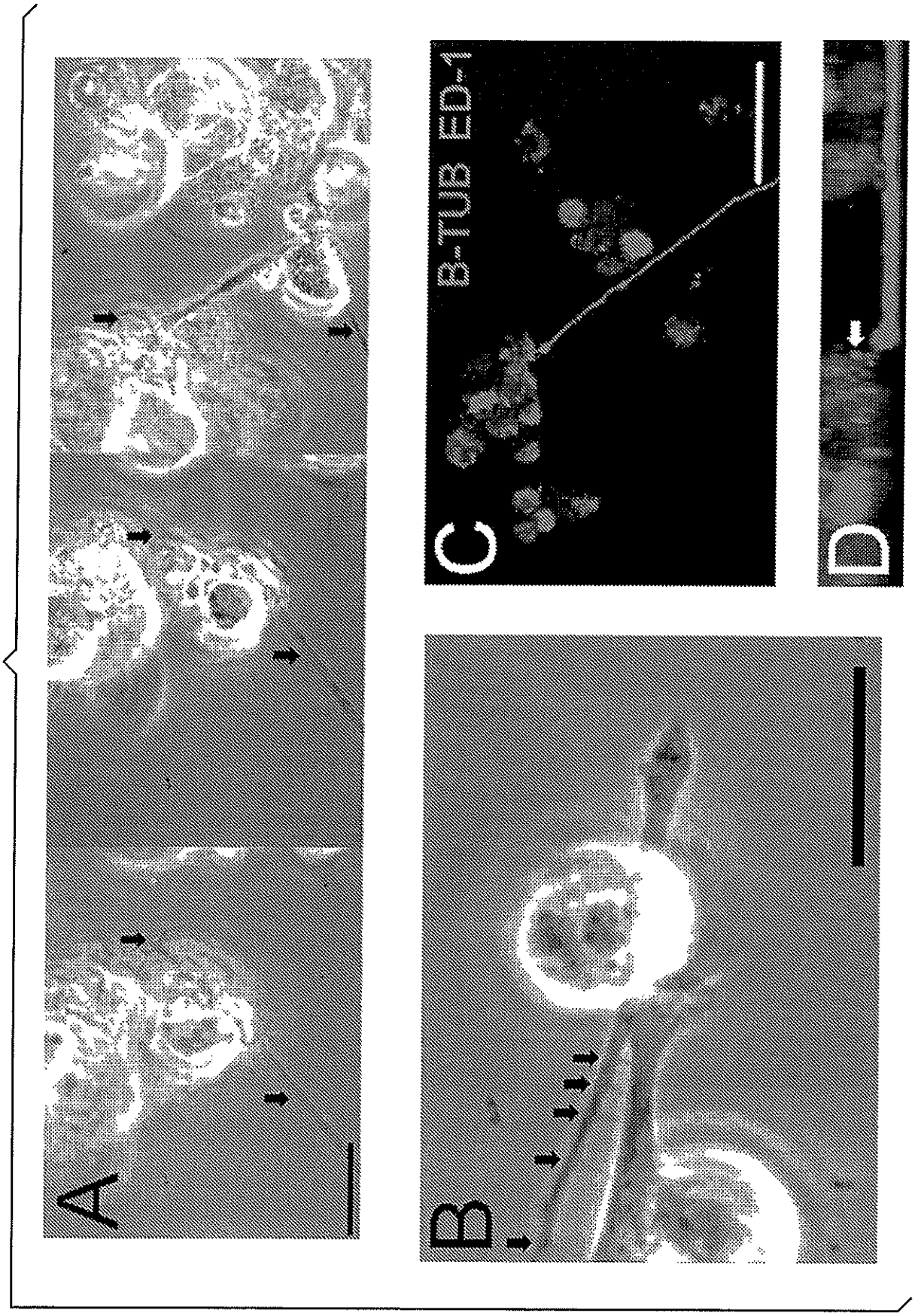


FIG. 6-1

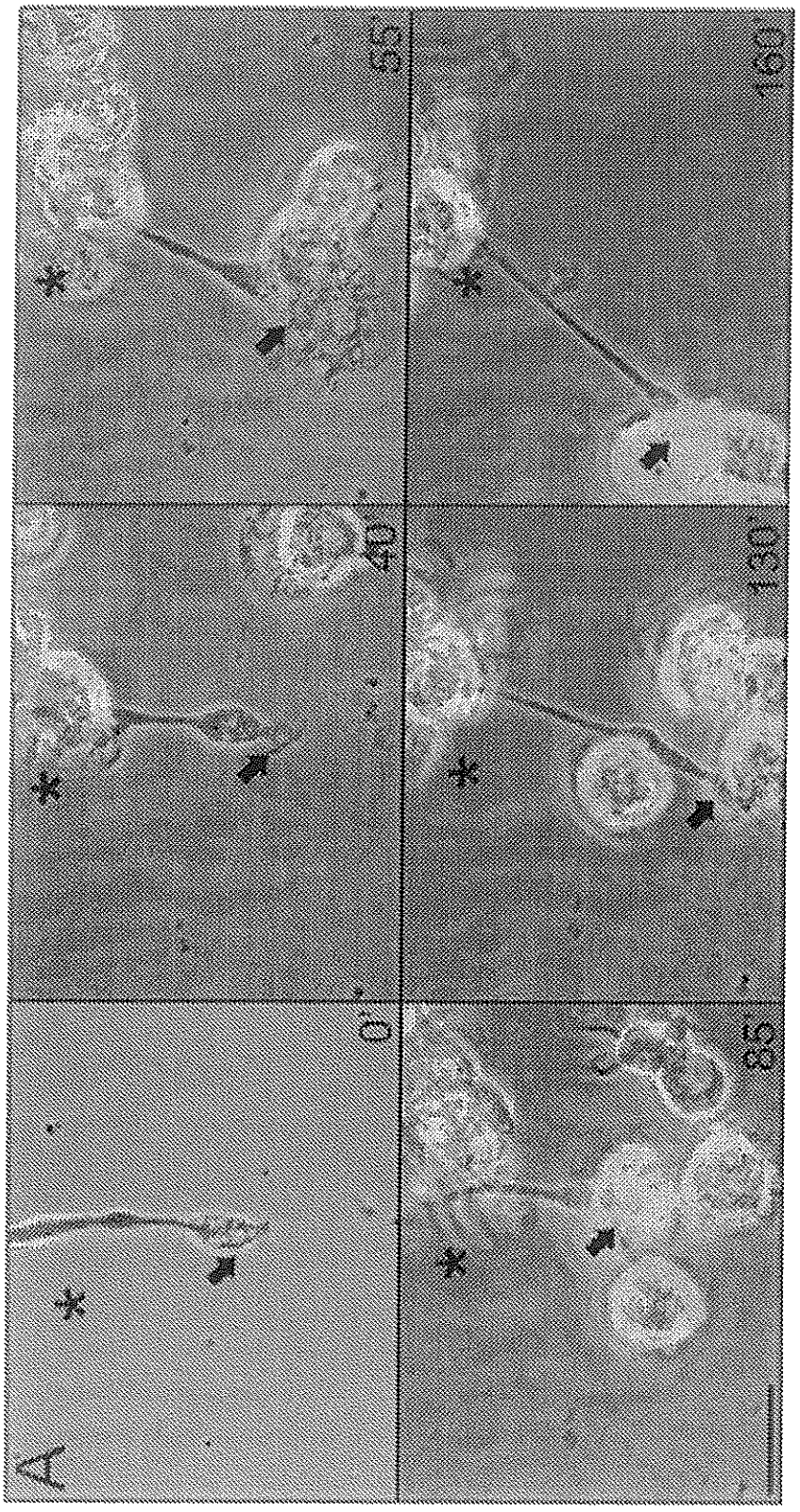


FIG. 6-2

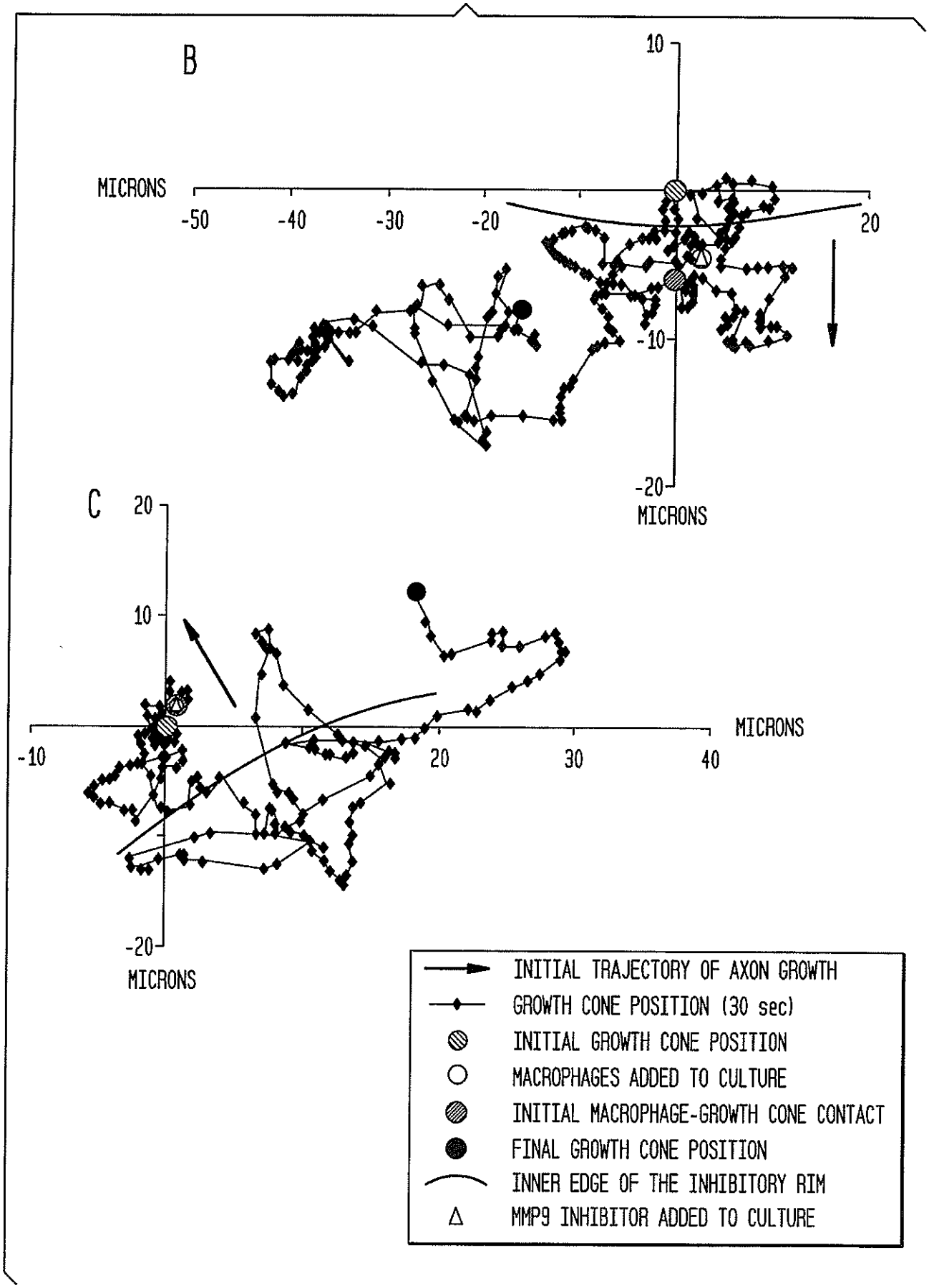

B
MICRONS
-50
-40
-30
-20
10
20
-10
-20
MICRONS
C
20
10
-10
20
30
40
MICRONS
-20
MICRONS
INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30 sec)
INITIAL GROWTH CONE POSITION
MACROPHAGES ADDED TO CULTURE
INITIAL MACROPHAGE-GROWTH CONE CONTACT
FINAL GROWTH CONE POSITION
INNER EDGE OF THE INHIBITORY RIM
MMP9 INHIBITOR ADDED TO CULTURE

FIG. 7

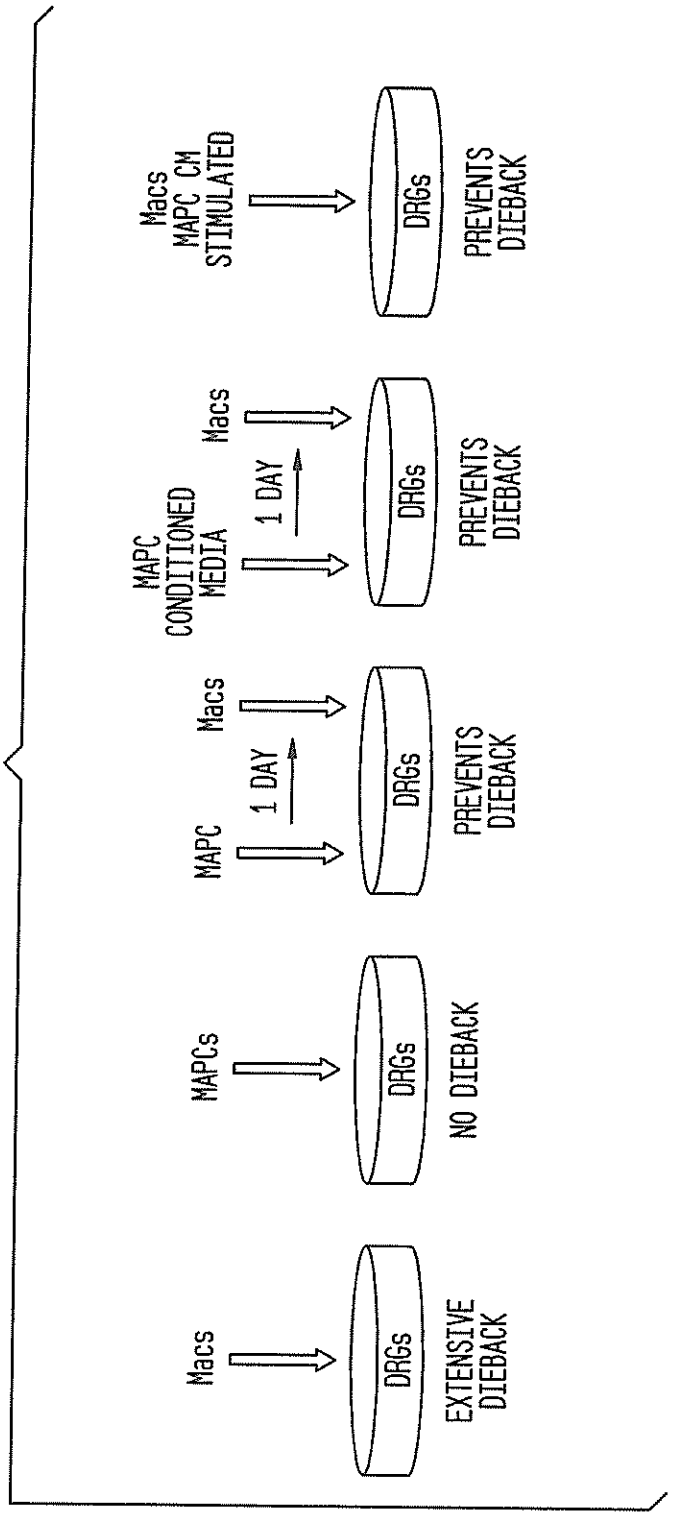

Macs
DRGs
EXTENSIVE DIEBACK
MAPCs
DRGs
NO DIEBACK
MAPC
1 DAY
Macs
DRGs
PREVENTS DIEBACK
MAPC CONDITIONED MEDIA
1 DAY
Macs
DRGs
PREVENTS DIEBACK
Macs MAPC CM STIMULATED
DRGs
PREVENTS DIEBACK

FIG. 8-1

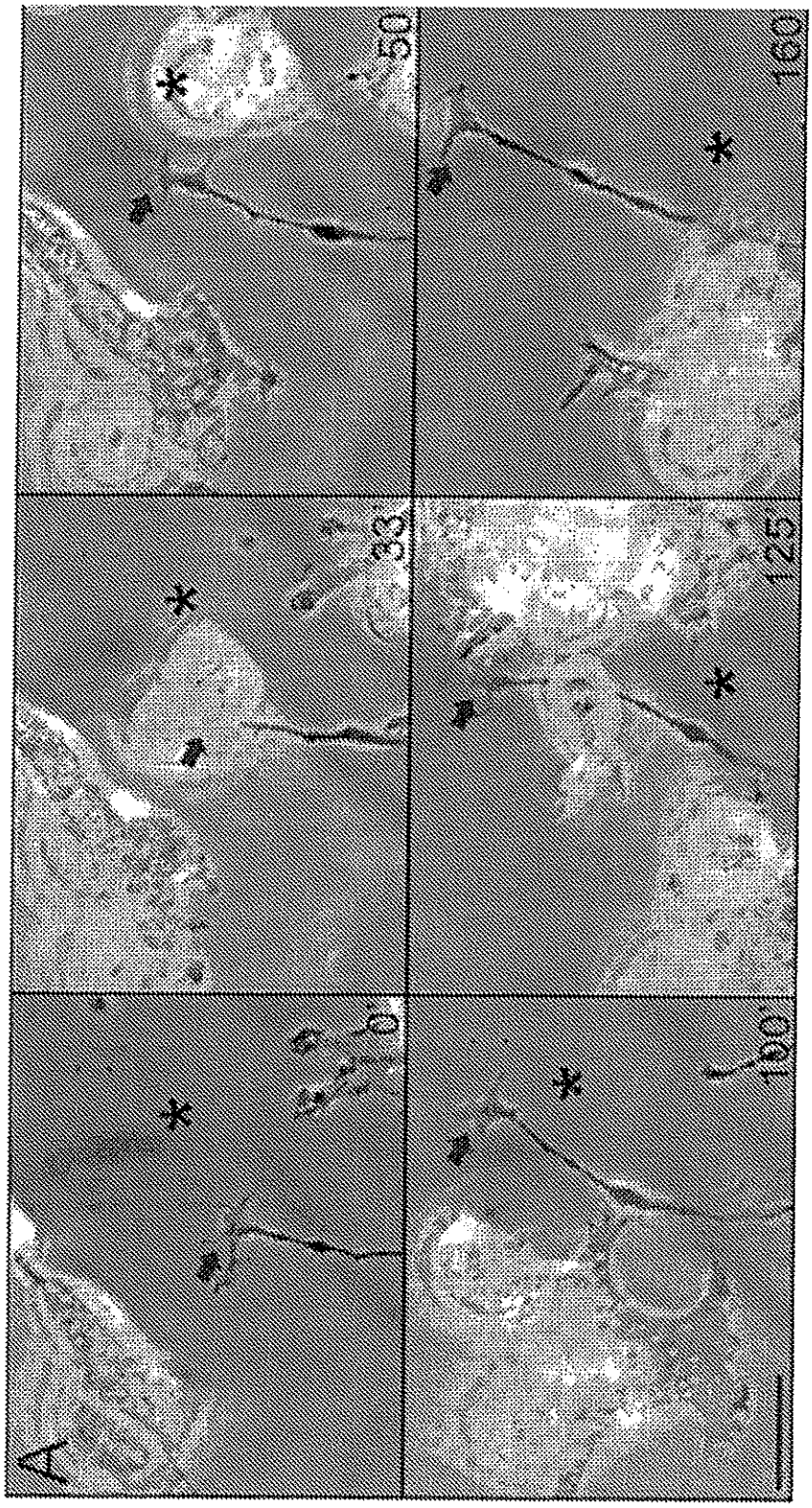


FIG. 8-2

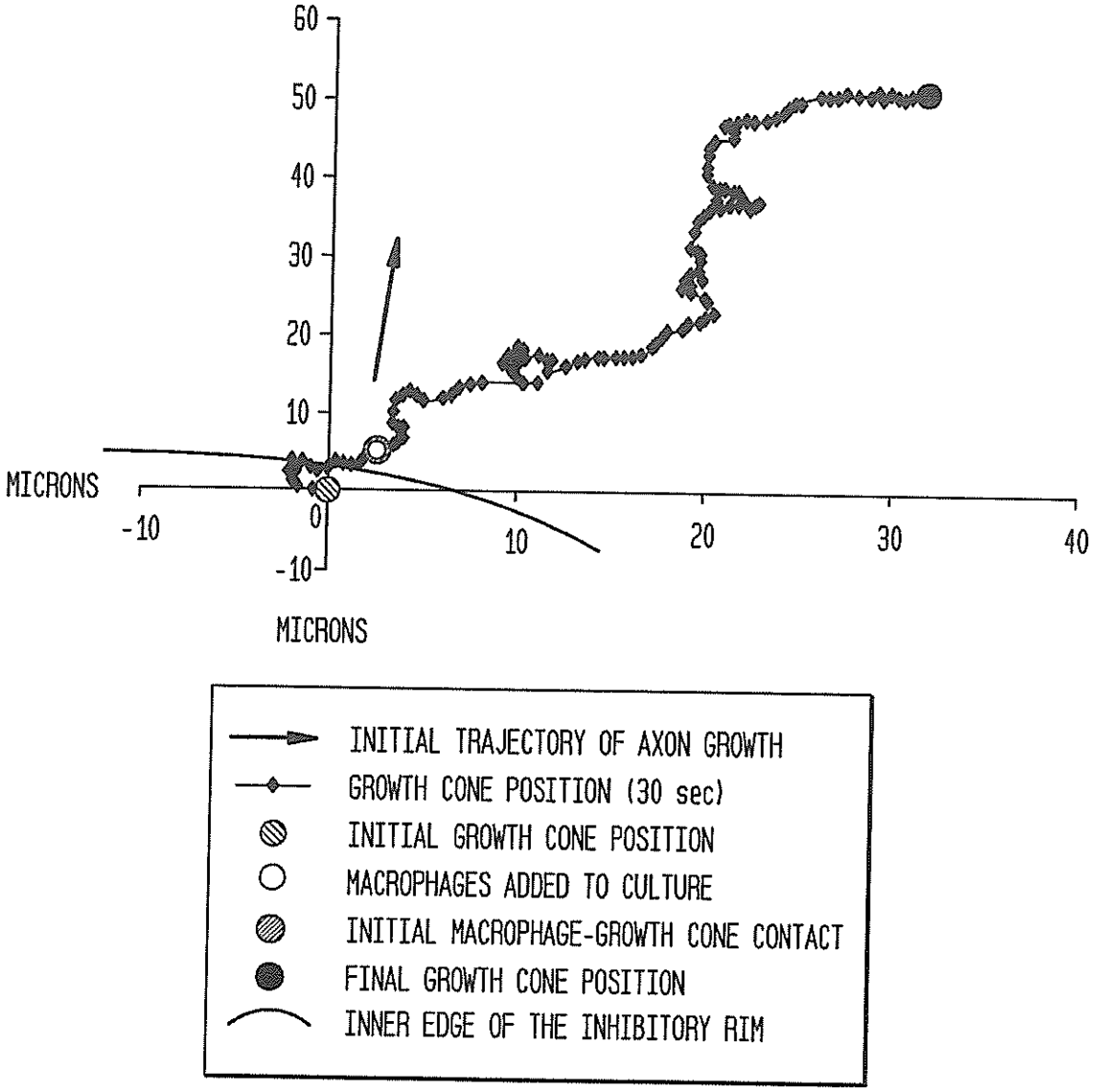

60
50
40
30
20
10
MICRONS
-10
0
10
20
30
40
-10
MICRONS
INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30 sec)
INITIAL GROWTH CONE POSITION
MACROPHAGES ADDED TO CULTURE
INITIAL MACROPHAGE-GROWTH CONE CONTACT
FINAL GROWTH CONE POSITION
INNER EDGE OF THE INHIBITORY RIM

FIG. 9-1

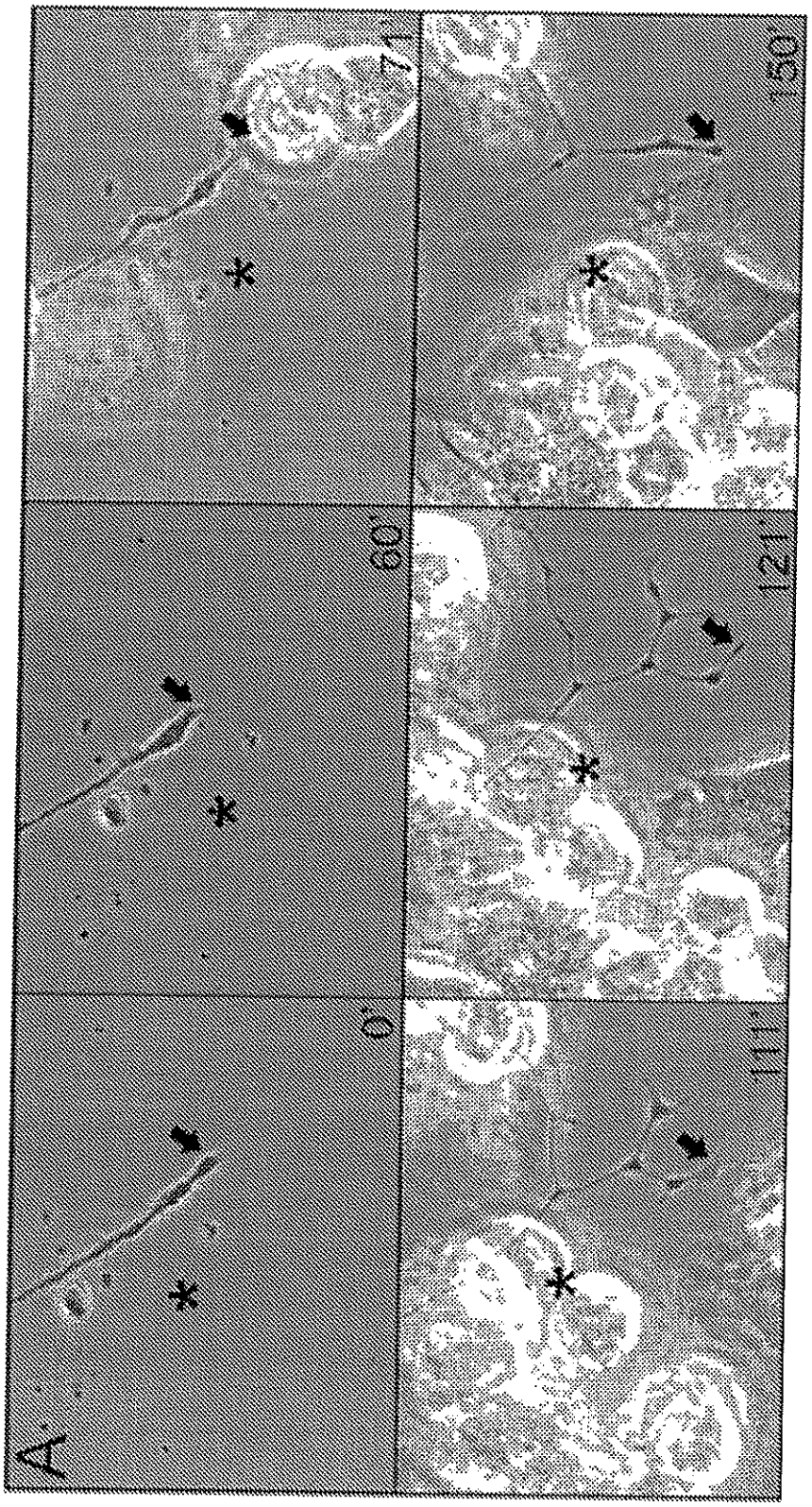
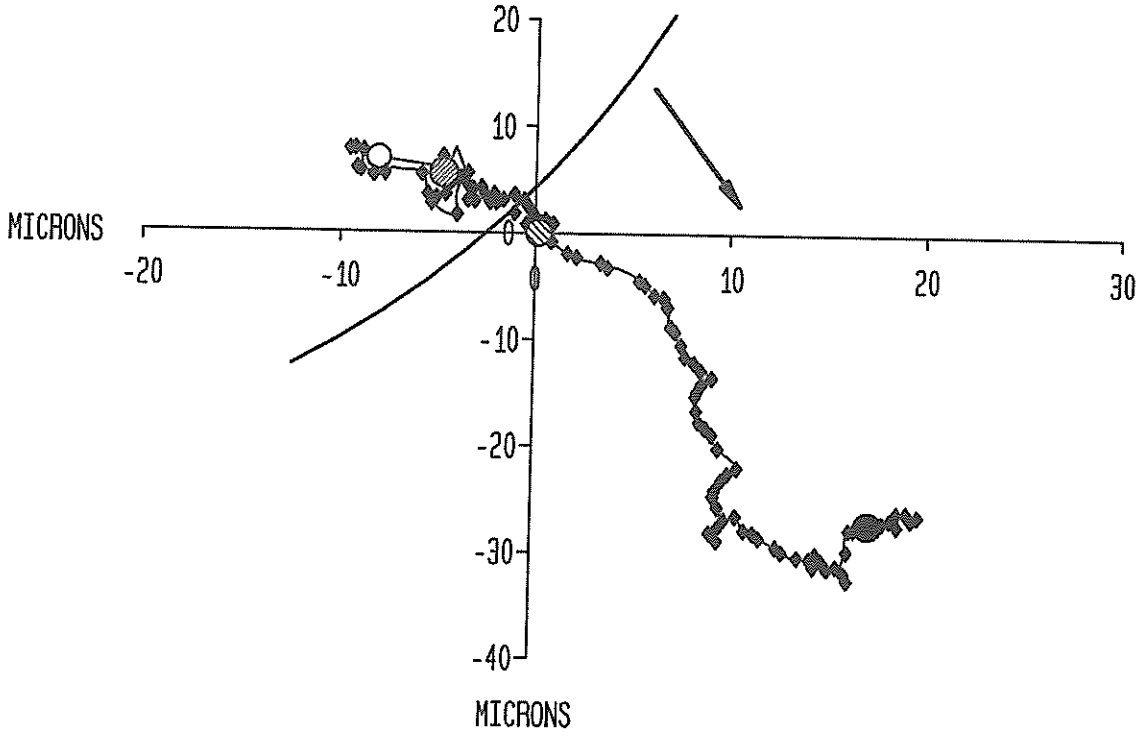


FIG. 9-2


20
10
MICRONS
0
-20
-10
10
20
30
-10
-20
-30
-40
MICRONS

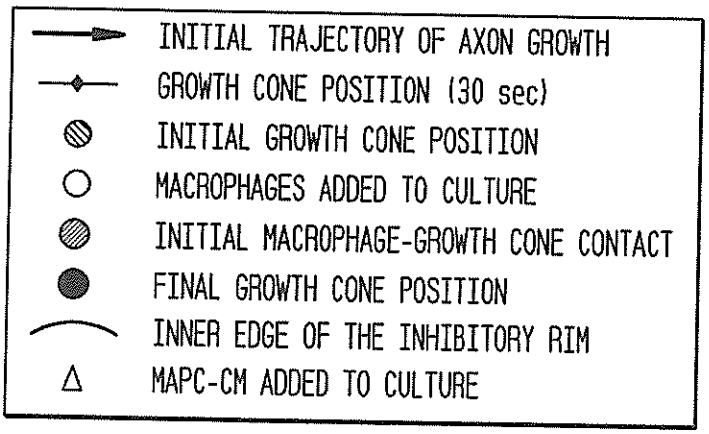

INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30 sec)
INITIAL GROWTH CONE POSITION
MACROPHAGES ADDED TO CULTURE
INITIAL MACROPHAGE-GROWTH CONE CONTACT
FINAL GROWTH CONE POSITION
INNER EDGE OF THE INHIBITORY RIM
MAPC-CM ADDED TO CULTURE

FIG. 10-1

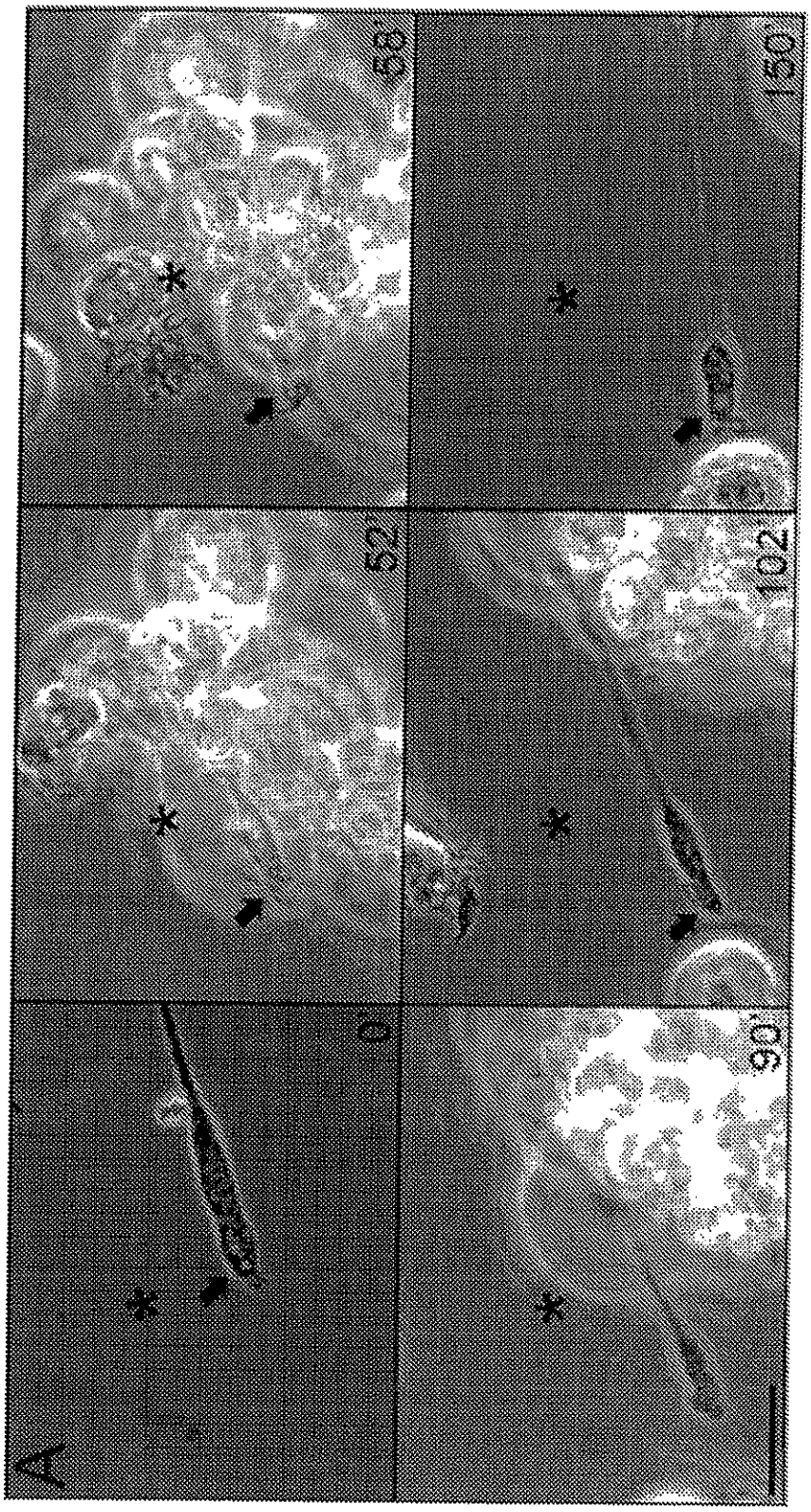
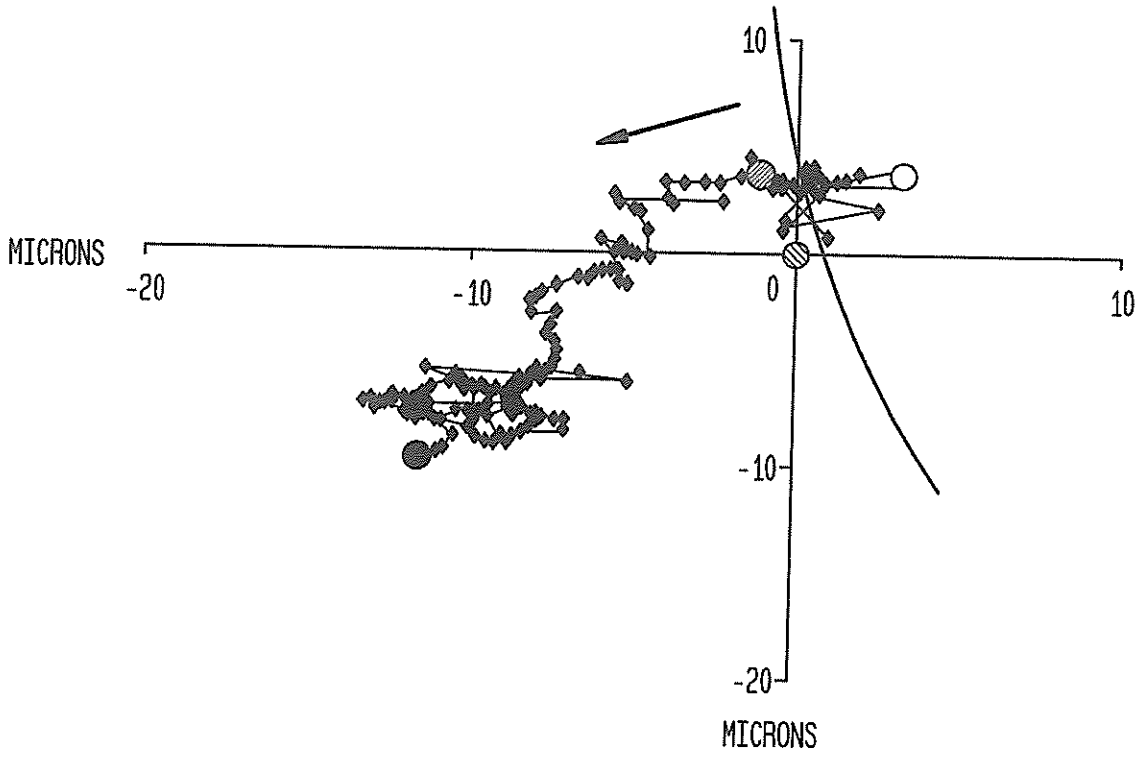


FIG. 10-2


10
MICRONS
-20
-10
0
10
-10
-20
MICRONS

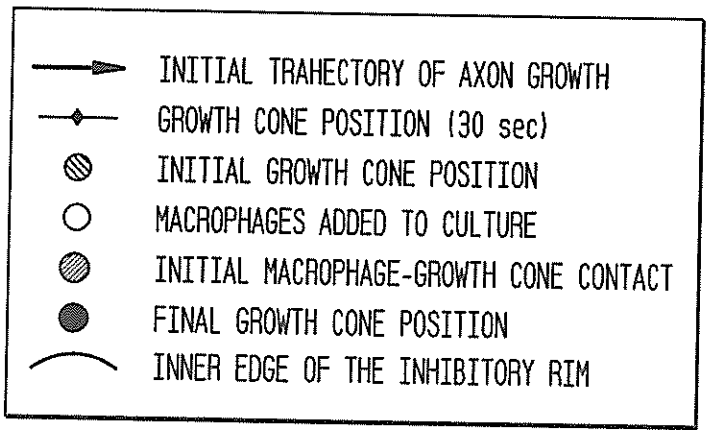

INITIAL TRAHECTORY OF AXON GROWTH
GROWTH CONE POSITION (30 sec)
INITIAL GROWTH CONE POSITION
MACROPHAGES ADDED TO CULTURE
INITIAL MACROPHAGE-GROWTH CONE CONTACT
FINAL GROWTH CONE POSITION
INNER EDGE OF THE INHIBITORY RIM

FIG. 11

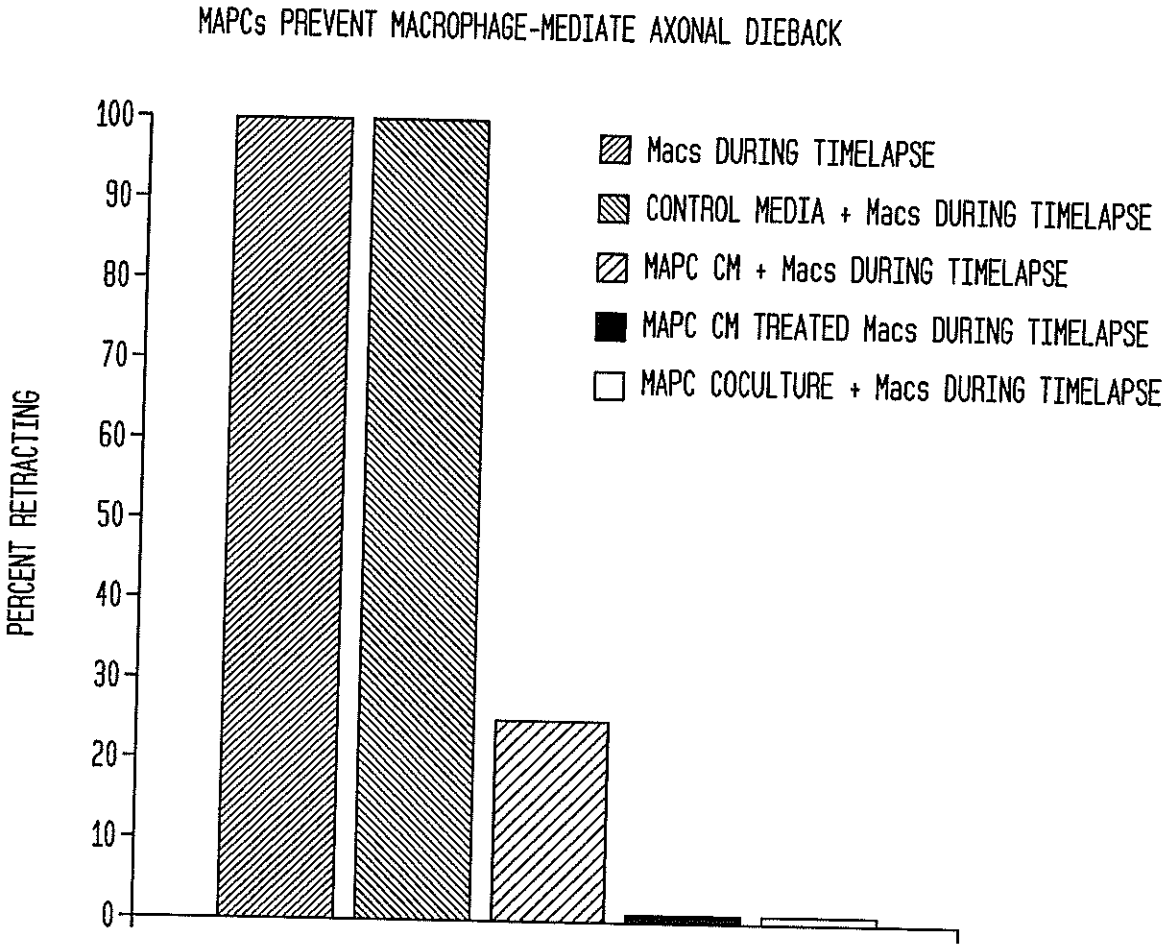

MAPCs PREVENT MACROPHAGE-MEDIATE AXONAL DIEBACK
PERCENT RETRACTING
100
90
80
70
60
50
40
30
20
10
0
Macs DURING TIMELAPSE
CONTROL MEDIA + Macs DURING TIMELAPSE
MAPC CM + Macs DURING TIMELAPSE
MAPC CM TREATED Macs DURING TIMELAPSE
MAPC COCULTURE + Macs DURING TIMELAPSE

FIG. 12

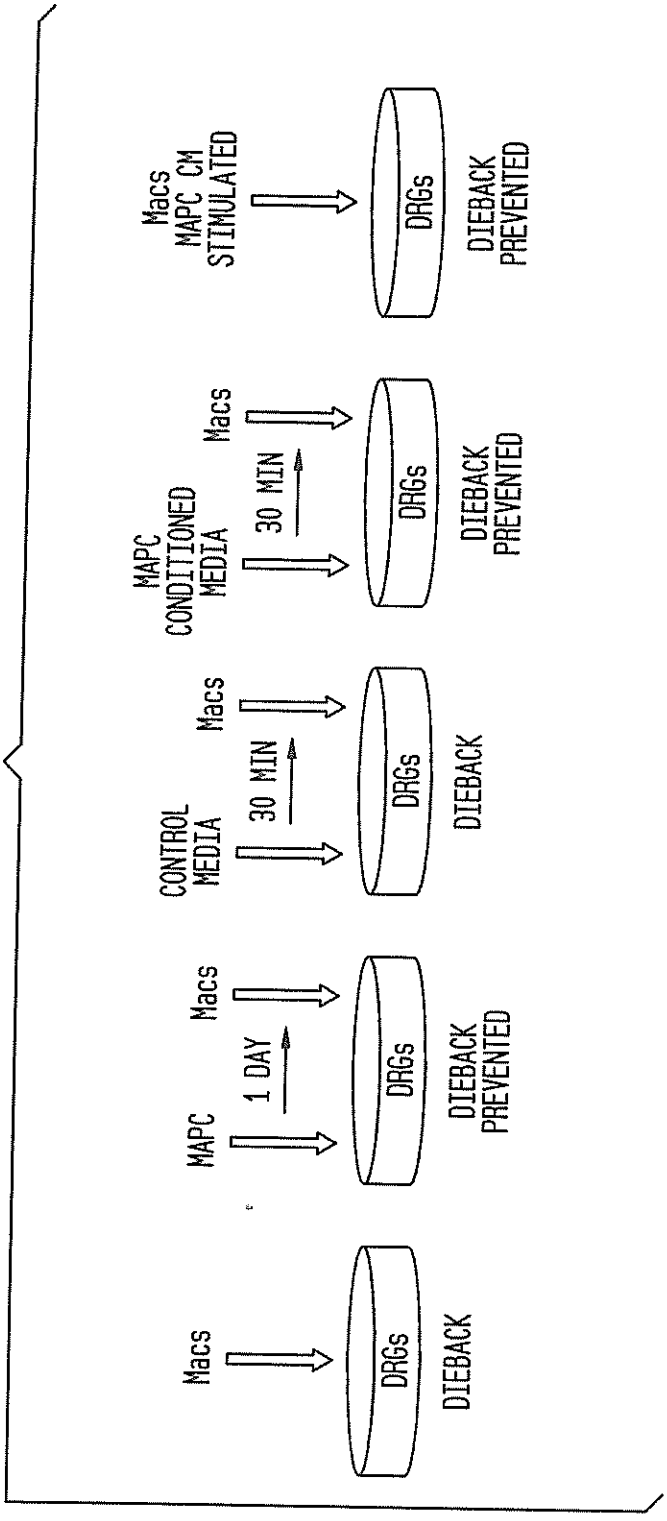

Macs
DRGs
DIEBACK
MAPC
1 DAY
Macs
DRGs
DIEBACK PREVENTED
CONTROL MEDIA
30 MIN
Macs
DRGs
DIEBACK
MAPC CONDITIONED MEDIA
30 MIN
Macs
DRGs
DIEBACK PREVENTED
Macs MAPC CM STIMULATED
DRGs
DIEBACK PREVENTED

FIG. 13

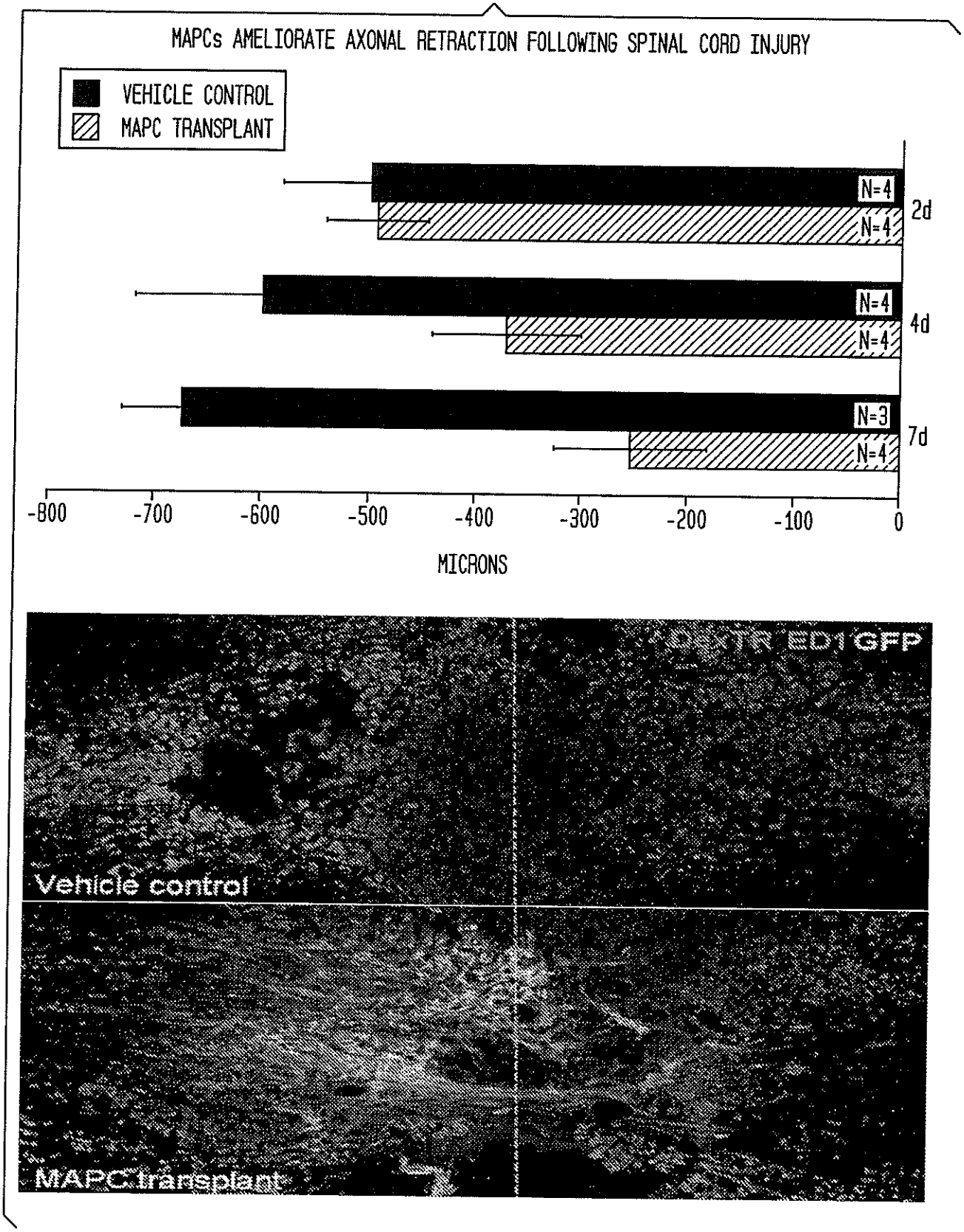

MAPCs AMELIORATE AXONAL RETRACTION FOLLOWING SPINAL CORD INJURY
VEHICLE CONTROL
MAPC TRANSPLANT
N=4
N=4
2d
N=4
N=4
4d
N=3
N=4
7d
-800
-700
-600
-500
-400
-300
-200
-100
0
MICRONS
DsRED.T3 ED1 GFP
Vehicle control
MAPC transplant

FIG. 14-1

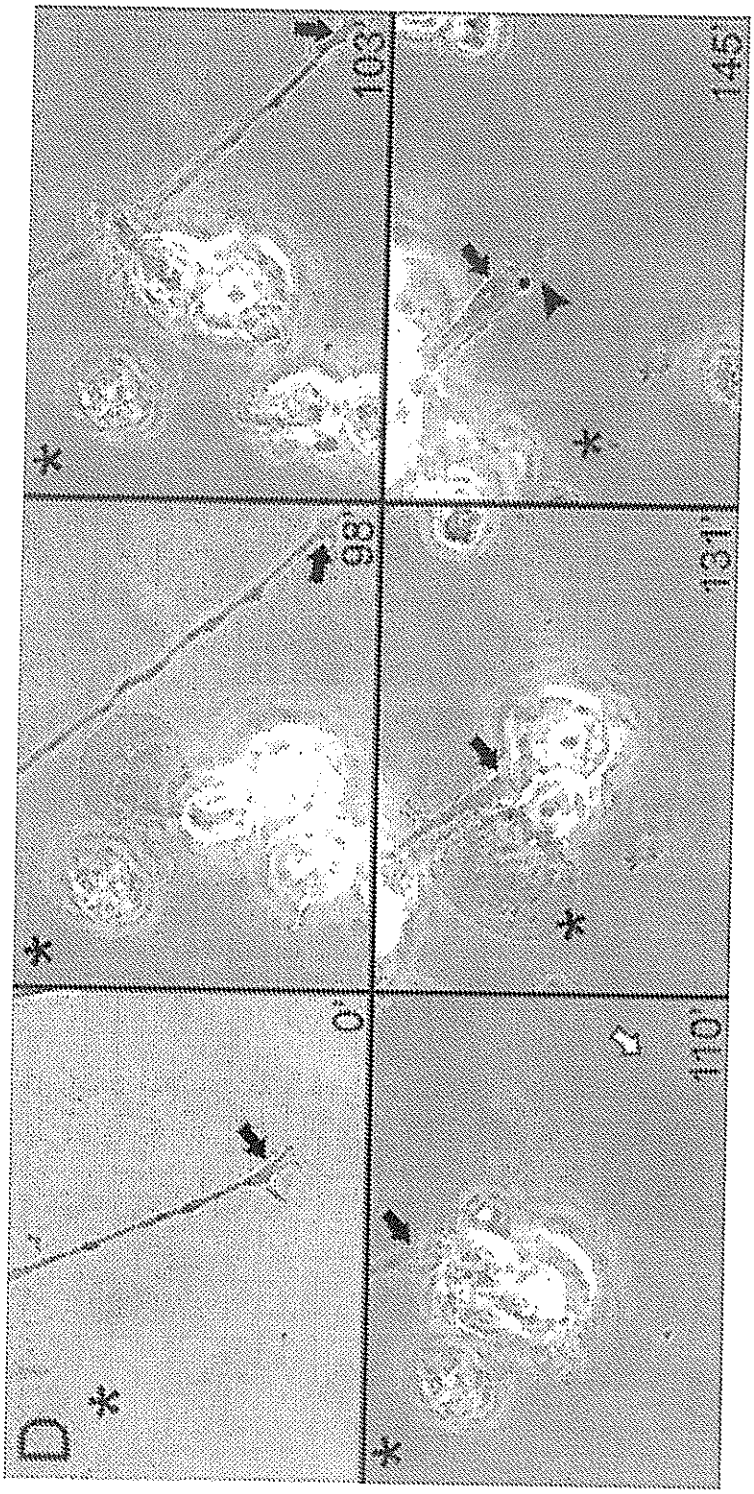


FIG. 14-2

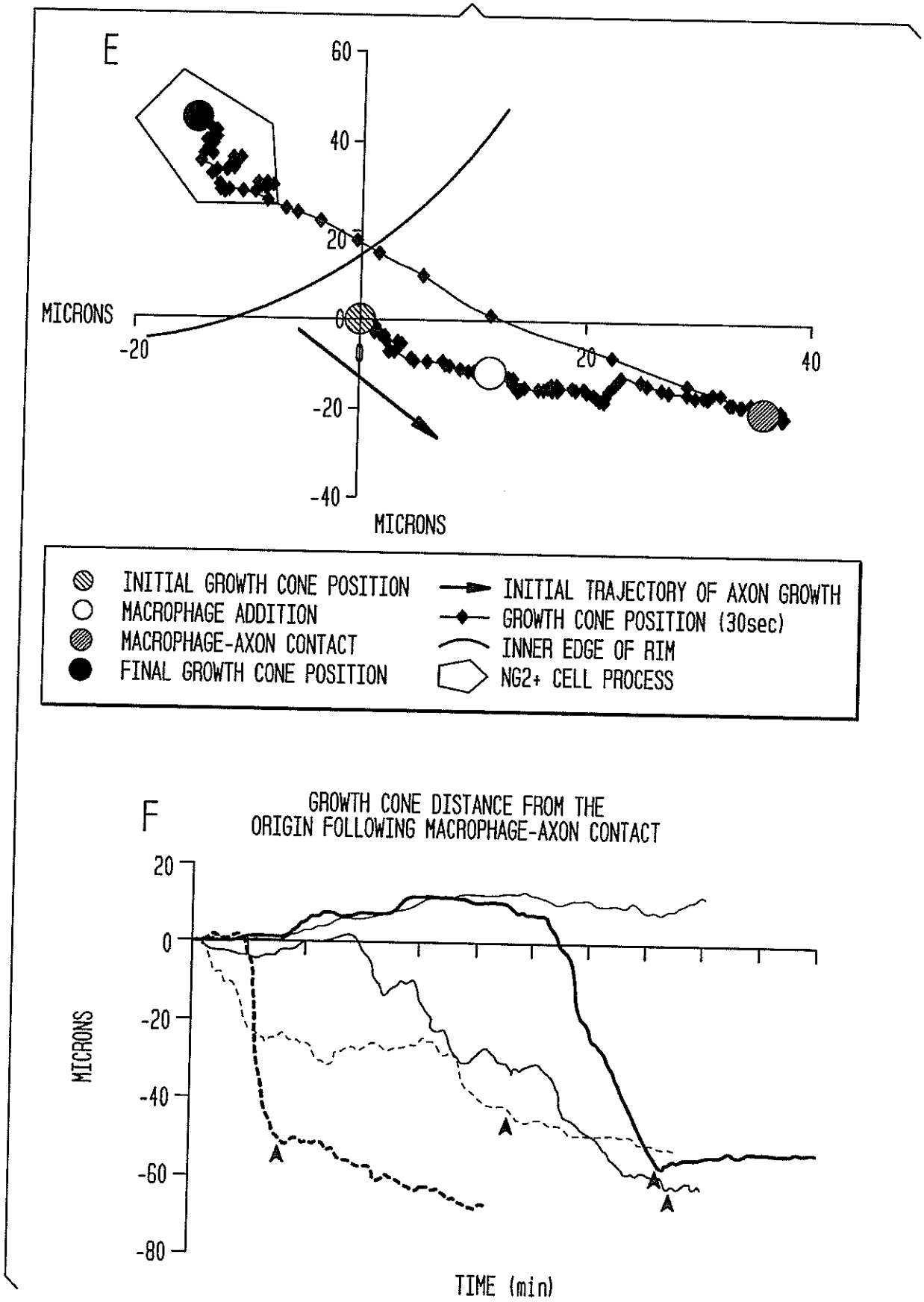

E
60
40
20
MICRONS
-20
0
20
40
-20
-40
MICRONS
INITIAL GROWTH CONE POSITION
MACROPHAGE ADDITION
MACROPHAGE-AXON CONTACT
FINAL GROWTH CONE POSITION
INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30sec)
INNER EDGE OF RIM
NG2+ CELL PROCESS
F
GROWTH CONE DISTANCE FROM THE
ORIGIN FOLLOWING MACROPHAGE-AXON CONTACT
20
0
-20
-40
-60
-80
MICRONS
TIME (min)

FIG. 15



FIG. 16

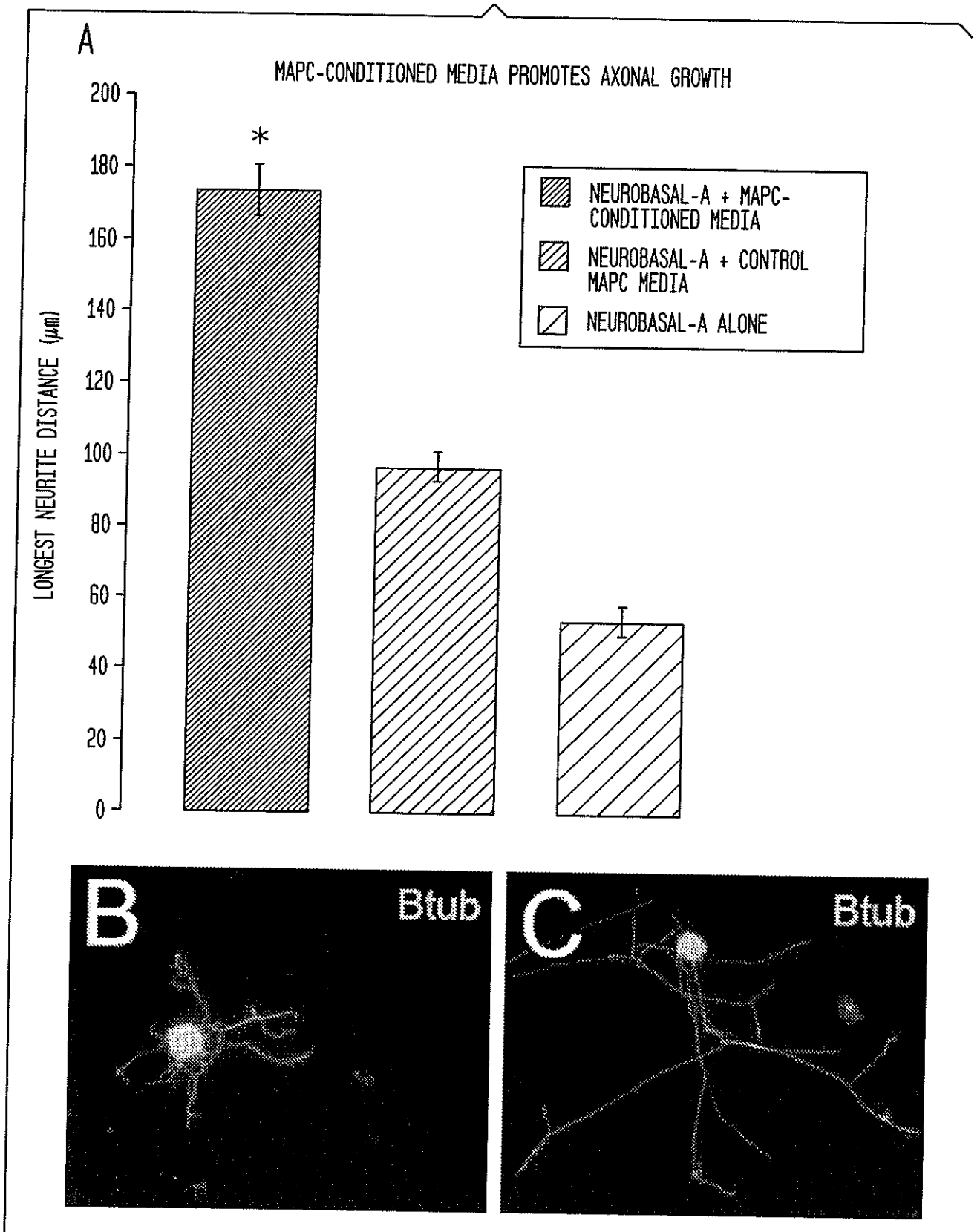

A
MAPC-CONDITIONED MEDIA PROMOTES AXONAL GROWTH
LONGEST NEURITE DISTANCE (μm)
200
180
160
140
120
100
80
60
40
20
0
*
NEUROBASAL-A + MAPC-CONDITIONED MEDIA
NEUROBASAL-A + CONTROL MAPC MEDIA
NEUROBASAL-A ALONE
B
Btub
C
Btub

FIG. 17-1

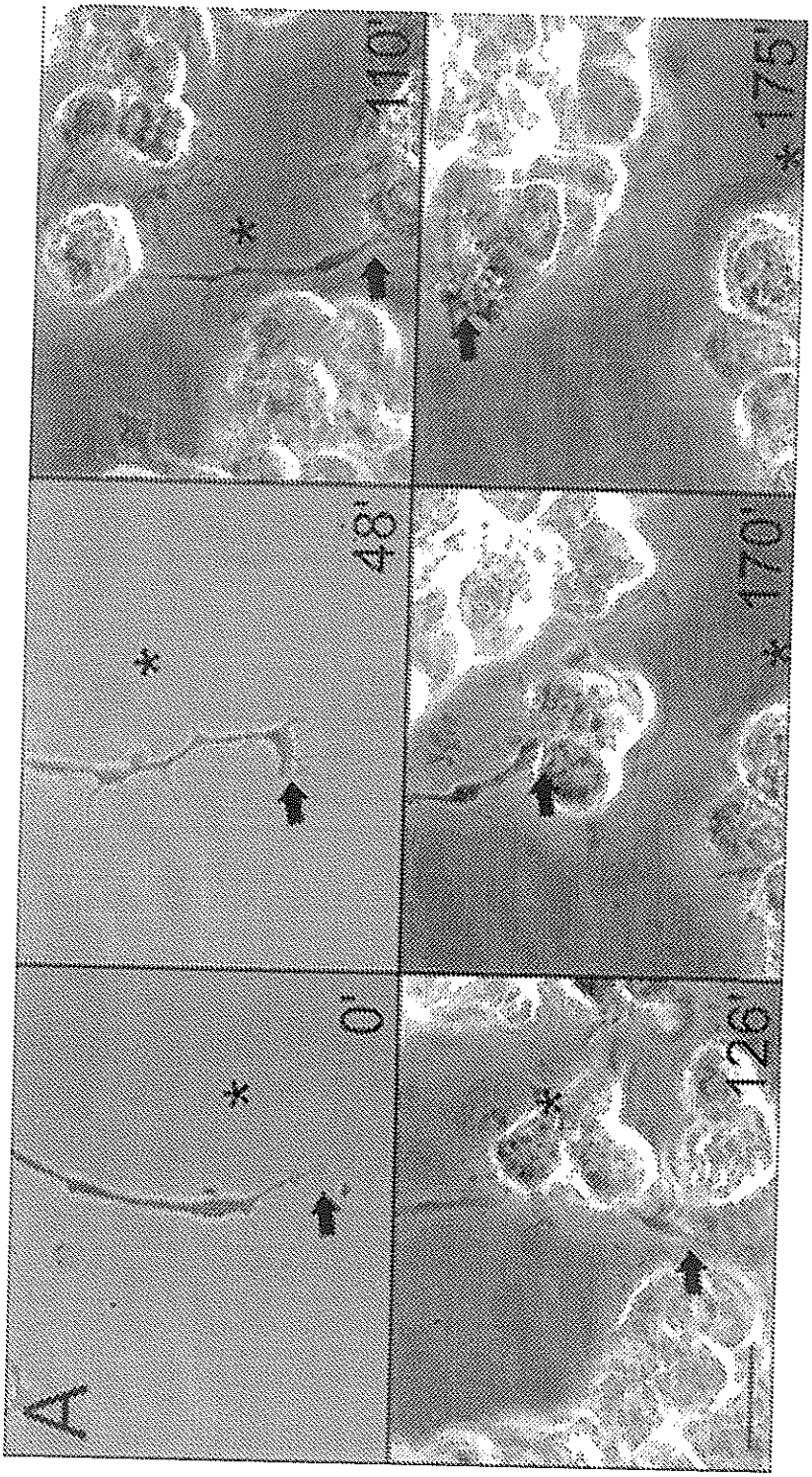
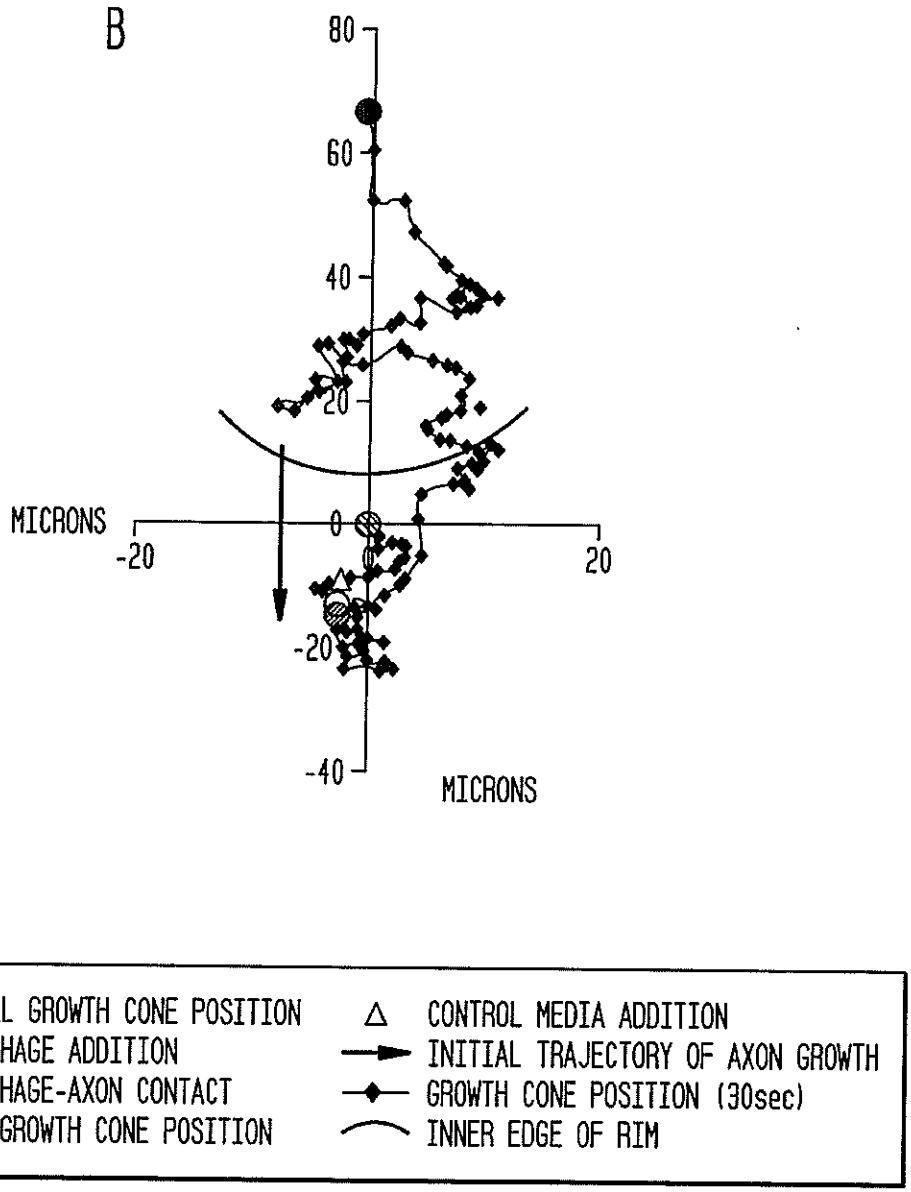


FIG. 17-2


B
80
60
40
20
0
-20
-40
MICRONS
-20
20
MICRONS
INITIAL GROWTH CONE POSITION
MACROPHAGE ADDITION
MACROPHAGE-AXON CONTACT
FINAL GROWTH CONE POSITION
CONTROL MEDIA ADDITION
INITIAL TRAJECTORY OF AXON GROWTH
GROWTH CONE POSITION (30sec)
INNER EDGE OF RIM