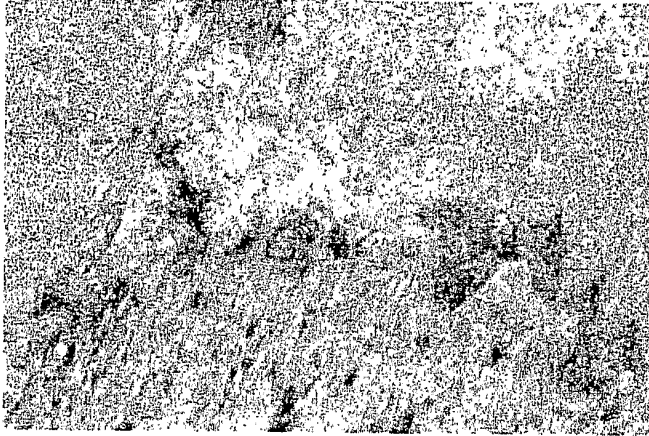
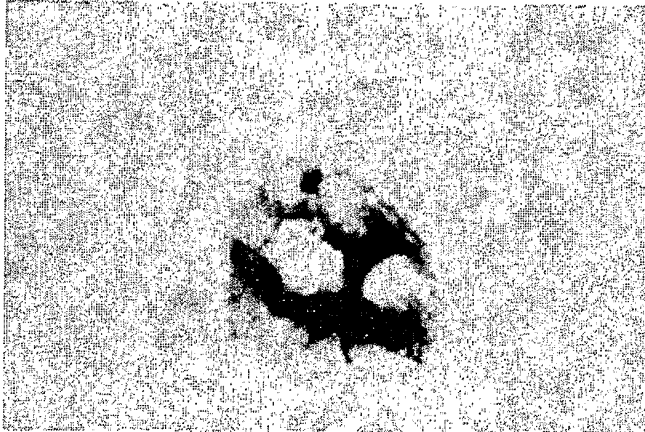


Figure 1. Transdifferentiation of Macrophages into Von Willebrand Factor-positive Endothelial-like Cells.

A. 200x



B. 400x



C. 400x

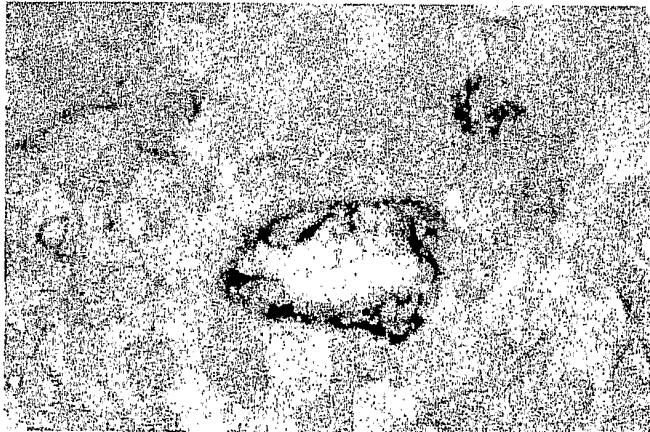
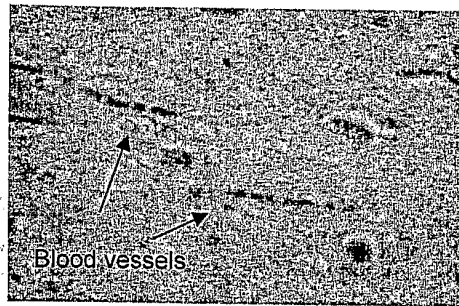
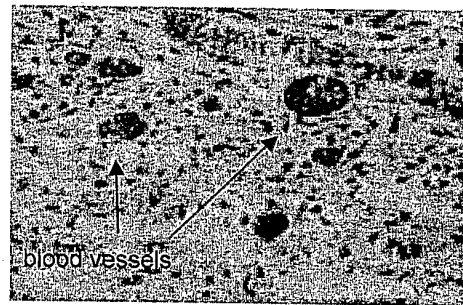


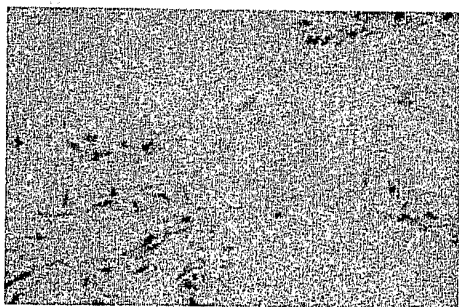
Figure 2. Regeneration Matrix Supports Angiogenesis in Damaged Spinal Cord Tissue in Rats.



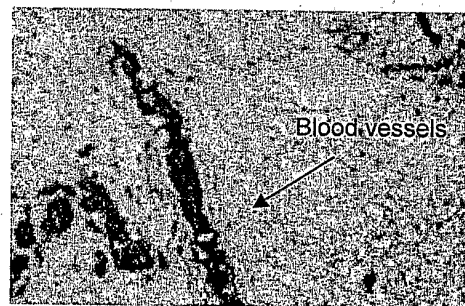
A. Healthy Rat Spinal Cord



C. Injury Site with RM_x Implant



B. Injury Site without RM_x Implant



D. Injury Site with RM_x Implant

Figure 3. Photograph of Regeneration Matrix Produced Using Non-clotted Blood and 1.2 μm Final Filtration Contained with the Opticell® Production Cassette.

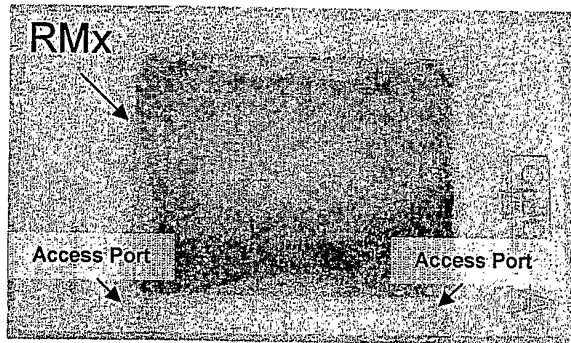


Figure 4. Regeneration Matrix Produced From Whole Blood Lacks Any Indication of Intact Cells or Nuclei.

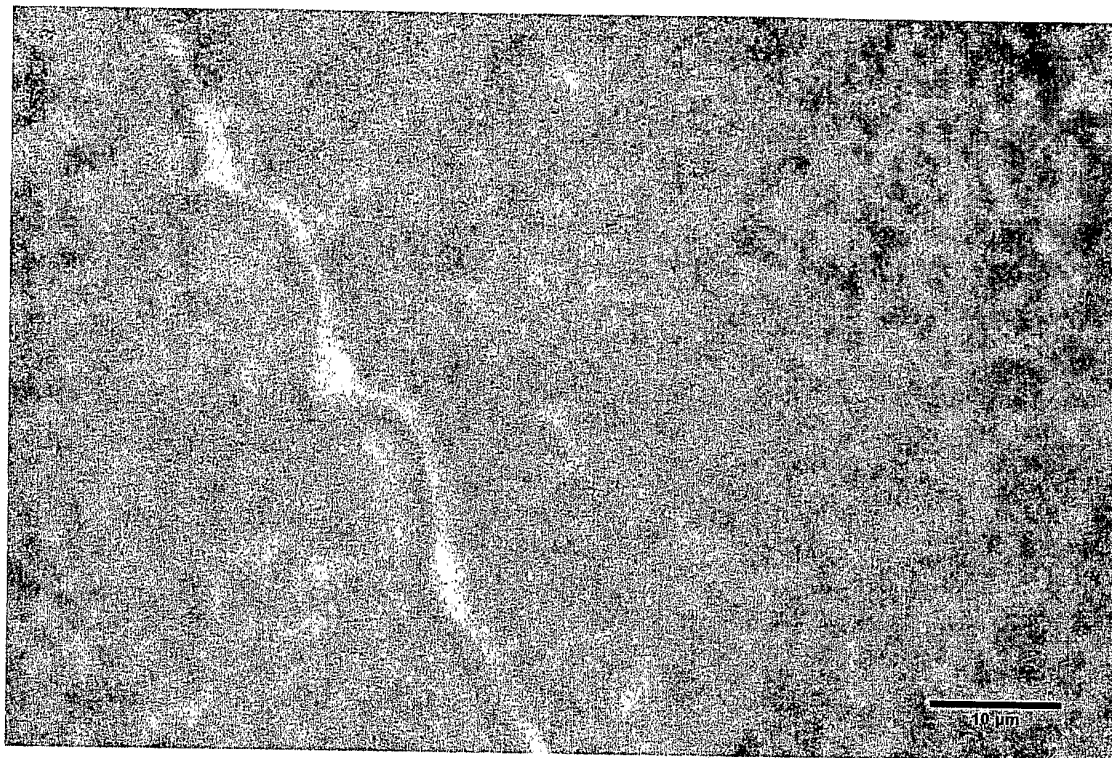


Figure 5. Electron Micrographs of Regeneration Matrix Produced Using Clotted Blood and 5 μ m Final Filtration. A - 200x, B - 1000x, C - 7500x, D - 7500x.

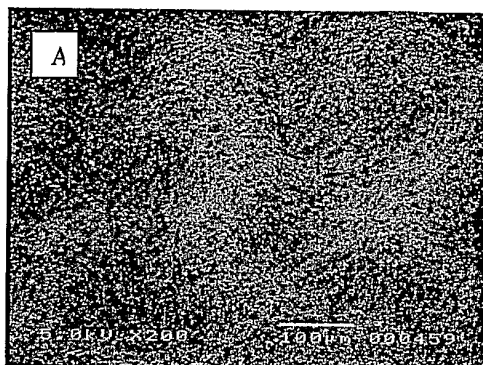
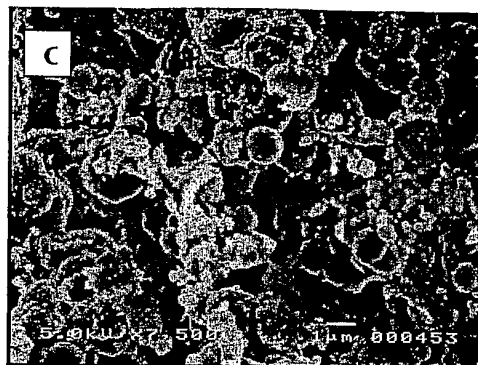
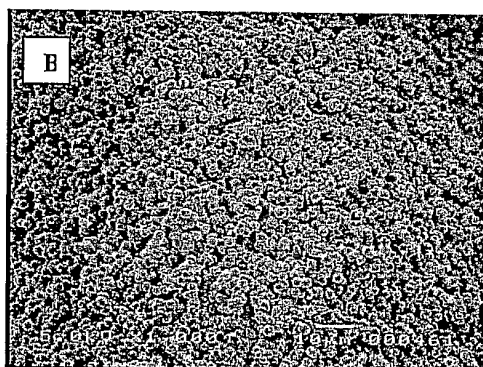
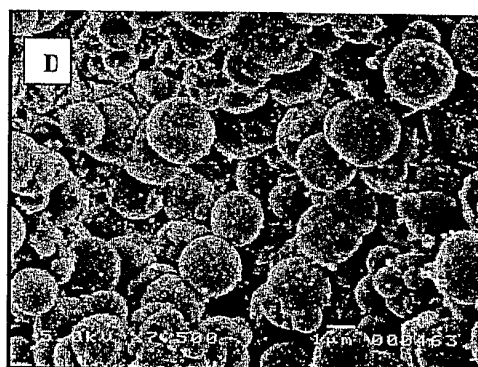


Figure 6. Scanning Electron Micrographs of Regeneration Matrix Produced Using Clotted Blood and 1.2 μm Final Filtration (21 days). A - 200x, B - 1000x, C - 7500x, D - 7500x.

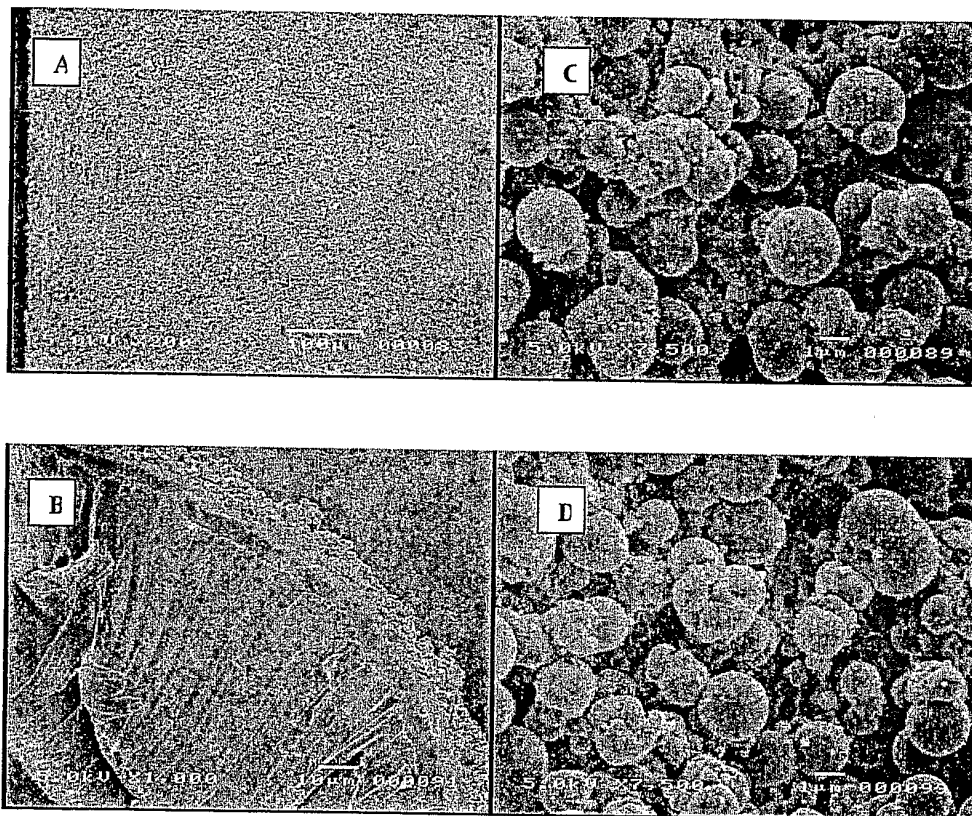


Figure 7. Electron Micrographs of Regeneration Matrix Produced Using Non-clotted (Using EDTA) Blood and 1.2 μm Final Filtration (21 days). A - 200x, B - 1500x, C - 5000x, D - 10000x.

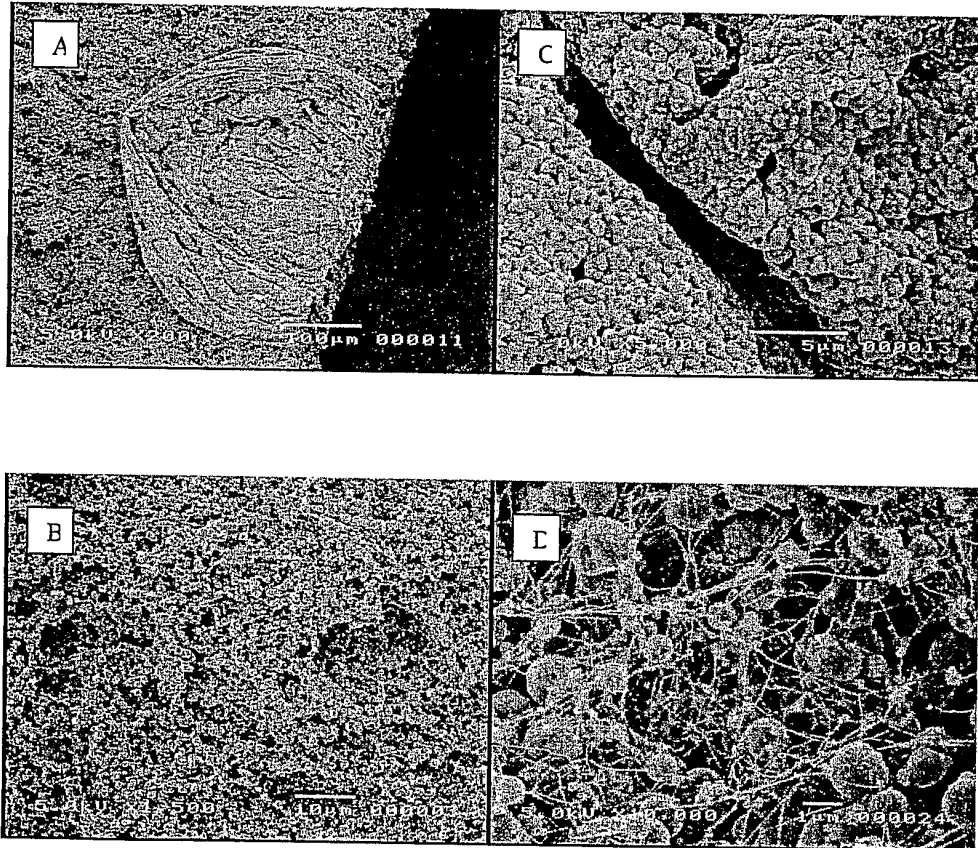


Figure 8. Light Micrograph of Regeneration Matrix Produced Using Non-clotted Blood and 1.2 μm Final Filtration (100x Magnification).

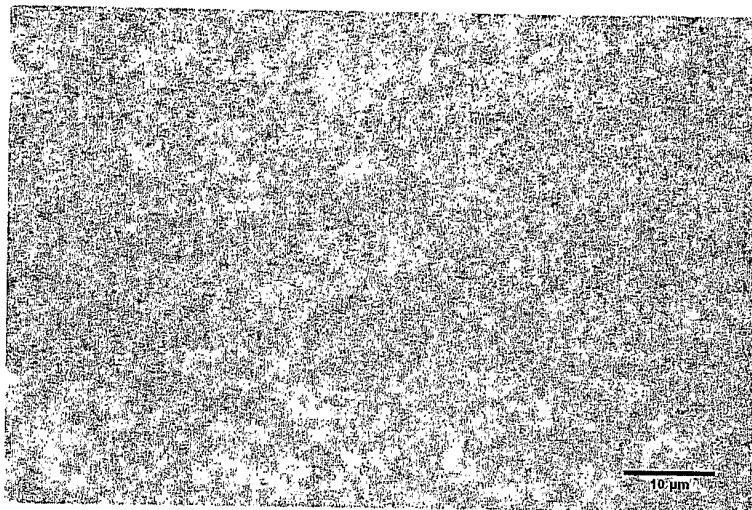


Figure 9. Transmission Electron Microscopy of Regeneration Matrix.

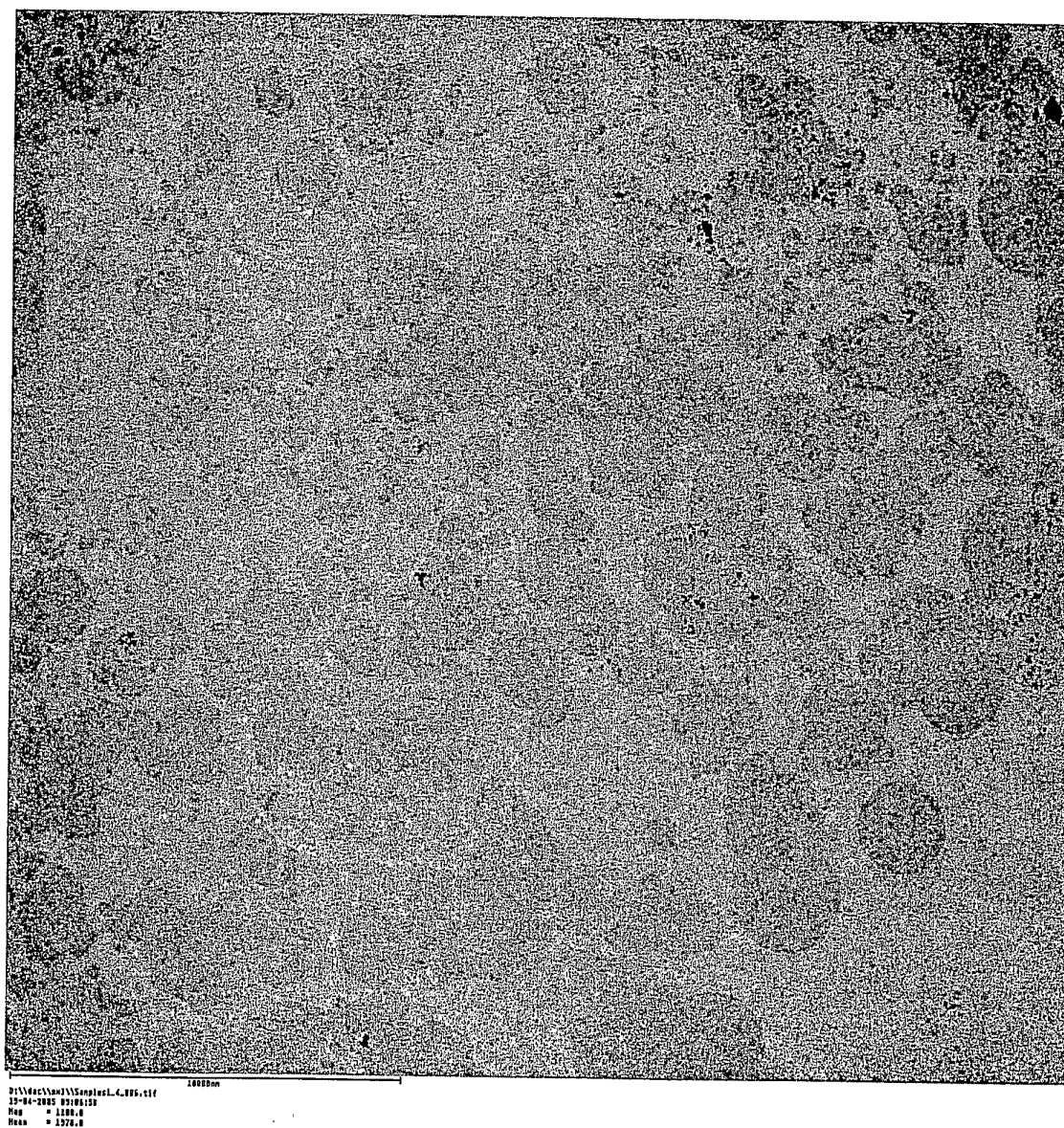


Figure 10. Transmission Electron Microscopy of Regeneration Matrix.

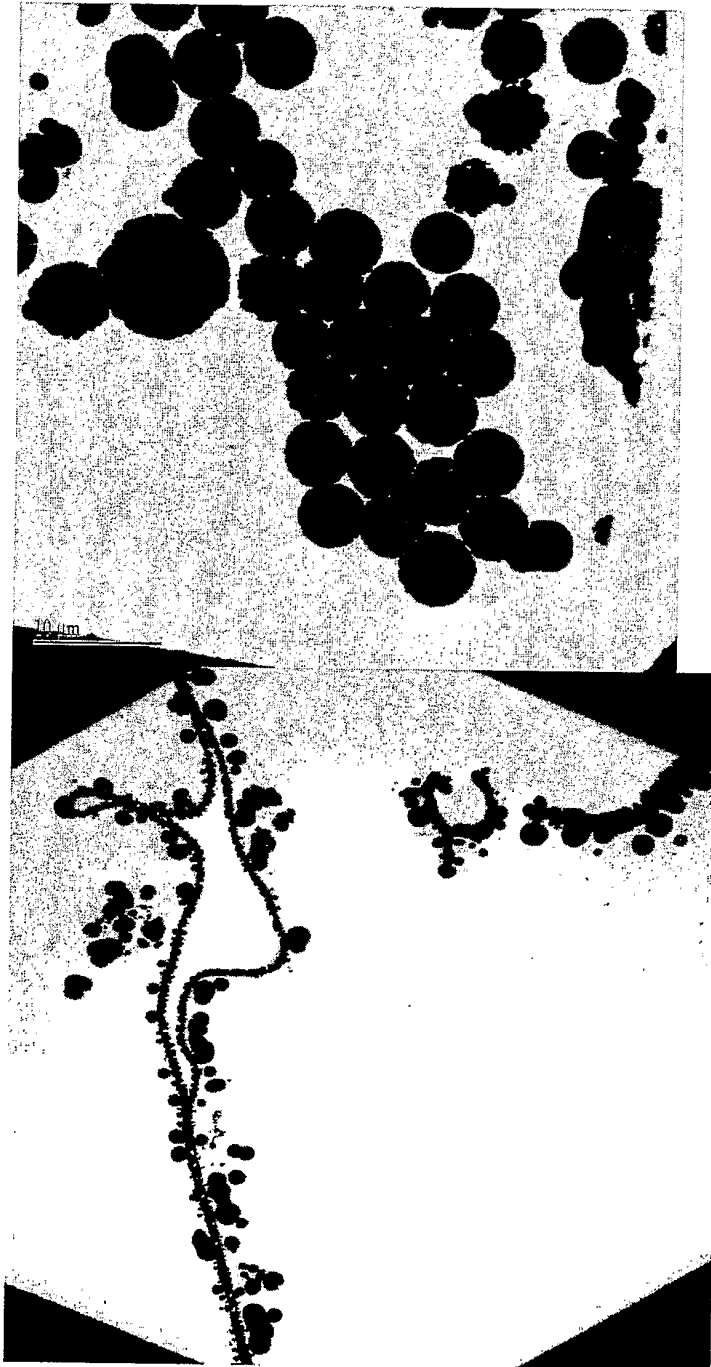


Figure 11. Transmission Electron Microscopy of Regeneration Matrix.

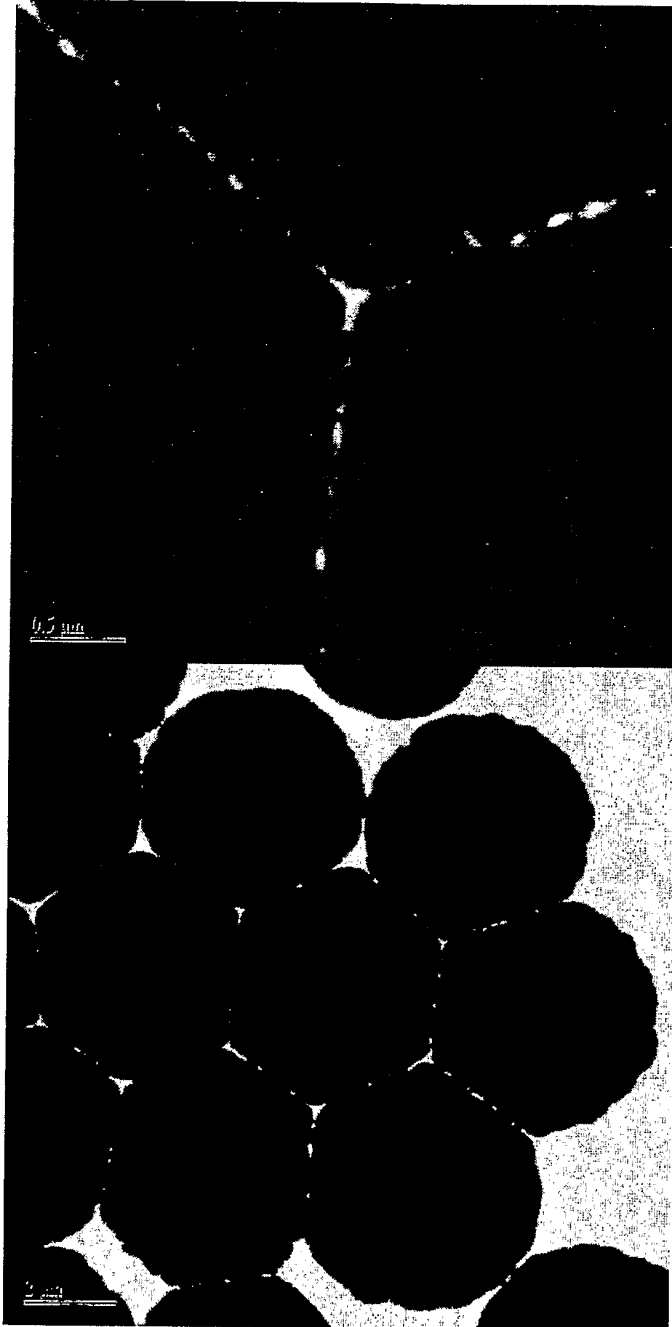


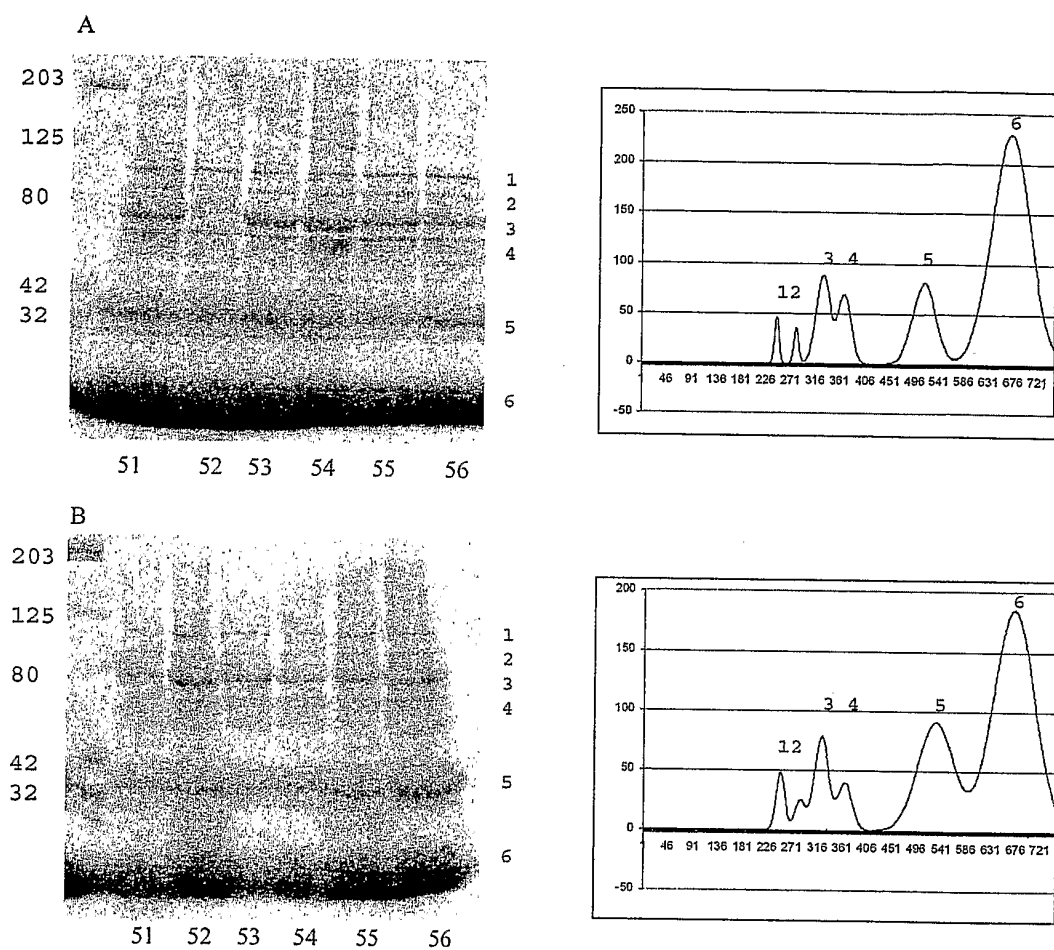
Figure 12. SDS-PAGE Analysis of Regeneration Matrix.

Figure 13. Total RNA Content (μg) in Regeneration Matrix, Supernatant, and Whole Opticell® Culture (1 μm Filtered).

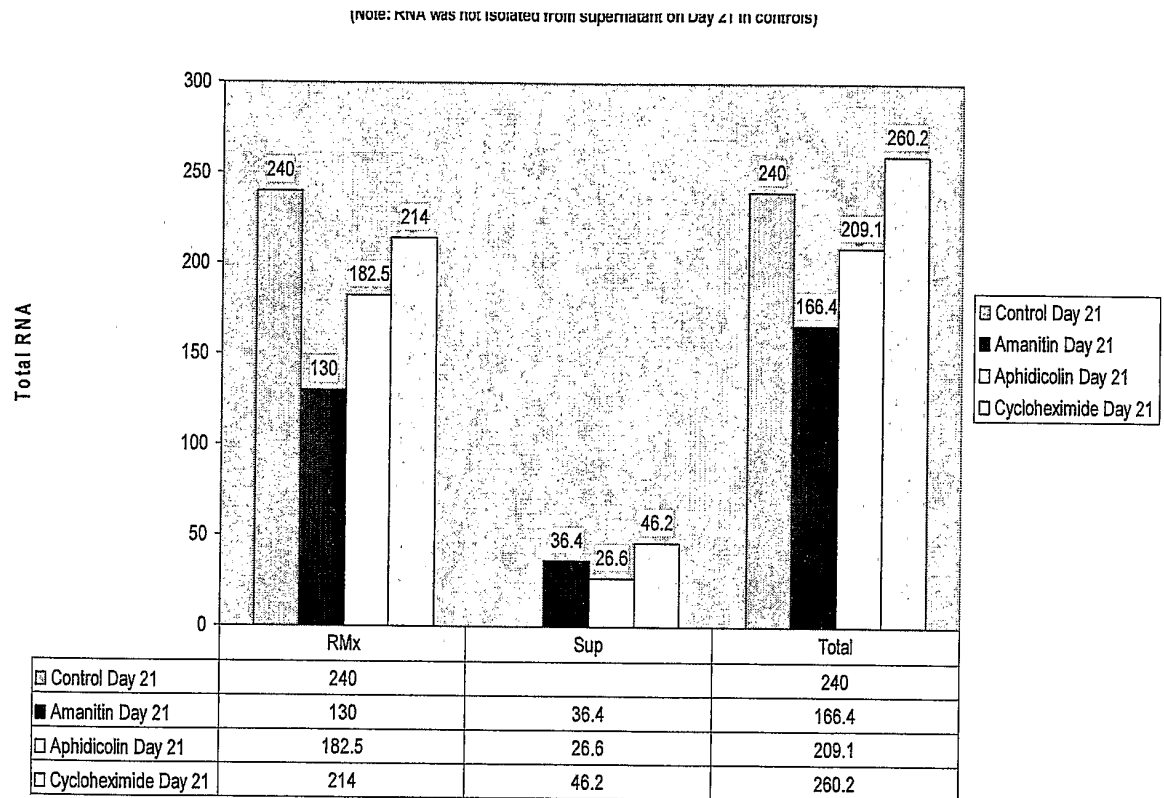


Figure 14. Total Protein Content in Regeneration Matrix, Supernatant, and Whole Opticell® Culture (5 µm Filtered).

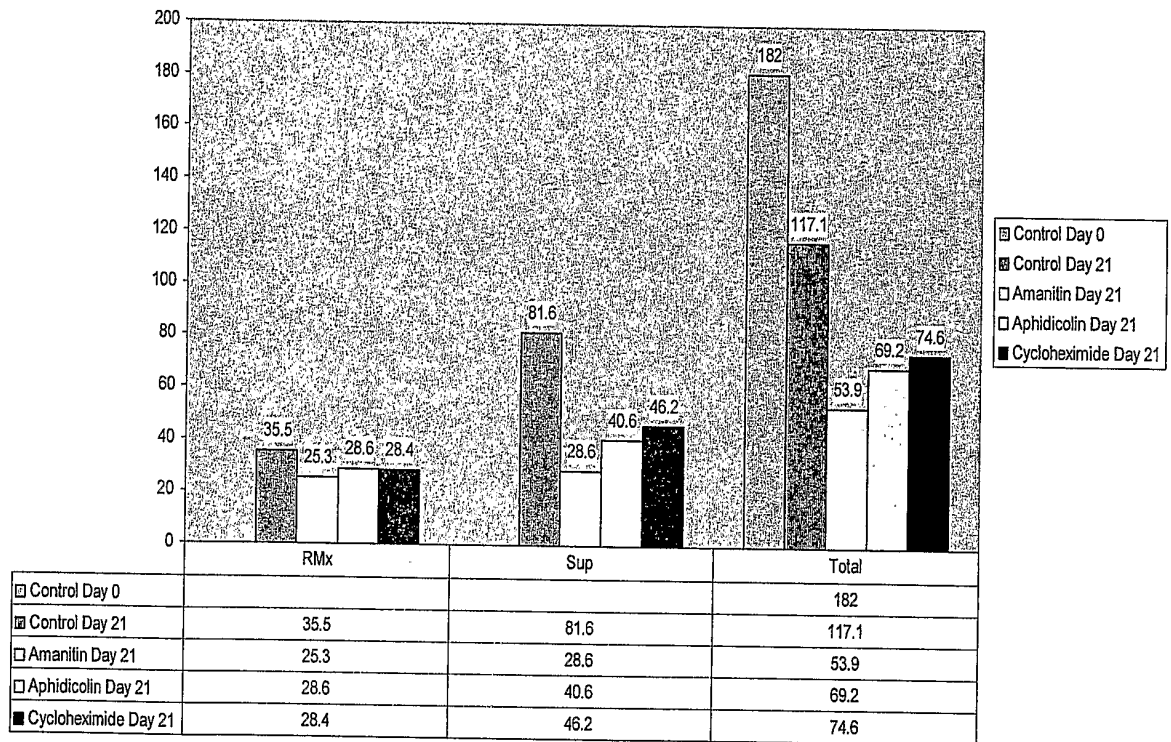


Figure 15. Total Protein Content in Regeneration Matrix, Supernatant, and Whole Opticell® Culture (1 μ m Filtered).

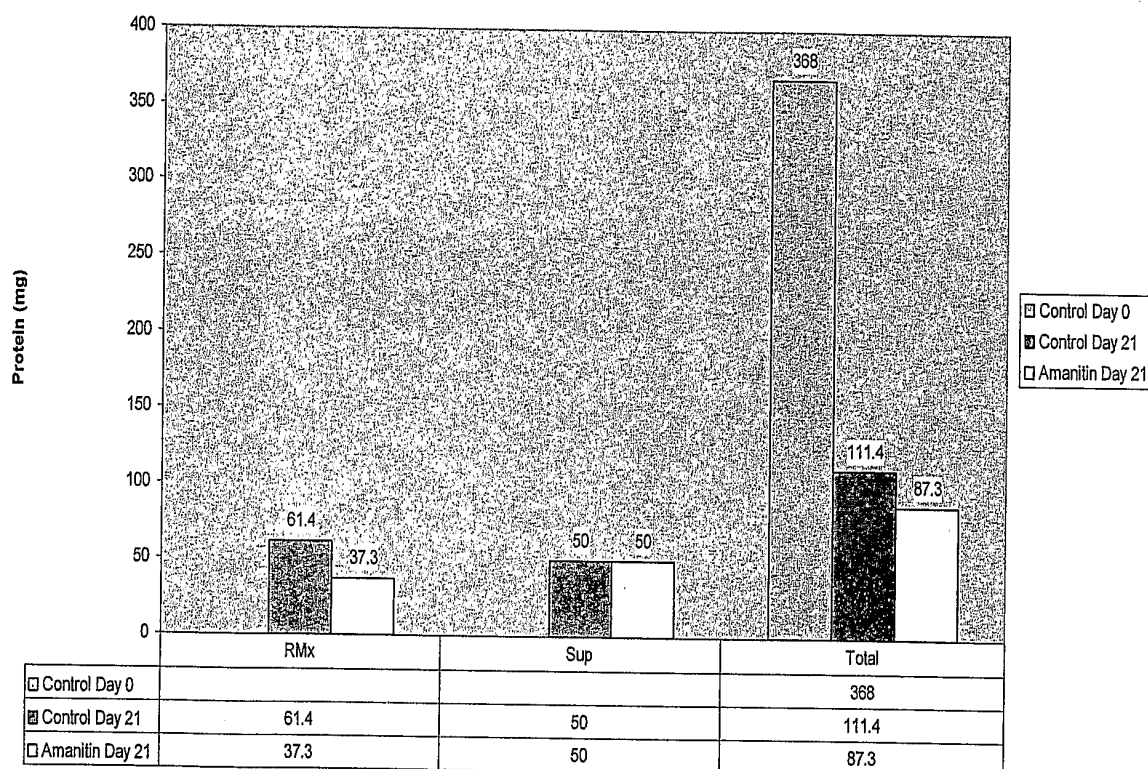


Figure 16. Total Lipid Content in Regeneration Matrix, Supernatant, and Whole Opticell® Culture (1 μ m Filtered).

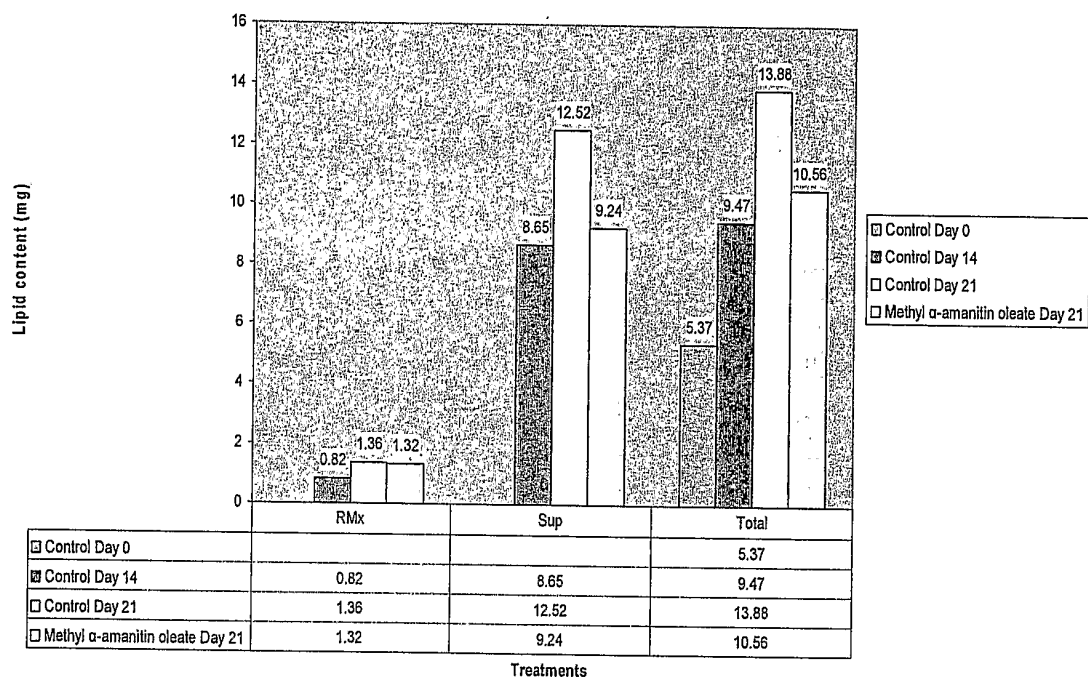


Figure 17. PAGE for Matrix and Media Comparison of Coomassie Stained Protein Bands from 1 μ Filtered to 5 μ Filtered Matrices.

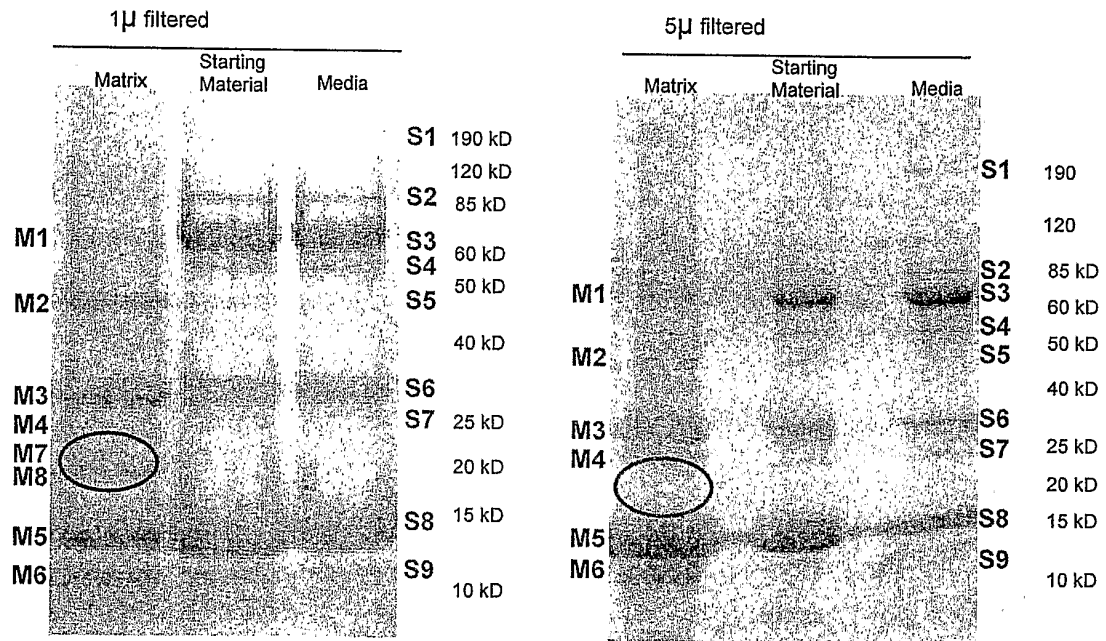
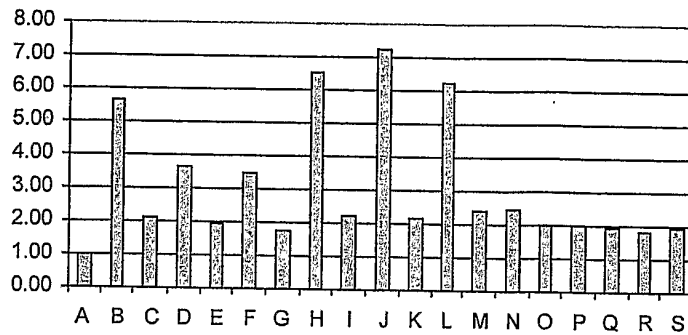
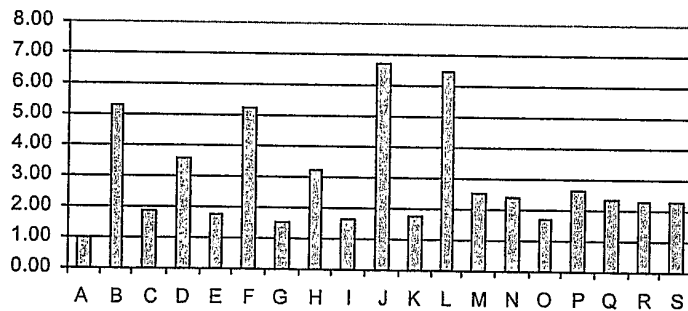


Figure 18. Regeneration Matrix Neuronal Gene Up-regulation Activity.**A. NT-3.****B. NCAM-1.****Legend**A = Complete RM_x Production Medium

B = Day-12, All, RM-1

C = Day-12, All, CM-1

D = Day-12, ITS, RM-1

E = Day-12, ITS, CM-1

F = Day-12, EGF-ITS, RM-1

G = Day-12, EGF-ITS, CM-1

H = Day-12, FGF-ITS, RM-1

I = Day-12, FGF-ITS, CM-1

J = Day-12, None, RM-1

K = Day-12, None, CM-1

L = Day-12, No Feed, RM-1

M = Day-12, No Feed, CM-1

N = Day-0, EGF-ITS, Rep-1

O = Day-0, EGF-ITS, Rep-2

P = Day-0, FGF-ITS, Rep-1

Q = Day-0, FGF-ITS, Rep-2

R = Day-0, None, Rep-1

S = Day-0, None, Rep-2

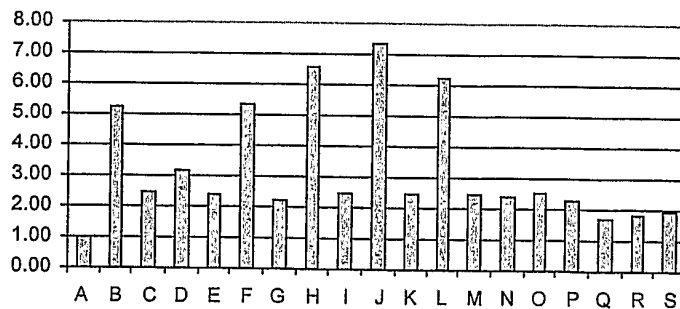
C. GAP-43.

Figure 19. Fold Up-Regulation of Genes Following Incubation of Regeneration Matrix (and Heat Inactivated Regeneration Matrix) with SH-SY5Y Cells.

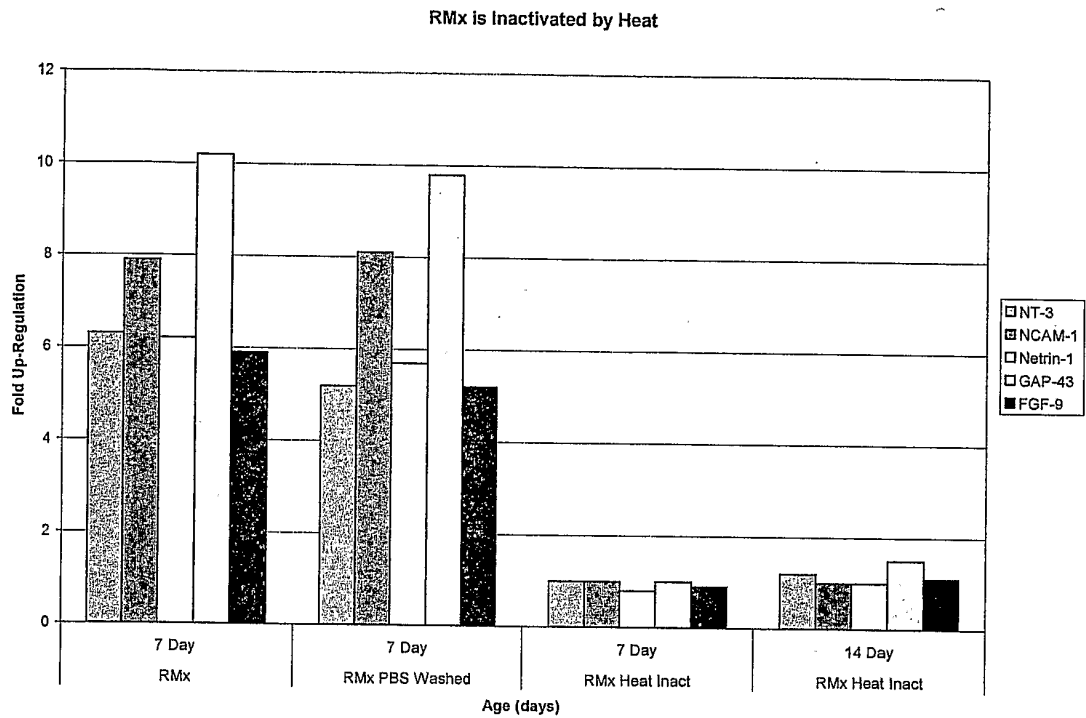


Figure 20. Neurite Extension by Neruoscreen[®] Cells Treated with Regeneration Matrix.

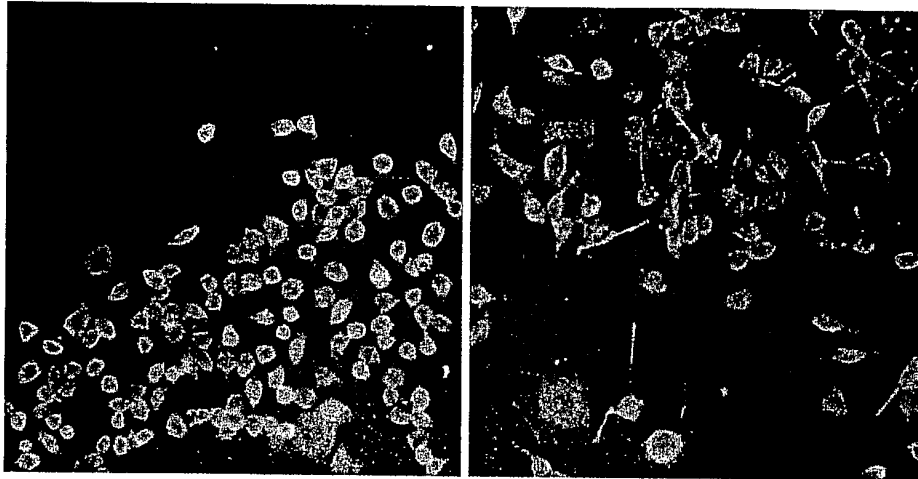


Figure 21. Comparison of Neurite Outgrowth of Neuroscreen® Cells Cultured in the Presence or Absence of Regeneration Matrix.

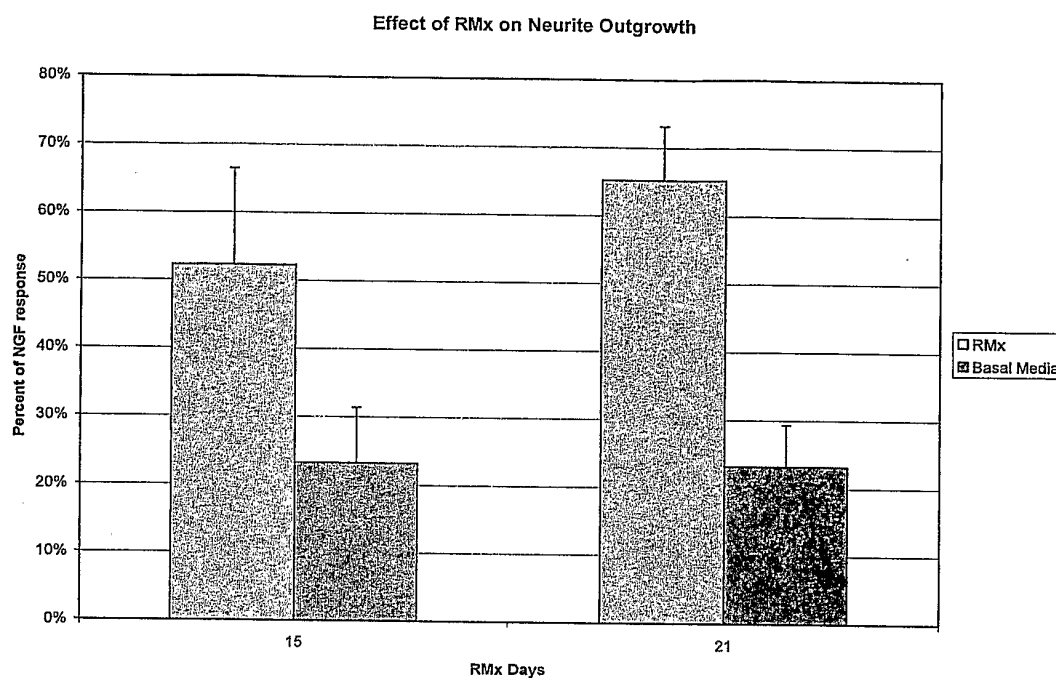


Figure 22. Comparison of Neurite Outgrowth of Neuroscreen® Cells Cultured in the Presence of Regeneration Matrix Produced without Growth Factor Supplementation.

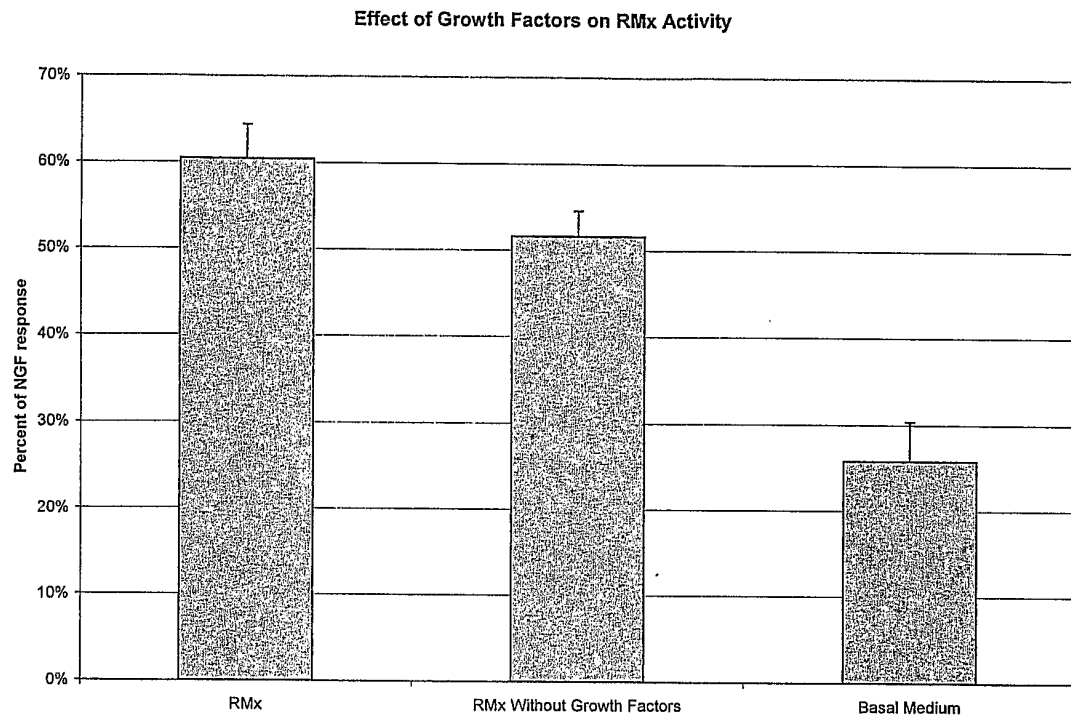


Figure 23. NGF Dose Response.

NGF dose response

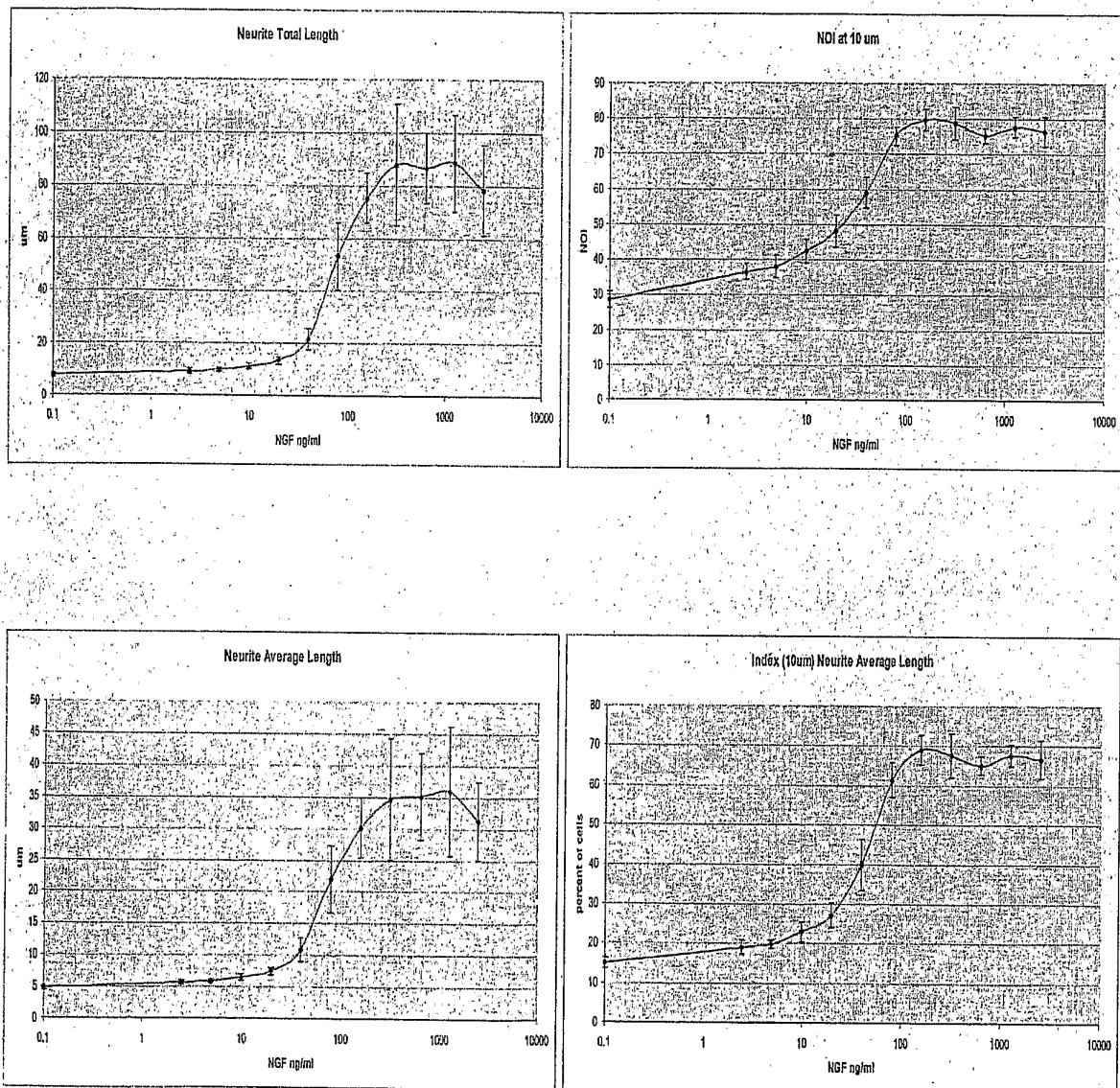


Figure 24. Neurite Total Length.

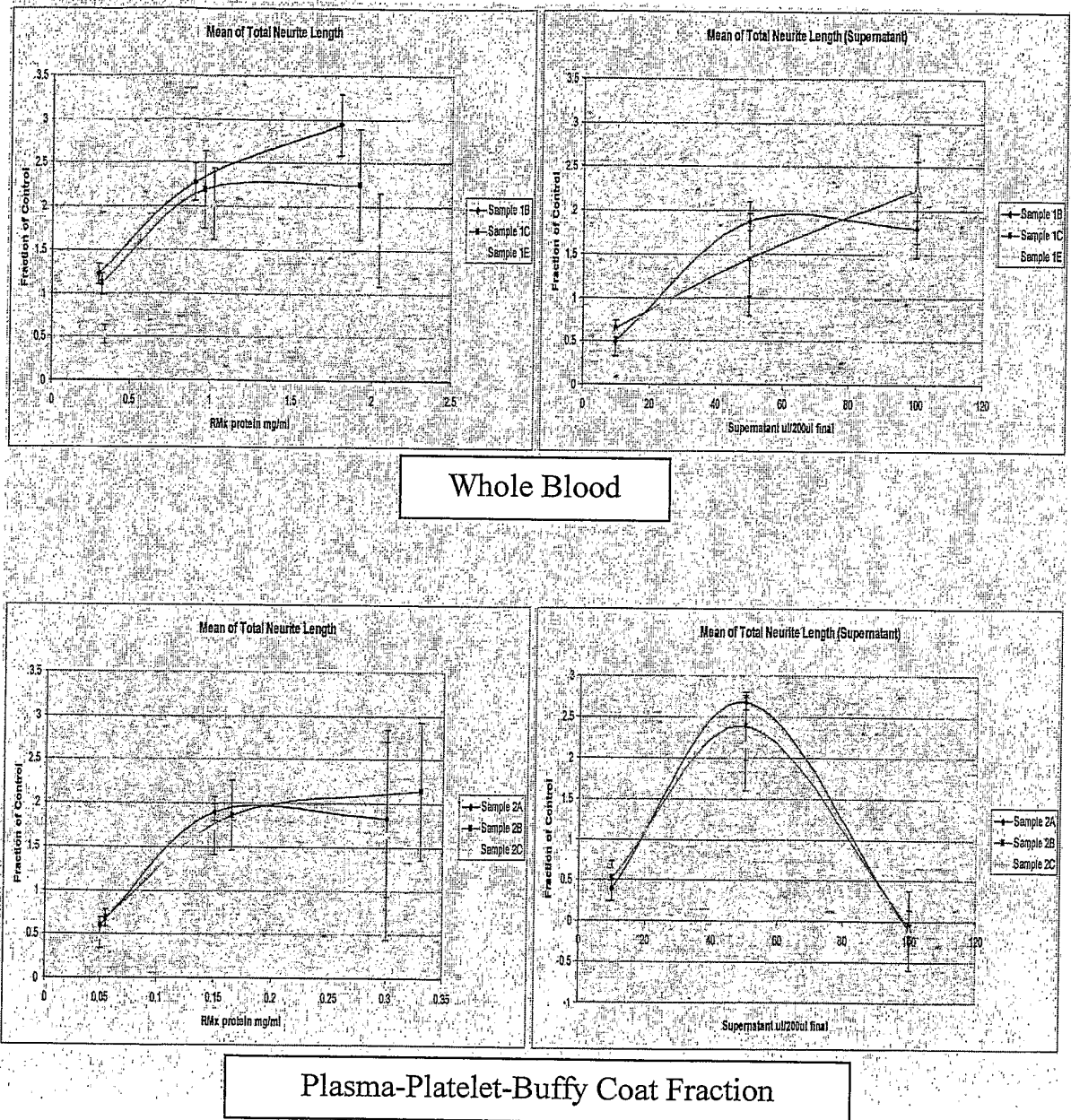
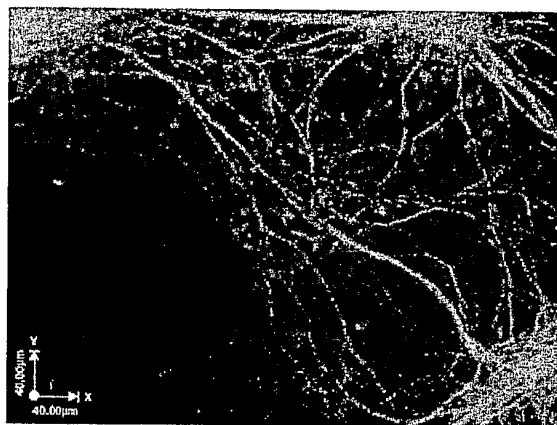


Figure 25. Control Primary Rat Embryonic Spinal Cord Cells, Labeled for Neuronal Tubulin (Tuj1) and Glia (GFAP) Six Days After the Start of Single Cell Suspension Culture (Two Exposures to Show All Stained Components).



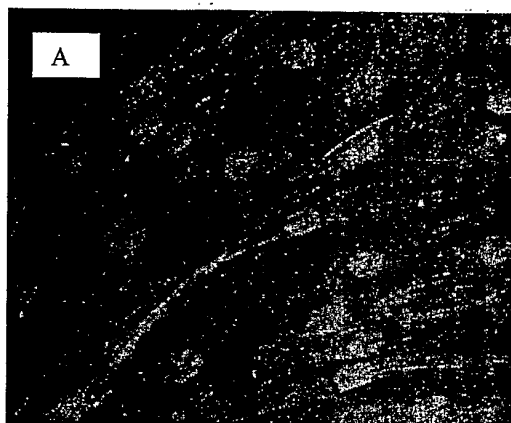
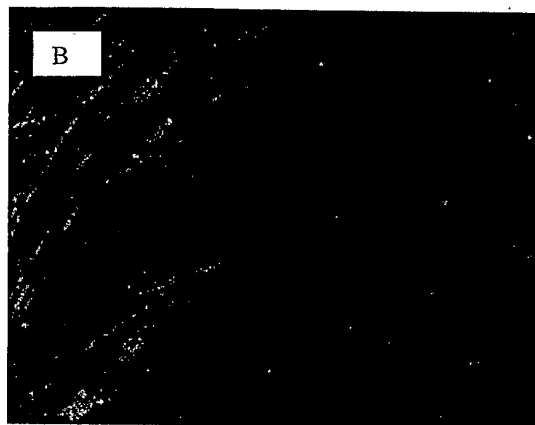
Tuj1-neurons



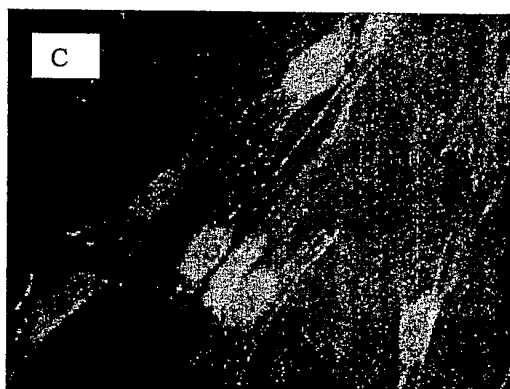
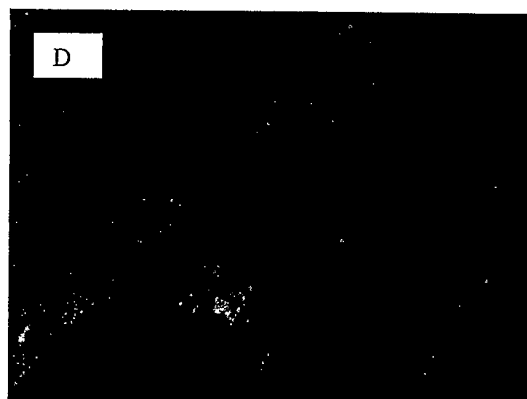
GFAP-astrocytes

Figure 27. Immunocytochemistry of Human Fibroblasts Cultured in Regeneration Matrix Production Medium and with Regeneration Matrix.

Regeneration Matrix Medium (Control)



Regeneration Matrix



β -Tubulin

F-Actin

Figure 26. Interaction of Neuronal Cells with Seven Day Regeneration Matrix.

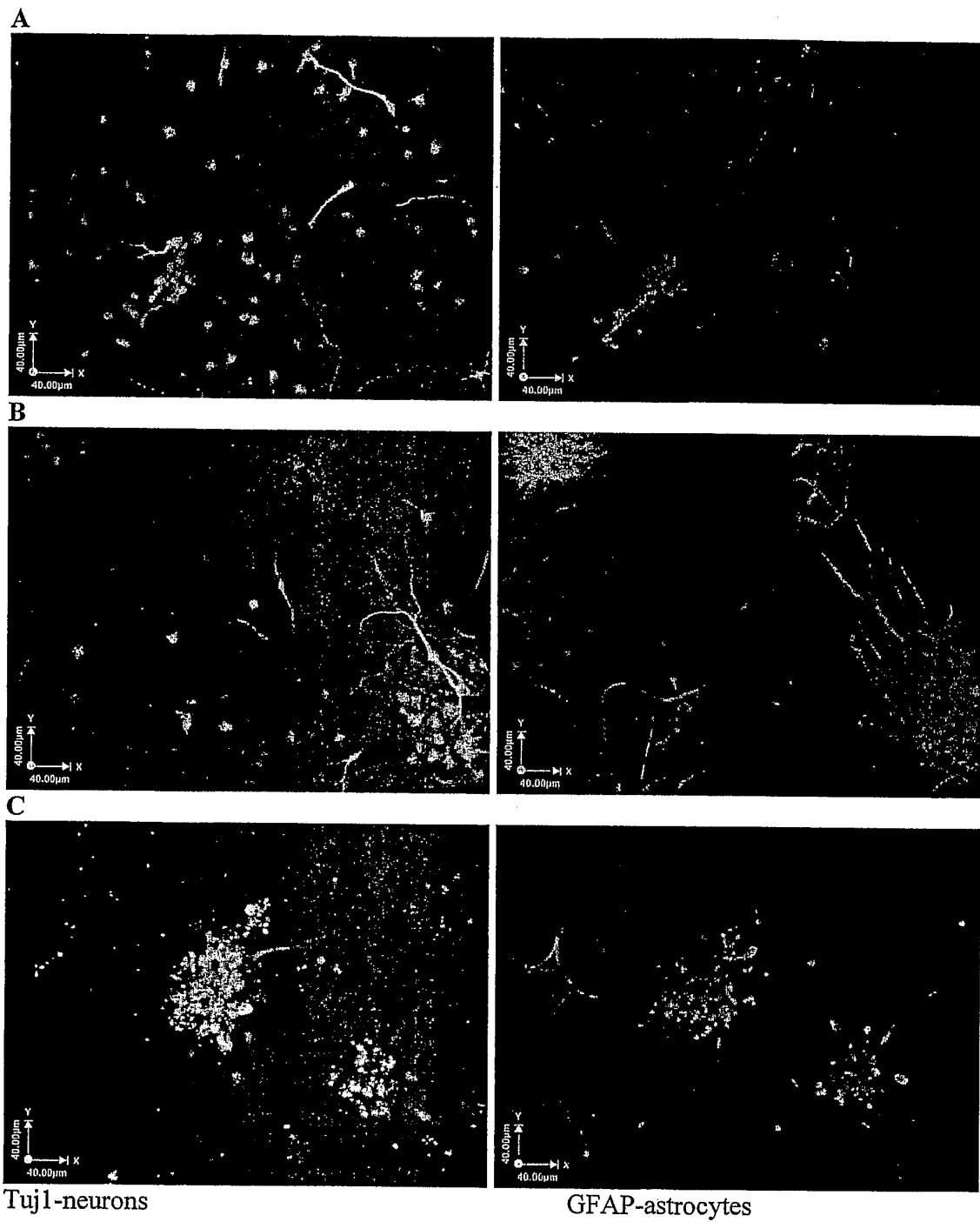
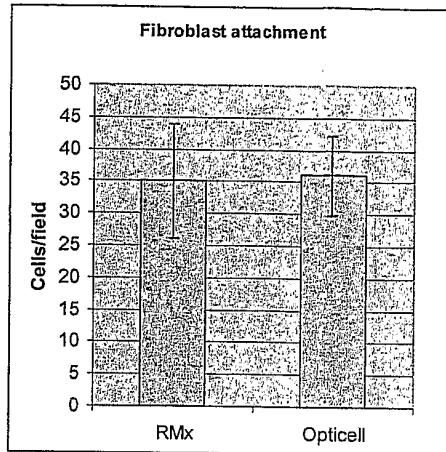
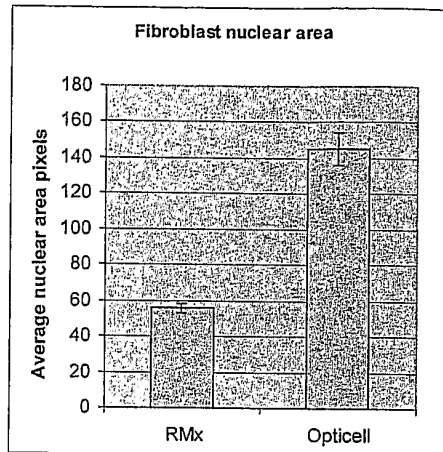


Figure 28. Effect of Regeneration Matrix on Fibroblast Attachment, Fibroblast Nuclear Area, and % BrdU-positive Fibroblasts.

A.



B.



C.

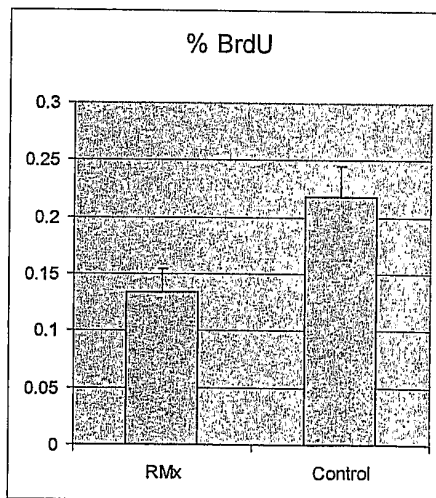


Figure 29. Regeneration Matrix Implantation into Rat Full Transection Model (5 mm) of SCI Induces Motor Function Recovery.

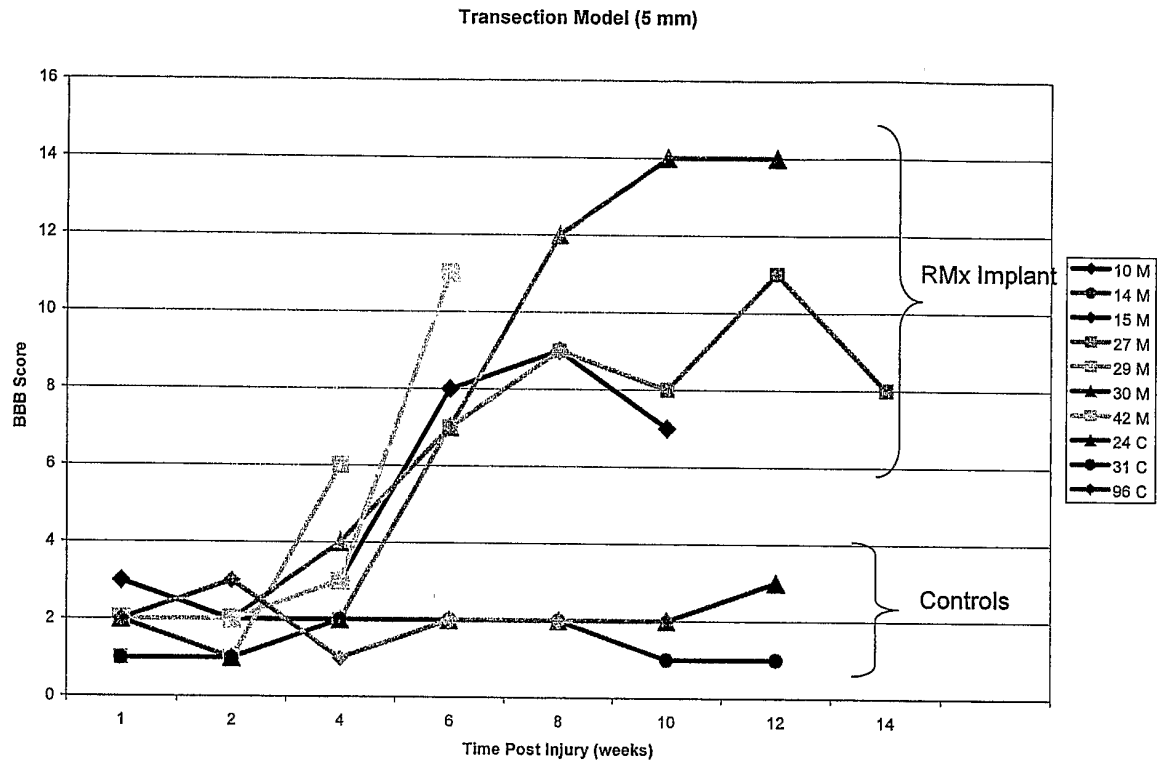


Figure 30. Decreased Incidence of Cyst Formation in Rat Transection Model of Spinal Cord Injury For Rats Receiving a Regeneration Matrix Implant.

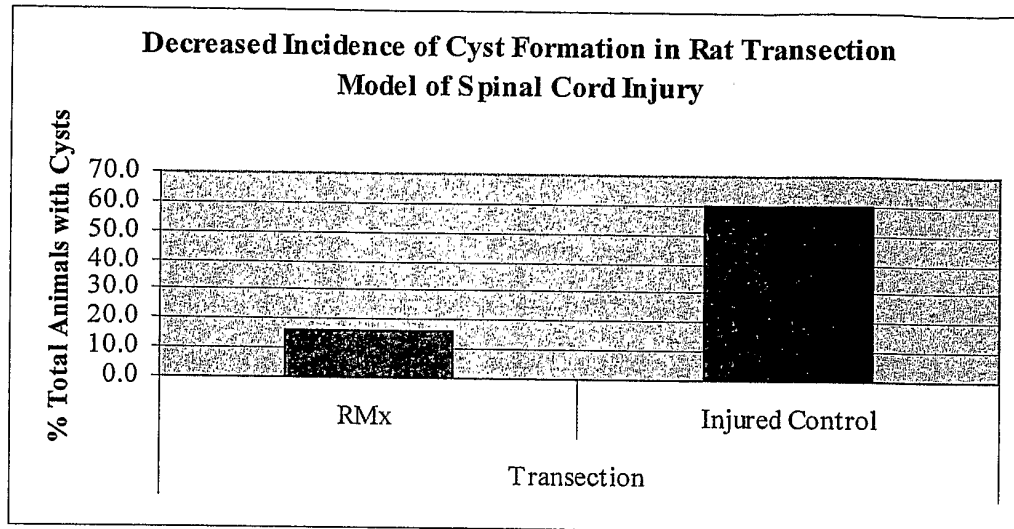


Figure 31. Regeneration Matrix Implantation into Rat Hemisection Model (5 mm) of SCI Induces Motor Function Recovery.

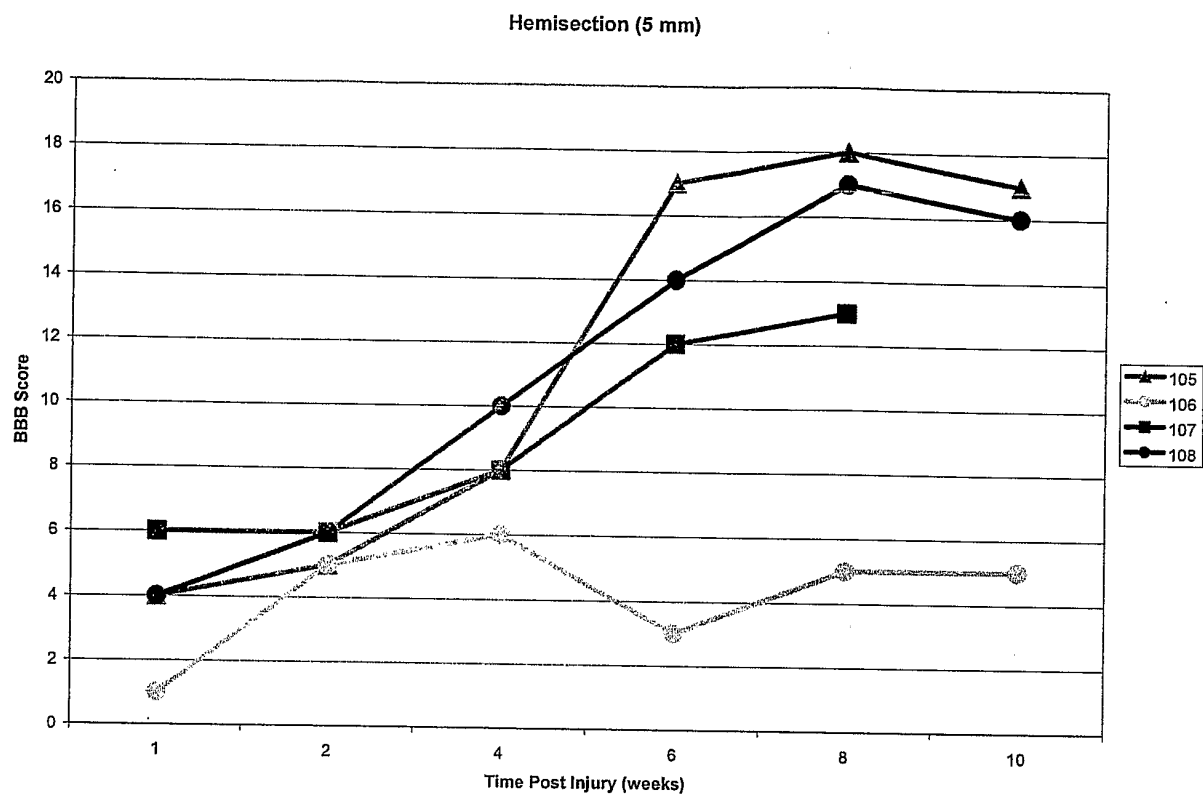


Figure 32A. Functional recovery following RMx implantation into spinal cord of rats that had a 5mm full transection.

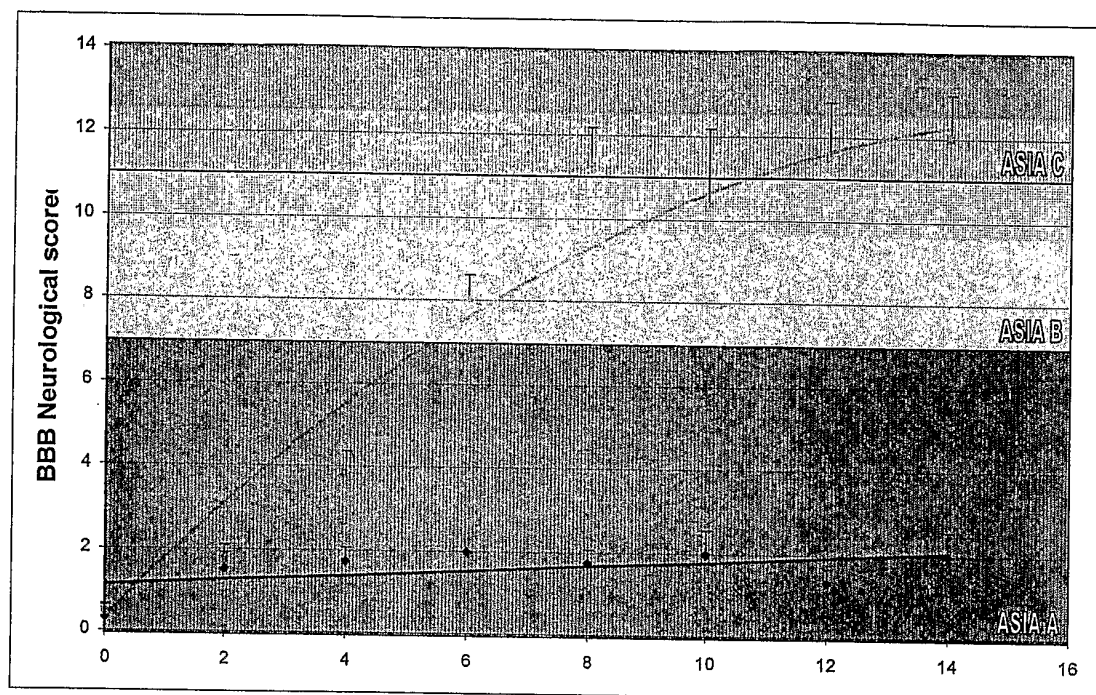


Figure 32B. Functional Recovery Following Regeneration Matrix Implantation into Spinal Cord of Rats 2 Weeks Post Contusion (50mm) Injury.

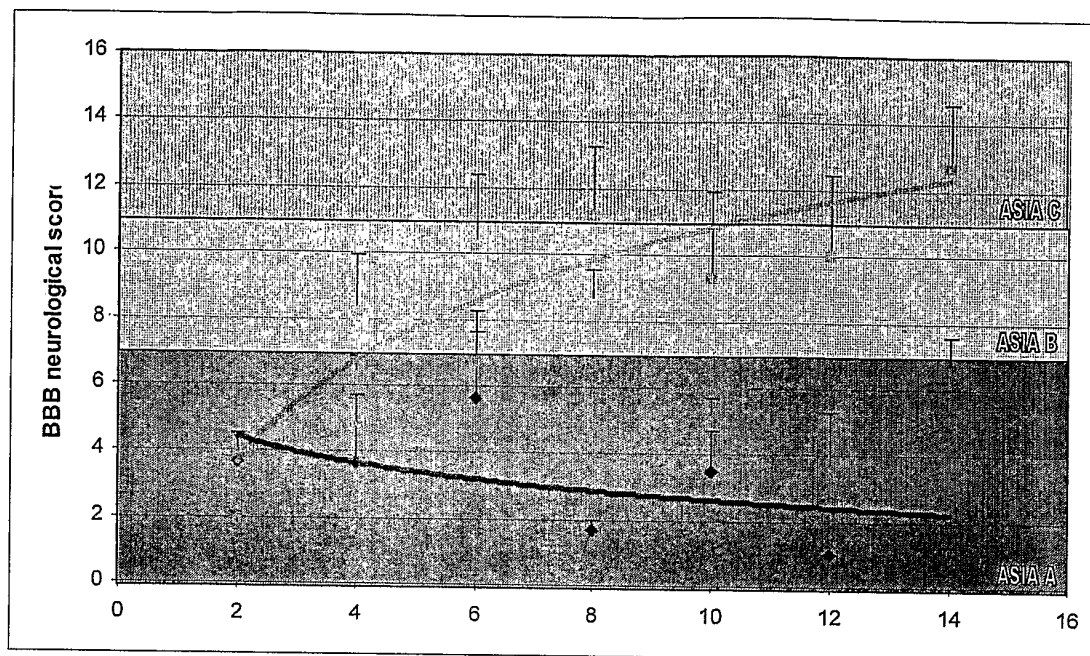


Figure 32C. Combination (Full Transection and Contusion) Model Indicating Efficacy of a Regeneration Matrix in Treating Spinal Cord Injury.

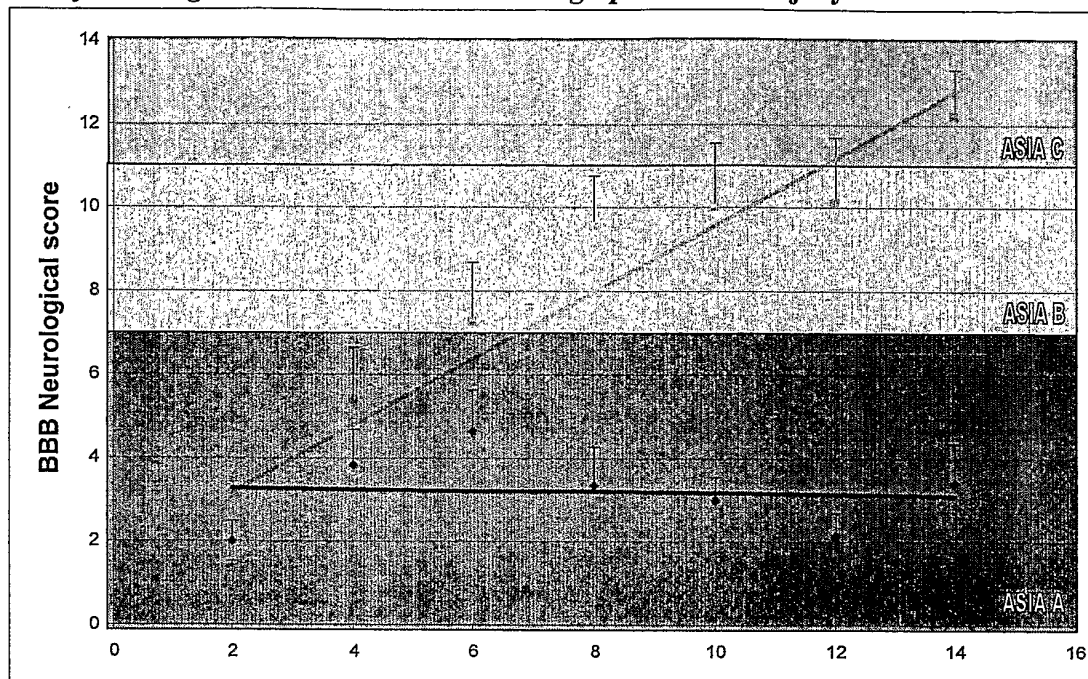


Figure 33. Regeneration Matrix Implantation Induces Motor Function Recovery in Pig Spinal Cord Injuries Caused by Impact and/or Surgical Hemisection (Including Removal of 5 mm of Spinal Cord).

Error!

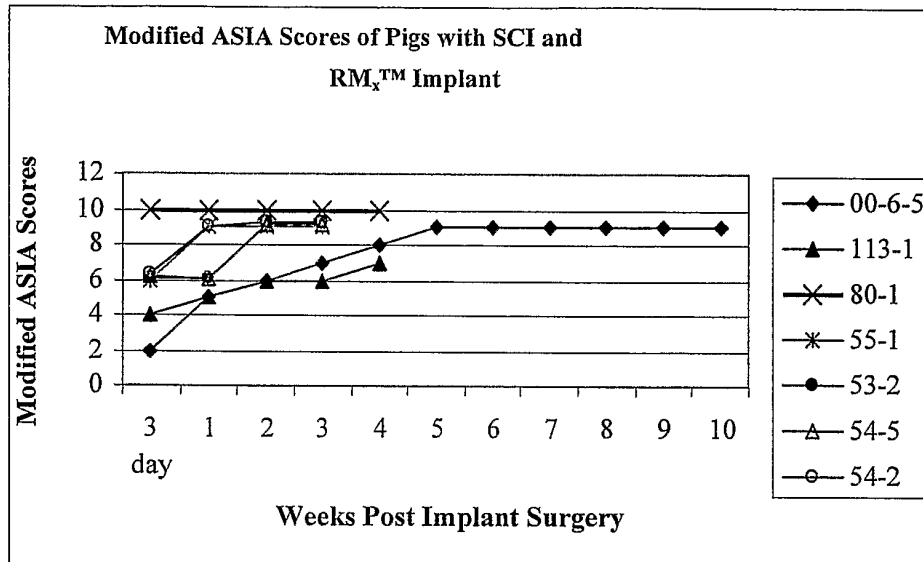
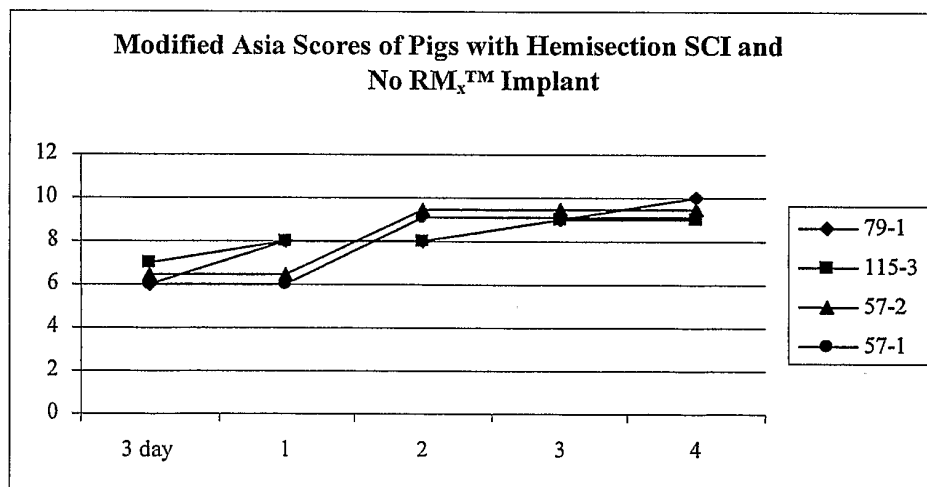


Figure 34.

Comparison of Mean Weights and Mean Weight Gains in Pigs Implanted
with RMx or Homogenized Human Blood Clots

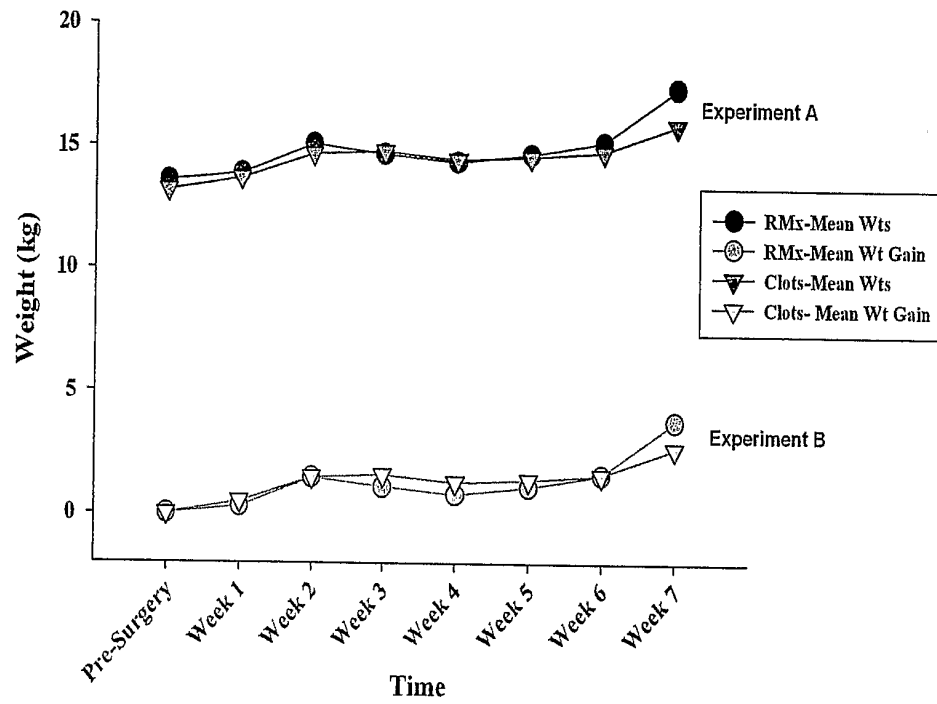


Figure 35.

Comparison of Right Side Motor Skill Recoveries in Pigs Implanted with
RMx or Human Blood Clot after Partial Transection
Spinal Cord Injuries

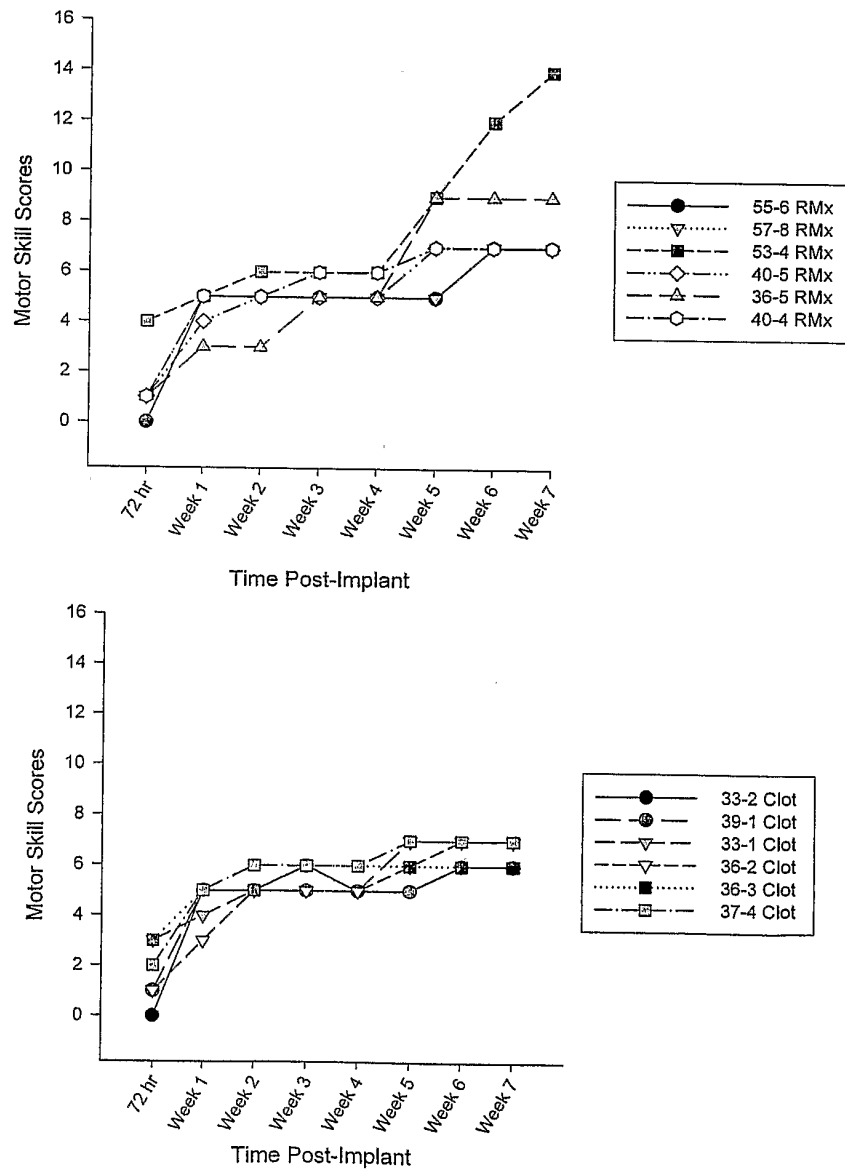


Figure 36. Comparison of Locomotor Recovery in Pigs Treated with Human Regeneration Matrix or Blood Clot at 7 Weeks Post-SCI.

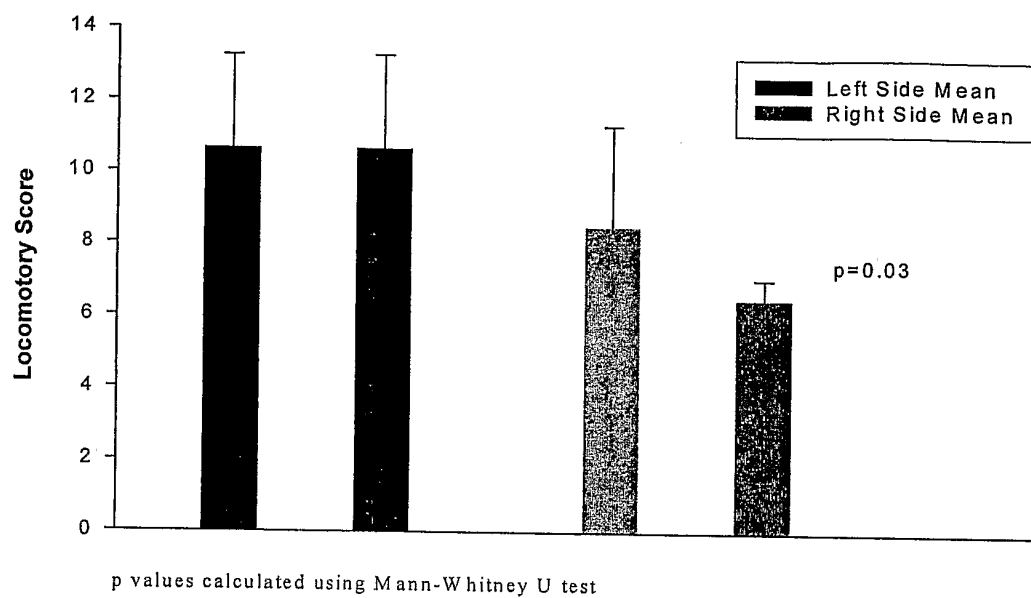


Figure 37. Newly Forming Neurons (Brown) at Site of Spinal Cord Injury in a Pig at 1 Month Post Regeneration Matrix Implantation, shown at 200x magnification.

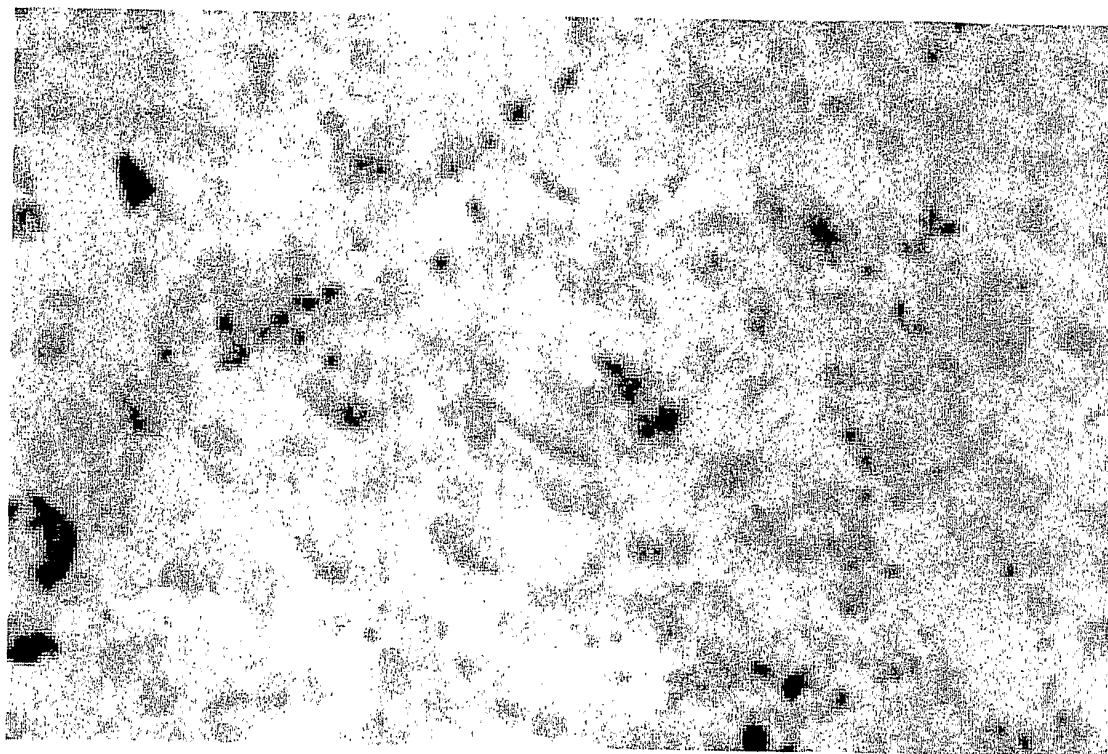
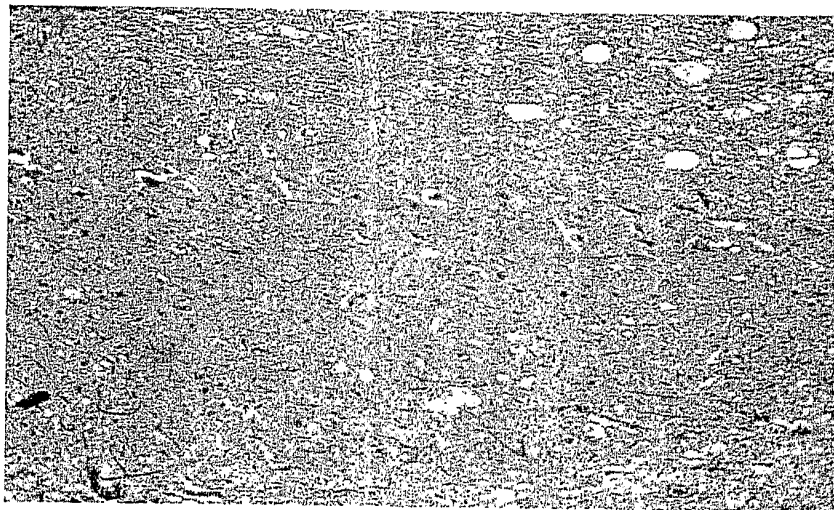


Figure 38. Microscopic Evaluation of a Longitudinal Section from a Rat Spinal Cord Regeneration Study.

A.



B.

