

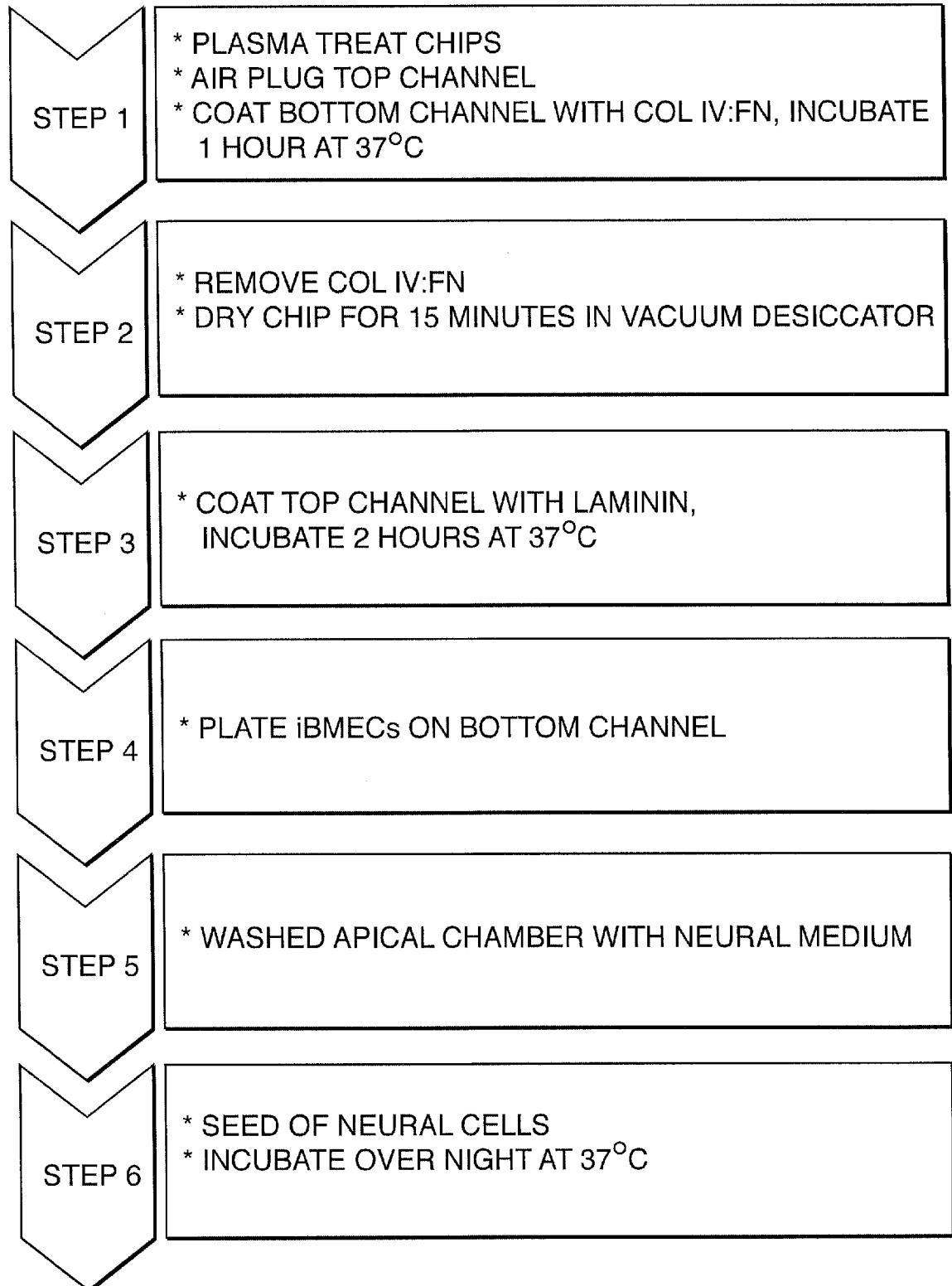


FIG. 1

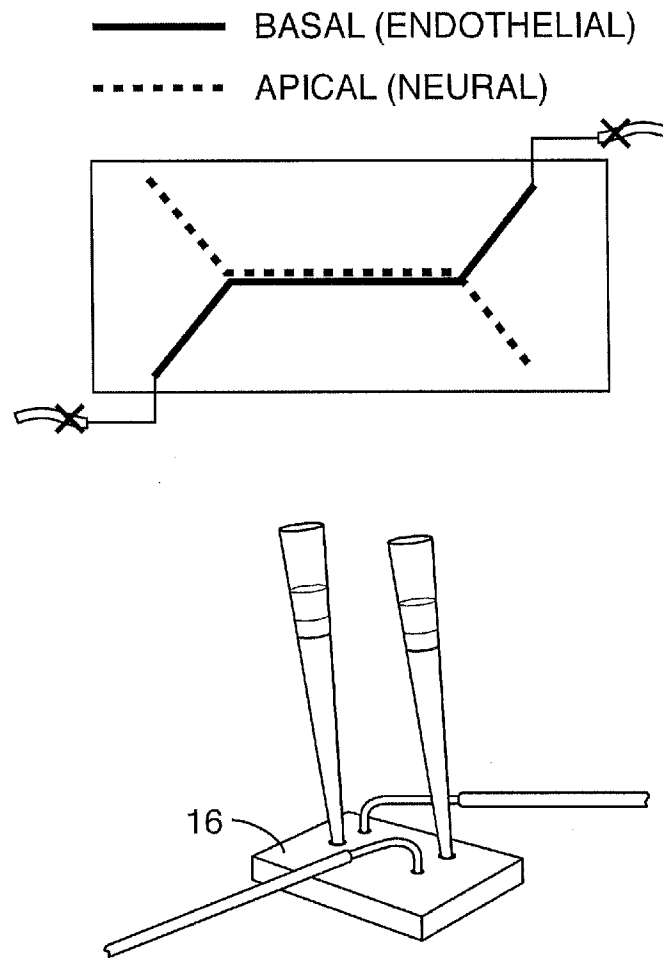


FIG. 2

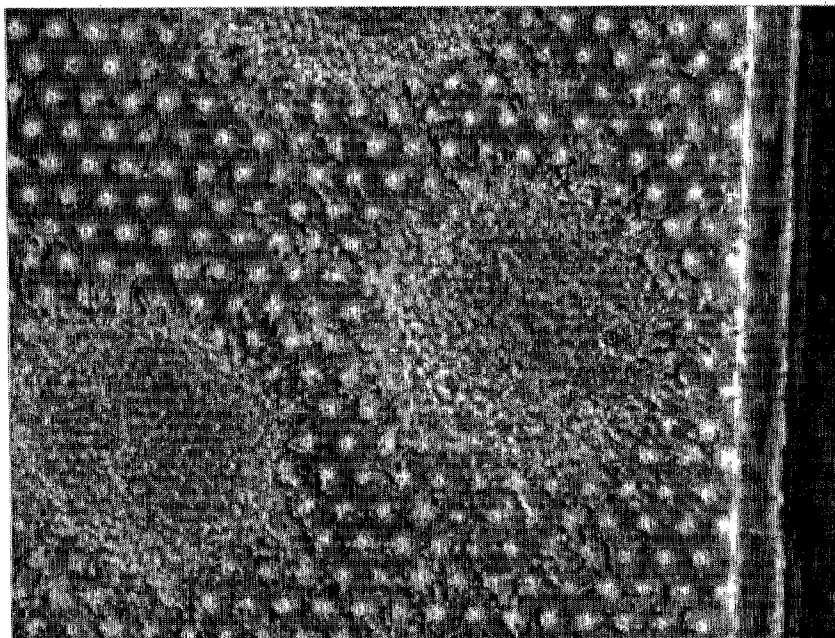


FIG. 3A



FIG. 3B

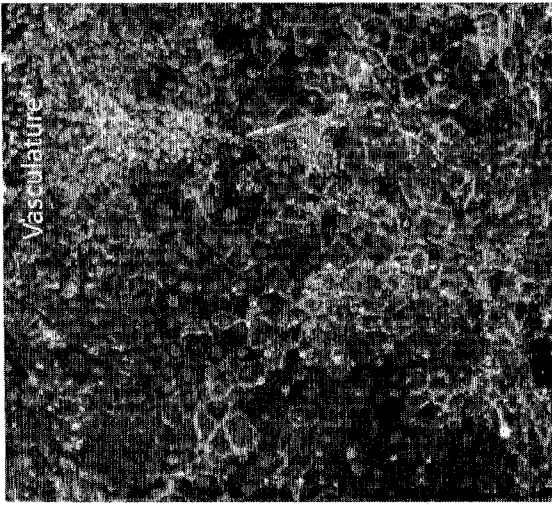
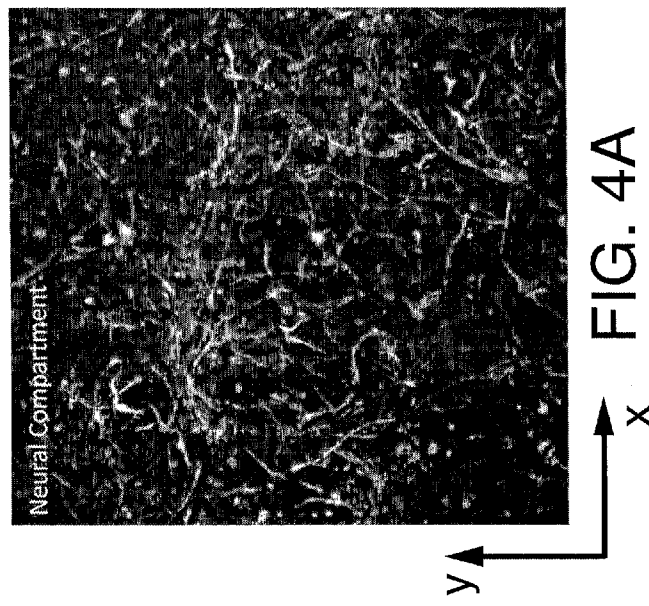
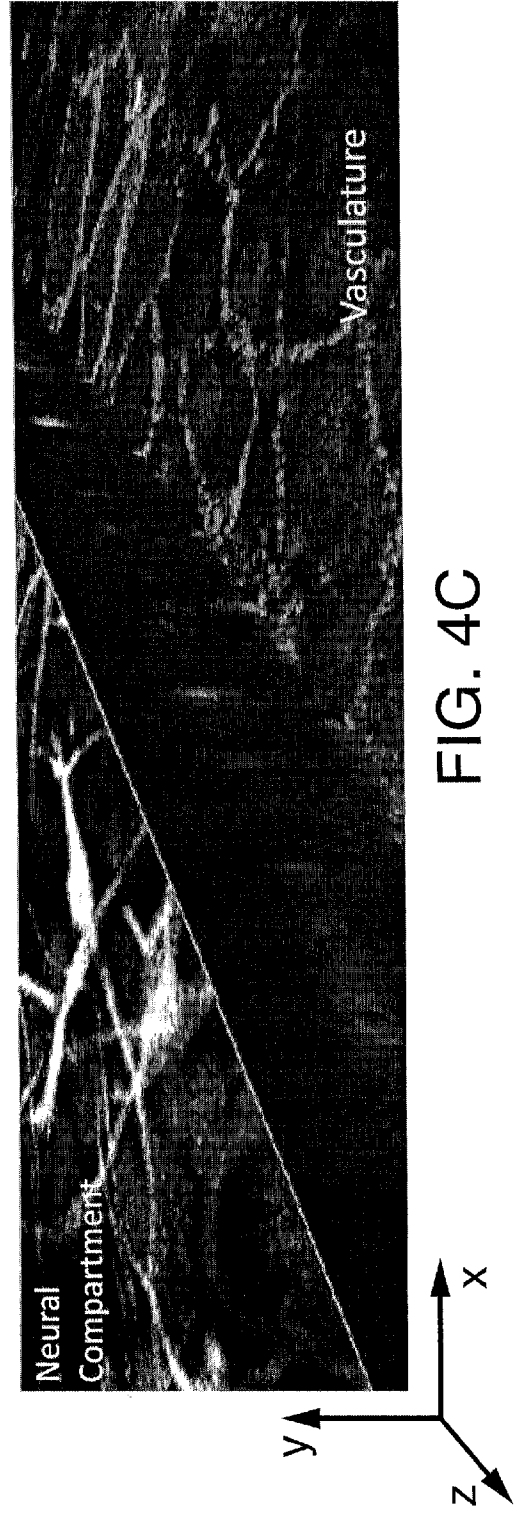


FIG. 4B



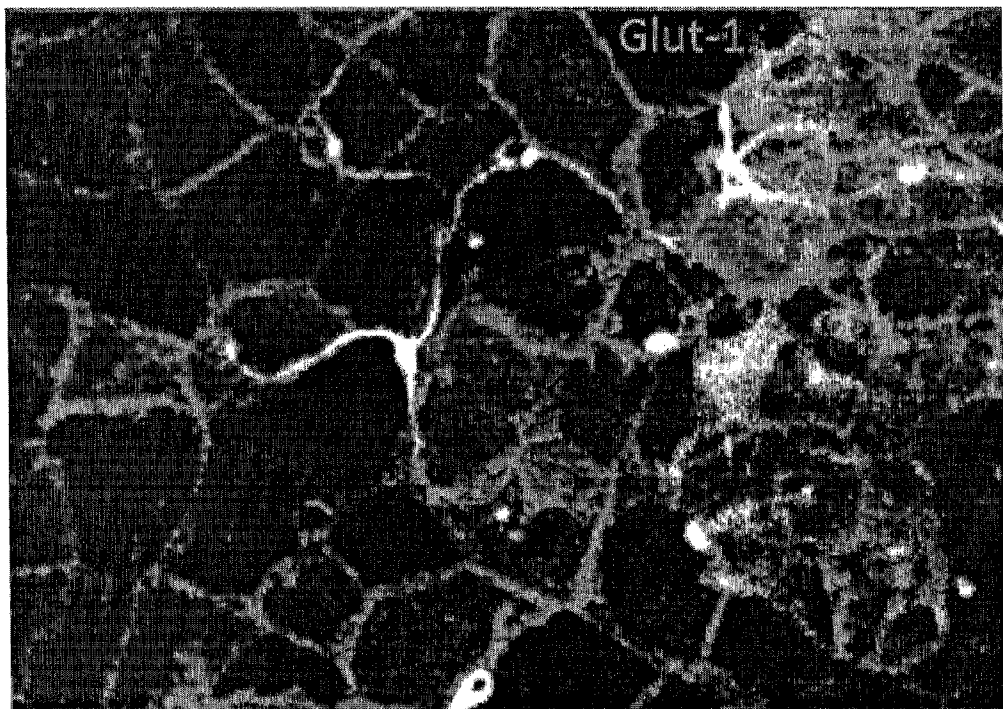


FIG. 5



FIG. 6A

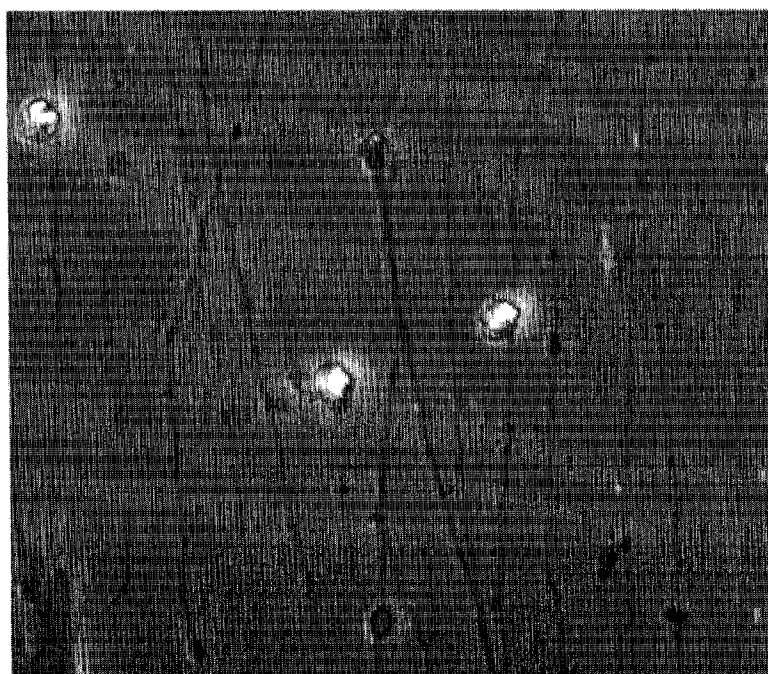


FIG. 6B

160/40 COL/FIBRO (DRY)

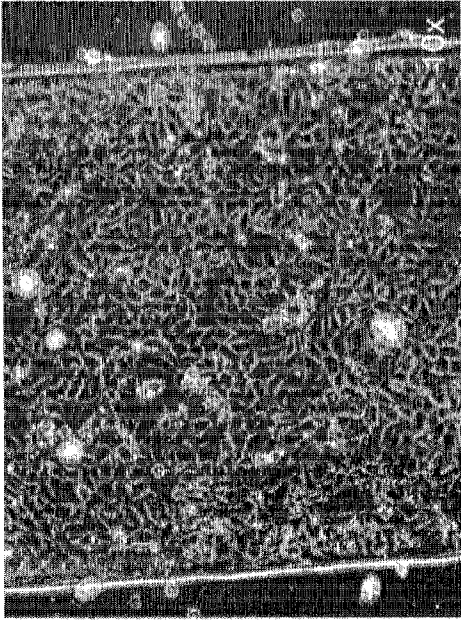


FIG. 7A

LAMININ (10X)

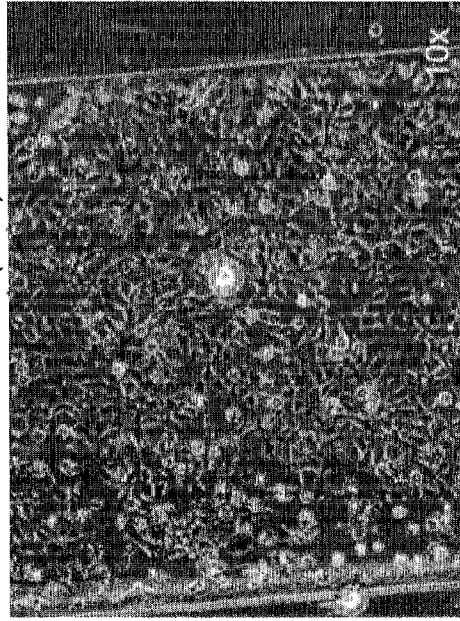


FIG. 7C

320/80 COL/FIBRO (WET)

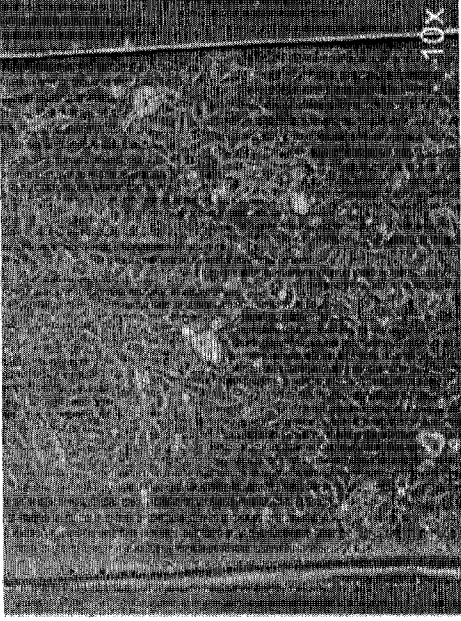


FIG. 7B

LAMININ (20X)

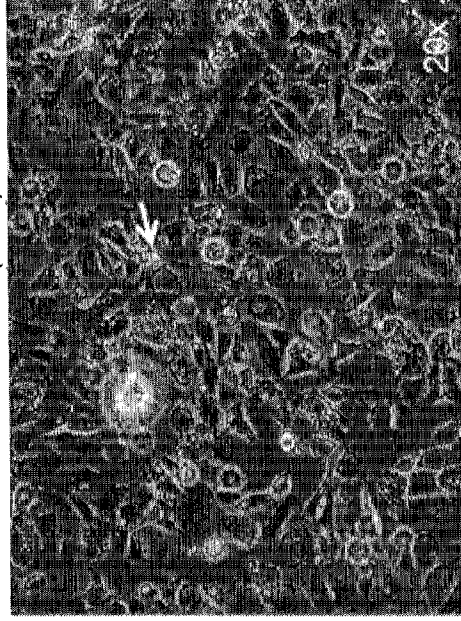


FIG. 7D

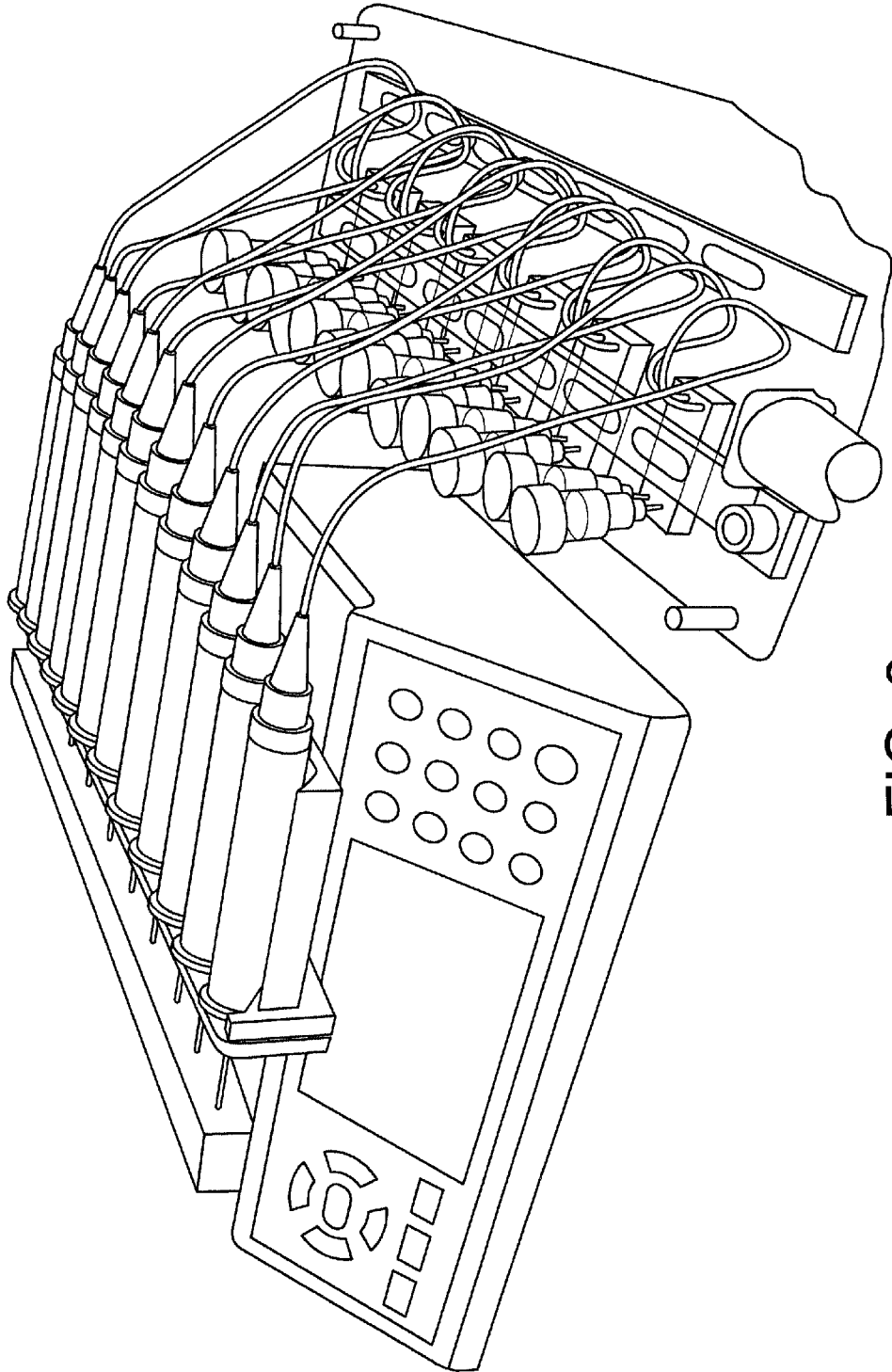


FIG. 8

663 LAM:LAM iMPs (APICAL)



FIG. 9B

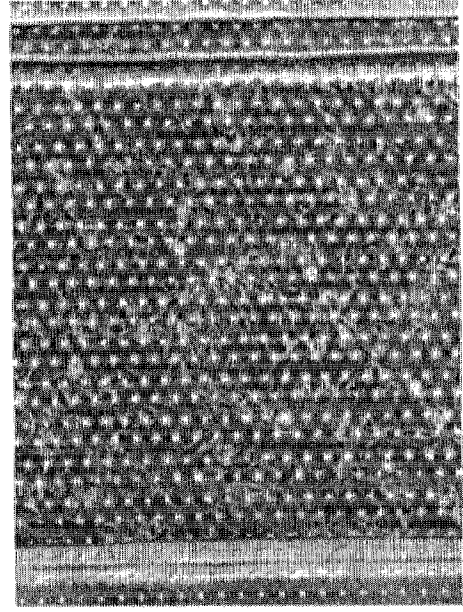


FIG. 9D

664 LAM:WET COL:FIB BMEC + iMPs

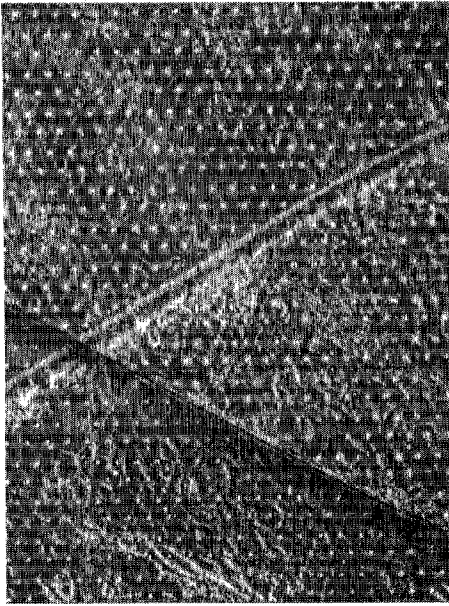


FIG. 9A

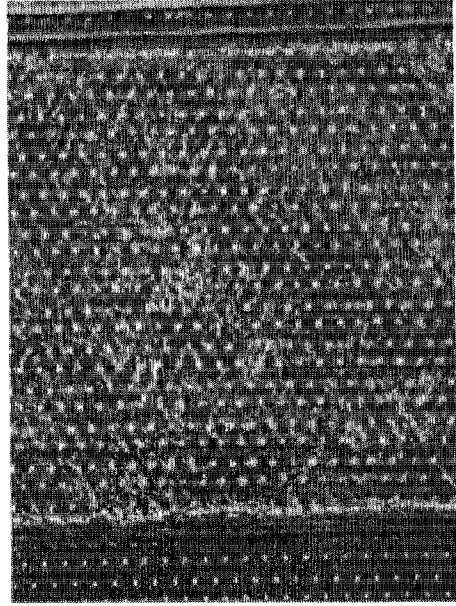


FIG. 9C

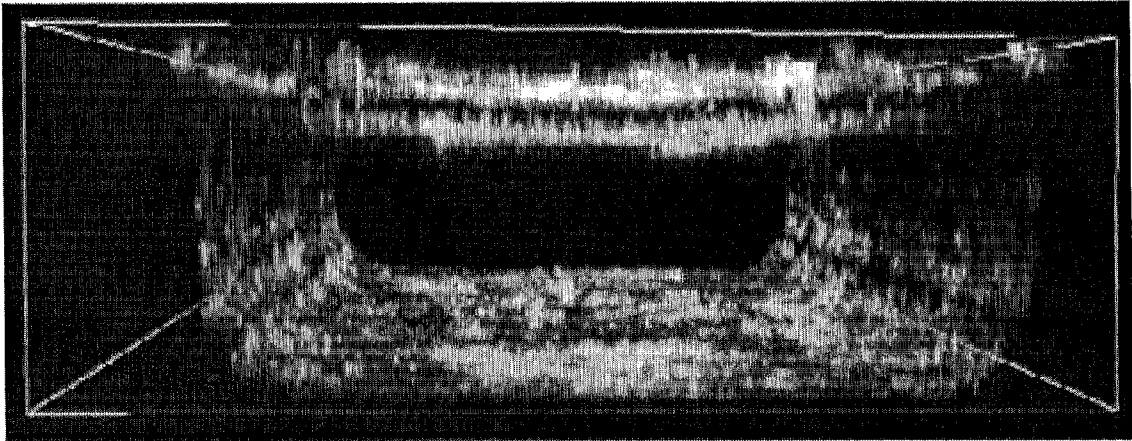


FIG. 10

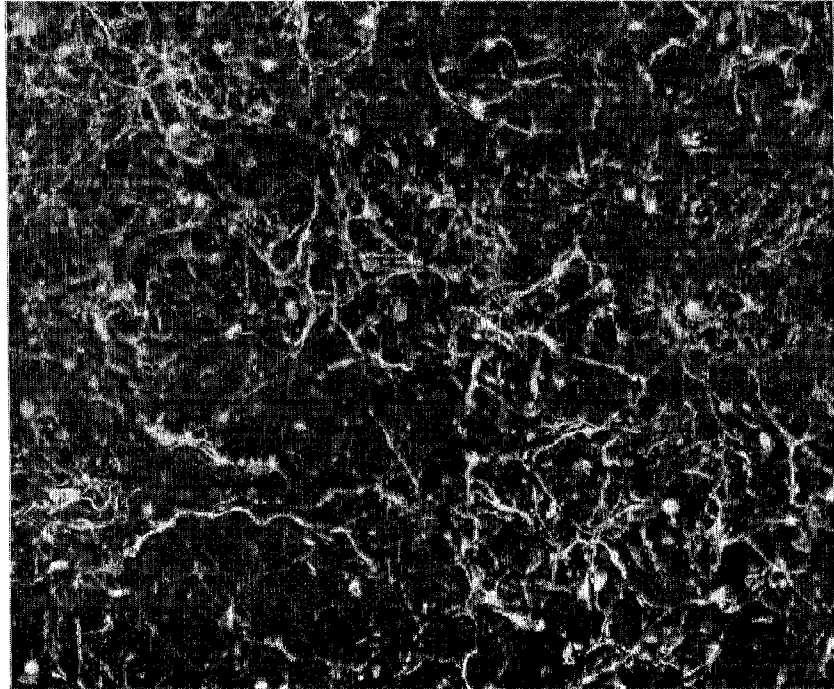
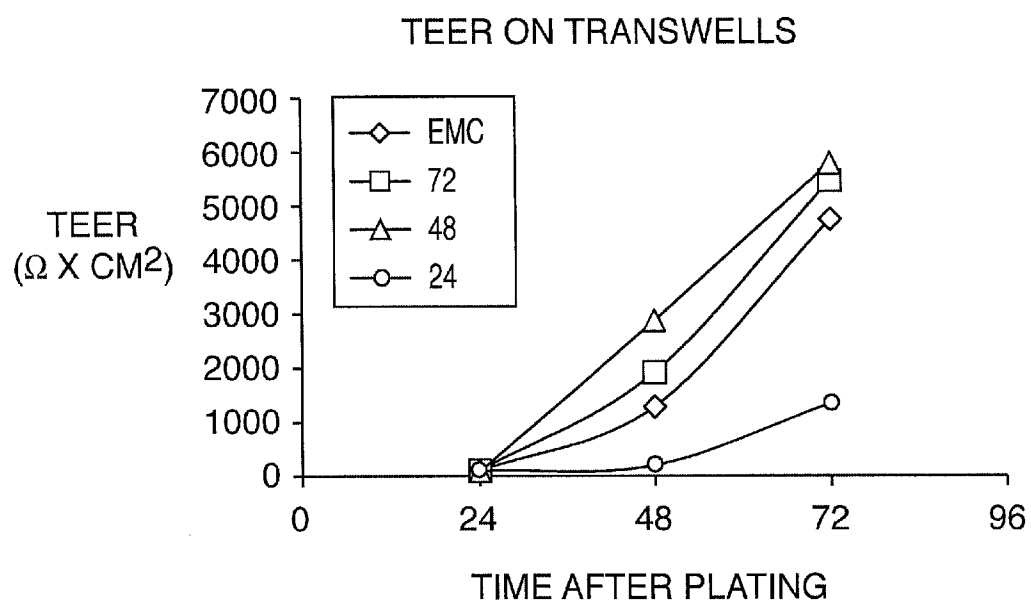
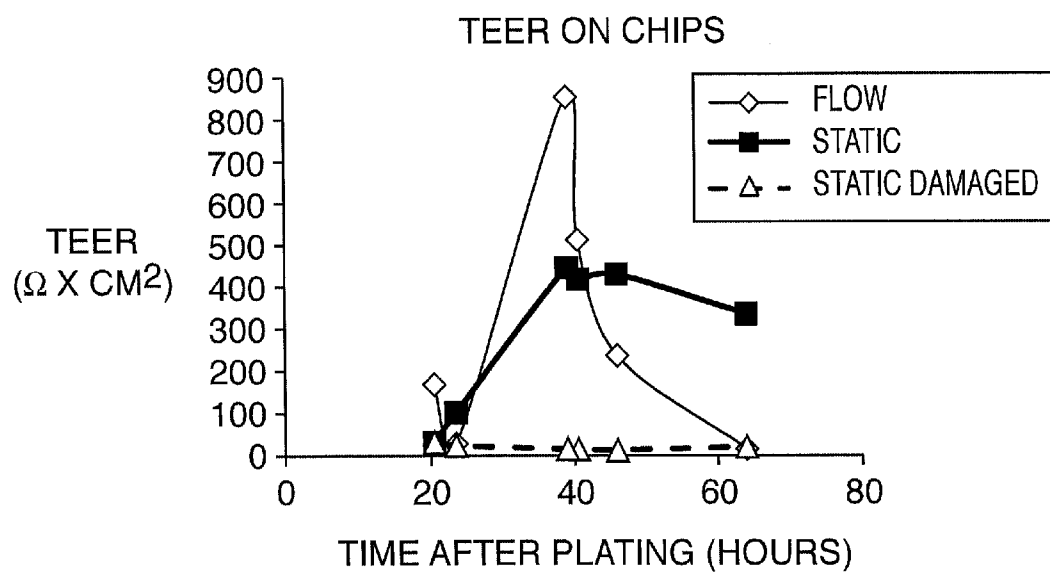


FIG. 11



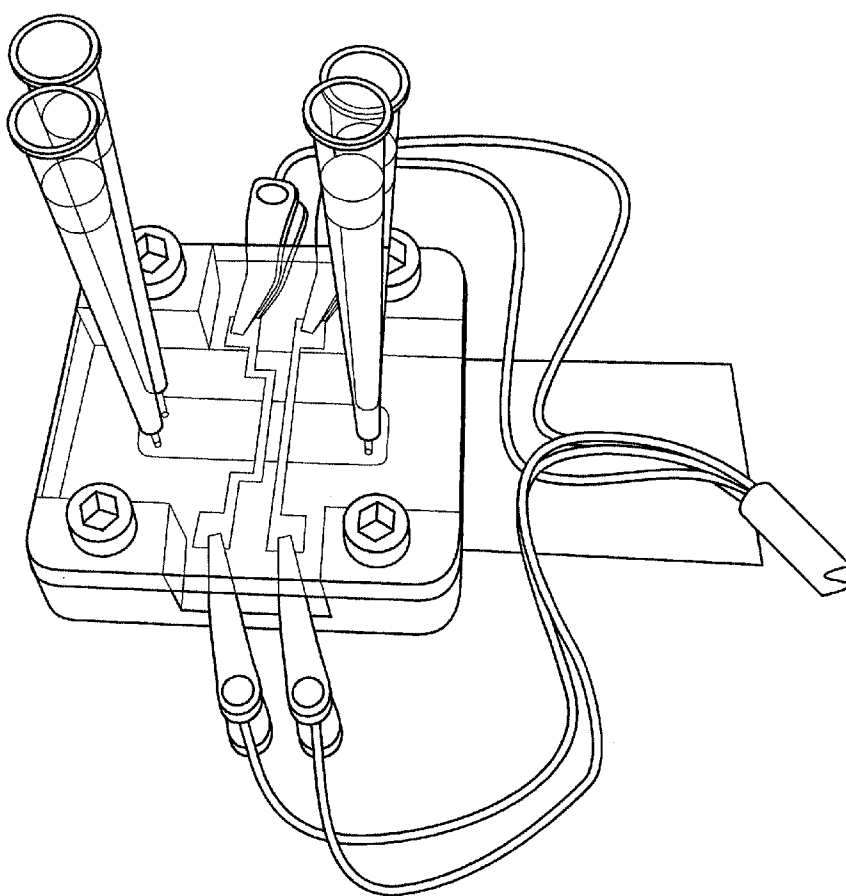


FIG. 13A

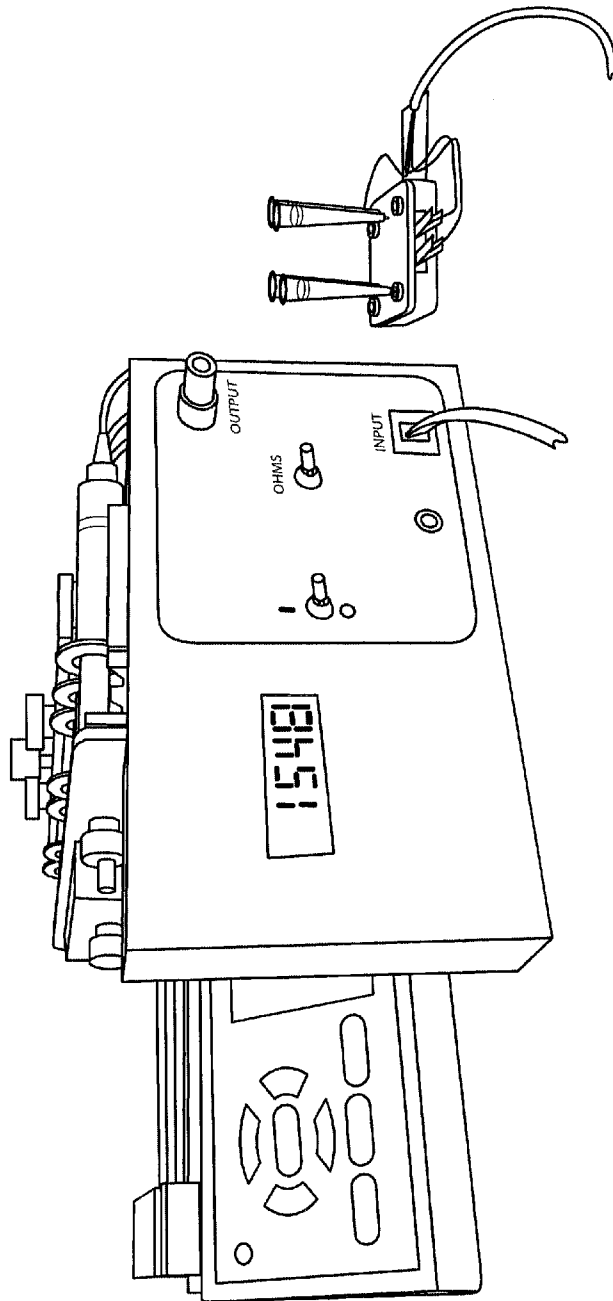


FIG. 13B

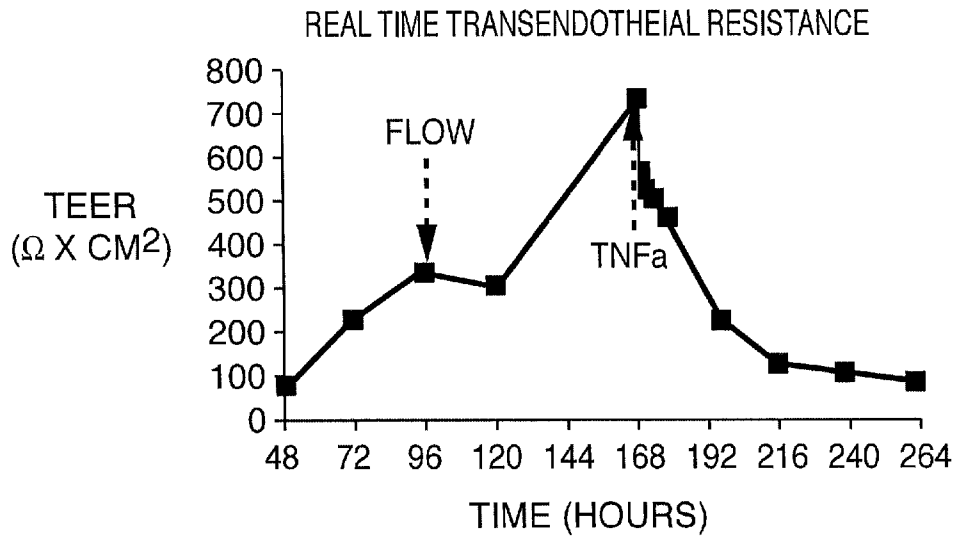


FIG. 14A

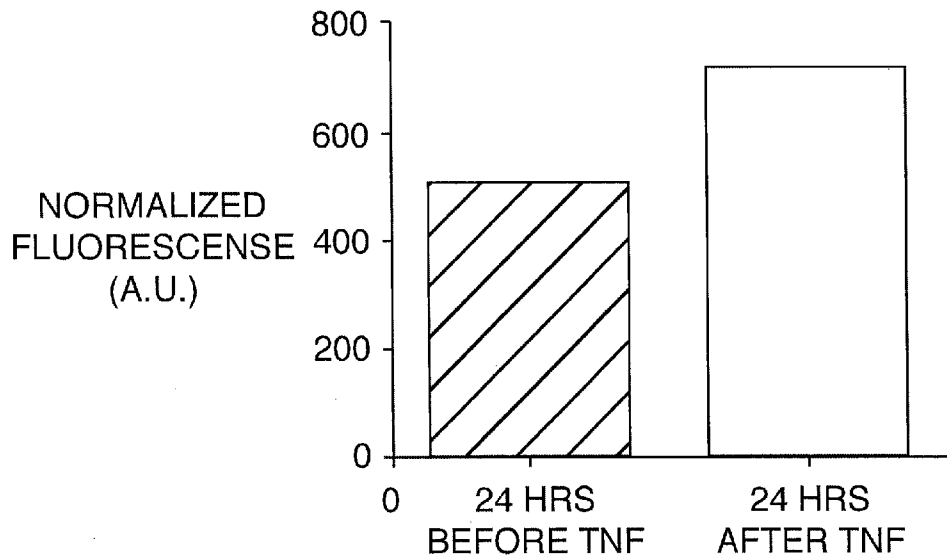
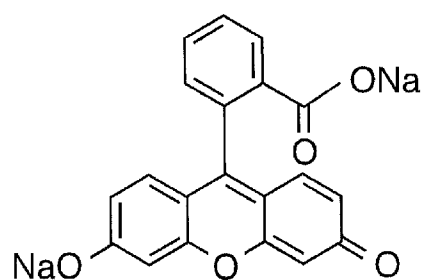


FIG. 14B



FLUORESCCEIN SODIUM

Mw: 376.27 g/mol

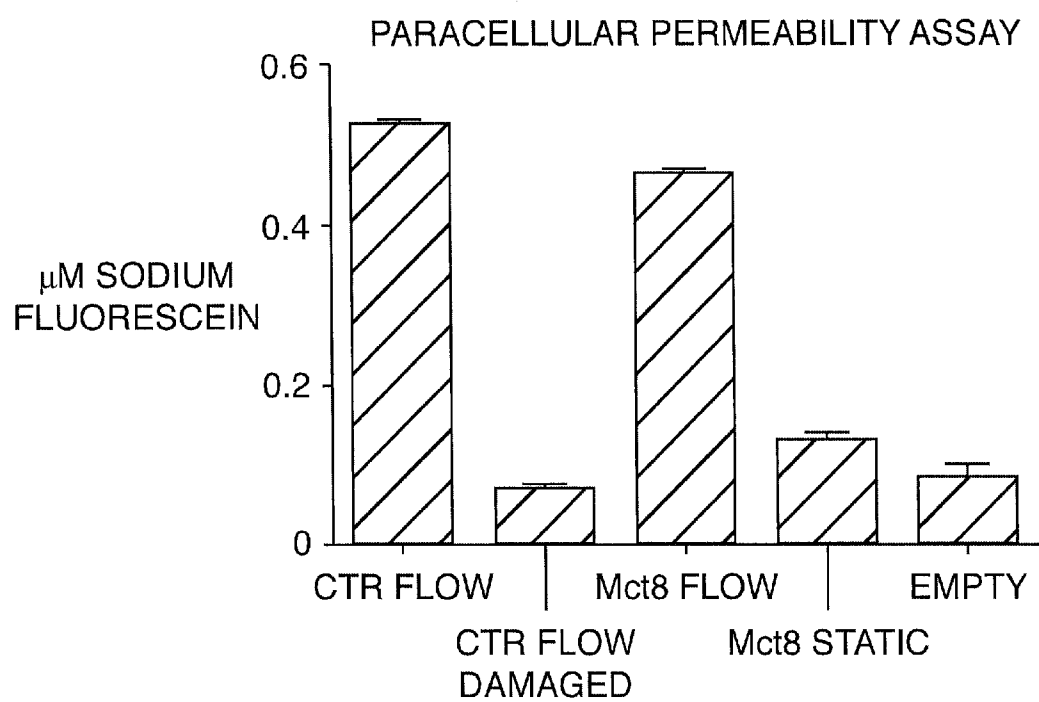


FIG. 15

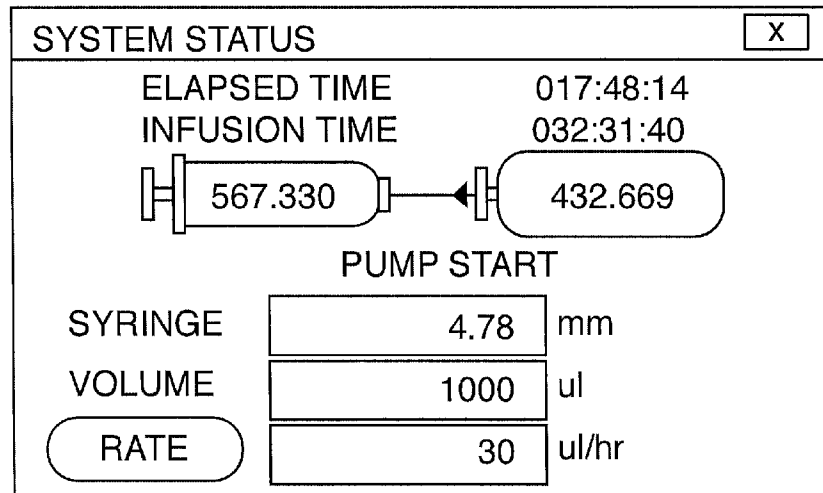


FIG. 16A

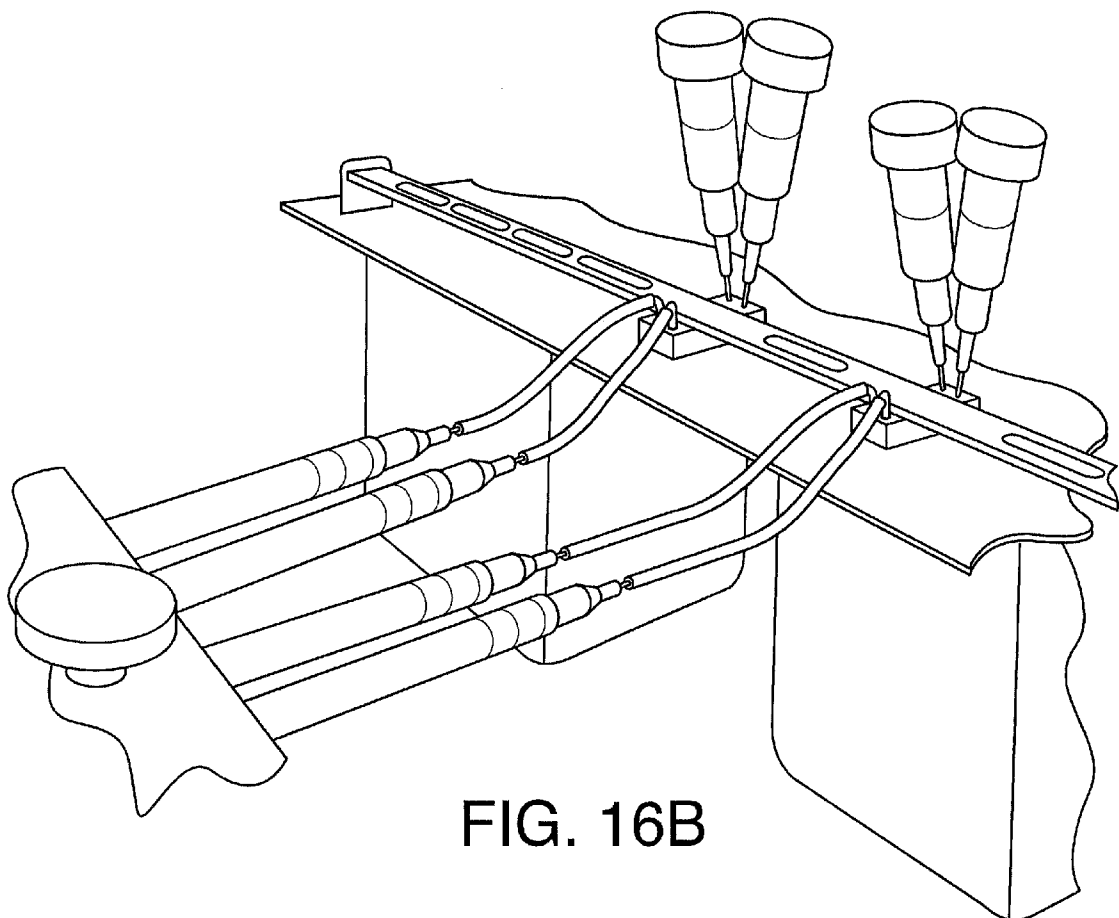


FIG. 16B

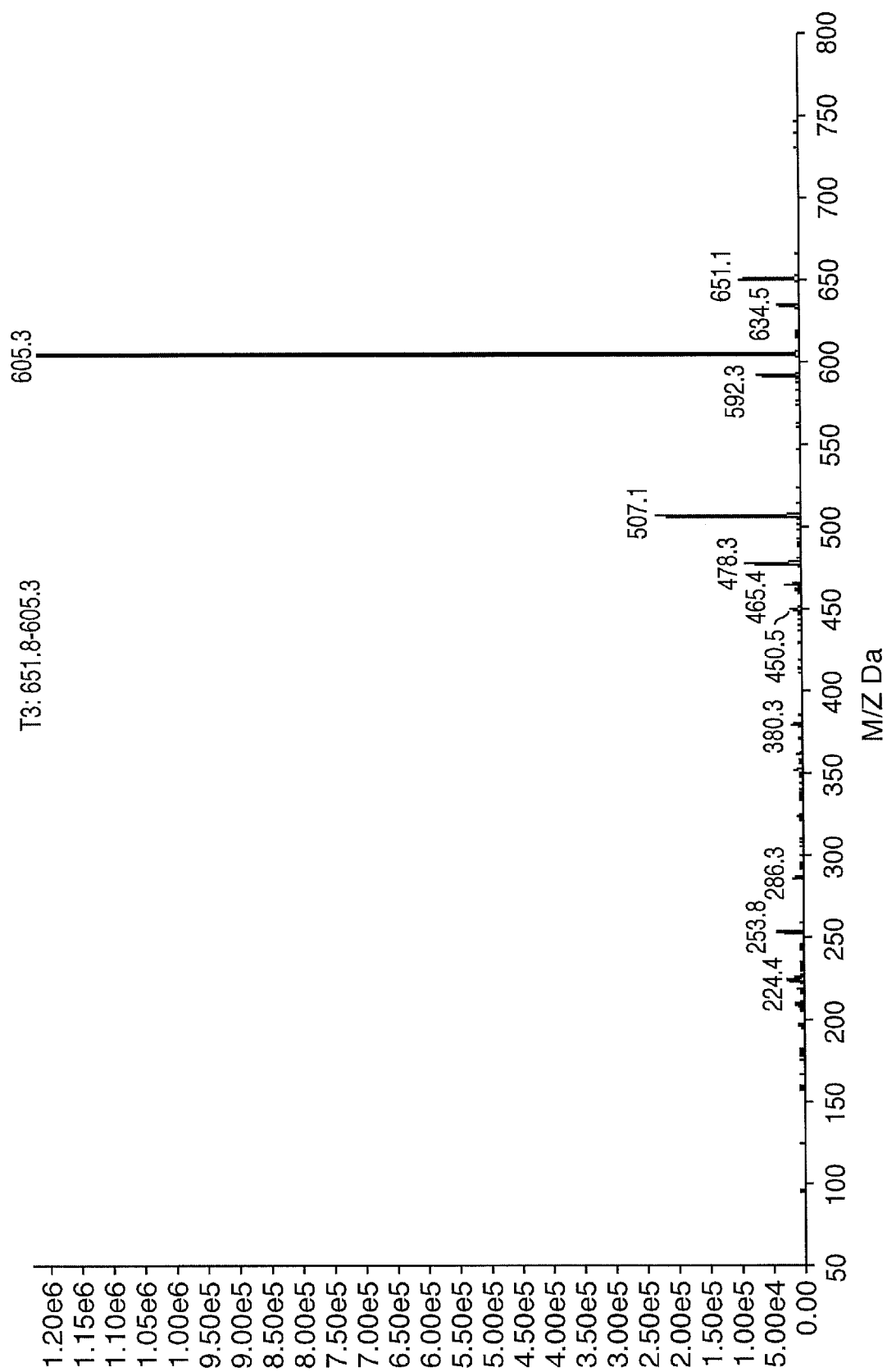


FIG. 17A

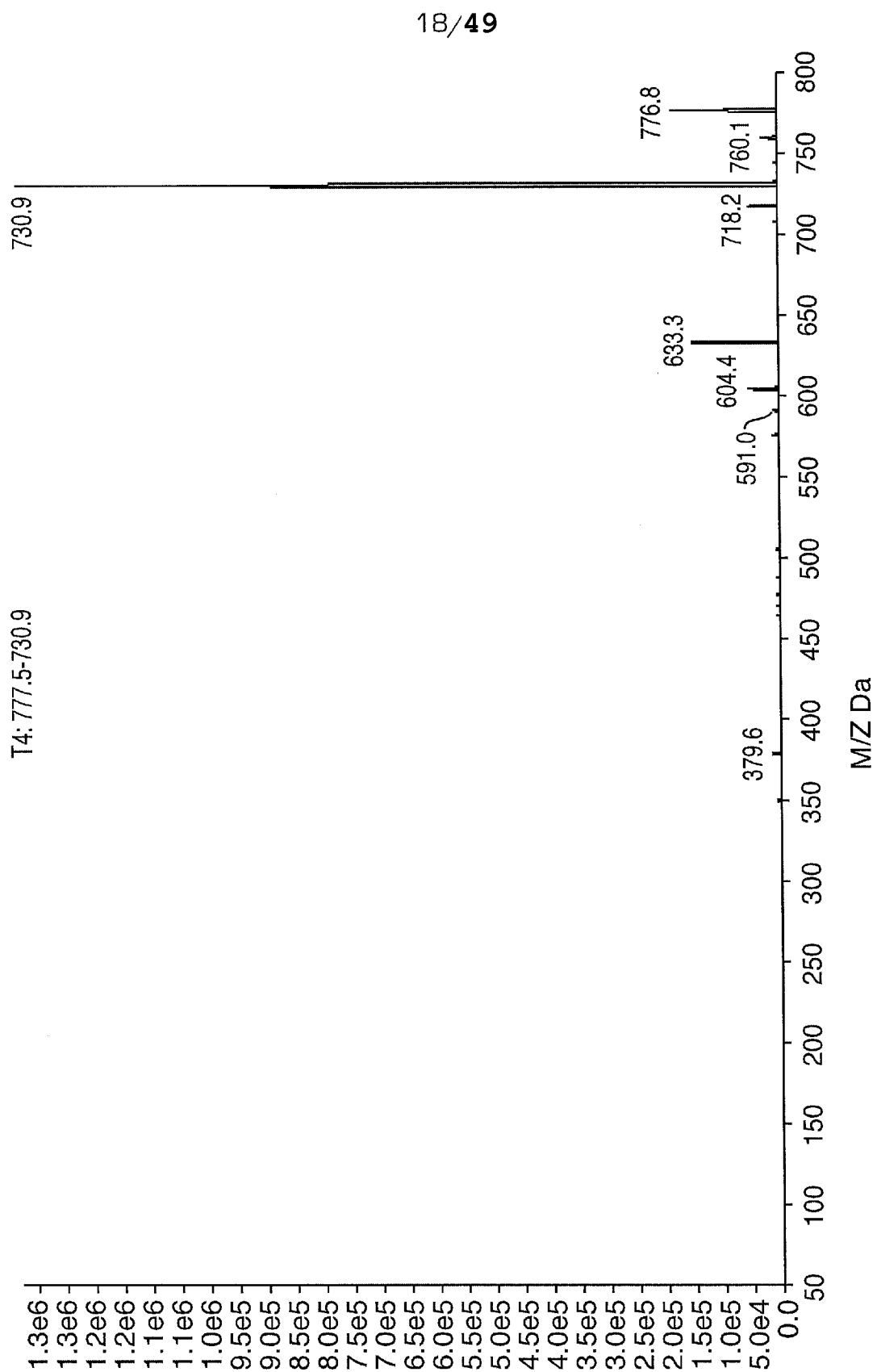


FIG. 17B

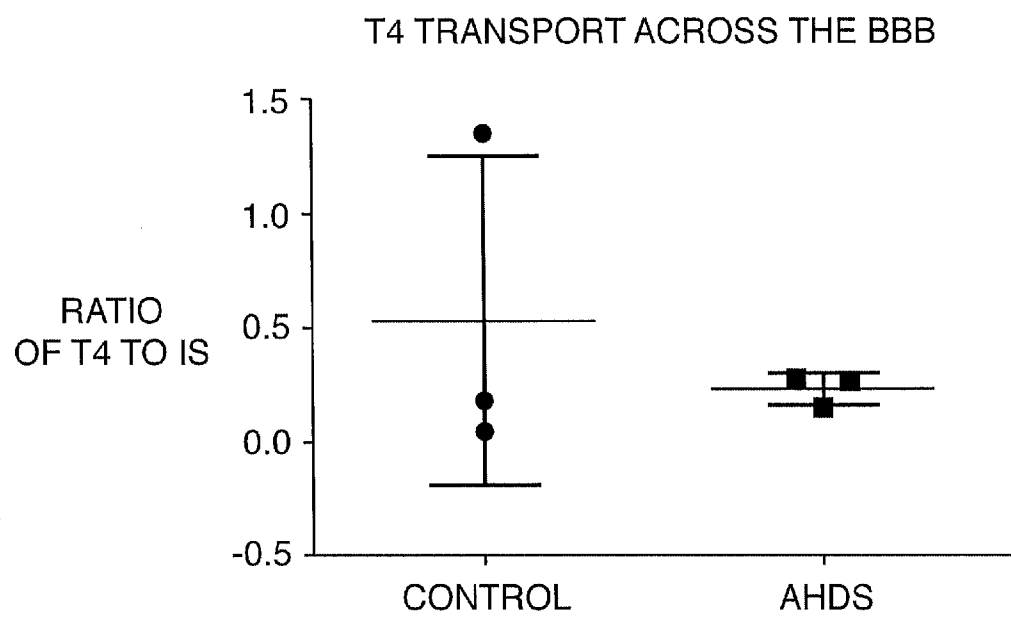


FIG. 17C

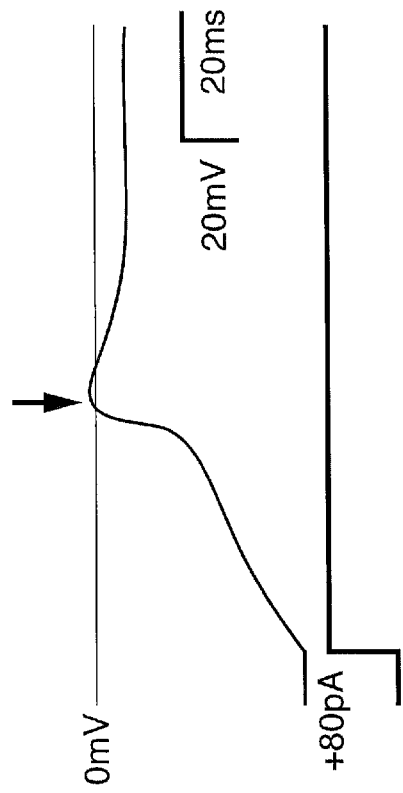


FIG. 18A

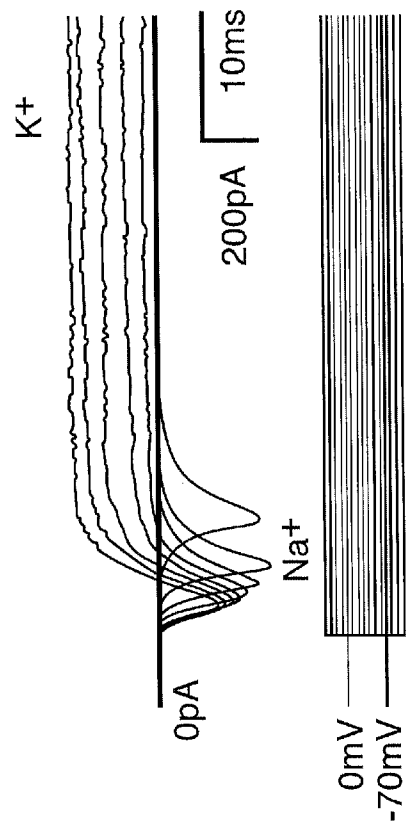


FIG. 18B

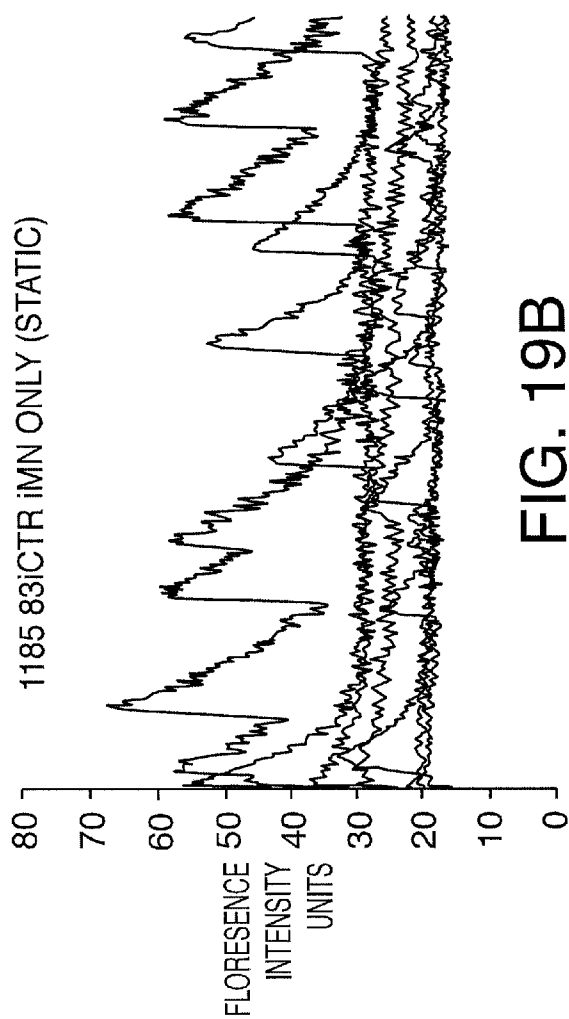
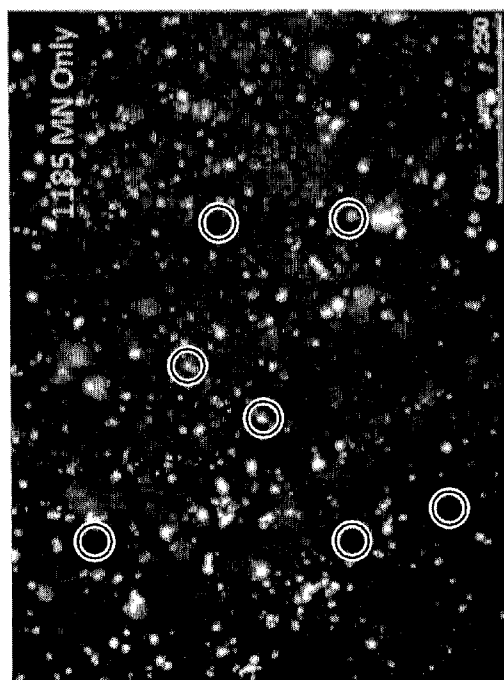


FIG. 19B

FIG. 19A

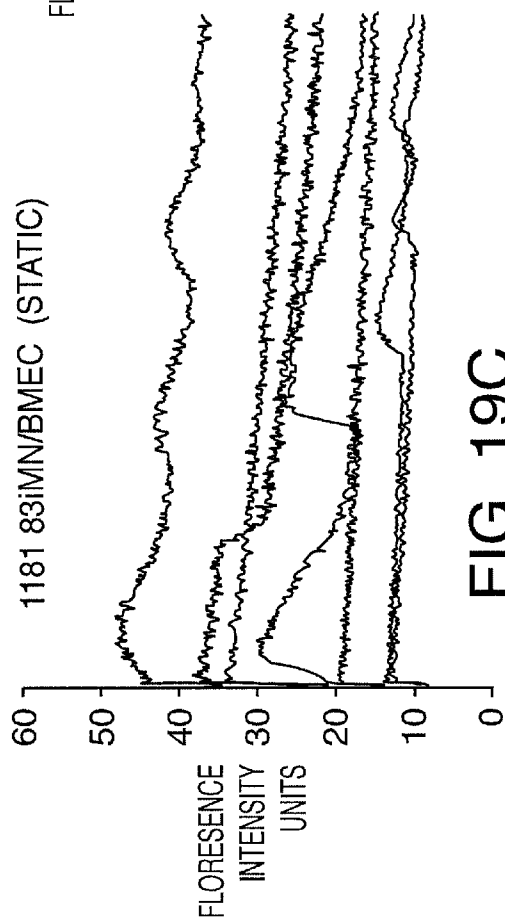


FIG. 19C

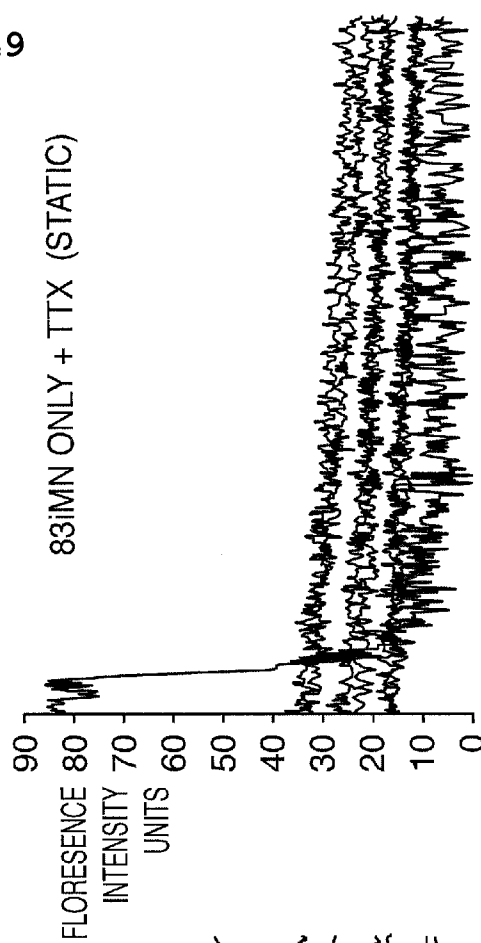


FIG. 19D

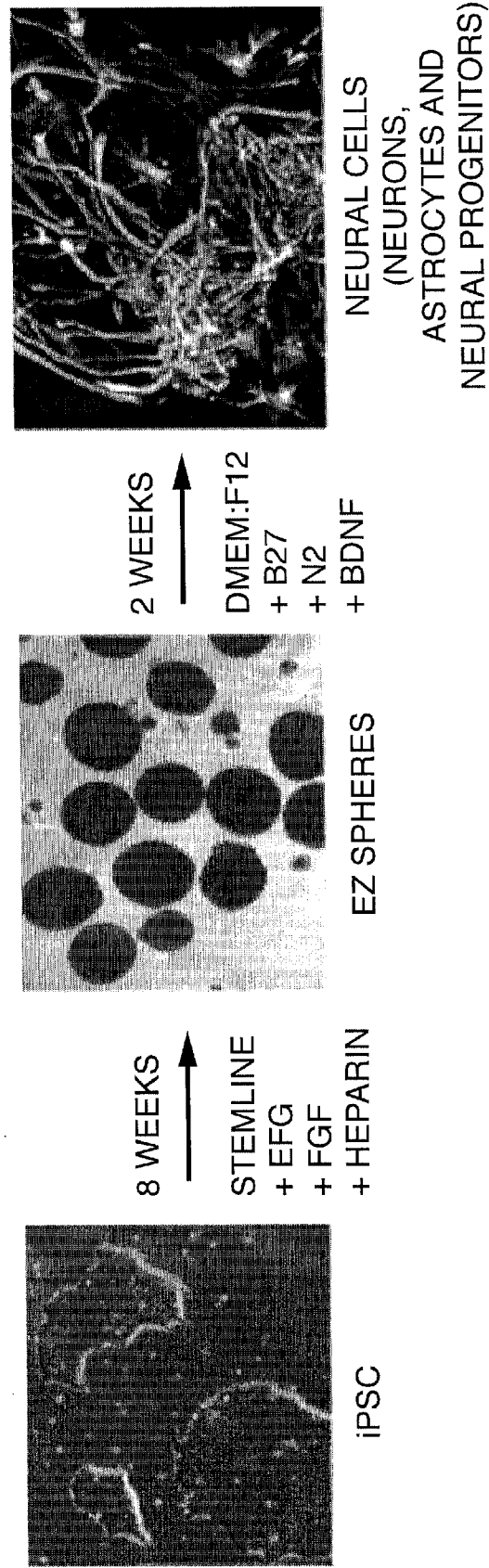


FIG. 20

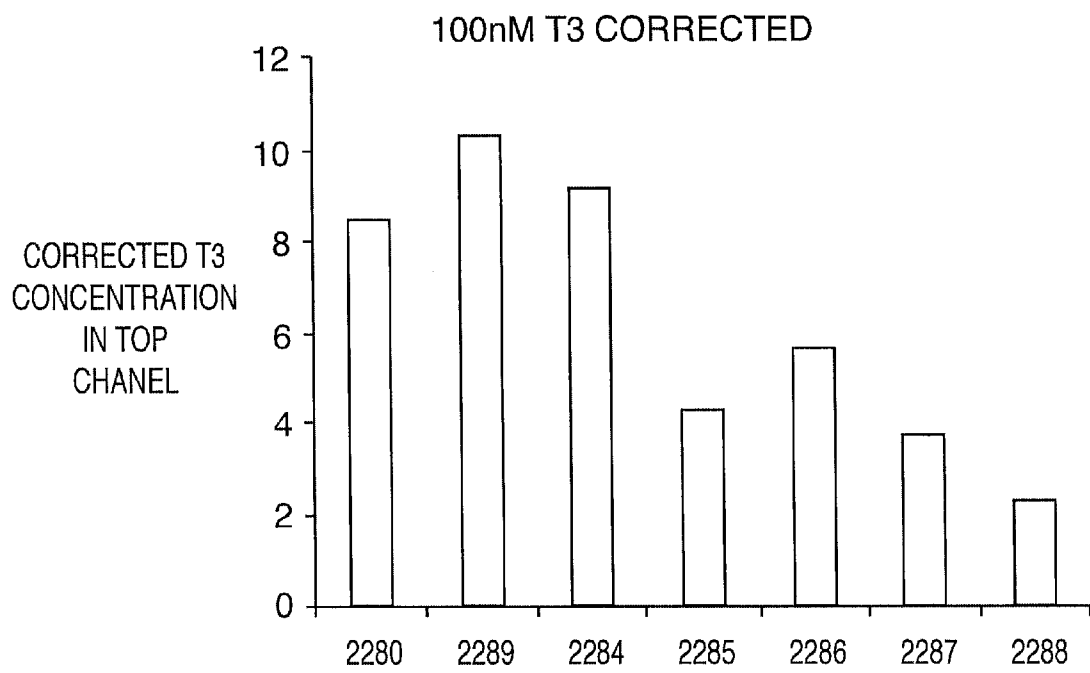


FIG. 21

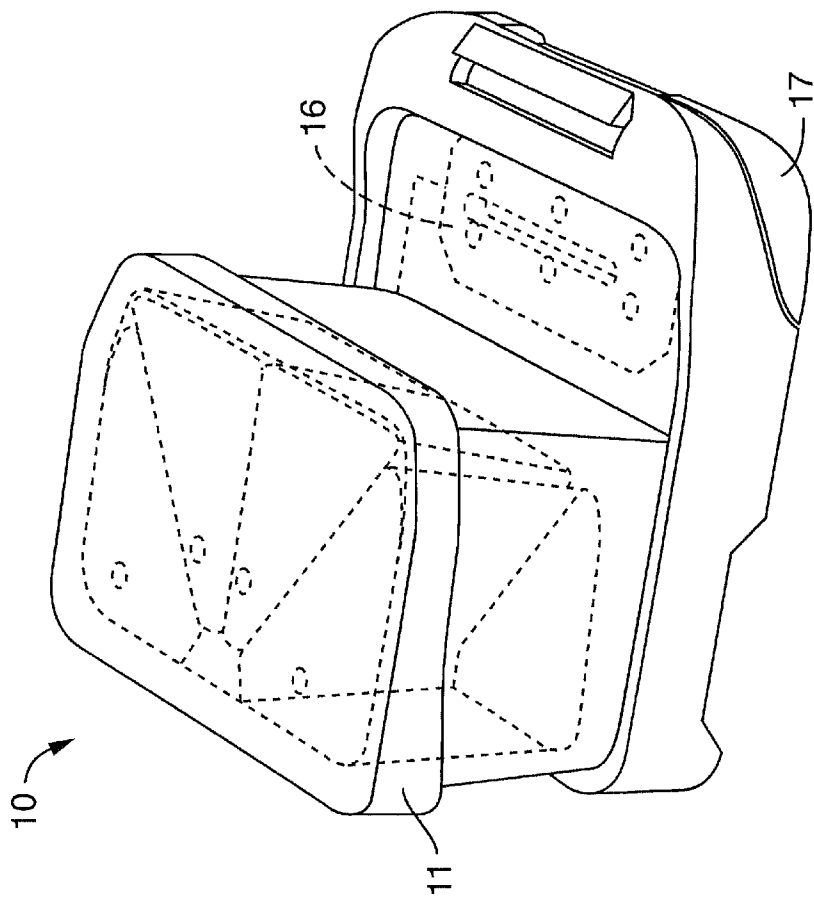


FIG. 22B

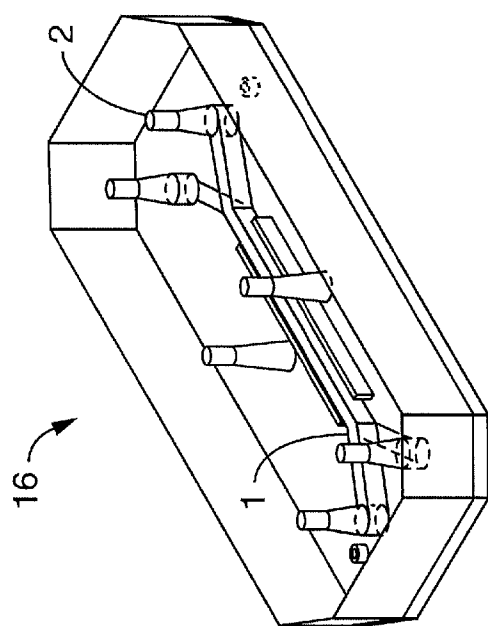


FIG. 22A

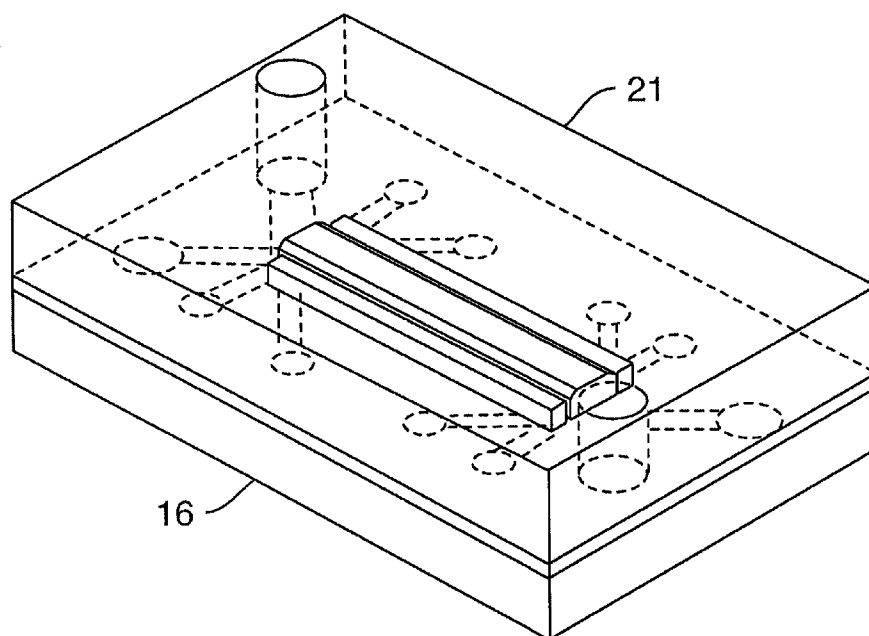


FIG. 23A

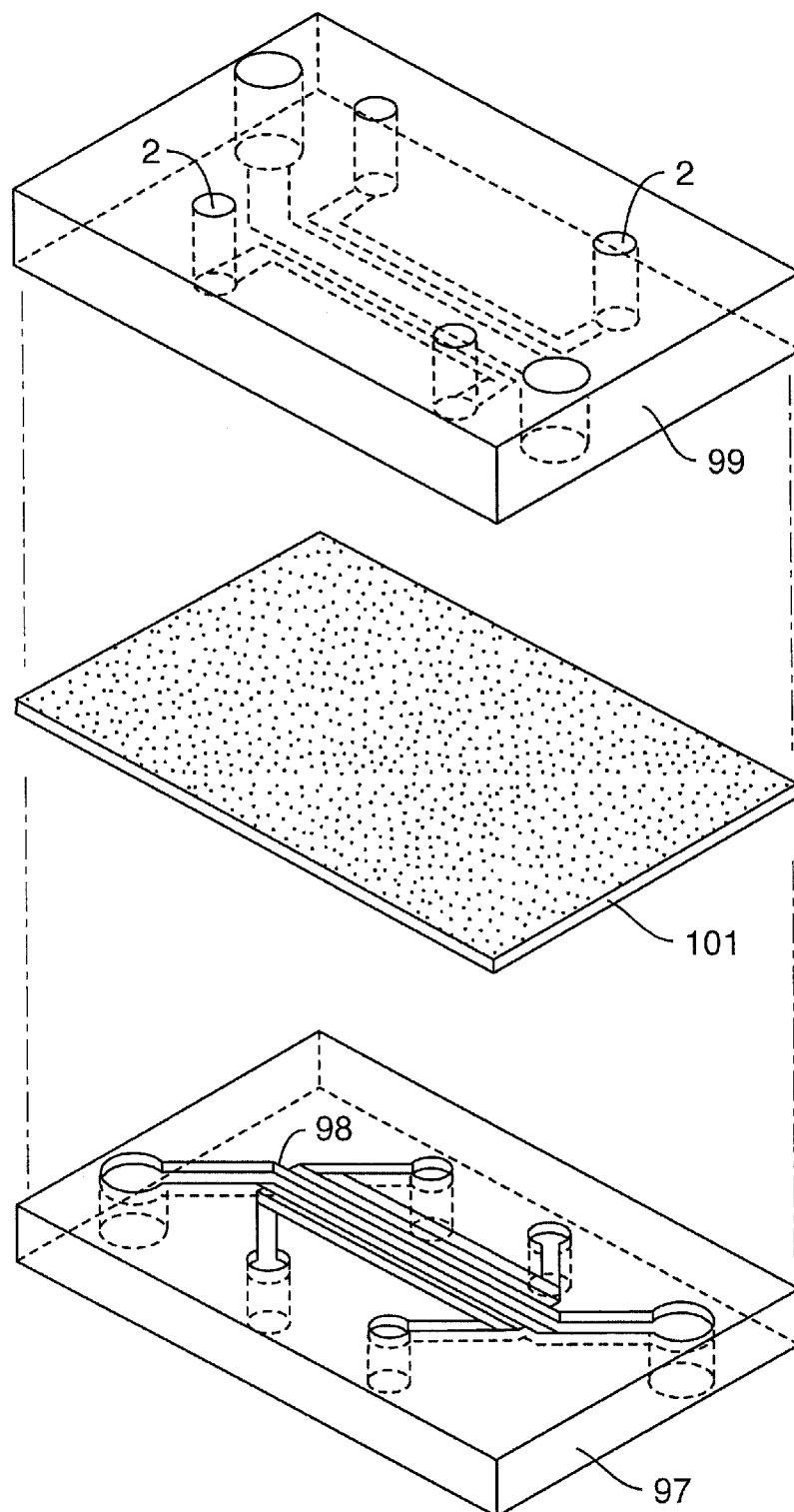


FIG. 23B

SPONTANEOUS ACTIVITY IN CHIP

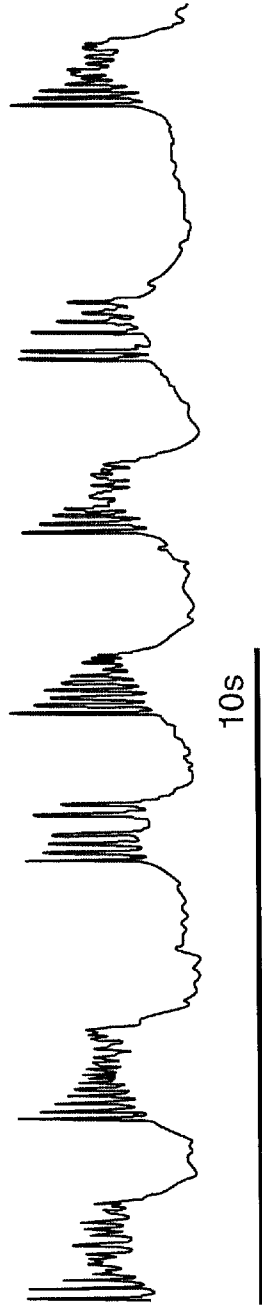


FIG. 24

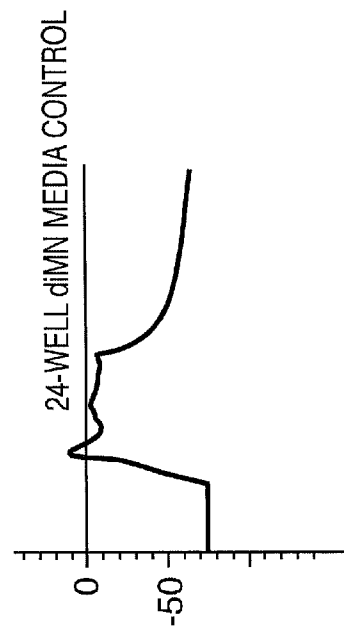


FIG. 25A

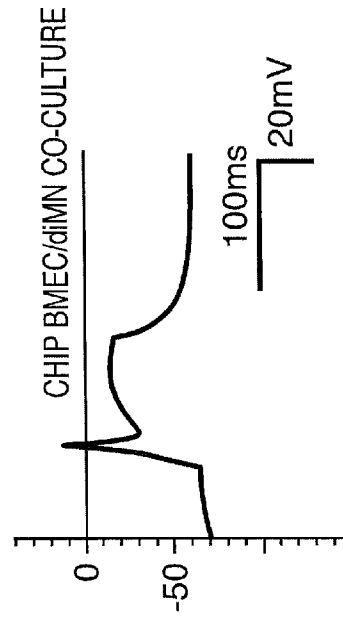


FIG. 25B

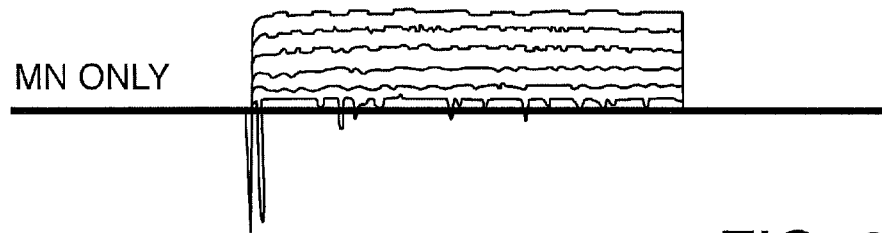


FIG. 26A

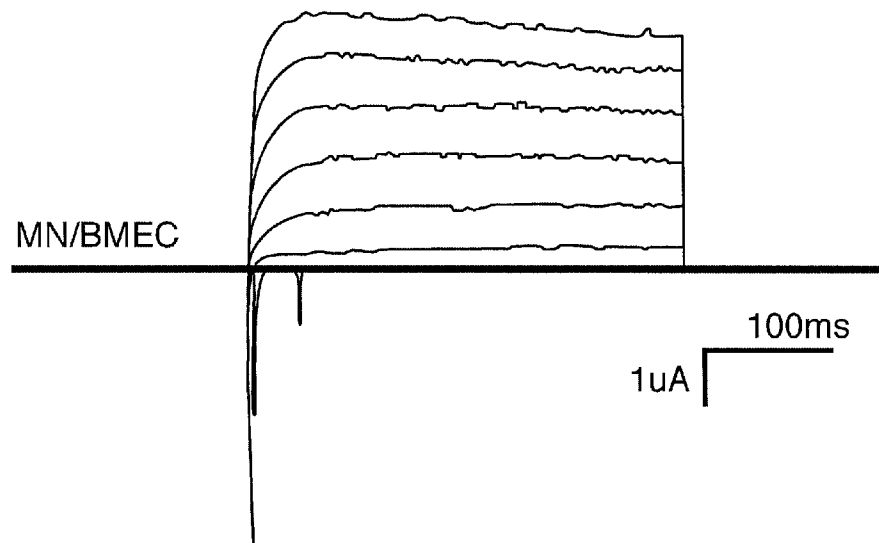


FIG. 26B

29/49

N = 3 (40-50 NEURONS EA.)

CTRL 96

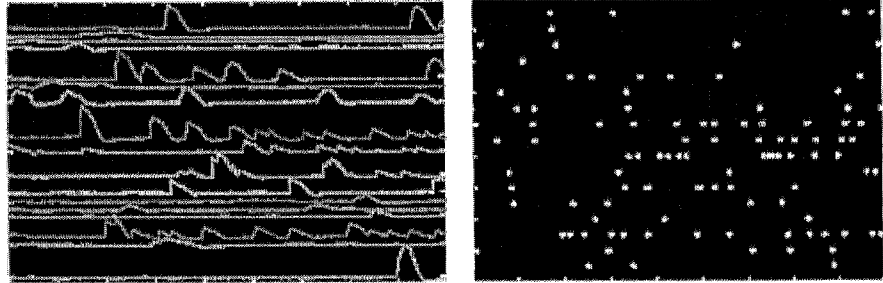


FIG. 27A

ECCM 96

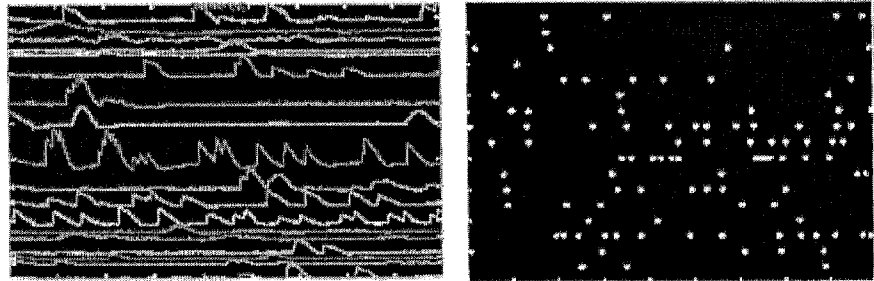


FIG. 27B

MN CHIP

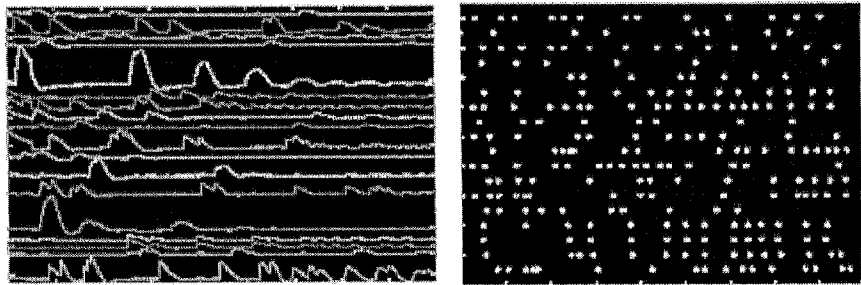


FIG. 27C

MN/BMEC
CHIP

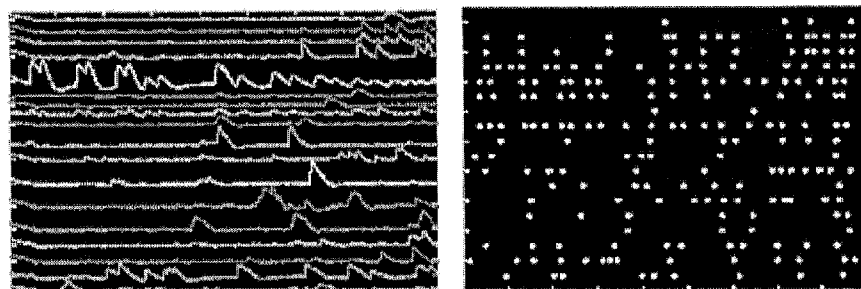


FIG. 27D

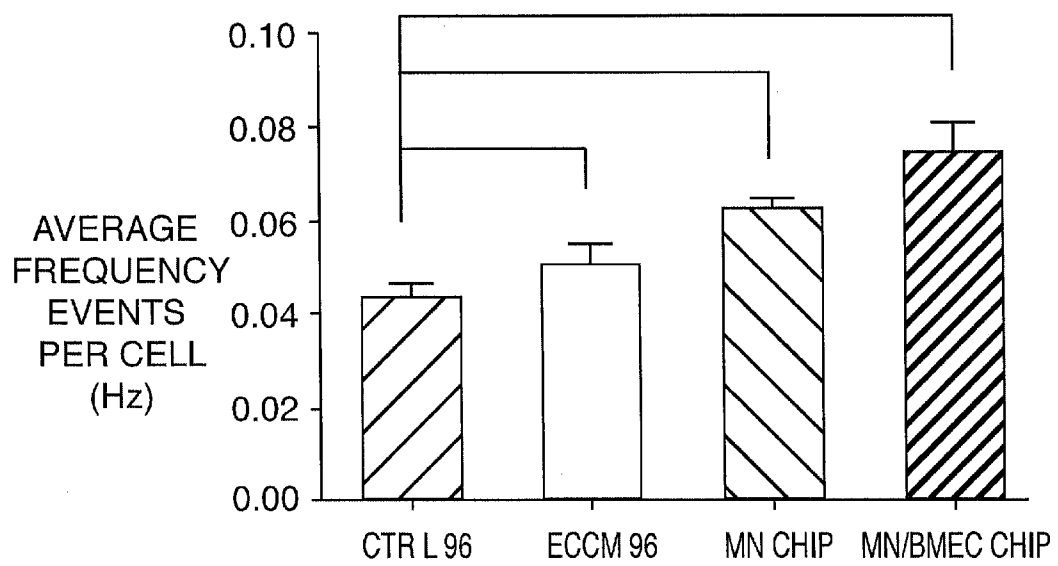


FIG. 28

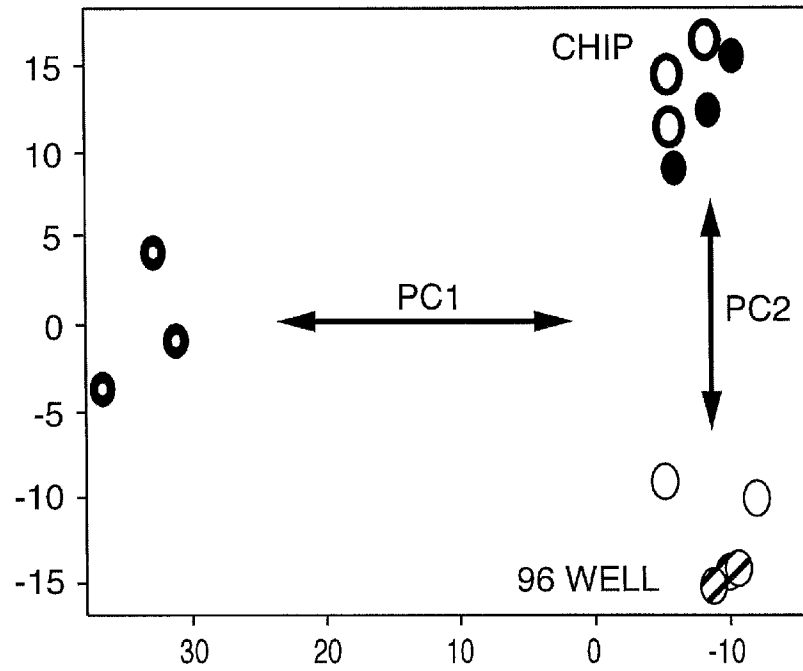


FIG. 29A

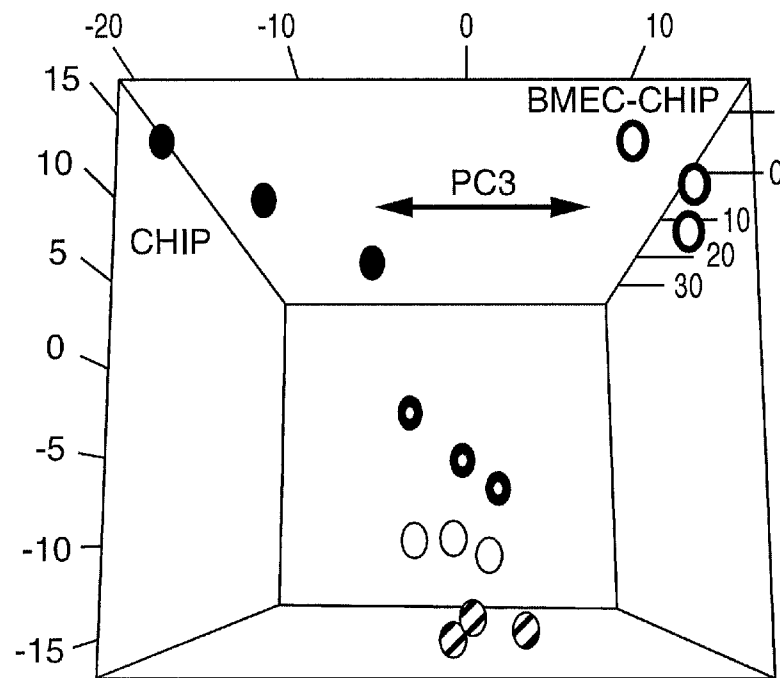


FIG. 29B

PC1: NEURAL DEVELOPMENT GENES	COUNT	BONFERRONI
NEURON DIFFERENTIATION	25	2.46E-07
DEVELOPMENTAL PROTEIN	30	7.26E-08
NEURON PROJECTION	21	9.45E-08
NEUROGENESIS	14	3.89E-07
AXON	14	2.60E-06
NEURON DEVELOPMENT	19	8.85E-05
CELL PROJECTION	24	1.98E-04
GROWTH CONE	8	3.23E-04
SITE OF POLARIZED GROWTH	8	3.67E-04
CELL MOTION	20	2.88E-03
BASIC HELIX-LOOP-HELIX DIMERISATION	10	1.01E-03
REGULATION NEURON DIFFERENTIATION	11	3.90E-03
PC2: CHIP INDUCED GENES	COUNT	BONFERRONI
RESPONSE TO PROTEIN STIMULUS	9	0.0011
NEURON DIFFERENTIATION	15	0.0030
CHROMOSOMAL PROTEIN	8	0.0068
NUCLEOSOME	6	0.0082
DNA-BINDING	27	0.0139
ID PROTEINS: GO-TO-S CELL CYCLE	3	0.0260
DEVELOPMENTAL PROTEIN	16	0.0199
HOMEODOMAIN	9	0.0271
PROTEIN-DNA COMPLEX	6	0.0358
EPITHELIUM DEVELOPMENT	10	0.0393
HOMEODOMAIN, CONSERVED SITE	9	0.0435
CHROMATIN	8	0.0450
PC3: VASCULAR INTERACTION GENES	COUNT	BONFERRONI
SIGNAL PEPTIDE	65	2.68E-08
EXTRACELLULAR REGION PART	36	2.42E-08
EXTRACELLULAR MATRIX	22	3.23E-08
SECRETED	42	2.59E-07
PROTEINOUS EXTRACELLULAR MATRIX	20	4.07E-07
REGULATION OF CELL PROLIFERATION	30	5.37E-06
GLYCOPROTEIN	71	3.68E-06
VASCULATURE DEVELOPMENT	15	7.06E-04
EXTRACELLULAR MATRIX PART	11	1.40E-04
RESPONSE TO ORGANIC SUBSTANCE	25	9.32E-04
BLOOD VESSEL DEVELOPMENT	14	3.21E-03
EXTRACELLULAR MATRIX STRUCTURE	9	7.91E-04

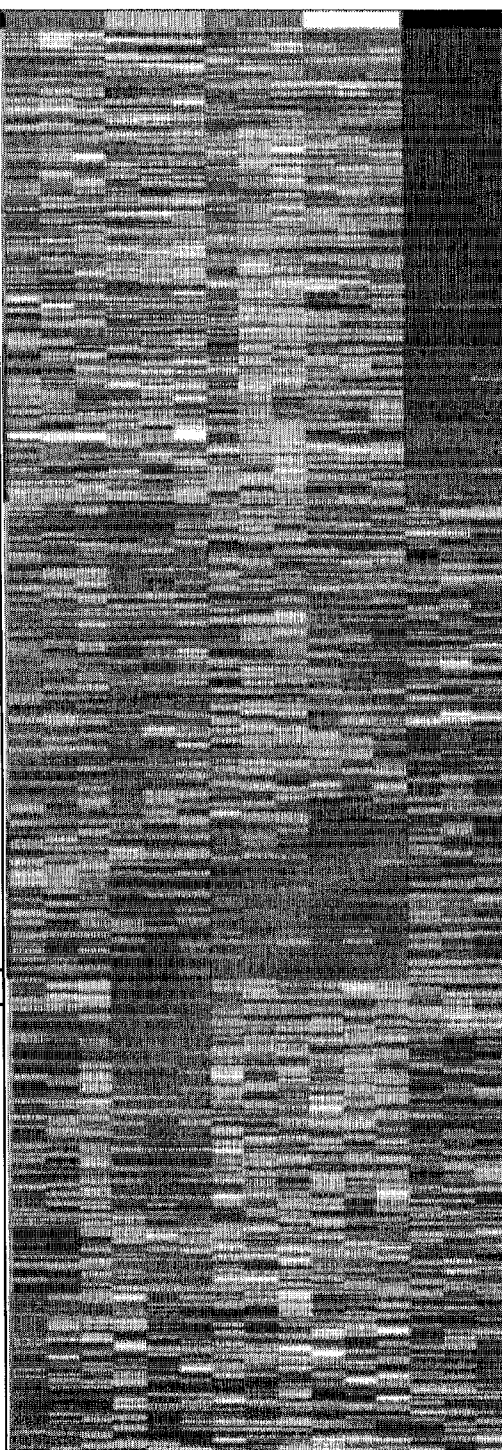


FIG. 30

Calcium Transient Activity in Chip

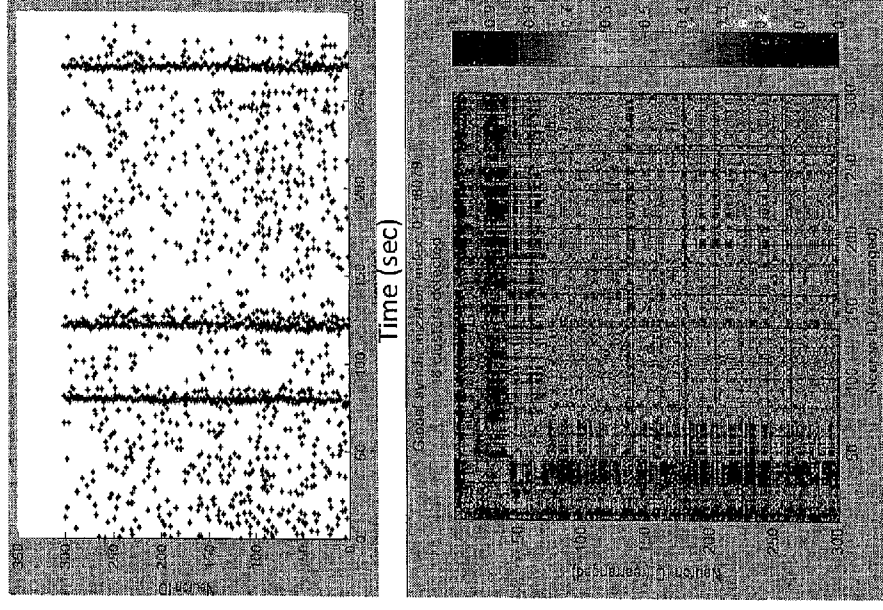
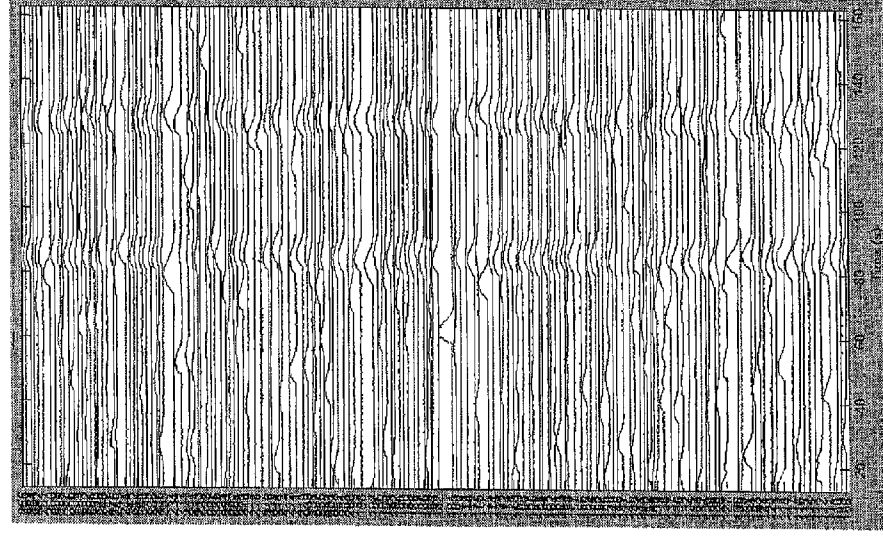
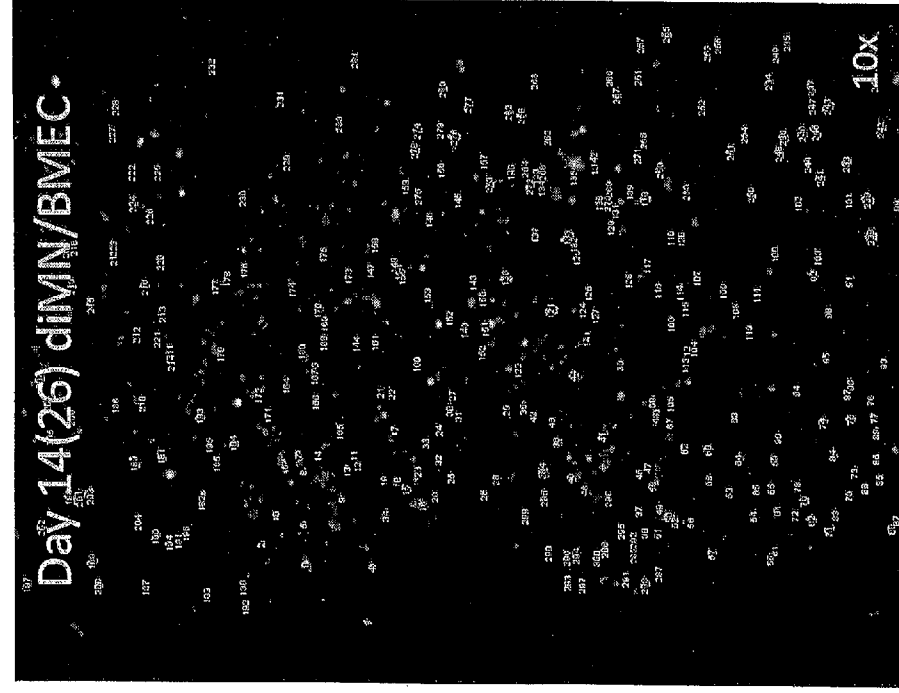


FIG. 31

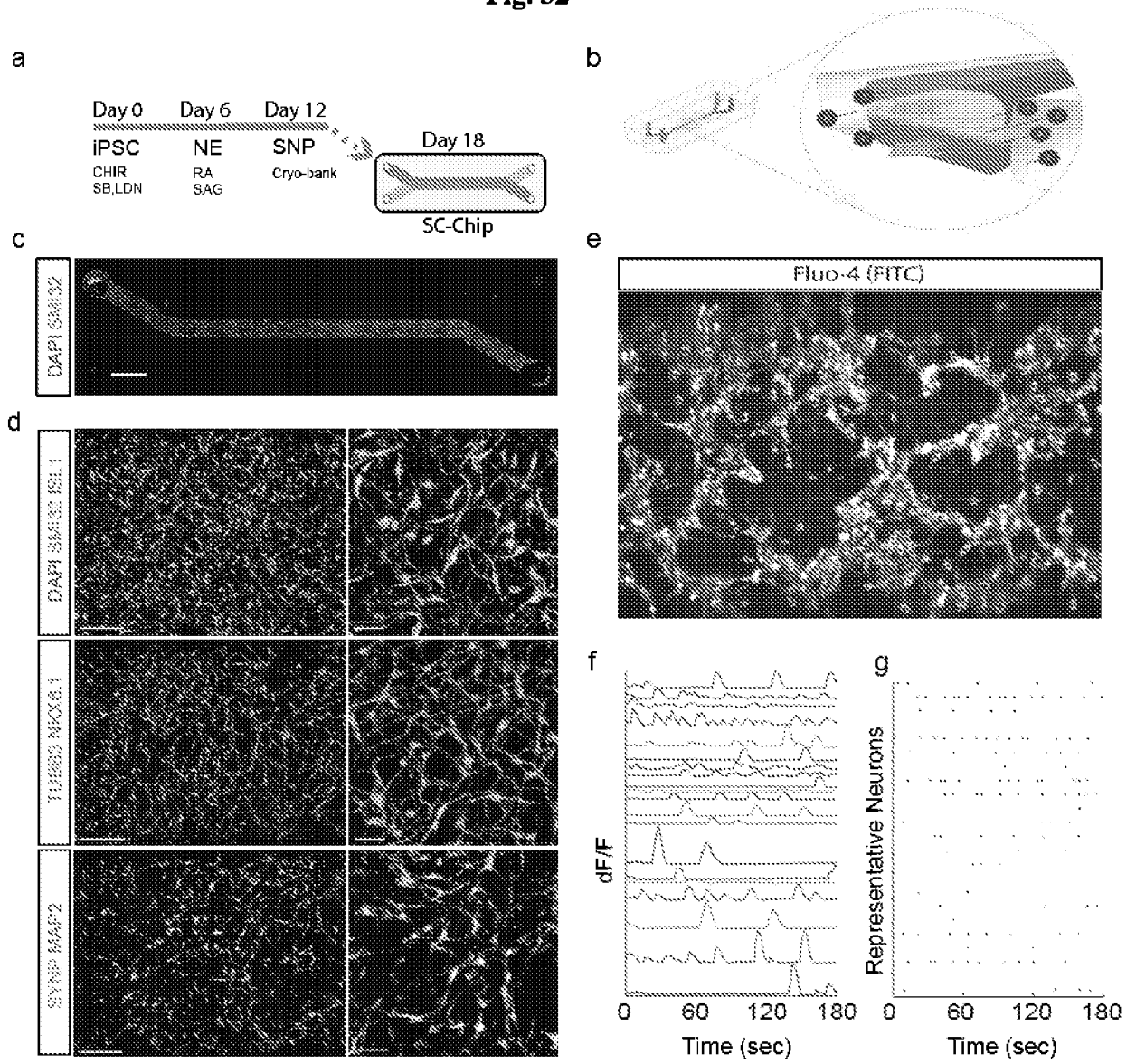
Fig. 32

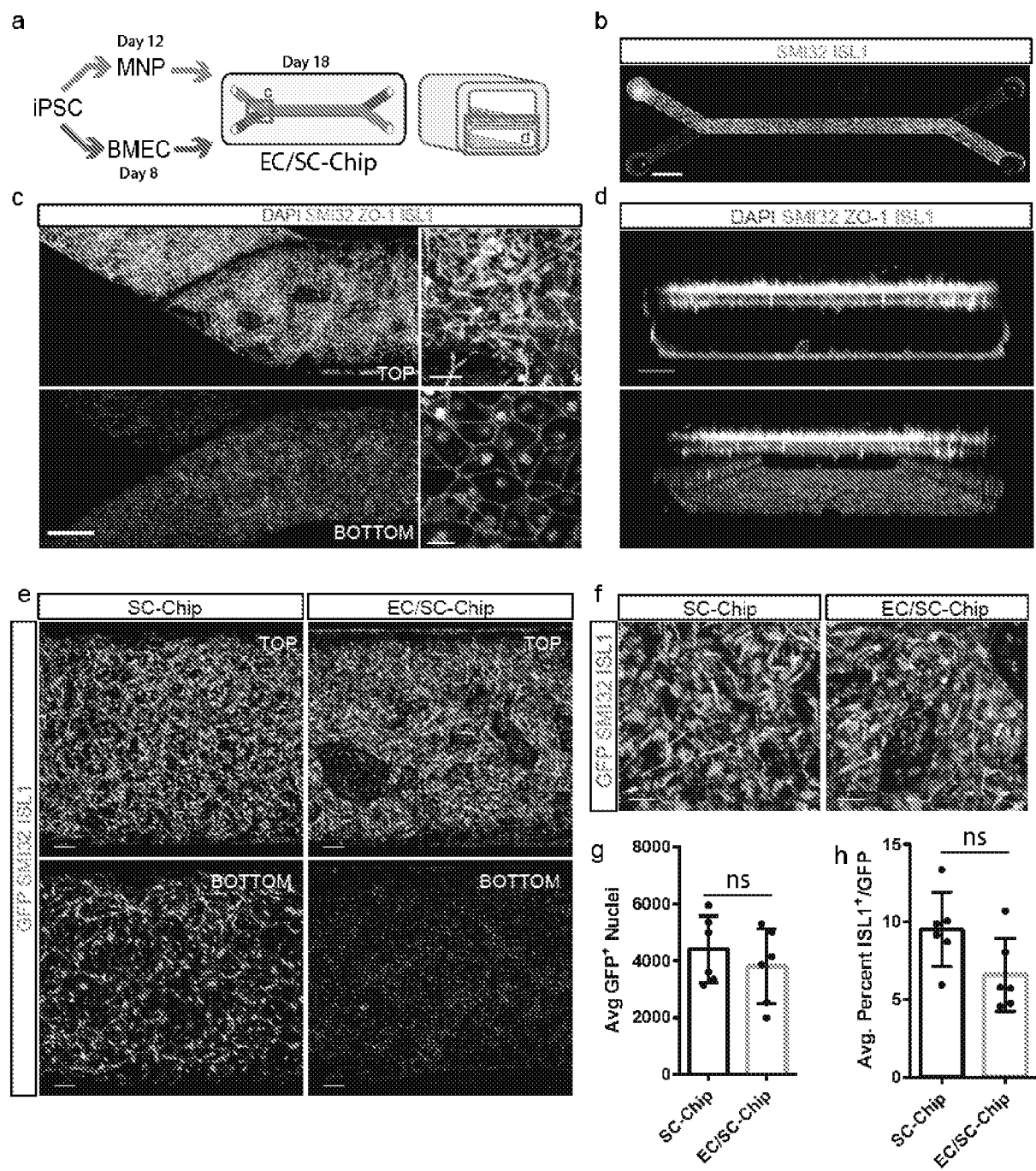
Fig. 33

Fig. 34

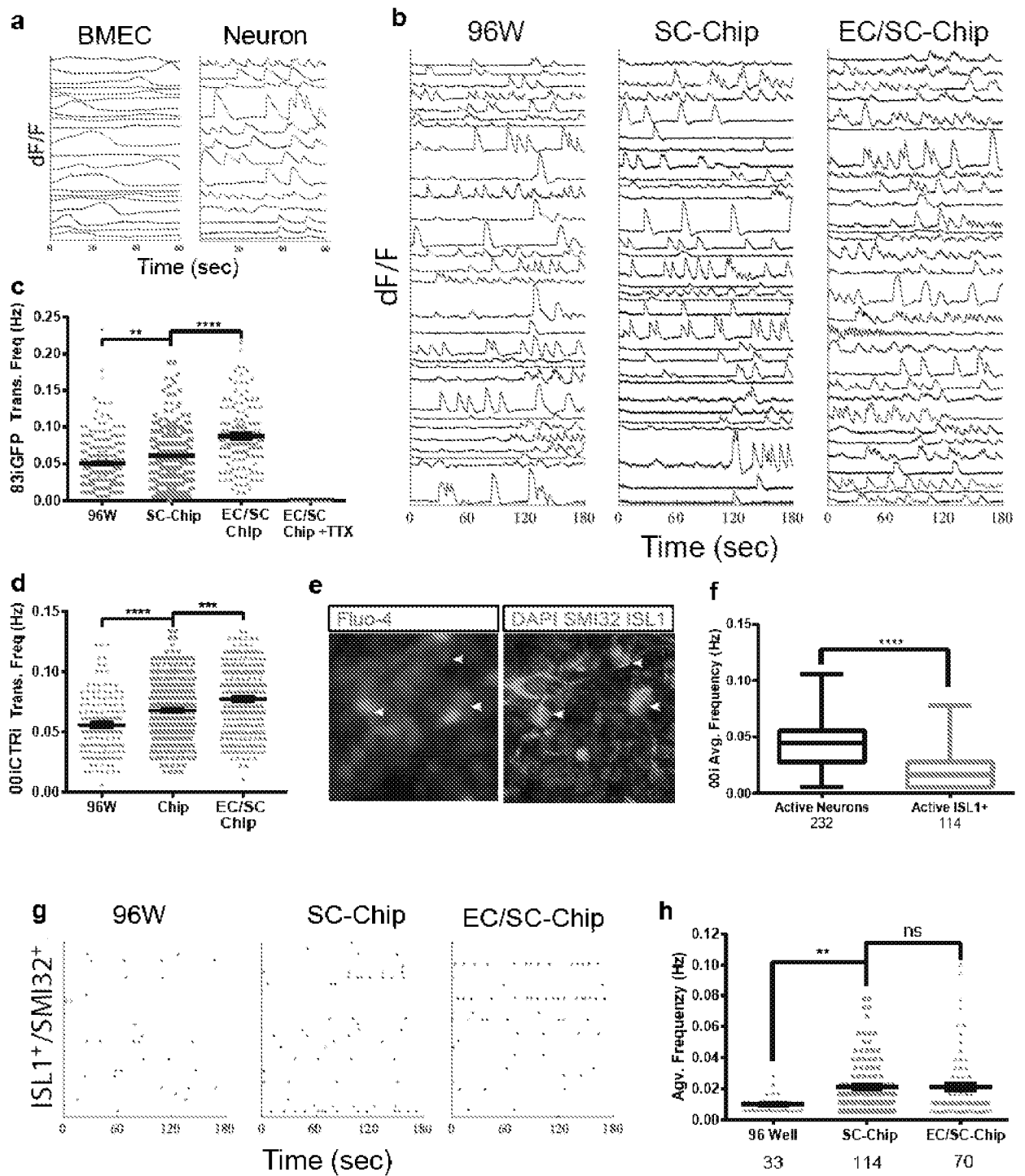


Fig. 35

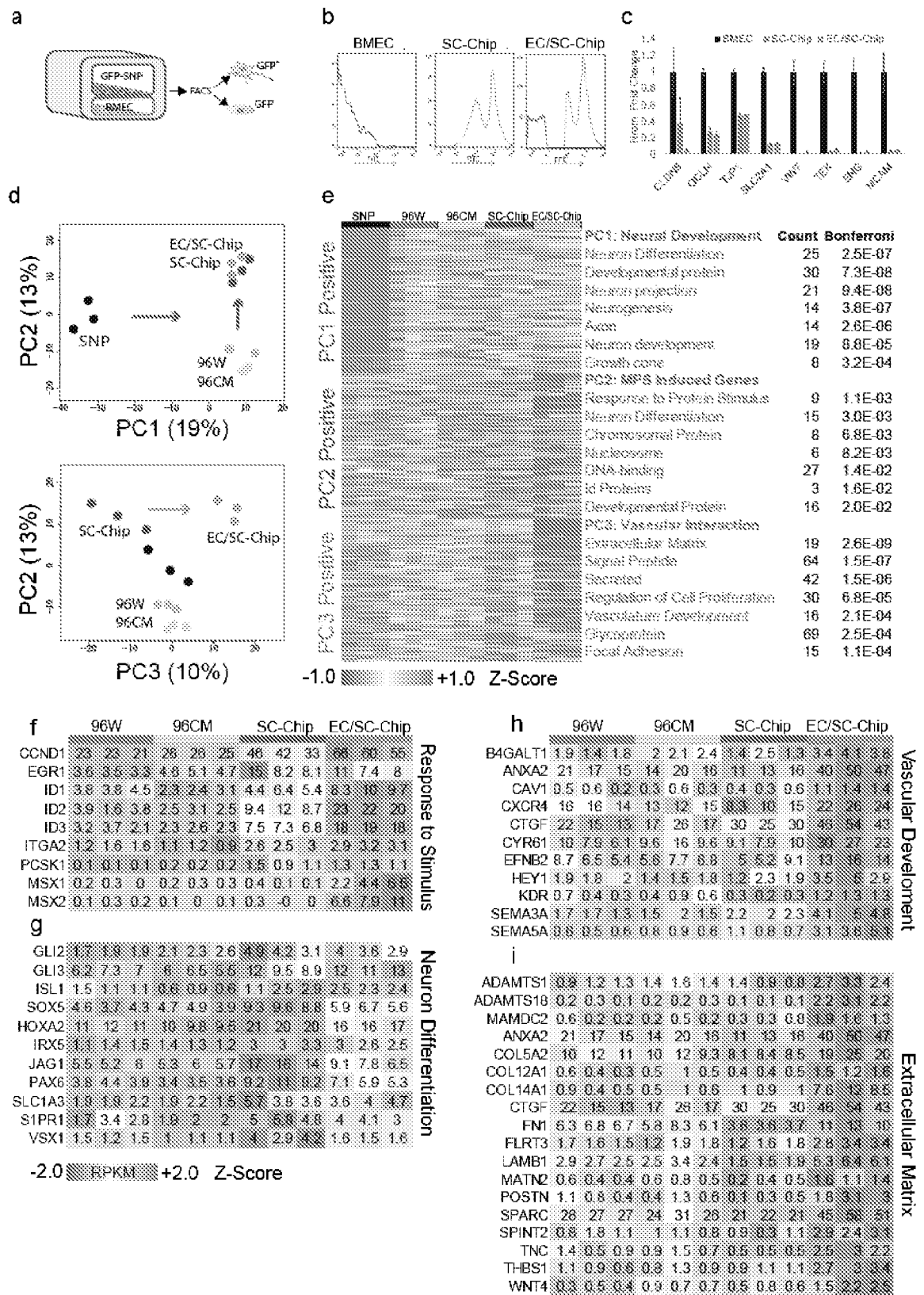


Fig. 36

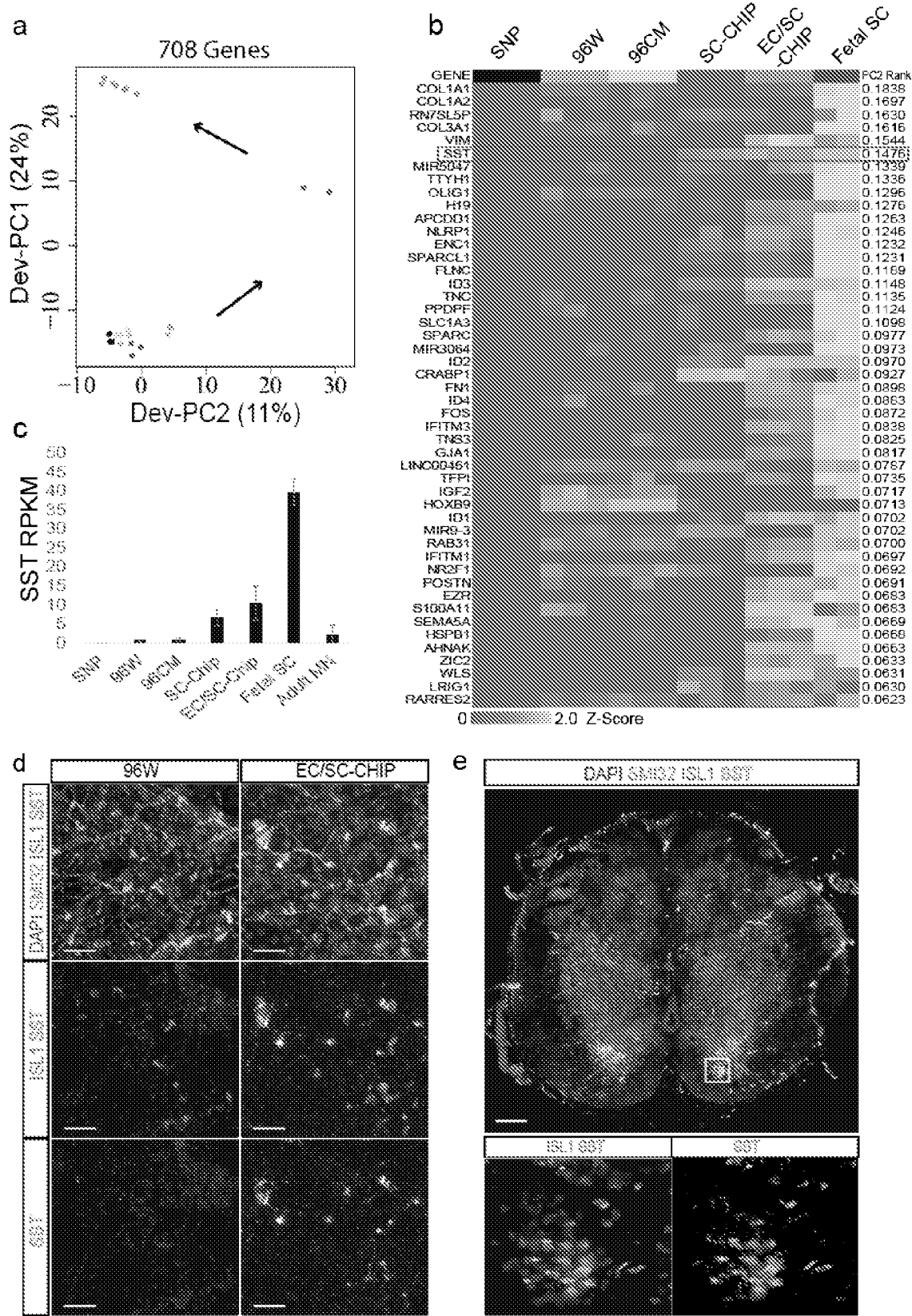


Fig. 37

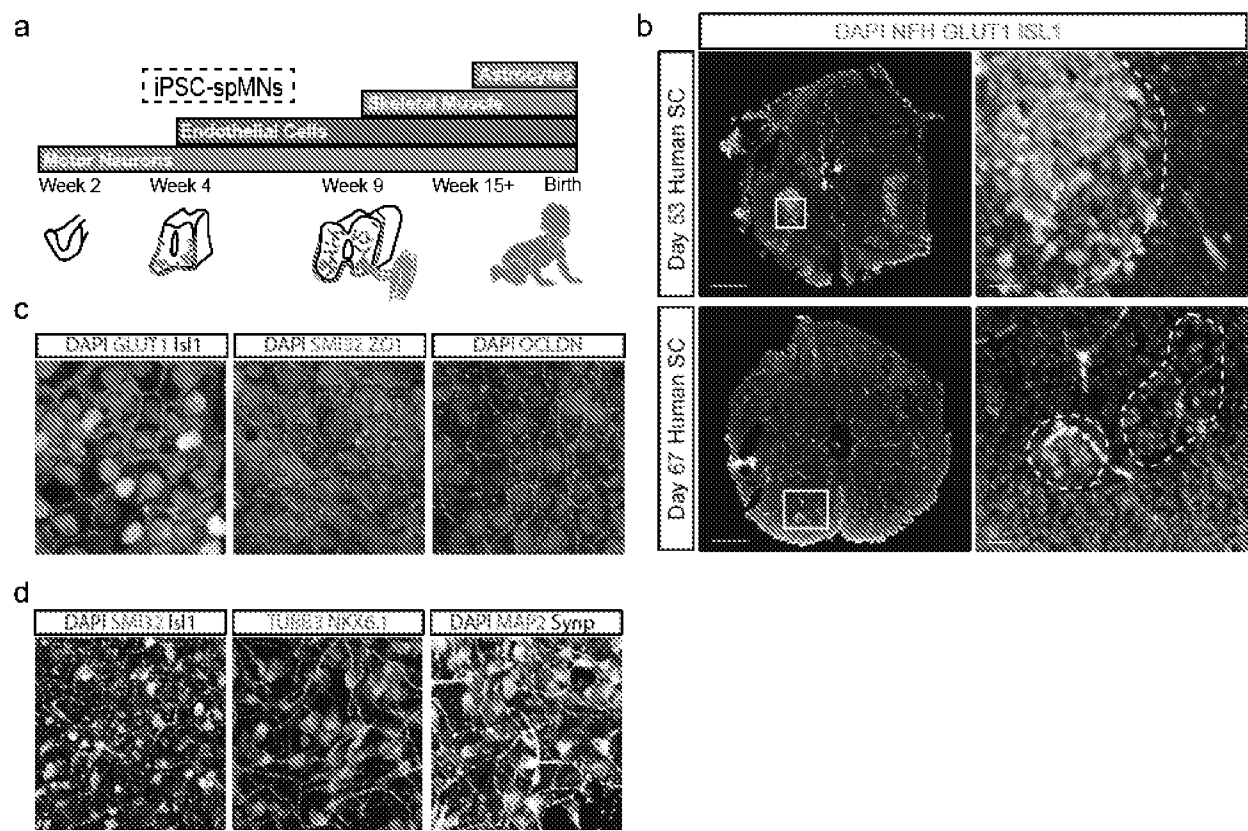


Fig. 38

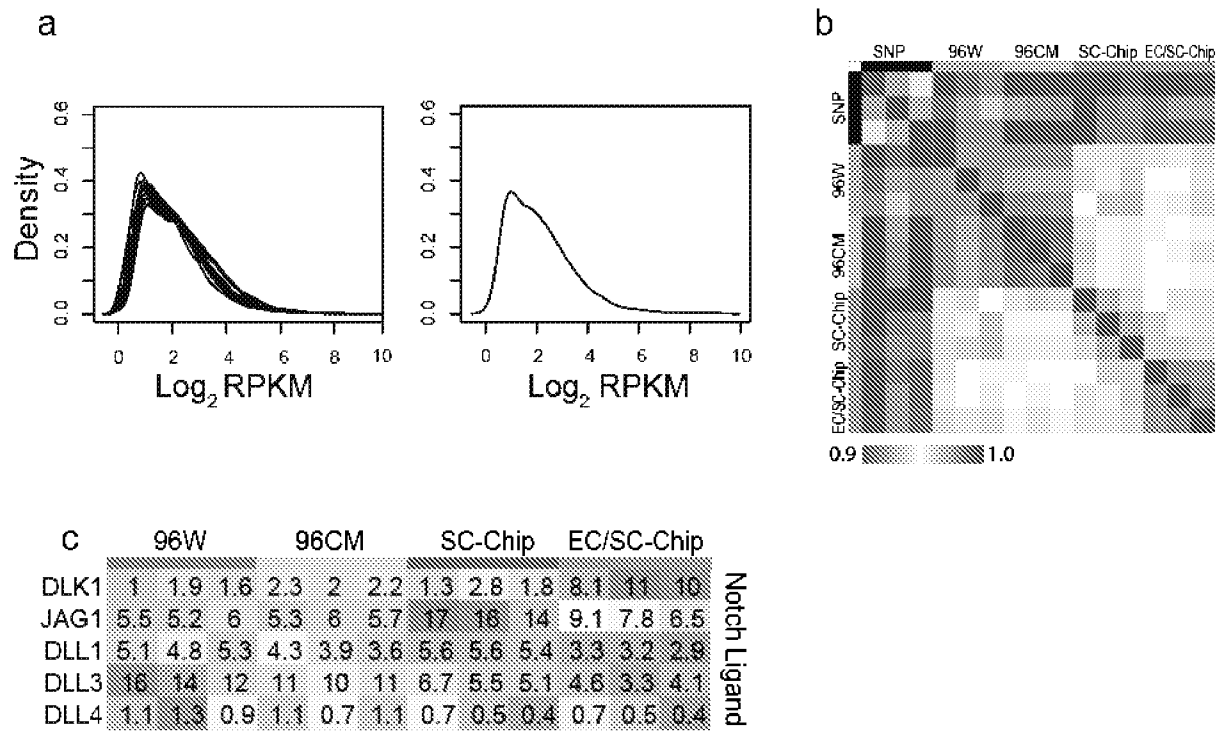


Fig. 39

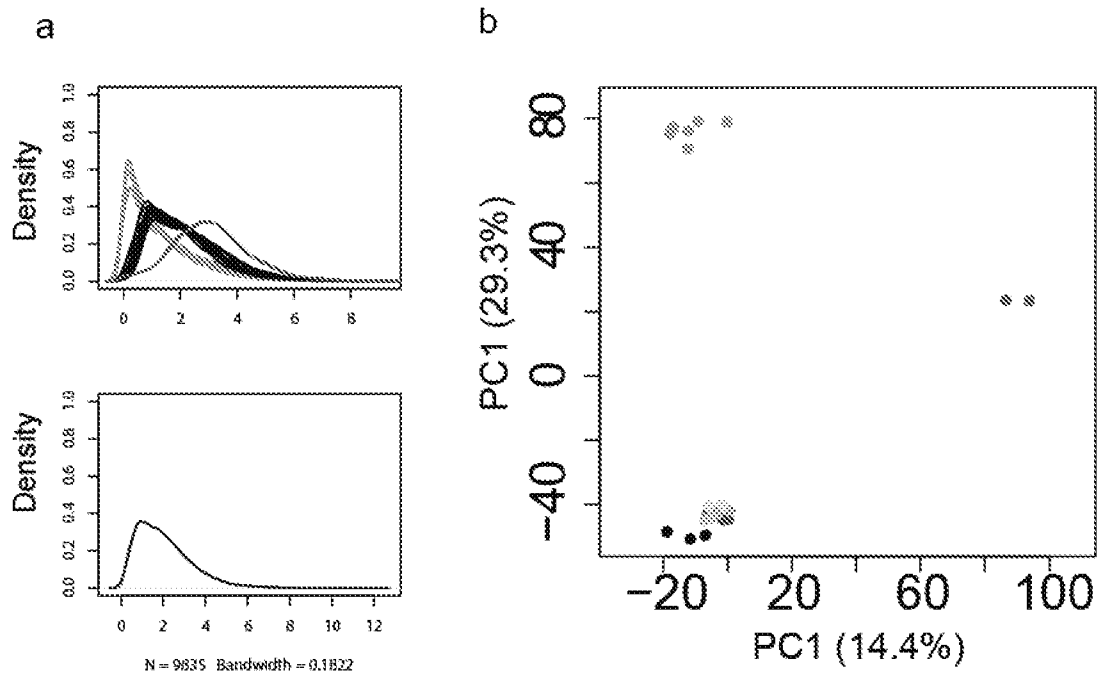


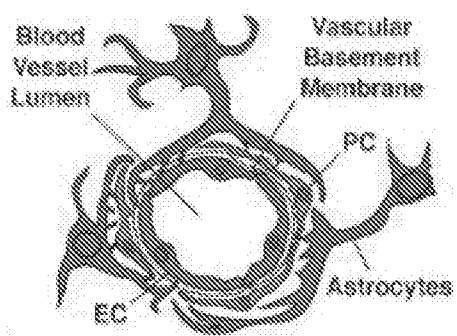
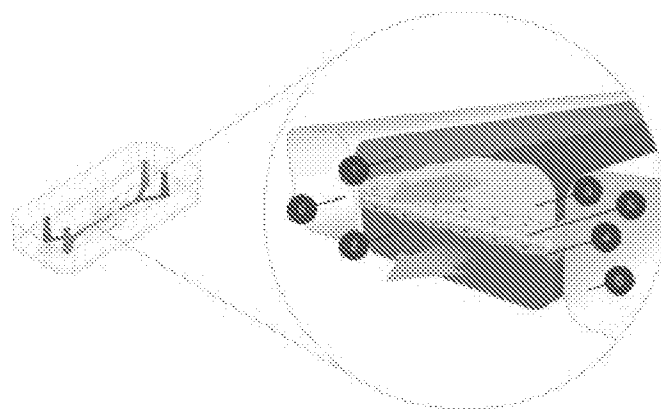
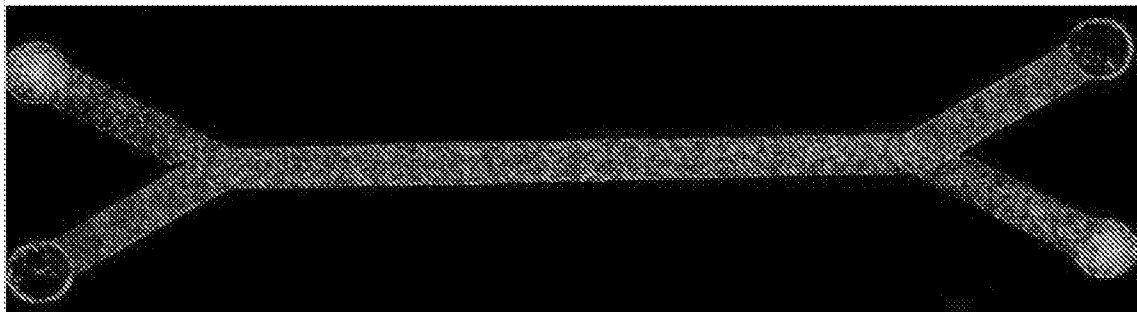
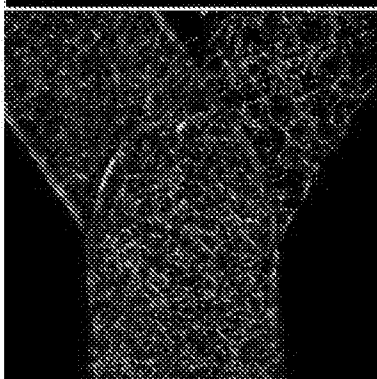
Fig. 40**A****B**

Fig. 41

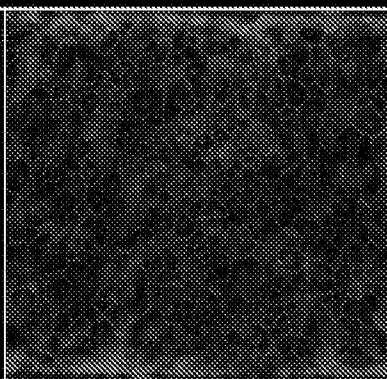
A



B



C



D

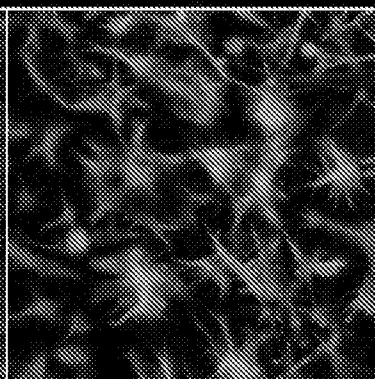


Fig. 42

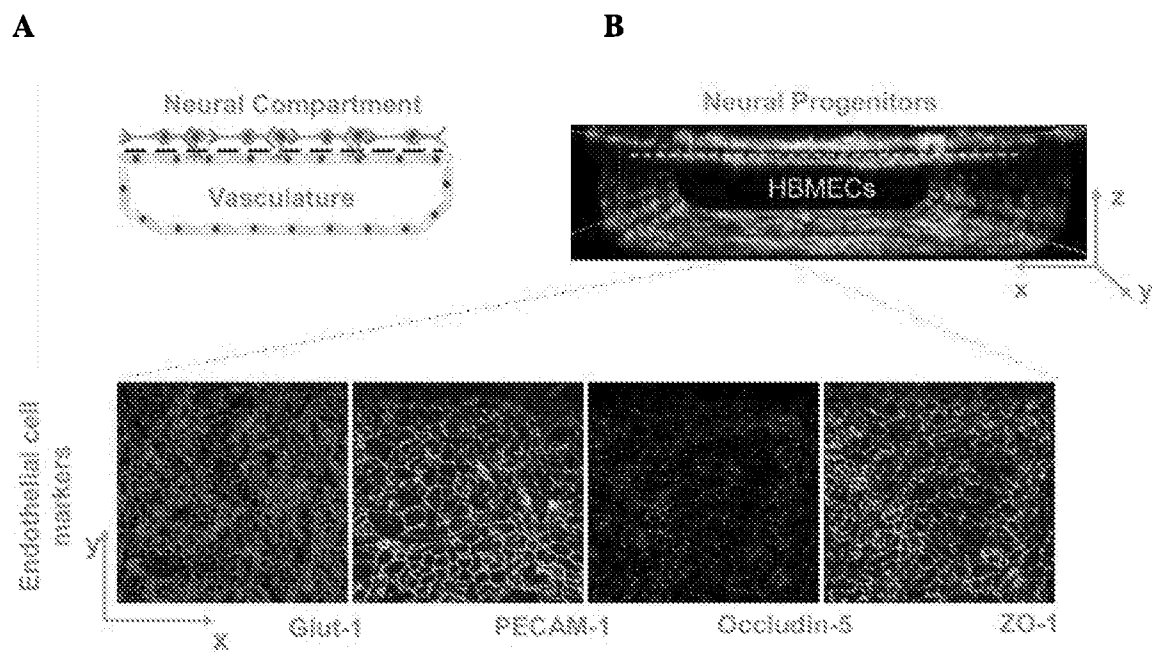
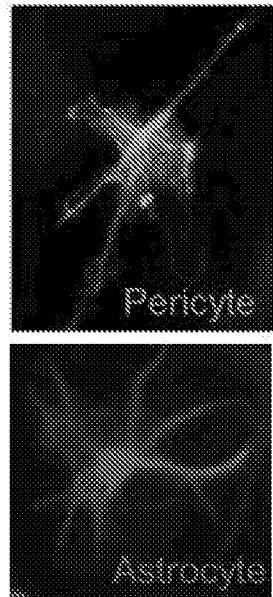


Fig. 43

A



B

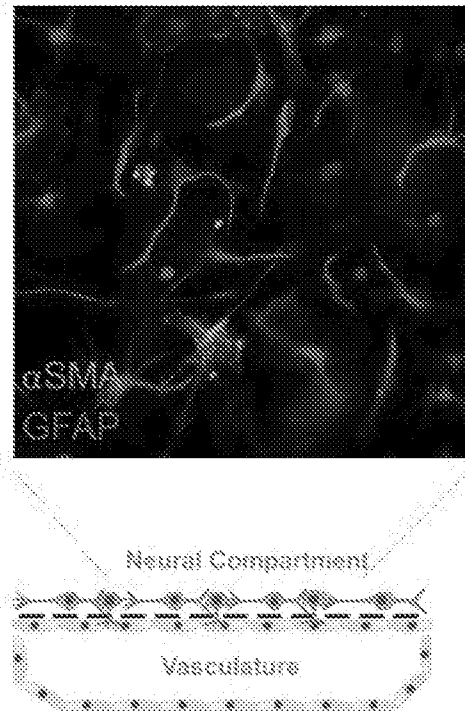


Fig. 44

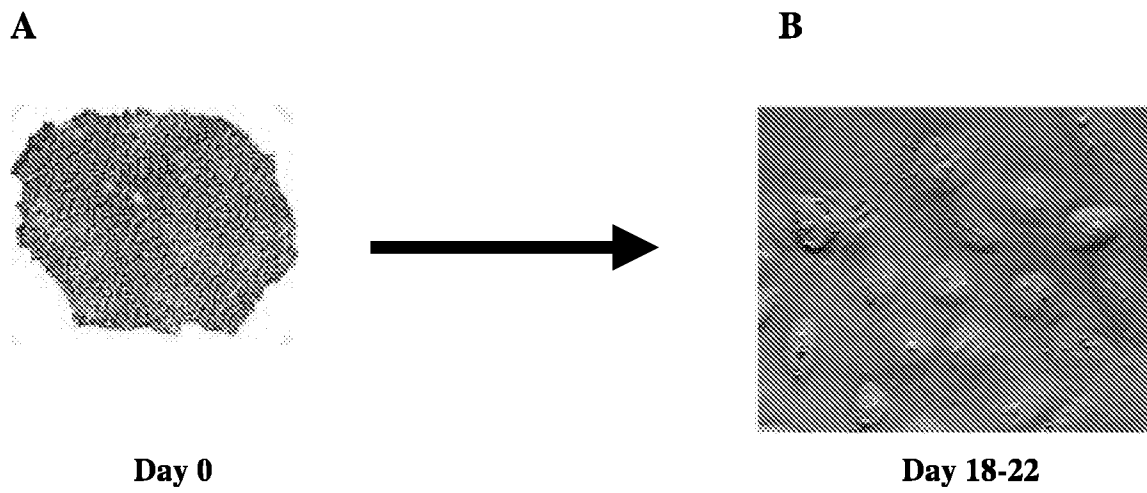
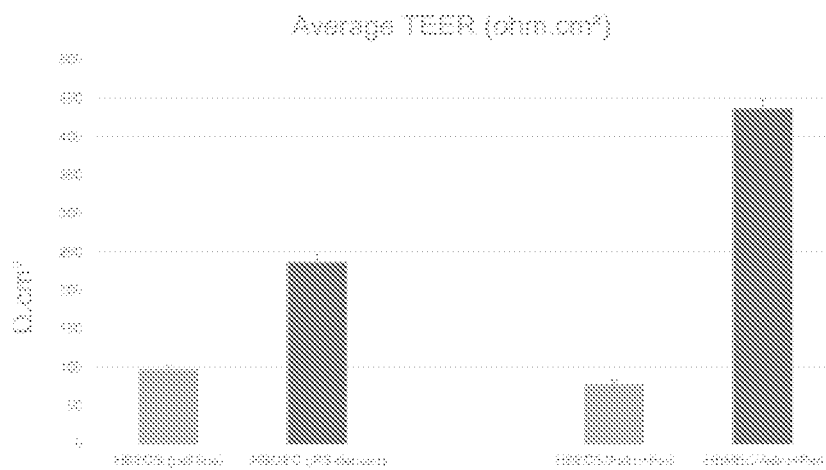
**C**

Fig. 45

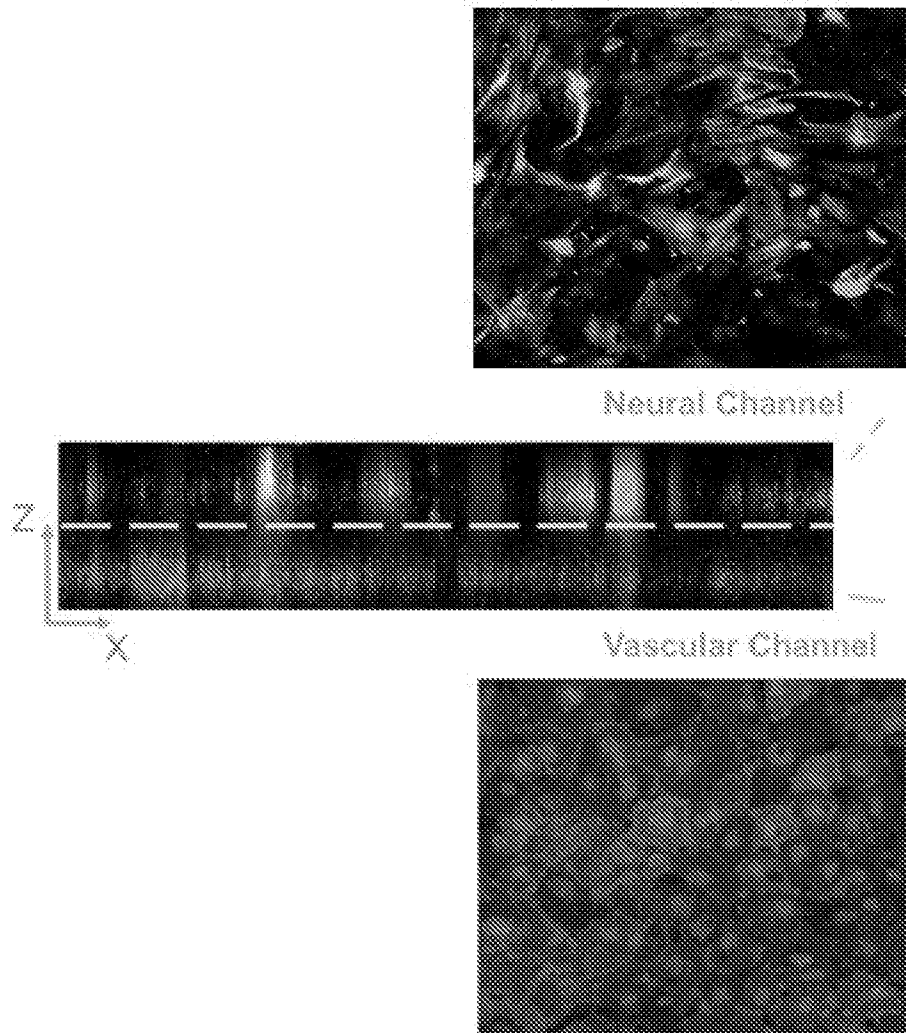


Fig. 46

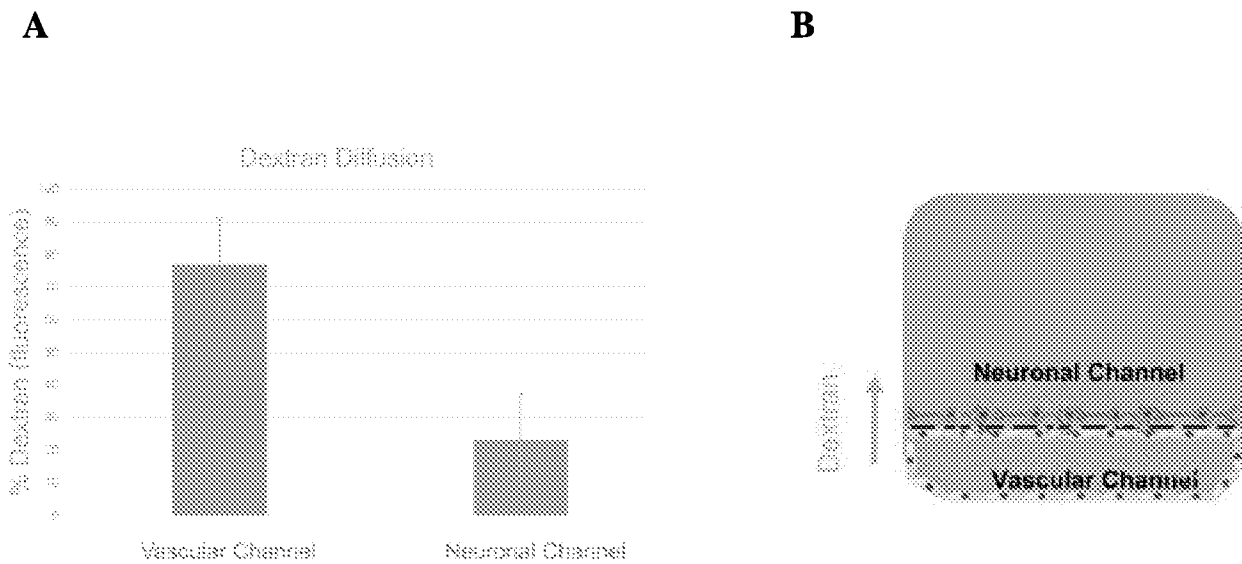
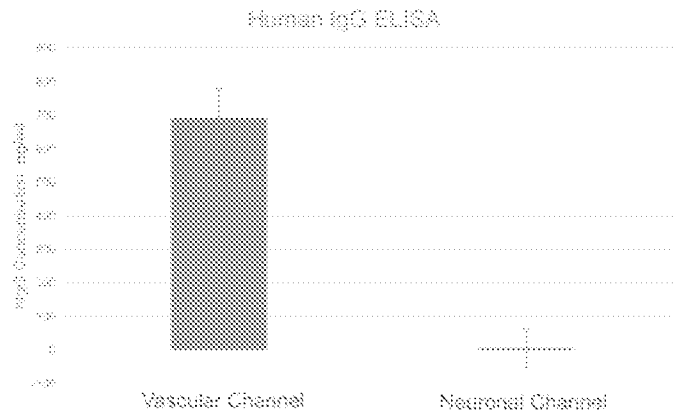
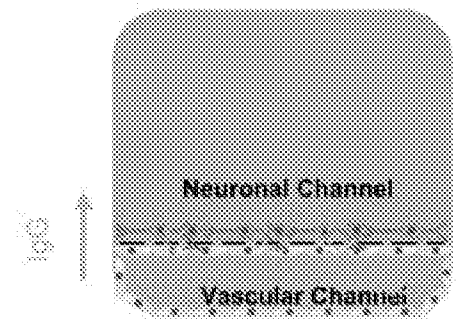
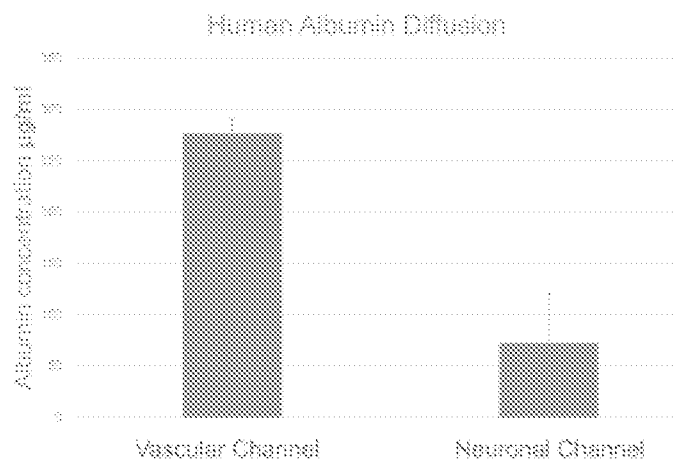
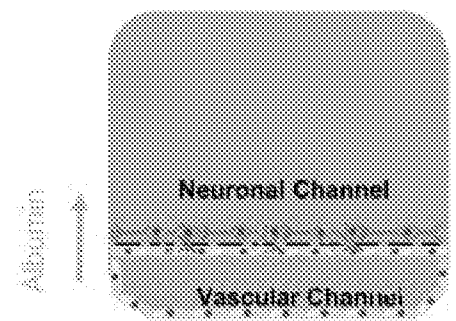
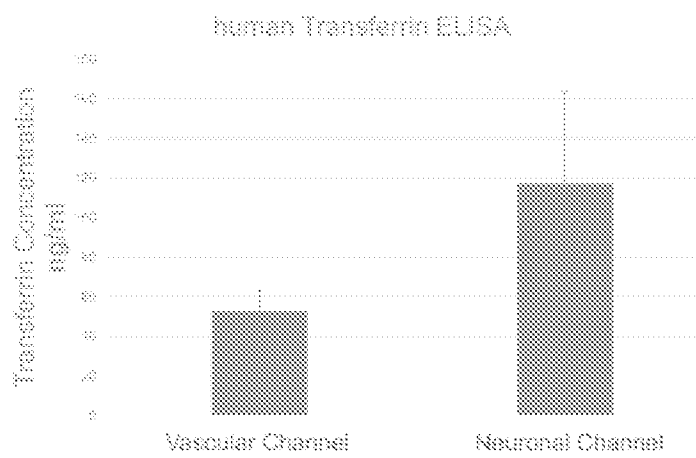


Fig. 47**A****B****C****D****E****F**