CONTENTS

List of Tables

Chapter V

Chapter VI

List of Figures

Chapter II

Chapter III

Chapter IV

Chapter V

Chapter VI

List of abbreviations

Abbreviation	Meanings
0D	Zero dimensional
1D	One dimensional
2D	Two dimensional
3D	Three dimensional
3T3	3-day transfer, inoculum 3×10^5 cells
AAO	Anodic aluminum oxide
AB	Acid base
Ag	Argentum (Silver)
AO	Acridine orange
Ar	Argon
Au	Aurum (Gold)
APS	Ammonium peroxydisulfate
APTES	(3-Aminopropyl)triethoxysilane
AFCSN1	(3-Aminopropyl)triethoxysilane functionalized core-sheath nanofibers: 0.6 mL/h
AFCSN2	(3-Aminopropyl)triethoxysilane functionalized core-sheath nanofibers: 1 mL/h
AFSEN1	(3-Aminopropyl)triethoxysilane functionalized solid electrospun nanofibers:20:80 (v/v)
AFSEN2	(3-Aminopropyl)triethoxysilane functionalized solid electrospun nanofibers:40:60 (v/v)
AFSEN3	(3-Aminopropyl)triethoxysilane functionalized solid electrospun nanofibers:50:50 (v/v)
AFSEN4	(3-Aminopropyl)triethoxysilane functionalized solid electrospun nanofibers:60:40 (v/v)
BDNF	Brain-derived neurotrophic factor
BOC	*tert*-butyloxycarbonyl
BSEs	Back scattered electrons
CHO	Aldehyde

CCD	Charge coupled detector
Ch	Chitosan
cm	Centimetre
CO_2	Carbon dioxide
CNT	Carbon nanotubes
CSA	Camphor sulfonic acid
COOH	Carboxyl
CP	Conducting polymer
CSN1	Core-sheath nanofibers: 0.6 mL/h
CSN2	Core-sheath nanofibers: 1 mL/h
DAPI	4',6-Diamidino-2-Phenylindole
DB-PPV	2,3-dibutoxy-1,4-poly(phenylenevinylene)
DC (dc)	Direct current
DO-PPV	2,5-dioctyloxy-l,4-poly(phenylenevinylene)
DPPH	1,1-diphenyl-2-picrylhydrazyl
DNA	Deoxyribonucleic acid
DRG	Dorsal root ganglion
EB	Emeraldine base
ES	Emeraldine salt
EtBr	Ethidium bromide
ECM	Extracellular matrix
eV	Electron volt
$FeCl_3$	Ferric chloride
FWHM	Full width at half maxima
FT-IR	Fourier transform infrared spectroscopy
HOMO	Highest occupied molecular orbital
HFCSN1	1,6-Hexanediamine functionalized core-sheath nanofibers: 0.6 mL/h
HFCSN2	1,6-Hexanediamine functionalized core-sheath nanofibers: 1 mL/h
HFSEN1	1,6-Hexanediamine functionalized solid electrospun nanofibers:20:80 (v/v)
HFSEN2	1,6-Hexanediamine functionalized solid electrospun

	nanofibers:40:60 (v/v)
HFSEN3	1,6-Hexanediamine functionalized solid electrospun nanofibers:50:50 (v/v)
HFSEN4	1,6-Hexanediamine functionalized solid electrospun nanofibers:60:40 (v/v)
H_2O	Dihydrogen monoxide (Water)
HCl	Hydrochloric acid
Hz	Hertz
ICPs	Intrinsically conducting polymers
IUPAC	International Union of Pure and Applied Chemistry
LUMO	Lowest unoccupied molecular orbital
LEB	Leucoemeraldine
MDMO-PPV	Poly[2-methoxy-5-(3′,7′-dimethyloctyloxy)-1,4-phenylenevinylene]
MDA-MB-231	M.D. Anderson Metastatic Breast adenocarcinoma
MEH-PPV	Poly[2-methoxy-5-(2-ethylhexyloxy)-1,4-phenylenevinylene]
MnO_2	Manganese dioxide
MO-$FeCl_3$	Methyl orange-ferric chloride
MTS	3-(4,5-dimethylthiazol-2-yl)-5-(3- carboxymethoxyphenyl)-2-(4-sulfophenyl)-2H-tetrazolium, inner salt)
NH_2	Amine
N_2	Nitrogen
NA	Nigraniline
NH_3	Ammonia
NHS	N-hydroxysuccinimide
NIH 3T3	National Institutes of Health
NGF	Nerve growth factor
NMR	Nuclear Magnetic Resonance
NMP	N-methyl pyrrolidone
NT-3	Neurotrophins-3
OH	Hydroxyl
O_2	Oxygen
O-I	Organic in inorganic

O-O	Organic in organic
PA	Polyacetylene
PADPA	*p*-aminodiphenylamine
PAni	Polyaniline
PCL	Polycaprolactone
PC12	Pheochromocytoma
PDLLA	Poly-D,L-lactide
PE	Poly(ethylene)
PEB	Protoemeradine
PEDOT	Poly (3,4-ethylenedioxythiophene)
PEG	Poly(ethylene glycol)
PEO	Polyethylene oxide
PHEMA	Polyhydroxyethylmethacrylate
PLA	Poly(lactic acid)
PLGA	Poly(lactic-co-glycolic acid)
PLLA	Poly(L-lactide)
PMAA	Poly(methacrylic acid)
PMAS	Poly(2-methoxyaniline-5-sulfonate)
PMMA	Poly (methyl methacrylate)
PNB	Pernigraniline
PP	Polypropylene
PPP	Poly(p-phenylene)
PS	Polystyrene
PPy	Polypyrrole
PPV	Poly(p-phenylene vinylene)
Pt	Platinum
PT	Polythiophene
PTM	Particle track-etched membranes
PU	Poly(urethane)
PVA	Polyvinyl alcohol
P3MT	Poly(3-methylthiophene)
PVC	Polyvinyl chloride
PET	Polyethylene terephthalate

PTFE	Polytetrafluoroethylene
PVDF	Polyvinylidene fluoride
RBC	Red blood corpuscles
RGC	Retinal ganglion cell
RGD	Arginylglycylaspartic acid (Arg-Gly-Asp)
RNA	Ribonucleic acid
SAM	Self-assembled monolayer
SPR	Surface plasmon resonance
SEM	Scanning electron microscopy
SEN1	Solid electrospun nanofibers:20:80 (v/v)
SEN2	Solid electrospun nanofibers:40:60 (v/v)
SEN3	Solid electrospun nanofibers:50:50 (v/v)
SEN4	Solid electrospun nanofibers:60:40 (v/v)
SEs	Secondary electrons
Si	Silicon
SO_2	Sulfur dioxide
TEM	Transmission electron microscopy
UV-Vis	Ultra violet visible spectroscopy
V_2O_5	Vanadium pentoxide
XPS	X-ray photoelectron spectroscopy
XRD	X-ray diffraction