

LIST OF ABBREVIATIONS AND SYMBOLS

%	Percentage
µm	Micro meter
nm	Nano meter
Z-line	Zwischenscheibe line
I-band	Isotropic band
A-band	Anisotropic band
H-zone	Heller zone
M-line	Mittelscheibe line
T-tubule	Transverse tubule
ATP	Adenosine triphosphate
ADP	Adenosine diphosphate
Pi	Inorganic Phosphate
MRF	Myogenic regulatory factor
TGF	Transforming growth factor
VEGF	Vascular endothelial growth factor
FGF	Fibroblast growth factor
COPD	Chronic obstructive pulmonary disorder
HIV	Human immuno virus
AIDS	Acquired immune deficiency syndrome
3D	Three dimensional
2D	Two dimensional
Bio-MEMS	Biological microelectrical mechanical system
µN	Micro newton
PCL	Poly (caprolactone)
PVA	Poly (vinyl alcohol)
mdECM	Muscle derived extracellular matrix
ECM	Extracellular matrix
ICBS	Integrated composite tissue/ organ building system
PEG	Poly (ethylene glycol)

ITOP	Integrated tissue organ printing
hiNSCs	Human induced neural stem cells
mPas	Milli pascal second
mL	Milli litre
ChR	Channelrhodopsin
PDMS	Poly(dimethylsiloxane)
GFP	Green fluorescence protein
HUVEC	Human umbilical vein endothelial cells
MHC	Myosin heavy chain
APTES	(3-Aminopropyl)triethoxysilane
OTS	Octadecyltrichlorosilane
μ CFP	Microchannel flowed plasma process
FITC	Fluorescein isothiocyanate
SMTE	Skeletal muscle tissue engineering
VML	Volumetric muscle loss
FDM	Fused deposition modeling
SEM	Scanning electron microscopy
DMEM	Dulbecco's modified eagle medium
FBS	Fetal bovine serum
CO ₂	Carbon dioxide
PBS	Phosphate buffer saline
EDTA	Ethylenediaminetetraacetic acid
Calcein	Calcein acetomethyl
AM	
F-actin	Filamentous actin
BSA	Bovine serum albumin
DAPI	4, 6-diamidino-2-phenylindole
VIC	Valve leaflet interstitial cells
SMCs	Smooth muscle cells
LB	Luria bertani
ROS	Reactive oxygen species
iPSCs	Induced pluripotent stem cells

AAV	Adeno-associated virus
SAMs	Surface assembled monolayers
FA	Focal adhesion
GAGs	Glycosaminoglycans
OOP	Orientation order parameter
ROI	Region of interest
HS	Horse serum
FFT	Fast Fourier transform
MACS	Magnetic activated cell sorting
FACS	Fluorescence activated cell sorting
MAPKs	Mitogen activated protein kinases
SOCE	Store operated calcium channels
STIM1	Stromal interaction molecule 1
TRPC	Transient Receptor Potential Canonical
MAPKs	Mitogen activated protein kinases
mm	millimetre
FACS	Fluorescence activated cell sorting
μM	Micro molar
μg	Microgram
mM	Milli molar
μM	Micro molar
RT	Room temperature