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## LIST OF ABBREVIATIONS AND SYMBOLS

μg	= Microgram
μl	= Microliter
μM	= Micromolar
° C	= Degree celcius
%	= Percent
h	= Hour
1, 25- (OH) <sub>2</sub> D <sub>3</sub>	= 1α, 25-Dihydroxycholecalciferol (VD3)
ALP	= Alkaline phosphatase
ATCC	= American Type Culture Collection
ATP	= Adenosine 5'-triphosphate
BMP	= Bone morphogenic protein
BMU	= Basic multicellular unit or bone metabolic units
BG	= Bioactive Glass
Bp	= Base pair
CAL	= Clinical attachment level
CSF-1	= Colony-stimulating factor 1
CTRs	= Calcitonin receptors
DNA	= Deoxyribonucleic acid
cDNA	=Complementary deoxyribonucleic acid
Cbfa1	= Core binding factor 1
CTG	= Connective tissue graft
CTRs	= Calcitonin receptors
DMEM	= Dulbecco's Modified Eagle's Medium
ELISA	= Enzyme-Linked ImmunoSorbent Assay
EMD	= Enamel Matrix Derivative
ERK	= Extracellular signal-regulated kinases
<i>et al.</i>	= And (the) other people
FBS	= Fetal bovine serum
FDA	= Food and Drug Administration

## LIST OF ABBREVIATIONS AND SYMBOLS (CONTINUED)

FDCR-1	= Follicular dendritic cell-derived receptor-1
FGFS	= Fibroblast growth factor
GAPDH	= Glyceraldehyde-3-phosphate dehydrogenase
GTR	= Guided tissue regeneration
HKT	= Height of keratinized tissue
g	= Gram
IGFs	= Insulin-like growth factors
IL-6	= Interleukin 6
kDa	= Kilo dalton
L	= Liter
Ladder	= Base pair ladder
M	= Molar
MAPK	= Mitogen-activated protein kinase
M-CSF	= Macrophage colony stimulating factor
mg	= Milligram
min	= Minute
ml	= Milliliter
mm <sup>3</sup>	= Square millimeter
mM	= Millimolar
MNCs	= Mononuclear cells
mRNA	= Messenger ribonucleic acid
MWF	= Modified Widman flap
NaOH	= Sodium hydroxide
NF- $\kappa$ B	= Nuclear factor kappa-B
OCIF	= Ostoclastogenesis inhibitory factor
OCL	= Osteoclast
OD	= Optical density
OPG	= Osteoprotegerin
Pas	= Positron annihilation spectroscopy

## LIST OF ABBREVIATIONS AND SYMBOLS (CONTINUED)

PBMCs	= Peripheral blood mononuclear cells
PBS	= Phosphate buffer saline
PCR	= Polymerase chain reaction
PDL	= Periodontal ligament
PDGF	= Platelet-derived growth factor
PGA	= Propylene glycol alginate
PGE2	= Prostaglandin E2
PTH	= Parathyroid hormone
RANK	= Receptor activator of nuclear factor kappa-B
RANKL	= Receptor activator of nuclear factor-kappa B ligand
rpm	= Round per minute
RT-PCR	= Reverse transcriptase polymerase chain reaction
SD	= Standard deviation
TGF- $\beta$	= Transforming growth factor-beta
TGF- $\beta$ 1	= Transforming growth factor-beta 1
TNF	= Tumor necrosis factor
TNFR	= Tumor necrosis factor receptor
TNF- $\alpha$	= Tumor necrosis factor-alpha
TRAP	= Tartrate-resistant acid phosphatase
U.S.	= United State
UV	= Ultraviolet
VNR	= Vitronectin receptor
v/v	= Volume/volume