Supplementary materials

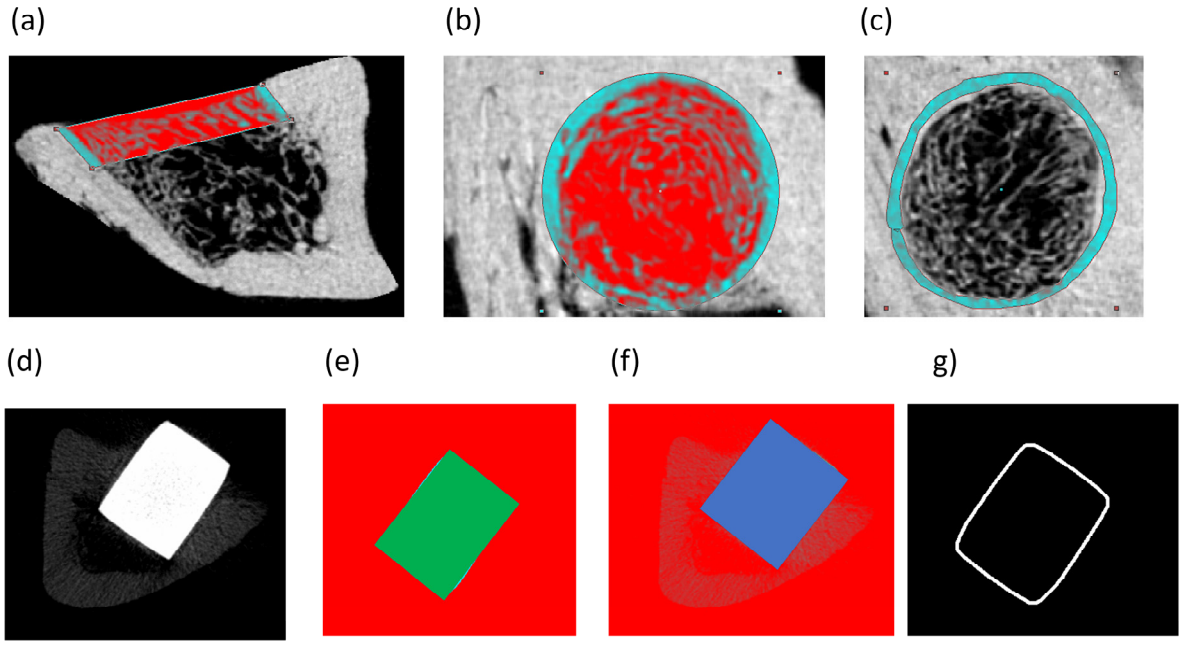

Figure S1. The methodology used for bone defect and implant analyses. (**a,b**) Sagittal and coronal images of the bone defect, showing the selected region of interest (red) used for the analysis of the bone defect. (**c**) A coronal image of bone defect, showing the region of interest (blue) used to measure the cortical thickness. (**d**) A sagittal image of the implant and its surrounding bone. (**e**) Ti implant was defined as the first volume of interest (VOI). (**f**) The Ti implant and the surrounding bone were identified as the second VOI. (**g**) The first VOI was subtracted from the second VOI and the surrounding bone was analyzed. The analysis was performed using CT-Analyser software (SkyScan, 1172).

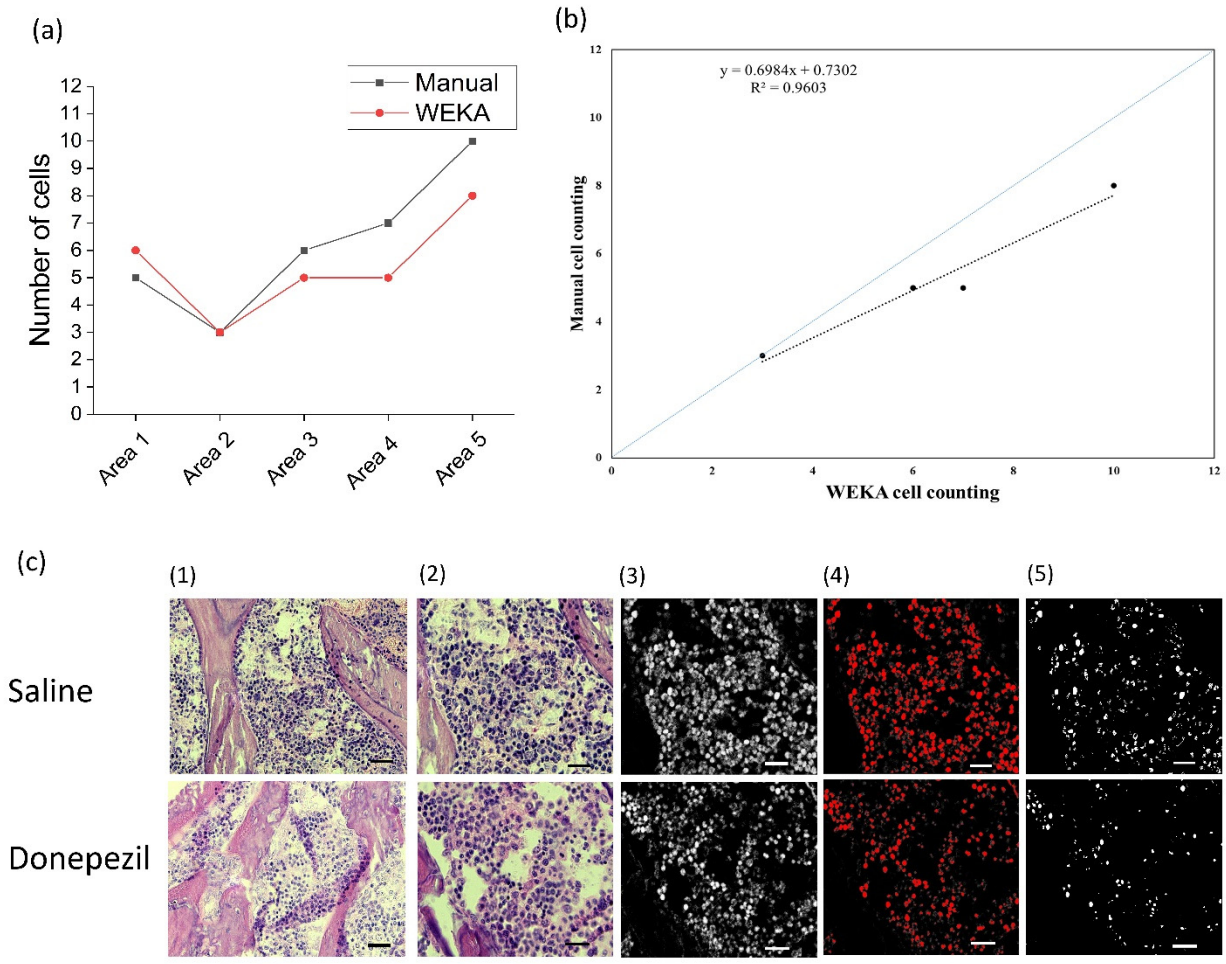

Figure S2. Validation of WEKA plugin in identifying chronic immune cell infiltration using ImageJ software. (**a**) Manual and trainable cell counting (WEKA) were performed in 5 regions of interest. (**b**) Linear relationship between WEKA and manual cell counting methods. The dotted black line represents the linear fitting of the data (R2 = 0.96). (**c**) Steps for analysis of chronic immune cells (lymphocytes & macrophages) infiltration using WEKA trainable segmentation plugin of ImageJ software. (1) H&E stained sections were opened using Image J software. (2) A photograph showing the cropped region of interest. (3) Determination of the probability maps. (4) Thresholding adjustment were used to remove other types of cells. (5) Binary set up (the program quantifies only the white objects (Magnification = 40X, Scale bar = 20 μm).

Table S1. The main differences between bone and skin wound healing.

Parameter	Bone healing	Soft tissue healing	Ref
Phases of healing	Proliferation phase involves chondrogenesis, osteogenesis, and angiogenesis	Proliferation phase involves fibroplasia, reepithelialization, and angiogenesis.	[1–5]
	Proliferation phase start at day 7-10 after injury.	Proliferation phase start at day 3 after injury.	
Main Cells involved	Osteoblasts, osteoclasts, osteocytes, endothelial cells, platelets, and immune cells	Fibroblasts, keratinocytes, epithelial cells, melanocytes, platelets, and immune cells	[1,6]
Main sources of progenitor cells	Periosteum, bone marrow, and haematopoietic progenitor cells	Bone marrow, haematopoietic progenitor cells, and connective tissue sheath of murine hair follicle	[7,8]
Extracellular matrix	Secreted mainly by osteoblasts	Secreted mainly by fibroblasts	[3,9]
Healing time	Longer healing time (4-8 weeks in rats)	Shorter healing time (1-3 weeks in rats)	[16–18].
Scar tissue formation	No	Yes (remodeled with time)	[19,20]

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