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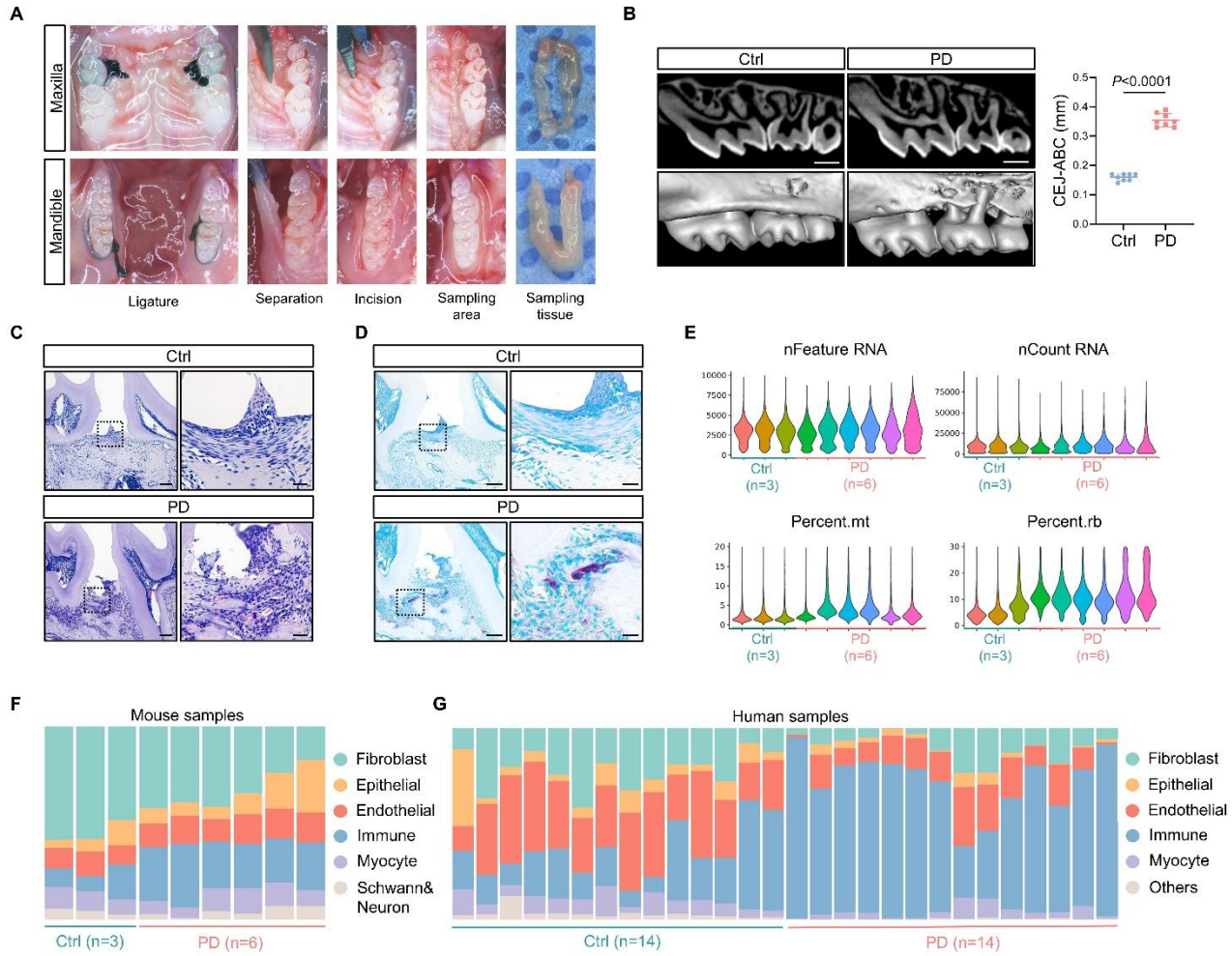
Supplemental information

Distinct immune landscapes between murine and human periodontitis

Yi Zhao, Qian Wang, Weimin Lin, Wei Song, Zhong Zhang, Xiaoyu Yang, Denghao Huang, Feiyu Wang, Qingheng Wu, Shuang Jiang, Yuyu Li, Masayuki Tsukasaki, Quan Yuan, and Qi Yin

1 Appendix Figures

Appendix Figure 1



Appendix Fig.1 Validation of Ligature Model and Quality Control. (Related to Figure 1)

(A) Optical photography of the surgical process, sampling sites, and collected tissue from mice.

(B) Micro-CT shows alveolar bone loss of murine Ctrl and PD groups; CEJ-ABC, Cementum-enamel junction to alveolar bone crest. Scale bar: 0.5 mm.

(C) HE staining shows gingiva and alveolar bone morphology in murine Ctrl and PD groups. Scale bars: 100 μm (left) and 25 μm (right).

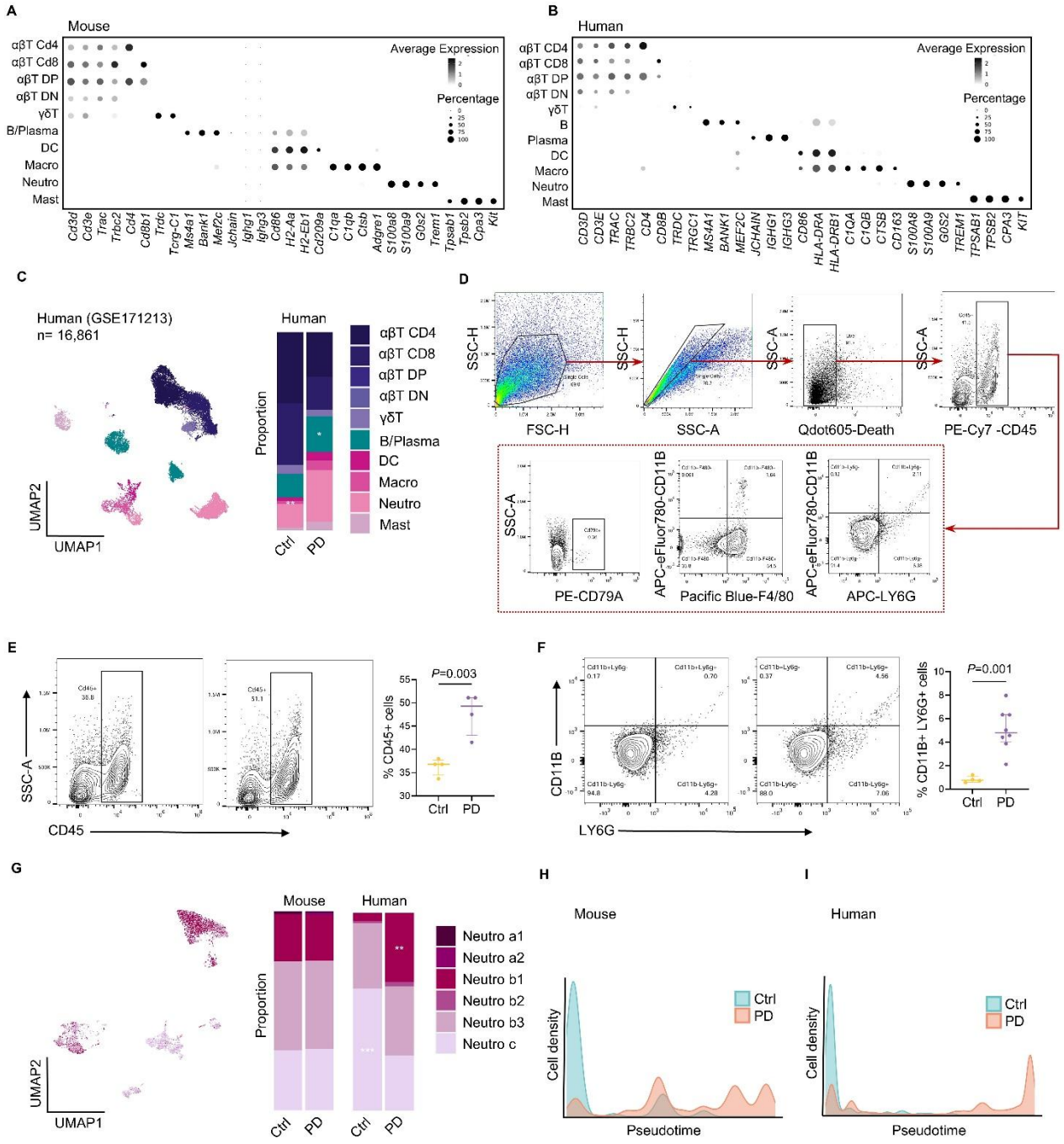
(D) TRAP staining shows osteoclasts on alveolar bone in murine Ctrl and PD groups. Scale bars: 50 μm (left) and 15 μm (right).

(E) Quality control of single-cell sequencing data for each murine sample.

(F) Bar chart of cell proportions for each murine sample.

(G) Bar chart of cell proportions for each human sample.

Appendix Figure 2



Appendix Fig.2 Validation of Immune Cell Proportions. (Related to Figure 2)

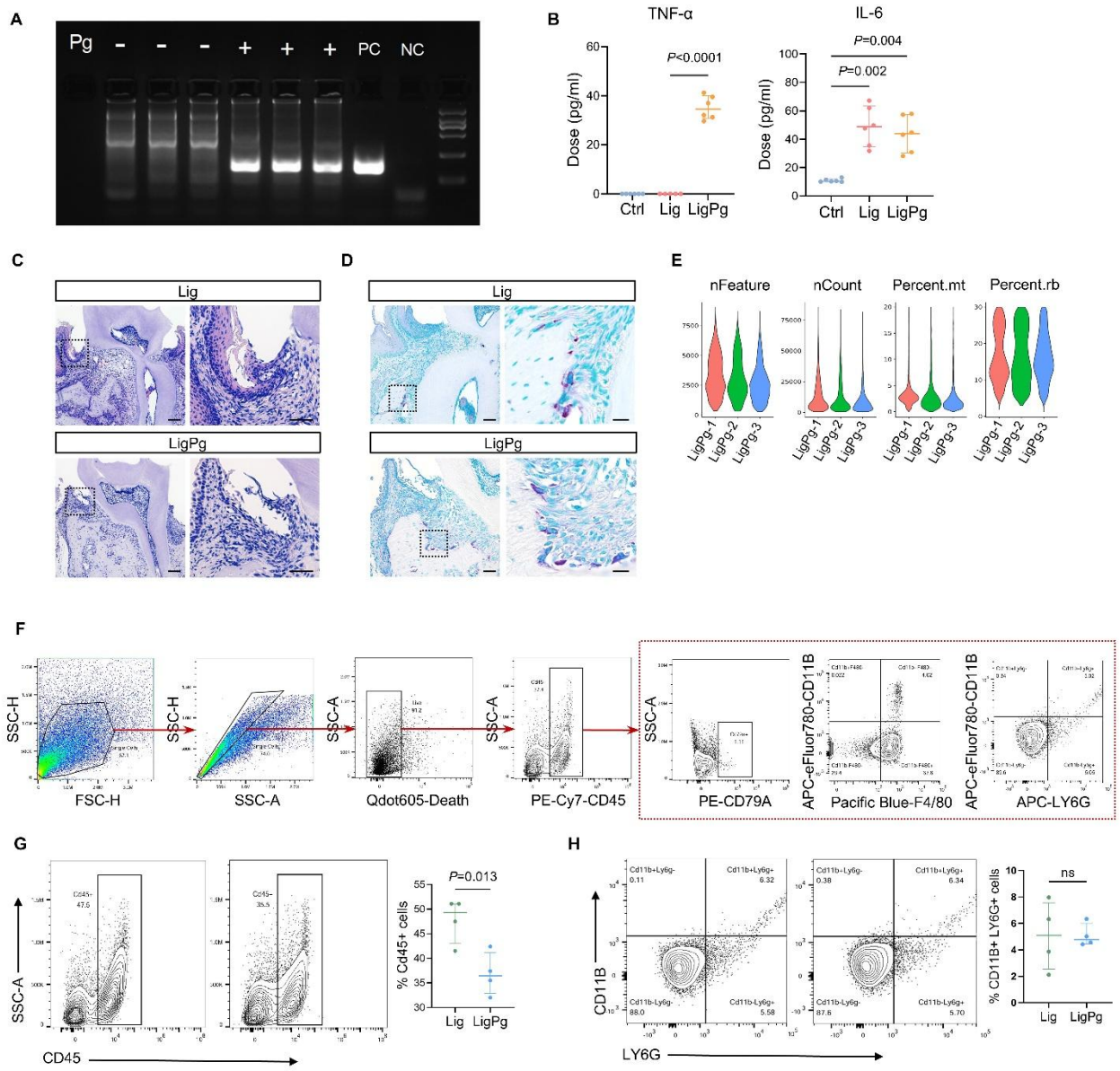
(A-B) Marker genes for each immune cell type in murine (A) and human (B) gingiva.

(C) UMAP plot (left) and proportion bar chart (right) of immune cell proportions in human Ctrl and PD groups (GSE171213). Refer to Appendix Methods for statistical tests used. Human Δ(PD-Ctrl) vs. Murine Δ(PD-Ctrl), $*P < 0.05$, $**P < 0.01$.

(D) Diagram of flow cytometry gating steps.

(E) Representative SSC-CD45 flow cytometry scatter plots (left) and cell percentage statistical charts (right) of murine Ctrl and PD groups.
(F) Representative CD11B-LY6G flow cytometry scatter plots (left) and cell percentage statistical charts (right) of murine Ctrl and PD groups.
(G) UMAP plot (left) and proportion bar chart (right) of neutrophil sub-type proportions identified in murine and human gingiva. Refer to Appendix Methods for statistical tests used. Human Δ(PD-Ctrl) vs. Murine Δ(PD-Ctrl), $^{**}P < 0.01$, $^{***}P < 0.001$.
(H) Peak plot of murine neutrophil sub-type density changes along with pseudotime.
(I) Peak plot of human neutrophil sub-type density changes along with pseudotime.

Appendix Figure 3



Appendix Fig.3 Validation of LigPg Model and Quality Control. (Related to Figure 5)

(A) PCR results for Pg detection in Lig and LigPg groups (n=3); PC, positive control, NC, negative control.

(B) Serum concentrations of TNF-α and IL-6.

(C) HE staining shows gingiva and alveolar bone morphology in Lig and LigPg groups. Scale bars: 100 μm (left) and 25 μm (right).

(D) TRAP staining shows osteoclasts on alveolar bone in Lig and LigPg groups. Scale bars: 50 μm (left) and 15 μm (right).

(E) Quality control of single-cell sequencing data for each sample in the LigPg group.

(F) Diagram of flow cytometry gating steps.

(G) Representative SSC-CD45 flow cytometry scatter plots (left) and cell percentage statistical charts (right) of Lig and LigPg groups.

(H) Representative CD11B-LY6G flow cytometry scatter plots (left) and cell percentage statistical charts (right) of Lig and LigPg groups.

Appendix Tables

Appendix Table 1: Marker Genes of B/Plasma Cell-types. (Related to Figure 3)

	Cell types	Markers
	All Non-plasma B	*MS4A1, BANK1, MEF2C*
1	Naïve B	*CD27(-), CD38(-)*
2	Activated B	*CD69, CD83, NR4A2*
3	Transitional B	*CD27(-), CD24, CD38*
4	Conventional Memory B	*CD27, CD38(-)*
5	CD11c+CD27- Memory B	*CD11c/ITGAX, CD27(-)*
6	Atypical Memory B	*CD27, ISG15, IFI6*
7	Breg	*EBI3, IL12A, IL10*
8	Plasma	*JCHAIN, IGHG1, IGHG3, IGHA1*

Appendix Table 2: Marker Genes of Macrophage/Monocyte Cell-types. (Related to Figure 4)

	Cell types	Markers
1	Classical Monocytes	*CD14, CCR2*
2	Intermediate Monocytes	*CCR5, CD14, CX3CR1*
3	Non-classical Monocytes	*CX3CR1, ITGAX, NR4A3*
4	Macro 1 (M1-like)	*CD80, CD86, IRAK2 (Pro-inflammatory)*
5	Macro 2 (M1-like)	*TNF, OASL, CLEC4D (Anti-pathogen)*
6	Macro 3 (M2-like)	*CD163, FOLR3, CFH, EDNRB (Tissue repair)*
7	Macro 4 (M2-like)	*CD163, HMOX1, APOC1, ACP5 (Metabolic protection)*
8	Macro 5 (M2-like)	*CD163, CTSB, CTSS, NCOA4 (Lysosome function)*
9	Macro 6 (M2-like)	*CD163, CEBPD, NR4A2, ZFP36L2 (Transcription regulation)*

Appendix Table 3: Marker Genes of Neutrophil Cell-types. (Related to Figure 2 and Appendix Figure 2)

	Cell types	Markers
1	Neutro a1	*LY6G, ITGAM, S100A8, S100A9, TREM1, ACOD1, SLPI*
2	Neutro a2	*LY6G, ITGAM(-), S100A8, S100A9, TREM1, ACOD1, SLPI*
3	Neutro b1	*CXCR2, G0S2, CXCL8, SOD2, NAMPT*
4	Neutro b2	*IFIT1, G0S2, CXCL8, SOD2, NAMPT*
5	Neutro b3	*CXCR4, G0S2, CXCL8, SOD2, NAMPT*
6	Neutro c	*LYZ, VCAN, CCL3, TMSB10, RPL21*

Appendix Table 4: Detailed Information of All Human Samples. (Related to Figure 2, 3, 4)

No.	Group	Gender	Age/y	Ethnicity	Tissue	Periodontal Attributes
1	Ctrl	Male	47	Han	Healthy gingival tissue	Healthy gingiva: PD<3 mm, no CAL and BOP (−) Smoking: No Systemically healthy: Yes Sample collection: During implant phase II surgery.
2		Female	39			
3		Male	43			
4		Female	45			
5	PD	Female	35	Han	Gingival tissue from periodontitis	Diseased gingiva: PD⩾5mm, CAL⩾3 mm and BOP (+) Smoking: No Systemically healthy: Yes Sample collection: During flap surgery or gingivectomy procedures.
6		Female	55			
7		Male	57			
8		Male	33			