Resveratrol enhances the functionality and improves the regeneration of mesenchymal stem cell aggregates

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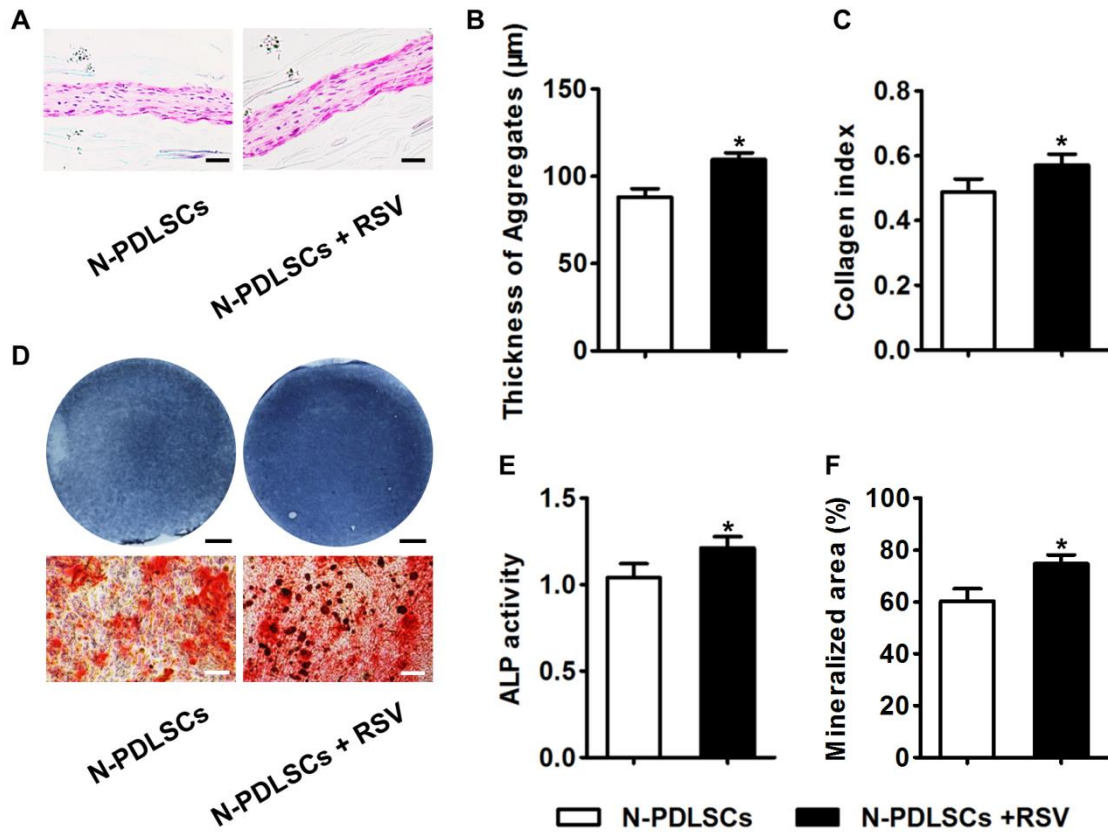[†] Equal contribution; [*] Corresponding authors.

Figure S1. Resveratrol (RSV) treatment improved N-PDLSC-aggregate formation and osteogenic potential. (A-C) Histological analysis of PDLSC-aggregates (A) showed that N-PDLSCs formed thicker aggregates (B) with more collagen deposition (C) under RSV treatment. Bars: 50 μm. (D) Osteogenesis of N-PDLSC-aggregates demonstrated by alkaline phosphatase (ALP) and alizarin red staining. Bars: 5 mm (up) and 50 μm (down). (E, F) N-PDLSC-aggregates showed higher ALP activity (E) and stronger mineralized capability (F) in osteogenic differentiation under RSV treatment. RSV was applied at 10 nM throughout the *in vitro* treatments. *n* = 3 per group. Data represents mean ± standard deviation (SD). *P < 0.05.
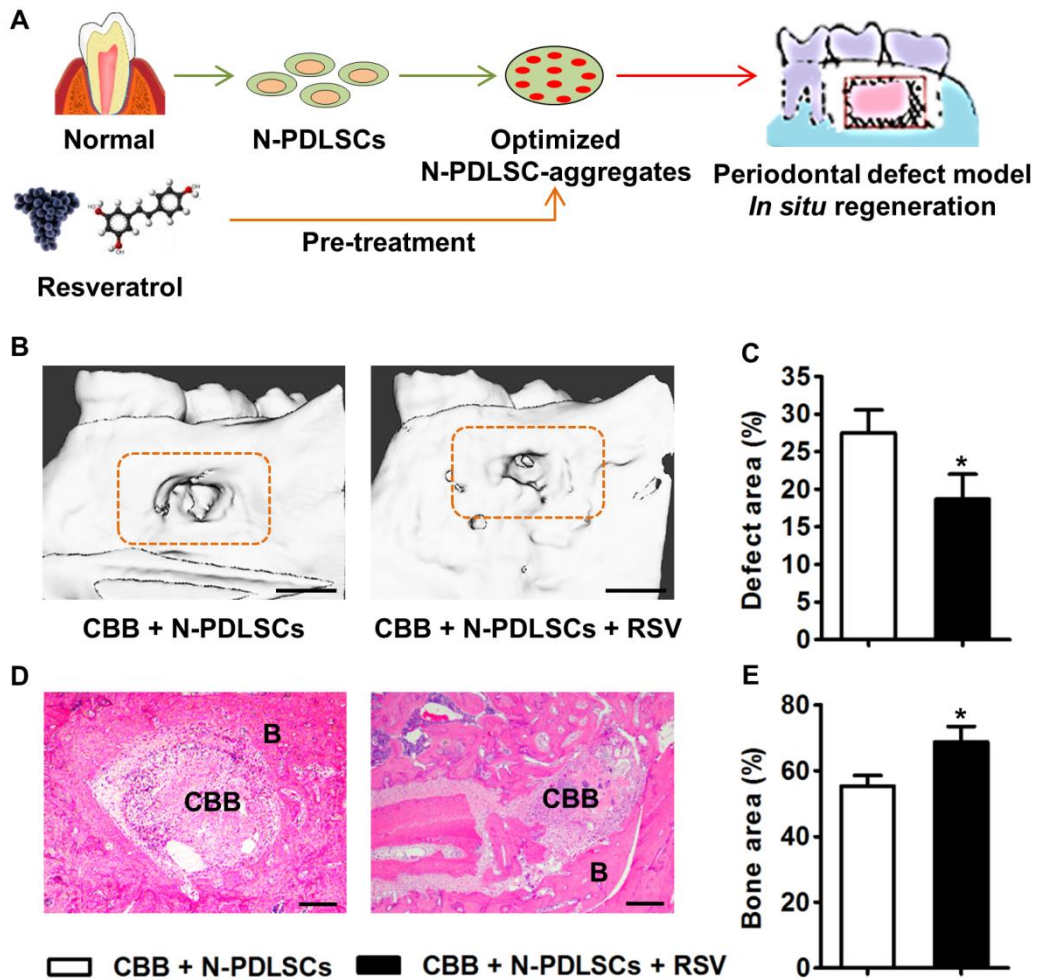
Figure S2. RSV treatment facilitated alveolar bone regeneration of N-PDLSC-aggregates in a rat periodontal defect model. (A) A schema illustrating the experimental design. (B, C) Representative micro-CT figures of periodontal defects after N-PDLSC-aggregate-based regeneration (B) and statistical analysis of bone volume per tissue volume (BV/TV) (C). The orange brackets indicate the original defects that were selected as region of interests in statistical analysis. (D, E) Histological analysis of periodontal bone regeneration (denoted by B) by N-PDLSC-aggregates by HE staining and the statistical analysis of regenerated bone area (E). RSV was applied at 10 nM throughout the *in vitro* treatments. Calcined bovine bone (CBB) was used as the scaffold. *n* = 4 per group. Data represents mean ± SD. *$P < 0.05$.