

**Supplementary Figure S4.** The strength distribution of the microbial co-occurrence. The strength was determined based on the abundances of the major genera found in samples at each clinical state using a method similar to Qin *et al.* (13). The co-occurrence of subgingival microorganisms was identified if the positive correlation between the two genera with a Pearson's correlation coefficient above 0.4. The strength of the microbial co-occurrence was significantly higher at the diseased state than at the resolved state.