



**Figure. S1** (a) 500 or 1000 μmol/L H<sub>2</sub>O<sub>2</sub> time-dependently induced the expression of 4-HNE-protein conjugate in RAFLS. Cells were treated with 500 or 1000 μmol/L H<sub>2</sub>O<sub>2</sub> for indicated hrs. Cell lysates were analyzed by Western blotting using antibodies against 4-HNE-protein conjugate and β-actin (loading control). (b) Genes expression level of TNF-α, IL-1β, IL-2 and IL-17A in AAV-AR injected AIA group; (c) Genes expression level of IL-1β, IL-2, COX-2 and TNF-α in epalrestat-treated AIA group. Blood lymphocyte were obtained from different groups for RT-PCT. (d) Gating strategies for the analysis of Treg cells and Th 17 cells. The data shown are the means ± SEM (n ≥ 3). \*P<0.05, \*\*P<0.01 vs healthy control group or AIA model group.