**Supplementary material:**

Supplementary material is available in the online version of this article and is accessible for authorized users.

**Fig S1.** The efficiencies of siRNA transfection on Atg5 and AMPK expressions. (A) Silencer negative scrambled siRNA and Atg5 siRNA were transfected in HAECs. Western blots were conducted to detect Atg5 expression. (B) Silencer negative scrambled siRNA and AMPK siRNA were transfected in HAECs. Western blots were conducted to detect AMPK expression. Representative blots were shown and quantitative data were calculated from 3 independent experiments. ***P<0.001
**Fig S2.** Resveratrol activated autophagy in vivo. LC3 and p62 protein expressions were detected with immunohistochemical staining. Resveratrol increased LC3 expression while decreased p62 expression in the aorta of high fat diet mice. Representative staining from each group are shown.

**Fig S3.** High dose of resveratrol didn’t change bcl-2 and bax expressions in the presence of PA. HAECs were treated with different dose of resveratrol in the absence or the presence of PA treatment. Western blots were conducted to evaluate the protein levels of bcl-2, bax, or GAPDH in HAECs. Representative blots were shown.
Fig S4. The effect of Atg5siRNA transfection on and 3-MA on LC3 expression. (A) Silencer negative scrambled siRNA and Atg5 siRNA were transfected in HAECs, followed by resveratrol and PA treatment. Western blots were conducted to detect LC3 expression. (B) HAECs were treated with 3-MA, in the presence of PA and resveratrol. Western blots were conducted to detect LC3 expression. Representative blots were shown and quantitative data were calculated from 3 independent experiments. ***P<0.001.