



Graph abstract. In APP/PS1 mouse and $A\beta_{1-42}$ in induced PC12 cell models, The amyloid plaques formed by BACE1 shearing APP impair mitochondrial function and autophagy. This results in impaired nerve function and increased metabolic burden in the brain. β -Asarone is the main constituents of *Acorus tatarinowii* Schott and plays important effects in diseases such as neurodegenerative and neurovascular diseases. Icariin (ICA) is a major active ingredient of *Epimedium* which attracting increasing attention because of its unique pharmacological effects in degenerative disease. The combination should inhibited cell and mitochondrial damage via induced autophagy/mitophagy. Therefore, the function of mitochondria and autophagy are repaired, the precipitation of toxic proteins is reduced, and the neurological function is recovered.