Apoptosis is a programmed cell death, which plays an important role in normal development and maintenance of homeostasis of a variety of tissues including cardiovascular system. Apop-1 is a novel protein that induces apoptosis of cultured smooth muscle cells. RT-PCR data showed that Apop-1 is expressed in all the organs tested. Western blotting revealed that Apop-1 protein is localised in mitochondria. Transient transfection experiment showed the apoptosis of Apop-1 can induce release of cytochrome c. The apoptosis may contribute to the loss of VSMC in atherosclerosis, which will influence the stability of atherosclerotic plaques.