

ABSTRACT

Apoptosis is a form of programmed cell death. It is a physiological mechanism mediating catabolism of eucaryotic cells and is characterised by specific morphological and biochemical processes. It targets and destroys cells directly and afterwards eliminates cell without any damage to other nearby cells. Contrary of the apoptosis, necrosis affects more or less any random cell. Apoptosis is strictly organized and controlled process. A critical control point in apoptosis constitute proteins of the Bcl-2 family. These protein are able to adjust permeability of external (outer) mitochondrial membrane (OMM) which is an important step ahead of the whole process. Bcl-2 family proteins are usually divided into three groups. Two groups are pro-apoptotic and one group is anti-apoptotic. Pro-apoptotic Bcl-2 proteins are generally increasing permeability of outer mitochondrial membrane which leads to the release of cytochrome c and other proteins (SMAC/Diablo) from mitochondria. When cytochrome c is released from mitochondria, it activates the assembly of the apoptosome in the cytosol that activated executive caspase. On the other hand, anti-apoptotic proteins deactivate pro-apoptotic proteins and regulate their function.