

Abstract

Cell energetic metabolism and cell survival are strictly controlled by pathways in which cytochrome molecules play a central role, in particular cytochrome c. It is localized in the mitochondrial intermembrane space with other molecules cooperating in keeping energetic metabolism. Permeabilization of outer mitochondrial membrane by proteins from Bcl-2 family or changes in Ca^{2+} levels causes cytochrome c release into cytosol. In cytosol cytochrome c interacts with other pro-apoptotic proteins (Apaf-1, procaspase-9) cooperating to form apoptosome and phosphatidylserine. As a result of these interactions, the cell is going to apoptosis.

This bachelor thesis summarizes the current state of knowledge of these processes. In the first part it focuses on the biosynthesis of cytochrome c, further on the mechanisms of its releasing from mitochondria and its interactions with other proteins within apoptosis including options of regulation of these processes.