Abstract

Postnatal adaptation of neonate to extrauterine life is among others dependent on maturation of mitochondrial oxidative phosphorylation system (OXPHOS). It depends on effective mitochondrial biogenesis during fetal developement. The inadequate capacity of mitochondrial OXPHOS system plays an important role in the neonatal mortality and morbidity. Therefore the study of mitochondrial biogenesis on molecular and biochemical level is important to improve the care of very premature neonates, especially critically ill premature neonates.

This thesis has been worked out in The laboratory for study of mitochondrial disorders (Department of Pediatrics, 1st Faculty of Medicine, Charles University in Prague). The thesis is based on molecular genetic analyses, which are focused on characterisation of ATP synthase gene expression and on changes in mitochondrial DNA content during human and rat fetal development.

The results provide the better insight into mitochondrial respectively ATP synthase biogenesis during human and rat fetal development.