

Cancer is one of the most dangerous diseases of the modern world. Therefore, many world laboratories engaged in research into the causes leading to the outbreak of this insidious disease. In this context, it has already been found that the normal animal cells do not divide indefinitely, but have a finite replicative life span. After this period, cells undergo either apoptotic processes or enter into so-called senescence, typical for proliferation arrest, but preserved metabolic processes. Further research has revealed that senescence serves as an effective anticancer program and currently is shed light on its significance in relation to various physiological or pathological processes associated with aging. In this work, the focus is on the role of senescence as a barrier for cancer development, and effectiveness. It can be assumed, that if the senescent cycle arrest functioned perfectly, the incidence of cancer among people would be recorded in much lower extent. The aim of this thesis is the current knowledge about the physiological and pathological roles of senescence and possible causes of overcoming this barrier, the result may be the uncontrolled cell division and tumorigenicity.