

DESCRIPTION FOR THE GENERAL PUBLIC

The proteins belonging to the protein group described as HtrA (high temperature requirement A) are enzymes (proteases). They degrade the cellular proteins whose structure is damaged and also the proper, undamaged proteins that participate in regulation of many important processes occurring in an organism. These processes include the programmed cell death (apoptosis) and formation of placenta during fetal development. Dysfunctional apoptosis may lead to too frequent cell divisions, typical for transformation of a normal cell into a cancer cell. Improper function of the HtrA proteases is an important factor which promotes cancer development. Because of the involvement of the HtrA proteins in fundamental processes of life, it is important to well understand their function in a cell. There are four human HtrA proteins (HtrA1-4). The cellular function of the HtrA4 protein, an object of this proposal, is understood very poorly. The aim of this project is to identify the proteins which interact with HtrA4 in a cell, determine in which part of a cell HtrA4 is localized and clarify its function in the programmed cell death. The results of the project will expand our knowledge concerning cell biology, including its programmed death and development of cancer. Furthermore, the project's results may facilitate devising new anticancer drugs.