Invadopodia as specific organelles enabling tumour cells movement, spreading over the organism and ultimately formation of metastasis are possible and promising targets of tumour therapy. Recently, many interesting facts about assembly and mechanism of function of invadopodia were discovered. Invadopodia are centres of ECM degradation by extra-cellular proteases facilitating an invasion of tumour cells. For creation of invadopodia a precisely localized increased production of ROS is necessary. ROS work as crucial signalling molecules and participate in many processes resulting in invadopodia formation. ROS in tumour cells are produced by specific extra-mitochondrial NADPH oxidases (Nox). Several regulatory molecules participating in activation and localization of Nox to invadopodia have been discovered recently (Tks organizer proteins). Furthermore, a regulatory role of Src kinase in ROS production and subsequent invadopodia formation was confirmed.

Key words: ECM degradation, invadopodia, invasion, proteases, Nox, ROS, Src kinase, Tks proteins