

Abstract:

This bachelor thesis focuses on the summary of the current knowledge of neuron navigator proteins (NAV) in migration of tumor cells. Neuron navigator proteins are cytoskeleton-associated proteins. They interact with microtubules and actin filaments. Neuron navigator proteins contain several conserved domains that do not differ much between isoforms of neuron navigator protein families. They also contain different motifs that often overlap and are therefore not conserved. Neuron navigator proteins are most known as a proteins participating in axon guidance and growth. However, recent studies point to their important role in regulation of migration, invasiveness and metastasis. Neuron navigator proteins are affecting several signaling pathways. Mainly signaling pathways, that are regulating cytoskeleton, migration and epithelial-to-mesenchymal transition. Alternations in the expression of neuron navigator proteins are observed in various cancers, especially in metastatic cells. These changes often correlate with prognosis of cancer patients.

Key words: NAV1, NAV2, NAV3, cancer progression, migration, cytoskeleton