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Fund “Nauka” Project № 19012 Resume – Competition-Based Session 2019:
“Morphological analysis of innervation in colorectal cancer and normal intestinal wall”
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Colorectal carcinoma is considered one of the most malignant tumors. Unfortunately, it is also one of the most common malignancies. Microenvironment of the colorectal carcinoma includes surrounding vessels, immune cells, fibroblasts, extracellular matrix and finally yet importantly, nerve structures. Apparently, the latter play an important role in cancer progression.

Neurogenesis is the process by which neurons are produced de novo in the lateral subventricular zone and the dentate gyrus of the hippocampus. The most recent studies demonstrate connection between cancer progression and nerve structures within the tumor tissue. In particular, neurogenesis and axonogenesis in the prostatic tumor tissue has been discussed in multiple studies. The origin of the tumor nerve structures, however, is still an enigma. According to the current hypothesis, progenitor nerve cells migrate through the blood-brain barrier from the zones of neurogenesis in the brain into the tumor and /or metastasis focus resulting in the new nerve structures synthesis.

Up to date, very little has been published on neurogenesis in colorectal carcinoma. The aim of this study is to identify the nerve structures in the colorectal carcinoma using immunochemistry techniques via comparing the nerve structures in the tumor tissue with that present in the normal intestinal wall.

Similarly, to tumor angiogenesis being an independent prognostic factor in multiple malignancies, we hypothesize that tumor neurogenesis has the potential to become another prognostic and predictive factor in colorectal carcinoma.