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“Expression of tetraspanin markers in benign prostate hyperplasia and in prostate cancer”

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One of the main distinguishing features of the malignant oncological diseases is their propensity to achieve local tissue invasion and metastasis. The morbidity from oncological diseases is in direct correlation with the dissemination of the primary neoplasm to near and distant locations. Hence, the correct behavior and therapeutic measures regarding the metastatic potential of the malignant neoplasms is of critical significance for the patient, which justifies the conduction of in-depth research of the mechanisms of the metastatic process. The results of this research would bring better knowledge regarding the biology of the malignant tumors and the new findings would translate themselves into the clinical practice, providing field for new predictive and therapeutic possibilities.

Some of the proteins of the tetraspanin family play vital role in regulating the migration of the neoplastic cells as well as in their interaction with the endothelial cells. These processes play a critical role in the local tumor invasion and metastatic spread.

During the last few years, some correlations have been described between the immunohistochemical expression of some tetraspanin markers and the local progression and the metastatic spread of the disease in different organ localizations. The current research aims at improving the knowledge in this field in the context of the adenocarcinoma of the prostate gland and gathering more information about the morphological, immunohistochemical and clinical correlations of this disease; it evaluates the same features in the benign prostate tissue in comparative manner.

The expected results are linked with estimation of the factors affecting the initiation, transformation, progression, angiogenesis and metastatic spread of adenocarcinoma of the prostate gland, which could serve as potential molecular targets for personalized target therapy.

Achieved results:

1. At high PSA values, the incidence of cribriform structures and perineural invasion is also high.
2. In non-advanced prostate cancer, there is no relationship between PSA and age, as well as between PSA and T-stage prostate cancer.
3. Perineural invasion in non-advanced prostate cancers is common in the cribriform growth pattern and is associated with the T-stage.
4. The cribriform growth pattern does not show a T-stage dependence in non-advanced prostate cancer.
5. Advanced prostate cancer has high PSA values, but they do not show a dependence on the cribriform growth pattern and perineural invasion.

6. The cribriform growth pattern in advanced prostate cancer is 3 times more common than in non-advanced prostate cancer.
7. In non-advanced carcinomas, cytoplasmic CD9 expression decreases after age 70 years.
8. In PNI, patients with prostate cancer without distant metastases have higher expression of CD9 than patients with metastases.
9. In advanced carcinomas, the expression of CD9 does not show a dependence on morphological parameters: cribriform growth pattern, GS and PNI.
10. High expression of CD151 in stage M0 prostate cancer occurs in the cribriform growth pattern, high Gleason score, and perineural invasion.
11. In advanced carcinomas, the expression of CD151 in prostate cancer tumor tissue is independent of patient age, cribriform growth pattern, Gleason score, and perineural invasion.