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Downregulation of mismatch repair proteins correlated with increased CD9a expression in high grade prostate cancer

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Introduction & Objectives: Protein expression levels in immunohistochemistry and molecular biomarkers are reported for their ability to predict recurrence, progression, development of metastases, or patient survival. The molecular features in low and high grade prostate cancer could be different that influence treatment decision and prognosis.
The objective of the current study was to compare the expression of exosomal biomarkers CD9a and mismatch repair proteins (MSH2, MSH6, MLH1, and PMS2) by immunohistochemistry (IHC) in the tissue of patients with prostate cancer and benign hyperplasia.

Materials & Methods: The study was retrospective. Altogether, 30 patients with prostate acinar adenocarcinoma and 10 patients with prostate benign hyperplasia were enrolled in the study. The CD9a, MSH2, MSH6, MLH1, and PMS2 expression was analysed by immunohistochemistry.

Results: Obtained results showed that CD9 expression was significantly increased in prostate acinar adenocarcinoma compared to control group (3.1 ± 0.74 vs 0.78± 0.42, score, $p<0.0001$). In addition, a positive correlation between CD9a expression and Grade group was observed (Rho = +0.54; $p=0.003$).
MMR expression was absent in 10 patients (two patients with Grade group 3, five patients with Grade group 4 and three patients with Grade group 5). MMR was present in all cases of benign prostate hyperplasia (mild to moderate staining).

Conclusions: High grade prostate cancer (Grade group 3-5) characterized by increased CD9a expression and downregulation of MMR.