Context: Basal cell carcinoma (BCC) is the most frequent malignant skin tumor. BCC rarely metastasizes, but it is often locally aggressive. Cyclooxygenase-2 (COX-2) is critical for tumor formation, angiogenesis and metastasis. Matrix Metalloproteinases (MMPs) are the members of the family of zinc (Zn)- and calcium-dependent endopeptidases, that degrade the extracellular matrix.

Methods and Material: In our study, we used immunohistochemical methods for the evaluation of COX-2, MMP-2 and MMP-9 expressions in tissue samples of 30 primary and 10 recurrent skin BCC cases.

Results: Immunohistochemical COX-2 expression was significantly higher in infiltrating pattern of BCC, compared to nodular (p=0.005) and superficial (p=0.041) subtypes in primary BCC group. There was not a significant difference between nodular and superficial BCCs for COX-2 expression. In addition COX-2 expression was significantly higher in recurrent BCC group then in primary BCC group (p=0.030). There was no statistically significant differences between histological subtypes of primary BCCs and between primary and recurrent BCCs for MMP-2 and MMP-9 expressions.

Conclusions: Our data confirm previous findings, that COX-2 and MMP-9 expressions are increased in BCC. Our results revealed an elevated COX-2 expression in recurrent BCCs. We suggest that COX-2 inhibition might have beneficial effects in BCCs, especially for the tumors with a higher level of COX-2 expression or aggressive phenotype.