**Cite this abstract as:** Xu S, Ge JP, Zhang ZY, Zhou WQ. A prostaglandin E (PGE) receptor EP4 is involved in the cell growth and invasion of prostate cancer via the cAMP-PKA/PI3K-AKT signaling pathway. Transl Androl Urol 2017;6(Suppl 3): AB063. doi: 10.21037/tau.2017.s063

# AB064. Downregulation of miR-129 in peripheral blood mononuclear cells is a diagnostic and prognostic biomarker in prostate cancer

**Song Xu, Jing-Ping Ge, Zheng-Yu Zhang, Wen-Quan Zhou**

Department of Urology, Jinling Hospital, School of Medicine, Nanjing University, Nanjing 210002, China

**Background:** The present study was designed to explore the clinical values of microRNA-129 (miR-129) expression in peripheral blood mononuclear cells for prostate cancer patients and the role of miR-129 in the proliferation of prostate cancer.

**Methods:** The peripheral blood mononuclear cells were isolated form blood simple from 98 patients confirmed with prostate cancer and 56 matched healthy volunteers. Reverse transcription quantitative real-time polymerase chain reaction (qRT-PCR) was employed to determine the expression level of miR-129 in peripheral blood mononuclear cells. Cox proportional hazards regression models and Kaplan-Meier analysis were used to evaluate the association of miR-129 expression with clinical and pathological characteristics of prostate cancer patients. The effect of miR-129 on the proliferation of prostate cancer cells *in vitro* was also determined.

**Results:** Reverse transcription quantitative real-time polymerase chain reaction (qRT-PCR) results showed that the expression of miR-129 was dramatically down-regulated in peripheral blood mononuclear cells for prostate cancer patients in comparison with healthy controls (P<0.05). The decrease in miR-129 expression in peripheral blood mononuclear cells was significantly associated with aggressive clinical pathological features such as histological grade (P=0.010), high preoperative PSA level (P=0.002), pathological stage (P=0.011), high Gleason score (P=0.005), lymph node metastasis (P=0.002), angiolymphatic invasion (P=0.004), biochemical recurrence (P=0.001). The prostate cancer patients with a low miR-129 expression in peripheral blood mononuclear cells had an obviously shorter BCR-free survival compared with high miR-129 expression (P<0.001). The Cox multivariate analysis established that the miR-129 expression may be an independent prognostic factor for biochemical recurrence (BCR)-free survival prostate cancer patients (P=0.000). The results of *in vitro* CCK-8 assays, as well as proliferating cell nuclear antigen phosphorylated histone-3 (P-H3) (markers of proliferation) indicated that miR-129 overexpression markedly retarded the proliferation of PC-3 and DU-145 cells.

**Conclusions:** Our results provide the first evidence that the miR-129is significantly downregulated in prostate cancer patients and multivariate analysis confirmed that miR-129 is a novel independent prognostic factor for prostate cancer. Overexpression of miR-129 exerts tumor suppressive functions and abrogates prostate cancer growth.

**Keywords:** microRNA-129 (miR-129); prostate cancer; prognostic biomarker

doi: 10.21037/tau.2017.s064

**Cite this abstract as:** Xu S, Ge JP, Zhang ZY, Zhou WQ. Downregulation of miR-129 in peripheral blood mononuclear cells is a diagnostic and prognostic biomarker in prostate cancer. Transl Androl Urol 2017;6(Suppl 3):AB064. doi: 10.21037/tau.2017.s064

# AB065. EP4 antagonist suppresses bone metastasis in prostate cancer

**Song Xu, Jing-Ping Ge, Zheng-Yu Zhang, Wen-Quan Zhou**

Department of Urology, Jinling Hospital, School of Medicine, Nanjing

 

University, Nanjing 210002, China

**Background:** Bone metastasis is one of the most common complications in clinical intractable castration-resistant prostate cancer (CRPC) and advanced prostate cancer period. The invasion ability of cancer cells was thought to have important relationship with the potential of cancer metastasis. EP4 receptor is overexpressed in several cancers, and enhanced EP4 receptor signaling has been previously shown to correlate with the invasion of several different cancer types. In present study, we found that EP4 antagonist can *in vitro* suppress the invasion phenotype abilities of CRPC PC3 cells, LNCaP cells with EP4 overexpressed which have the tendency to castration-resistance and *in vivo* suppress the CRPC bone metastasis animal models.
**Methods:** RNA interference was used to stably transfected EP4 to LNCaP with the pcDNA3.1-EP4, so as to be the LNCaP with vector control (LNCaP-mock) and LNCaP with EP4 overexpressed (LNCaP/EP4+) as described in our previous article. Effect on cell proliferation was determined firstly by the MTT assay. Transwell invasion assay was used to *in vitro* examine the metastasis abilities of PC3 cells, LNCaP cells, LNCaP/EP4+ and all after EP4 antagonist affected. Cells with ONO-AE3-208 at the final concentration of 0.1, 1 and 10 μmol/L were administrated to be the experimental group. To observe the effect of EP4 antagonist on the bone metastasis of prostate cancer *in vivo*, PC3/Luc cells were inoculated into the left cardiac ventricle of 5-week-old male nude mice. The mice developed osteolytic lesions with a mean endpoint at 52±7 days. To assess whether EP4 antagonist suppresses bone metastasis, ONO-AE3-208 (10 mg/kg/d) was given to the animals 5 days a week i.p. which the same volume of DDW was given as the control. To detect PC3 cell dissemination, bioluminescent imaging (BLI) was applied using a cooled CCD camera. We evaluated the efficacy of ONO-AE3-208 by measuring the photon counts of the metastatic lesions in the mandible and both hip joints in a blinded manner.
**Results:** The invasion assay showed that ONO-AE3-208 can inhibit the invasive abilities of both PC3 and LNCaP/EP4+ in a dose-dependent manner (P<0.01). In animal experiment, metastatic bone lesions in the control group progressed while the photon emission was significantly suppressed in the ONO-AE3-208 treatment group during the observation period from day 28 every 7 days (P<0.01).
**Conclusions:** We demonstrated that EP4 antagonist can *in vitro* inhibit the invasive abilities of CRPC PC3 and LNCaP/EP4+ cells. The administration of it can also suppress the bone metastasis of CRPC *in vivo*.
**Keywords:** EP4; prostate cancer; bone metastasis

doi: 10.21037/tau.2017.s065

**Cite this abstract as:** Xu S, Ge JP, Zhang ZY, Zhou WQ. EP4 antagonist suppresses bone metastasis in prostate cancer. Transl Androl Urol 2017;6(Suppl 3):AB065. doi: 10.21037/tau.2017.s065

# AB066. MiR-129 predicts prognosis and inhibits cell growth in human prostate carcinoma

**Song Xu, Jing-Ping Ge, Zheng-Yu Zhang, Wen-Quan Zhou**

Department of Urology, Jinling Hospital, School of Medicine, Nanjing University, Nanjing 210002, China

**Background:** MicroRNAs, as a class of small, well-conserved, non-coding RNAs, are increasing identified as diagnostic biomarkers in many cancers. The dysregulated microRNA-129 (miR-129) is closely related with tumorigenesis and cancer progression. However, their potential role of miR-129 in prostate cancer still remains largely elusive.
**Aim:** In this study, we aimed to investigate the evidence of miR-129 as prognostic biomarkers for tumor progression and clinical prognosis in prostate cancer patients.
**Results:** The prostate cancer tissues exhibited a significant reduction in miR-129 expression compared with the paracancerous tissues (P<0.05). The miR-129 expression is negatively correlated with histological grade (P=0.000), high preoperative PSA level (P=0.000), pathological stage (P=0.000), high Gleason score (P=0.000), lymph node metastasis (P=0.002), angiolymphatic invasion (P=0.018), biochemical recurrence (P=0.001). Kaplan-Meier analysis demonstrated that low miR-129 expression level was closely associated with poorer biochemical recurrence (BCR)-free survival. Further analysis indicated that (P=0.000) expression

 