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Early Cell Cultures Derived from Human Prostate Cancer Tissue Express Tissue-Specific Epithelial and Cancer Markers

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Abstract : The human prostate gland (PG) samples were obtained from patients who had undergone radical prostatectomy for prostate cancer (PC) and used to extract total RNA and prepare the prostate stromal cell cultures (PSCC) and patients-derived organoids (PDO). Growth of the cell cultures was accessed under microscopic evaluation in transmitted light and the marker expression by reverse polymerase chain reaction (RT-PCR), immunofluorescence, and immunoblotting. Some PCR products from prostate tissue, PSCC, and PDO were cloned and sequenced. We found that the cells of early and late passages of PSCC and corresponding PDO expressed luminal (androgen receptor, AR; cytokeratin 18, CK18) and basal (CK5, p63) epithelial markers, the production of which decreased or disappeared in late PSCC and PDO. The PSCC and PDO of early passages from cancer tissue additionally produced cancer markers AMACR, TMPRSS2-ERG, and Ezh2. The expression of TMPRSS2-ERG fusion transcripts was verified by cloning and sequencing the PCR products. The results obtained suggest that early passages of PSCC might be used as a pre-clinical model for the evaluation of early markers of prostate cancer.

Keywords : localized prostate cancer, prostate epithelial markers, prostate cancer markers, AMACR, TMPRSS2-ERG, prostate stromal cell cultures, PDO
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