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Retinoic acid receptor β2 (RAR β 2): nonivasive biomarker for distinguishing malignant versus benign prostate lesions from bodily fluids

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Abstract
Alterations in the methylation patterns of promoter CpG islands have been associated with the transcriptional inhibition of genes in many human cancers, including prostate cancer (PCa).
Objectives: The aim of our study was to evaluate the diagnostic value of aberrant promoter hypermethylation of retinoic acid receptor β2 (RAR β2) gene in serum DNA samples from patients with the diagnosis of PCa and benign prostatic hyperplasia (BPH), as a new epigenetic biomarker in distinguishing between malignant and non-malignant lesions.
Materials and methods: Aberrant promoter hypermethylation was investigated in genomic DNA isolated from the serum of 91 patients diagnosed with of PCa and 94 with BPH (control subjects). In order to evaluate the methylation status of the RARb2 gene we used the quantitative methylation-specific PCR (QMSP) method.
Results: Promoter hypermethylation of RAR β2 gene was detected in serum samples from 89 of 91 (92.86%) patients with PCa, and in 10 of the 94 (10.7%) patients with BPH.
Conclusions: RAR β2 represents a promising molecular biomarker which may be used in discriminating between malignant and benign prostatic diseases by noninvasive methods.
Key words: prostate cancer (PCa); benign prostatic hyperplasia (BPH); quantitative methylation-specific polymerase chain reaction (QMSP); retinoic acid receptor β2 (RAR β2)

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