
Towards Identification of New Prostatic Biomarkers

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Background: Despite the widespread use of excellent prostate cancer biomarkers, we still have difficulty in the differential diagnosis of CaP and BPH and in identifying more from less aggressive disease. For these reasons, new prostatic biomarkers are needed.

Methods: We have used a specific immunoassay for measuring hK2 (human glandular kallikrein) and reverse transcription polymerase chain reaction (RT-PCR) to amplify various genes from normal and malignant prostatic tissues.

Results: hK2 is elevated in the serum of a proportion of cancer patients in comparison to controls and either alone, or in combination with free PSA, can be used to select groups of patients with low or high probability of having cancer. hK2 concentration correlates with other indicators of aggressiveness,

including stage and Gleason score. The kallikrein genes KLK15 and KLK5 are differentially expressed in cancer vs normal paired tissues, the former being overexpressed and the latter underexpressed in cancerous tissues. This expression is correlated with disease stage and Gleason score. A method for measuring hK4 (a hormonally regulated kallikrein, highly expressed in the prostate) in serum has been developed by our group but it has not as yet been used for clinical applications. The newly cloned gene PART-1, which is highly expressed in the prostate and is regulated by steroid hormones, is highly overexpressed in the majority of cancer tissues.

Conclusions: Some of the aforementioned genes may have value as serological or tissue markers for prostate cancer diagnosis and prognosis.