
Application of Ultrasensitive, Third-Generation Prostate Specific Antigen Assays in Breast and Prostate Cancer

Eleftherios Diamandis

■ *Department of Pathology and Laboratory Medicine, Mount Sinai Hospital and*
■ *Department of Laboratory Medicine and Pathobiology, University of Toronto, Canada*

Prostate specific antigen is an established marker of prostatic adenocarcinoma. Recently, a number of investigators and commercial companies have produced immunological PSA assays with high sensitivity (detection limit < 0.01 mg/L). By using these assays, it has been shown that prostate cancer patients post-radical prostatectomy can be diagnosed much earlier than by using conventional techniques. Moreover, the measurement of doubling-time is an indicator of prostate cancer aggressiveness. The same assays may be used in determining which patients have been cured by radical prostatectomy. I present data supporting this notion.

Ultrasensitive PSA assays now have utility in non-

prostatic diseases. For example, PSA measurements in breast tumor homogenates have a prognostic value. Tissue culture systems have been developed with which PSA gene regulation can be studied or used as a screening system for identifying steroid hormone activity of natural or xenobiotic compounds.

PSA analysis in nipple aspirate fluid may be an indicator of breast cancer risk. PSA has also been found in amniotic fluid and breast milk. Serum PSA analysis in women may be an excellent indicator of hyperandrogenic states. PSA subtraction analysis in female serum may have utility for breast cancer diagnosis. In my presentation, I review all of these new applications of ultrasensitive PSA assays.