A New Biomarker for early Prostate Cancer detection (BioRap)

rostate cancer (CaP), an adenocarcinoma of the prostate, is the most common cancer in American males over the age of 55 and the second cause of cancer-related mortality. The current diagnosis of prostate cancer is based on the measurements of serum prostate-specific antigen (PSA) levels. Unfortunately, serum PSA values are not able to distinguish benign prostatic hypertrophy (benign hypertrophy of the prostate gland (BPH)) from malignancy. Moreover, over 16% of all men that develop CaP have normal serum PSA levels with low velocity (the rate of PSA change over time). In addition, a digital rectal examination is not an objective test, and a prostate biopsy is an invasive procedure. Moreover, both examinations are not usually done by a general medical practitioner (GP) during annual medical assessments. Hence, there is a clear need for a simple assay that general medical practitioners can use for identifying high-risk males for further assessment of suspected CaP.

CCL2 is a key chemokine that drives the pathogenesis of prostate cancer (Loberg et al, 2007; Izhak et al 2009). The results of our studies clearly show that more than 80% of men with newly diagnosed CaP, but not those with benign hypertrophy of the prostate gland (BPH) or healthy males, have a markedly elevated serum titer of CCL2 antibodies, and that the development of these antibodies is selective for the malignant stage, even in PSAlow subjects (Izhak et al 2010; Wildbaum, Friedman, Stein and Karin, unpublished data). Therefore, we suggest adding this assay to the existing diagnostic methods will assist the general medical practitioners for giving priority to high-risk CaP candidates for further urological examinations. Moreover, this assay may assist urologists in identifying high-risk candidates for intensive follow-up treatment and management.

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