ROLE OF SOLUBLE PD-1 AND PD-L1 IN PROSTATE CANCER

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The PD-1/PD-L1 axis regulates immune responses, and its dysregulation in cancer allows immune evasion and tumor progression [1]. Membranous PD-L1 is a potential biomarker for cancer, but its biopsy-based measurement is invasive [2]. In contrast, soluble forms of PD-1 and PD-L1, released into the bloodstream, present a non-invasive alternative for biomarker assessment and allows for a more convenient monitoring. Moreover, sPD-1 and sPD-L1 show promise in evaluating the aggressiveness of cancer. The concentrations of these soluble molecules may serve as indicative markers reflecting the tumor
's potential for progression and malignancy [3]. However, despite their potential significance, there is currently limited data available regarding the role of soluble PD-1 and PD L1 in the context of prostate cancer.

This study aims to explore the potential role of soluble PD-1 and PD-L1 as biomarkers for prostate cancer, evaluating their utility in both diagnosis and prognosis. To achieve this, we utilized a control group of 41 healthy male individuals and 88 prostate cancer patients determining their blood plasma concentrations of sPD-1 and sPD-L1 through a sandwich-type ELISA. The immunophenotype of prostate cancer patients, consisting of lymphocytes (different types of T cells, B cells, and natural killer (NK) cells), granulocytes, monocytes, and myeloid-derived suppressor cells (MDSC) was identified using immunostaining and flow cytometry techniques.

Our study findings indicate elevated blood plasma concentrations of sPD-1 and sPD-L1 in prostate cancer patients compared to healthy controls. Notably, we observe a significant correlation between increased sPD-L1 levels and higher Gleason scores. Additionally, there is improved disease-free survival within the patient group characterized by a low sPD-1/sPD-L1 ratio. Furthermore, concentrations of sPD 1 show a weak positive correlation with a higher percentage of immunosupressive granulocytic and monocytic MDSC. These results underscore the potential of sPD-L1 and sPD-1 as a promising prognostic markers in prostate cancer.

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