

A large, high-contrast black and white portrait of an elderly man with a full, white beard and mustache. He is looking slightly to the left of the camera with a serious expression. The background is dark, making his face the central focus.

Scientific bibliography

THYMIDINE KINASE 1 IN PROSTATE CANCER

THYMIDINE KINASE 1

A VALUABLE BIOMARKER IN PROSTATE CANCER

This document is a summary of scientific publications that illustrate the importance of Thymidine Kinase 1 (TK1) as a biomarker in prostate cancer. The application of the AroCell TK 210 ELISA has been successfully used and is described in several of these publications.

Thymidine Kinase 1 (TK1) is a key enzyme in DNA synthesis and its presence in cells is an indication of active DNA synthesis and cell growth. It is released into the extra-cellular fluid during incomplete or deranged cell division. Many studies have shown tissue and serum TK1 to be a biomarker for malignancies and increased cell turnover^{1,2}.

Increased tissue expression of TK1 can be seen in prostate cancer with the intensity of expression correlating with Gleason score ^{3,21}. Prostate TK1 activity is up-regulated in response to androgens^{4,16}, and suppressed by anti-androgen therapy¹⁹. Serum TK1 levels are elevated in men with prostate cancer, and when combined with other biomarkers, it may further increase the diagnostic accuracy¹¹. In a diagnostic study on men with slightly elevated serum PSA, serum TK1 demonstrated a similar diagnostic accuracy to the Prostate Health Index for the identification of prostate cancer¹⁹.

Studies have shown TK1 levels at diagnosis to be indicative of long term survival of patients with prostate cancer. For example, a retrospective study on 330 men followed for 30 years, or until death, found that there was an increased risk of death due to prostate cancer if the baseline TK1 protein concentration was above 0.35 ng/mL²².

Similarly, a study on 43 men with newly diagnosed metastatic prostate cancer who were followed for ten years, or until death, showed that patients with the highest serum TK1 concentrations at baseline (> 0.537 ng/mL) had poorer prognoses than those with lower TK1 concentrations²³.



PUBLICATIONS

Studies utilizing the AroCell TK 210 ELISA method are marked in blue.

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