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研究題目：フコシル化 PSA 測定による高リスク前立腺癌の予測

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学会発表

Development of lectin-antibody ELISA for urinary core-type fucosylated PSA: a novel non-invasive biomarker of prostate cancer.

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論文

A sensitive assay to measure urinary core-type fucosylated PSA demonstrates improved prostate cancer and high grade prostate cancer detection.

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要旨

Fucosylation is one of the most important oligosaccharide protein modifications associated with cancer and inflammation. We have previously reported that core-type fucosylation was dominant in prostate cancer cells, as compared to other types of cancer cells. In this study, we developed a lectin-antibody ELISA for the specific detection of core-type fucosylated PSA (Fuc-PSA) and tested whether Fuc-PSA aids in the detection of high-grade prostate cancer, using urine after digital rectal examination (DRE). A total of 344 urine samples were collected after DRE from men with abnormal serum PSA before prostate biopsy. A lectin-antibody ELISA was developed with anti-PSA antibody and PhoSL lectin that specifically recognized core-type fucosylation.

Urinary Fuc-PSA significantly was lower in men with prostate cancer on biopsy compared to men with negative biopsies ($P = 0.0001$). Urinary Fuc-PSA was also significantly associated with biopsy Gleason grade ($p = 0.0001$). Multivariate analysis showed that low urinary Fuc-PSA was a significant predictor of both prostate cancer and of Gleason Grade Group ≥ 2 . Using the optimal logistic regression model, the area under the receiver-operator characteristic curve (AUC) for the prediction of prostate cancer was 0.67, in contrast to the AUC of serum PSA of 0.51. The sensitivity and specificity of the model at the best cutoff value were 54.1% and 80.9%, respectively. Urinary levels of Fuc-PSA are lower in men with prostate cancer, particularly higher prostate cancer grades. Urinary Fuc-PSA levels could be useful adjuncts to prostate biopsy counseling for men with abnormal serum PSA.