Spotlight

By M.O.

New insight into old foes: kallikreins and prostate cancer

Rabien *et al*.
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The kallikrein gene family encodes serine proteases with diverse biological functions, ranging from the regulation of blood pressure, hormone processing and tissue remodeling. The 15 members of the human kallikrein family are encoded by a gene cluster located on chromosome 19 and are expressed in a wide range of tissues. Aberrant expression of kallikreins has been exploited for early detection and monitoring of diverse cancers, best illustrated in routine measurements of prostate-specific antigen (PSA; also called kallikrein 3) in patients afflicted with prostate cancer.

Rabien and colleagues focus on the youngest kallikrein family member, kallikrein 15. Kallikrein 15 was originally identified as a peptidase involved in the cleavage of pre-PSA and is naturally found in seminal plasma and in the prostate. In previous studies, increased expression of kallikrein 15 was favorably associated with survival in women with breast cancer but served as an unfavorable biomarker in ovarian and prostate cancers.

Using an immunohistochemical approach combined with quantitative RT-PCR the authors examined expression of kallikrein 15 in surgically removed cancerous prostate tissue. They uncovered an interesting dichotomy of kallikrein 15 mRNA and protein levels in prostate adenocarcinomas: while mRNA levels were elevated in tumors, protein levels were reduced as compared to adjacent healthy prostate tissue. Dichotomized kallikrein 15 levels were significantly associated with disease progression (p=0.001) and poor clinical outcome (p=0.037). The authors propose that this unique pattern may serve as an independent prognostic marker of disease recurrence in cancer patients after radical prostatectomy.