
KLK4 is a member of the human kallikrein-related peptidase family of (chymo)trypsin-like serine proteases. The aim of the present study was to generate polyclonal antibodies (pAb) directed against KLK4 for the analysis of KLK4 by immunohistochemistry in human tissues. Recombinantly expressed human mature KLK4 was used for immunization of chickens. pAb 617A is an affinity-purified monospecific pAb fraction reacting with a linear epitope within a flexible surface-exposed loop of KLK4. pAb 617C is the KLK-directed pAb fraction completely depleted from pAb 617A. In healthy adult tissues, KLK4 was immunodetected by both antibody fractions in kidney, liver, and prostate, but not in other organs such as colon and lung. To evaluate protein expression of KLK4 in prostate cancer, samples of tumor tissue plus corresponding tumor-free areas of 44 prostate cancer patients, represented on a tissue microarray, were investigated. Distinct KLK4 immunostaining was observed with both antibodies in cancerous glandular epithelial cells, but not in surrounding stromal cells. KLK4 expression was lower in stage pT3+4 than in pT1+2 tumors, which was highly significant when employing pAb 617A. Thus, our results indicate that KLK4, which is expressed in the healthy prostate, is
upregulated in early-stage but not late-stage prostate cancer.