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9749 DISCOVERY OF A NEW HUMAN KALLIKREIN-LIKE GENE, KKL-
4, AND THE STUDY OF ITS EXPRESSION IN BREAST CANCER. Ning
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The human kallikrein gene family is comprised of genes that have stimulated
potential applications in metastatic breast cancer diagnostics. For the first
time, three novel non-ATG translation start sites of the human kallikrein gene family have been
identified, here, by using the positional cloning and gene knockout approaches, we were able
to identify a novel breast cancer related gene that maps to chromosome 16q12.3-
q14, the locus of the kallikrein gene family. Screening of 6000 microsatellite
tags (STGs) allowed us to establish the exon structure and examine it
gene-specific organization. We initially named this gene KKL-4, for kallikrein-like
clone 3, and later, using the mouse genome database, we confirmed this
clone to be identical to the mouse KKL-4 gene. We have found that KKL-3 was highly
expressed in the breast, prostate, ovary and breast cancer
plasmas and moderately expressed in adipose tissue, placenta, brain, lung,
colon and thyroid. KKL-4 was also found in the breast tissue
samples of premenopausal women. When we analyzed the expression of KKL-4 in
multiple breast cancer cell lines, KKL-4 was found to be downregulated in three out of
four breast cancer cell lines. Finally, utilizing the RT-PCR approach of this clone as a
marker, we observed that KKL-4 was frequently downregulated in paraffin
blocks of breast cancer. Our future studies will attempt to elucidate the biological function of KKL-4 in
breast and other tissues.

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