Kallikrein-related peptidase 7 (KLK7) is a proliferative factor that is aberrantly expressed in human colon cancer.

Abstract:
Emerging evidence indicates that serine proteases of the tissue kallikrein-related peptidases family (KLK) are implicated in tumorigenesis. We recently reported the ectopic expression of KLK4 and KLK14 in colonic cancers and their signaling to control cell proliferation. Human tissue kallikrein-related peptidase 7 (KLK7) is often dysregulated in many cancers; however, its role in colon tumorigenesis has not yet been established. In the present study, we analyzed expression of KLK7 in 15 colon cancer cell lines and in 38 human colonic tumors. In many human colon cancer cells, KLK7 mRNA was observed, which leads to KLK7 protein expression and secretion. Furthermore, KLK7 was detected in human colon adenocarcinomas, but it was absent in normal epithelia. KLK7 overexpression in HT29 colon cancer cells upon stable transfection with a KLK7 expression plasmid resulted in increased cell proliferation. Moreover, subcutaneous inoculation of transfected cells into nude mice led to increased tumor growth that was associated with increased tumor cell proliferation as reflected by a positive Ki-67 staining. Our results demonstrate the aberrant expression of KLK7 in colon cancer cells and tissues and its involvement in cell
proliferation in vitro and in vivo. Thus, KLK7 may represent a potential therapeutic target for human colon tumorigenesis.