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1810 Trypsin-like enzymatic activity of human kallikrein 10.

Liu-Ying Luo, Linda Grass, Antoninus Soosaipillai, Eleftherios P. Diamandis .
Department of Pathology and Laboratory Medicine, Mount Sinai Hospital, Toronto, ON, Canada.

Human kallikrein 10 (hK10) is a member of the human tissue kallikrein family. It is a secreted serine protease which contains 276 amino acids and has a molecular weight of 30 kDa. hK10 has been found to be overexpressed in epithelial ovarian carcinoma and this elevation leads to increased hK10 level in serum of ovarian cancer patients. High levels of hK10 are associated with late stage ovarian cancer. hK10 is predicted to have trypsin-like enzymatic activity. However, this hypothesis has not been experimentally verified. In order to understand the potential roles of hK10 in ovarian cancer progression, we investigated its enzymatic activity. Recombinant hK10 was produced in Chinese Hamster Ovarian (CHO) cells and subsequently purified with ion-exchange chromatography and reversed-phase HPLC. N-terminal sequence of the purified protein showed that hK10 was secreted as a zymogen. Its signal peptide includes amino acids 1 to 33. When incubated with an array of fluorogenic synthetic peptides, we found that this purified recombinant hK10 could cleave peptide bonds after arginine, but not lysine. These experiments demonstrated that although the majority of the hK10 purified from the CHO cell line is in the zymogen form, a small proportion is enzymatically active and that this active enzyme has trypsin-like enzymatic activity.

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