Action of recombinant Bauhinia inhibitors on prostate cancer cell line

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Prostate cancer occurs with high rates of incidence and mortality. Invasion from the primary tumor and metastasis result in poorer prognosis. Diverse classes of protein play a role in the progression of metastasis. Tissue kallikreins, e.g., hK3 (PSA) and integrins are directly related to this neoplasia, as well as in cell adhesion, differentiation and cellular proliferation processes. Compounds that interfere in these processes are targeted for investigation. In this work, using prostate cancer cellular line PC-3, we studied the effect of two recombinant inhibitors of *Bauhinia sp.* seeds, the *Bauhinia bauhinioides* kallikrein inhibitor (rBbKI) and modified rBbKI (rBbKm) in which the signal motif RGD, present in the inhibitor BrTI from *B. rufa,* was inserted. Both rBbKI and $rBbKI_m$ were shown to affect differently PC3 cells viability, being rBbKIm more efficient than rBbKI, with 70% inhibition (50 µM, 72h). rBbKIm affects cell cycle of PC-3, increasing apoptosis and decreasing cell G2 fase (mitosis). In cell adhesion, rBbKIm (25 µM) containing the adhesion motif RGD, inhibited approximately 30% of the PC-3 adhesion on fibronectin, in contrast to rBbKI that promoted 20% cell adhesion. The confocal microscopy analysis showed that both rBbKI and rBbKIm interact with cell membrane. The results indicate that the inhibitors act by different mechanisms, still to be established. Keywords: Prostate, cancer, Bauhinia, kallikrein, inhibitor. Supported by: CAPES, FAPESP, FADA/FAP and MCT/CNPq.