HEPARANASE ISOFORMS QUANTIFICATION IN THE PLASMA

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The fact that heparan sulfate is so widely distributed and evolutionarily conserved is testament to the vital importance of this molecule in cell development and function. Remodelling of extracellular matrix following heparanase cleavage of heparan sulphate results both in liberation of glycosaminoglycan-anchored bioactive molecules and heparan sulphate fragments that modulate growth factor binding to their receptors (Sanderson et al., 2004). Heparanase activity has also been detected in activated immune cells including T and B cells, macrophages, netrophils, mast cells mediating extravasation and traffic to inflammatory sites (Vada and Lider, 2000). The aim of this study was to investigate heparanases isoforms (HPA1 and HPA2) in the plasma patients with different gastrointestinal cancers compared with heparanases expression in the healthy donors plasma. After electrophoresis, the proteins were transferred to Hybond-EC membrane (Amersham Biosciences, Brazil) and developed using primary antibody anti-heparanase-1 (HPA1, C-20 or HPA1 H-80) and anti-HPA-2, C-17, all polyclonal antibodies were diluted 1:500 (Santa Cruz Biotechnology, CA, USA). The secondary antibody, IgG peroxidase HRP-conjugated was diluted 1:1000 (Zymed Laboratories, Invitrogen, CA, USA). Heparanases isoforms were quantified by densitometry (Scion Image) and confirmed by real time RT-PCR. The results showed a significant increased in HPA1 65 kDa, HPA1 50 kDa and HPA2 in the patients plasma compared with healthy plasma ($p < 0.001$). However, there was no significant correlation with heparanases isoforms expression and metastasis, tumor size or tumor type and patient surveillance. The evidences obtained suggest that heparanase plays a fundamental role in sustaining the pathology of malignant diseases and therefore it may provide a potential target for anti-cancer therapy.