

Cathepsin B Activity in Human Serum During the Menstrual Cycle

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Cathepsin B plays an important part in cancer invasion and metastasis. Determination of serum cathepsin B levels is useful to identify patients at a higher risk for progression to cancer. Also, cathepsin B is expressed in human endometrium during both the proliferative and secretory phases of menstrual cycle. In this study we evaluated the relation between estrogen levels and the activity of the cathepsin B in serum from women between the age 18 and 65 who are or are not using hormonal methods of contraception. The activity of cathepsin B was measured spectrofluorometrically, using the fluorogenic substrate Z-FR-MCA at 37°C in 50 mM sodium phosphate buffer, pH 6.3, containing 200 mM NaCl and 2 mM EDTA. Fluorescence intensity was monitored in a microplate reader, with excitation and emission wavelengths set as 365 and 420 nm, respectively. The assay was performed by preincubating the serum samples with the enzyme activator 2 mM DTT for 20 minutes and then adding the irreversible inhibitors E-64 or CA-074. The data shows that cathepsin B was significantly higher in serum of patients under estrogen contraceptive therapy than in controls. Our results show that cathepsin B is an estrogen-regulated enzyme and the levels of this enzyme in serum reflect the normal uterine menstrual cycle. (Supported by CAPES, CNPq and FAPESP). **Key words:** Cathepsin B / Estrogen/ Menstrual Cycle/ Blood Donors/ Serum.