Cystatins in health and disease

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Master (Msc) Thesis, 2004

Abstract

Cystatins are the natural inhibitors of cysteine proteinases. The protein of these cystatins belong to 3 major families which contain several types. (Barrett et al., 1986a) Family 1: e.g., cystatin A (stefin A), human cystatin B (stefin B), human. Family 2: e.g., cystatin C, human, cystatin D, human, cystatin S (SAP-1), human. Family 3: e.g., kininogen human, rat, bovine, H kininogen human, rat, bovine. Regulatory mechanism of cystatins as natural inhibitors on cysteine proteinases furnishes the basis for their control in normal conditions. There is growing interest to study the level of these cystatins in normal and diseased subject due to the fact that uncontrolled proteolysis can lead to irreversible damage as in chronic inflammations or tumors metastasis. The main goal in this study was to identify and characterize human cystatins, to elucidate their biological functions and clarify their mechanisms for diagnosis, prognosis, and therapeutic use. Future studies in this subject should focus on the quantification of cystatins or cystatin activity in tissue and body fluid to demonstrate the balance between the inhibitors and cysteine proteinase or to investigate the cystatins as possible markers for diseases.

Keywords

Cystatins, cysteine proteinase inhibitors,