Four promoters direct expression of the calpastatin gene

Calpastatin is a specific endogenous protein inhibitor of the ubiquitous calcium dependent proteinases mu- and m-calpain. The calpain-calpastatin system is involved in various physiological and pathological processes. In the present study, we determined the bovine calpastatin gene structure and demonstrated that four promoters direct its expression. The gene harbours 35 exons spanning at least 130kb on genomic DNA. Its structure is similar to that of mouse, pig, and human gene. Transient transfection assays in both C2C12 and COS7 cell lines demonstrated that the putative promoter regions situated 5’ to exon 1xa, 1xb, 1u, and 14t were functional. We also established that the region situated upstream exon 14t is subjected to a tissue specific regulation. The implication of numerous high-scoring cis acting transcriptional motifs which are present in these regions will need to be determined. The existence of four promoters suggests differential expression patterns which must have a physiological significance.

PMID : 15820218 [PubMed - indexed for MEDLINE]