**FUNCTIONAL ACTIVITY OF A NOVEL GCC-ELEMENT FOUND IN HOMOLOGOUS REGULATORY REGIONS OF SOME HUMAN GENES.**

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The homologous GC-rich regions were found in regulatory areas of some mammalian (including human)genes by computer-assisted analysis. The core components of these regions are triplet repeats (GCC)n (n=3-30), which may be considered as a putative cis-acting element (GCC-element). On studying of the murine ribosomal protein L32 (rpL32) promoter that contains GC(GCC)4 sequence, we have revealed this GCC-element can bind human (HeLa, fibroblasts) and murine (NIH 3T3) nuclear proteins in gel-retardation experiments. Dependence of these interactions on zinc ions was also showed. The molecular weight of GCC-element binding proteins from HeLa and human embryo cells determined by South-Western assay were 18-20 kDa and 28-31 kDa respectively. The GCC-element binding proteins were purified by DNA-affinity chromatography from 4 - 5 week human embryos and partially characterized.

Cat-assay (NIH 3T3 cells) demonstrated that GCC-element acts in the rpL32 promoter as a positive cis-acting element. However, transfer of this element to minimal HSV-1 timidine kinase (TK) promoter leads to its repression. The nearest regulatory sequence to GCC-element is well known Egr-element (1 bp difference). However, Egr1 transcription factor did not affect activity of rpL32 promoter in co-transfection experiments that agrees with incapacity of Egr family transcription factors to bind rpL32 promoter in vitro. At the same time, Egr1 partially abolished GCC-element-dependent repression of TK promoter. Thus, we are describing here the novel cis-acting GC-rich element, which may be important for coordinated regulation of expression of some mammalian (human) genes.