

INTRONS OF HUMAN *RHOV* GENE CONTAIN GENETIC ELEMENT
WITH ENHANCER ACTIVITY

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RHOV gene (ras homolog gene family, member V) consists of three exons and two introns and encodes atypical GTPase RhoV/Chp from the family of Rho GTPases. Overexpression of *RHOV* was shown in human non-small cell lung cancer. Moreover, prognostic «gene signature» for human lung adenocarcinoma includes *RHOV* gene. In lower vertebrates *RHOV* transcription is activated by Wnt-signaling pathway and *RHOV* induction upon activation of a Notch-signaling pathway was demonstrated in mammalian cells. However, molecular mechanisms of regulation of *RHOV* gene transcription are unknown. Miscellaneous regulatory elements, including enhancers, are found in introns of mammalian genes. In order to identify the regulatory elements in introns of *RHOV* gene we cloned the fragment of human *RHOV* gene containing first intron, second exon and second intron. We have found increase in the activity of the luciferase reporter gene driven by herpes simplex virus thymidine kinase promoter when intron-containing *RHOV* gene fragment was placed in the 5'-region relative to the promoter or in the 3'-region relative to the polyadenylation signal, compared to plasmid constructs without *RHOV* gene fragment. These data suggest that there is an enhancer element in the region of *RHOV* gene that includes first intron, second exon and second intron. Analysis of nucleotide sequence revealed the presence of CTCF and RBPJ transcription factors binding sites in introns of *RHOV* gene. Thus, we propose that *RHOV* gene might be regulated by complex interaction between regulatory elements and associated with them transcription factors located in the promoter and introns.

Key words: *RHOV* gene, RhoV GTPase, enhancer, luciferase analysis
