



## 14-3-3 Gene expression in regenerating rat liver after 2/3 partial hepatectomy

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**ABSTRACT.** 14-3-3 Proteins are a ubiquitous family of molecules that participate in protein kinase signaling pathways in all eukaryotic cells. Functioning as phosphoserine/phosphothreonine-binding modules, 14-3-3 proteins participate in the phosphorylation-dependent protein-protein interactions that control progression through the cell cycle, initiation and maintenance of DNA damage checkpoints, activation of MAP kinases, prevention of apoptosis, and coordination of integrin signaling and cytoskeletal dynamics. During liver regeneration after partial hepatectomy, normally quiescent hepatocytes undergo hypertrophy and proliferation to restore the liver mass. In this study, we investigated the expression patterns of 14-3-3 mRNAs in regenerating rat liver after 2/3 partial hepatectomy using real-time quantitative reverse transcription-polymerase chain reaction. All mRNAs of the 14-3-3 7 isotypes were expressed at 10 time points. Upregulation of 14-3-3 $\xi$  mRNA expression and downregulation of 14-3-3 $\sigma$  mRNA expression from 0 to 6 h may play important roles in the entry into S-phase. Downregulation of 14-3-3 $\beta$ ,  $\gamma$ ,  $\sigma$ ,  $\eta$ , and  $\tau$  mRNA expression from 24 to 30 h, when compared to 0 h, was closely related to entry into mitosis.

**Key words:** 14-3-3 mRNA; Liver regeneration; Reverse transcription-polymerase chain reaction