



Branches of NF- κ B signaling pathway regulate hepatocyte proliferation in rat liver regeneration

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Genet. Mol. Res. 14 (3): 7643-7654 (2015)

Received November 12, 2014

Accepted May 8, 2015

Published July 13, 2015

DOI <http://dx.doi.org/10.4238/2015.July.13.9>

ABSTRACT. Previous studies have demonstrated that the nuclear factor κ B (NF- κ B) pathway is involved in promoting cell proliferation. To further explore the regulatory branches and their sequence in the NF- κ B pathway in the promotion of hepatocyte proliferation at the transcriptional level during rat liver regeneration, Rat Genome 230 2.0 array was used to detect the expression changes of the isolated hepatocytes. We found that many genes involved in the NF- κ B pathway (including 73 known genes and 19 homologous genes) and cell proliferation (including 484 genes and 104 homologous genes) were associated with liver regeneration. Expression profile function (E_p) was used to analyze the biological processes. It was revealed that the NF- κ B pathway promoted hepatocyte proliferation through three branches. Several methods of integrated statistics were applied to extract and screen key genes in liver regeneration, and it indicated that eight genes

may play a vital role in rat liver regeneration. To confirm the above predicted results, *Ccnd1*, *Jun* and *Myc* were analyzed using qRT-PCR, and the results were generally consistent with that of microarray data. It is concluded that 3 branches and 8 key genes involved in the NF- κ B pathway regulate hepatocyte proliferation during rat liver regeneration.

Key words: Rat liver regeneration; NF- κ B signaling pathway; Key genes; Hepatocyte proliferation; Gene expression profile