GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Resistance to lipopolysaccharide-induced endotoxic shock in heterozygous Zfp191 gene-knockout mice

R.L. Sun[1,4], H.Y. Wang[2,3], X.Y. Yang[2,3], Z.J. Sheng[3], L.M. Li[2], L. Wang[2], Z.G. Wang[2] and J. Fei[2,3]

[1]Laboratory of Molecular Cell Biology,
Institute of Biochemistry and Cell Biology,
Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences,
Shanghai, China
[2]Shanghai Research Center for Model Organisms, Pu Dong, Shanghai, China
[3]School of Life Science and Technology, Tongji University, Shanghai, China
[4]Graduate School of Chinese Academy of Sciences, Beijing, China

Corresponding author. J. Fei
E-mail: jfei@tongji.edu.cn

Genet. Mol. Res. 10 (4): 3712-3721 (2011)
Received May 18, 2011
Accepted October 10, 2011
Published December 8, 2011
DOI http://dx.doi.org/10.4238/2011.December.8.6

ABSTRACT. Zinc finger protein 191, ZNF24 and Zfp191 in both humans and mice belong to the SCAN domain subfamily of Krüppel-like zinc finger transcription factors. Previous studies have suggested that Zfp191 is a pleiotropic factor involved in embryonic development, hematopoiesis and tumorigenesis. However, little is known about its target genes or its role in other physiological and pathological processes. We have identified the putative target genes of Zfp191, using an *in silico* genome-wide scan. Three hundred and fifty-five putative target genes were identified, which were enriched into the pathways of immune response according to the pathway analysis. These targets indicated that Zfp191 may function as a mediator of the immune response. This was verified in mice heterozygous for Zfp191 ($Zfp191^{+/-}$) using a lipopolysaccharide (LPS)-induced endotoxic shock model. After LPS injection, $Zfp191^{+/-}$ mice produced significantly less IL-1β and IL-6 compared to wild-type mice and were resistant to LPS-induced endotoxic

shock. The loss of Zfp191 may suppress systemic inflammation by reducing these cytokine levels during LPS-induced endotoxic shock.

Key words: IL-1β; IL-6; LPS; Zinc finger protein 191

