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Results: The DM group exhibited hepatic fibrosis with remarkable liver damage and inflammation reaction by the activation of the NF- $\kappa$ B pathway. Treatment with fasudil or captopril suppressed not only the inflammation reaction but also the accumulation of the extracellular matrix due to the downregulation of TGF- $\beta$ 1 and MMP-9/TIMP-1, which induces the amelioration of the liver fibrosis with diabetes.

Cited by: 5

Author: Y Xie, T Song, M Huo, Y Zhang, Y-Y Zhang, ...

Publish Year: 2018

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Here, using Fasudil carried liposomes, we specifically inhibited the ROCK-II expression in Kupffer cells and blood monocytes. Through this macrophage/monocyte specific treatment of Fasudil, we successfully protected the liver from IRI by shifting Kupffer cells/monocytes from M1/classical to M2/patrolling phenotype in the liver and peripheral blood.

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Fasudil alleviated liver fibrosis in diabetic rats at least in part by inhibiting TGF $\beta$ 1/CTGF and  $\alpha$ -SMA expression through suppression of HSCs activation. Inhibition of the RhoA/ROCK pathway may be a novel target for diabetic liver fibrosis in NASH. Acknowledgements: The authors thank Zhang Kaixia, Zhao Chunfang for their technical assistance. REFERENCES

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Cited by: 138 Author: Bin Gao, Svetlana Radaeva

Publish Year: 2013

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Nov 15, 2005 - Treatment With Interferon  $\gamma$  Activates Natural Killer Cells in the Liver and Enhances the Cytotoxicity of Liver Mononuclear Cells Against Activated Hepatic Stellate Cells The above-mentioned...

Cited by: 558 Author: Svetlana Radaeva, Rui Sun, Barbara Jurgens...

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## Natural Killer Cells Ameliorate Liver Fibrosis by Killing ...

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It is obvious that liver NK cells via TRAIL, and/or NKGD2 signaling have a major role in the removal of activated hepatic stellate cells in fibrotic liver or liver cancerous cells as reported in a ...

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Author: Ling Wang, Yinghao Wang, Jun Quan Publish Year: 2020

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<https://journals.physiology.org/doi/10.1152/ajpgi.00471.2012>

AKF-PD attenuated the progression of hepatic fibrosis by suppressing HSCs proliferation and activation via the ERK/MAPK and PI3K/Akt signaling pathways. AKF-PD may be used as a potential novel...

## Mechanisms of hepatic stellate cell activation | Nature ...

<https://www.nature.com/articles/nrgastro.2017.38>

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Hepatic fibrosis is a dynamic process characterized by the net accumulation of extracellular matrix resulting from chronic liver injury of any aetiology, including viral infection, alcoholic liver disease and NAFLD. Activation of hepatic stellate cells (HSCs) transdifferentiation of quiescent, vitamin-A-storing cells into proliferative, fibrogenic myofibroblasts is now well established as a central driver of fibrosis in experimental and human liver injury. Yet, the continued discovery of novel pathways and mediators, incl...

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## Treatment with 4-Methylpyrazole Modulated Stellate Cells ...

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0127946>

May 29, 2015 - Interestingly, our previous study demonstrated that ADH3 (ADH family class III) is a specific enzyme for retinol metabolism that functions not only in HSCs but also in NK cells and that...

## Natural Killer Cells and Liver Fibrosis. - Abstract ...

<https://www.europepmc.org/articles/PMC4731511>


Jan 29, 2016 - NK cell cytotoxicity can contribute to liver damage in different forms of liver disease. However, NK cells can limit liver fibrosis by killing hepatic stellate cell-derived myofibroblasts, which pla...

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**Basic Study**

**Fasudil prevents liver fibrosis *via* activating natural killer cells and suppressing hepatic stellate cells**

Qiu-ju Han *et al.* Fasudil treatment inhibits liver injury and liver fibrosis

Qiu-Ju Han, Yong-Liang Mu, Hua-Jun Zhao, Rong-Rong Zhao, Quan-Juan Guo, Yu-Hang Su, Jian Zhang

**Abstract**

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Fasudil, as a RhoA kinase inhibitor, is used to improve brain microcirculation and promote nerve regeneration clinically. Increasing evidence show Rho-kinase inhibition

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