

Metformin Regulates Inflammation and Fibrosis in DKD Through th



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<https://onlinelibrary.wiley.com/doi/full/10.1111/apha.13349>

Jul 24, 2019 · A recent study revealed that inhibition of apoptosis signal-regulating kinase 1 (ASK1), which induces apoptotic, fibrotic and **inflammatory** signalling in states of oxidative stress, reduces **inflammation and fibrosis** and prevents the reduction of the glomerular filtration rate in rodent models of **DKD**. 55 This supports the hypothesis of ...

Cited by: 2**Author:** Sanna Lehtonen**Publish Year:** 2020

Metformin prevents renal interstitial fibrosis in mice ...

https://www.researchgate.net/publication/278040565_Metformin_prevents_renal...

This study was conducted to determine **metformin**, a widely prescribed drug for type 2 diabetes, would **regulate inflammation through** down-regulation of ...

Kidney function decline in metformin versus sulfonylurea ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4887572>

The anti-**inflammatory** and antioxidant effects of **metformin** or the effect on the AMPK pathway may be responsible for these between drug differences. Overall, our findings support the current consensus statement by the American Diabetes Association and the European Association recommending **metformin** as first line therapy.

Cited by: 20**Author:** Adriana M. Hung, Christianne L. Roumie...**Publish Year:** 2013

MicroRNA as novel biomarkers and therapeutic targets in ...

<https://faseb.onlinelibrary.wiley.com/doi/10.1096/fba.2018-00064>

Mar 26, 2019 · Augmented **inflammation** is a hallmark of diabetes, 81 and this proinflammatory state plays a critical role in the development and progression of **DKD**. 82, 83 **Inflammatory** factors such as infiltration of macrophage and **inflammatory** cytokines and chemokines (MCP-1, IL-6, TNF- α , PAI-1, CXCR4 etc) can activate myofibroblasts at injury sites ...

Name of Journal: *World Journal of Diabetes*

Manuscript NO: 58148

Manuscript Type: ORIGINAL ARTICLE

Basic Study

Metformin regulates inflammation and fibrosis in diabetic kidney disease through the TNC/TLR4/NF- κ B/mir-155-5p inflammatory loop

Yang Zhou, Xiao-Yu Ma, Jin-Yu Han, Min Yang, Chuan Lv, Ying Shao, Yi-Li Wang, Jia-Yi Kang, Qiu-Yue Wang

Abstract

BACKGROUND

+ADw-html+AD4APA-p+AD4-type 2 diabetes mellitus (T2DM) is significantly increasing worldwide, and the incidence of its complications is also on the rise. One of

the main complications of T2DM is diabetic kidney disease (DKD). The glomerular

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Frontiers | Metformin and Its Benefits for Various ...

<https://www.frontiersin.org/articles/10.3389/fendo.2020.00191> ▾

Apr 16, 2020 · **Metformin** is a widely used biguanide drug due to its safety and low cost. It has been used for over 60 years to treat type 2 diabetes at the early stages because of its outstanding ability to decrease plasma glucose levels. Over time, different uses of **metformin** were discovered, and the benefits of **metformin** for various diseases and even aging were verified.

Cited by: 1

Author: Ziquan Lv, Yajie Guo

Publish Year: 2020

Renal Inflammation and Fibrosis: A Double-edged Sword ...

<https://journals.sagepub.com/doi/full/10.1369/0022155419852932>

May 22, 2019 · Complement is associated with both antibody-mediated and non-antibody-mediated **kidney** diseases. 63 Recently, Thorenz demonstrated that complement 5a receptor 2 (C5aR2)-deficient mice demonstrated protection from **inflammatory** tissue damage and **fibrosis** after IR-AKI. 49 Furthermore, cyclosporine nephrotoxicity has been associated with complement ...

Cited by: 10

Author: Laurence M Black, Jeremie M Lever, Anupa...

Publish Year: 2019

Tubulointerstitial disease in diabetic nephropathy

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3968088>

Role of tubule in **diabetic** nephropathy. While **diabetic** glomerulopathy is present in the early stages of **diabetic** nephropathy, 24,25 tubulointerstitial **fibrosis** is typical only of advanced **disease**. This often heralds the onset of progression towards ESRD, 26,27 after which the **diabetic** milieu, and the prolonged interaction of albuminuria (and other factors in the glomerular filtrate) with the ...

Cited by: 23

Author: Giancarlo Tonolo, Sara Cherchi

Publish Year: 2014

The Role of the Anti-Inflammatory Cytokine Interleukin-10 ...

<https://www.liebertpub.com/doi/10.1089/wound.2019.1032>

Feb 07, 2020 · Gotoh K, Inoue M, Masaki T, et al. Obesity-related chronic **kidney disease** is associated with spleen-derived IL-10. Nephrol Dial Transplant 2013;28:1120–1130. Crossref, Medline, Google Scholar; 91. Mu W, Ouyang X, Agarwal A, et al. IL-10 suppresses chemokines, **inflammation**, and **fibrosis** in a model of chronic renal **disease**.

Cited by: 5

Author: Emily H Steen, Emily H Steen, Xinyi Wang, S...

Publish Year: 2020

Accelerated Kidney Aging in Diabetes Mellitus

<https://www.hindawi.com/journals/omcl/2020/1234059> ▾

Metformin regulates inflammation and fibrosis in diabetic kidney disease



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Apr 16, 2020 · **Metformin** is a widely used biguanide drug due to its safety and low cost. It has been used for over 60 years to treat type 2 diabetes at the early stages because of its outstanding ability to decrease plasma glucose levels. Over time, different uses of **metformin** were discovered, and the benefits of **metformin** for various diseases and even aging were verified.

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Publish Year: 2020

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<https://onlinelibrary.wiley.com/doi/10.1111/apha.13349>

The other research line to pursue is the identification of SHIP2 inhibitors more potent than **metformin**, especially in terms of better inhibition of SHIP2 in podocytes, followed by defining whether these molecules provide better renoprotection than **metformin in diabetic** animal models with **kidney disease**.