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Letter to the editor

Inhibition of HMGB1 ameliorates cardiac fibrosis through regulation of endothelial-to-mesenchymal transition

Ning Zhang [a,*], Wen-Ying Wei [b], Yan Li [a]

[a] Department of Cardiology, The Affiliated Hospital of Qingdao University, Qingdao, China
[b] Department of Cardiology, Renmin Hospital of Wuhan University, Wuhan, China

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Dear Editor,

We have recently read the article by Ri-Na Wu [1] concerning "Targeting HMGB1 ameliorates cardiac fibrosis through restoring TLR2-mediated autophagy suppression in myocardial fibroblasts". They found that inhibition of HMGB1 could attenuate cardiac fibrosis via enhancing autophagy in cardiac fibroblasts (CFs), suggesting that inhibition of HMGB1 may be a promising treatment for myocardial fibrosis.

In this paper, toll-like receptor 2 deficiency mice alleviated interstitial fibrosis via retarding HMGB1 expression in cardiac remodeling stimulated by isoproterenol, as evidenced by the decreased expression of fibrotic markers: collagens I and α-smooth muscle actin (α-SMA) in CFs. Based on our previous study, we hypothesized that endothelial-to-mesenchymal transition (EndoMT) also promotes cardiac fibrosis since HMGB1 increases in cardiac remodeling. First, in response to fibrotic stimuli, endothelial cell gain a fibroblast-like phenotype and acquire mesenchymal or myofibroblastic markers, such as α-SMA and secretion of collagen I, a process that could be important in fibrotic development [2]. Secondly, HMGB1, a nuclear protein, is also expressed in endothelial cells. Moreover, HMGB1 retarded the expression of EndoMT markers, ZO-1 and VE-cadherin, in human pulmonary microvascular endothelial cell [3]. Additionally, extensive evidence suggested that elevated HMGB1 in serum is positively associated with heart failure [4]. We supposed fibrotic stimuli will increases HMGB1 expression, leading to enhanced EndoMT and aggravation of myocardial fibrosis. Collectively, Inhibition of HMGB1 may ameliorate cardiac fibrosis through retarding EndoMT.

Conflict of interest

The authors report no relationships that could be construed as a conflict of interest.

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* Corresponding author at: Department of Cardiology, Affiliated Hospital of Medical College, Qingdao University, Jiangsu Road 16, Qingdao, China.
E-mail address: ningzhang@whu.edu.cn (N. Zhang).

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