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Antioxidant action of hypoxic conditioned media from adiposederived stem cells in the hepatic injury of expressing higher reactive oxygen species

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Introduction : Almost all liver diseases are known to be accompanied by increased levels of ROS, regardless of the cause of the liver disorder. However, little is known about the role of hypoxic-conditioned media (HCM) in the view of pro-oxidative/antioxidative balance.

Methods : Normoxic-conditioned media (NCM) and HCM were obtained after culturing ASCs in 20% O2 or 1%O2 for 24 hours, respectively. Their effects on the expression of various markers reflecting prooxidative/antioxidative balance were investigated in both in vitro (thioacetamide-treated AML12 cells) and in vivo (partially hepatectomized mice) models of liver injury, respectively.

Results : HCM treatment induced the higher expression of antioxidant enzymes, such as SOD, GPx, and catalase than did NCM in the in vitro model of liver injury. We also found that HCM increased the expression of NRF2. The in vivo models of liver injury consistently validated the phenomenon of upregulated expression of antioxidant enzymes by HCM.

Conclusions : We thus could conclude that HCM provides protection against ROS-related toxicity by increasing the expression of antioxidant enzymes, in part by releasing NRF2 in the injured liver.

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