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Molecular hydrogen regulates the expression of miR-9, miR-21 and miR-199 in LPS-activated retinal microglia cells

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Abstract

Aim: To explore the potential mechanism of molecular hydrogen in the regulation of miRNA expression and signal-modulating activities.

Methods: Retinal microglia cells were activated by Lipopolysaccharides (LPS) and then treated with hydrogen-saturated medium or normal medium without hydrogen. qRT-PCR was used to detect the expression difference in miR-9, miR-21 and miR-199 between these two groups. Moreover, the expression of LPS-induced signaling proteins, including Myd88, IKK- β , NF- κ B, and PDCD4, were detected by Western blotting.

Results: The results demonstrated a marked down-regulation of miR-9 and miR-21 and up-regulation of miR-199 by hydrogen treatment; the expression of Myd88 and IKK- β was decreased after hydrogen treatment, whereas PDCD4 was increased, and there was no significant change in NF- κ B expression.

Conclusion: The results in the present study indicate that miR-9, miR-199 and miR-21 play an important role in the anti-inflammatory regulation of LPS-activated microglia cells by molecular hydrogen, which will help to explain the protective mechanism of molecular hydrogen against inflammatory injury.

Keywords: Lipopolysaccharides; Toll-like receptor 4; hydrogen; miR-199; miR-21; miR-9.

Figures

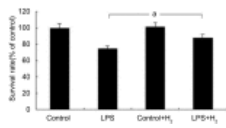


Figure 1. Hydrogen influenced the survival rate...

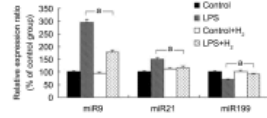


Figure 2. Regulation of the expression of...

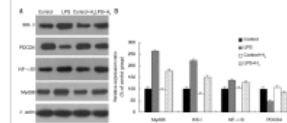


Figure 3. Regulation of the expression of...

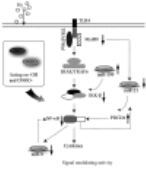


Figure 4. Regulation of the LPS-activated inflammatory...

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