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Protective effects of naringin against gp120-induced injury mediated by $P2X_7$ receptors in BV2 microglial cells

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ABSTRACT. This study was aimed at exploring the effects of $P2X_7$ receptors on gp120-induced injury and naringin's protective effects against gp120-induced injury in BV2 microglia. BV2 microglia injury model was established by gp120 treatment and MTS assay was used to verify whether naringin has a cell-protective effect against gp120-induced injury. Changes in $P2X_7$ receptor expression were assayed using RT-PCR, qPCR, and western blot. Results showed that the ODs of the Ctrl, gp120, gp120+naringin, and gp120+BBG groups were 0.91 ± 0.10, 0.71 ± 0.09, 0.83 ± 0.10, and 0.83 ± 0.10, respectively. Compared to the control group, the gp120 group showed a significantly decreased cell survival rate. Cell survival rates of the gp120+naringin group increased significantly compared to those of the gp120 group, while no difference was observed when compared to the gp120+BBG group. The relative $P2X_7$ mRNA expression levels

in the Ctrl, gp120, gp120+naringin, and gp120+BBG groups were 0.73 ± 0.06, 1.05 ± 0.06, 0.78 ± 0.05, and 0.81 ± 0.04, respectively. The corresponding $P2X_7$ protein expression levels were 0.46 ± 0.04, 0.79 ± 0.04, 0.38 ± 0.07, and 0.42 ± 0.06. $P2X_7$ mRNA and protein expression in the gp120 group increased significantly compared to those in the control group, and declined in the gp120+naringin group compared to those in the gp120 group. Therefore, $P2X_7$ receptors might be involved in gp120-induced injury in BV2 microglia, and naringin might play a protective role by inhibiting the up-regulated expression of $P2X_7$ receptors.

Key words: AIDS-dementia complex; BV2 microglial cells; Naringin; Gp120; $P2X_7$ receptor

