# Inhibition of PDGF-BB-Induced MAP Kinase ERK1/2 Activation in Rat Aorta Vascular Smooth Muscle Cells by NQ12

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Several 1,4-naphthoquinone derivatives have been reported to possess many pharmacological effects such as anti-viral, anti-fungal, anti-cancer and anti-platelet activities. We have reported that 2-chloro-3-[4-(ethylcarboxy)-phenyl]-amino-1,4-naphthoquinone(NQ12) had potent inhibitory effect on the platelet aggregation in vitro and thrombosis in vivo. However, little has been known about functional role vascular smooth muscle cells(VSMCs).

In this study, we examined a possible antiproliferative effect of NQ12 on rat aortic vascular smooth muscle cells(VSMCs). NQ12(1-5 uM) significantly inhibited the PDGF-BB-induced proliferation in a dose-dependent manner on rat aortic VSMCs. We also examined the intracellular signaling effect of NQ12 on the PDGF-BB-induced activation of mitogen-activated protein kinase(ERK1/2) by western blotting in cultured rat VSMCs. Pretreatment of rat VSMCs with NQ12 resulted in a significant inhibition of the PDGF-BB-induced ERK1/2. These results suggest that the antiproliferative effects of NQ12 may be exerted by the inhibition of the PDGF-BB-induced ERK1/2, which can contribute to prevent atherosclerosis by inhibiting VSMCs proliferation.