BKCa channel currents and BKCa peak current density in aortic VSMC increased significantly as the time of exposure to cold went until the 6th week exposure to cold. Furthermore, the expression of L-type Cav1.2 channelα1C subunit mRNA in the cold-treated rats were higher than those in the control rats.

Conclusions Cold stress increased expression of L-type Cav1.2 channelα1C subunit mRNA, indicate that cytoplasmic Ca²⁺ concentration increased with cold-treated extended at 6 weeks in the beginning, resulting in increasing blood pressure. BKCa channel currents increased in this progress as the negative-feedback regulators of vascular tone. Our results indicated that activation of BKCa channel could reduce blood pressure (7th and 8th week) in hypertensive subjects.