

**The effect of Diallyl Trisulfide on Nrf2 Activation in H9c2 Cardiomyoblast cells
Exposed to High Glucose**

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Abstract

Exposure to sustained high glucose induces the excessive production of reactive oxygen species (ROS) in cardiomyocytes that may contribute to the development of cardiomyopathy in diabetes. Nrf2, is a redox-sensing transcription factor, controls the antioxidant genes and phase II detoxifying enzymes up-regulation in response to oxidative stress and electrophiles. Garlic has been noted throughout recorded history, including protection against cardiovascular disease by reducing oxidative stress. Our studies investigated whether diallyl trisulfide (DATS) inhibit ROS production via Nrf2/ARE regulated genes activation in H9c2 cardiomyoblast cell. Treatment of H9c2 cells with high glucose (33mM) resulted in an increase in the intracellular level of ROS and caspase-3 activity, but DATS (10 μ M) efficiently decreased generation of ROS and caspase-3 expression. We also demonstrated that DATS significantly increased Nrf2 stability and translocated to nucleus, leading Nrf2/ARE transactivation activity and upregulated its downstream genes HO-1 expression. Our results indicate that the role of DATS protects H9c2 cells from HG-induced apoptosis is partially mediated through activating Nrf2/ARE and its downstream defensive signalings.