**IMPLICATION OF MIR-1 AND MIR-144 IN INTRALIPID-INDUCED CARDIOPROTECTION AGAINST ISCHEMIA/REPERFUSION INJURY**

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*Objective*: The objective of this study is to investigate the role of miRNA-1 (miR-1) and MiR-144 in intralipid-induced cardioprotection against ischemia/reperfusion (I/R) injury.

*Background*: We have recently reported that intralipid protects the heart against ischemia/reperfusion injury in male rodents. Intralipid reduced the infarct size in in-vivo model of I/R injury by ~70% and significantly increased heart functional recovery after an ischemic insult in isolated Langendorff perfused hearts. However, the underlying molecular mechanisms involved in cardioprotection offered by intralipid are not well understood. MicroRNA (miRNA) has been implicated as a regulatory molecule in many cardiovascular diseases, including myocardial I/R injury.

*Methods and Results*: The left coronary artery was occluded for 30 minutes followed by 3 hr of reperfusion in male rats. One single IV bolus of PBS (CTRL) or intralipid (20%, 5ml/kg body weight)) was administered 5 min before reperfusion. Total RNA enriched in miRNAs was extracted only from the LV of the in-vivo hearts using miRVana RNA extraction kit. P<0.05 was considered statistically significant. Values are expressed as mean± SE. Our data shows that the expression of miR-1 was significantly upregulated in the hearts subjected to in-vivo I/R injury which received one bolus of intralipid compared to control hearts (2.23±0.46 in intralipid group vs. 1.25±0.2 in CTRL, p<0.05). Expression of miR-144 was also upregulated in intralipid group compared to control in hearts subjected to I/R injury (1.67±0.2 in intralipid group vs. 0.87±0.07 in CTRL, p<0.05). Our data suggests that intralipid may exert its cardioprotective action by up-regulating miR-1 and MiR-144 in the heart.

*Conclusions*: Intralipid protects the heart against I/R injury at least in part by inducing miR-1 and miR-144.