encoding soluble epoxide hydrolase (sEH), attenuated the development of hyperglycemia in response to the pancreatic toxin, streptozotocin. Immunoblots of five week old Akita heart homogenates showed a 30% increase in expression of sEH (P<0.01). By twelve weeks, cardiac sEH increased 145% +/- 20% compared to control littersmates (P<0.001) but no differences were found in hearts from 3 or 4 week old mice. qPCR results suggest that these changes are driven largely by transcriptional regulation with no differences in EPHX2 gene expression at 3 and 4 weeks and a 50% and 100% increase at 5 and 12 weeks respectively. In addition, immunoblots indicate an approximate 100% increase in sEH in E9 heart tissue of 12 week old Akita mice (P<0.01). Our results suggest that an increase in sEH is a key factor in the development of diabetic cardiomyopathy. Furthermore, the increased presence of this protein in multiple tissues suggests that it may be useful as a diagnostic target.

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Dyscholesterolemia Alters L-Type Current Which Protects against Ischemia-Induced Ventricular Tachycardia and Ventricular Fibrillation
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Background: Hypercholesterolemia is associated with alteration of the lipid composition of the sarcolemma which may cause augmentation of the L-type calcium current (ICaL) and appears to be protective against ventricular fibrillation in patients with myocardial infarction.

Hypothesis: Hypercholesterolemia increases ICaL, resulting in action potential (AP) prolongation which protects against ischemia induced arrhythmias.

Methods: ECG was measured in LDL-receptor knockout (LDLr-/-) mice with elevated LDL cholesterol and wild type mice (WT). AP, ICaL and calcium handling were determined in left ventricular myocytes. In perfused hearts the presence of arrhythmias.

Results: Cholesterol concentration in left ventricular myocytes was higher in LDLr-/- mice than WT (34.4 +/- 2 vs 25.5 +/- 0.4 mol/g protein) resulting in AP and QTc prolongation which protects against ischemia induced arrhythmias.

Conclusions: Hypercholesterolemia protects against the occurrence of re-entrant arrhythmias during myocardial ischemia by QTc and AP prolongation due to increased ICaL.