Supplemental Figure Legends

Figure S1. Effect of primary rat cardiomyocytes transfection on CYP2J2 expression and epoxygenase activity. S1A) Representative images obtained by GFP fluorescence microscopy showing that approximately 50-60 percent of cardiomyocytes were positive for green fluorescence (X200). S1B) Western blot of CYP2J2 expression in cardiomyocytes and relative density of CYP2J2 band relative to β-actin, *p<0.01 vs. control; $^{\#}p$<0.05 vs. rAAV-GFP. S1C) 14,15-DHET levels in primary rat cardiomyocytes (*p<0.05 vs. control cells, #p<0.05 vs. cells transfected with rAAV-GFP).

Figure S2. Effect of CYP2J2 overexpression and exogenous EET treatment on apoptosis of primary neonatal rat cardiomycytes. S2A) Exogenous administration of EETs decreases apoptosis, while apoptosis is increased by PPOH treatment. Representative flow cytometry scatterplots are shown. S2B) Apoptosis of primary neonatal rat cardiomyocytes induced by TNF-α is decreased by rAAV-CYP2J2 and increased by PPOH treatment. Representative flow cytometry scatterplots are shown.

Figure S3. Effect of H9C2 cell transfection on CYP2J2 expression and epoxygenase activity. S3A) Representative images obtained by GFP fluorescence microscopy showing that approximately 20-25 percent of cardiomyocytes were positive for green fluorescence (X200). S3B) Western blot of CYP2J2 expression in cardiomyocytes and relative density of CYP2J2 band relative to β-actin, *p<0.01 vs. control; # p<0.05 vs. pcDNA3.1/GFP. S3C) 14,15-DHET levels in H9C2 cells (*p<0.05 vs. control cells, $^{\#}p$<0.05 vs. cells transfected with pcDNA3.1/GFP).

Figure S4. Effect of CYP2J2 overexpression and exogenous EET treatment on apoptosis of rat heart H9C2 cells. S4A) TNF-α-induced apoptosis of H9C2 cells is decreased by CYP2J2 overexpression and increased by co-incubation with GW9662 or AG1478. Representative flow cytometry scatterplots are shown. S4B) Exogenous administration of 11,12-EET decreases TNF-α-induced

apoptosis in H9C2 cells. The protective effects are decreased by co-incubation with GW9662 or AG1478. Representative flow cytometry scatterplots are shown.

Figure S5. CYP2J2 overexpression and quantitative analysis of total 14,15-DHET in urine and total 14,15-EET in serum. S5A) Western blot analysis shows elevated expression levels of CYP2J2 in heart and aorta 2 weeks following treatment of animals with pcDNA3.1/CYP2J2. S5B) Total 14,15-DHET level in urine of rats 2 weeks after injection of pcDNA3.1/CYP2J2. S5C) Total 14,15-EET level in serum of rats 2 weeks after injection of pcDNA3.1/CYP2J2. (n=8 per group, $^{*}p<0.05$ compared to control, $^{\#}p<0.05$ compared to CYP2J2 group.)