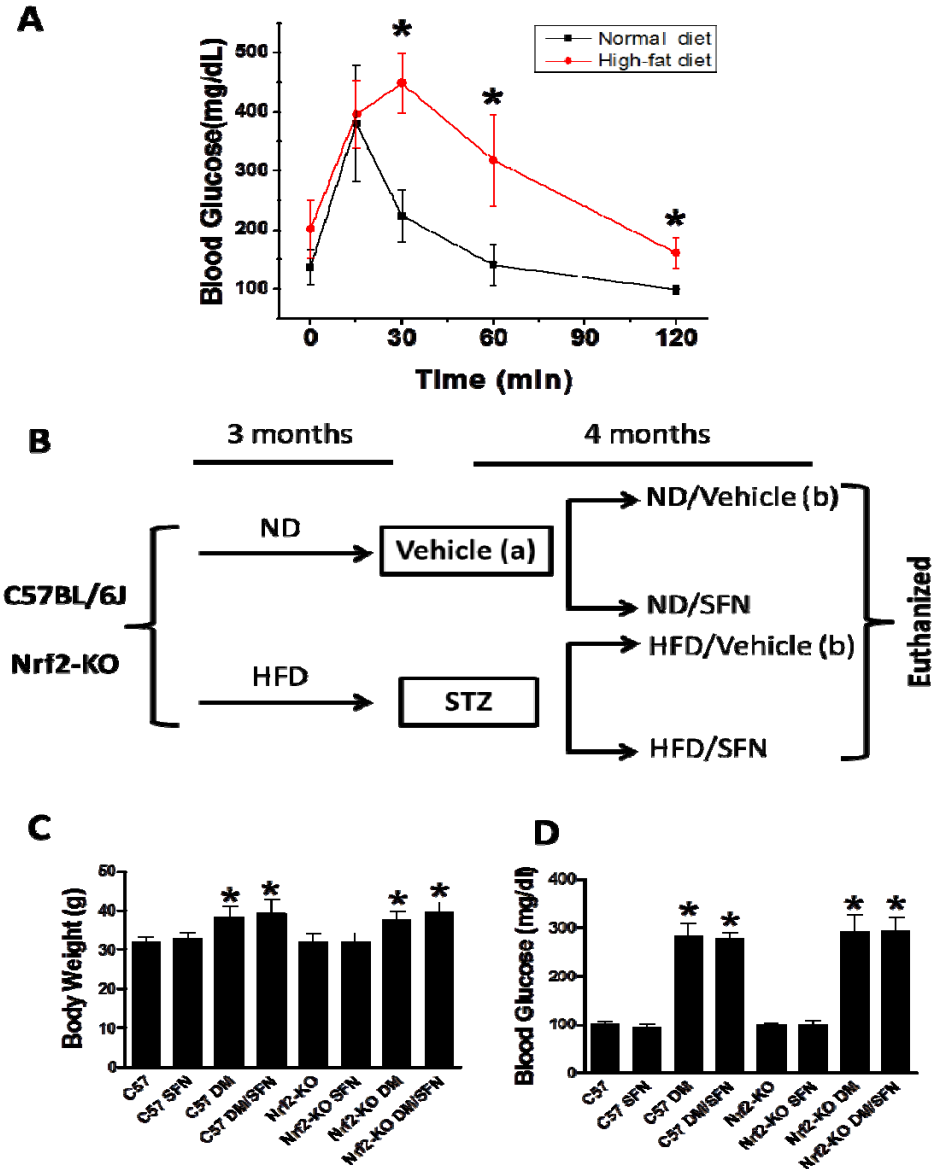
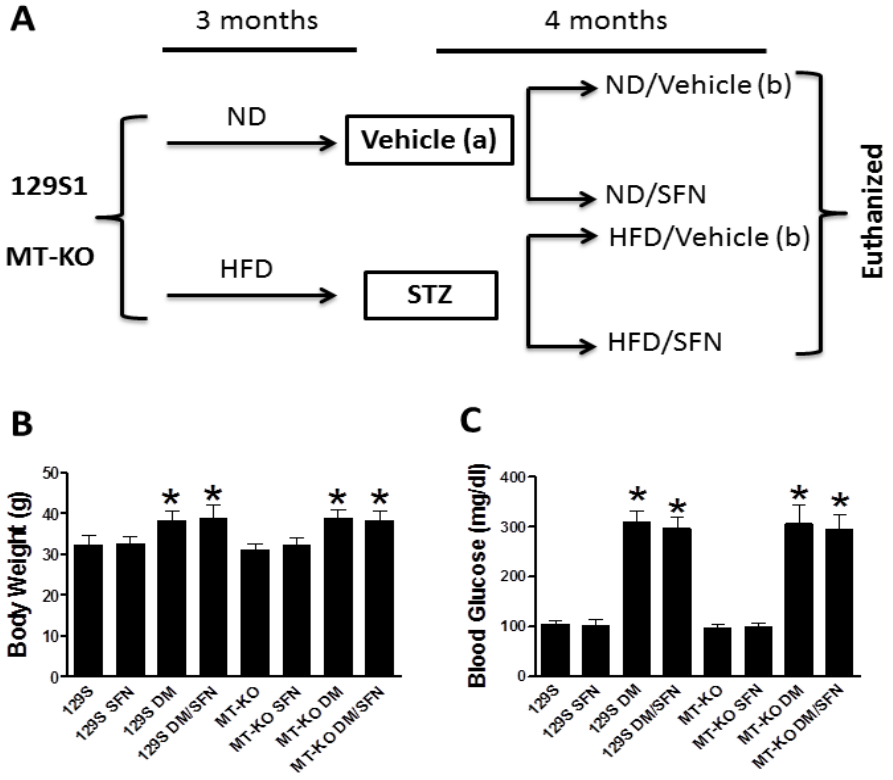
SUPPLEMENTARY DATA

Supplementary Figure S1. Experimental design and comparison for the general features between Nrf2-KO and WT mice. (A), insulin resistance**.** (B) To define the role of Nrf2 in SFN protection from type 2 DCM, 8-week-old male global deletion of Nrf2 gene (Nrf2-KO) mice and their wide-type (WT) C57BL/6J mice were fed high-fat diet (HFD) or normal diet (ND) for 3 months, and then mice were injected intraperitoneally with streptozotocin (STZ) at 100 mg/kg once or the same volume of vehicle (a, sodium citrate buffer), as indicated. Five days after STZ injection, mice with hyperglycemia (fasting blood glucose levels≥250 mg/dL) were defined as diabetic. Diabetic and age-matched control mice were treated with sulforaphane (SFN) or vehicle (b, 1% dimethyl sulfoxide) for 5 days each week for 4 months along with their HFD and ND feeding, respectively. After total 7 months treatment of mice, (B) normal Nrf2-KO mice compare with WT mice, (C) the body weight and (D) blood glucose in all groups were measured. Data were presented as means ± SD (n=6). *, $p < 0.05$ vs. C57.



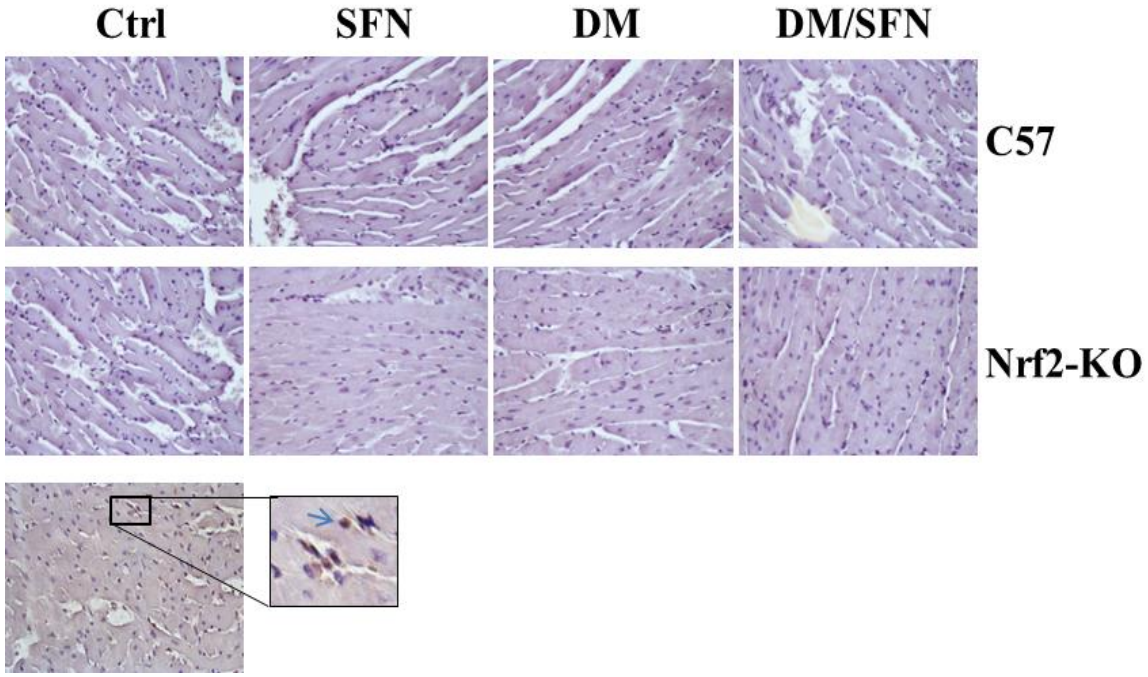
SUPPLEMENTARY DATA

Supplementary Figure S2. Experimental design and comparison for the general features between WT and MT-KO mice. (A) To elucidate whether MT is really required for SFN cardiac protection and the protective mechanism of SFN, MT-KO and its WT 129S1 mice were induced to type 2 diabetes as described in Fig. 1. After total 7 months treatment of mice, (B) the body weight and (C) blood glucose in all groups were shown. Data were presented as means ± SD (n=6).*, $p < 0.05$ vs. 129S.



SUPPLEMENTARY DATA

Supplementary Figure S3. Lack of apoptotic cell death in the heart of mice of WT and Nrf2-KO mice. Cardiac cell death in different groups was measured by TUNEL assay, and to ensure the TUNEL staining procedure correct, one positive section of the heart tissue from wild-type diabetic mice at 0.5 month after diabetic onset. Images from both WT and Nrf2-KO groups were representatives of the sections from 5 mice for each group



SUPPLEMENTARY DATA

Supplementary Table 1. Diabetes-induced functional and pathological changes (fold) between WT and MT-null mice and the decreased percentages of these functional and pathological changes with SFN between WT and MT-null diabetic mice were compared.

	Fold Increase by DM		Percentage Decreased by SFN	
	129S	MT-KO	129S/DM	MT-KO/DM
Heart weight	1.19-1.31	1.23-1.46	18.67-20.02	15.12-20.27
Myocyte area	2.44-2.88	2.59-2.76	31.89-32.22	28.96-35.28
ANP mRNA	2.42-3.37	4.75-5.54	35.63-62.66	42.90-50.56
β-MHC mRNA	1.98-2.99	6.45-7.34	47.48-57.63	40.75-42.38
Collagen content	2.80-2.97	3.92-4.79	33.35-37.20	29.93-32.07
CTGF	1.54-1.65	2.38-2.51	28.82-30.70	2.74-4.24
TGF-β1	1.68-1.72	2.44-2.62	32.61-33.67	6.40-7.00
IL-6 mRNA	2.47-2.69	7.18-7.79	45.13-50.03	45.24-49.51
MCP-1 mRNA	2.06-2.47	5.22-6.60	60.30-61.51	49.56-70.32
8-OHdG	1.60-1.78	2.59-3.15	23.72-29.55	22.37-25.16
MDA	2.17-2.32	2.25-2.74	25.97-28.80	24.22-25.34