Multiple comparison found interbedded with AMI group compared with statistical significance (p < 0.05); AD group compared with control group there were significant differences (p < 0.01); AMI group compared with control group no difference (p > 0.05). Come on 24 h, 48 h, mezzanine group of TGF-β1 in plasma concentration is higher than AMI group and control group, the difference was statistically significant (p < 0.05). Multiple comparison were found. AD group compared with AMI group and control group was statistically significant (p < 0.05); AMI group compared with control group no difference (p > 0.05).

2. TGF-β1 concentration of the AD group, the AMI group dropped with the onset of the extension of time compared with the control group.

CONCLUSIONS Plasma TGF-β1 concentration in patients with AD increased than AMI and healthy normal. It’s suggested that TGF-β1 is helpful for prompt diagnosis of patients with aortic dissection within 48 hours of the onset.

GW26-e1587 Human BKca Channel Gene Clone And Expression in HEK293 Cells
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OBJECTIVES This study aimed to reconstruct histidine-tagged human large conductance Ca2+-sensitive K+ channels (BKca) in HEK293 cells.

METHODS BKca DNA was cloned using reverse transcription PCR from human mesenteric artery and connected with pEF1/HisB vector. BKCA/pEF1/HisB recombinant plasmid was transfected into HEK293 cells using liposome transfection method. The expression of BKCa was detected with western blot and patch clamp technique.

RESULTS BKCa DNA which was cloned from human mesenteric artery contained 3299bp nucleotides and could encode 1113 amino acids. It was inserted into pEF1/HisB vector between Kpn I and Bam HI endonuclease sites with correct open read fragment. According to our design, a 48 amino acid histidine tag was added in the C-terminal of the target BKCa protein. It was helpful for us to purify BKCa protein in our future research. There was BKCa protein expression in HEK293 cells after transient transfection. BKCa single channel current could be recorded in this human BKCa HEK293 cells and the characteristics of single channel including large conductance, voltage dependence and calcium sensitivity were the same as those found in nature human mesenteric artery smooth muscle cells.

CONCLUSIONS BKCa gene was cloned from human mesenteric artery and a functional BKCa ion channel was constructed in HEK293 cells.

GW26-e2263 Protein Reprogramming Fibroblasts Into Cardiac Progenitor Cells for Cardiac Repair
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OBJECTIVES Cardiac progenitor cells (CPCs) potentially offer a novel approach to cardiovascular regeneration. The reprogramming of fibroblasts to induced pluripotent stem cells (iPSCs) raises the possibility that a somatic cell could be directly reprogrammed to a cardiomyocyte. However, practical application has been limited by the potential for insertional mutagenesis through virus reprogramming and by the complexity of the associated procedures. This study aimed to assess protein-based approaches to generate CPCs and improvement of heart functional remodelling with high efficiency and safety.

METHODS Prokaryotic expression system was used to express recombinant human Gata4, Hand2, Mef2c, and Tbx5 proteins (GHMT). Purified GHMT were modified by QQ-reactagent and delivered to human dermal fibroblasts (HDFs). HDF-derived CPC was detected by qPCR and immunostaining. The markers of three cardiac lineages differentiation from protein-induced CPCs (pIPCps) were demonstrated from mRNA and protein levels. Epigenetic chromatin modifications of Nkx2.5 enhancer were detected by ChIP-qPCR. For in vivo study, cells were transplanted intramyocardially after left coronary ligation in SD rat. Hearts function was demonstrated by echocardiography weekly. Differentiation potent of pIPCps were detected by immuno-staining after 4 weeks transplantation.

RESULTS A combination of four cardiac developmental transcription factors (GHMT) and several growth factors rapidly and efficiently reprogrammed HDFs directly into CPCs. Protein-induced CPCs (pIPCps) expressed cardiac progenitor-specific markers at mRNA and protein levels. This reprogramming process enriched H3K4me3, H3K9ac, and Baf60c at the Nkx2.5 cardiac enhancer region. pIPCps could differentiate into the three major definitive cell types of the heart- cardiomyocytes, smooth muscle cells, and endothelial cells. iP CPCs transplanted into rat hearts after myocardial infarction improved cardiac function, and this was related to differentiation into cardiomyocyte-like cells.

CONCLUSIONS These findings demonstrate that the highly efficient protein-transduction way can directly reprogrammed HDFs in CPCs. This protein reprogramming strategy lays the foundation for future refinement both in vitro and in vivo and might provide a source of CPCs for regenerative approaches.

GW26-e2272 D-4F Reduced Cardiac Hypertrophy and Improved Heart Function in LDLR-Deficient Mice Treated With Western Diet by Increasing ABCA1 and LXRs Levels
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OBJECTIVES Epidemiological studies and mouse models have suggested that hypercholesterolemia is an independent determinant of increased left ventricular (LV) mass and is related to cardiac hypertrophy and fibrosis. Since HDL particles and its major apolipoprotein a1 (apoA1) mediate cellular cholesterol efflux and have cardioprotective effects, we tested the hypothesis that the apoA1 mimetic peptide D-4F has the similar protective effects in LDL receptor-null (LDLr/-) mice treated with Western diet (WD).

METHODS Female LDLr/- mice (n=30) were treated with WD from the age of 3 weeks. After 18 weeks, they were randomized to receive water (n=10), D-4F 0.3mg/ml (n=10) or D-4F 0.6mg/ml (n=10) added to their drinking water for 6 weeks. Ultrasound biomicroscopy (UBM) was used to determine effects of D-4F administration on cardiac function. The LV wall thickness and diameter of the myocardial cells were determined with Hematoxylin-Eosin (HE) staining. Total lipids were extracted from 100 mg of cardiac tissue by the method of ELISA. Real-time quantitative polymerase chain reaction and Western blotting analysis were performed to detect the mRNA and protein expression of Liver X receptors (LXRs) and the ATP binding cassette transporter ABCA1.

RESULTS The control mice (received drinking water) developed increased body weight and the heart weight to body weight ratio. UBM studies revealed a reduction in left ventricular posterior wall end diastolic dimension (LVPW) after D-4F administration. Meanwhile, UBM studies also revealed that D-4F improved cardiac performance by increasing mitral valve E/A ratio and ejection fraction (EF). HE staining showed that D-4F reduced LV wall thickness and myocardial cell diameter compared with controls. Although the diet-induced changes in plasma lipid levels were not statistically significant after D-4F administration, an increase in HDL cholesterol level and a decrease in LDL cholesterol, total cholesterol and triglyceride levels in a dose dependent manner were found in heart tissues. The mRNA and protein levels of LXRs and ABCA1 were elevated in the heart of D-4F treated mice compared with the control group (P < 0.05).

CONCLUSIONS D-4F treatment reduced cardiac hypertrophy and lipid accumulation and improved cardiac performance in LDLR/- mice treated with WD. These effects may be mediated through increased expression of LXRs and ABCA1, and improved cholesterol reverse transport.

GW26-e2316 Role of Vascular Peroxidase 1 in ox-LDL-Induced Vascular Smooth Muscle Cell Calcification
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OBJECTIVES Reactive oxygen species (ROS) contributes to osteogenic differentiation of vascular smooth muscle cells (VSMCs) that is