Methods 18 healthy male hybrid dogs aged 15—18 months were divided into three groups randomly, the control group (n=6), the Perindopril group (1 mg/kg/d, n=6), the Spironolactone group (10 mg/kg/d, n=6). To test the form and function of left atrial and plasma aldosterone levels before pacing and 4 weeks, 8 weeks after pacing, respectively. Observe the number of dogs maintained AF and duration of AF after cessation of pacing. Then, kill the animals and collect some tissues of left and right atrial to detect aldosterone levels and test the situation of atrial fibrosis by pathological examination. By comparing the similarities and differences between the three groups, to understand the impact of atrial interstitial remodelling and the occurrence and development of atrial fibrillation induced by aldosterone inhibitor.

Results The levels of plasma aldosterone were no significant differences between the three groups before pacing ($p>0.05$), while 4 weeks and 8 weeks after pacing the plasma aldosterone levels and the aldosterone levels of atrial tissue 8 weeks after pacing of the other groups were significantly lower than those of the control group ($p<0.05$). In the control group, 4 weeks and 8 weeks after pacing the plasma aldosterone levels was significantly higher than that before pacing ($p<0.05$), while in the other two groups, there were no significant differences between before and after pacing ($p>0.05$). Pacing for 4 weeks and 8 weeks later, the diameter, end-systolic volume and end-diastolic volume of the left atrium of the control group dogs significantly increased than before pacing, and left atrial ejection fraction (LAEF) lower than before pacing significantly ($p<0.05$). Compared with the control group, those of the Perindopril group and Spironolactone group after pacing significantly reduced, but LAEF significantly increased ($p<0.05$). Compared with the control group, the number of dogs maintained atrial fibrillation of the two treatment groups after cessation of pacing significantly reduced, with a shorter average duration of atrial fibrillation. While there was not significant difference between the two treatment groups. The value of Collagen Volume Fraction (CVF) of the Control group was significantly higher than those of the other two groups ($p<0.05$), while no significant difference value between the two treatment groups ($p>0.05$).

Conclusion The aldosterone receptor antagonist (spironolactone) and ACEI (Perindopril) can inhibit aldosterone levels and atrial fibrosis, improve the changes of atrial structure and function, and reduce the incidence and duration of atrial fibrillation. And the effects of the two drugs are similar.

e0097 CANINE MARROW MESENCHYMAL STEM CELLS WITH LENTIVIRAL MHCN4 GENE TRANSFER CREATE CARDIAC PACEMAKERS

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The purpose Research on biological pacemakers for the heart has so far mainly focused on short-term gene and cell therapies. To develop a clinically relevant biological pacemaker, long-term function is crucial. Lentiviral vectors can mediate long-term gene expression. The purpose of the present study was to determine whether canine mesenchymal stem cells (cMSCs) provide impulse initiation over 2 weeks without the use of immunosuppression.

Methods pacemaker current (If) were studied in cMSCs that overexpressed isoform 4 of the Hyperpolarization-activated Cyclic Nucleotide-gated channel (encoded by HCN4) after lentiviral gene transduction. HCN4 protein expression was confirmed by cellular immunofluorescence staining and western blotting. 3×10^6 cMSCs transfected with either control plasmid (EGFP) or HCN4 gene construct were injected subepicardially in the canine right ventricular wall in situ.

Results Perforated patch-clamp experiments demonstrated that HCN4- transduced single canine mesenchymal stem cells exhibited a fivefold higher if than non-transduced single cMSCs, expressed high levels of Cs-sensitive current, confirming the expressed current as If-like. After cMSCs injected 2 weeks, during sinus arrest, all control (EGFP) hearts had spontaneous atrioventricular node rhythms; In the EGFP-mHCN4 group, 4 of 6 animals developed spontaneous ventricular rhythms; 2 of 6 animals developed spontaneous atrioventricular node rhythms. Moreover, immunostaining of the injected regions demonstrated the presence of cMSCs forming gap junctions with adjacent myocytes and manifested no cellular or humoural rejection at that time.

Conclusion These studies demonstrate that genetically modified cMSCs can express functional HCN4 channels in vitro and in vivo, mimicking overexpression of HCN4 genes in cardiac myocytes, and represent a novel delivery system for pacemaker genes into the heart.

e0098 HIF-1α, SDF-1α AND VEGF GENE EXPRESSION AFFECTED BY HIF-1α SIRNA IN MSCS

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Objective HIF-1a, SDF-1a and VEGF gene expression affected by HIF-1a siRNA in MSCs.

Methods Bone marrow mesenchymal stem cells were cultured in vitro (3—5 generation,), inverted microscope was used to observed morphology, flow cytometry was used to detective of surface markers CD11b /c, CD34, CD44 and CD90. MSCs were divided into five groups, hypoxia group (only hypoxia), liposome group (MSCs transfected with empty liposomes), siRNA609 (MSCs transfected with siRNA609 sequence), siRNA658 (MSCs transfected with siRNA658 sequence), siRNA2070 (MSCs transfected with siRNA2070 sequence). The cells were cultured under hypoxia for 24 h, HIF-1a gene expression was dectived by RT-PCR. MSCs were divided into four groups, control group (without any treatment), hypoxia group (hypoxia 24 h), liposome control group (MSCs transfected with liposome then hypoxic 24 h), RNA interference (MSCs transfected with RNA interference sequences then hypoxic 24 h). MSCs mRNA expression RT-PCR, MSCs supernatant protein levels was detected by ELISA, MSCs hypoxic supernatant stimulate rat smooth muscle cell proliferation was detected by CCK8.

Results 1. Flow cytometry detective CD11b /c negative, CD34 negative, CD44 positive, CD90 positive cells respective reached 84.2%±0.2%, 97.91%±0.7%, 99.8%±0.9%, 97.7%±0.4% and CD44+/CD34—cell number reached 99.4%±0.4%. 2. SiRNA transfected cells could be detected the green fluorescent signal, lipsome group and the control group could not be detected the green fluorescence signal. 3. RT-PCR results showed that siRNA609, siRNA658, siRNA2070 group compared with hypoxia group HIF-1a gene expression was lower ($p<0.05$), the siRNA658 group is the least ($p<0.05$). 4. RT-PCR results revealed that compared with the normal control group hypoxia group HIF-1 a, SDF-1 a and VEGF gene expression increased ($p<0.05$), and compared with the lipsome control group RNA interference group HIF-1 a, SDF-1 a and VEGF gene expression reduced ($p<0.05$). 5. ELISA results revealed that compared with the normal control group hypoxia group HIF-1 a, SDF-1 a and VEGF content were increased ($p<0.05$), compared with the liposome control group RNA interference group HIF-1 a, SDF-1 a, VEGF content was decreased ($p<0.05$). 6. CCK8 results revealed that compared with the normal group control group hypoxia can promote smooth muscle cell proliferation ($p<0.05$), compared with

the liposome control group RNA interference group proliferation is weak ($p<0.05$).
Conclusion 1. HIF-1a, SDF-1a and VEGF gene expression can be affected by HIF-1a siRNA in MSCs. 2. Hypoxia can made HIF-1 a, SDF-1 a and VEGF gene expression increased. 3. SDF-1 a and VEGF gene expression may be controlled by HIF-1 a in MSC. 4. Cell culture medium stimulate SMC profliction can be reduced by RNA interfence.

e0099 BAICALIN PROTECTION RAT CARDIOMYOCYTES FROM ISCHAEMIA-REPERFUSION INJURY AND ANTIARRHYTHMIA VIA INHIBITING L-TYPE CALCIUM CURRENT

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Objective To investigate baicalin protection rat cardiomyocytes from inschemia-reperfusion injury and antiarrhythmia via blocking $I_{Ca\text{-}L}$.
Methods The degree of ischaemia-reperfusion injury was assessed by the recovery of LVDP and the magnitude of the reperfusion contracture with using approach of the Langendorff-perfused isolated rat hearts. The effects of baicalin on APs and ouabain-induced DAD and AT were performed on rat papillary muscles by conventional microelectrode technique. $I_{Ca\text{-}L}$ was recorded via using whole-cell patch-clamp technique in enzymatically dissociated single rat ventricular myocytes.
Results Compared with the pre-ischaemic control, baicalin could concentration-dependently improved recovery of LVDP, and reduced the lever of reperfusion contracture, and occurrence of arrhythmias. Baicalin significantly shortened ADP_{20}, ADP_{50} and APD_{90} in rat papillary muscles. Ouabain could apparently induced the DAD and TA in rat papillary muscles. With administration of baicalin, the electrophysiological parameters of ouabain-induced DAD and TA were markedly inclined to difficult occurrence. It illustrated that baicalin might inhibit influx of $I_{Ca\text{-}L}$. Baicalin significantly inhibited $I_{Ca\text{-}L}$ in a voltage-dependent and concentration-dependent procedure, with an IC_{50} value of 27.7 ± 1.9 μmol/l (E_{max} and nH were $115.2\pm3.3\%$ and 1.07 ± 0.05, respectivly). Moreover, baicalin shifted the I-V curve of $I_{Ca\text{-}L}$ upwards. According to statistic kinetic data, it was suggested that baicalin especially inhibit the $I_{Ca\text{-}L}$ by eliciting a negative shift of the steady-state inactivation without affecting the slop factor. To the effect of baicalin on the speed of $I_{Ca\text{-}L}$ recovery from inactivation, our data indicated that the time courses of recovery were prolonged markedly ($p<0.01$ compare with control group, respectively).
Conclusions Baicalin improved cardioprotection effects on ischaemia-reperfusion injury and decreased the occurrence of ouabain-induced DAD and TA, thus inhibited $I_{Ca\text{-}L}$. The effects of baicalin on inhibiting $I_{Ca\text{-}L}$ might contribute to baicalin antagonising ischaemia-reperfusion injury and arrhythmia.

e0100 ASSOCIATION BETWEEN CREG GENE POLYMORPHISMS AND CORONARY ARTERY DISEASE IN THE HAN POPULATION OF NORTH CHINA

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Introduction The purpose of the present study was to assess the possible association between CREG and CAD in the Han population of North China.
Methods ALL five selected SNPs were genotyped in 1161 patients with angiographically documented CAD and 960 control subjects free from CAD who had normal coronary angiograms. Patients and controls were unrelated individuals of Han Chinese from the northeast region of China, genotype analyses were performed additive, dominant and recessive models. Binary logistic regression was used to control for the presence of vascular risk factors both in genotype and haplotype analyses.
Results Genotype frequencies of the five examined polymorphisms were similarly distributed between CAD group and controls ($p>0.05$). Further haplotype analysis also found no significant differences in the distributions between CAD group and controls ($p>0.05$).
Conclusion This study did not show a statistically significant association between common variants of CREG and CAD in northern Chinese Han population.

e0101 INTERLEUKIN-17A GENE VARIANTS AND RISK OF CORONARY ARTERY DISEASE:A LARGE ANGIOGRAPHY-BASED STUDY

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Objective Recent studies have also revealed that interleukin (IL)-17A plays a key role in atherosclerosis and its complication, but the relationship of its common variants with coronary artery disease (CAD) has not been extensively studied.
Methods We systematically screened sequence variations in the IL17A gene and designed an angiography-based case-controlled study consisting of 1031 CAD patients and 935 control subjects to investigate the association between the selected polymorphisms of IL-17A gene and CAD risk in Chinese Han population.
Results Frequencies of IL17A rs8193037 GG homozygote and G allele were significantly higher in the patient group than those in the control group ($p<0.001$; OR=0.68; 95% CI 0.54 to 0.85). Stratification analysis showed that the IL17A rs8193037 G allele significantly increased the risk of CAD only among male subjects ($p=0.001$; OR=0.63; 95% CI 0.47 to 0.83). After adjustment for conventional risk factors, binary logistic regression analysis showed that the the G allele carriers (GG +AG) had significantly increased CAD risk compared with the AA homozygotes (adjusted $p<0.001$; OR 0.43; 95% CI 0.33 to 0.58). ELISA showed augmented IL17A production in serum of the AMI patients.
Conclusions Based on our data, we speculated that rs8193037 of IL17A is associated with CAD risk in Chinese Han population and G allele of rs8193037 may be an independent predictive factor for CAD.

e0102 EXPRESSION OR SECRETION OF IL-34 AND IL-35 IN THE PERIPHERAL BLOOD MONONUCLEAR CELLS FROM PATIENTS WITH DILATED CARDIOMYOPATHY

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Objective The aim of this study was to observe the level of interleukin (IL)-34 and IL-35 in peripheral blood mononuclear cells (PBMCs) with dilated cardiomyopathy (DCM), and explore the role of IL-34 and IL-35 in human DCM.
Methods 30 patients with DCM and 30 normal adults as control were studied. IL-34 and the subunit Epstein-Barr virus-induced gene 3(EBI3) of IL-35 mRNA expression in PBMCs were detected by reverse transcription—PCR (RT-PCR). IL-34 and IL-35 protein level in plasma were measured with ELISA.
Result (1) Results showed that the IL-34 mRNA level or its protein level was significantly elevated in DCM patients compared with