**ПРИЛОЖЕНИЕ**

**Пример оформления тезиса:**

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**DISTRIBUTION OF HLA ANTIGENS IN PATIENTS WITH DILATED CARDIOMYOPATHY**

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**Introduction.** Dilated cardiomyopathy (DCM) is a myocardial disease characterised by the development of dilation (stretching) of the heart cavities, with the occurrence of systolic dysfunction. DCM is a syndrome that develops in the outcome of different conditions affecting the myocardium. DCM is the third most common cause of heart failure with an estimated prevalence of 1:2500. The worldwide prevalence of DCM is one to ten cases per 100 000 population. This disease associated with more than 20 loci and genes due to its genetic heterogeneity. Associations between HLA genes and the development of DCM have never been studied in Kazakhstan. Hence, it is important to study the characteristics of HLA alleles and conduct research to study the connection between the development of this disease and HLA genes. Therefore, the aim of this study was to investigate the rate of frequency of HLA class I (HLA-A, B) and class II (HLA-DRB1\*) genes among healthy blood donors and patients with dilated cardiomyopathy, residing in Kazakhstan.

**Methods.** The study enrolled 3850 participants: 3621 healthy blood donors considered as a control group (of them HLA-A – 3621; B - 3607; Cw - 3582; DRB1-3595; DQB1-3576) and 229 patients with DCM (of them HLA-А - 229; В – 229; DRB1 – 206). HLA-typing (HLA-A, B, С, DRB1, DQB1) for both groups was performed by a molecular genetic method using a set from Protrans (Protrans, Germany).

Results

**Results.** The analysis revealed a distribution profile of HLA system in patients with heart failure in the Kazakh population. The alleles positively associated with the development of heart failure were: HLA-A\*34, \*66; HLA-B\*58; HLA-DRB1\*12. In addition, the following HLA-А\*03, \*25, \*32; HLA-В\*42, \*59; HLA- DRB1\*01,\*15 alleles might have a protective role in the development of cardiac abnormalities.

Conclusion

**Conclusion.** HLA-A \* 34, 66 \*; HLA-B \* 58; HLA-DRB1 \* 12 alleles associated with the development of heart failure, whereas HLA-А\*03, \*25, \*32; HLA-В\*42, \*59; HLA- DRB1\*01,\*15 alleles might be associated with protection against cardiac abnormalities. Furthermore, this study adds useful information to study a variety of diseases associated with HLA genes including dilated cardiomyopathy and other cardiac abnormalities.