

## Polymorphism *CYP2D6* gene for xenobiotic biotransformation in populations of Buryats and Russians of Eastern Siberia

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**Key words:** population genomics, Asian populations, Buryats, polymorphism, genes for xenobiotic biotransformation, databases, *CYP2D6*

*Motivation and Aim:* The study of the gene polymorphism of the system of biotransformation of xenobiotics is an important area of modern medical and genetic research. The *CYP2D6\*3 (2549del)* and *CYP2D6\*4 (1846A)* variants are associated with risks of drugs side effects and cancer. The variants are annotated as regulatory polymorphisms *rs35742686* and *rs3892097*, correspondingly. The aim of this work is to study *CYP2D6* gene polymorphism in different ethnic groups.

*Methods and Algorithms:* This study was performed on Eastern (N = 132) and Western (N = 278) Buryats, Russians of East Siberia (N = 122) and Métis, the progeny of mixed marriages of Buryats with Russians (N = 56). Genotyping was performed using real-time PCR with competitive TaqMan allele-specific probes.

*Results:* The *CYP2D6\*3 (2549del)* allele was not detected in Buryat cohorts, among Russians it was 0.4 %, and it was 2.7 % among Métis. The frequency of the *CYP2D6\*4 (1846A)* in Eastern and Western Buryats was 5.3 % and 4.3 %, respectively. These data correspond to the frequency range found in Eastern Asian populations [1]. It was significantly higher in the Russian population (12 %), and among Métis (9.8 %).

*Conclusion:* The obtained data makes it possible to predict a reduced risk of side effects of drugs and cancer associated with *CYP2D6\*3 (2549del)* and *CYP2D6\*4 (1846A)* in the Buryat population. However, metisation introduces new polymorphic variants into indigenous populations, shifts gene frequencies and changes the degree of risks.

*Acknowledgements:* Authors are grateful to Dr Ming Chen and Haihua Bai for science discussion. Previous researches were supported by RFBR-NSFC grant project. The work is supported by budget project No. 0324-2018-0016.

### References

1. The 1000 Genomes Project Consortium (2012) An integrated map of genetic variation from 1,092 human genomes. *Nature*. 7422:56.