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## **The Prevalence of Allele Frequencies of CYP2C19 Polymorphisms of Clinically Important Drug-Metabolizing Enzymes CYP2C19 in Moldova Healthy Population**

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### **Abstract**

Genetic polymorphisms of drug-metabolizing enzymes, such as cytochrome P450 oxidases, can alter the pharmacokinetic properties of administered drugs, leading to variability in drug responses. Prior knowledge of allele frequencies of cytochrome P450 polymorphisms in a population is crucial. In the current study, the frequency of the CYP2C19\*2, CYP2C19\*3, CYP2C19\*17 alleles, genotypes and phenotype in healthy population of Republic of Moldova was examined. Tests for polymorphisms of CYP2C19 was performed using method TaqMan® SNP Genotyping Assays in 430 healthy subjects, assessing the phenotypes, which included normal metabolizer (NM), intermediate metabolizer (IM), poor metabolizer (PM), rapid metabolizers (RM) and ultrarapid metabolizer (UM). 112 individuals (26.2%) were CYP2C19\*1/\*2 heterozygotes, 7 (1.6%) were CYP2C19\*2/\*2 homozygotes, 119 subjects (28.4%) were CYP2C19\*1/\*17 heterozygotes and 31 subjects (7.4%) were CYP2C19\*17/\*17 homozygotes, while 1 individual (0.2%) was a CYP2C19\*1/\*3 compound heterozygote. Therefore, 7 individuals CYP2C19\*2/\*2 homozygotes (1.6%) are predicted to be CYP2C19 PM. The allele frequencies for CYP2C19\*2, \*3 and \*17 was 14.7%, 0.1% and 21.6%, respectively. The results of this study provide important information about the distribution of CYP2C19 genetic variants in the healthy population of the Republic of Moldova. These findings may have implications for understanding population differences in drug responses, and they



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support the potential application of genetic testing in medical practice to guide personalized treatment approaches.

*Keywords: polymorphisms, genotyping, moldova population, drug-metabolizing enzymes*

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