*Cellular Therapy and Transplantation (CTT), Vol. 2, No. 5, 2009*
*doi: 10.3205/ctt-2009-No5-abstract19*



*Abstract accepted for "Joint EBMT Pediatric Working Party – 3rd Raisa Gorbacheva Memorial Meeting on Hematopoietic Stem Cell Transplantation", Saint Petersburg, Russia, September 17–20, 2009*

# Genetic polymorphisms of CYP1A1, GSTM1, GSTT1, and GSTP1 genes in B-cellular chronic lymphocytic leukemia (B-CLL)

Vanik A. Ovsepyan, Vitaliy A. Rosin

Federal State Institution, Kirov Hematology and Blood Transfusion Research Institute under Federal Medicobiological Agency, Kirov, Russia

Correspondence: Vanik A. Ovsepyan, 72, Krasnoarmeyskaya St., Kirov, 610027, Russia,
Phone: +7 (8332) 673-738, Fax: +7 (8332) 549-731, E-mail: vovsepyan@mail.ru

## Abstract

**Aim:** The aim of this study was to examine the relationship between genetic polymorphisms in GSTM1, GSTT1, GSTP1, and CYP1A1 genes and their susceptibility to B-CLL.

**Methods:** The DNA for our research was isolated from the leukocytes of venous peripheral blood taken from 146 patients with B-cell CLL and 221 healthy individuals, using a standard phenol-chloroform extraction method. GSTM1 and GSTT1 genotypes were determined by a multiplex PCR technique that detects homozygous deletions of the mentioned genes and the β-globin housekeeping gene as an internal control. CYP1A1 mutation A4889G (Ile462Val) and GSTP1 polymorphisms A1578G (Ile105Val) and T2293C (Ala114Val) were identified by the PCR-RFLP approach.

**Results:** For the first time it was shown that the mutant genotype (GSTP1-105IleVal+GSTP1-105ValVal) occurs significantly more often in B-CLL patients than that of healthy individuals (65.1% ps. 53.4%, $\chi^2 = 4.92$, $p<0.05$; OR=1.63, 95% CI=1.06÷2.50), whereas the "wild" genotype GSTP1-105IleIle was significantly underrepresented in patients with CLL compared with those of healthy individuals (34.9% ps. 46.6%, $\chi^2 = 4.92$, $p<0.05$; OR=0.62, 95% CI=0.40÷0.95).

At the same time the difference in distribution of homozygous deletion of the GSTM1 and GSTT1 genes and also of the CYP1A1-Ile462Val and GSTP1-Ala114Val genotypes between B-CLL patients and healthy individuals was statistically not significant ($p>0.05$).

**Conclusions:** The results of the current study suggested that the GSTP1 polymorphism may influence the risk of B-CLL developing.

**Keywords:** B-CLL, genetic susceptibility, CYP1A1 polymorphism, GSTM1 polymorphism, GSTT1 polymorphism, GSTP1 polymorphism