

**ROLE OF ELN GENE  
POLYMORPHISM IN OCCUPATIONAL COPD  
DEVELOPMENT IN UKRAINIAN  
COAL MINERS**

**A. V. Basanets, L. V. Dolynchuk, T. A. Ostapenko**

*Abstract*

COPD is multi-factorial disease, where hereditary predisposition and environmental factors (including work conditions) play an important role. Gene *ELN* affects the proteolysis/anti-proteolysis system and may be important for hereditary predisposition to COPD.

*The aim* was to study *ELN* gene polymorphism in occupational COPD in Ukrainian coal miners.

*Materials and methods.* The ratio between the polymorphic alleles of the genes encoding *ELN* was studied in 72 underground coal miners with COPD (mean age  $53,7 \pm 5,8$  years, mean work experience  $21,8 \pm 4,8$  years), and in 79 healthy miners (mean age  $48,2 \pm 5,6$  years, mean work experience  $20,2 \pm 4,5$  years). Allele variants of *ELN* gene were revealed using PCR with restriction fragment-length polymorphism detection.

*Results.* According to molecular genetic research, among the miners with occupational COPD (main group) and miners without respiratory disease (control group) 63,2 and 59,5 % respectively were the carriers of the genotype *ELN\*Gly*, 36,8 % and 40,5 % were the carriers of the genotype *ELN\*Ser*. Analysis of polymorphism of the *ELN* gene (*Ser422Gly*, *rs2071307*) in the main group revealed that 40,3 % of examined miners were homozygotes *ELN\*Gly/Gly*, 45,8 % — heterozygotes *ELN\*Gly/Ser* and 13,9 % — homozygotes *ELN\*Ser/Ser*. In the control group, the genotype frequencies were distributed in the following way: 32,9 % — *ELN\*Gly/Gly*, 53,2 % — *ELN\*Gly/Ser*, and 13,9 % — *ELN\*Ser/Ser*. There were no significant differences in the frequency of genotypes of the *ELN* gene in the examined miners of main and control groups.

*Conclusion.* The results of this study suggest that *ELN* gene polymorphism is not associated with COPD in Ukrainian underground coal miners cohort.

**Key words:** chronic obstructive pulmonary disease, *ELN* gene polymorphism, genetic predisposition.

**Ukr. Pulmonol. J. 2017; 3: 25–28.**

Angela V. Basanets

Institute for occupational health

named after Yu. I. Kundiev NAMS of Ukraine

Head of the department of occupational pathology

Corresponding member of NAMS of Ukraine,

doctor of Medical Science, professor

75, Saksaganskogo str., 01033, Kyiv, Ukraine

Tel.: 38 044 284-34-37; a\_basanets@meta.ua

10, Velykokamyana str., 88000, Uzhgorod, Ukraine

Tel./fax: 38 0312 63-74-62

o.i.lemko@gmail.com