



**International Science Group**

**ISG-KONF.COM**

**IX**

**INTERNATIONAL SCIENTIFIC  
AND PRACTICAL CONFERENCE**

**"TRENDS OF DEVELOPMENT MODERN SCIENCE AND  
PRACTICE"**

**Stockholm, Sweden  
November 16-19, 2021**

**ISBN 978-1-68564-518-2**

**DOI 10.46299/ISG.2021.II.IX**

# **TRENDS OF DEVELOPMENT MODERN SCIENCE AND PRACTICE**

Abstracts of IX International Scientific and Practical Conference

Stockholm, Sweden  
November 16 – 19, 2021

Library of Congress Cataloging-in-Publication Data

UDC 01.1

The IX International Science Conference «Trends of development modern science and practice», November 16 – 19, 2021, Stockholm, Sweden. 588 p.

ISBN - 978-1-68564-518-2

DOI - 10.46299/ISG.2021.II.IX

EDITORIAL BOARD

<u>Pluzhnik Elena</u>	Professor of the Department of Criminal Law and Criminology Odessa State University of Internal Affairs Candidate of Law, Associate Professor
<u>Liubchych Anna</u>	Scientific and Research Institute of Providing Legal Framework for the Innovative Development National Academy of Law Sciences of Ukraine, Kharkiv, Ukraine, Scientific secretary of Institute
<u>Liudmyla Polyvana</u>	Department of Accounting and Auditing Kharkiv National Technical University of Agriculture named after Petr Vasilenko, Ukraine
<u>Mushenyk Iryna</u>	Candidate of Economic Sciences, Associate Professor of Mathematical Disciplines, Informatics and Modeling. Podolsk State Agrarian Technical University
<u>Oleksandra Kovalevska</u>	Dnipropetrovsk State University of Internal Affairs Dnipro, Ukraine
<u>Prudka Liudmyla</u>	Odessa State University of Internal Affairs, Associate Professor of Criminology and Psychology Department
<u>Slabkyi Hennadii</u>	Doctor of Medical Sciences, Head of the Department of Health Sciences, Uzhhorod National University.
<u>Marchenko Dmytro</u>	Ph.D. in Machine Friction and Wear (Tribology), Associate Professor of Department of Tractors and Agricultural Machines, Maintenance and Servicing, Lecturer, Deputy dean on academic affairs of Engineering and Energy Faculty of Mykolayiv National Agrarian University (MNAU), Mykolayiv, Ukraine
<u>Harchenko Roman</u>	Candidate of Technical Sciences, specialty 05.22.20 - operation and repair of vehicles.
<u>Belei Svitlana</u>	Ph.D. (Economics), specialty: 08.00.04 "Economics and management of enterprises (by type of economic activity)"
<u>Lidiya Parashchuk</u>	PhD in specialty 05.17.11 "Technology of refractory non-metallic materials"
<u>Kanyovska Lyudmila Volodymyrivna</u>	Associate Professor of the Department of Internal Medicine

56.	Lykhota K., Kabanchuk S. CLINICAL AND LABORATORY SUBSTINATION OF EVALUATIONS OF THE FUNCTION OF CHEWING MUSCLES DURING USING OF MYOFUNCTIONAL APPLIANCE OF THE MIXED DENTITION AND PERMANENT DENTITION	276
57.	Lastivka I., Antsupova V., Malieieva I., Shabelnyk O., Hlazkova N. MODERN METHODS OF DIAGNOSIS OF NUNAN SYNDROME. CLINICAL CASE	283
58.	Shumna T., Titov H., Fedoseeva O., Lepetchenko Y. STUDY OF INTERLEKIN-4 (C-589T, RS2243250) GENE POLYMORPHISM AND INTERLEKIN-4 LEVEL IN CHILDREN WITH BRONCHIAL ASTHMA	288
59.	Yurtsenyuk O.S., Karvatska N.S. PREDICTORS OF ANXIOUS DISORDERS IN STUDENTS OF HIGHER EDUCATIONAL INSTITUTIONS	291
60.	Осокіна О.І., Івнєв Б.Б., Путятін Г.Г., Кабанцева А.В., Корченко О.Ю. ВПЛИВ РІВНЯ ІНСАЙТУ НА ПОКАЗНИКИ КЛІНІЧНОЇ РЕМІСІЇ ТА СОЦІАЛЬНОГО ФУНКЦІОНУВАННЯ У ХВОРИХ НА ШИЗОФРЕНІЮ	294
61.	Плетенецька А.О., Зарицький Г.А., Легедза А.В., Полив'яний В.М. ВПЛИВ АЛКОГОЛЮ ТА ПСИХОСТИМУЛЯТОРА (АМФЕТАМІНА) НА ОРГАНІЗМ ЛЮДИНИ ЗА НАЯВНОСТІ ХРОНІЧНИХ ЗМІН ВНУТРІШНІХ ОРГАНІВ: СУДОВО-МЕДИЧНИЙ РОЗБІР ВИПАДКУ З ПРАКТИКИ	300
62.	Рзаєва А.А.К., Страховецька Ю.В. ДОЦІЛЬНІСТЬ ЛАПАРОСКОПІЧНОГО ДОСТУПУ ПРИ РАКУ ЯЄЧНИКІВ	305
PEDAGOGICAL SCIENCES		
63.	Barantsova I., Kotlyarova V., Tkach M. ПРИЙОМИ РЕАЛІЗАЦІЇ ПЕДАГОГІЧНОГО АРТИСТИЗМУ	307

# STUDY OF INTERLEKIN-4 (C-589T, RS2243250) GENE POLYMORPHISM AND INTERLEKIN-4 LEVEL IN CHILDREN WITH BRONCHIAL ASTHMA

**Shumna Tamila**

Doctor of Medical Sciences, Professor  
Zaporizhia State Medical University

**Titov Herman**

Doctor of Medical Sciences, First Vice-Rector  
Dnipro Medical Institute of Traditional and Non-Traditional Medicine

**Fedoseeva Olena**

Ph.D., assistant  
Zaporizhia State Medical University

**Lepetchenko Yelizaveta**

graduate student  
Zaporizhia State Medical University

The bronchial asthma (BA) is a heterogenic disease [1]. This disease has social significance because it leads to disability and death [2]. The bronchial asthma associated with a system of dysregulation of the immune system and the predominance of cells type Th-2 with increase in the secretion of cytokines, including anti-inflammatory interleukin-4 (IL-4). Interleukin-4 is encoded by the IL-4 gene, which is located on a specific site on chromosome 5q31 [3, 4]. The most significant today is the study of interleukin-4 gene polymorphism (C589T, rs2243250), when ytosine is replaced by thymine at position 589 of the cytoplasmic domain of the mature protein and is associated with allergic diseases. Therefore, the determination of the IL-4 gene polymorphism (C-589T, rs2243250) and the level of interleukin-4 in children makes it possible to predict the risk of development and the level of disease control [5].

**Purpose.** The study of polymorphism of the IL-4 gene (C-589T, rs2243250) and the level of the IL-4 cytokine in 89 children with bronchial asthma and in 25 children without allergic pathology.

**Results.** The CC genotype of the IL-4 gene polymorphism (C-589T, rs2243250) recorded in children with bronchial asthma with a frequency of 69.66%, in healthy people - 68% ( $\chi^2 = 0.03$ ,  $p = 0.87$ ; OR = 1.1; 95% CI [ 0.42 - 2.81]). The CT genotype of the IL-4 gene polymorphism (C-589T, rs2243250) recorded found with a frequency of 22.47% and 24% ( $\chi^2 = 0.00$ ,  $p = 0.98$ ; OR = 0.85; 95% CI [0.19 - 5.05], and the TT genotype - 7.87% and 8% ( $\chi^2 = 0.03$ ,  $p = 0.87$ ; OR = 0.88; 95% CI [0.32 - 2.61]. These data approached the results of studying the distribution of CC - ST - TT genotypes in population studies in Europe (70.2% - 26% - 3.8%) and South Asia (68.1% - 27% - 4.9%) [6]. Both in our study and in the Mauritian Indian population and the Chinese

Han population, no association was found between IL-4 C-590 T and the development of bronchial asthma [7, 8]. But S. Micheal with colleagues, when genotyping the SNP IL-4 C-589T (rs2243250), determined that in Pakistani people with bronchial asthma, in contrast to our results, the CC genotype was recorded in 24.1% of patients; CT - at 58.3%; TT - in 17.6% of the examined [9]. We also analyzed the distribution of genotypes of IL-4 gene polymorphism (C-589T, rs2243250) in 26 children with controlled and 63 children with uncontrolled asthma. Thus, in patients with a controlled and uncontrolled course of the disease, the CC - ST - TT genotypes had the following distribution: 53.85% and 74.6% ( $p > 0.05$ ) - 34.61% and 19.05% ( $p > 0.05$ ) - 11.54% and 6.35% ( $p > 0.05$ ). Our analysis of the distribution of genotypes of the IL-4 gene polymorphism (C-589T, rs2243250) in children with bronchial asthma, depending on the level of control, did not reveal significant differences. But in the literature there is evidence that the CC genotype of the IL-4 gene polymorphism (rs2243250; rs2070874) can be a genetic marker of the risk of developing both controlled (RR 0.26; SE 0.38;  $p = 0.0008$ ) and uncontrolled (RR 0.3; SE 0.38;  $p = 0.0018$ ) bronchial asthma [10]. To determine the level of anti-inflammatory cytokine IL - 4 in children, medians and interquartile ranges of their values in children with bronchial asthma and in healthy children were analyzed. When comparing the IL-4 indicator in two groups, it was determined that in children with bronchial asthma, the IL-4 indicators were in the range of 1.89 (1.67 - 2.22) pg/ml, in healthy people - 1.55 (1.29 - 1.64) pg/ml, and in both groups corresponded to the indices of the reference norm (1.55 (0.25 - 16) pg/ml). The study of IL-4 gene polymorphism (C-589T, rs2243250), including recessive and dominant inheritance patterns, and the level of IL-4 cytokine did not confirm their association with the risk of development or the level of control of bronchial asthma.

## References:

1. Rechkina, Olena et al. (2020). Models of Gen-gene Interaction in Determining the Severity of Bronchial Asthma in Children. *American Journal of Internal Medicine*, 8 (4), 182-191 (in Ukrainian).
2. Ferrante, G., La Grutta, S. (2018). The Burden of Pediatric Asthma. *Front. Pediatr.*, 6,186. doi: 10.3389/fped.2018.00186
3. Mohamed Y. Attiaa, Howida M. (2014). Saberb Role played by T-helper 2 in resetting the cytokine balance in allergic patients. *The Egyptian Society of Internal*, 26, 3, 124–129. doi: 10.4103/1110-7782.145311
4. Pukhlik, B.M. (2017). Problemy nasledstvennosti pri vozniknovenii allergicheskikh zabolevaniy [Problems of heredity in the event of allergic diseases] *Klinicheskaya immunologiya. Allergologiya, Infektologiya - Clinical Immunology. Allergology, Inectology*, 1, 98, 29 – 32 (in Ukrainian).
5. Kousha, et al. (2020). *BMC Immunology*, 21, 55. doi.org/10.1186/s12865-020-00384-7
6. <http://www.ensembl.org/index.html>
7. Shumna, T.Ye., Fedosieieva, O.S., Zinchenko, T.P., Nedelska, S.M. (2019). Characteristics of interleukin-4 gene (C-589T, rs2243250) polymorphism in children with bronchial asthma and allergic rhinitis with isolated or allergic rhinitis-induced comorbid malocclusion. *Zaporozhskiy meditsinskiy zhurnal - Zaporozhye medical journal*, 21, 6 (117), 723 – 732 (in Ukrainian).

8. Ramphul, K., Lv, J., Hua, L., Liu, Q.H, Fang, D.Z., Ji, R.X., Bao Y.X. (2014). Single nucleotide polymorphisms predisposing to asthma in children of Mauritian Indian and Chinese Han ethnicity. *Braz J Med Biol Res.*, 47, 5, 394–397. doi: 10.1590/1414-431X20143751
9. Micheal, S, Minhas, K, Ishaque, M, Ahmed, F, Ahmed, A (2013). IL-4 Gene Polymorphisms and Their Association With Atopic Asthma and Allergic Rhinitis in Pakistani Patients. *J Investig Allergol Clin Immunol.*, 23, 2, 107 – 111.
10. Smol'nikova, M.V., Freydin, M.B., Smirnova, S.B. (2017). Geny tsitokinov kak geneticheskiye markery atopicheskoy bronkhial'noy astmy s kontroliruyemym i nekontroliruyemym techeniyem [Cytokine genes as genetic markers of atopic asthma with controlled and uncontrolled flow]. *Meditinskaya immunologiya – Medical Immunology*, 19, 5, 605 – 614 [in Russian].