



**МІНІСТЕРСТВО ОХОРОНИ ЗДОРОВ'Я УКРАЇНИ  
ЗАПОРІЗЬКИЙ ДЕРЖАВНИЙ МЕДИКО-  
ФАРМАЦЕВТИЧНИЙ УНІВЕРСИТЕТ**

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The main requirement for herpes treatment products is a combination of components that would provide an optimal therapeutic effect. The components of the medicinal product should have the following effects: antiviral, immunomodulatory, anti-inflammatory, antimicrobial, ability to stimulate skin regeneration, reduce itching and pain.

Since this disease is very common and occurs quite often in a large number of people, it is advisable to study the current range of herpes medicines on the Ukrainian pharmaceutical market.

## PHARMACOLOGICAL POTENTIAL OF 2-((5-PHENYL-4-(4-METHYLPHENYL)-1,2,4-TRIAZOL-3-YL)THIO)ETHANOIC ACID AND ITS DERIVATIVES

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A practically significant method for the production of new biologically active substances is the involvement of heterocycles in this process. In this context, special attention is paid to nitrogen-containing heterocycles, in particular, 1,2,4-triazole derivatives. The addition of a pharmacophore fragment in the form of a 4-methylphenyl substituent and a reactive mercapto group to the structure of 1,2,4-triazole derivatives allows the creation of potential biologically active compounds.

**The aim** of the work was to determine the prospects for the identification of biologically active compounds among 4-methylphenyl derivatives of 1,2,4-triazole, namely: 2-((5-phenyl-4-(4-methylphenyl)-1,2,4-triazol-3-yl)thio)ethanoic acid and its derivatives.

**Materials and methods.** The structure of the compounds selected for the study has been determined using conventional organic chemistry approaches. Pharmacological *in silico* screening has been performed in three areas and involved the determination of toxicological characteristics, as well as pharmacokinetic and pharmacodynamic parameters. A preliminary toxicity assessment has been performed using the online application TEST (Toxicity Estimation Software Tool), which allowed to assess acute toxicity and determine the probability of mutagenic properties. The pharmacokinetic profile of a number of compounds submitted for the study was based on the following: 1) physicochemical properties (structure and spatial configuration, ability to exhibit hydrophilic and lipophilic properties, ability to form intermolecular chemical bonds, etc.); 2) active influence on the activity of a number of cytochromes; 3) overcoming the placental, blood-brain and skin barriers; 4) involvement in adsorption processes in various parts of the gastrointestinal tract. These areas of research were performed using the SwissADME online platform. The pharmacodynamic potential has been determined by assessing the potential for anti-inflammatory (cyclooxygenase-2), antimicrobial (peptide deformylase), antifungal (lanosterol 14 $\alpha$ -demethylase), antioxidant (cytochrome *c* peroxidase) and anticancer (anaplastic lymphoma kinase) activities. The outlined scientific stage has been implemented through the harmonious use of AutoDock 4.2.6, Open Babel 3.1.1, MGL Tools-1.5.6, BIOVIA and AUTOGRIID. The results obtained have been evaluated in comparison with known drugs with similar therapeutic effects.

**Results.** Predictive determination of the harmlessness of 2-((5-phenyl-4-(4-methylphenyl)-1,2,4-triazol-3-yl)thio)ethanoic acid and its derivatives allows us to preliminarily classify them as moderately or slightly toxic with a low risk of mutagenic properties. A set of characteristics has been formed, including physicochemical parameters (number of Csp<sup>3</sup>-hybrid atoms, rotating bonds, H-bond donors and acceptors, lipo- and hydrophilicity, etc.), pharmacokinetic parameters (determination of the possibility of gastrointestinal adsorption, overcoming of blood-brain, placental and skin barriers, etc.), the probability of influence on a number of cytochromes, as well as the ability to overcome drug-like filters, determine the pharmacological profile of 2-((5-phenyl-4-(4-methylphenyl)-1,2,4-triazol-3-yl)thio)ethanoic acid and its derivatives as potentially favourable for further research. The incorporation of a carboxylic group and its conversion to ester and amide in the structure of the proposed 1,2,4-triazole derivatives allowed us to predictively obtain encouraging

results related to the effect on cyclooxygenase-2. Similarly, the docking prescreening of 2-(4-(4-methylphenyl)-5-phenyl-1,2,4-triazol-3-ylthio)acetamides allows us to recommend this class of compounds for further studies of antifungal activity. Other selected model enzymes showed less significant results of docking studies.

**Conclusions.** A theoretical generalization of the results of *in silico* studies of 2-(4-(2-methylphenyl)-5-phenyl-1,2,4-triazol-3-ylthio)ethanoic acid and its derivatives has been carried out, which allows us to reasonably recommend further steps aimed at creating a biologically active substance.

## BUILDING THE IMAGE OF A PHARMACEUTICAL COMPANY IN THE UKRAINIAN MARKET

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**Introduction.** In today's pharmaceutical market (PhM), establishing a positive corporate image is crucial for gaining a competitive edge. Reputation is increasingly important as companies face higher expectations for ethical and social responsibility, which affects trust among patients, healthcare professionals, regulatory bodies, and investors [1, 2].

Pharmaceutical companies (PCs) must meet transparency requirements, ensure high-quality products, actively promote innovations, and implement environmental initiatives, all of which shape their public image.

**Materials and Methods.** This research was based on a comprehensive analysis of the marketing strategies of several leading PCs, focusing on public communication and social media positioning. Methods included content analysis of official websites of PCs, including Abbott, Sanofi, Sandoz, Servier, and Bayer [3-7], and an analysis of their social project promotion.

**Results and Discussion.** The study highlighted key transparency criteria in PCs communication about their products and social initiatives, their openness to innovation, and their commitment to environmental sustainability.

Preliminary pilot studies indicated that PCs actively engaged in social projects and innovation investment enjoy a better public image and higher levels of trust. Examples include companies like Abbott, Sanofi, Sandoz, Servier, and Bayer.

Conversely, incidents involving transparency issues or ethical controversies negatively impact reputation and may lead to lasting negative effects [8, 9]. The growing role of social media enables PCs to respond quickly to public expectations, yet also increases accountability for actions in the public sphere.

**Conclusions.** Building a positive image for a PCs is a complex process that requires a holistic approach and alignment of corporate values with public expectations.

Key factors contributing to a positive image include transparency, innovation, social responsibility, and environmental sustainability.

PCs focused on meeting consumer needs and upholding ethical standards can establish long-term, trustworthy relationships with various stakeholders.

Such companies are also better prepared to adapt swiftly to changes in the PhM and respond to challenges related to public image.

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