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Prospects for the introduction of foreign experience in using DNA-accounts in the practice of Ukraine

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■ **Abstract.** The purpose of the research – analyse foreign experience in using DNA records in the investigation of criminal offences and justification of the possibility and feasibility of its use in Ukraine. Methodology. To achieve this purpose, specific research methods were used, namely: system analysis method, comparative legal, system-structural and forecasting method. The scientific originality of the study is that based on the analysis of international legal acts, regulations of some foreign countries, and scientific works of domestic and foreign scientists, the main controversial issues related to the content, functioning and use of human genetic traits registers in Ukraine are identified. Based on the results of the analysis, proposals were developed to eliminate the identified problematic issues and to reform the legislation in the context of the issue under study. Conclusions. The scientific position is substantiated that an effective way to solve the problematic issues related to the functioning and use of human genetic registries in Ukraine is to explore and implement best foreign practices since most countries began to develop registries at the end of the previous century. It is proved that the reforming and improvement of the practice of filling, functioning and authorised use of human genetic records should be performed by adopting a specific law. It was emphasised that in the process of determining the DNA profiles of categories of persons subject to registration in the register of human genetic traits, attention should be devoted to missing persons and those who, due to mental disorders or senile dementia, have been repeatedly searched by the National Police for missing persons. It was stated that the development and implementation of the draft law should be fully consistent with the strategy of development of law enforcement agencies, and the costs for the implementation of all legislative initiatives should be included in the state budget of the respective year

■ **Keywords:** accounting; genetic traits; DNA analysis; molecular genetic research; foreign experience; criminal offence

■ Introduction

The development of science and technology is a significant guarantee of improvement of technical and forensic support of the pre-trial investigation of criminal offences. An important place in ensuring the efficiency of the investigation is occupied by information systems, in particular forensic records, as noted in their monographic researches by such scientists as: D.V. Dabiza [1], K.V. Dubonos [2], V.O. Prikhodko [3]

and others. They emphasise the importance of forensic records in the investigation of criminal offences.

The necessity to use forensic records in the investigation of criminal offences is conditioned upon the necessity to solve several tactical tasks that arise at a particular stage of the investigation. One of the most crucial objectives is to identify the perpetrator. According to the analysis of investigative practice,

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using the records of human genetic traits, the functioning of which in Ukraine is regulated by the Instruction on the organisation of the functioning of forensic records of the expert service of the Ministry of Internal Affairs, is quite tested in its solution.

The emergence of accounting of human genetic traits and the possibility of its use in the investigation of criminal offences is conditioned upon the development of science and technology, in particular the improvement of the methodology of molecular genetic research. The specific features of the appointment and conduct of these researches in the investigation of criminal offences are devoted to the works of V.V. Ionova [4], O.Y. Kanava [5], R.L. Stepaniuk [6; 7], V.V. Topchii [8] etc.

Therewith, the process of filling, functioning and use of the human genetic trait registry belongs to the circle of scientific interests of many domestic scientists who have conducted many studies designed to address the problematic issues related to the functioning of the human genetic trait registry in Ukraine, the possibilities of its use in the investigation, etc. Among them, in particular, the study of I.O. Yeprintseva, who analysed some issues of the functioning of the registry of human genetic traits [9], S.M. Lozova and O.V. Matarykina, who investigated the possibility of using the said registry during the pre-trial investigation [10]. The analysis of international standards for the accumulation and use of DNA samples was conducted by O.P. Horpyniuk [11]. Despite the significant contribution of scientists, several issues in the context of the studied problems remain unresolved.

One of the efficient ways of solving the problems existing in law enforcement practice should be considered the introduction of international experience. As for using registers of human genetic traits, this approach can be applied, as in many countries, they have been functioning for a longer time than in Ukraine. Great Britain, for example, in 1995 established the DNA database of the National Criminal Intelligence. In Ukraine, the decision to develop a forensic database of DNA analysis results at the State Scientific Research Forensic Centre of the Ministry of Internal Affairs of Ukraine was made in 2000, and initially only for unsolved sexual crimes: murder with rape [3].

The foreign experience study and its implementation in the activities of the relevant entities are substantiated by the European path of development chosen by Ukraine, which provides for the harmonisation of national legislation with the legislation of the European Union and other international regulations. In this context, it should be mentioned that according to the Law of Ukraine of June 20, 2012, № 4988-VI ratified the Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse. According to paragraph 1 of Article 37 of the Convention “ to prevent the commission

of offences established by this Convention and to ensure their prosecution, each Party should take the necessary legislative or other measures to accumulate and store, subject to the relevant provisions on the protection and safeguarding of personal data and other relevant rules and guarantees provided for by national legislation, information on the identification data and genetic code (DNA) of persons convicted of offences established by this Convention” [12]. Probably, considering the necessity to bring the national legislation in line with the European one, the ratification of the Prüm Treaty will be the next step.

The Treaty of Prüm, known as the Prüm Convention or “Schengen III”, was signed on 27 May 2005 in Prüm (Germany) by seven states on data exchange: Germany, Spain, France, Luxembourg, the Netherlands, Austria and Belgium. Currently, automatic DNA data exchange is performed between Portugal, Czech Republic, Hungary, Romania, Sweden, Cyprus, Estonia, Lithuania, Latvia, Malta, Poland, Slovakia, Finland, Croatia and Slovenia. The provisions of this treaty enable the member states of the European Union to provide each other with automatic access to genetic databases, fingerprints and information on crimes connected with drug trafficking.

Therewith, despite the Prüm Convention, Portugal, for example, is prohibited from exchanging all categories of genetic profiles. If requested, the search is performed only among genetic profiles belonging to persons sentenced to 3 years or more and individual profiles of samples confiscated at the crime scene or persons under investigation [13].

The above highlights the necessity of exploring the experience of foreign countries on the functioning of human genetic traits registries to implement only the best practices and reform national legislation in this area.

The purpose of the study is to assess the foreign experience of using the records of human genetic traits in the investigation of criminal offences and to substantiate the possibility and feasibility of its use in Ukraine.

To achieve this purpose, the following tasks have been identified:

- 1) to define the basic principles of functioning of the registry of human genetic traits in Ukraine;
- 2) based on the analysis of the works of domestic scientists to identify the main problematic issues that arise during the filling, functioning and use of human genetic traits in Ukraine;
- 3) based on foreign experience, to develop recommendations for solving identified problematic issues that exist in the domestic practice of functioning and use of human genetic traits registration.

The scientific originality of the research is that based on the analysis of international legislation, and legislation of individual countries of the world, scientific research of domestic and foreign scientists,

the features of filling, functioning, financing and use of human genetic traits registers during the investigation of criminal proceedings in Ukraine and some countries of the world are determined.

■ Outline of the Main Material

The register of human genetic traits consists of operational search collections maintained by the State Research Forensic Centre (central level) and research forensic centres (regional level). Operational search collections are developed from DNA profiles:

1) persons suspected or accused of committing crimes, detained, convicted in case of their voluntary consent;

2) biological traces confiscated during the inspection of the scene, in particular on the facts of missing persons, other investigative actions and operational search activities;

3) unidentified corpses [14].

DNA profiles obtained using genetic analysers and determined by several standard marker systems (STR loci), which are common for expert laboratories by the recommendations of the European Network of Forensic Science Institutions (ENFSI), are subject to registration. After the establishment of DNA profiles within three days, a registration card of DNA profile (biological trace confiscated during the examination of the crime scene or other investigative actions and operational search activities; unidentified corpse; the biological trace of a missing person, a sample of a suspect, accused, victim) is filled in and sent to the collections [14].

The records are filled in by investigators of the National Police during the pre-trial investigation. In particular, the Law of Ukraine "On the National Police" defines that the police fills and maintains up-to-date databases (banks), which are part of the unified information system of the Ministry of Internal Affairs of Ukraine, regarding persons detained on suspicion of committing offences (administrative detention, detention on orders of law enforcement agencies, detention of persons by pre-trial investigation bodies, administrative arrest, house arrest) (clause 7, part 1, Article 26). In addition, part 2 of the mentioned article provides that during the filling of databases (banks) of data specified in paragraph 7 of part 1 of the relevant article, the police shall ensure the collection, and accumulation of biometric data (DNA samples) [15].

The analysis of the above legislative provisions gives grounds to assert that the provisions of the Law of Ukraine "On the National Police" do not comply with the provisions of the departmental instruction, which regulates the functioning of the registration of human genetic traits. In addition, none of the above-mentioned regulations does not provide sufficiently important issues regarding the storage periods of DNA profiles, responsibility for the safety of

the obtained samples, etc., which indicates the urgent necessity to revise and update the provisions of the current legislation.

Notably, not all scientists support the idea of improving the mechanisms of registration of human genetic traits in Ukraine and expanding the categories of persons whose DNA profiles would be subject to mandatory placement in the operational search collections. Thus, scientists V.O. Komakha, G.F. Kryvda, Yu. Syvolap explains this position by the fact that its establishment threatens citizens with the loss of personal freedom, independence and privacy [16]. Therewith, the supporters of the concept of further development of human genetic traits emphasise the necessity to solve several controversial issues, including:

1) insufficient level of material and technical support and insufficient laboratories, which excludes the possibility of meeting the requirements of the Ministry of Internal Affairs of Ukraine in the detection and investigation of criminal offences;

2) insufficient level of protection of personal information obtained by DNA analysis [11];

3) the necessity to expand the category of persons whose DNA profiles will be subject to mandatory registration [10];

4) establishing communication between the world's forensic genetic databases to exchange genetic profiles of criminals suspected or accused of committing serious and extremely serious crimes [9];

5) slow filling of databases;

6) absence of a specific law that would regulate the issues of filling and functioning of criminal records;

7) ignoring the opinion of the public, specialists in the process of solving the issue of keeping records of human genetic traits, expanded genomic identification of the population and the category of institution that should be the manager of the records, etc. Based on the above, considering the examples of some foreign countries, it is proposed to determine whether these problematic issues existed in their practice and how they were resolved.

Categories of persons whose DNA profiles are subject to registration. The Instruction on the organisation of the functioning of criminal records of the expert service of the Ministry of Internal Affairs defines which DNA profiles are subject to registration. Domestic scientists note the expansion of the categories of persons subject to mandatory registration. Thus, S.M. Lozova and O.V. Matarykina note the expediency of mandatory registration of persons who: 1) are drafted for military service and are in military service; 2) employees of internal affairs bodies (investigators, operatives, criminal investigators) who participate in investigative (search) actions; 3) forensic experts (forensic and other) who participate in investigative actions and examinations [10]. The

necessity of mandatory genetic registration of military servicemen, persons liable for military service and conscripts are emphasised by L.T. Kotliarenko and A.V. Kofanov, arguing that it is necessary to conduct the Joint Forces Operation in the East of Ukraine and the necessity of molecular genetic identification in case of their death [17].

Proposals for mandatory registration of law enforcement officers are expressed both by domestic and foreign scholars [18]. It is caused by the fact that investigators, operatives, and forensic inspectors are members of the investigative team. Due to non-compliance of the latter with specific rules of stay at the scene, contamination, i.e. contamination of objects of biological origin with foreign DNA can be allowed.

The problem of contamination was first highlighted during the discussion of the “German phantom”: in Europe, for 15 years, investigators were unable to track a serial offender whose DNA profile was constantly being established while investigating various crimes. The “offender” was found in 2008. It was an elderly woman who worked in the production of the packaging of gauze swabs for DNA sampling. Putting the swabs, she accidentally contaminated some of them with her DNA, and, thus, her genetic features were established on the objects from the scene [19].

Notably, contamination can occur as a result of the presence of civilians at the scene, for example, the person who found the corpse or the owner or user of the premises where the theft was committed, etc. In addition, it is possible in DNA laboratories. In case of its detection, molecular genetic research is stopped. The employee who has detected contamination must immediately notify the quality manager, and the quality manager – the relevant head of the department (laboratory). Results obtained with contaminated samples are considered invalid and all samples should be re-examined [20].

Thus, emphasising the necessity of taking biological samples from police officers, the question arises about the registration of human genetic features and DNA profiles of laboratory workers. Therewith, it should be noted that due to the efforts of genetic scientists, currently there are technologies for the study of contaminated samples. Considering this, the author believes that there is no necessity for mandatory registration of law enforcement officers, however, if there is voluntary consent of the latter, their DNA profiles should be registered to ensure quick identification of contaminated samples.

In the author's opinion, DNA profiles of missing persons obtained as a result of molecular genetic research on the personal belongings of the latter are subject to mandatory registration. In the future, this can help to establish the whereabouts of the missing person in the process of comparison with samples found at crime scenes or in comparison with samples

of unidentified corpses. In addition, the author believes that DNA profiles of persons who have mental disorders or senile dementia and frequently leave their place of residence can be registered, which is why pre-trial investigation bodies have repeatedly registered criminal proceedings due to the missing persons. According to the analysis of investigative and judicial practice, quite frequently the bodies of persons with postmortem changes, who were previously considered missing, are found outside settlements or in forests or reservoirs. Considering the above, there is a necessity to perform a set of identification tasks to establish the identity of the found corpse, which are successfully solved through molecular genetic research.

Analysing the experience of foreign countries, it should be noted that they are characterised by the approach according to which DNA profiles of persons sentenced to imprisonment are subject to mandatory registration. In Thailand, since 2004, a joint project of the Central Institute of Forensic Science and the Department of Correctional Affairs of the Ministry of Justice was launched, which introduced the registration of biological samples of prisoners for any category of crimes to be released in the period from four months to one year. As of December 2019, 187,464 profiles, consisting of 16,521 DNA profiles from samples recovered from crime scenes, 49,210 people associated with the crime, and 121,733 prisoners, have been placed in the human genetic trait registry of the Central Institute of Forensic Sciences of Thailand [21].

Brazilian legislation stipulates that, since 2012, individuals must be mandatorily included in DNA databases if they are convicted of serious crimes or intentional violent crimes. The project to identify the genetic profile of convicts began in 2018. As of August 28, 2019, about 79% of the DNA profiles of convicts were collected [22].

Inextricably connected with the issue of filling and mandatory registration of DNA profiles of individual categories of persons is the issue of financing additional costs for filling and maintaining records of human genetic traits.

The DNA profiles of individual categories of the population or unidentified persons, whose biological samples were found at the scenes of crimes, are included in the register of human genetic traits. During the investigation of criminal proceedings, most forensic molecular genetic examinations are appointed by the prosecution. According to the Criminal Procedure Code of Ukraine, the involvement of specialists, experts of specialised state institutions by the prosecution, conducting examinations (examinations and studies) on behalf of the investigating judge or court is performed at the expense of funds allocated to such institutions from the state budget of Ukraine for the intended purpose [23].

The cost of molecular genetic examination for one object is approximately 80 USD, and together with value-added tax – 95 USD. In the event of a guilty verdict, the court shall recover from the accused in favour of the state the documented costs of engaging an expert [23]. Therewith, in criminal proceedings that remain unsolved, the funds spent by the state remain unreimbursed.

No fewer expenses for molecular genetic examinations are performed abroad. In Belarus, the cost of complex examinations of biological kinship, during which it is necessary to examine histological specimens of the deceased, and samples of relatives, in particular using markers of X- and Y-chromosomal, mitochondrial DNA, is usually calculated individually for each case and can range from 120 to 280 USD [24].

In Delhi (India), the starting price of molecular genetic examination is approximately 10 USD, and the maximum price is 942 USD [25].

Keeping records of human genetic traits is quite valuable. Thus, the UK spends approximately 3.5 million US dollars a year on this, while individual police forces cover the costs of inspecting the scene and conducting molecular genetic examinations of confiscated biological samples. Due to this, there are ongoing discussions among UK scientists about the rationality of collecting half a million DNA profiles annually and the need to store more than 6 million profiles. In addition, scientists argue this with the conclusions contained in the annual reports of the UK Commissioner for Biometrics, according to which it is almost impossible to determine the efficiency of such measures [26].

Notably, MP O. Bakumov submitted to the Verkhovna Rada of Ukraine the draft Law “On State Registration of Human Genomic Information”, which is currently in the first reading. According to the expert opinion of the Ministry of Finance of Ukraine, conducted on the mentioned draft law, the implementation of its provisions, if adopted in 2021 (enters into force one year after the date of publication), will require additional expenditures from the state budget for UAH 276,962.0 thousand for the Ministry of Internal Affairs and other state bodies for 2022-2024, including UAH 225,560.7 thousand in 2022 and UAH 25,700.7 thousand annually in 2023-2024. In addition, as noted in this conclusion, the provisions of the draft law are not consistent with the provisions of the Budget Code of Ukraine on the submission of proposals and amendments to the legislation of Ukraine to reduce budget expenditures and/or sources of additional budget revenues to achieve a balanced budget, and the draft law itself requires the provision of detailed financial and economic calculations together with proposals for sources of additional expenditures [27].

Notably, it is not the first draft law that should regulate the genetic identification of Ukraine and

the procedure for the registration of human genetic traits, but none of them has been adopted yet. The author of the research believes that the primary reason is the necessity to increase the budget of the Ministry of Internal Affairs and other state authorities. Undoubtedly, this is quite a weighty argument, but, notably, when addressing the issue of expanding the categories of persons subject to mandatory registration, there is another problem – public opinion is not considered in any way.

Considering the public opinion when deciding on the issue of keeping records of human genetic traits, expanded genomic identification of the population and the category of institution that should be the manager of the records. In many countries of the world, before reforming legislation, the attitude of the population to such legislative initiatives is analysed. Spanish scholars Álvaro del Real, María Sáenz-Aldea, Ana Santurtún, María T. Zarrabeitia, for example, conducted surveys among prisoners and prison staff. Scientists have established that 40% of the participants would support the integration of profiles of the entire population into the accounting of human genetic traits, and 64% consider it ethical to use DNA profiles of the database as a tool for family search. Therewith, half of the respondents are concerned about the future use of the DNA database [28].

Therewith, the Spanish are confused by the category of persons that will be subject to mandatory registration, and the category of the institution that will manage the register. At one time, 59.7% of respondents surveyed by Spanish scientists explained that the National Agency for DNA Analysis, an autonomous state institution supported by the court, should remain the manager of human genetic data [29]. Such a position is due to citizens' concerns about the powers of the police or other institutions, ensuring confidentiality and proper use of the database.

In Ukraine, no open sociological surveys have been conducted on the expansion of the categories of persons subject to mandatory registration or the determination of the institution that should be the administrator of the record of human genetic traits. According to the author, the entry into force of the draft law, which is currently under consideration in the Verkhovna Rada of Ukraine, may cause outrage among the population and criticism among lawyers. Therewith, discussions among legal practitioners and scholars, of course, are provoked by the manager of the register, as they have been proposing for a long time ideas about the belonging of this register to the Ministry of Justice of Ukraine or another independent institution.

Inappropriate use of databases. Concerns among the public and lawyers are raised by the issue of the police powers in using the data of human genetic traits, ensuring confidentiality and preventing unauthorised access to the mentioned records. In this

context, it is appropriate to cite the theses of Italian researchers V. Marchese, N. Cerri, L. Caenazzo, who note that although DNA databases are of great value for the investigation and society, the task of the state is to determine the balance between the public interest in the fight against crime and personal rights such as personal freedom, dignity and privacy – which can be a problem [30].

The solution to this problem is achieved by enshrining the principles of the functioning of the registration of human genetic traits in regulations. In Brazil, for example, it is defined at the legislative level that DNA databases are confidential with limited and controlled access. The genetic information contained in DNA databases should not identify somatic or behavioural traits of individuals other than genetic gender identification [22].

The legislation of the European Union, in particular the Council of Europe Convention of January 28, 1981 “For the Protection of Individuals about Automatic Processing of Personal Data”, which has been ratified by Ukraine, should be considered a positive example of protection of citizens from unauthorised access to the records of human genetic traits. To clarify the provisions of the Convention, the Council of Europe issued several recommendations on the processing of the most vulnerable personal data. In particular, these include the Recommendation of the Committee of Ministers of 17 September 1987 No. R (87) to 15 Member States on the regulation of using personal data in the police sector. Quite important is Directive 95/46/EC of the European Parliament and of the Council “On the protection of individuals about the processing of personal data and on the free movement of such data” of October 24, 1995, the provisions of which are the foundation of the Law of Ukraine “On Personal Data Protection [31]. In addition, the provisions of Recommendation R (92)1 of 10 February 1992 on using deoxyribonucleic acid (DNA) analysis in criminal proceedings should be considered.

These recommendatory international documents, as noted by O.P. Horpyniuk, outline several requirements relating to both the quality of national legislation that should regulate the relevant area and the behaviour of law enforcement officers who obtain biometric data from suspects, and accused and enter them into automated information resources. The most important requirements are the following: data retention should be strictly limited, particularly in the police sector; data collection is possible only to prevent a real danger or to stop a specific crime; the processing of the most sensitive data should be limited to what is necessary for a specific investigation; the necessity to notify the data subject, which was collected without their knowledge, about the collection, if such disclosure will not hinder the investigation; the obligation to ensure the timely destruction of person-

al data if they are no longer required for the purposes for which they were stored [11]. The author believes that all these requirements are a guarantee of respect for human rights in law enforcement, and therefore they should be enshrined in national legislation.

Absence of a specific law. The absence of a proper legal framework that would regulate the procedure for the registration of human genetic traits, as can be seen, is a significant obstacle to eliminating the problematic issues that currently exist in law enforcement. Admittedly, it concerns not only Ukraine.

The Ibero-American Working Group on DNA Analysis (GITAD), part of the Ibero-American Academy of Criminalistics and Forensic Sciences (AICEF), which has existed since 1998, has several working committees to perform actions in specific areas of its activities. Among them – the Commission on Databases, which oversaw the development of DNA databases in Latin America, Portugal and Spain. Members of this commission prepared a survey and sent it to institutions that integrate or collaborate with the Ibero-American Working Group on DNA Analysis to get an overview of DNA databases in these countries. Among the representatives of 15 countries that responded to the survey, 13 have some kind of database - criminal or related to the search for missing persons, but only 11 reported that their functioning is regulated by relevant regulations. Thus, some countries do not have legislation but have already implemented their DNA databases [32]. Such practice, in the author's opinion, is an adverse example, as it does not correspond to the idea of the rule of law, thus, it should be eradicated.

Thus, the realities of the current situation necessitate an immediate sociological survey to determine the attitude of the public to the mandatory registration of specific categories of citizens and the institution that will be the administrator of the record. An indispensable step in this context should be the investigation and consideration of foreign experience, international regulations and practices of the European Court of Human Rights. Considering the results obtained, the needs of law enforcement agencies, scientific developments of scientists and specialists of the relevant categories, it is necessary to develop a draft law that would regulate several controversial issues that currently exist in the issues of genomic identification of the population, the functioning and use of human genetic traits, and to define the principles of functioning and use of the registry to prevent the disclosure of confidential information. Therewith, it should be noted that the adoption of the draft law should be accompanied by appropriate changes in criminal procedural legislation to prevent the development of legal conflicts.

It is proved that the most efficient way to solve some problems that exist currently, given the European

path of development chosen by Ukraine, is to use international experience, in particular, the experience of the European Union.

Based on the results of the analysis, the most typical problems existing in the practice of Ukraine and requiring immediate solutions were identified. Among them, in particular:

1) insufficient level of material and technical support and insufficient laboratories, which excludes the possibility of meeting the demands of the Ministry of Internal Affairs of Ukraine in the detection and investigation of criminal offences;

2) the absence of a specific law that would regulate the content and functioning of the record of human genetic traits;

3) the necessity to expand the category of persons whose DNA profiles will be subject to mandatory registration;

4) establishing communication between the world's forensic genetic databases to exchange genetic profiles of criminals suspected or accused of committing serious and extremely serious crimes;

5) the necessity to counteract the inappropriate use of databases;

6) ignoring the opinion of the public, specialists in the process of solving the issue of keeping records of human genetic traits, expanded genomic identification of the population and the category of institution that should be the manager of the records.

7) slow filling of databases, etc.

The analysis of these problems is conducted, based on which the author's vision of the possibility of their settlement is highlighted, and positive examples of foreign countries that can be used as an alternative solution to some problematic issues are given.

■ Conclusions

Based on the results of the research, the following conclusions can be reached:

1. The European path of development, the necessity of combating transnational crime and ensuring

efficient detection of crimes urges the necessity of rapid filling of the register of human genetic traits. An efficient way to solve the problematic issues related to the functioning and use of human genetic traits in Ukraine is to study and implement best foreign practices, as most countries have established these registers at the end of the previous century.

2. Reforming and improving the practice of filling, functioning and authorised use of registers of human genetic traits should be performed by adopting a specific law. The development of the draft law on state registration of genomic information of the population should be preceded by a thorough analysis of domestic and foreign legislation and experience, scientific developments of scientists, and public and expert opinion surveys. The issues of the number of genetic laboratories, the level of material and technical support of the relevant institutions and organisations, and the category of the institution that should be the record keeper require particular attention. The development and implementation of the draft law should be fully consistent with the strategy for the development of law enforcement agencies, and the costs of implementing the provisions of this draft law should be included in the State Budget of the respective year.

3. When determining the category of persons whose DNA profiles will be subject to mandatory registration, it is necessary to consider the actual capabilities of existing laboratories. The analysis of investigative practice in the investigation of criminal offences demonstrates that persons, who have been declared missing and who, due to mental disorders or senile dementia, have been repeatedly searched by the National Police for missing persons, are subject to registration. The genetic profiles of the latter should be registered after taking all possible measures to establish their whereabouts.

The mentioned problem is quite an urgent subject in the current realities and therefore requires further scientific research.

■ References

- [1] Amankwaa, A.O., & McCartney, C. (2019). The effectiveness of the UK national DNA database. *Forensic Science International: Synergy*, 1, 45-55. doi: 10.1016/j.fsisyn.2019.03.004.
- [2] Bem, M.V., Horodyskyi, I.M., Satton, H., & Rodionenko, O.M. (2015). *Protection of personal data: legal regulation and practical aspects*. Kyiv: K.I.C.
- [3] Boonderm, N., Suriyanratakorn, D., Sangpueng, S., Wongvoravivat, C., & Waiyawuth, W. (2019). Utilization of the cifs dna database to monitor recidivism. *Forensic Science International: Genetics Supplement Series*, 7(1), 685-687. doi: 10.1016/j.fsigss.2019.10.138.
- [4] Brito, P., Bento, A. M., Gouveia, N., Sampaio, L., Balsa, F., Lopes, V., São Bento, M., Cunha, P., Serra, A., & Porto, M.J. (2019). The impact of The Prüm Treaty on the portuguese forensic DNA database-A brief review. *Forensic Science International: Genetics Supplement Series*, 7(1), 745-746. doi: 10.1016/j.fsigss.2019.10.161.
- [5] Da Silva Junior, R.C., Wirz, L.N., Solares Reyes, E., & Del Moral Stevenel, M.A. (2020). Development of DNA databases in Latin America. *Forensic Science International*, 316, 110540. doi: 10.1016/j.forsciint.2020.110540.

- [6] Dabizha, D.V. (2017). Use of accounting records and automated information systems in criminal investigations. *Candidate's thesis*. Kyiv.
- [7] Del Real, Á., Sáenz-Aldea, M., Santurtún, A., & Zarrabeitia, M.T. (2021). Forensic databases, a perspective from the PENITENTIARY centers of Spain. *Science & Justice*, 61(2), 175-179. doi: 10.1016/j.scijus.2020.09.009.
- [8] DNA Test Cost. (n.d.). *medifee*. Retrieved from <https://www.medifee.com/tests/dna-test-cost/>.
- [9] Dubonos, K.V. (2021). The use of biometric databases of units of the Expert Service of the Ministry of Internal Affairs of Ukraine in the investigation of criminal offenses. *Candidate's thesis*. Kyiv.
- [10] Gamero, J.J., Romero, J.L., Peralta, J.L., Real, F.C., Guillén, M., & Anjos, M.J. (2008). A study of spanish attitudes regarding the custody and use of forensic DNA databases. *Forensic Science International: Genetics*, 2(2), 138-149. doi: 10.1016/j.fsigen.2007.10.201.
- [11] Horpyniuk, O.V. (2019). The international standards for the accumulation and use of biometric data (DNA samples) in the work of police. *Juridical scientific and electronic journal*, 2, 245-249.
- [12] Kanava, O.Yu. (2019). Problematic issues of molecular genetic research in the identification of missing persons. *Juridical scientific and electronic journal*, 5, 298-300. doi: 10.32782/524-0374/2019-5/71.
- [13] Komakha, V.O., Kryvda, H.F., & Syvolap, Yu.M. (2003). To the question of the problem of creating an information database to identify recidivists on the basis of DNA. *Information support for combating organized crime: Proceedings of the Scientific Conference* (pp. 142-150). Odesa: FENIKS.
- [14] Council of Europe Convention on the Protection of Children against Sexual Exploitation and Sexual Abuse. (2007, October). Retrieved from https://zakon.rada.gov.ua/laws/show/994_927#Text.
- [15] Kotliarenko, L.T., & Kofanov, A.V. (2021). Prospects for legislative support of genetic identification of servicemen. *The use of the achievements of modern science and technology in the detection of crimes: Proceedings of the Interdepartmental Scientific and Practical round. table* (p. 200). Kyiv: NAVS.
- [16] Criminal Procedural Code of Ukraine No. 4651-VI. (2012, April). Retrieved from <http://zakon0.rada.gov.ua/laws/show/4651-17>.
- [17] Lapointe, M., Rogic, A., Bourgoïn, S., Jolicoeur, C., & Séguin, D. (2015). Leading-edge forensic dna analyses and the necessity of including crime scene investigators, police officers and technicians in a dna elimination database. *Forensic Science International: Genetics*, 19, 50-55. doi: 10.1016/j.fsigen.2015.06.002.
- [18] Lozovaia, S.N., & Matarykina, E.V. (2019). Using the possibilities of forensic database of human genetic traits during the pre-trial investigation. *Sudebnaia ekspertiza Belarusi, Forensic examination of Belarus*, 2(9), 38-43.
- [19] Marchese, V., Cerri, N., & Caenazzo, L. (2013). Italian national Forensic Dna database in an European perspective. *Forensic Science International: Genetics Supplement Series*, 4(1). doi: 10.1016/j.fsigss.2013.10.126.
- [20] Minervino, A.C., Silva Jr., R.C., da Mota, M.F., Matte, C.H.F., Koshikene, D., Oliveira, J.P., Hessab, T., Trindade, B.R., Jacques, G.S., Ferreira, S.T.G., de Lima, E.A., & Felipe, C.C. (2019). Increasing convicted OFFENDER genetic profiles in the Brazilian NATIONAL DNA Database-Legislation, projects and perspectives. *Forensic Science International: Genetics Supplement Series*, 7(1), 575-577. doi: 10.1016/j.fsigss.2019.10.095.
- [21] Order of the Ministry of Internal Affairs of Ukraine "About the statement of the Instruction on the organization of functioning of forensic records of expert service of the Ministry of Internal Affairs" No. 390. (2009, September). Retrieved from <https://zakon.rada.gov.ua/laws/show/z0963-09#Text>.
- [22] Neuhuber, F., Dunkelmann, B., Höckner, G., Kiesslich, J., Klausriegler, E., & Radacher, M. (2009). Female criminals-it's not always the offender! *Forensic Science International: Genetics Supplement Series*, 2(1), 145-146. doi: 10.1016/j.fsigss.2009.08.026.
- [23] Povkh, A.S., & Romanchuk, S.M. (2018). Contamination during molecular genetic research. Its causes and consequences. *Forensic Herald*, 2(30), 106-115. doi: 10.37025/1992-4437/2018-30-2-106.
- [24] Prykhodko, V.O. (2020). Theoretical and practical bases of functioning and using of forensic databases of the Ministry of Internal Affairs of Ukraine. *Candidate's thesis*. Kharkiv.
- [25] Stepaniuk, R.L. (2019). Specificities of the assignment of forensic molecular-genetic examination while investigating murders. *Scientific Bulletin of the Dnipropetrovsk State University of Internal Affairs*, 3, 174-178. doi: 10.31733/2078-3566-2019-3-174-180.
- [26] Stepaniuk, R.L., & Ionova V.V. (2020). The assignment of forensic molecular-genetic examination during pre-trial investigation: problems and ways to solve them. *Bulletin of Luhansk State University of Internal Affairs named after E. Didorenko*, 3(91), 307-319. doi: 10.33766/2524-0323.91.307-319.
- [27] Stepaniuk, R.L., Shcherbakovskiy, M.G., Kikinchuk, V.V., Lapta, S.P., Guseva, V.A. (2019). Problems of the Application of Forensic Molecular Genetic Expertise in Criminal Proceedings of Ukraine. *Georgian medical news*, 5(290), 157-163.

- [28] Topchii, V.V. (2018). Topically of forensic molecular genetic examination and issues regarding its performing. *Theory and Practice of Forensic Science and Criminalistics*, 18, 256-263. doi: 10.32353/khrife.2018.28.
- [29] Expert opinion of the Ministry of Finance of Ukraine to the bill in accordance with Article 27 of the Budget Code of Ukraine. (2021, October). Retrieved from https://www.kmu.gov.ua/storage/app/bills_documents/document-2297288.pdf.
- [30] Establishing relationship. Site "State Forensic Examination Committee of the Republic of Belarus". Retrieved from <https://sudexpert.gov.by/ru/relationship-tips.html>.
- [31] Yepryntseva, I. (2020). Current issues of criminal accounting of human genetic traits. *Young Scientist*, 8(84), 232-235. doi: 10.32839/2304-5809/2020-9-85-50.
- [32] Law of Ukraine "On the National Police" No. 580-VIII. (2015, July). Retrieved from <https://zakon.rada.gov.ua/laws/show/580-19>.

■ Список використаних джерел

- [1] Amankwaa A. O., McCartney C. The effectiveness of the UK national DNA database. *Forensic Science International: Synergy*. 2019. No. 1. P. 45–55. doi: 10.1016/j.fsisyn.2019.03.004.
- [2] Бем М. В., Городиський, І. М., Саттон Г., Родіоненко О. М. Захист персональних даних: правове регулювання та практичні аспекти : наук.-практ. посіб. Київ : К.І.С., 2015. 220 с.
- [3] Boonderm N., Suriyanratakorn D., Sangpueng S., Wongvoravivat C., Waiyawuth W. Utilization of the cifs dna database to monitor recidivism. *Forensic Science International: Genetics Supplement Series*. 2019. No. 7 (1). P. 685–687. doi: 10.1016/j.fsigss.2019.10.138.
- [4] Brito P., Bento A. M., Gouveia N., Sampaio L., Balsa F., Lopes V., São Bento M., Cunha P., Serra A., Porto M. J. The impact of The Prüm Treaty on the portuguese forensic DNA database-A brief review. *Forensic Science International: Genetics Supplement Series*. 2019. No. 7 (1). P. 745–746. doi: 10.1016/j.fsigss.2019.10.161.
- [5] Da Silva Junior R. C., Wirz L. N., Solares Reyes E., Del Moral Stevenel M. A. Development of DNA databases in Latin America. *Forensic Science International*, 2020. No. 316. P. 110540. doi: 10.1016/j.forsciint.2020.110540.
- [6] Дабіжа Д. В. Використання обліків та автоматизованих інформаційних систем при розслідуванні кримінальних правопорушень : дис. ... канд. юрид. наук : 12.00.09. Київ, 2017. 20 с.
- [7] Del Real Á., Sáenz-Aldea M., Santurtún A., Zarrabeitia M. T. Forensic databases, a perspective from the PENITENTIARY centers of Spain. *Science & Justice*. 2021. No. 61 (2). P. 175–179. doi: 10.1016/j.scijus.2020.09.009.
- [8] DNA Test Cost. Retrieved from <https://www.medifee.com/tests/dna-test-cost/>.
- [9] Дубонос К. В. Використання баз біометричних даних підрозділів Експертної служби МВС України під час розслідування кримінальних правопорушень : дис. ... д-ра філософії : 081. Київ, 2021. 286 с.
- [10] Gamero J.-J., Romero J.-L., Peralta J.-L., Real F. C.-, Guillén M., Anjos M.-J. A study of spanish attitudes regarding the custody and use of forensic DNA databases. *Forensic Science International: Genetics*. 2008. No. 2 (2). P. 138–149. doi: 10.1016/j.fsigen.2007.10.201.
- [11] Горпинюк О. В. Міжнародні стандарти накопичення та використання біометричних даних (зразків ДНК) у діяльності правоохоронних органів. *Юридичний науковий електронний журнал*. 2019. № 2. С. 245–249.
- [12] Канава О. Ю. Проблемні питання проведення молекулярно-генетичних досліджень при ідентифікації безвісти зниклих осіб. *Юридичний науковий електронний журнал*. 2019. № 5. С. 298–300. doi: 10.32782/2524-0374/2019-5/71.
- [13] Комаха В. О., Кривда Г. Ф., Сиволап Ю. М. До питання відносно проблеми створення інформаційної бази даних з метою ідентифікації рецидивістів за ознаками ДНК. *Інформаційне забезпечення протидії організованій злочинності : зб. наук. ст. Одеса : ФЕНИКС, 2003. С. 142–150.*
- [14] Конвенція Ради Європи про захист дітей від сексуальної експлуатації та сексуального насильства : міжнар. док. від 25 жовт. 2007 р. URL: https://zakon.rada.gov.ua/laws/show/994_927#Text.
- [15] Котляренко Л. Т., Кофанов А. В. Перспективи законодавчого забезпечення генетичної ідентифікації військовослужбовців. *Використання досягнень сучасної науки й техніки в розкритті злочинів : матеріали міжвідом. наук.-практ. круглого столу (Київ, 25 лют. 2021 р.)*. Київ : НАВС, 2021. 200 с.
- [16] Кримінальний процесуальний кодекс України : Закон України від 13 квіт. 2012 р. № 4651-VI. URL: <http://zakon0.rada.gov.ua/laws/show/4651-17>.

- [17] Lapointe M., Rogic A., Bourgoin S., Jolicoeur C., Séguin D. Leading-edge forensic dna analyses and the necessity of including crime scene investigators, police officers and technicians in a dna elimination database. *Forensic Science International: Genetics*. 2015. No. 19. P. 50–55. doi: 10.1016/j.fsigen.2015.06.002.
- [18] Лозовая С. Н., Матарыкина Е. В. Использование возможностей криминалистического учета генетических признаков человека во время досудебного расследования. Судебная экспертиза Беларуси. 2019. № 2 (9). С. 38–43.
- [19] Marchese V., Cerri N., Caenazzo L. Italian national Forensic Dna database in an European perspective. *Forensic Science International: Genetics Supplement Series*. 2013. No. 4 (1). doi: 10.1016/j.fsigss.2013.10.126.
- [20] Minervino A. C., Silva Jr. R. C., da Mota M. F., Matte C. H. F., Koshikene D., Oliveira J. P., Hessab T., Trindade B. R., Jacques G. S., Ferreira S. T. G., de Lima E. A., Felipe C. C. Increasing convicted OFFENDER genetic profiles in the Brazilian NATIONAL DNA Database–Legislation, projects and perspectives. *Forensic Science International: Genetics Supplement Series*. 2019. No. 7 (1). P. 575–577. doi: 10.1016/j.fsigss.2019.10.095.
- [21] Про затвердження Інструкції з організації функціонування криміналістичних обліків експертної служби МВС : наказ МВС України від 10 верес. 2009 р. № 390. URL: <https://zakon.rada.gov.ua/laws/show/z0963-09#Text>.
- [22] Neuhuber F., Dunkelmann B., Höckner G., Kiesslich J., Klausriegler E., Radacher M. Female criminals–in’s not always the offender! *Forensic Science International: Genetics Supplement Series*. 2009. No. 2 (1). P. 145–146. doi: 10.1016/j.fsigss.2009.08.026.
- [23] Повх А. С., Романчук С. М. Контамінація під час молекулярно-генетичного дослідження. Причини її виникнення та наслідки. Криміналістичний вісник. 2018. № 2 (30). С. 106–115. doi: 10.37025/1992-4437/2018-30-2-106.
- [24] Приходько В. О. Теоретичні та практичні основи функціонування та використання криміналістичних обліків МВС України : дис. ... канд. юрид. наук : 12.00.09. Київ, 2020. 194 с.
- [25] Степанюк Р. Л. Особливості призначення судової молекулярно-генетичної експертизи під час розслідування вбивств. Науковий вісник Дніпропетровського державного університету внутрішніх справ. 2019. № 3. С. 174–178. doi: 10.31733/2078-3566-2019-3-174-180.
- [26] Степанюк Р. Л., Іонова В. В. Призначення судової молекулярно-генетичної експертизи на стадії досудового розслідування: проблеми та шляхи їх вирішення. Вісник Луганського державного університету внутрішніх справ ім. Е. О. Дідоренка. 2020. № 3 (91). С. 307–319. doi: 10.33766/2524-0323.91.307-319.
- [27] Степанюк Р. Л., Щербаковский М. Г., Кикинчук В. В., Лапта С. П., Гусева В. О. Проблемы применения судебной молекулярно-генетической экспертизы в уголовном производстве Украины. *Georgian medical news*. 2019. № 5 (290). С. 157–163.
- [28] Топчій В. В. Актуальність судової молекулярно-генетичної експертизи та проблемні питання щодо її проведення. Теорія та практика судової експертизи і криміналістики. 2018. № 18. С. 256–263. doi: 10.32353/khrife.2018.28.
- [29] Улютін Д. Експертний висновок Міністерства фінансів України до законопроекту згідно зі статтею 27 Бюджетного кодексу України. URL: https://www.kmu.gov.ua/storage/app/bills_documents/document-2297288.pdf.
- [30] Установление родства. Государственный комитет судебных экспертиз Республики Беларусь : [сайт]. URL: <https://sudexpert.gov.by/ru/relationship-tips.html>.
- [31] Спринцева І. О. Актуальні питання криміналістичних обліків генетичних ознак людини. Молодий вчений. 2020. № 8 (84). С. 232–235. doi: 10.32839/2304-5809/2020-9-85-50.
- [32] Про Національну поліцію : Закон України від 2 лип. 2015 р. № 580-VIII. URL: <https://zakon.rada.gov.ua/laws/show/580-19#Text>.

Перспективи впровадження зарубіжного досвіду використання ДНК-обліків у практику України

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■ **Анотація.** Мета дослідження – аналіз зарубіжного досвіду використання ДНК-обліків під час розслідування кримінальних правопорушень й обґрунтування можливості та доцільності його застосування в Україні. Методологія. Для досягнення поставленої мети використано спеціальні методи дослідження, а саме: метод системного аналізу, порівняльно-правовий, системно-структурний і метод прогнозування. Наукова новизна дослідження полягає в тому, що на підставі аналізу міжнародних правових актів, нормативно-правових актів деяких зарубіжних країн, а також наукових праць вітчизняних та іноземних вчених визначено основні дискусійні питання, що стосуються наповнення, функціонування та використання обліків генетичних ознак людини в Україні. За результатами аналізу сформульовано пропозиції щодо усунення визначених проблемних питань, а також реформування законодавства в контексті досліджуваного питання. Висновки. Обґрунтовано наукову позицію стосовно того, що ефективним способом розв'язання проблемних питань, пов'язаних із функціонуванням і використанням генетичних обліків людини в Україні є вивчення та впровадження передового іноземного досвіду, адже більшість країн почали формувати обліки ще наприкінці попереднього століття. Доведено, що реформування й удосконалення практики наповнення, функціонування та санкціонованого використання обліків генетичних ознак людини має здійснюватися шляхом прийняття спеціального закону. Акцентовано, що в процесі визначення ДНК-профілів категорій осіб, які підлягають реєстрації в обліку генетичних ознак людини, слід спрямувати увагу на безвісно відсутніх особах, а також на тих, кого внаслідок наявності психічних розладів чи старечої деменції неодноразово розшукували органи Національної поліції за фактом їх безвісного зникнення. Констатовано, що розроблення та впровадження законопроекту мають цілком узгоджуватися зі стратегією розвитку правоохоронних органів, а витрати на реалізацію всіх законодавчих ініціатив повинні закладатися в державний бюджет відповідного року

■ **Ключові слова:** облік; генетичні ознаки; ДНК-аналіз; молекулярно-генетичне дослідження; зарубіжний досвід; кримінальне правопорушення