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**CRIMINAL-LEGAL POTENTIAL FOR ENSURING THE
SECURITY OF GENOMIC REGISTRATION**

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Abstract

The advances in scientific innovation activities create not only new worldwide opportunities, but also lead to potentially new risks that come along with them. The effective implementation of the new social relations within the framework of sectoral legislation depends on the resources of criminal-legal legislation as part of the implementation of the protection of public and state security from criminal attacks. The analysis of the existing capacity of criminal-legal assurance of human rights security in the sphere of state genomic registration revealed that the current Russian criminal law allows sufficient counteracting of abuses of office in the sphere in question. At the same time, it was revealed that the criminal-legal protection of genomic information from encroachment by individuals who are not special subjects of crimes requires improvement. The definition of genomic information through personal data used in federal legislation does not fully reflect the specifics of such information. Accordingly, there is a need to improve Chapter 28 of the Criminal Code of the Russian Federation “Crimes in the field of computer information” by introducing the qualifying attribute “the exact same act committed with regard to biometric databases” into the articles it contains. The need to supplement the Criminal Code of the Russian Federation with Article 137¹ “Violation of the rules of circulation of human genome data,” which provides responsibility for violations in the area of circulation of biological samples and the results of human DNA analysis, is also substantiated.

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1. Introduction

The main trends in ensuring national security and the predicted tendencies of its future state are conditioned, among other things, by the development of scientific and technological processes in society. The global development of convergent technologies emerged as a result of the symbiosis of information and communication, bio- and nanotechnology, has led to new social relations that require effective legal regulation and criminal-legal protection in the framework of state and public safety.

In accordance with the National security strategy, ensuring state and public safety is carried out by increasing the effectiveness of law enforcement agencies and special services, improving the unified state system of crime prevention, development and use of special measures aimed at reducing the criminalization of social relations (On the National Security Strategy ...). The realization of this trend is possible, inter alia, through the use of new knowledge in the field of state genomic registration, as well as the turnover and storage of human genomic information.

The advances in scientific innovation activities create not only new worldwide opportunities, but also lead to potentially new risks to humans. Taking this fact onto consideration, the issue of ensuring the security of human rights in the field of state genomic registration has become topical. The effective implementation of the new social relations within the framework of sectoral legislation depends on the resources of criminal-legal legislation as a part of the implementation of the protection of public and state security from criminal attacks. Rational legal regulation of the access to human bioinformatics resources and genomic information will ensure a quick response to emerging threats through the subsidiary application of criminal law repressive measures.

2. Problem Statement

It is possible to agree with the statement in the scientific literature that ensuring the security of genomic information is an essential guarantee of human rights in the sphere of privacy, aimed at preventing arbitrariness, abuse and discrimination on the basis of differences in the human genome (Dubov & Dyakov, 2019). The increasing use of genomic registration by the state requires, at the same time, the strengthening of the protection of the relevant relationships.

Due to their particular importance, the criminal-legal impact is central to the issue. It is important to assess as early as possible the available possibilities of criminal-legal assurance of genomic registration in order to prevent violations of human rights, freedoms and the interests of society and the state in the near future. The available criminal-legal capability to protect social relations in the sphere of genomic registration is currently not fully revealed. Improvement of the current criminal law in this aspect is required.

3. Research Questions

The present study examined:

- the existing regulatory legislation – Federal Law of December 03, 2008 No 242-FZ “On State Genomic Registration in the Russian Federation”;

- the provisions of the Criminal Code of the Russian Federation of 1996;
- the examples from foreign practice showing the relevance of the special protection of relations in the field of genomic information turnover.

4. Purpose of the Study

The purpose of the study is to identify the ways to improve the effectiveness of criminal-legal security of genomic registration in the Russian Federation.

5. Research Methods

The general dialectical method of cognition of social phenomena and processes as well as a set of general (hermeneutical and axiological) and special (formal-legal and modeling) scientific methods were used during the research.

6. Findings

According to part 3 Article 10 of the Federal law of December 03, 2008 № 242-FL “On state genomic registration in the Russian Federation” (On State Genomic Registration in the Russian Federation) (hereinafter referred to as the “Law on genomic registration”) officials of state agencies and institutions that conduct state genomic registration and individuals who gain access to biological material and genomic information in connection with their official or professional duties have liability established by Russian legislation for violation of the rules for biological material turnover and the processing of genomic information.

The Criminal Code of the Russian Federation (Criminal Code of the Russian Federation) contains a number of articles providing for the liability of officials: Article 285 “Abuse of office” (for example, the use of genomic information by an official to establish their family ties in order to obtain an inheritance); Article 286 “Excess of authority” (e.g., illegal mandatory forcible collection of genomic information); Article 293 “Negligence” (e.g. lack of control over the quality of instruments and materials necessary for the collection of biomaterial) and others. As it can be seen, the criminal-legal capacity to ensure the security of genomic registration is quite extensive in this aspect. At the same time, encroachments on the relations in question may also be committed by other subjects.

At first sight, genomic information, since it is expressly stated in Article 1 of the Genomic Registration Law, is only a kind of personal data. However, such information has two crucially important features for legal assessment. Firstly, it makes it possible to recognize inherited traits not only of the DNA host himself, but also of his relatives. Secondly, unlike passport data, passwords and logins, such information is not subject to change throughout the life of the subject, which justifies in itself extremely strict requirements for its protection.

Thus, we should agree with the opinion that the position of the legislator, who reduces genomic information to personal data only, is vulnerable: “by giving consent to the processing of his genetic information, the subject of personal data also allows accessing the genetic information of his relatives,

that is, accessing the information that goes beyond the personal data of the subject himself" (Vladimirov et al., 2018, p. 45).

The following fact is an illustrative one in this sense. As an experiment, DNA samples were taken from a resident of Nevada, K. Long, who soon underwent bone marrow transplantation. The donor was a citizen of Germany. After surgery, Long's DNA analysis surprised scientists: his sperm cells carried only the genetic material of a donor from Germany. As a result, this patient's children will genetically be the children of that particular bone marrow donor (Murphy, 2019). This situation creates an extremely dangerous collision for jurisprudence: it is not clear whose children should be recognized as potential heirs, and how to avoid mistakes in evaluating the results of DNA testing if one of them commits a crime.

This leads to the conclusion that there is a need to toughen liability for attacks on databases with genomic information: even timely detection of such crimes cannot fully neutralize the harm caused: as mentioned above, unlike a password, phone number or passport information, genomic data cannot be changed – they characterize a person throughout his life.

As an object of the material world constructed from DNA, it is necessary to recognize that the genome has an extremely complex legal nature, which can be considered by various branches of legislation and legal institutions.

At present, there is uncertainty about the place of the genome patent and civil law. The unsettled nature of these issues leads to the following. In the field of genomic registration, it is extremely problematic to apply the provisions of Articles 146, 147 of the Criminal Code of the Russian Federation, aimed at protecting patent, copyright, and related rights.

Russian criminal law is also powerless in the misappropriation of human biomaterials, which can be used to obtain information about a person's genetic characteristics. The inapplicability of the property-law concept to human biomaterials leads to the fact that, for example, samples of blood, saliva, sweat marks are not recognized as the subject of theft. Thus, the removal of a drop of blood or a few hairs against the owner's will does not generally constitute a theft or a crime against human health.

This situation is exacerbated by the mass proliferation of private medical clinics. In the absence of proper controls to ensure the rights of citizens, the safety of the various biological materials obtained from patients in the course of treatment is jeopardized. Any security measures of genomic registration databases will be leveled by the facts of easy access of intruders to the primary sources of this information - human biological samples. Of course, the mere threat of criminal liability will not change the situation.

The population should take a more responsible approach to the security of information about themselves and their relatives, not to trust unreliable organizations. There is a paradox: many citizens are reluctant to provide data about themselves to government agencies with guaranteed security but are happy to hand it over to various commercial organizations. Such projects may aim to conduct alternative, non-state genomic registration out of selfish or other nefarious interests, aiming to sell information from the collected databases.

The particular importance of securing genomic information databases is also evident from the Israeli biochemists' claim that it is possible to falsify a person's DNA sample using only the genetic profile information, without having samples of the biological material itself (Frumkin et al., 2010).

In this situation, it is necessary to specify the possibility of liability for falsifying DNA as a crime against justice. Although the Criminal Code of the Russian Federation has Article 303 "Falsification of evidence and results of operational search activities", this does not completely solve the problem. In some cases, the guilty person may not know why he is forging a sample, so the mentioned article does not always cover such a socially dangerous act. By itself, article 303 of the Criminal Code of the Russian Federation does not require changes. At the same time, there is a need to improve other provisions of the criminal law. It will avoid legal gaps in prosecution cases for socially dangerous encroachments in the sphere of circulation of information used in genomic registration.

Since the storage of genomic information is based on computer technology, Chapter 28 of the Criminal Code "Crimes in the field of computer information" will need to be edited. In particular, in Article 272 "Illegal access to computer information," Article 273 "Creation, use and distribution of harmful computer programs," Article 274 "Violation of the rules of the operation of storage, processing or transmission of computer data and information and telecommunications networks," and Article 274.1 "Illegal impact on critical information infrastructure of the Russian Federation," of the RF Criminal Code the qualifying feature "the same act committed in respect of biometric databases" should be added.

The following arguments can justify the increased public danger of attacks on such databases:

1) leakage of information stored in them is essentially irretrievable. Indeed, it is impossible to replace the human genome with another genome whose data have not been compromised;

2) this information may affect the rights of other persons (relatives) as well. However, with advances in technology, there are more and more opportunities to obtain the correct data, even from a relatively small fragment of DNA;

3) in its essence, this information concerns personal non-property rights of citizens, which are much more difficult to restore when further violated than property rights;

4) such databases are assumed to be heavily protected and require special efforts on the part of the perpetrator and, more often, organized criminal groups to break into them;

5) these databases will affect, directly or indirectly, the rights of minors and other persons in need of increased protection by the state and society.

As for the collection of biological samples, to develop the provisions of Article 10 of the Law on Genomic Registration, in order to prevent encroachments on human genetic identity it is necessary to supplement the Criminal Code with Article 137.1 "Violation of the rules of human genome data turnover" with something like this: "Illegal collection, storage, use, destruction or distribution (including transfer, sale) of biological samples for the purpose of obtaining human genome information, or the results of human DNA analysis, resulting in a substantial violation of the rights and legitimate interests of a citizen or organization or the legally protected interests of society or the state...". The existing Article 137 "Violation of Privacy" of the RF Criminal Code does not cover most cases of committing socially dangerous acts related to turnover of genomic information of citizens.

7. Conclusion

The study of the existing potential of criminal law enforcement of genomic registration in the Russian Federation showed that the current Criminal Code allows complete counteracting to official

abuse in the studied area. At the same time, the criminal-legal protection of genomic information from the encroachment of persons – common subjects of crime, requires improvement.

The definition of genomic information through personal data applied in the Law on Genomic Registration does not completely reflect the specifics of such information: a) it allows understanding the inherited traits not only of the DNA host himself, but also of his relatives; b) unlike passport data, such information is not subject to change during the lifetime of the DNA host, which justifies special requirements for its protection.

The necessity of improving Chapter 28 of the Criminal Code “Crimes in the field of computer information” was identified in terms of the introduction of the qualifying feature “the same act committed in respect of biometric databases” in the articles contained therein. There is also a need to supplement the Criminal Code of the Russian Federation with Article 137.1 “Violation of the rules of human genome data turnover”, in order to provide liability for violations in the area of the turnover of biological samples and results of human DNA analysis.

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