DNA Fingerprinting and its Role in Improving the Murder Crime

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Abstract

The scientific development that was brought by modern civilization has left its clear imprints in the field of biology, which is directly reflected on the living cell and its relationship to genetics and formation. That It has recorded many scientific discoveries in the field that provided a wide opportunity to reveal some of the secrets of the human cell. The science of cell study (cytology) is no longer limited to a purely descriptive study, but rather extended to the experimental study with the help of experimental embryology and analytical studies of the fertilization process, until the development of the scientific increases in the awareness of the major fundamental issues that are related to cytological genetics which are the nature of the human gene and self-reproduction and how to perform his work in a report about these attributes, also this development has extended to include the treatment of some genetic diseases, as this science has extended to the field of legal evidence (criminal and civil), this is because the traditional means which are used in evidence and improving may not achieve the justice or be insufficient to achieve them.

Keywords: *Improving, murder crime, DNA fingerprinting.*

Introduction

Dr. (Alec Jeffrey) is considered the first who addressed the term of the human fingerprint of the human being in 1985 as he continued to conduct his research until he was able to reach that the DNA is the characteristic of each individual and there can be no similarity between two people except in the case of identical twins and of the same gender.

In order to know the scientific meaning of the genetic fingerprint, it is necessary to know the genetics and the genetic guidance because it is the two specialized sciences[1] in it, as Genetics is defined as: A branch of biology that studies the similarities and heterogeneities in successive generations of all living things, that is, it is interested in studying that similarity and the difference between children on the one hand and parents and relatives on the other hand[2]. The science of human genetics is a container of information of an individual and social nature at the same time, which affects the human race due to its ability to amend, change and transfer.[3] The DNA is found in the nucleus of the cell, with the exception of red blood cells that do not have cell chromosomes, that the human body in general contains trillions of cells,each of these cells embraces a nucleus which is responsible for the life and function of the cell, each nucleus embraces the genetic material starting from the common characteristics to all human beings or between closely related strains and ending with the specifics of a particular individual and distinguishing it by itself, so that it does not match another individual of the people,as the genetic material that is found in the nucleus of the cell forms strings or tapes in a tight spiral form and is called ((chromosomes)) and they number (46) chromosomes as these chromosomes mate so that twenty three pairs appear from the father and the other is from the mother[4]. The genetic fingerprint was known from a practical point of view as (it is a genetic pattern formed by repeated sequences during the unknown function of the DNA, these sequences are what distinguishes each person from the other, as the reason for this is some enzymes that break down the

DNA in limited, unchanging and fixed places, as DNA is of two types: non-functional DNA (Non-Fontionnelle) and functional DNA (Founctionnelle) important here is DNA non-functional because it can be used as a scientific evidence, as for the enzymes, they are proteins, but not all proteins are enzymes, that every step of the biological reactions requires a specific enzyme which stimulates them. The proteins are either synthetic or functional that include enzymes and protein hormones.(9) The genetic fingerprint was also defined: as two-pronged chemical units carried from the genes distributed in a way that accurately distinguishes each individual from the other and the reason for this specificity is due to the nature of the formation of the genetic fingerprint itself, as it is made up of two parts of the genes, one is that inherits from his father while the other one inherits from his mother to form a new formula,hence, the map of the presence of genes on the DNA strip[5] is described as a fingerprint, as it carries characteristics that would reflect the personal and subjective elements that a person is unique to and from other people of his own race (10).

The legal meaning of the DNA: Despite the regulation of some criminal laws for the genetic fingerprint, such as the French Penal Code, where these laws have been permitted to be applied in the courts as evidence of proof and denial in civil and criminal fields, as they have not set a specific definition for them,or define a concept, leaving the matter in this regard to the legal jurisprudence in carrying out that task, which is also not the fingerprint of it has a full and comprehensive definition of it which has been defined by one of them as (pure information pertaining to a person that distinguishes him from others in a biological means to determine the personality and to identity the individual). (11)

Another one is defined it as (it is a fixed original identity for every human being, which is required by genetic analysis and allows the identifications of individuals with almost complete certainty) (12) It is also known as (the material that carries the genetic factors and genes in living organisms) (13)

Second: Genetic fingerprint properties and ways of showing them: The genetic fingerprint is characterized by a set of characteristics that make it distinct in comparison with other forensic evidence, as this is proven by medical experiments. Each person has a genetic fingerprint that differs from the other person, as there are no two people who are similar to them except for identical twins from one egg, as more than half of the nitrogenous chemical bases present in chromosomes. The living cell is not suitable for the use in the genetic fingerprint technology, given its similarity among all people of the same type, while the rest of these rules and what they contain of DNA, they differ from one generation to another and from one person to another, which is used in the analysis of the genetic fingerprint [14]. The genetic fingerprint is also distinguished by the diversity of its sources, as the genetic fingerprint can be obtained from any of the biological sources, whether the samples are liquid such as blood, saliva, semen, mucus or tissues such as flesh, bone, skin and hair. This characteristic of the genetic fingerprint may obviate the fingerprint in the case that there are no traces of fingerprints of criminals at the crime scene (15)

Also, the genetic fingerprint appears in the form of wide lines, which makes it an easy to read, save and store as it is saved on the computer until needed, one of the most important characteristics of the genetic fingerprint is that it is present in all cells of the human body except red blood cells, moreover, they are identical in all cells of the body as they do not change and do not substitute over time over them as the DNA remains constant until after the death of the human (16)

Crime is often committed in secret and surrounded by some ambiguity, this prompted the investigation men to pay attention to the remnant material, which is considered to be on the scene of the crime in order to benefit from it by following the criminals and identifying the characteristics that distinguish them from others by taking the remnant and transferring it to the laboratory and conducting the analysis and obtaining information that helps them in identifying the criminals or contributing significantly to show the innocence of the accused [17] that the biological samples found differ with the variables committed crime, as we mentioned above and whatever its type, taking it requires the presence of a criminal photographer who is filming at the scene of the accident with the DNA fingerprint expert. By using a video camera to explain the crime scene as well as the relative dimensions of the crime scene and how the samples are located in that place (18). That there are several method for analyzing the genetic fingerprint (19), but there are two method that are considered one of the most common method in this field, which are the genetic packages method and the Polymerase Chain Reaction (PCR) method.

The second method: The serial polymerization

method (PCR), which means enlarging and copying the small part in the blood of the DNA that was found at the crime scene to give new copies until the number of generations that produce thirty generations of DNAwhich was presented in a drop of blood at the head of a needle more than a billion times during those three hoursby raising the temperatures as this rise in temperatures will lead to an increase in the absorbed rays, instead of separating the orders that relate the nitrogenous bases, as if the temperature is preserved, these commands return to correlation with what it completes of the sequences [(23)].It is clear from the above that taking one of these two method depends on the amount of the sample which presented at the accident scene, so if the quantity is big, using the genetic beams method and if the quantity is few it uses the method of polymerase chain reaction (PCR).It is worth noting in the field of biological resources that are necessary to conduct the DNA analysis. There are steps that must be taken into consideration when finding the sample, which are: calling the photographer to conduct video photography and make a sketch of the sample in order to determines its relative dimensions to each other before it is raised by the DNA fingerprint expert. The scattered samples must also be kept separately as an independent sample. When the sample is sent to the criminal laboratory, it must be sent, sealed with the stamp of the forensic medicine department, guarded by a police officer without mentioning any information which are related to the name of the sample, its type, size and date on a tube and it must be mention in special records in order to preserve its biography.

Third: Conditions for accepting the DNA as a proof:

The DNA analysis is described as a scientific guide in forensic evidence. It requires two conditions:

The first condition: Ensure the reliability of the DNA result

The certainty of the value of the DNA analysis depends entirely on the quality of the research method and the accuracy in interpreting the results of this analysis, which requires a highly efficient laboratory (24)because this test is described as a complex process as it requires an advanced laboratories and scientific devices as well as many chemical compounds also it requires extensive experience and accurate specialization

It can be concluded from the above that the condition to verify the reliability of the result of the DNA analysis and its dependence as a scientific evidence in forensic evidence must be ensured that the value of the DNA test depends entirely on the quality of the research method and the accuracy in interpreting the results that resulted from it, so this quality and accuracy in the analysis requires extensive experience, a high-level specialization, a high-efficiency laboratory, as well as a laboratory that performs genetic testing. That the rules must be established to preserve samples and the information that results from this analysis as the strength of the fingerprint in the evidence depends on the method of sample collection, condition, quantity, laboratory efficiency and quality of tests.

Fourth: The authority of the forensic judge to take evidence of the DNA: The DNA analysis is presented by the people of expertise, whether it is laboratories or specialized departments in that, Especially if the matter related to the criminal case which is pending before the court is related to some of the issues that require knowledge and science to enter, given that it needs special knowledge that is not available to the forensic judge, so he seeks the assistance of an expert in order to provide advice that helps him to settle the case, as it is not permissible for a judge to replace himself with the expert in a specific matter that requires the use of specialists, as he can not reach the truth in the case except by resorting to the people of experience. However, the procedural law gave the judge the freedom to decide for himself the truth that he is convinced with it.

Fifth: The role of the DNA in proving the crime of murder: The word jurisprudence differed on the possibility of relying on the genetic fingerprint of the crime of murder to judge a conviction, so a side of the criminal jurisprudence sees that it is not permissible to rely on these clues to judge conviction and to accomplish and reinforce the evidence thereof because it is evidence that is suspected of suspicion, therefore,it is not suitable for itself to be the basis for the sole provisions that It should be based on certainty, He drew suspicion that the conclusion is not similar, but may be interpreted in more than one way that benefits more than one possibility, therefore it is not sufficient alone for conviction, if it is sufficient to take some measures of inception and preliminary investigation, it is permissible to rely on the judicial presumption in ruling the conviction if it is reinforced by other evidence, also it is not permissible to rely on it alone, so this is because of this presumption, regardless of its significance, is incomplete because it is indirect in the proof.

Conclusion

After we finished our humble research (the DNA and its role in proving the crime of murder), it became clear to us that every person has a unique genetic pattern in the genetic structure within every cell in his body that no person in the world shares in it. This pattern is called the genetic fingerprint, as it is a detailed structure that indicates the identity of each individual with a sample. The genetic fingerprint is characterized by a set of characteristics as it is numerous and varied its sources, which makes it possible to make this fingerprint from any liquid human waste such as blood, saliva, semen or tissues such as bone, flesh, skin and hair, asthis feature obviates the absence of traces of fingerprints of the criminals at the crime scene as it resists decomposition, rot and other climatic factors from heat, cold and drought for long periods, so that the genetic fingerprint can be obtained from both ancient and modern relics,so the genetic fingerprint is considered to be one of the scientific physical evidence that has an effective role in forensic evidence for murder or other crimes for which the fingerprint has a role in proving it.

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