# History of creation, development, and progress of Forensic DNA throughout its use

## Introduction

The term Forensic DNA entails the process of applying genetic testing for identification purposes often used in the criminal justice system. It is a sub-branch of forensic science which deals with the use of genetic materials in a criminal investigation. Frequently, it is used to answer questions based on the legal situation which includes civil cases and crime. At times, it is used in investigations to identify a criminal or to confirm the identity of someone whose identity is supposed to be known. The process of forensic DNA genetic application is done through investigation which takes place to find out certain information that might be of help during the civil cases or crime investigation. The process is done during the Forensic DNA test helps to find the criminal by carrying out a test in the lab by comparing the sample found at the crime scene and the suspect DNA profile, which has developed over a long period, is the most common method used today in most countries to curb crime. Among other branches of Forensic DNA includes Trace Evidence Analysis, Forensic Toxicology, forensic phycology, Forensic podiatry forensic odontology and Forensic Entomology. All these branches developed over a long period through the progressive use of Forensic DNA. Therefore, this has improved because of the expansion of forensic knowledge (Loftus et al 207). In order to unveil the different things that have taken place in the development of forensic science, this essay explores the history of forensic DNA creation, its development and the progress of Forensic DNA since it was first used.

Across the numerous studies, the development of DNA technology in the field of investigation has a primary role in ensuring that individuals are safe and that everyone gets what he deserves with respect to transparency and integrity. However, the DNA technology has offered a wide range of job opportunities to the various trained person at each corner of the sub-branch in that field since it involves the complex and systematic arrangement of ideas and experiments to achieve the desired result for each side of the work. In addition, the skills developed in the DNA technology in identifying criminals in various security sector of the world has gone further to introduce the new mechanism in a large number of the countries across the world hence giving hope to the people of a safe and peaceful life that is free from theft cases.

## Creation of forensic DNA

The creation of Forensic DNA came up as a result of intensive research of genetic identities. DNA was first used as evidence in the year 1986 by professor Jeffrey’s during a criminal investigation. They were used to link samples of semen stains during rape and murder cases to identify whether the samples matched those of the suspects. These criminal incidences had taken place different times with a margin of three years in a small village called Leicestershire found in the United Kingdom. Since then, it is commonly used in police investigations. However, the onset of forensic DNA started as a result of intensive research that was being conducted on genetic identities. The primary aim of establishing forensic DNA was to create a means whereby genetic materials can be used in the criminal justice system as evidence once a crime has been conducted. Currently, it is used to find out whether the sample material found at the crime scene is similar to the person who committed the crime through a lab test. Among the first forensic DNA tests, were the fingerprints, which happened in China to identify their documents during business activities and signing of trade treaties between one country and another. The incident was claimed that it was among the first Forensic DNA test that was done which later developed into other branches listed above (Loftus et al 208). During this process, the technician may use body organs or materials like the hair; a single hair contains samples of white blood cells which are broken through a scientific process by using detergents and other specified chemicals used in the test process. The DNA is then separated from the extracellular material later the restriction enzymes are used to cut the DNA into smaller pieces. Therefore, it involves several stages for it to a successful process; the technician was required to extract the DNA from the cells, this was done mostly through body material like stools, blond hair, and nails (Jeuniaux et al 270).

## DNA fingerprinting steps

Extract DNA from cells-To perform DNA fingerprint, there must be DNA sample. Then the DNA is worked upon by the use of the enzymes and other chemicals meant to be used in the test process. The samples are treated with a series of chemicals to break the cell membrane open; these will expose the DNA sample remove the unwanted contents such as proteins and lipids. However, separation of DNA fragments done on a gel, the process of separation where the DNA forensic technician transfers the DNA results to a paper and adds the radioactive probe. Then the Separation of DNA fragments is done on a gel -setting up of the X-ray fill that results to the fingerprint process (Jeuniaux et al 272).

## Development of forensic DNA

### Procedures to be followed

Biology. Biology is among the crucial subject in forensic DNA because it explains the biological process that will be taking place for the process of forensic DNA to take place successfully, it is also key in explaining the enzymes used in the test (Hoffman 50).

Technology. The second tool that is very essential is technology, a level of technology, equipment's and tools are needed to carry out the test of Forensic DNA, and genetics are required in the test because they are the one used to give the difference and similarities in the sample materials used in the case study. DNA typing –polymerase chain reaction (PCR), will be required in the process of lab testing used in testing difference materials genetically and whether they match. Another DNA procedure termed as typing-short tandem repeat (STR) analysis is done by a specialist to prove whether the genetics are the same either from the same person or another person. Furthermore, DNA process known as Typing-Y-chromosomes analysis is the last process done in DNA technology (Hoffman 52).

After a long time of research forensic DNA has gradually developed into stages, it has therefore grown to be among the most used method to curb crime in most countries. However, it is used to identify the biological father of a chilled in case the father denies the child. Therefore, it has developed from fingerprinting too many other DNA technologies.

### Functions of DNA fingerprint

It is mostly used in criminal cases or investigation to tell whether blood or tissue sample obtained from the crime scenes matches or belongs to them to suspect. The technology used in the tests during the investigation can be used to determine the comparison of the DNA markers to show whether a child could have inherited their makers from the suspected father. In the field of science, the DNA fingerprints are used in the history of plant and animal populations which help to determine how closely are spices related and their population this will help in the track of their spread over time. The ability to look at an organism's gene has revolutionized the understanding of botany, zoology, agriculture and human history (Hoffman 51).

### The progress of forensic DNA

The progress of forensic DNA has continued to improve over years as times goes by. In the past, there were no modern tools and technology had not yet grown to be the way it is.it was hard to use forensic DNA to trace criminals. Also, it was hard too to use it in identifying a father to sons and daughters who whose fathered claims that they are not his. This was because during time technology was still low and people were not enlightening as this current error (Goodwin 223). Therefore, there has been a tremendous change in this of forensic DNA. Most of the security personnel use the method to get a suspect or to handle criminal cases within an area. The DNA fingerprints are used in the history of plant and an animal population which helps to determine how closely are spices related and their population this will help in the track of their spread over time. The ability to look at an organism's gene has revolutionized the understanding of botany, zoology, agriculture and human history. The ability to look at an organism's gene has transformed the knowledge of botany, zoology, agriculture and human history (Hoffman 51).

## Conclusion

In conclusion, the term forensic DNA has been applied globally in genetic testing for a legal process like in crime to identify various criminals. However, forensic DNA test has a variety of branches which include, trace evidence analysis, forensic toxicology, forensic phycology, forensic podiatry forensic odontology and forensic entomology which are essential in that field. Among the first test of forensic DNA, the technique was employed in the application of fingerprints. In addition, for the procedure to be successful there was the need for keen scientific experiments that require specialized technicians. In addition, the idea of forensic DNA test has played an integral role in reducing crime cases across the globe since the security department incorporated the program into their working strategies to enhance their effectiveness. In the field of science, the DNA fingerprints are used in the history of plant and animal populations which help to determine how closely spices related and their population this will help in the track of their spread over time. The ability to look at an organism's gene has revolutionized the understanding of botany, zoology, agriculture and human history. There is need for the improvement in the forensic DNA technology that can be used further in predicting the behavior of future generations. Also, it will be essential for researchers to come up with a mechanism of modifying the characteristics of individuals so that cases of crime can be reduced in future to make the society free from criminals who threaten peace and harmony among individuals living in the contemporary society.

## Works Cited

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