

# “finding your roots”

[Science](#), [Genetics](#)



“ Finding Your Roots" We, people are related species that have lot of things in common. We all originated from a same ancestor Homo sapiens who were mutual parents in the past. When we compare one another genetically, we both possess 99. 9% of genome sequence identical. It depicts that we all originated from a same blood and entirely related to one another. If we track our ancestors, long way behind we will find the same parents in our genome identity. Miraculously, the remaining one tenth of the DNA sequence is the genome that makes us what we are and an identical around the globe. That one tenth percent changes our appearance between one another, behavior and understanding and makes us powerful or incompetent. Due to this, study of DNA and its applications has become more and more important hovering lot of attention to carry out DNA usages for identification of inheritance, legal issues, study of human behavior and many other medical applications. DNA commonly known as Deoxyribonucleic Acid is a heredity materials in a human and almost all living organisms found in the earth. DNA is a double helix structure consisting of nucleotides and nucleosides with sugar and phosphate base that carries genetic materials from parents to its offspring creating completely a unique human body. DNA comprises of a long molecules corresponding four different nucleotides i. e. adenine, guanine, cytosine and thymine also commonly called as “ A”, “ G”, “ C” and “ T” which plays an important role for an identification of who they are and where they come from. DNA importance and its usages were unknown until James Watson, Francis Crick, Maurice Wilkins and Rosalind Franklin came up with an explanation of DNA in 1953. After its discovery, DNA has significantly become a great achievement for all mankind as it provides more

understandings of human origin, evolution and its behavior in the past, present and in the future. DNA profiling is a technique that is used by forensic scientists to assist in an identification of individuals with their respective DNA profiles. Scientists use PCR (Polymerase Chain Reaction) which replicates small sample of DNA to full extend which is needed for a study. This study process has revolutionized maternity/paternity testing, forensics, and identification of tragedy victims in our society. When properly conducted, DNA-based testing not only provides a confirmation, it also provides positive evidence of a person's identity without any biases. DNA profiling can be acquired through a small sample of skin fragments, body fluids, or hair of a person. After DNA profile has been created, those profiles now can be used in different purposes such as DNA fingerprinting and identifying an individual from a group. This is how ancestors are identified in the family tree and linkages are verified. There are many other applications of DNA that has been developed which has been a vital discovery for our society. If there is a misperception about a real father or mother; parents always can use the DNA fingerprinting to prove their rights of parenting. Similarly, it can also be used to trace relatives and ancestors in the society. Genealogy the study of ancestry depends upon the study of DNA and its characters. With the help of verbal and written history, and clues from DNA testing, one family can trace his/her ancestors and learn about his/her family tree. Family tree shows all of their parents and relatives long back in the past through the sequence of genome. Many people living around the world are curious about their heritage and linkage and this test has proven to be the best to learn. This test is not only about the linkage or bond between

present and past, but through the family tree of DNA testing people are also able to identify the risks and factors of disorders carried through DNA from one generation to the other. Talking about DNA testing in forensic science or a crime lab, DNA testing has been used to find a criminal through a small sample of DNA extracted from the crime scene. After extraction, police elaborates the DNA sequence and try to match the felon through DNA database. This process has helped police to find a criminal in a quick time which has brought good faith in a judgment at the court through beyond the reasonable doubt. Besides that, DNA test also can be used for an innocence trial. People always can prove their innocence through DNA testing and their non-involvement in the convicted crime. In developed society, DNA fingerprinting in agriculture has grown in big numbers. Scientists usually extract and make DNA sequences for production of good quality of harvest. After production, they patent the sequence and ideas so that no other competitive companies copy their work and their rights of production. At court, DNA fingerprinting of harvest is used to prove the produce belonging to the right owner. Moreover from heredity linkage, crime scene and innocence, DNA testing has been used in a wide number in the medical facilities. DNA testing is used in the process of Gene hunting, Genetic profiling, Gene targeting and drug design. In Clinical research and medicine lab, scientists often use gene hunting and gene targeting in order to identify the gene that caused the disorder or sickness in a human body. After scientist realize which gene has produced that disorder, they use gene profiling matching the medicine related to that gene receptacles and later producing a drug for a cure for that gene allele. Besides these specified

usages and benefits, there are many other different applications of DNA that our society can rely on and take advantage of. DNA identification and sequencing has not only played a greater role in our society to find our roots and ancestors, it has also provided lot of solution and a backbone for many criminal cases that could have cost lot of time and money for a judgment. So, DNA discovery has proven to be an important one so for in this century.