

DNA testing

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INTRODUCTION

The explanation of DNA testing that follows is intended as an introduction to the subject for those who may have limited backgrounds in biological science. While basically accurate, this explanation involves liberal use of illustration and, in some cases, over-simplification. Although intended to be informative, this is brief and incomplete explanation of a complex subject. The author suggests consulting the scientific literature for more rigorous details and alternative views.

DNA EXPLAINED IN EASY TERMS

DNA is material that governs inheritance of eye color, hair color, stature, bone density and many other human and animal traits. DNA is a long, but narrow string-like object. A one foot long string or strand of DNA is normally packed into a space roughly equal to a cube 1/millionth of an inch on a side. This is possible only because DNA is a very thin string.

Our body's cells each contain a complete sample of our DNA. One cell is roughly equal in size to the cube described in the previous paragraph. There are muscle cells, brain cells, liver cells, blood cells, sperm cells and others. Basically, every part of the body is made up of these tiny cells and each contains a sample or complement of DNA identical to that of every other cell within a given person. There are a few exceptions. For example, our red blood cells lack DNA. Blood itself can be typed because of the DNA contained in our white blood cells.

Not only does the human body rely on DNA but so do most living things including plants, animals and bacteria.

A strand of DNA is made up of tiny building-blocks. There are only four, different basic building-blocks. Scientists usually refer to these using four letters, A, T, G, and C. These four letters are short nicknames for more complicated building-block chemical names, but actually the letters (A,T, G and C) are used much more commonly than the chemical names so the latter will not be mentioned here. Another term for DNA's building blocks is the term, "bases." A, T, G and C are bases.

For example, to refer to a particular piece of DNA, we might write: AATTGCCTTTTAAAAA. This is a perfectly acceptable way of describing a piece of DNA. Someone with a machine called a DNA synthesizer could actually synthesize the same piece of DNA from the information AATTGCCTTTTAAAAA alone.

The sequence of bases (letters) can code for many properties of the body's cells. The cells can read this code. Some DNA sequences encode important information for the cell. Such DNA is called, not surprisingly, "coding DNA." Our cells also contain much DNA that doesn't encode anything that we know about. If the DNA doesn't encode anything, it is called non-coding DNA or sometimes, "junk DNA." [1]

Application of DNA Testing

DNA Testing in Forensics

The purpose of DNA Testing (typing) in forensic medicine is to match a sample from the crime site with a suspect. Importantly, DNA testing has proven to be as powerful for exonerating suspects as it has for convicting them. A great diversity of criminal detection has benefited from DNA testing, and it has been especially valuable in solving rape and murder cases.

DNA Testing in Healthcare

The DNA Testing is also used in detecting the genetic diseases, And also helpful in curing them or preventing them to be passed on to the offspring. DNA testing also used to detect the susceptibility of individuals or a race to vaccine and medicines.

DNA Testing in Legal

DNA Testing is also used to settle disputes related to claimant of property, aids etc in court of law. DNA Testing Is also used to establish the parent hood.

DNA Testing in archeology and human genome.

This is the latest application of DNA Testing. Where archeologist and researchers use the DNA Testing to establish the oldest misty of origin and history of human.

DNA Testing in Agriculture

This application of DNA Testing helps in making genetically more productive and robust and useful organism to develop and make it reach the farmers. The another application of the DNA Testing is also to identify and protect rare species of organisms and prevent them to get wiped out due to the industrial agriculture.