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**QUESTION;**

Explain the applications of DNA fingerprinting in Medical Biotechnology.

**ANSWERS;**

DNA fingerprinting is a chemical test that shows the genetic makeup of a person or other living things. It’s used as evidence in courts, to identify bodies, track down blood relatives, and to look for cures for disease. DNA is short for deoxyribonucleic acid, which is inside of every cell in your body. It’s a chain of chemical compounds that join together to form permanent blueprints for life.

These compounds are called bases, and there are 4 of them. They pair up with another to form what are called base pairs. Your DNA has about 3 billion of these couples. The way they’re strung together tells your cells how to make copies of each other. The complete set of your compounds is known as a genome. More than 99.9 % of everyone’s genome is exactly alike (100% if you are identical twins). But the tiny bit that’s not is what makes you physically and mentally different from someone else.

DNA fingerprinting uses chemicals to separate strands of DNA and reveal the unique parts of your genome. The results show up as a pattern of stripes that can be matched against other samples. Since it was invented in 1984, DNA fingerprinting most often has been used in court cases and legal matters. It can:

* Genetic fingerprinting can be used in criminal forensic investigations. A very small quantity of DNA is reliable enough in identifying individuals involved in a crime. Similarly, DNA fingerprinting can and does exonerate innocent people of crimes—sometimes even crimes committed years ago. DNA fingerprinting can also be used to identify a decomposing body.
* DNA fingerprinting can answer the question of the relationship to another person quickly and accurately. In addition to adopted children finding their birth parents or settling paternity suits, DNA fingerprinting has been used to establish a relationship in cases of inheritance.
* Identify a dead body that’s too old or damaged to be recognizable.

DNA fingerprinting is extremely accurate. Most countries now keep DNA records on file in much the same way police keep copies of actual fingerprints.

It also has medical uses. It can:

* DNA fingerprinting serves several uses in medicine. One important instance is identifying good genetic matches for organ or marrow donation. Doctors are beginning to use DNA fingerprinting as a tool for designing personalized medical treatments for cancer patients. Moreover, the process has been used to ensure that a tissue sample has been correctly labeled with the patient's name.
* Identify diseases that are passed down through your family.
* Help find cures for those diseases, called hereditary conditions.