

The areas of genetic engineering

A - genetic engineering and forensic medicine:

Gene carrying the genetic message from one generation to another, and guide the activities of each cell is a giant molecules are like threads of scheduled high-called RNA Abbreviator DNA, and this letter contains all the genetic characteristics of the beginning of genetic eye color, even more precise formulations of existing body. And have the genes in human cells, for 23 pairs of chromosomes in the nucleus of the cell, and a chromosomal DNA and proteins, and these proteins play an important role in maintaining the structure of the genetic material, and regulating gene expression, which lead to reveal the composition of the individual and full of cell Alsegot. There are some genes in the mitochondria, and inherited through the mother. The genetic information of any cell of the sequence of genetic code (following the four rules of nitrogen and God of life, namely: Alodinin (A) and Jawanin (G) and Cytosine (C) and thiamine (T), to which the genetic material in the form of words and phrases store genetic information to be responsible for the entire life of the individual.

Jeffers was able recently to you at the University of Leicester, United Kingdom to detect differences in DNA sequence in the form of Intron Alintron in length and location. It was found that these differences unique to each person, just like a fingerprint - so-called genetic fingerprint - with the exception of a rare form of identical twins arising from the division of one fertilized egg MZT. In terms of the proportion of individuals using the distinction between genetic fingerprint was found that the

ratio to about 1: 300 million to any of the 300 million people there is only one person with the same genetic fingerprint. It was found - also - to mark the genes inherited Mendel, according to the laws of genetics.

Intended Bbesmp genes:

Signature genes are differences in the genetic makeup of the Alintron, and unique to each person completely and passed; any child to receive half of the differences of the mother and the other half of the father, is a combination of new genetically combines the characteristics of parents, and genetic characteristics of warehouse space veterans ancestors. We have found - as well - that the gene fingerprint patterns vary according to geographic gene in people of the world. For example, Asians is different (yellow, or sex Mongol) for Africans.

Genetic fingerprint appointment:

All that is required for the appointment of the gene signature is a small sample of tissue that can be extracted RNA Abbreviator including DNA, for example:

A sample of blood in the case to prove filiation.

A sample of sperm in the case of rape.

A piece of skin under the nails or hair from the root object in the event of death after resisting the aggressor.

Blood or sperm is frozen or dry on the scene of the crime.

A sample of saliva.

And, more recently, scientists were able to pair Roland van Maxwell Jones in 1997 to isolate the genetic material of the things that have been

touched, such as keys and phone, and cups after the draw genetic material, the use of enzymes to be cut precisely Restriction enzymes, and then using a separate chapter electric Electrophoresis then transferred to nylon membrane, then using probes Probes are the appointment of a special imprint on the gene-ray film.

Genetic fingerprint as evidence of criminal:

Despite the passage of a short time to mark the discovery of genes, but it has been able to work quickly turning academic research to applied science, which is used around the world, especially in cases that failed and the traditional forensic methods to find a solution, such as: the issues of filiation, rape, crimes robbery, and to identify victims of disasters.

As the success rate of the genes of up to about 96% were encouraged developed countries such as America and Britain to use as evidence of a criminal. Indeed, there is a tendency for the conservation of the genetic fingerprint with the fingerprint citizens to the legal bodies. Has been resolved in many cases on the basis of the use of fingerprint evidence of criminal gene. Usually based on the judges in such cases, scientific studies that say that there may be similarities between the genetic fingerprint of an innocent person with the genetic fingerprints obtained from the crime scene is one in every 300 million, with the result of scientific criminality on the similarities, and therefore what should be done by the the jury is to try to determine whether a person is innocent, taking into account the similarities in the genetic fingerprint, which was demonstrated by the forensic reports.

B - Genetic Engineering and Medicine:

Human genetic engineering is a branch of applied genetics, and the great revolution of technology

designed to add new genes to assume the characteristics of the organism were not there before, until the genetic structures of existing structures in order to better reform of genetic defect or defects in the genetic material or improve the qualities Members of the public through the formulation of the genetic map.

Has raised the genetic engineering of human perceptions and expectations of scientists about the universe and humanity during the next millennium. Has predicted a world famous physicist Stephen Hawking - who is one of the most important scientists of this century - that scientists will soon be able to solve the most important mysteries of the universe, it is predicted that genetic engineering will change the form of fast, specifications and capabilities of the human race!

Hawking said in a lecture delivered at the White House: "Most of the work of science fiction that emerged during the present century will be assumed that the human is also unchanged, while the levels of science to develop new ones, but I can not believe some of these acts of human perception, 400 year as it is now, "then he said, Hawking believed that the human race and genetic qualities would become more complicated very quickly, more than Tejelatna! He said: "The genetic engineering is the bridge that crosses it, and to promote human development in the human qualities, which is required so that the human pursuit of scientific and technical progress achieved by. Hawking and justified reasons for this change: The human race needs to improve his mental and physical, so that it can to deal with an increasingly complex world around him, and to meet new circumstances, such as travel in space, and the necessary development of human biological systems, to be able to keep pace with electronic systems.

On the other hand, unlike the expectations of

Hawking that the future will shift to the human creature, "Super" in the other scientists warned that the Scottish will be the next human obesity and baldness due to the absolute well-being, and scientific progress, which would make him do nothing but eating, watching television, which would make him more like " the fruit of the potato, "he said archaeologists Scots that this discouraging picture of the human future, or" potato man "were the result of more people to provide the current time and effort away from them to carry out any activity, as well as a lot of people do not exercise. The scientists noted that people tend to baldness, obesity and become organisms with skeletons enormous short-and large objects, which threatens serious health consequences. He called on scientists to change the way of living human being, and stay away from this pattern of consumption, and concern for the environment surrounding it, and only the "potato man" is coming!

It is genetic dreams on their way to achievement of the crew of any human genetic mapping of human genes from fifty thousand to one hundred thousand Jane, which will require more than three billion dollars. Access to genetic secrets of crews similar to what has happened so far in the chemistry of the discovery of the periodic table of elements. It is certain that this project will increase our understanding of human behavior and genes in the genetic health and disease, thus helping to guide the design of genetic tests. We have already started a revolution of human genetic engineering and advanced research and applications. Despite the fact that a large part of the achievements of the revolution is still a long way in their places have stirred the imagination of scientists, the only deal with the human gene needed to be governed and what Ivelsvh and restricted if necessary.

C - plant genetic engineering:

We have adopted the traditional plant breeding methods and follow-up to the observation of genetic differences within each tribe, and the election for many years or work Thginat between similar plants in order to obtain the items in some distinct qualities. Although these traditional methods produced high-yielding varieties of wheat and barley and rice, farmers have been forced to abandon a large number of local varieties and wild Garibadtha.

This has resulted in the genetic profiling in the field of agriculture to eliminate the ability of traditional crops to adapt to different environments and conditions of a natural growth of different human wiping about 75% of the genetic diversity of agricultural crops since the beginning of this century. While the world is full of species enormous untapped; There are at least more than three hundred thousand types of high-value tropical fruit and favorite food in the countries of Latin America, but completely unknown in North America, where the only fruit on the list of common types of fruits and citrus groves and apple and others, for example, in a small country such as "Peru" under the area of the state of Alaska and the U.S. there are types of plants, drawn seven times in the whole of the United States, the problem of a huge reservoir plant is expected sponsored and invested.

This is some of what we do from the wealth of nature, however, discovered after the plant, while the menu does not contain human to date only a limited number of known plant species, where the loss of diversity, or the so-called genetic resources to go global imminent threat to agriculture.

With the dramatic and rapid development in various fields of modern science, it was natural that the change of concepts and methods used in traditional breeding of various crops, fruits and medicinal plants and aromatic plants or

decorations and return to the attention of wild plants and gardens sponsored by the methods of transmission and conservation, as are most of the research now under way in institutes and laboratories for the production of new types of plants and seeds capable of doubling production, and at the same time appropriate for the local environmental conditions, using genetic engineering. And specializes in genetic engineering, directly or indirectly, by deleting the sections and other sections as well; the purpose of restructuring or the drafting of the cell or organism using genetic potential of organisms available to add other qualities were not there before. A new trend in modern genetics crystallized a result of progress in many sciences, such as:

Biochemical and molecular genetics, biochemistry, and plant tissue culture, and others. This mission is the name of science in the formulation of the operative forms of genetic systems, innovative, to be reflected in the unwanted organisms in the application, as well as for scientific purposes.

Agriculture research and development of a global problem, legibility is renewed every moment of our lives, and human development, compounded by the massive, may seem to some to be only an economic problem, but after study, we discover that it is a problem of vital environmental, social and at the same time, the plant is still entrusted to the generosity of the human, although all the talk about the transition to the era of industry or the information age did not steal the limelight from the plant that the old faithful friend. The cultivation of plants much easier and cheaper than bacteria or yeast culture, as well as animal cell culture and in view of the requirements of agriculture and the production volume. It is interesting, to say: The field of rye "rye" an area of one hectare, which could contain 300 million from the roots, which

exceeds the amount of Qatar Earth orbit around the sun. Hence, not surprisingly, are genetically engineering plants, with great attention by scientists.

#### D - Animal Genetic Engineering:

Biotechnology has evolved a great deal from the start with human beings living on a solid scientific basis to the traditional methods that are now at their recent evolution, with an article dealing with the rights of living with the utmost precision to vaccinate known genes and transfer from one organism to another. Scientific achievements are enormous received bright in the middle of this century to discover the nature of the genetic material, as well as the discovery of the protein-building mechanisms: the first building blocks in the development of biotechnology to reach its current, as a result of these amazing discoveries in the development of genetics, which led to a significant change in a lot of ways to address the realities of basic science (plants, animals, etc.), as well as the development of research methods used in biotechnology Bmajaladtha different and, finally, the emergence of advanced biotechnology.

The development of biotechnology has evolved dramatically since the early seventies and has expanded and diversified its activities have had a degree of the effects of growing economies in the world. Then came the revolution of enzymes, including enzymes and enzymes Polymerizing pieces of specialized enzymes and reverse versions, and others. Which accelerated the circulation of the genetic material in an integrated scheme to reach a certain objective. And this development is on the cornerstone of a unique, that they can now be Alorathein genetic material on the operating table to become adapted to change the quantity and quality, so as to delete or add to the clips and re-drafted to reflect the same new way, the so-called genetic vaccination .. It is the

direction of modern science in biology evolved over the past few decades, only in the programming of its forms of innovative approaches, in other words, you control the quality and how much higher than all other methods have given all Calantkhab and hybridization and Altver.

Has been the areas of animal production to Thortin .. The first is the first green revolution: that resulted from the use of traditional means of improving the animal production, then the second green revolution: that have been adopted to deal with the strict rule of living in what is known as genetic engineering to add genes to increase production and the production of immune products, diagnostic, therapeutic and animal genetic programming to improve the fish .

E - military genetic engineering:

Long live the human scientific revolutions, and it has varied with this revolution to make the most damage to the tragic, Vttabiqat corn spread in many areas of vital and necessary for the human being, but this did not prevent the destruction of human atomic bomb, "Hiroshima" and "Nagasaki" in Japan.

Today the most serious of these human lives, the most important revolutions revolution "of life," It is a revolution, "genetic engineering and gene research," The aim of the crew to the genetic engineering of living organisms and the solicitation for the performance of specific functions.

As a corollary to the importance of this science started in the period since the major countries are racing to learn in this new science through the establishment of research centers and multinational companies, genetic systems, and use the latest technology and computers arrived in

the analysis of genetic information and genetic systems. Almtabon and see what is happening, which is amazing progress at a rapid rate in this technology. Whether in use or useful to the poor in what is known as biological warfare, which has become an alarming specter of humanity, and the fact that the area of biological warfare is not linked to progress in gene technology but also in the missile technology, as head of the diversity to be loaded on the target Iouselh; and therefore carries on missiles, according to the specific plan is determined by the extent of the impact of the rocket, also carrying biological warheads that could be bombs, biological (the causes of sick) as soon spread to destroy the systems of living in the environment or mutagenic agents to make a very bad mutations in a given society to weaken the crippling of the improvement. It has therefore become the conscience of the word a particular meaning in terms of making this science of human lives in the peaceful and human harm her.

Genetic engineering and the disposal of mine:

There is considerable scope to expand the scope of genetic engineering to the use of genetic modified organisms to deal with hazardous foreign objects such as video and other explosive materials in order to get rid of them and converted into useful materials. The adoption of genetic engineering in the collection of bacterial samples from places where there are plants or weapons or ammunition depots soil affected by the production of weapons and other military activities, and development in the lab to the food containing the explosive materials, and then isolate the bacteria that can live and decay, the following attempt to isolate the gene responsible for the analysis of explosive material and transported to the micro-organisms can live in places affected by pollution military. Using this method of genetic engineering has been able to produce micro-

organisms have the ability to analyze the explosive materials. For example:

Bacterial decomposition of dynamite:

U.S. scientists managed to produce a type of bacteria has the ability to analyze nitroglycerine "dynamite" to water and carbon dioxide. This means that these bacteria can help clean up the warehouses and containers of explosive materials at a lower cost to 10: 100 times than traditional methods currently used.

Bacteria eat up explosives:

A team of researchers at the University of Berlin in the development of a strain of bacteria is in the eating of explosive talent, and they work on the analysis of the incidence of the bacteria (TNT) and (TND) Almtfjrtin smashed through the compound of nitrogen molecule in the articles, and turn to the output of nitrogen enriched natural soil, and will this type of bacteria to remove 70% of the material remnants of the explosives-contaminated soil.

Destroy bacteria, complex vehicles:

The A team of researchers at the University of Braonchevnj in the production of a strain of bacteria to the destruction of aromatic hydrocarbons - gasoline, toluene and xylenes - which depends upon the chemical structure of each explosive materials. Are feeding the bacteria in the soil on a network of pipes into the soil for the duration of their work. The researchers say: This method is able to remove 69% of the current military pollution.

And - Environmental genetic engineering:

In the early years of the age of genetic engineering of plants attention was focused primarily on improving the qualities of the

plant, and the transfer of genes that enable it to resist insect pests or to withstand herbicides, or gain immunity against disease. But now no longer just to improve the ability of plants to produce food and fiber demand traditionally only modest ambitions in return for the petition, which plays the tune of scientists from one day to another, for example, could be the production of special types of lubricants and oils in pure soybean, and scientists in the possible success of genetically altering plants to make plastics Blastaidath green. Plants have also become a source of genetically engineered enzymes for some of the special nature, which is used in the industry. In another development, scientists seeking to use plants to heal the environment in what is known as Phytoremediation. In this regard, the researchers genetically engineered plants to make it the capacity to eradicate the pollutants from the soil or water, without affecting the growth. The latest development is genetically engineering plants to produce important medical materials, which could be resolved soon replace the traditional fermentation processes for medicines. The motive behind this trend is the desire to get people to eat with the vaccine.

G - the fossil of genetic engineering:

The term was excavated the remains of live plant or animal, whether in full or incomplete or had left the organism Mntava or preserved in rocks or deposits, before the emergence of modern humans. The fossil is a translation of the floor (fossil) in English, which is derived from the verb meaning of the Latin Fosere (digging), was launched on anything extracted from the ground, whether organic or inorganic or metal or rocky. It was this use until the sixteenth century. Coincidentally, many of the scientists of the ancient thinkers and scientists such excavations, but the outlook was different than it is now understood.

The body is composed of cells of living organisms, each cell consisting of cytoplasm and nucleus, and each cell nucleus is a small ball while the dark colors, and carrying molecule nuclear genetic material (DNA).

The body is composed of cells of living organisms, each cell consisting of cytoplasm and nucleus, and each cell nucleus is a small ball while the dark colors, and carrying molecule nuclear genetic material (DNA). They are being squeezed out of cytoplasm in the cell nucleus and genetic material in the "mitochondria" or chloroplast. The genetic material or the old fossil Ancient DNA is the genetic material, whether nuclear or Streptococcus to be drawn from the excavations, whether human or animal or plant. Used in the interpretation of the evolutionary relationships of historical events or on the molecular basis, in order to shed light on the biological history of life on Earth. It is worth mentioning that the first research was published in the area to isolate the genetic material in the fossil in 1984.