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Photosynthesis and Gene Transmission

Adi Al A'assam
Religious authority -, Najaf, Iraq
*Corresponding author: yaseen_mohsin@yahoo.com

M.W. Ahamd
Directorate of Research and Development / Iraqi Atomic Energy, Baghdad, Iraq

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ABSTRACT

He dealt with how to inherit the characteristics of the gene and transfer them to the sperm cells. Photocopying also deals with how to inherit the characteristics of the DNA gene and transfer them to the aforementioned cells. He also designs an invention capable of reproducing foodstuffs, for example, by stacking the photons, which produces a cold generation of the atomic number and its chemical bonds that enter into the components. foodstuffs and others.

INTRODUCTION

Until the 1970s, conducting research on DNA was one of the most difficult things facing geneticists and chemists. And most of the research was conducted indirectly on RNA or protein. But the situation was completely transformed, and the science of genetics related to DNA testing (known as molecular genetics) became one of the easiest and most advanced sciences. It is now easy to make many copies of any gene or specific section of DNA. It was also possible to know the sequence of nucleic acids at a speed of more than hundreds per day. Scientists were also able to explore the genes on the chromosomes, and they were also able to change and modify them in the way they wanted, and not only that, but they were able to return these modified genes to the cell and insert them into the chromosome they wanted. It was also possible to produce large quantities of proteins, such as hormones and various vaccines, which were previously produced from dead bodies or extracted from animals, which were fraught with risks of transmission to humans. Also, this scientific revolution opened the way for many lovers of this science to invent and discover new and modern ways of dealing, preserving and changing this vital substance in

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humans, animals and plants. This science launched like a missile has changed many medical concepts, which prompted many medical schools to amend their courses to provide their students with more of this science. The process of copying, modifying, and transplanting genes has been called genetic engineering, and it is a general name that does not specify a specific idea or specific technology, but is concerned with everything that is done in changing or modifying the genetic material. Many techniques branch out from this science, and they are scattered and distributed over many branches of medicine and science.

Reproduction from the verb (copy), which is to obtain an exact copy of the original copy, by implanting a normal cell in an egg that has been emptied from the chromosome, that is, from the genetic inheritance, so that it becomes a cell capable of reproduction through the usual cell division, then filling it with another cell from a complete organism Growth, bearing its genetic characteristics and implanting it in the womb of an adult female.. so that the result is a fetus or a newborn cloned from the owner of the transplanted cell.

It aims to obtain a large amount of a specific gene for the purpose of studying it, for example, and it is done by inserting the gene that is to be cloned from a particular organism, for example, into the genetic material of a cell called “Vector”, which may be a bacterial cell, fungus or virus. This vector is then placed in the laboratory in suitable conditions that lead to its reproduction, thus cloning a large amount of the desired genetic material.

Cloning is the production of a group of identical cells or organs from the same person and it is also called [human cloning]. It is not yet known how and when human cloning will become possible, but it is expected very soon. What can be said now is that there are two ways in which a person can theoretically be cloned:

The first: that the embryo be divided into a number of cells to obtain a large number of individuals. This method is called embryonic cloning.

The second: It is taking somatic cells from a person and cloning them to obtain completely identical individuals. This method is called cloning from somatic cells.

We believe that prohibiting human cloning research is misguided, and in order to clarify our position, we have to explain the process of nuclear translocation in somatic cells and then the possibility of applying the treatment in a unique way.

The experiment we are talking about now is the transfer of a polyploid human cell “taken from an embryo or an adult body cell” into a human egg from which its original nucleus has been removed.

If the source of the nucleus is an adult somatic cell, complex radical changes will occur. First, this cell must integrate with the nucleus-removed egg, and then it must adapt to its new surroundings. Secondly, this new cell must be capable of multiplying by division and effective in generating differentiated cells specialized in tissues such as muscles, skin and heart. Finally, this cellular structure must be able to renew itself, so that these tissues can be used for treatment.

Cloning is organic reproduction without mating, similar to what happens in primitive single-celled microorganisms, where millions of times cloning takes place without significant genetic

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changes.

As for mammals, reproduction is limited to the division of the egg, which is usually called monozygotical twins, and the fact that they have the same genes does not necessarily mean that they have the same organic structure, due to the variation in growth in those organisms, which is what is called “growth cacophony” and leads to a difference between adult organisms .

What has been achieved by Dr. Lamb is the artificial reproduction of adult organisms without genetic mating in living cells

After that, Japanese scientists cloned calves and mice instead of sheep. Monkeys and pigs were also cloned, and there is no doubt that many other animals will be cloned later.

It has become possible to clone cells that are in turn cloned. A calf has been cloned from a cloned bull cell. It has also become technically possible to inject mitochondrial genetic material. The birth of the first offspring of “Dolly” has proven the extent of our success by controlling this technology.

Society has criticized this technology due to the danger of its application to the human race, and some countries have prohibited research related to it

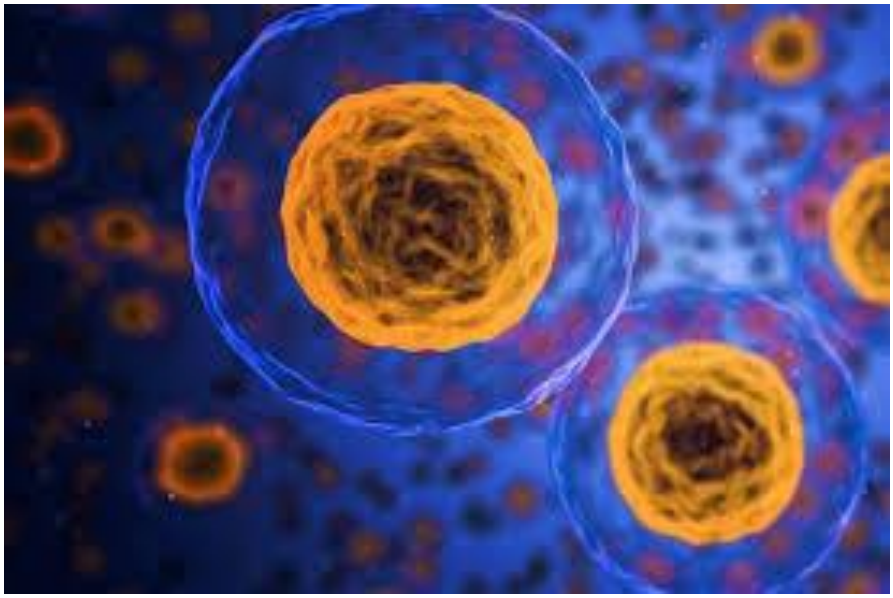

Figure 1

MATERIAL AND METHODS

Reproductive or sexual cloning is defined as the production of an organism that has the same genetic material (Nuclear DNA) as another organism from which it was copied. The scientific team at Roslin Laboratory carried out a sexual cloning process in the process of cloning the ewe, Dolly. This process is also known as "somatic cell nuclear transfer" (SCNT). The ovary (in the female) and from the cells of the testis (in the male). And the cell that was used for international cloning was from the breast cells of another ewe. Then an egg was also taken from the ovary, and the scientists got rid of the nucleus inside that egg, then they planted the nucleus that They took it

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from a breast inside the egg.Then they electrocuted that egg in order to activate the process of division.After this egg began to divide,they inserted it into the uterus of a ewe and after that the fetus grew in the uterus and became a complete ewe.

Scientifically, Dolly (or any animal or human being) reproduced in this way is not really an identical copy of the mother or father from whom the nucleus was taken. There is some of the genetic material outside the nucleus, and it is specifically found inside the egg from which the nucleus was removed. This genetic material is found on small particles called mitochondria. Although mitochondria are an important energy plant, mutations increase with age and may be related to aging.

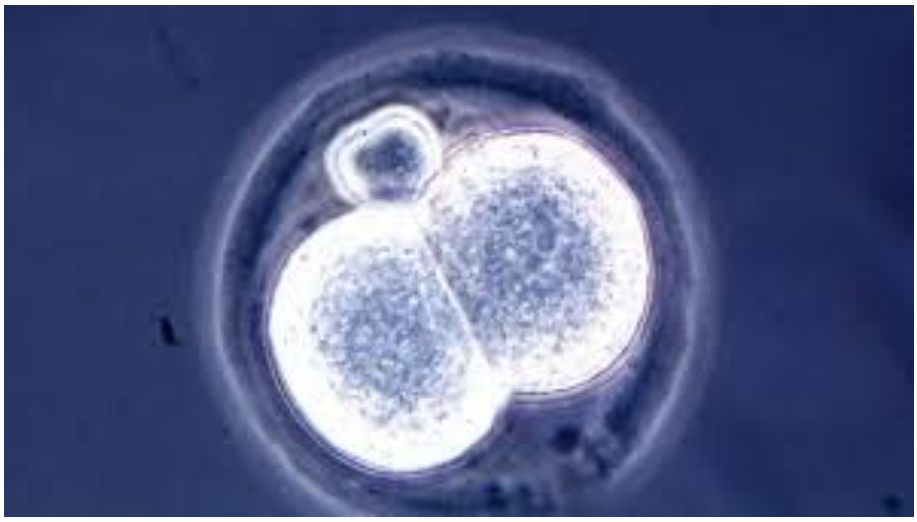

Figure 2

This means cloning living organisms to take stem cells and not allowing them to reach the creation of a complete organism. The importance of these cells stems from the ability of these cells to produce any cells or organs such as the kidneys, liver and blood cells, which are hoped to be used to treat many diseases for which there is no cure. In November 2001, a scientific company in the state of Massachusetts, USA (Advanced Cell Technologies) announced a successful attempt to extract stem cells from cloned embryos, after using 8 human eggs that had been emptied from their nuclei and then implanted in them the nuclei of cells from skin. They succeeded in producing stem cells from one egg, while the seven eggs failed.

The cloning of Dolly the sheep was a revolution in the world of cloning, with an unprecedented media uproar surrounding it. Because she was born from the womb according to the technique of nuclear transfer of somatic cells. Dolly was the first attempt to extract and culture artificial embryos to grow into identical, identical twins. The embryo consists of the nucleus of the donor cell (the donor, whether male or female), which is inserted with the ovum emptied from its nucleus. It is called the receiving cell. Where the nucleus of the egg is extracted by laser cutting the chromosomes, which are one of the genetic components of the species. And the given cell must be prepared in a special way before inserting it into the egg by placing it in a saline solution without nutrients.

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The early zygotic cell divides to develop into specialized cells that form parts of the body's organs. Then the whole body of the cloned organism is formed. And the given cells are not expelled by the egg after fertilization by nuclear transfer, to become ready to fuse with an electrical current that also activates this genetically fertilized egg cell for division and growth. And the egg from which its nucleus is removed loses its genetic inheritance to receive the genes of the given cell, so that the embryo becomes its genetic inheritance identical to the genes of the given cell.

But scientists have caveats about human cloning with this technique. Because nuclear transfer technology does not apply to human cloning. Because the genetic makeup of its cells is more complex than that of sheep as a type of Dolly. The human DNA strand is also very complex. However, some scientists acknowledge the possibility of applying nuclear transfer to humans. Because the technology of gene cloning by nuclear transfer is similar and independent of the recipient egg. It was found that the cow's egg is suitable to act as an egg substitute for the human egg from any woman and accept any given cell type, even if it is human or from any other mammal. The cloned embryos were born from cow mothers

Scientists say: The fertilized bovine egg, after its electrical fusion, is placed in the womb of a mother of the same type as the donor and takes on his characteristics, not the characteristics of cows. The cow's egg is more suitable because it is large, cheap and easy to obtain. It has been used to produce pigs, sheep and monkeys. The use and availability of cow eggs will facilitate and allow experiments on human cloning in the future. Before cloning, Dolly had preceded 1277 cloning experiments before her experiment was successful.

Fearing that the process of nuclear transfer is not sufficient, scientists have developed a new technique called the Blastomycose Separation process for human cloning. It takes place by producing a fertilized egg to produce an embryo in its early developmental cycle. Its outer pellucide membrane is opened and then divided into several genetically identical embryos called blastomycoses, each of which develops into an independent embryo and an artificial pellucide membrane is formed to envelop it. And when each fetus becomes stable in growth. Implanted in the womb of a surrogate mother. The number of these separate, identical embryos may not be limited. Because every new embryo he gets can be divided again into several identical embryos. It can also be extracted to produce and reproduce new identical embryos (exact copies). And this method is cheaper. And it can make the cloning process more capable and efficient. If the method of nuclear transfer or embryonic separation succeeded in cloning humans. This means that it will be a universally accepted reality. And its scholars will practice it efficiently

Before cloning, genetic (genetic) engineering operations were performed in a living organism, whether it was a plant or an animal. It may hit the target or deviate from it. Because it was an attempt to insert a required gene into its correct location in the target cell. Let it be in a sheep, for example. Genetic engineering operations were carried out by injecting the genetic material (DNA) into the egg or embryo. When the animal grows, scientists see the genetic change that appears and the extent of its impact on it and its offspring after it. The opposite of cloning, which turns any living cell into an animal by injecting DNA into a cell placed in a Petri dish (a glass dish) instead of injecting it into an egg as was previously used in genetic engineering. When we get cells with the required genetic characteristics, they merge with an egg from which its chromosomes are extracted, so that the cloned animal becomes the cells of its entire body that have

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the characteristics of the cloned cell. Before Dolly was born, not a single mammal had been successfully cloned.

In natural life, not all living organisms follow self-reproduction in their reproduction, as in bacteria and yeast, but there are larger organisms in which this reproduction takes place, as in snails and shrimp, although sexual reproduction is the dominant and only natural feature and means for preserving the genetic inheritance of species. Most of the species that reproduce asexually (by self-division) die or become extinct. While we find the aphid (the caterpillar) that sucks the juice of plants, although it reproduces by self-cloning to produce identical offspring most of the time. However, during some of its generations, it follows sexual reproduction at intervals to maintain, renew or improve its genetic stock.

We have come to a conclusion about the therapeutic benefits of some embryo cloning, despite the ethical objections you will face. Although therapeutic cloning differs from reproductive cloning. Because it does not aim to produce a complete copy of humans, but is concerned only with the early stages of embryos that can be used from their basic cells (stem cells) that can develop into different types of cells, tissues, organs, bones, muscles and nerves, which leads this current scientific development to a revolution in the field of medicine by developing These basic embryonic cells develop specialized human tissues and organs that are used in organ transplantation. This technology will produce tissues that the human body will not reject by taking the DNA [[DNA] from the patient and using it to obtain a cloned embryo. The Catholic Church objects to the sacrifice of an embryo in order to obtain cells or an organ.

RESULTS AND DISCUSSION

The organic cell is subject to nitrogenous bases, denoted by AGTC, as it adopts a three-sequential formation of codes, but the method of producing it to other cells and bequeathing them to the same characteristics translates to radiation emanating from them to organize as atoms and bonds that are identical to the original... because the cell nucleus that the biological researcher deals with has contributed to the researcher The chemist is able to identify them, especially in his detection of deoxyribonucleic acid called DNA. This nucleus, which consists of chromosomes, has twisted guides. Its most important components are deoxyribose sugar linked to the oxygen wall and linked to the interior by the four aforementioned nitrogenous bases. They are formed in a triple distribution, just as words are formed from letters and counts. Scientists discovered 70,000 genes in the human body and were able to read 3 billion chemical letters that represent the sequence of amino acids that are associated with the organization of the genome. .....It is surprising that the researchers have faced nothing but failure to identify the secret of the cell's reproduction of other cells inside the body to pass it on to future generations.

Whoever cloned the ewe, Dolly, knows how to prepare the necessary conditions, but he who does not know how the cell divides and why the cell lays after labor identical cells [1] to a certain extent. Indeed, the printer is able to reproduce the surface of the page with its raised letters, but how does the cell reproduce its internal structure? ? Such people were not only able to answer this question, but rather they did not try to raise it in depth. We must mention that the disparate distribution of chemical bonds and atoms in general provides suitable opportunities in which it is

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possible to either absorb a large amount of dispersed incoming photons or bounce back to be reflected regularly.

It seems that the organic cells are active from time to time periodically to produce stabilizing materials such as silver nitrate and dichromate, and they are successively reflected by photons, which belong to the infrared and ultraviolet rays. Such production and this reflection continues and flows for the purpose of stabilization. To generate cells that are identical to the original in the end, and we note that the blue gene project, if it is completed in an integrated manner to monitor the formation of the protein, then the design of high-quality and speedy computers that seek to pursue the cell while it is active to inherit its properties to other cells as you see, is sufficient to prove experimentally our hypotheses.

Consistent with this method in which genes are transmitted to cells, we can simulate the work of nature by designing an advanced device from which infrared rays are emitted, for example, so they are emitted to relatively uneven ranges to be reflected unevenly as well. Assuming that every cosmic substance can be divided vertically or horizontally into millions of crusts) to be reflected to a photographic plate, for example, in which there are fixed materials such as silver nitrates, then the device controls the release of other rays so that its range reaches the second crust only to be reflected to the aforementioned photographic plate under the rays reflected before it, and so it is assumed that The emission and reflection continues to produce another copy of the blood and flesh of the aforementioned materials, especially since the laboratory detection that is conducted on the surface of the photographic image revealed only atoms and chemical bonds, as the physical structure of any cosmic phenomenon consists of electrons and nuclei, and the atom dissolves into leptons and quarks, and so on. It decomposes into photons 2 and it seems that the photons that dominated the photographic plate turned into atoms after they penetrated into the shells of foodstuffs, so they were organized into their atomic template and then reflected as a reaction. During their passage to the aforementioned photographic plate and their stability in it, they maintained the constant of proportionality between the nascent atoms, and we can express mathematically ³ For this phenomenon as a linear equation: $0 = Ax+by+c$

Conclusion

An artificial cell is a modified particle that mimics one or more functions of a cell, usually biofilms that encapsulate bioactive materials. The term refers to specific functions or structures of biological cells that can be replaced or integrated with the artificial entity.

His success in producing an artificial cell, and it took scientists 15 years, during which they spent forty million dollars to synthesize a genetic combination before transferring it to another bacterial cell.

Design a polymeric (plastic) artificial cell containing organelles capable of producing

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different phases of chemical reactions.

In the new development, lead researcher Yotetsu Kuroma of the Tokyo Institute of Technology in Japan says, "I have been trying for a long time to build a living artificial cell, with a particular focus on membranes."

"In this work, our synthetic cells were wrapped in lipid membranes, and small membrane structures were encapsulated within them. In this way, the cell membrane is the most important aspect of cell formation."

Now we can say that our hypothesis deals with how genes are transmitted from the gene to the cells and also deals with the problem of starvation in the world through the reproduction of nutrients by photons and what is more.

References

1. Schneeman (1986) Schneeman BO. Dietary fiber: physical and chemical properties, methods of analysis, and physiological effects. *Food Technology*. 1986;40(2):104–110. [Google Scholar]
2. Sonenberg & Dever (2003) Sonenberg N, Dever TE. Eukaryotic translation initiation factors and regulators. *Current Opinion in Structural Biology*. 2003;13(1):56–63. doi: 10.1016/S0959-440X(03)00009-5. [PubMed] [CrossRef] [Google Scholar]
3. Sun, Van Montagu & Verbruggen (2002) Sun W, Van Montagu M, Verbruggen N. Small heat shock proteins and stress tolerance in plants. *Biochimica Et Biophysica Acta (BBA)-Gene Structure and Expression*. 2002;1577(1):1–9. doi: 10.1016/S0167-4781(02)00417-7. [PubMed] [CrossRef] [Google Scholar]
4. Thellin et al. (1999) Thellin O, Zorzi W, Lakaye B, De Borman B, Coumans B, Hennen G, Grisar T, Igout A, Heinen E. Housekeeping genes as internal standards: use and limits. *Journal of Biotechnology*. 1999;75(2):291–295. doi: 10.1016/S0168-1656(99)00163-7. [PubMed] [CrossRef] [Google Scholar]
5. Thompson, Regev & Roy (2015) Thompson D, Regev A, Roy S. Comparative analysis of gene regulatory networks: from network reconstruction to evolution. *Annual Review of Cell and Developmental Biology*. 2015;31:399–428. doi: 10.1146/annurev-cellbio-100913-012908. [PubMed] [CrossRef] [Google Scholar]
6. Untergasser et al. (2007) Untergasser A, Nijveen H, Rao X, Bisseling T, Geurts R, Leunissen JA. Primer3Plus, an enhanced web interface to Primer3. *Nucleic Acids Research*. 2007;35(suppl_2):71–74. doi: 10.1093/nar/gkm306. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
7. Vandesompele et al. (2002) Vandesompele J, De Preter K, Pattyn F, Poppe B, Van Roy N, De Paepe A, Speleman F. Accurate normalization of real-time quantitative RT-PCR data by geometric averaging of multiple internal control genes. *Genome Biology*. 2002;3(7):1–12. doi: 10.1186/gb-2002-3-7-research0034. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
8. Vermeulen et al. (2011) Vermeulen J, De Preter K, Lefever S, Nuytens J, Vloed F, Derveaux S, Hellemans J, Speleman F, Vandesompele J. Measurable impact of RNA

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quality on gene expression results from quantitative PCR. *Nucleic Acids Research*. 2011;39(9):e63–e63. doi: 10.1093/nar/gkr065. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

9. Wan et al. (2010) Wan H, Zhao Z, Qian C, Sui Y, Malik AA, Chen J. Selection of appropriate reference genes for gene expression studies by quantitative real-time polymerase chain reaction in cucumber. *Analytical Biochemistry*. 2010;399(2):257–261. doi: 10.1016/j.ab.2009.12.008. [PubMed] [CrossRef] [Google Scholar]
10. Wang, Wang & Zhang (2013) Wang M, Wang Q, Zhang B. Evaluation and selection of reliable reference genes for gene expression under abiotic stress in cotton (*Gossypium hirsutum L*) *Gene*. 2013;530(1):44–50. doi: 10.1016/j.gene.2013.07.084. [PubMed] [CrossRef] [Google Scholar]
11. Wu & Chen (2011) Wu WT, Chen HL. Effects of konjac glucomannan on putative risk factors for colon carcinogenesis in rats fed a high-fat diet. *Journal of Agricultural and Food Chemistry*. 2011;59(3):989–994. doi: 10.1021/jf103532x. [PubMed] [CrossRef] [Google Scholar]
12. Xia et al. (2014) Xia W, Mason AS, Xiao Y, Liu Z, Yang Y, Lei X, Wu X, Ma Z, Peng M. Analysis of multiple transcriptomes of the African oil palm (*Elaeis guineensis*) to identify reference genes for RT-qPCR. *Journal of Biotechnology*. 2014;184:63–73. doi: 10.1016/j.jbiotec.2014.05.008. [PubMed] [CrossRef] [Google Scholar]
13. Yang et al. (2014) Yang H, Liu J, Huang S, Guo T, Deng L, Hua W. Selection and evaluation of novel reference genes for quantitative reverse transcription PCR (qRT-PCR) based on genome and transcriptome data in *Brassica napus* L. *Gene*. 2014;538(1):113–122. doi: 10.1016/j.gene.2013.12.057. [PubMed] [CrossRef] [Google Scholar]
14. Zhang, Xie & Gan (2005) Zhang Y, Xie B, Gan X. Advance in the applications of konjac glucomannan and its derivatives. *Carbohydrate Polymers*. 2005;60(1):27–31. doi: 10.1016/j.carbpol.2004.11.003. [CrossRef] [Google Scholar]
15. Zheng et al. (2013) Zheng X, Pan C, Diao Y, You Y, Yang C, Hu Z. Development of microsatellite markers by transcriptome sequencing in two species of *Amorphophallus* (Araceae) *BMC Genomics*. 2013;14(1):1. doi: 10.1186/1471-2164-14-490. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
16. Zmienko et al. (2015) Zmienko A, Samelak-Czajka A, Goralski M, Sobieszczuk-Nowicka E, Kozlowski P, Figlerowicz M. Selection of reference genes for qPCR-and ddPCR-based analyses of gene expression in senescing barley leaves. *PLOS ONE*. 2015;10(2):e0118226. doi: 10.1371/journal.pone.0118226. [PMC free article] [PubMed] [CrossRef] [Google Scholar]

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