Biotechnology

Science, Biology

Genetic Engineering Genetic Engineering Genetic Engineering is the one of the promising fields of Biotechnology and it involves themanipulation of the genetic material of an organism in order to produce desired biomolecules from the organism. Human beings attempt to genetically engineer the animals to produce beneficial products or to develop beneficial attributes in the organisms. The primary literature source written by Peter Dickos with the title The Next Frontier In Food: FDA Regulation Of Genetically Engineered Animals explains the various aspects of genetically engineered animals and also the Food and Drug Administration’s (FDA) regulatory measures that are needed to be brought out for the safe use of GE animal and products.

In the paper, Dickos (2011) gives a detail account of the background of the science behind the various genetic engineered animals. The current regulatory framework existing through agencies like FDA is examined and exhorts that its authority to regulate new animal drugs (NADs) should be fully implemented. The paper examines the problems with the current regulatory scheme in the light of three recent examples concerning the GE animals. Starting with the first commercial GE food the Flavr Savr tomato in 1994, human beings have manipulated the genetic makeup of more than 60 plants and animals to introduce both agriculturally beneficial traits like disease and pest resistance and also for nutritional benefits like modified oil in soybean. While GE organisms opens up innumerable benefits including mass production of beneficial hormones and proteins and increasing the nutritional value of the product, Dickos (2011) also warns the risk of unintended effects of the manipulated genes which can result in the formation of changed metabolites and also health risks like toxicity,

environmental risk and can prove to be harmful for the animal itself. The paper provides the case study of three GE animals the GloFish as pet, the ATryn Goat as drug and, the AquAdvantage Salmon as food provide prime examples for evaluating FDA's 2009 Guidance and it also raises the concern of non-labeling of GE products by FDA. Dick also provides necessary recommendation for proper governance of development and use of GE animals and products.

A similar article about the development of genetically modified cows to produce healthier milk was reported in The Telegraph (2012, June 17) by Richard Gray. Genetically modified cow capable of producing milk which can be consumed even by people with lactose intolerance and a second animal whose milk possessing Omega3 fatty acid were created by Dr Zhou Huanmin and team of the Key State Laboratory for Bio-manufacturing at the Inner Mongolia University. Scientists like Wendy Higgins and other people raised the issue of safety and ethical correctness of these activities through the article.

Even though both the article deals with the same issues, the writing style and tone are different in both. The first one is scientifically oriented written with authority and with in depth analysis of each factor involved. The strength of this article is that it is more authentative and scientifically supreme but it can be difficult for a layman to comprehend the issues laid. On the other hand the second article is more general and less orientation to scientific details. Language is simple so as to make it understandable and readable by general public. Words from the authoritative people like scientists are directly quoted to make the article credible.

The science of genetic engineering is definitely the ‘ future science’ having the potential to create, refine and define the existence of all living being of nature. Through recombinant DNA (rDNA) technology, it is possible to manipulate the genetic makeup of organisms, introduce desirable trait, provide disease resistance, and mass produce desirable metabolites. Even though this science is having strong foundation, it is the responsibility of the scientific community to ensure that the Genetically Engineered animals and their products in no way will harm the balance and tranquility of nature. All the implication of the gene manipulated should be taken care of to avoid harm to humans, environment and to the animal itself. A final guidance was issued by FAD for industry on the regulation of genetically engineered (GE) animals provided a set of recommendations to producers of GE animals to help them meet their obligations and responsibilities under the law (FAD, 2009). Thus with stringent measures to ensure safety Genetic Engineering techniques can be used for the benefit of mankind irrespective of the costs incurred.

References

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