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Brief Note on Gene Technology and Genetic Engineering

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Short Commentary

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INTRODUCTION

In 1859 the book "On the Origin of Species" by Charles Darwin transfigured the biology theories and the biblical creationism was renewed by a new conception of the world. From this new context, also the theories by Lamarck were considered imprecise, because the transformation achieved by animals during their life could not be transmitted hereditarily. Moreover, the data collected by Gregor Mendel convinced biologists to introduce the concept of gene and hereditary characteristics, underestimating the role of the environment. [1-5]

For the time being, all geneticists have reviewed the environment as a key factor for the regulation of gene expression: external factors as temperature and light may LnlXHnFH the regulation of gene expression in some animals. Humans have been doing genetic engineering, a technology which is mutating our world, for thousands of years on a wide range of plants, animals and microorganism and have functions in the field of medicine, research, industry and agriculture. [6]

The accelerated developments in the area of genetic engineering have given a new impulse to biotechnology. This recommends the possibility of accommodating organisms in order to amend the production of established or novel metabolites of commercial importance and of transferring genetic material from one organism to another. In order to attain potential assets of genetic engineering the only obligation is to develop ideal tools and techniques. Once it has been perfected then all of the complications correlated with food production can be solved, the world environment can be revived, and human health and lifestyle will advance beyond imagination. No apprehension that there are nearly no limits to what can be accomplished through responsible genetic engineering. [7]

A lead in Genetic Engineering & Biotechnology (AGEB) promotes rigorous research that makes compelling inputs in achieving knowledge for Genetic Engineering and Biotechnology. AGEB add all major points connected to Genetic Engineering and recombinant DNA technology. Transgenesis is the process of introducing an exogenous gene into a living organism so that the organism will show a new trait and transmit that trait to its offspring. Human complicated diseases such as asthma, diabetes, rheumatoid arthritis and hypertension are caused by the combinations of environmental and genetic factors. Genetic and genomic approaches for the complicated disease have been successful due to powerful Genome-Wide Association Studies [GWASs] and positional cloning studies. [7-10]

Genetic engineering, also called genetic modification, is the direct manipulation of an organism's genome using biotechnology. Sequencing is the process of determining the precise order of nucleotides within the genome. It includes various methods or technologies that are used to determine the order of the four nucleotides in the DNA strand. The advent of rapid DNA sequencing methods has greatly accelerated biological and medical research and discovery. [11, 12]

Microbiology is often viewed as a testing ground for gene editing techniques, but with increasingly sophisticated synthetic organisms, and new leads on antimicrobial discovery, the editing of bacterial genomes is also looking increasingly important in its own right. The extent of genetic engineering challenges being dealing by ASM participants is remarkable, and shows how briskly basic research in this field is eloquent. The advancements of genetic engineering hold the potential to improve life dramatically, but when the interests of companies or individual agendas control the means for advancement, the results can go against the greater good of society. It is vital that society keep a check on genetic engineering by maintaining ethical debate, as the advancements in this field have an effect on everyone. [13-15]

In order to achieve potential benefits of genetic engineering the only need is to develop perfect tools and techniques. Once it has been perfected then all of the problems associated with food production can be solved, the world environment can be restored, and human health and lifestyle will improve beyond imagination. No doubt that there are almost any limits to what can be achieved through responsible genetic engineering. [16, 17, 18]

Gene Technology focuses on the areas such as Gene Mapping, Gene Expression, Peptide sequences, Nucleic acid sequence, Genetic screen, Reverse genetics, Gene cloning, RNA Sequencing, Linkage Analysis, Hybridization Techniques, Blotting Techniques, Polymerase Chain Reaction, DNA Foot printing, Gene Replacement, Cloning Vectors, DNA Synthesis, DNA Hybridization, Gene knocking etc. [19-20]

A newly discovered type of stem cell could help provide a model for early human development and eventually, allow human organs to be grown in large animals such as pigs or cows for research or therapeutic purposes. Because the region-selective cells grow more quickly and stably than other pluripotent cells, they may be more useful for developing new therapies. Gene editing could help scientists to optimize human cells' ability to grow within another species, allowing the creation of transgenic chimaeras. The idea of using human pluripotent cells, such as rsPSCs, to create animals with human organs is not unrealistic, but he expects that it will be very difficult. For instance, it is unknown whether an animal's developing immune system would recognize the human organ as part of the animal, or attack it. The signaling molecules that drive organ formation may differ between animals and humans, and a human organ might develop at a different rate from an animal organ. [21-27]

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