

Genetic Modification

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Abstract—Summarize what this paper is about in less than 50 words. Try to be succinct but self-contained, addressing the “what,” “why,” and “how” questions, if possible.

I. INTRODUCTION

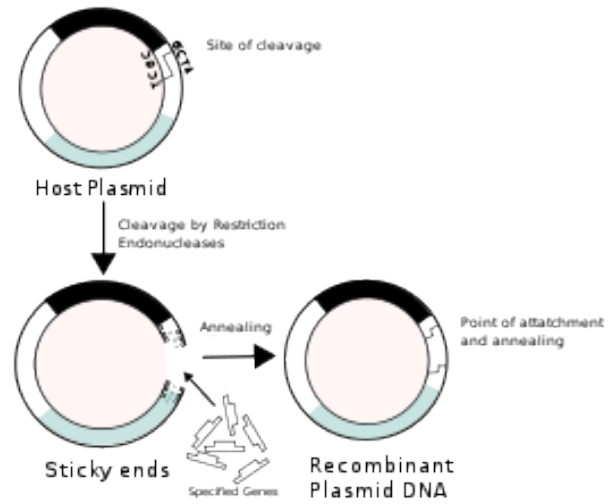
WITH the dawn of a new era in modern genetics, DNA modification remains one of today’s most prominent topics, in concurrence with recombinant DNA technology taking a front seat in the way food production is regulated within this country’s economy. From engineering the Amflora potato to marketable florescent goldfish, the possibilities are endless for what genetics can now produce, and equally endless are the problems for which they present solutions. However the problem with tampering with the genetic code of life lies within the ethical drama surrounding it, and while GMO giants like Monsanto push for utilization of their new creations, “occupy” movements and liberal organizations seek to suppress this advancement. There is no doubt however that recombinant DNA technology has the power to change the future, and whether or not we’re satisfied with life as it is, the tools are now here to arguably change it for the better.

II. METHODS

First off, rDNA is a stand of genetic material made from two different species, with limitless origins. Artificial DNA sequences are created by chemical synthesis of the DNA strands in such a way that they express a specific protein within a living cell. The creation of recombinant DNA molecules is a multistep process. First is the requirement of a cloning vector, or a DNA molecule that will replicate within a living cell. These vectors are relatively small segments of DNA obtained normally from plasmids or viruses that contain the necessary signaling for replication, as well as convenient elements that allow for foreign DNA insertion. The segments themselves may be combined using a number of methods but most notably that of restriction enzymes, where the strand is cleaved at specific nucleotides and isolated DNA fragments are created. When the prepared vector DNA has been combined with foreign fragments, subsequently creating rDNA, and that rDNA has been introduced into a specific host organism in a resulting manner such that the organism can produce clones with the desired DNA inserts and subsequent phenotypical expressions, then that host can be dubbed as successfully “genetically modified”.

III. RESULTS

At this point in todays field of genetic modification, a number of different “artificial” species have been created for a range of purposes. One of the more fascinating developments in recent modification is the development of a phosphorescent, “glowing” cat. The beast was created using a virus to carry a GFP gene (green fluorescent protein) and insert it into the egg from which the animal eventually was born. 3 glowing cats were created precisely, and these enigmas of physical science are an example of a modern, simpler method of genetic modification using a virus as opposed to traditional cloning techniques. The GFP gene originates from jellyfish, and expresses proteins that fluoresce when hit with certain frequencies of light. While the species excites and captivates those who see it, these cats have a more vital place in modern day research. Scientists are using the animals as a bridge to begin comparing feline immunodeficiency virus (FIV) with (HIV) in that of humans, and hope that they will obtain valuable information regarding the study



of AIDs.



IV. DISCUSSION

There is no question of the usefulness of GMO’s in solving many of today’s problems, but what of the ethical issues surrounding them? Today, much of the population is outraged with the amount of weight that genetic modification has begun to carry within the food production industry. Risk assessment managements have carried out evaluations on the government regulated GMO industry with concerning results. As an example, in the case of pollinating GMO plants, pollen from herbicide resistant species may cross with a compatible weed and introduce the resistance to that species. This is just one example of a long list of possible major problems surrounding GMOs that has created huge anti-genetic modification groups like “Occupy Monsanto”. These organizations protest against the creations of the genetics corporations responsible for the seemingly large number of artificial crops in today’s market.

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