

Deregulating inconclusive new gene techniques

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The first generation of gene changes was problematic enough and the next generation of gene changes is even more alarming- and calls for strong regulation for public protection

Genetically Modified- GEN I

The first generation of gene changes cut **one strand** of the DNA and had an inaccurate uptake of 1 in 1000 agar plates talking up the gene changes- ascertained by antibiotic resistance within the vector and antibiotics applied to the agar plates- with a 999 out of 1000 plate failure rate. In other words it was a miracle the plant accepted the 'desired' vector, with herbicide resistance usually included or the BT toxin- landing in some random place in the DNA.

The first generation of gene changes is problematic enough, as the two DNA strands should be the same through translation in the mitochondria and this has not been established how the technology overcomes this. Thus far the industry had failed to prove the novel products are safe as no safety studies, or gross pathology and toxicology on animals or humans consuming GMO (Genetically Modified Organism) foods was ever performed. However, some recent independent studies demonstrate multiple organ and system dysfunction (including J Carman's pig study [1]) and the **precautionary principle for GMO foods** has been called for worldwide by scientists, regulators and consumers.

No tests or trials should cause harm and thus the global **unfettered GM (Genetically Modified) food experiment must be finished** due to ethical reasons and due to potential harm for participants and therefore- **we the Australian public call for a HALT OF GENETIC ENGINEERING DUE TO THE RANDOM UNTESTED NATURE OF THE INDUSTRY.**

Complete protection is needed throughout the food chain including bacteria which are importantly effected by GMO food, and although small, dysfunctional bacteria can have massive effects on the body. The regulators must watch we don't give bacteria the 'tools' to be our own undoing- ie bacteria can gain advantageous traits which may turn pathogenic and increase superbugs which are not able to be controlled by antibiotics. There has been an increasing problem with antibiotic resistance since the introduction of GM foods. The **uncertainty** in the next generation of gene changes (**GM-Gen II**) are increased exponentially and thus **should be suspended and highly regulated to protect animal and human health.**

Genetically Modified - GEN II

The new generation of gene changes, use new gene slicing tools which **cuts both strands of the DNA** and thus randomly cuts the DNA -all over the place causing 100's of mutation and leaving a jumbled jigsaw which may never be put back in place again [2]

"...recipients had sustained more than 1,500 single-nucleotide mutations and more than 100 larger deletions and insertions. None of these DNA mutations were predicted by computer algorithms that are widely used by researchers to look for off-target effects" [3].

THIS IS ENOUGH EVIDENCE TO CLOSE DOWN THIS NEW BRANCH OF GENE CHANGES, AS IS IT NOT 'PROGRESS' TO **CUT UP THE DNA IN 100's of MULTIPLE SITES creating mutations** [3] and an impossible jigsaw, that- the now shredded DNA cannot police (natural epigenetics) for any errors and repair the DNA strand naturally.

The results from this infant science, proves that using these tools work, at cutting the DNA, but is multiple mutations in the interest of the plant, animal or human, when to date sexual selection protects organisms from these sorts of random mutations of the blue print. Small correct changes in sexual selection has worked for species in preceding time and the changes are usually helpful for the species and are in response to environmental changes. These slow changes allows for errors to be ironed out and the idea that forcing a change into DNA is somehow natural- are sorely deluded and ignores that fact that there are no checking mechanisms in place in the biotech system. The fact is that most if not all of the changes would not occur naturally, as there is no advantage of the organism to have the 'desired' trait such as Roundup resistance in every cell.

Turning on and off genes should be changeable and allows the organism to adapt to changes in the environment. These epigenetic changes are dynamic and rely on environmental cues to switch on or off a desired gene. Thus for example, drought tolerance is a pipe dream- as a plant tolerant to drought conditions may only be needed 1year in a 10 year period and would not work in flood years, and farmers would not know in advance to plant drought tolerant crops (if they could be made) before a drought set in. Thus, plants and humans need to be able to change gene expression in response to environmental cues, gene changes that have genes always turned on, are limited and go against the DNA's natural desire to adapt and survive.

Flexible gene expression and the fact that multiple genes are involved in plants managing drought, making the concept very complicated and impossible, and debunking the concept or theory of drought tolerant crops and other potential cash crops. The next generation of GM cannot be rolled out, as meanwhile the first generation could be contributing to the rise in the prevalence of diseases and new health issues arising in the last 20years [4]

DNA basics that biotech forgets

DNA is the blue print of life and thus every protein in the organism is made from that blue print. Genetic engineering forces the random insertion of 'desired' vectors and thus it depends where in the DNA it inserts, as to which other traits or functions may be affected by this process.

The folding of proteins is so precise that just one base pair can render the protein unable to function and can leading to dysfunction in a hormone system effecting kidney function (in turn effecting blood pressure, temperature and fluid regulation etc), liver problems, pancreas problems, digestion problems, neural problems and nerve disorders and possibly lead to cancer [4]. So just one error in one base pair can be fatal, let alone multiple off target mutations as seen in CRISPR [5].

Given the **existing problems with CRISPR and the complications** within the new gene changing techniques, there are **no grounds** to allow this industry a green light, let alone not regulating and not tracing every new manmade patented creation. This behaviour puts people lives' at risk people with

allergies, such as the L-tryptophan saga in the 90's, thus all new GM creations should be regulated and **LABELLED for consumer protection.**

New double strand DNA cuts- even more imprecision

The new GM process itself has the potential for enormous problems including fatal allergic reactions to new proteins and unwanted insertions and mutations.

Personalised therapy is a market created by the biotech industry- after consuming GM food containing a poison to the kidney and liver. Now, the industry makes claims of fast tracked remedies using stem cells to produce a drug you can then take for life. It is a farce and is misleading- creating illness for profit is wrong and thus this industry should not be given any more rope- they have stretched the meaning of science so far as to spoil the reputation of gold standard studies in medicine and need to pull up their socks and start independently proving assertions and claims about gene changed products before more damage occurs.

It remains unclear how some of the biotech 'ideas; to fix medical problems would work- as one is unable to delete every cell in an organism and replace with the apparent 'desired' changed DNA. Overzealous claims and false assumptions are made about wiping out diseases, but any temporary change that maybe achieved will eventually be taken over any the cells original DNA and thus undermines the whole theory. This is the very reason Australia should be cautious with GM, as when the problems occur- as they inevitably will-the impact may be massive and the infant technology will be reduced to small applications or shut down for good.

Again ideas of changes to germ line cells are equally disturbing with multiple off target mutations resulting in unviable embryos- demonstrating the concept is flawed and should be halted.

Damaged gut biome- unforeseen problem with GM

Australia needs protection from 'well-meaning discoverers' which may backfire and cause unknown consequences like- the gut biome issues with GM food [6], [7] and this elucidates why it is your obligation to not allow this industry to spoil Australian's domestic and export food production.

Many Scientists and health professional are against GM crops

In light of reports such as the following, the biotech industry has a lot to answer- re inadequate testing of their new gene changed creations.

The International Monsanto Tribunal Advisory Opinion, in The Hague, on April 18, 2017 reported after 6mths reviewing the testimony of 28 witnesses [8].

According to the report on Alternet site, the judges' opinion includes...

“ Monsanto has engaged in practices that have violated the basic human right to a healthy environment, the right to food, the right to health, and the right of scientists to freely conduct indispensable research.”

The tribunal also concluded, “On four of those questions—whether or not Monsanto violated the right to a healthy environment, right to food, right to health, and right to freedom of expression and academic research—the judges concluded in all cases **that yes,**

Monsanto's activities have violated all of those rights. (Detailed answers to all questions are included in the [Advisory Opinion](#).)..."

Importantly the tribunal reported ...“The judges also called on international lawmakers to hold corporations like **Monsanto accountable**, to place human rights above the rights of corporations, and to “clearly assert the protection of the environment and establish the **crime of ecocide.**” “ [8]

Many scientists are concerned about the new generation of GM and are calling for caution [9], [10].

Regulate GM or not?

Australia should not be the first to experience the problems with GM- Gen II, and thus our food supply or health industry maybe the first crippled by a derailed product like the L-tryptophan and Starlink corn issue in the early 90's [11]. Let other countries go first or consider and investigate why they haven't deregulated this infant industry.

The GM ban in some states **cannot be over written** by overseas industries that do not even pay tax here, why have they more rights than the people that live here and consume the products? People's health must come before industry profits or unsafe technologies, which in turn cause more problems and trouble than they are trying to solve. Let us try to regain credibility of science, and like all science put your research behind your claims- for industry credibility and thus long term sustainability and profitability.

Government Funds are pouring into Biotech coffers while the government cries poor and in the absence of any gold standard studies to back up the industry allegations, and GM is given far more air time, money and consideration than the biotech industry deserves. How about we get off the gravy train and look at this with unbiased eyes and regulate Gen II of GM, as it makes sense if one understands the basics of molecular science and respects nature, over company profits. **It would be prudent to regulate all and any new creations from the Biotech Industry, including crops all species, medical applications and new drugs including new GM vaccines** (given that most vaccines are given to children- best to err on the side of caution- thoroughly test and regulate).

Conclusion

Forced gene changes are going out of fashion and consumers and farmers prefer non GM varieties to eat and grow. So **in good conscience any manmade gene changed patented creations, which are made for profit and are consumed by animals or humans must be fit for purpose and not cause damage or harm to the environment and consumers and must be regulated thoroughly.** If you set up the system correctly and not biased toward company desires, than the scheme will be sustainable in the future. However, if we fall on the slack side of fast track industry, we will be left to mop up problems which may be unfixable- **regulate and label all GMO's before you have to compensate for negligence.**

[1] <http://www.organic-systems.org/journal/81/abstracts/8106.html>

[2] <https://cosmosmagazine.com/biology/crispr-gene-editing-causes-hundreds-of-unintended-off-target-mutations>

- [3] <https://phys.org/news/2017-05-crispr-gene-hundreds-unintended-mutations.html>
- [4] <http://responsibletechnology.org/gmo-education/health-risks/>
- [5] <http://theconversation.com/crispr-controversy-raises-questions-about-gene-editing-technique-78638>

- [6] <https://www.drmattnd.com/digestive-health/do-gmo-crops-harm-gut-bacteria.html>
- [7] <https://www.drperlmutter.com/pesticides-damage-microbiome/>
- [8] <https://www.alternet.org/environment/international-tribunal-says-monsanto-has-violated-basic-human-right-healthy-environment>
- [9] <https://www.nature.com/news/doubts-raised-about-crispr-gene-editing-study-in-human-embryos-1.22547>
- [10] <https://ensser.org/publications/ngmt-statement/>
- [11] <http://earthopensource.org/gmomythsandtruths/sample-page/3-health-hazards-gm-foods/3-7-myth-one-ever-made-ill-gm-food/>