

Newsletter 43: Gene Editing Golems and Mad Science

Dear readers,

I want to bring your attention to one of the more ominous developments in recent biological experimentation, the development of what is called gene-editing. Many have been shocked by news out of China of an allegedly successful birth of gene-edited twins. In my view this is but the exposed part of one of the most dangerous developments for the future of mankind. Under the contrived claim that gene-editing is harmless and needs no special regulatory controls, an untested technology with the potential to wreak untold havoc and harm to life on our planet is being promoted with kits that can be bought online for as little as \$2000. The following is a compilation of my discussion of this alarming development hiding under the name of “scientific progress.”

If you find my reports here and on my website, www.williamengdahl.com informative or useful, please consider a donation via my website so that I can continue to offer my content without charge.

Thank you,

Best regards,

F. William Engdahl

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US Gov Backs Dangerous New Genetic Manipulation Approach

By F. William Engdahl

11 April 2018

The Trump Administration is backing a new technology for the genetic manipulation of plants and even animals with no intent to supervise or regulate against possible dangers. If left unchecked, it could open a Pandora's Box of dangers to human health for generations. Yet very little debate is taking place on this dramatic development. Here are some things to consider .

The new development is being called "genome editing," or simply gene editing. It's being promoted as a "new, improved" method of altering genetic expression of plants and even animals and humans. In 2015 London TED conference geneticist Jennifer Doudna presented what is known as CRISPR-Cas9. This is an acronym for "Clustered regularly-interspaced short palindromic repeats." It's a revolutionary and highly controversial gene-editing platform using a bacterially-derived protein, Cas9. It supposedly allows genetic engineers to target and break the DNA double strand at a precise location within a given genome for the first time.

Genetic Editing Proliferation

In effect CRISPR is a highly precise way to alter genes, genes in plants, in animals and even humans. Quite different from the older Monsanto "gene cannon" or other techniques of changing a plant's genetics by bombarding it with a foreign substance to (hopefully) make the soybean or GMO corn resistant to Monsanto's Roundup weed killer, a highly sophisticated and highly costly procedure that is patentable and that is so complex as to be limited to a handful of company actors around the world, gene editing is relatively cheap, kits available for around \$500. And relatively easy to use. As one analyst described it, CRISPR is "a very precise not to mention extraordinarily cheap and easy to use tool which can locate, cut, deactivate, activate or rewrite any sequence of DNA [that they want in a living cell.](#)" Note the words, "cheap and easy to use...can locate, cut, deactivate or rewrite any sequence of DNA that they want..."

And the cost of buying CRISPR and related genome editing materials is alarmingly cheap ranging from several hundred dollars to several thousand. The equipment is available online from scientific equipment makers and on one site an ad reads, "CRISPR-Cas9 editing made easy:...Our easy-to-use, optimized,

and validated solutions span the entire cell engineering workflow, making genome editing accessible to anyone at any level. “As one critic put it, “anyone can buy some CAS9 for a few hundred bucks, any halfway decent lab can use it to alter the DNA of anything...”

National Security Issue

DARPA, the Pentagon R&D arm is spending millions on developing gene editing. In 2016 James Clapper, Obama Administration Director of National Intelligence added gene editing to the list of threats posed by “weapons of mass destruction and proliferation.” In July, 2017 the US Defense Advanced Research Projects Agency awarded \$65 million in four-year contracts to seven teams of scientists to study gene-editing technologies. The commitment officially made DARPA the world’s largest government funder [of “gene drive” research.](#)

Gene Drive is the next major development in the new gene editing world. The idea of gene drive is to force a genetic modification to spread through an entire population in just a few generations. One of the leading gene drive researchers, Omar Akbari at University of California Riverside gets DARPA gene drive research money. He works with what is supposedly the world’s deadliest creature: the *Aedes aegypti* mosquito. His work involves gene editing the deadly mosquito, re-engineering them with “self-destruct switches.”

This sounds noble, a boon to mankind saving maybe a million lives annually. Like selling earlier GMO “golden rice” as a solution to infant blindness, gene editing however is not as perfect as it is made out to be. The scientist who first suggested developing gene drives in gene editing, Harvard biologist Kevin Esvelt has published a paper warning that development of gene editing in conjunction with turbocharged gene drive technologies have alarming potential to go awry. He notes how often CRISPR messes up and the likelihood of protective mutations arising, making even benign gene drives ruthlessly aggressive. He stresses, “Just a few engineered organisms could irrevocably alter an ecosystem.” His computer gene drive simulations calculate that a resulting edited gene “can spread to 99 percent of a population in as few as 10 generations, and persist for [more than 200 generations.](#)”

It takes little imagination to conceive a scenario in which malevolent actors intent on wreaking destruction unleash destructive gene edited plants or animals, or even humans. Earlier GMO was so complex and costly it was limited to a very few actors who grabbed patents on their GMO seeds. Now with gene editing readily available and becoming widespread, Pandora’s Box is being opened wide.

USDA Gov Gives Green Light

Rather than approach such a potentially disruptive technology as gene editing with utmost caution and control, the US Government, and US Department of Agriculture Secretary Sonny Perdue, are opting for no regulation, a laissez faire permissiveness that treats the resulting gene edited plants as identical to conventional plants, therefore needing no special regulation. In a March 28 Press Release, Purdue stated, “USDA does not regulate or have any plans to regulate plants that could otherwise have been developed through traditional breeding techniques...This includes a set of new techniques that are increasingly being used by plant breeders to produce new plant varieties that are indistinguishable from those developed through traditional breeding methods... [such as genome editing...](#)”

So we have at the same time the US intelligence community treating gene edited organisms and related technologies as potential weapons of mass destruction, while at the very same time the agencies of the US Government responsible for food safety, the USDA, EPA and FDA seem content to turn a blind eye to all. As critics have noted, “We might be able to wipe out entire species on a whim ...We might be able to do that — to any species — that we’ve decided we’d rather not deal with anymore ...” Even “undesirable” groups of human beings?

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Is Gene Editing the New Name for Eugenics?

By F. William Engdahl

21 June, 2018

A major new technology known as Gene Editing has gained significant attention in recent months. Its advocates claim it will revolutionize everything from agriculture production to disease treatment. None other than Bill Gates has just come out in an article in the US foreign policy magazine Foreign Affairs in praise of the promise of gene editing. Yet a closer investigation suggests that all is not so ideal with Gene Editing. New peer reviewed studies suggest it could cause cancer. The question is whether this technology, which is highly controversial, is little more than a stealth way to introduce GMO genetic manipulation by way of another technique.

The scientific magazine, Nature Studies, has published two studies that suggest that gene-editing techniques may weaken a person's ability to fight off tumors, and "could give rise to cancer, raising concerns about for the safety of CRISPR-based gene therapies." The studies were done by Sweden's Karolinska Institute and by the pharmaceutical firm, Novartis. Cells whose genomes are successfully edited by CRISPR-Cas9 have the potential to seed tumors inside a patient the studies found. That could make some CRISPR'd cells ticking time bombs, according to researchers from Karolinska Institute and, in a separate study, by Novartis.ⁱ

The CEO of CRISPR Therapeutics, Sam Kulkarni, admitted that the results are "plausible." He added, "it's something we need to pay attention to, especially as CRISPR expands to more diseases." ⁱⁱ Given the stakes that is a notably nonchalant response.

Genes out of the bottle

The issue of gene editing to cut or modify DNA of a plant, animal or potentially human beings is by no means mature let alone fully tested or proven safe as the two new studies suggest. CRISPR, far the most cited gene editing technology, was developed only in 2013. In 2015 at a London TED conference geneticist Jennifer Doudna presented what is known as CRISPR-Cas9, an acronym for "Clustered regularly-interspaced short palindromic repeats." It's a gene-editing platform using a bacterially-derived protein, Cas9 that supposedly allows genetic engineers to target and break the DNA double strand at a precise location within a given genome for the first time.

The technique also has significant problems. It has been shown repeatedly that only a small minority of cells into which CRISPR is introduced, usually by a virus, actually have their genomes edited as intended.

In China scientists used human embryos given by donors of embryos that could not have resulted in a live birth, to edit a specific gene. The results were a bad failure as the tested cells failed to contain the intended genetic material. Lead researcher Jungiu Huang told Nature. “That’s why we stopped. We still think it’s too immature.”ⁱⁱⁱ

A newer form of gene editing known as gene drive, as I noted in an earlier article, has an alarming potential to become a Frankenstein monster. Gene Drive gene editing, which is being heavily funded by the Pentagon’s DARPA, aims to force a genetic modification to spread through an entire population, whether of mosquitoes or potentially humans, in just a few generations.

The scientist who first suggested developing gene drives in gene editing, Harvard biologist Kevin Esvelt has publicly warned that development of gene editing in conjunction with gene drive technologies have alarming potential to go awry. He notes how often CRISPR messes up and the likelihood of protective mutations arising, making even benign gene drives aggressive. He stresses, “Just a few engineered organisms could irrevocably alter an ecosystem.” Esvelt’s computer gene drive simulations calculated that a resulting edited gene “can spread to 99 percent of a population in as few as 10 generations, and persist for more than 200 generations.”^{iv}

Despite such warnings and problems, the US Department of Agriculture has endorsed gene editing, without any special testing, for use in agriculture crops. The Department of Agriculture has decided that genetically edited plants are like plants with naturally occurring mutations and thus require no special regulations and raise no special safety concerns, despite all contrary indications. And the Pentagon’s DARPA is spending millions of dollars to research it.^v

Enter Bill Gates

Most recently the Microsoft founder Bill Gates, a long-time advocate of eugenics, population control and of GMO, has come out in a strong endorsement of Gene Editing. In an article in the May/June 2018 magazine of the New York Council on Foreign Relations, *Foreign Affairs*, Gates hails gene

editing technologies, explicitly CRISPR. In the article Gates argues that CRISPR and other gene-editing techniques should be used globally to meet growing demand for food and to improve disease prevention, particularly for malaria. “It would be a tragedy to pass up the opportunity,” he wrote. In point of fact, the Bill and Melinda Gates Foundation, which among other projects is working to spread GMO plants into African agriculture and which is a major shareholder of Monsanto, now Bayer AG, has financed gene editing projects for a decade.^{vi}

Gates and his foundation are not at all neutral in the area of Gene Editing and definitely not in the related highly controversial Gene Drive applications. In December 2016 in Cancun Mexico at the UN Biodiversity Conference, more than 170 NGOs from around the world including the German Heinrich-Böll Stiftung, Friends of the Earth, La Via Campesina and others called for a moratorium on gene drive research.

However, inside the UN at their dedicated website the online discussion is dominated by something called the Ad Hoc Technical Expert Group on Synthetic Biology (AHTEG), a UN-approved “expert group” on synthetic biology. AHTEG is indirectly funded by the Bill & Melinda Gates Foundation through the PR company, Emerging Ag which wages an intense pro-Gene Drive lobby campaign within the UN. Emerging Ag has recruited some 60 biology researchers including from Bayer Crop Sciences to promote the high-risk gene drive technology. They advocate US-level non-regulation of gene editing and gene drive as does Gates, and they vigorously oppose any moratorium.^{vii}

In his *Foreign Affairs* article Gates argues, “Gene editing to make crops more abundant and resilient could be a lifesaver on a massive scale...For a decade, the Bill & Melinda Gates Foundation has been backing research into the use of gene editing in agriculture.” He adds, without proof, “there is reason to be optimistic that creating gene drives in malaria-spreading mosquitoes will not do much, if any, harm to the environment.”^{viii}

With the Bill & Melinda Gates Foundation, the USDA and the Pentagon DARPA all involved energetically advancing gene editing and especially the highly-risky Gene Drive applications in species such as mosquitoes, one has to ask is gene editing becoming the new name for eugenics in light of the fact that GMO technologies have been so vigorously opposed by citizen groups around the world. Honest scientific research is of course legitimate and necessary. But unregulated experimentation with technologies that could wipe out entire species is definitely not the same as planting a variety of hybrid corn.

Endnotes:

ⁱ Sustainable Pulse, Serious New Hurdle for CRISPR Edited Cells Might Cause Cancer, Find Two Studies, June 11 2018, <https://sustainablepulse.com/2018/06/11/a-serious-new-hurdle-for-crispr-edited-cells-might-cause-cancer-find-two-studies/#.Wyo6x6m O-U>.

ⁱⁱ Ibid.

ⁱⁱⁱ Viktoria Woollaston, Controversial gene editing tool CRISPR could give rise to cancer worrying studies find, 12c June, 2018, <http://www.alphr.com/bioscience/1001654/crispr-cas9-gene-editing>

^{iv} F. William Engdahl, US Gov Backs Dangerous New Genetic Manipulation Approach, 11 April 2018, NEO, <https://journal-neo.org/2018/04/11/us-gov-backs-dangerous-new-genetic-manipulation-approach/>

^v Ibid.

^{vi} Katherine Ellen Foley, Bill Gates thinks the future should be genetically edited, April 11, 2018 , <https://qz.com/1249294/bill-gates-thinks-crispr-gene-editing-can-improve-agriculture-and-global-health/>

^{vii} Kathrin Hartmann, Gates Foundation Lobbyarbeit für Gentechnik statt für Gerechtigkeit, Frankfurter Rundschau, 3 December, 2017, <http://www.fr.de/wirtschaft/gates-foundation-lobbyarbeit-fuer-gentechnik-statt-fuer-gerechtigkeit-a-1400391>

^{viii} Bill Gates, Gene Editing for Good: How CRISPR Could Transform Global Development, Foreign Affairs, May/June 2018, <https://www.foreignaffairs.com/articles/2018-04-10/gene-editing-good>.

Son of Frankenstein? UK Body Backs Human Embryo Gene Editing

By F. William Engdahl

23 July 2018

Though the announcement is couched in terms that make it seem humanitarian, as potentially a huge advance in science, an agency tied to the British government is encouraging efforts in gene-editing of the DNA of human embryos. It belongs in the category of eugenics. Not surprisingly, the footprints of Bill Gates and the Rockefeller eugenics circles, and major pharma groups as well as GMO seed companies are found here .

Following a well-placed article by Microsoft founder and major GMO supporter Bill Gates in the prestigious New York Council on Foreign Relations magazine, Foreign Affairs, strongly endorsing the development of so-called genetic editing, the UK's Nuffield Council on Bioethics, a part Government-funded advisory body, has now released a report titled Genome Editing and Human Reproduction.

The report and the people behind it, including the Government's Medical Research Council, indicate that a major push is underway to convince the public that genetic manipulation of human embryo DNA, so-called gene editing, is desirable and beneficial.

Among its conclusions the report states, "use of heritable genome editing interventions to influence the characteristics of future generations could be ethically acceptable." It adds that, "research should be carried out on the safety and feasibility of heritable genome editing interventions to establish standards for clinical use."

With many sentences stressing that the decision should only be licensed "on a case-by-case basis subject to assessment of the risks of adverse clinical outcomes for the future person," by a national competent authority; and "strict regulation and oversight," the report opens a Pandora's box of eugenics issues, the long-standing agenda of circles such as the Rockefeller Foundation, Rockefeller University, Bill and Melinda Gates Foundation and others.

The focus is use of new technologies for gene editing, including CRISPR-Cas9, to “alter a DNA sequence(s) of an embryo, or of a sperm or egg cell prior to fertilisation. The aim would be to influence the inherited characteristics of the resulting person.” They elaborate, “We refer to these as ‘heritable genome editing interventions’ since the altered DNA may be passed to future generations...” They suggest that “One use of heritable genome editing interventions would be to have a child while excluding a particular heritable disorder that the child might have inherited from their biological parents.”

The person heading the new study is Birmingham University Prof. Karen Yeung, a professor not of biology, but of law and ethics and an expert in Artificial Intelligence. Yeung told the UK Guardian, “It is our view that genome editing is not morally unacceptable in itself. There is no reason [to rule it out in principle](#) .”

The issuance of the Nuffield Council on Bioethics report marks a major advance to creation of radical new laboratory interventions into human embryos to create what critics call “designer babies.”

The problem is that the technology of gene editing is anything but precise, contrary to what its advocates like Bill Gates may claim. The methodology of manipulating a specific part of a DNA chain to change human embryos is based on flawed scientific reductionism, which ignores the complexity of biophysical reality and of the fundamental laws of nature.

Risk to future generations

Take the statement from the Nuffield Council on Bioethics report: “We refer to these as ‘heritable genome editing interventions’ since the altered DNA may be passed to future generations...” The altered DNA may be passed to future generations?... And what if the altered DNA goes awry and that too is passed to future generations?

The scientist who first suggested developing gene drives in gene editing, Harvard biologist Kevin Esvelt, has publicly warned that development of gene editing, in conjunction with gene drive technologies, have alarming potential to go awry. He notes how often CRISPR messes up and the likelihood of mutations arising, making even benign gene drives aggressive. He stresses, “Just a few engineered organisms could irrevocably alter an ecosystem.” Esvelt’s computer gene drive simulations calculated that a resulting edited gene, “can spread to 99 percent of a population in as few as 10 generations, and persist for [more than 200 generations](#).”

He was discussing gene editing of mosquitoes. Now the debate is moving on to gene editing of human embryos.

UK Francis Crick Institute

The experiments have already begun, though researchers rush to stress they are with “donated embryos,” not implanted after into the womb of a woman, but killed after several days of lab experimenting. Two years ago, researchers in China used human embryos given by donors of embryos that could not have resulted in a live birth, to edit a specific gene. The results were a bad failure. The tested cells failed to contain the intended genetic material. Lead researcher Jungiu Huang told Nature, “That’s why we stopped. [We still think it’s too immature.](#)”

Two years prior to the recent call by the UK’s Nuffield Council on Bioethics to, in effect, give a broad green light to experiments with gene editing of human embryos, the UK Government’s so-called “fertility regulator,” the Orwellian-sounding Human Fertilisation and Embryology Authority (HFEA), gave permission to scientists at London’s Francis Crick Institute to do limited experiments involving gene editing modification on human embryos.

The HFEA is part of the UK Department of Health and Social Care. It was the first time a national government approved use of the DNA-modification technique in human embryos. The researchers reportedly alter genes in donated embryos, which will be destroyed [after seven days](#).

The Francis Crick Institute opened that same year, 2016, so the gene editing of human embryos was one of its first projects. Notably, the institute has 1,500 staff, including 1,250 scientists, and an annual budget of over £100 million, making it the biggest single biomedical laboratory in Europe. Among its first donors was the UK pharma giant GlaxoSmithKline, [giving funding and personnel](#).

Also notable is the CEO and Director of the Francis Crick Institute, Sir Paul Nurse, geneticist and former President of the Rockefeller University in New York. In 2009 Nurse hosted an exclusive meeting at the Rockefeller University of hand-picked billionaires, invited by Bill Gates and David Rockefeller, to discuss the problem of “over-population.” They reportedly called their group The Good Club, and it included, according to reports, billionaire financiers [Warren Buffett, George Soros and Michael Bloomberg](#).

Grave Concerns

The fact that today the same Sir Paul Nurse heads one of the world's largest and best financed biomedical laboratories where they are doing gene editing of "donated" human embryos, suggests that a very dangerous agenda is being advanced under the banner of gene editing. And the fact that Bill Gates and his huge foundation, a major investor of Monsanto (now Bayer AG), have been funding experiments in gene editing for more than a decade, including CRISPR, suggests that gene editing could soon become a new name [for human eugenics](#)

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Gene editing itself is hugely flawed and unregulated by governments. It has been shown repeatedly that only a small minority of cells into which CRISPR is introduced, usually by a virus, actually have their genomes edited as intended. Indeed, the risks of human embryo gene editing are such that an open appeal published in Nature magazine from Edward Lanphier, Fyodor Urnov and a number of other leading gene editing researchers declared, "Don't edit the human germ line."

The appeal of the scientists stated, "There are grave concerns regarding the ethical and safety implications of this research... In our view, genome editing in human embryos using current technologies could have unpredictable effects on future generations. This makes it dangerous and ethically unacceptable. Such research could be exploited for non-therapeutic modifications." The gene scientists added the alarming warning, "The precise effects of genetic modification to an embryo may be impossible to know until after birth. Even then, potential problems may not surface [for years](#)."

They called for a voluntary scientific moratorium on human gene editing.

The term "non-therapeutic modifications" might very well include genetic editing of certain "undesirable" human races, to program them for biological extinction, the eugenics ultimate dream for over a century. Is that unthinkable? Not to some minds to be sure.

###

GMO Lobby Plots to Corrupt EU Court Ruling on Gene Editing

By F. William Engdahl

19 September 2018

The GMO lobby, led by Bayer/Monsanto, Syngenta and others have begun to develop a counter-attack to try to neutralize the unexpected and, for them, devastating EU European Court of Justice ruling in July requiring that plants modified through so-called gene-editing DNA techniques must submit to the same licensing risk-assessment procedures as all other GMO plants. The ruling caught the GMO industry off-guard. Now they prepare a counter-attack as we might expect from the developers of Agent Orange, neonicotinoids or similar toxins .

On July 25, in a rare ruling in opposition to the recommendation of the European Union Advocate General, judges of the European Court of Justice held that products from new gene editing (GE) techniques are to be considered genetically modified organisms (GMOs) and as such are covered by existing EU GMO regulation. Contrary to the United States where the US Government, since the time of President G.H.W. Bush, has refused to regulate GMO plants arguing the phony claim they are “substantially equivalent” to conventional corn, soybeans or other plants, the EU has strict requirements before licensing and to date only one GMO crop, a patented corn variety is grown legally, that only in Spain.

The EU court ruling dealt a stunning blow to the GMO “biotech” industry which had been arguing their gene editing technologies were not GMO and needed no special regulatory oversight. They planned to sneak new and highly dangerous forms of genetic modification of plants in through the back door. DowDuPont had filed around 50 international patent applications for gene editing and plants, followed by Bayer-Monsanto with around 30 applications. Now under the ruling all gene edited products in the EU must first be fully tested [and its products labelled.](#)

The European Court ruling drew a sharp attack from US Secretary of Agriculture Sonny Perdue. Purdue issued an official statement declaring, “Government policies should encourage scientific innovation without creating unnecessary barriers or unjustifiably stigmatizing new technologies. Unfortunately, this week’s ECJ ruling is a setback in this regard in that it narrowly considers newer genome editing methods to be within the scope of the European Union’s

regressive and outdated regulations governing [genetically modified organisms.](#)”

In the UK a group of 33 industry and research centers as well as pro-GMO farmers have delivered a letter to the British Government Department for Environment Food & Rural Affairs. The letter protests the July EU Court ruling requiring gene-edited plant varieties to undergo the same risk testing and licensing as other GMO plants. They declare, “We feel there are significant questions that must be addressed urgently by government if the UK is to retain its strength in plant genetics, to use innovation to boost productivity and competitiveness, and to meet the challenges [of nutritional health and environmental protection.](#)”

Behind the progressive-sounding words lie the interests of the major GMO industry firms. Among the 33 signers are Bayer/Monsanto—today the world’s largest holder of GMO patents and related agri-chemicals; Syngenta of Basle, now owned by a Chinese state chemicals company; German GMO and agrichemicals giant BASF; and the UK Agricultural Biotechnology Council, a front for the GMO companies and founded by Monsanto, Bayer et al. The appeal to the UK government misleadingly argues that costs associated with conducting field trials under GMO regulations are extremely restrictive to research institutes and also to small biotech companies, conveniently omitting the leading role of Bayer and other GMO agribusiness giants. They also argue that they desire to “explore the potential to deliver innovative solutions to tackle world hunger...” To date no GMO plant nor gene-edited one has created a solution to world hunger. That’s not what it’s all about.

Change EU GMO Law?

While the European Court decision mandating gene-edited species be treated with the same regulatory regime as GMO varieties before they can be sold in the EU hits the burgeoning gene-editing industry, there are already indications that pro-gene-editing forces are consulting with their allies within the EU Commission about how to rewrite the EU GMO legislation to exempt gene-editing.

Lawyers with a Holland law firm hired by the pro-gene-editing group, New Breeding Techniques (NBT) Platform—NBT is a euphemism for gene editing—commenting on what industry options are, stated, “What could happen at a later stage is that (EU-w.e.) policy makers realize the severe consequences of the ruling or its subsequent developments and thus decide to facilitate the risk

assessment for new techniques, enabling a modification of Directive 2001/18 in favor of the NBTs.” The industry lawyers conclude, “After the ECJ ruling, it is now up to the industry to provide sound evidence that certain new techniques of muta-genesis are as safe or even [safer than traditional ones.](#)”

Safe?

This court ruling will prove increasingly challenging even for Bayer and such multinationals accustomed to get their way in Brussels. More reports are being published detailing serious dangers and risks of so-called safe gene-editing techniques and results. A study just released by Dr. Janet Cotter of Logos Environmental UK consultancy and Friends of the Earth US, notes alarming defects in the applications of gene-editing techniques including “large deletions and rearrangements of DNA near the target site that were not intended by researchers.” Another study found that cells genetically engineered with CRISPR, the most-prominent gene-editing technique at present, “have the potential to seed tumors” or may initiate tumorigenic mutations. Another study found that gene-editing with certain soybeans had “off-target effects, in which gene editing occurred at unintended locations [with DNA sequences.](#)”

Gene-editing, which is being widely hyped in recent months by such Monsanto friends as Bill Gates and global agribusiness, involves new techniques to alter the genetic material of plants, animals and even bacteria, using “molecular scissors” aimed at a specific part of the organism’s DNA and used to cut that DNA. Gene Drive gene editing, which is being heavily funded by the Pentagon’s DARPA, aims to force a genetic modification to spread through an entire population, whether of mosquitoes or potentially humans, in just a few generations. The scientist who first suggested developing gene drives in gene editing, Harvard biologist Kevin Esvelt, has publicly warned that development of gene editing in conjunction with gene drive technologies have alarming potential to go awry. He notes how often CRISPR messes up and the likelihood of protective mutations arising, making even benign gene drives aggressive. He stresses, “Just a few engineered organisms [could irrevocably alter an ecosystem.](#)”

Some 170 civil society organizations from around the globe are urging a moratorium on a form of gene-editing known as gene-drives, warning they could “foster far-reaching, harmful impacts if any unintended effects were to occur.” The Cotter report further stresses, “if the chemistry of a gene-edited plant or animal were changed by the misreading of DNA, it could produce a compound that is toxic to the wildlife that feeds on it.” That is no minor issue.

The point is that the gene-editing companies are doing their experiments in especially the USA, completely without government oversight or regulation.

If there is a sunray of sanity in the ruling of the EU Court on regulating gene-edited species, across the Atlantic the approach of the US Government is hardly safe, and totally ignores the Precautionary Principle applied in the EU. The Precautionary Principle states that, “When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically.”

The US Department of Agriculture recently ruled that gene-edited plants or even animals were the same as conventional plants or animals and needed no special safety tests, a mad decision to put it mildly. The new wave of GMO called gene-editing is anything but a step forward for mankind based on evidence to date. The technology, in use since 2012 is simply untested and far too experimental to be let loose on mankind. Why is there such a rush by the US authorities or folks like Bill Gates to spread this? Could it have something to do with eugenics?

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China's Golem Babies: There is Another Agenda

By F. William Engdahl

6 December 2018

The shocking news that a team of scientists working in China have managed to gene-edit the DNA of recently-born human twins to allegedly make them genetically immune to a HIV infection is more than bizarre and irresponsible. It suggests that certain researchers are making dangerous experiments to create ultimately the eugenics master dream—custom-designed humans. I call them Golem babies because when technology begins cutting and splicing the human DNA without certitude that the result will be stable or healthy to the human species it is not healthy .

In medieval and ancient Jewish folklore a Golem is a being that is magically created entirely from inanimate matter such as mud. Golems have no soul. Similarly, the China experiment that claims the “first successful genetically modified humans,” when we go behind the surface stories, is alarming in the extreme.

HIV Immune?

First of all the public story retailed by Chinese media and by the researcher, Chinese Professor He Jiankui, a Stanford University post-doctoral research graduate, doesn't ring honest. He, who is professor at Southern University of Science and Technology, claimed at a Human Genome Editing conference in Hong Kong on November 28, and on YouTube, that he had successfully modified two embryos produced from the sperm of an HIV-positive donor and implanted them in a healthy mother, who gave birth to twin girls earlier this month. He used the most common “gene-editing” tool, CRISPR-cas9, to deactivate a gene called CCR5 that acts as a ‘doorway’ to allow the HIV virus to enter a cell. He basically claimed to have created the world's first gene-edited humans, and announced that a second woman was pregnant with another of his gene-edited [embryos](#).

Other scientists have severely criticized He for engaging in the human gene altering experiments. What He claims he did, to alter the DNA of human embryos, known as germ line gene editing, means the changes in those genes could be passed on and inherited by the next generations. Moreover, as several scientists involved in developing CRISPR have warned, He is in fact changing the

human gene pool. “We may not be able to see the impact of this until several generations later,” said Dennis Lo Yuk-ming, chairman of [Chinese University’s Department of Chemical Pathology](#).

The scientist who first suggested developing gene drives in gene editing, Harvard biologist Kevin Esvelt, has publicly warned that development of gene editing, in conjunction with gene drive technologies, have alarming potential to go awry. He notes how often CRISPR messes up and the likelihood of mutations arising, making even benign gene drives aggressive. He stresses, “Just a few engineered organisms could irrevocably alter an ecosystem.” Esvelt’s computer gene drive simulations calculated that a resulting edited gene, “can spread to 99 percent of a population in as few as 10 generations, and persist for more than [200 generations.](#)” Esvelt was discussing gene editing of mosquitoes. Now we are moving on to gene editing of human embryos.

Adding to the drama, at the Hong Kong gene editing conference where He proudly announced his results for the first time, Professor He refused to answer questions as to who paid for his work, or why he kept his work secret until after it was done. Chinese officials claim they had no knowledge of He’s project. There has been no independent confirmation of He’s claim, nor has he yet published in any scientific peer-reviewed journal on it.

Adding to the questions around the case, Dr Michael Deem, a bio-engineering professor at the esteemed Texas Rice University, has been revealed to have worked on the gene-editing project using humans together with He. He Jiankui got his PhD at Rice in 2010 and that year began co-authoring scientific papers with Deem. Deem also reportedly has a financial interest in two gene-editing companies that the enterprising He has set up in China. Dr. Deem, who also receives research money from the US government National Institutes of Health, did not inform Rice University of his involvement in what under current US law is [illegal](#).

Eugenics and Unanswered Questions

He has in the meantime been ordered to stop his human experiments with gene-editing, pending a government investigation. He declared that Chinese law, which is apparently vague on the issue, does not prohibit gene-editing with human subjects.

What is clear is that, as in many areas, China sees itself in a technology race with the West. As part of the 10 development priorities of its ambitious Made in China 2025 strategy, the government lists “Biotechnology” as a priority area.

Unfortunately, the government does not exclude proven harmful biotech areas such as Genetically Manipulated Organisms or GMOs. In 2017 the state-owned ChemChina took over the Swiss-based Syngenta, the world's largest agri-chemical producer, and third largest in GMO seed patents. In the area of toxic plant herbicide, glyphosate, designated by an WHO agency a "probable carcinogen," Chinese companies make up far the world's largest producers. In 2017, the global glyphosate production capacity was 1,065,000 tons. Of that was 380,000 tons by Monsanto and 685,000 tons of [Chinese enterprises](#).

Now it appears that China is moving to become world leader in gene-editing. In January the US National Science Foundation released its annual report, Science and Engineering Indicators: 2018 report. It noted that while the USA still led in science and technology development, that "the US global share of S&T activities is declining as other nations — especially China — continue to rise." Gene editing and Artificial Intelligence were two areas of rapid Chinese development they [cited](#).

What is not yet clear is whether certain US Government agencies such as the National Institutes of Health which funds Deem at Rice is quietly funding the He human gene-editing projects, taking advantage of the lax regulatory regime there. Or whether the spooky Pentagon research arm, DARPA, is involved.

As I noted in a previous article, DARPA's "Insect Allies" program "aims to disperse infectious genetically modified viruses that have been engineered to edit crop chromosomes directly in fields." This is known as "horizontal inheritance" as opposed to the dominant vertical method of GMO alteration that make laboratory-generated modifications into target species' chromosomes to create GMO plant varieties. The genetic alterations to the crops would be carried out by "insect-based dispersion" in free [nature](#).

A group of European scientists strongly criticized the DARPA gene-editing Insect Allies project. They noted that no compelling reasons have been presented by DARPA for the use of insects as an uncontrolled means of dispersing synthetic viruses into the environment. Furthermore, they argue that the Insect Allies Program could be more easily used for biological warfare than for routine agricultural use. "It is very much easier to kill or sterilize a plant using gene editing than it is to make it herbicide or insect-resistant," [according to Guy Reeves](#).

At this point it seems that the Chinese government is taking steps to rein in the rogue professor He and his research. What is not clear however, is whether this

is cosmetic in an attempt to diffuse enormous criticism of the He human gene-editing. Earlier this year the Wall Street Journal reported that according to review of Chinese scientific journal articles, since 2015 at least 86 people have been subject of gene-editing experiments. They reported that in 2015 it began when 36 patients with kidney, lung, liver and throat cancers had cells removed that allowed were then gene-edited and replanted in the human bodies to supposedly combat their cancer. The newspaper noted that none of the clinical trials have been formally [published](#).

The entire field of gene-editing as with the Genome Project and GMO patented seeds, is a decades-long dream of some very influential actors such as the Rockefeller family and Bill Gates in what is called eugenics. The effort is based on fatally-flawed scientific reductionism that claims that the complexity of life can be reduced to a single gene that in turn can be modified at will.

In a recent post on the flaws of gene-editing, namely the assertion that thousands of diseases are caused by malfunction of one gene, a hypothesis yet to be proven, researcher Jon Rappoport, who sees gene-editing as “part and parcel of the trans-human agenda,” quotes Gregory Stock, former director of the program in Medicine, Technology, and Society at the UCLA School of Medicine:

Even if half the world’s species were lost [during genetic experiments], enormous diversity would still remain. When those in the distant future look back on this period of history, they will likely see it not as the era when the natural environment was impoverished, but as the age when a plethora of new forms—some biological, some technological, some a combination of the two—burst onto the [scene](#).

Scientists, including some of the original inventors of gene-editing technologies, who call for a world moratorium on gene drives and gene-editing until the science can be conclusively proven safe, perhaps gain the ear of the world after the shocking Chinese human gene-editing reports. Something that Bill Gates and DARPA back can’t be “all good.” In the classic Golem fable, much like Dr. Frankenstein’s monster, the rabbi had to resort to trickery to deactivate it, whereupon it crumbled upon its creator and crushed him. Gene-editing of humans has eerie echoes of that Golem myth.