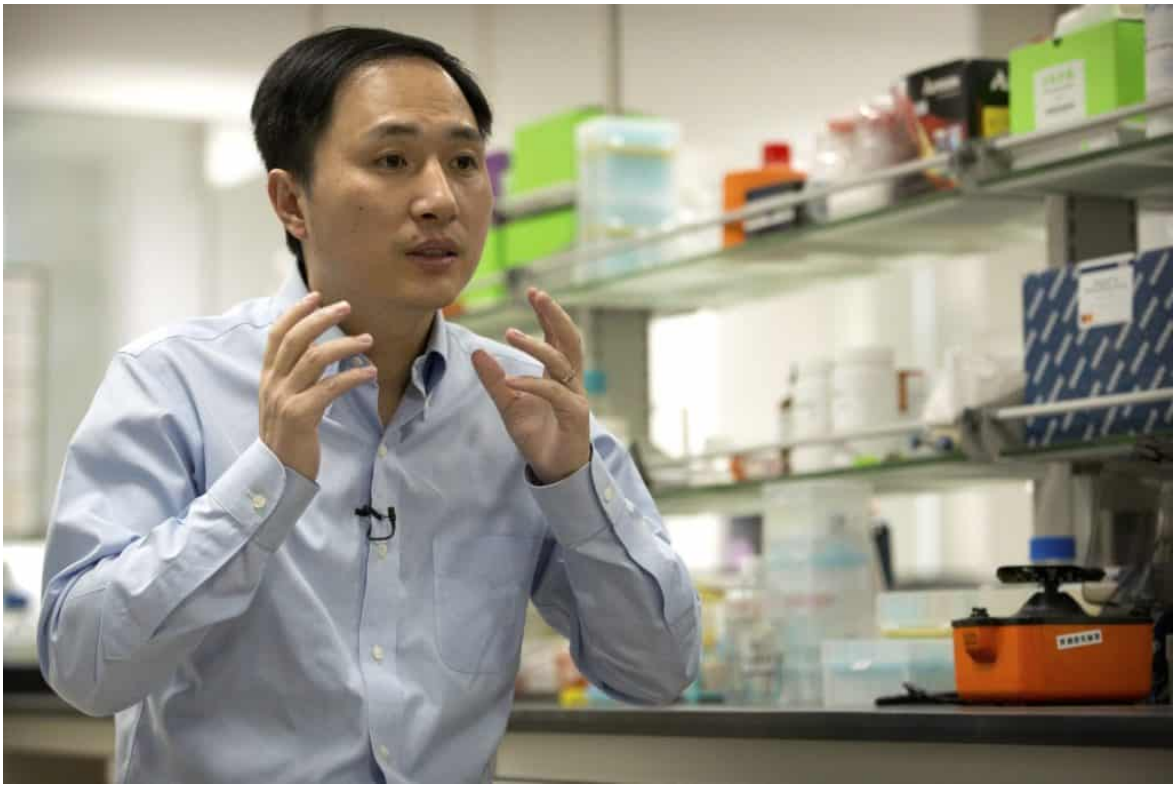


Blowback: Chinese Scientist Claims First Gene-Edited Babies

Proving that all scientists are not Technocrats, many have condemned He Jiankui for introducing gene modifications into the human germline, meaning his changes will perpetuate to succeeding generations. TN Editor

A Chinese researcher claims that he helped make the world's first genetically edited babies — twin girls born this month whose DNA he said he altered with a powerful new tool capable of rewriting the very blueprint of life.

If true, it would be a profound leap of science and ethics.

A U.S. scientist said he took part in the work in China, but this kind of gene editing is banned in the United States because the DNA changes can pass to future generations and it risks harming other genes.

Many mainstream scientists think it's too unsafe to try, and some denounced the Chinese report as human experimentation.

The researcher, He Jiankui of Shenzhen, said he altered embryos for seven couples during fertility treatments, with one pregnancy resulting thus far. He said his goal was not to cure or prevent an inherited disease, but to try to bestow a trait that few people naturally have — an ability to resist possible future infection with HIV, the AIDS virus.

He said the parents involved declined to be identified or interviewed, and he would not say where they live or where the work was done.

There is no independent confirmation of He's claim, and it has not been published in a journal, where it would be vetted by other experts. He revealed it Monday in Hong Kong to one of the organizers of an international conference on gene editing that is set to begin Tuesday, and earlier in exclusive interviews with The Associated Press.

"I feel a strong responsibility that it's not just to make a first, but also make it an example," He told the AP. "Society will decide what to do next" in terms of allowing or forbidding such science.

Some scientists were astounded to hear of the claim and strongly condemned it.

It's "unconscionable … an experiment on human beings that is not morally or ethically defensible," said Dr. Kiran Musunuru, a University of Pennsylvania gene editing expert and editor of a genetics journal.

"This is far too premature," said Dr. Eric Topol, who heads the Scripps Research Translational Institute in California. "We're dealing with the operating instructions of a human being. It's a big deal."

However, one famed geneticist, Harvard University's George Church, defended attempting gene editing for HIV, which he called "a major and growing public health threat."

"I think this is justifiable," Church said of that goal

In recent years scientists have discovered a relatively easy way to edit

genes, the strands of DNA that govern the body. The tool, called CRISPR-cas9, makes it possible to operate on DNA to supply a needed gene or disable one that's causing problems.

It's only recently been tried in adults to treat deadly diseases, and the changes are confined to that person. Editing sperm, eggs or embryos is different — the changes can be inherited. In the U.S., it's not allowed except for lab research. China outlaws human cloning but not specifically gene editing.

He Jiankui (HEH JEE'-an-qway), who goes by "JK," studied at Rice and Stanford universities in the U.S. before returning to his homeland to open a lab at Southern University of Science and Technology of China in Shenzhen, where he also has two genetics companies. The university said He's work "seriously violated academic ethics and standards" and planned to investigate. A spokesman for He confirmed that he has been on leave from teaching since early this year, but he remains on the faculty and has a lab at the school.

The U.S. scientist who worked with him on this project after He returned to China was physics and bioengineering professor Michael Deem, who was his adviser at Rice in Houston. Deem also holds what he called "a small stake" in — and is on the scientific advisory boards of — He's two companies.

The Chinese researcher said he practiced editing mice, monkey and human embryos in the lab for several years and has applied for patents on his methods.

Read full story here…

First genetically edited BABIES created by 'dangerous and irresponsible' scientist

From The Mirror (UK) TN Editor

A scientist from China claims to have created the world's first genetically edited babies.

He Jianhui, a scientist at the Southern University of Science and Technology of China in Shenzhen, says he altered the DNA of twin girls to prevent them from future infection with HIV.

During his controversial study, Mr He claims he altered embryos for seven couples during IVF treatment, with one successful pregnancy.

However, his 'research' is yet to be independently confirmed by anyone else.

Speaking to the Associated Press, Mr He said: "I feel a strong responsibility that it's not just to make a first, but also make it an example.

"Society will decide what to do next."

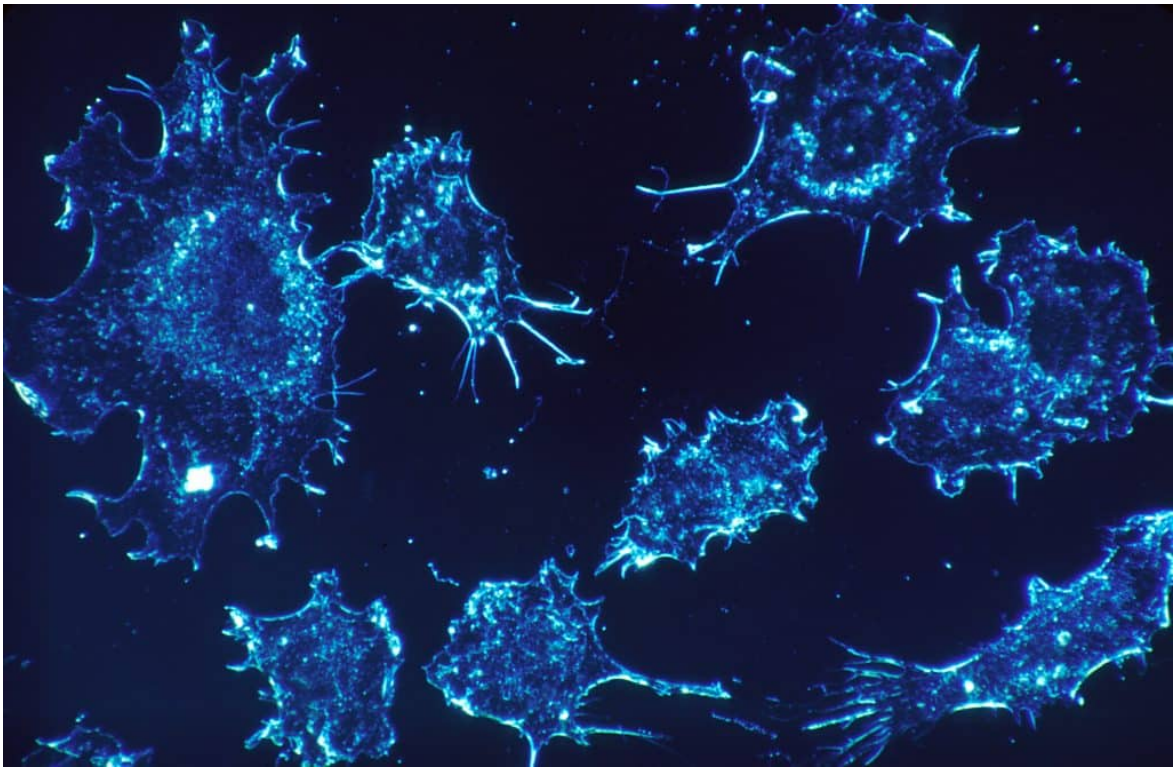
The twins' father had HIV, while their mother did not. To prevent the twins from infection, Mr He says that he disabled a gene called CCR5.

This gene forms a protein 'doorway', allowing HIV to enter cells and infect patients.

The controversial technique has been highly criticised by other experts.

Professor Joyce Harper, an expert in human embryology at UCL, said: "Today's report of genome editing human embryos for resistance to HIV is premature, dangerous and irresponsible.

Read full story here…



Genetically Modified Virus Made To Kill Cancer Cells

On the surface of it, this is a health breakthrough that could potentially save hundreds of thousands of cancer victims. However, the technology has very dangerous applications in the wrong hands. TN Editor

A Genetically modified virus that kills cancer cells and destroys their hiding places has been developed by British scientists.

It targets both cancer cells and healthy cells that are tricked into protecting the cancer from the immune system.

Fibroblasts, the most common type of cell in connective tissues, are vital in the body's healing process, but they can get hijacked by cancer-associated fibroblasts or CAFs.

These then help tumours grow, spread and evade therapy.

The new treatment, a form of immunotherapy developed by Oxford University scientists, attacks carcinomas – the most common type of cancer.

Currently, any therapy that kills the “tricked” fibroblast cells may also kill healthy fibroblasts throughout the body – for example in the bone marrow and skin – causing illness during treatment.

Using a virus called enadenotucirev, already being used in clinical trials as a cancer treatment, experts were able to programme the virus to only attack cancerous cells.

The virus uses a protein to bind cancerous cells to immune cells to destroy the disease.

These immune cells normally can’t find unhealthy, cancerous cells as they are hidden by CAFs.

Lead author Dr Kerry Fisher, from the Department of Oncology at the university, said: “Even when most of the cancer cells in a carcinoma are killed, fibroblasts can protect the residual cancer cells and help them to recover and flourish.

“Until now, there has not been any way to kill both cancer cells and the fibroblasts protecting them at the same time, without harming the rest of the body.

“Our new technique to simultaneously target the fibroblasts while killing cancer cells with the virus could be an important step towards reducing immune system suppression within carcinomas and should kick-start the normal immune process.

“These viruses are already undergoing trials in people, so we hope our modified virus will be moving towards clinical trials as early as next year to find out if it is safe and effective in people with cancer.”

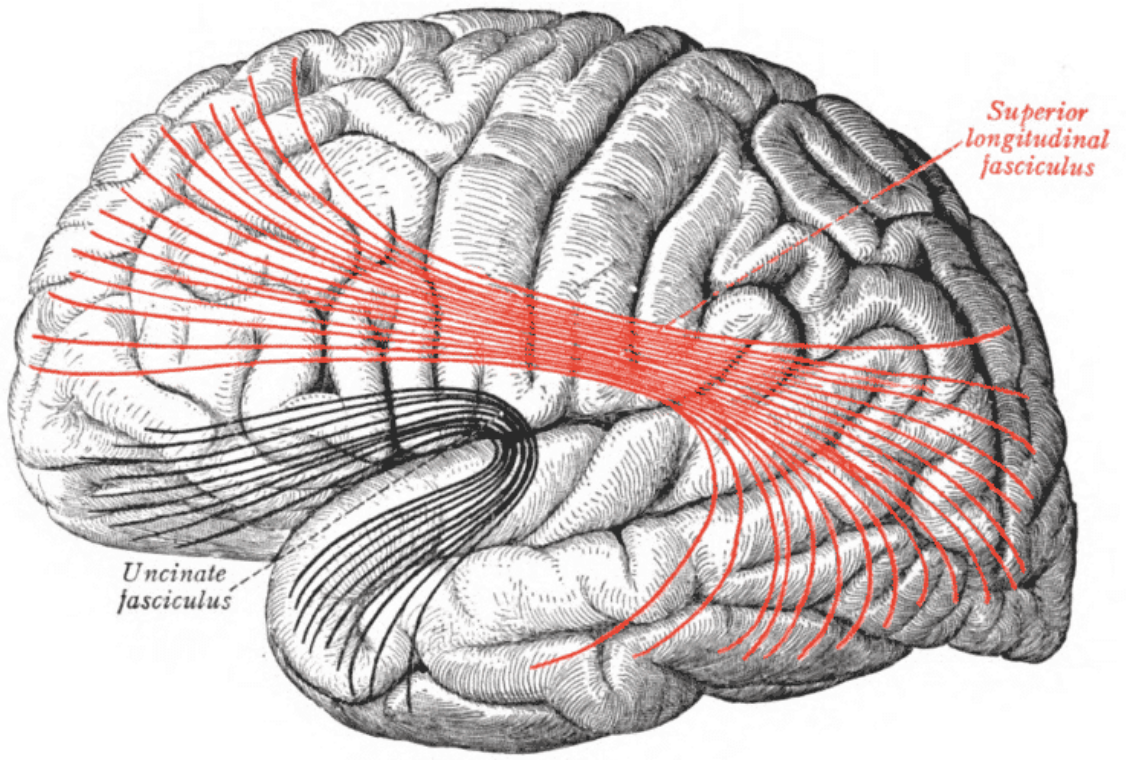
The virus was successfully tested on human tissue cells from cancer patients and prostate cancer tumours, without causing abnormal immune responses that usually make people sick during cancer treatments like chemotherapy.

The study, which was funded by the Medical Research Council (MRC) and Cancer Research UK, was published in the journal Cancer Research.

Dr Nathan Richardson, head of molecular and cellular medicine at the MRC said: “This innovative viral delivery system, which targets both the cancer and surrounding protective tissue, could improve outcomes for patients whose cancers are resistant to current treatments.

“Further clinical studies will be crucial to determine that the stimulation of the patient’s immune system does not produce unintended consequences.”

Read full story here…



NIH Greatly Expands Investment in BRAIN Initiative

Obama likened his BRAIN initiative to mapping the human genome. With DNA hacking taking place throughout the world’s science labs, will mind hacking be next? Once the human mind and body can be controlled, will

Technocrat scientists not rise up to do so? TN Editor

The National Institutes of Health announces funding of more than 200 new awards, totaling over $220 million, through the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, an exciting trans-agency effort to arm researchers with revolutionary tools to fundamentally understand the neural circuits that underlie the healthy and diseased brain. Supported by the Congress through both the regular appropriations process and the 21st Century Cures Act, this brings the total 2018 support for the program to more than $400 million, which is 50 percent more than the amount spent last year. Many of the new awards explore the human brain directly. Furthermore, the NIH is trying to leverage some BRAIN Initiative advances to help tackle the pain and opioid crisis.

“Brain diseases are some of the greatest mysteries in modern medicine. These projects will provide new tools and knowledge needed to discover answers for some of the most difficult neurological and neuropsychiatric disorders,” said NIH Director Francis S. Collins, M.D., Ph.D.

Examples of these new awards include the creation of a wireless optical tomography cap for scanning human brain activity; the development of a noninvasive brain-computer interface system for improving the lives of paralysis patients; and the testing of noninvasive brain stimulation devices for treating schizophrenia, attention deficit disorders, and other brain diseases. All these awards can be found on the new NIH BRAIN Initiative website.

Through this expanded program, more than 100 research institutions received awards to support the projects of upwards of 500 investigators representing fields as diverse as engineering and psychology. Many of the awards fund the development of new tools and technologies to capture a dynamic view of brain circuits in action, including the development of self-growing biological electrodes for recording brain activity and the creation of an indestructible hydrogel system to help map neural circuits.

“New tools to map the brain deepen our understanding of how circuit activity relates to behavior, said Joshua A. Gordon, M.D., Ph.D., director

of NIH's National Institute of Mental Health. "The BRAIN Initiative is laying the foundation for improved ways to target brain circuits disrupted in brain disorders."

In response to the opioid crisis, NIH is trying to take advantage of BRAIN Initiative-funded advances to help find new treatments for pain. This could include using innovative imaging and -omics neurotechnologies to search for new nonaddictive treatments for pain as part of the of NIH's HEAL (Helping to End Addiction Long-term) Initiative.

"Our country is in the midst of a serious public health challenge from drug use. We hope the advances made by BRAIN Initiative researchers will help us rapidly solve the problems we face in treating pain and opioid addiction," said Walter J. Koroshetz, M.D., director of NIH's National Institute of Neurological Disorders and Stroke.

Launched in 2013, the BRAIN Initiative is a large-scale effort to accelerate neuroscience research by equipping researchers with the tools and insights necessary for treating a wide variety of brain disorders, including Alzheimer's disease, schizophrenia, autism, epilepsy, and traumatic brain injury. Since then, BRAIN Initiative-funded researchers have discovered a new type of human brain cell; mapped out the neural circuit activity that controls thirst and drinking and reactions to threats; tested theories about how a songbird brain uses feedback from sound while learning how to sing; engineered a sensor to monitor the neurotransmitter dopamine in real time; created a self-tuning deep brain stimulation device for treating Parkinson's disease; watched human brains make decisions; and located the neurons in the brain that control the pitch of our speech. In addition, researchers used a tool developed through the BRAIN Initiative, called Drop-seq, to investigate the effects of concussions on individual brain cells, which pointed to novel treatments. These are just a few of many examples of how the BRAIN Initiative is catalyzing rapid advances in neuroscience.

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The NIH BRAIN Initiative® is managed by 10 institutes whose missions

and current research portfolios complement the goals of the BRAIN Initiative: National Center for Complementary and Integrative Health, National Eye Institute, National Institute on Aging, National Institute on Alcohol Abuse and Alcoholism, National Institute of Biomedical Imaging and Bioengineering, *Eunice Kennedy Shriver* National Institute of Child Health and Human Development, National Institute on Drug Abuse, National Institute on Deafness and other Communication Disorders, National Institute of Mental Health, and National Institute of Neurological Disorders and Stroke.

About the National Institutes of Health (NIH): NIH, the nation's medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit www.nih.gov.

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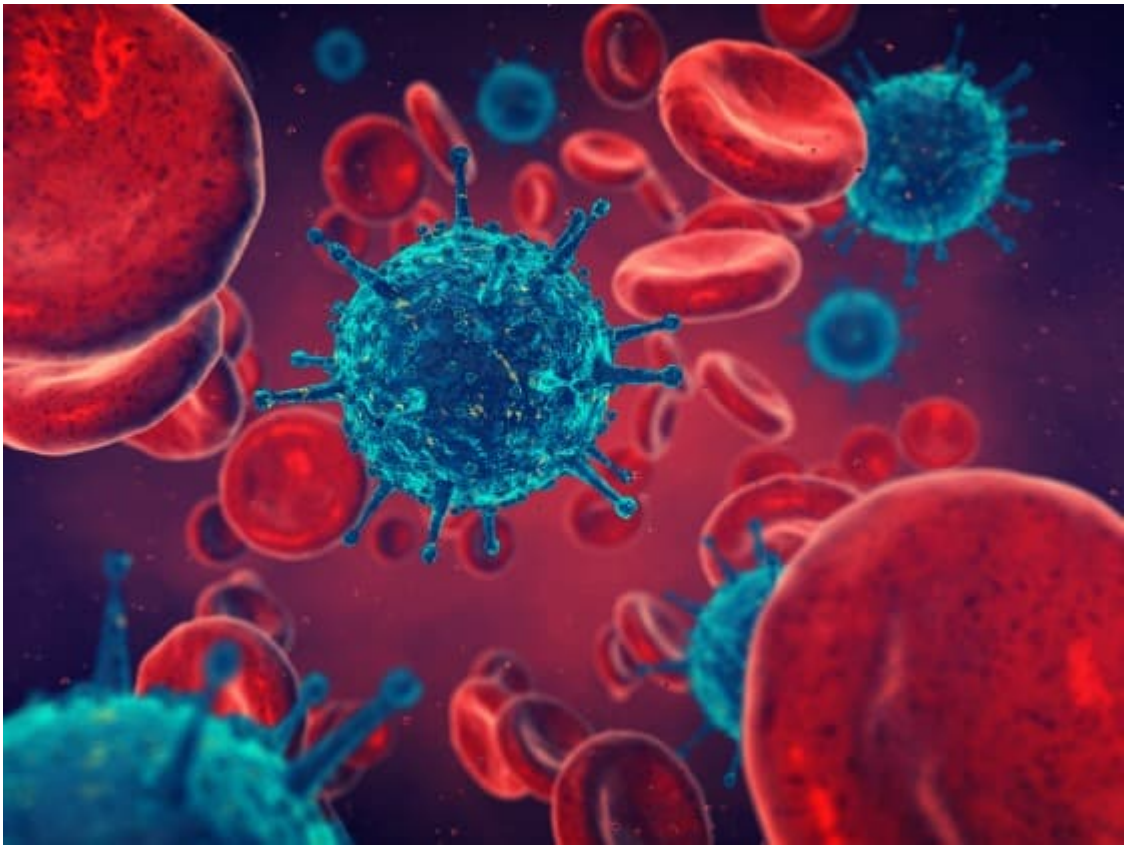


Genetically Engineered Viruses Are Next Generation Of Warfare

Nation-states would hesitate to use GMO viruses because of the ‘mutually assured destruction’ doctrine. However, any number of small groups of radical terrorists would not hesitate to release a plague on mankind. Technocrats have myopic vision when it comes to GMO technology. TN Editor

Genetically engineered viruses could very well become the next generation of warfare. Deadly viruses modified in labs could be released eliminating entire communities of people as they infect making them a valuable asset to militaries worldwide.

As dystopian as that sounds, the Defense Advanced Research Projects Agency (DARPA) is already working on a project called Insect Allies which will use insects to infect crops with genetically modified

viruses that edit the crops' genetic profile to make them more resilient against disease, as well as natural and manufactured threats to the food supply.

> *Joe Joseph of The Daily Sheeple said a quick Google search would give you enough information to let you know how horrific this kind of technology can be. "…and you'll find it fascinating just at how unbelievable a weapon this could be, how* ***unintentionally mistakes can be made that can cause irreversible damage…irreparable damage…to the human race. And I mean, FAST!"*** *Joseph said. "A gene drive…if let's just say there's a mistake,* ***you could feasibly wipe out the human race in a very very short period of time. It's an unbelievable tool at the disposal of madmen."*** *–SHTFPlan*

DARPA attempted to squash rising fears about their Insect Allies project and issue reassurances after German and French scientists voiced questions and concerns about the program's efficacy earlier this month. Those scientists also suggested that it could be "widely perceived as an effort to develop biological agents for hostile purposes and their means of delivery, which—if true—would constitute a breach of the Biological Weapons Convention."

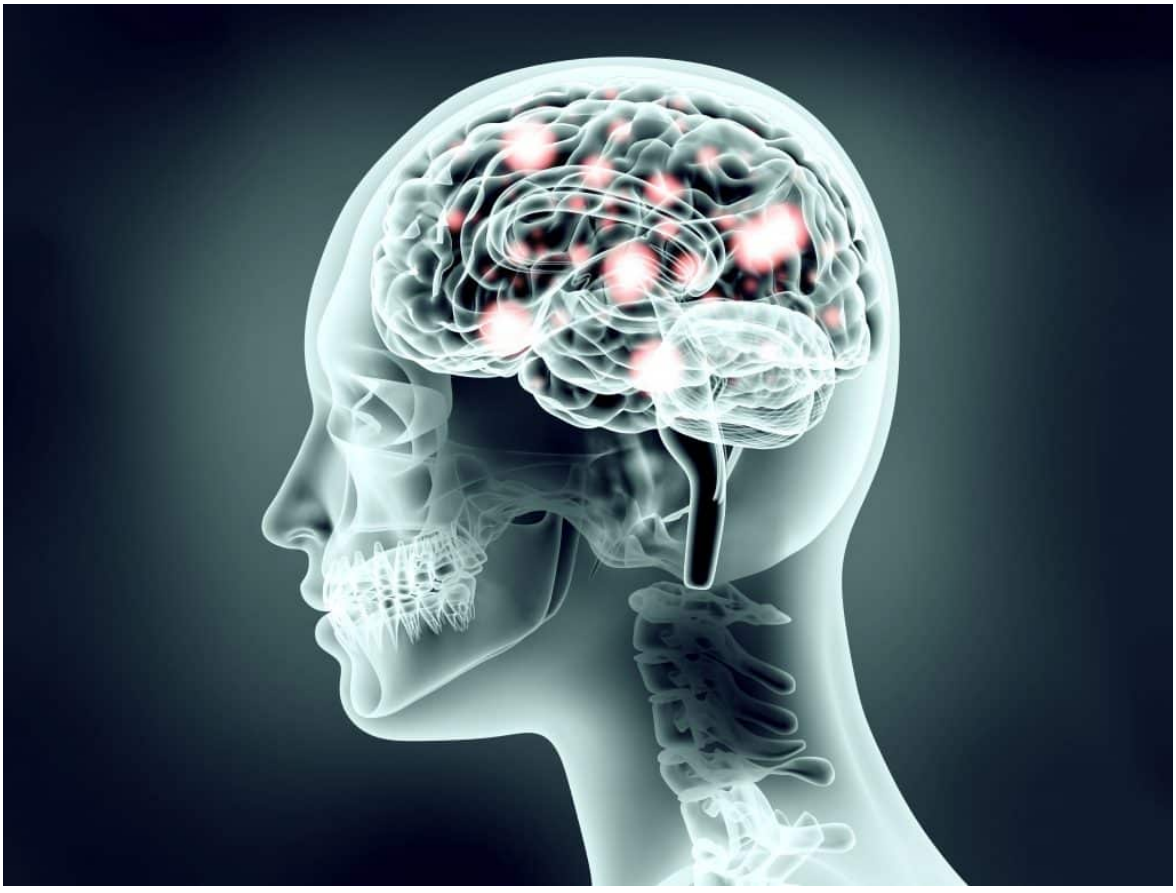
If the know-how and means exist to transmit genetic viruses that supposedly create beneficial crop mutations, the opposite will also be possible. DARPA will be able to use insects to deliver gene editing viruses that destroy crops, ruin harvests and adversely affect the wider ecosystem, *RT* accurately pointed out. This means that those who fear this program are not far off at all for doing so.

Another project receiving DARPA funding involves releasing genetically modified mosquitoes in the Florida Keys area to transmit a sterilizing genetic virus to their malaria-carrying counterparts. Apart from the unknown effects upon the wider ecosystem, the knowledge gleaned from such research could one day make it possible for a state, a non-state actor, or a non-state **actor working on behalf of a state to accidentally or deliberately use insect vectors to unleash a variety of biological agents and genetic viruses upon an unsuspecting**

population.

Russian president Vladimir Putin expressed his concerns over the potential for a human killing genetically engineered virus just last year. Whilst chairing a meeting of Russia's Human Rights Council, Putin stated: "… do you know that biological material is being collected all over the country, from different ethnic groups and people living in different geographical regions of the Russian Federation? The question is – why is it being done? It's being done purposefully and professionally. We are a kind of object of great interest."

Read full story here…



Scientists: Medical Brain

Implants Can Be Hacked And Used To Control People

Electronic security is almost never a forethought with a new technology project, and then becomes platitudes and assurances after it is done. The Technocrat mindset doesn't value humans any higher than herd animals. Citizens must live with no expectation of absolute electronic security. TN Editor

Vulnerabilities in brain implants used to treat Parkinson's disease could be hacked by cyber attackers and used to control people, scientists have claimed.

A report by the Oxford Functional Neurosurgery Group and cyber security company Kaspersky claims that people's memories could be exploited by hackers and has called on cyber security companies, manufacturers and healthcare companies to develop new technology to stop them.

Academics have previously warned that brain implants could prevent patients from "speaking or moving, cause irreversible damage to their brain, or even worse, be life-threatening". They claimed that hackers could overload or disable the system, and could damage people's brains.

Implantable pulse generators are used to treat patients with conditions such as Parkinson's disease, essential tremor or major depression and have Bluetooth-enabled software for clinicians and patients to monitor through a smartphone or tablet.

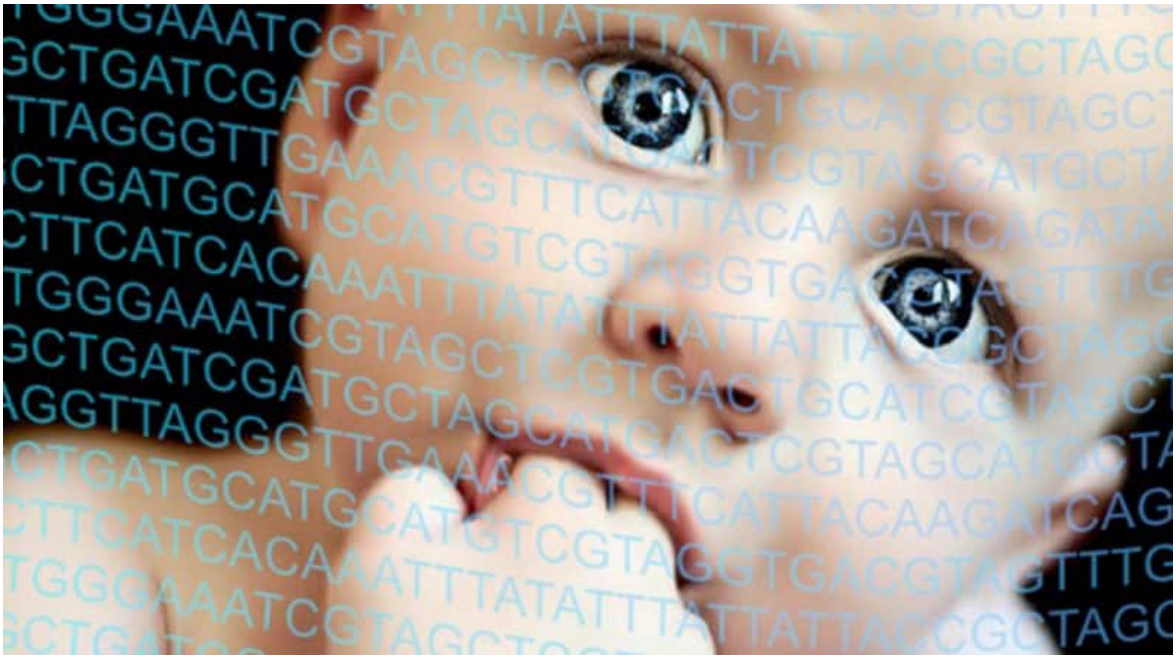
This new report claims that hackers could use the wireless communication to intercept data transmitted, including patients' personal details and could take over the device itself.

"Manipulation could result in changed settings causing pain, paralysis or the theft of private and confidential personal data," scientists said.

The report has claimed that hackers could manipulate people through implanted or erased memories in the coming decades, or hold their

memories to ransom. Although there have been no examples of cyber criminals hacking these devices, technological advances in the coming years would mean they are not hard to exploit, researchers said.

Read full story here…



MIT: Designer Babies Have Arrived Thanks To Genetic Testing

Technocrat-minded scientists, with their rudimentary editing tools for DNA, are moving closer and closer to gaining free and legal access to the seeds of life. This is an encouragement for Transhumanists who want to reengineer DNA for Humanity 2.0. TN Editor

At first, Matthew assumed the weakness in his knee was the sort of orthopedic nuisance that happens when you turn 30. It was weeks before he consulted a doctor, and months before it occurred to him that there could be a connection between his worsening limp and a cousin's shoulder problem when they were kids. DNA testing confirmed it:

Matthew, like his cousin, had a genetic form of dystonia, a condition where muscles contract uncontrollably. Their grandfather most likely had dystonia as well.

I'd met Matthew only a few months earlier, when he'd married my friend's daughter, Olivia, in one of those hip old New York hotels with an elegant downtown vibe. Since I was the only genetic counselor of their acquaintance, they brought their questions to me. With their permission, I am sharing their story. I have changed their names to preserve their privacy.

Matthew was lucky. His was a mild version of DYT1 dystonia, and injections of Botox in his knee helped. But the genetic mutation can cause severe symptoms: contractures in joints or deformities in the spine. Many patients are put on psychoactive medications, and some require surgery for deep brain stimulation.

Their kids, Matthew and Olivia were told, might not be as lucky. They would have a 50–50 chance of inheriting the gene variant that causes dystonia and, if they did, a 30% chance of developing the disease. The risk of a severely affected child was fairly small, but not insignificant.

My friends learned there was an alternative. They could undergo in vitro fertilization and have their embryos genetically tested while still in a laboratory dish. Using a technology called pre-implantation genetic testing, they could pick the embryos that had not inherited the DYT1 mutation.

It would be expensive—costs for IVF in the US average over $20,000 for each try, and testing can add $10,000 or more. And it would require an unpleasant two-week process of ovarian stimulation and egg harvesting. "It wasn't the way I saw myself making a baby," Olivia told me. But they wanted what the procedure could offer them: a guarantee that dystonia was eliminated for the next generation, and beyond.

Matthew and Olivia don't think of themselves as having a "designer baby." That term has negative associations, suggesting something trivial, discretionary, or unethical. They weren't choosing eye color or trying to boost their kid's SAT score. They were looking out for the health and

well-being of their future child, as parents should.

Public opinion on the use of assisted reproductive technology consistently draws a distinction between preventing disease and picking traits. The Johns Hopkins Genetics and Public Policy Center, which contacted over 6,000 people through surveys and focus groups from 2002 to 2004, summed up its findings this way: “In general, Americans approve of using reproductive genetic tests to prevent fatal childhood disease, but do not approve of using the same tests to identify or select for traits like intelligence or strength.” The dystonia gene is in a gray zone—some people born with it live perfectly healthy lives—yet presumably few parents would criticize Matthew and Olivia’s choice to weed it out.

All embryo testing does fit the “designer” label in one important way, however: it is not available to everybody.

Matthew and Olivia opted in to what is a quiet but significant trend. Although the number of couples using this technology remains small, it is growing rapidly. According to the Society for Assisted Reproductive Technology, the number of US IVF attempts with single-gene testing rose from 1,941 in 2014 to 3,271 in 2016, an increase of almost 70%.

This is only the beginning. As the price of genetic testing of all kinds drops, more adults are learning about their genetic makeup as part of routine medical care and discovering specific genetic risks before pregnancy. But these people are still most likely to be affluent and educated, like Olivia and Matthew. While they consulted with IVF clinics, Olivia’s own brother and his wife got news of a gene that increased risk for cancer in their kids. “If you could get rid of it, why wouldn’t you?” he asked.

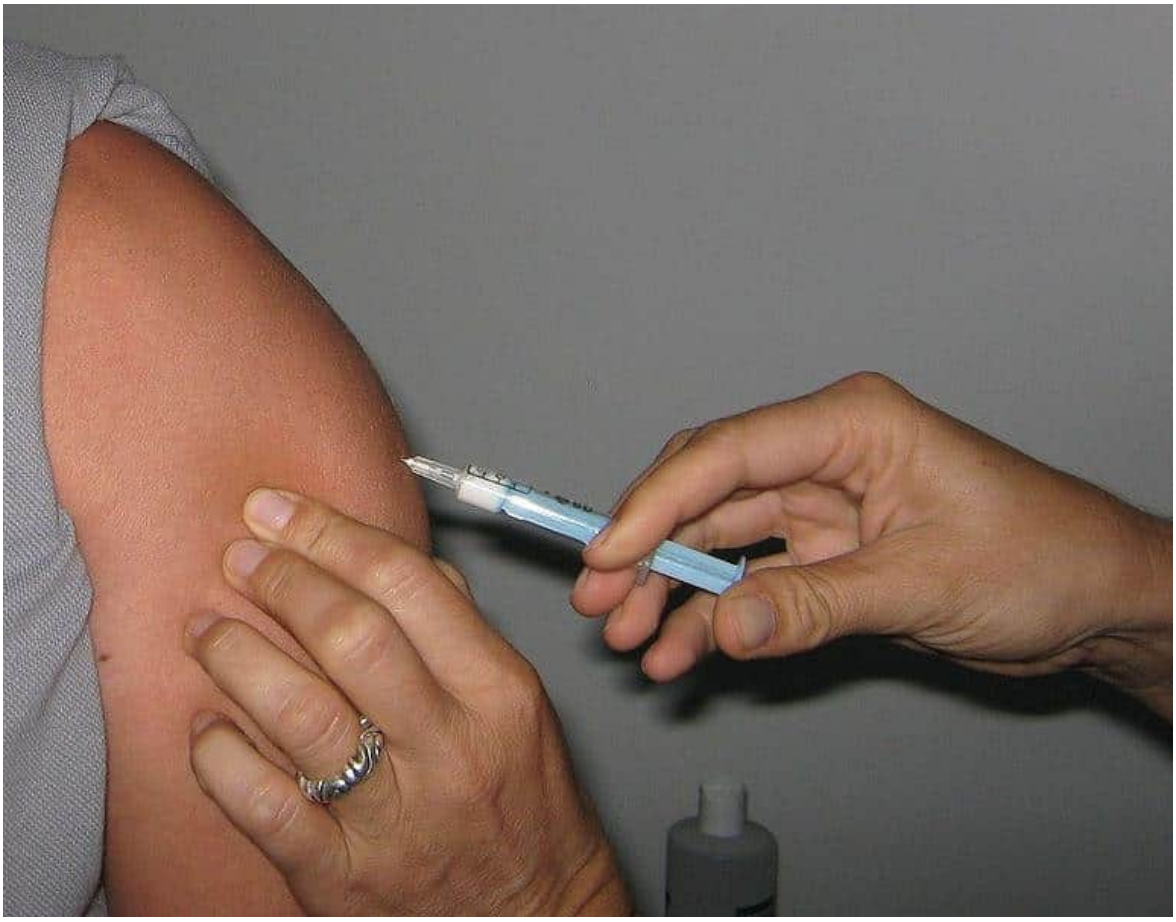
Cost was not a concern for these couples, but it is an obstacle for many Americans. The Centers for Disease Control and Prevention (CDC) estimates that 1.7% of babies born in the US today are conceived using IVF. It’s much higher in countries that publicly fund assisted reproductive technology: 4% in Belgium, 5.9% in Denmark. A 2009 study found that 76% of the medical need for assisted reproduction in the US

is unmet.

Insurance doesn't normally cover IVF in the US, except for a handful of states where coverage is mandated. Even policies that cover fertility treatment are inconsistent in what they reimburse. Coverage for pre-implantation genetic testing is downright Kafkaesque. Under many policies, testing the embryos is covered, but the IVF procedure itself is not, because the couples are not infertile.

"The analogy I like to use," says James Grifo, director of the Division of Reproductive Endocrinology and Infertility at NYU Langone Health, "is if you were having coronary bypass surgery and they didn't pay for cracking the chest."

Read full story here…



100 Arizona Activists Turn State Policy Around On Vaccine Education Policy

A vocal few who make sense and not chaos can work wonders in any setting. Pro-vaccine civil workers are left to continue their grousing about losing herd immunity due to lack of vaccinations. Who taught these people that humans are nothing more than a herd of animals in the first place? TN Editor

The state of Arizona has canceled a vaccine education program after receiving complaints from parents who don't immunize their school-age children.

The pilot online course, modeled after programs in Oregon and Michigan, was created in response to the rising number of Arizona schoolchildren skipping school-required immunizations against diseases like measles, mumps and whooping cough because of their parents' beliefs.

But some parents, who were worried the optional course was going to become mandatory, complained to the Governor's Regulatory Review Council, which reviews regulations to ensure they are necessary and do not adversely affect the public. The six-member council is appointed by Gov. Doug Ducey, with an ex-officio general counsel.

Members of the council questioned the state health department about the course after receiving the public feedback about it, emails show. The state responded by canceling it.

The complaints that ended the pilot program came from about 120 individuals and families, including 20 parents who said that they don't vaccinate their children, records show.

"We're so sorry we couldn't make a go of this — strong forces against us," Brenda Jones, immunization services manager at the Arizona Department of Health Services, wrote in an Aug. 6 email to a Glendale

school official, along with a notification about the course's cancellation.

In an email to two Health Department staff members on Aug. 14, Jones wrote that there had been "a lot of political and anti-vaxx" feedback.

"I'm not sure why providing 'information' is seen as a negative thing," said state Rep. Heather Carter, R-Cave Creek, who spent the last three legislative sessions as chairwoman of the House Health Committee and helped create the pilot program.

"Providing information doesn't take away a parent's choice to seek an exemption. … This is a major concern. Vaccines have saved lives for generations. We all want to live in safe and healthy communities."

Losing 'herd immunity'

Carter hosted meetings attended by physicians, nurses, school administrators, school nurses, naturopaths and public health officials that led to the creation of the 60- to 90-minute evidence-based vaccine education program.

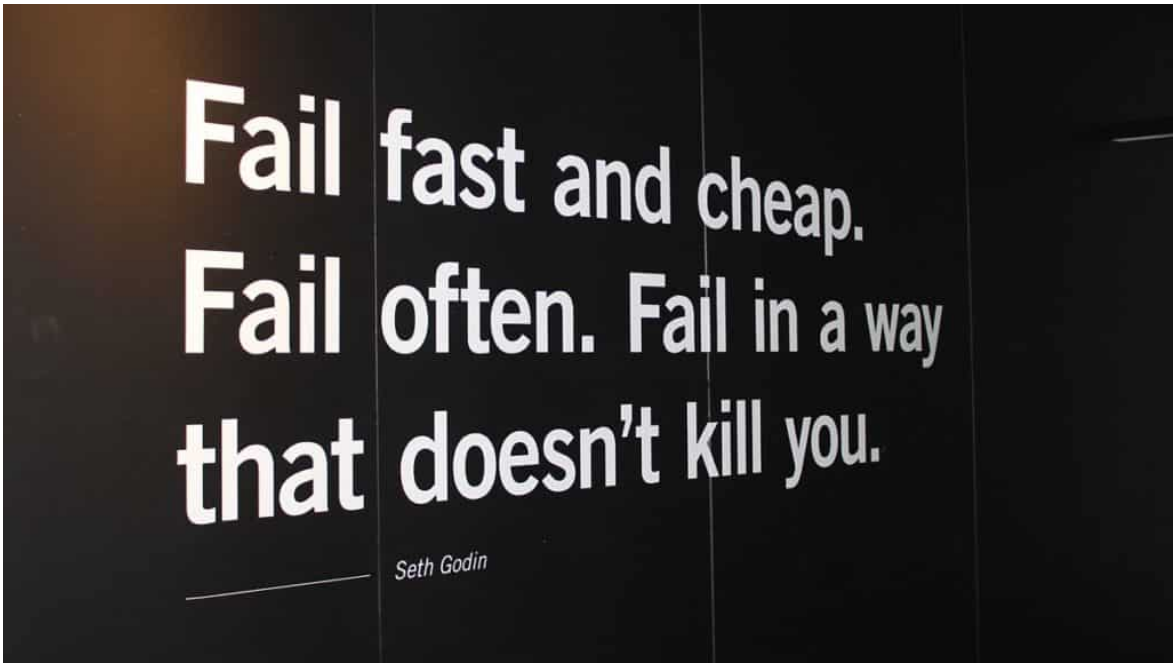
It launched in 17 schools in three Maricopa County districts last academic year. The largest share of those schools was in the Paradise Valley Unified School District.

The education program was scheduled to expand to other Maricopa County schools this academic year, and to schools in Pima, Yavapai and Pinal counties during the 2019-20 school year.

State health officials said they have returned to the drawing board regarding the regulatory duty to provide vaccine education to Arizona parents seeking vaccine exemptions.

The overriding message they want parents to understand: Childhood vaccines are far safer than the diseases they prevent.

Read full story here…



Apple Veteran: Silicon Valley's 'Fast Fail' Approach Won't Work In Health Care

Technocrats in Silicon Valley have turned their technology toward solving health care problems, but the culture of 'fast fail' to find success will not work in healthcare because people will die in the process. Technocrats may view this merely breaking a few eggs for a big omelet. TN Editor

Think about the last piece of technology you bought that didn't work as expected.

What did you do? Return it? Give it away? Put it in a drawer with its sad digital cousins?

Most likely the stakes accompanying your poor experience were low, and you simply chalked it up to the cost of being an early adopter. What you didn't do was abandon the field completely. If you were lucky enough to have spent your hard earned money on a Betamax, when that platform

failed you didn't swear off all forms of recorded entertainment. If you thought Chumby was the future of internet appliances, you haven't refused to use an iPad or Alexa strictly on principle. And if you were one of the faithful who waited in line to buy the first iPhone — the one that Apple's formerly senior director of marketing, Bob Borcher, reportedly apologized for — you haven't gone back to a flip phone or landline. You've upgraded and moved on.

The Cube didn't kill Apple. The Fire Phone didn't kill Amazon. The Nexus Player didn't kill Google.

This is the mindset Silicon Valley has brought to every space it enters: A bad product or poor user experience doesn't have any ramifications beyond that particular product or experience, and they can always wipe the slate clean and start again.

In the world of digital health this is a big problem. Here are three reasons why:

Unlike other consumer products, digital health products connect users to their own mortality. Although we refer to them as "health" products, the current crop is primarily focused on diagnosing, screening and managing illness and disease. Unless you have a specific need, most people would rather "get busy living" than "get busy dying." In other words, the ultimate stakes for current digital health products are, by design, life and death. This differentiates them from all other products these companies design and sell.

Digital health products require buy-in from both the user and their health care provider. Simply using a health-related device or app is not enough. A user must close the loop with a clinician before any meaningful action can take place. So if a patient uses a digital health product but their health care provider won't accept and incorporate the results into their treatment, it's a fail. And if a primary care doc recommends a device, but the consumer doesn't use it as "prescribed" (for any of a number of reasons) it's also a fail.

The old adage, "You don't get a second chance to make a first impression" is especially true in healthcare. This is because when

adopting new technologies, the marketplace performs a kind of calculus that evaluates perceived benefit, perceived risk, cost, maturity and history. Or for the poets, how much good will let us put up with the possibility of bad; how bad is bad enough before it outweighs the possible good; what's the track record of those making claims about the possibilities of good and bad so we don't get fooled (again); and what does it all cost? With health, a bad outcome can be truly disastrous.

Read full story here…

Lab-Grown Mini-Brains Are Causing An Ethical Uproar

This is further development of President Obama's multibillion-dollar brain-map initiative started in 2013. Just as human DNA was 'mapped', the BRAIN project was to probe the human brain in action and figure out exactly how it works. Driving forces behind this included Transhumanists who seek immortality through science. TN Editor

Writing in the current online issue of the journal *Stem Cells and*

Development, researchers at University of California San Diego School of Medicine describe development of a rapid, cost-effective method to create human cortical organoids directly from primary cells.

Experimental studies of developing human brain function are limited. Research involving live embryonic subjects is constrained by ethical concerns and the fragile nature of the brain itself. Animal models only partially mimic or recapitulate human biology and cognitive function. Single cell studies do not capture the complexity of neural networks.

In recent years, the development of *in vitro* human organoids — three-dimensional, miniaturized, simplified versions of an organ produced from reprogrammed stem cells — have allowed scientists to study biological functions, diseases and treatments more realistically and in greater detail.

"And that includes the brain," said Alysson R. Muotri, PhD, professor in the UC San Diego School of Medicine departments of Pediatrics and Cellular and Molecular Medicine, director of the UC San Diego Stem Cell Program and a member of the Sanford Consortium for Regenerative Medicine. "Cerebral organoids can form a variety of brain regions. They exhibit neurons that are functional and capable of electrical excitation. They resemble human cortical development at the gene expression levels."

Muotri is among the leaders in the field, having used the "brain-in-a-dish" approach to provide the first direct experimental proof that the Zika virus can cause severe birth defects, to repurpose existing HIV drugs on a rare, inherited neurological disorder and to create Neanderthalized "mini-brains."

But human brain organoids are difficult, time-consuming and expensive to produce, requiring sophisticated tools and know-how to first generate human induced pluripotent stem cells (iPSCs) capable of becoming almost any kind of cell from skin cells, called fibroblasts, then directing those iPSCs to differentiate into the variety of interconnected cell types

that comprise an organ like the brain.

In the new paper, senior author Muotri and colleagues describe a new, rapid and cost-effective method to reprogram individual somatic cells directly into cortical organoids from hundreds of individuals simultaneously. To do so, they compressed and optimized several steps of the process so that somatic cells are reprogrammed, expanded and stimulated to form cortical cells almost simultaneously. The result is a cortical organoid that fully develops from somatic cells with only minor manipulation, Muotri said.

“What we’ve done is establish a proof-of-principle protocol for a systematic, automated process to generate large numbers of brain organoids,” said Muotri. “The potential uses are vast, including creating large brain organoid repositories and the discovery of causal genetic variants to human neurological conditions associated with several mutations of unknown significance, such as autism spectrum disorder. If we want to understand the variability in human cognition, this is the first step.”

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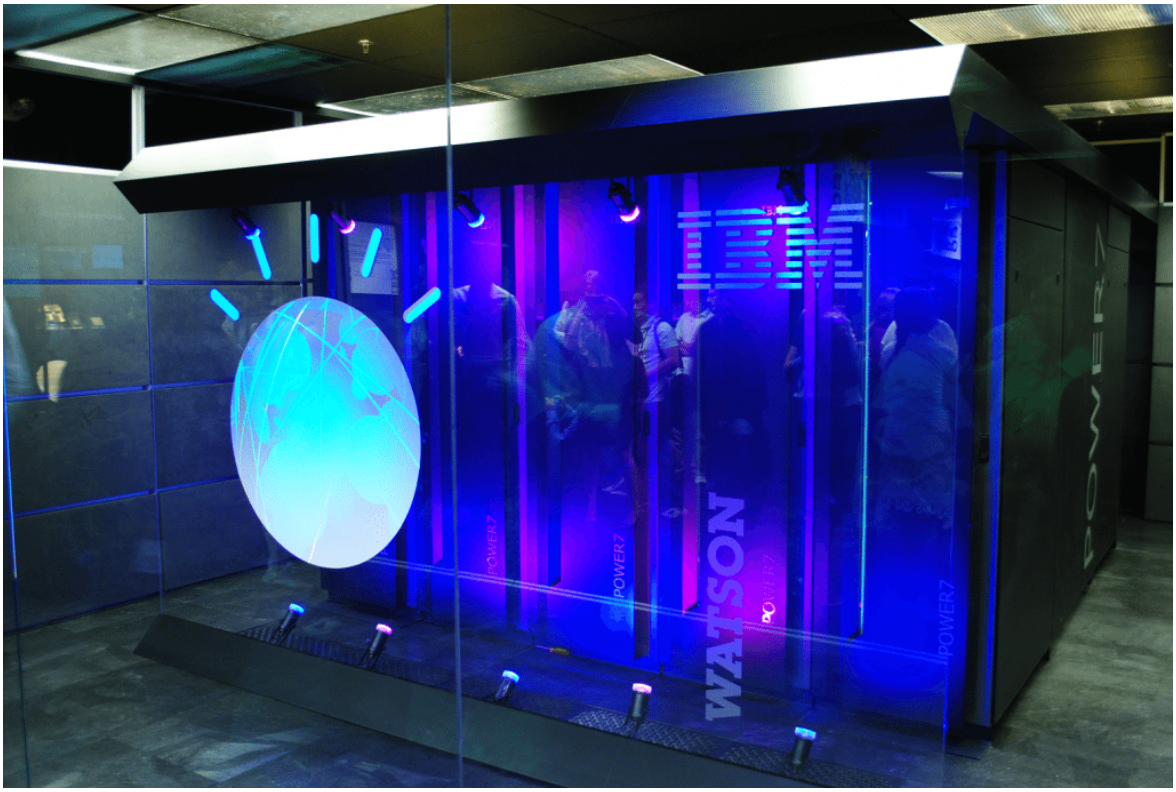

IBM's Watson Was Over-Hyped, Failed to Deliver Promised Results

Industry insiders and analysts are finally wising up to Technocrat-ridden IBM's massive over-hyping of its AI platform named Watson. It isn't curing cancer. The market is rejecting it and revenue is falling. There are parallels between this and the over-hype of Technocrat Elon Musk and Tesla. TN Editor

What if artificial intelligence can't cure cancer after all? That's the message of a big Wall Street Journal post-mortem on Watson, the IBM project that was supposed to turn IBM's computing prowess into a scalable program that could deliver state-of-the-art personalized cancer treatment protocols to millions of patients around the world.

Watson in general, and its oncology application in particular, has been receiving a lot of skeptical coverage of late; STAT published a major investigation last year, reporting that Watson was nowhere near being

able to live up to IBM's promises. After that article came out, the IBM hype machine started toning things down a bit. But while a lot of the problems with Watson are medical or technical, they're deeply financial, too.

IBM is shrinking: In 2011, when the company first introduced the idea that Watson might be able to one day cure cancer, its revenues were $107 billion. They've gotten smaller every year since, ending up at $79 billion in 2017. That presents enormous problems for any CEO, who's generally charged with growing the company, or, failing that, growing the stock price.

It's very hard to keep a stock price growing in a company where revenues are falling, because those companies tend to be valued on a multiple of revenues—and that multiple itself will fall. If IBM went from being worth, say, 3 times revenues in 2011 to 2 times revenues in 2017, then its market capitalization would have shrunk by more than 50 percent.

This hasn't happened, however, because IBM has to some degree counteracted the negative forces and kept its stock price steady through two main strategies. The first is communications: If you can persuade the markets that you're going to get bigger rather than smaller, then your multiples will grow and your shares will rise. IBM pursued this strategy by hyping Watson long before it was really ready for prime time. If the markets believed that IBM was capable of curing cancer, then they would bid up the shares in the expectation of a major revenue boost in the near future.

The second strategy for shoring up a stock price in the face of declining revenues is basic financial engineering, in the form of share buybacks. If you buy back a large number of shares in the open market, then your share price can rise even as your market capitalization falls. The downside of that strategy is that the more money you spend on buybacks, the less money you have to invest in growth.

As the STAT article put it:

> *"IBM ought to quit trying to cure cancer," said Peter Greulich, a*

> *former IBM brand manager who has written several books about IBM's history and modern challenges. "They turned the marketing engine loose without controlling how to build and construct a product."*
>
> *Greulich said IBM needs to invest more money in Watson and hire more people to make it successful. In the 1960s, he said, IBM spent about 11.5 times its annual earnings to develop its mainframe computer, a line of business that still accounts for much of its profitability today.*
>
> *If it were to make an equivalent investment in Watson, it would need to spend $137 billion. "The only thing it's spent that much money on is stock buybacks," Greulich said.*

It's not that IBM hasn't invested boatloads in Watson; it has. But while six years and billions of dollars is a lot of time and money for a Silicon Valley startup, it's a pretty normal expenditure in the world of medical trials, most of which fail.

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