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May 5, 2016

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ANNOUNCEMENTS

[GMOs 2.0: Reengineering Life, from Plants to People.](#) [VIDEO]

The recording of the webcast is now [online](#), along with:

- the speakers' slide shows
- answers to the questions and comments submitted by participants
- links to more resources and information



[C-Span – Synthetic Biology: DIY Tinkering Meets Big Capital](#) [VIDEO]

CGS's Elliot Hosman and Pete Shanks, along with Tito Jankowski, tackle pressing questions about new forms of genetic engineering: What's going on with the push for synthetic biology? What are the implications for politics, manufacturing, medicine? Will the boundary between life and artifice persist? How do embedded paradigms reflect deeper assumptions about the structure of modern life?



[Internship Opportunity at CGS](#)

The Center for Genetics and Society is accepting applications for summer internships. Please click [here](#) for the complete intern announcement.



CGS COMMENTARY

[Should Heritable Gene Editing Be Used on Humans?](#)

"YES" by George Church; "NO" by Marcy Darnovsky

by Marcy Darnovsky & George Church, *Wall Street Journal*

Are there potential benefits? Are the risks to individuals and to society are too great?



[Hacking CRISPR: Patents, Gene Therapy & Embryos](#)

by Elliot Hosman

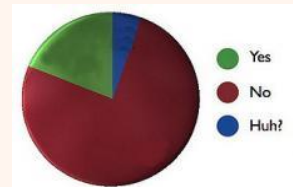
As gene editing experiments on human embryos spread, piecemeal hacks of CRISPR are outpacing discussions of the futures it might enable.



[Public Opposes Human Germline “Enhancement” by Overwhelming Majority](#)

by Pete Shanks

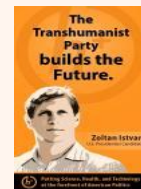
New polls confirm that the public remains opposed to "enhancement" and is still not convinced about other proposed genetic interventions.



[An Even Stranger Presidential Candidate](#)

by Pete Shanks

Zoltan Istvan is running for president. I mean, for vice-president. I mean, from death and aging.



CGS in the NEWS

[Japanese scientists given green light to modify fertilized human](#)

▶ [eggs](#)

[citing CGS]

RT [Russia Today]

A government bioethics panel in Japan is allowing CRISPR gene editing in human embryos only for basic research purposes.

[New advances in growing human embryos could prompt ethical](#)

▶ [firestorm](#)

[citing CGS' Marcy Darnovsky]

by Eric Boodman, *STAT*

Changing the 14-day rule is an explosive question in an era when CRISPR gene-editing has sparked fears about "designer babies."

▶ [Why this lab-grown human embryo has reignited an old ethical](#)

[debate](#)

[citing CGS' Marcy Darnovsky]

by Patrick Monahan, *Science/AAAS*

Two teams report growing human embryos just up to 14 days, prompting some scientists and bioethicists to contend that it's time to revisit the so-called 14-day rule.

[Cultural Influences Reflected in Divergent US vs UK Human Embryo](#)

▶ [Research Policies](#)

[citing CGS' Marcy Darnovsky]

by Eli Y. Adashi, *The JAMA Forum*

Reactions to CRISPR gene editing experiments depend upon a country's existing laws and regulation.

[Gender Selection As Part Of Advanced Reproductive Technology:](#)

▶ [Does The U.S. Prefer Boys Or Girls?](#)

[citing CGS' Marcy Darnovsky]

by Amy Schaeffer, *The Inquisitr*

Some are concerned that selecting a non-disease preference like gender will pave the way for gene editing other preferred traits.

NEWS

▶ [God's Red Pencil? CRISPR and The Three Myths of Precise Genome Editing](#)

by Jonathan Latham, *Independent Science News*

CRISPR is the latest platform in a 70-year-old "gospel of precision" used to justify moving quickly with new chemical and biological technologies, despite decades of disasters and unintended consequences.

▶ [Editorial: Editing human genes the CRISPR way](#)

by Editorial Board, *The Chicago Tribune*

Can we trust scientists and governments to set ethical boundaries for research and therapeutic use — and then stick to them? We're skeptical.

▶ [Scientists are trying to use CRISPR to fix everything. What's wrong with that?](#)

by Emily McManus, *TED Ideas*

A historian of eugenics asks: "Will individuals start making decisions to use new biotech to improve themselves and their children?"

▶ [Let people most affected by gene editing write CRISPR rules](#)

by Jessica Hamzelou, *New Scientist*

The US National Academies' committee on human gene editing held a discussion in Paris at the French National Academy of Medicine.

▶ [Identity, disability and the genome](#)

by Felicity Boardman, *BioNews*

The voices of families living with the genetic diseases to be targeted by germline gene editing must be heard. It is their lives and stories that offer the most

valuable insights into what we stand to lose.

▶ [Eric Lander talks CRISPR and the infamous Nobel 'rule of three'](#)

by Joel Achenbach, *The Washington Post*

Lander urged scientific modesty about new gene editing tools: "We are terrible predictors of the consequences of the changes we make."

▶ [The gene editor CRISPR won't fully fix sick people anytime soon. Here's why](#)

by Jocelyn Kaiser, *Science/AAAS*

After more than two decades of ups and downs, veterans of the gene therapy field are wary of raising expectations about CRISPR for treating diseases.

▶ [One Thing that Could Stop the Rise of Gene Editing: Insurance Companies](#)

by Jason Koebler, *Motherboard [VICE]*

If insurance companies refuse to cover potential new treatments involving gene editing, they might be limited to those who can afford the expense.

▶ [First Data from Anti-Aging Gene Therapy](#)

by Kerry Grens, *The Scientist*

Biotech company BioViva reports that an experimental treatment elongated its CEO's telomeres.

▶ [With CRISPR in Humans On the Horizon, Will the Public Back Intellia?](#)

by Alex Lash, *Xconomy*

Intellia and Editas both lack what so many biotech investors crave: data from human clinical trials. As they race to the clinic, it's hard to tell if either company will pay off.

▶ ['It's most ... most likely use, is the technology of human enhancement': Chinese scientists alter genes in human embryos in controversial study](#)

by Ben Westcott and Zhuang Pinghui, *South China Morning Post*

A research team in China has published the second paper on genetic engineering in human embryos.

▶ [Second Chinese team reports gene editing in human embryos](#)

by Ewen Callaway, *Nature News*

In a "proof of principle," 4 of 26 human embryos targeted were successfully modified with CCR5 Δ 32, a mutation that causes HIV resistance.

▶ [Gene-editing research in human embryos gains momentum](#)

by Ewen Callaway, *Nature News*

Research experiments are now approved in Sweden, China and the United Kingdom.

▶ [Scientists solve CRISPR's 'Energizer bunny' problem](#)

by Sharon Begley, *STAT*

A new CRISPR system called "CORRECT" stopped Cas9 from cutting again and again, and allowed researchers to edit one but not both copies of a target gene.

▶ [Scientists unveil the 'most clever CRISPR gadget' so far](#)

by Sharon Begley, *STAT*

A new "base editing" method attempts to switch out individual letters of DNA, but its usefulness and precision are unclear.

▶ [CRISPR: Pursuit of profit poisons collaboration](#)

by Jacob S. Sherkow, *Nature*

Overzealous efforts to commercialize technology can damage science.

▶ [The Scientific Swap Meet Behind the Gene-Editing Boom](#)

by Antonio Regalado, *MIT Technology Review*

A Cambridge non-profit called AddGene, described as "Amazon.com for biological parts," ships CRISPR-Cas9 parts all over the world.

▶ [The World's Most Expensive Medicine Is a Bust](#)

by Antonio Regalado, *MIT Technology Review*

The first gene therapy approved in the Western world costs \$1 million and has been used just once.

▶ [A Single \\$249 Test Analyzes 30 Cancer Genes. But Do You Need It?](#)

by Sarah Zhang, *WIRED*

Color Genomics is marketing gene tests for 30 cancers, but doctors caution that our ability to sequence DNA has far outpaced our ability to understand what the results mean.

▶ [A DNA Sequencer in Every Pocket](#)

by Ed Yong, *The Atlantic*

Oxford Nanopore Technologies, which severed financial ties with DNA sequencing monolith Illumina in 2013, is "desperately thinking of ways of bringing them down." These include a USB-powered sequencer called the MinION.

▶ [Meet The New CEO Of The \\$22 Billion Genomics Company You've Never Heard Of](#)

by Christine Farr, *Fast Company*

Gene-sequencing giant Illumina is expanding to direct-to-consumer tests and perhaps brand partnerships, says new CEO Francis deSouza.

▶ [AstraZeneca launches project to sequence 2 million genomes](#)

by Heidi Ledford, *Nature News*

One of the world's largest pharmaceutical companies is partnering with the Wellcome Trust Sanger Institute and Craig Venter's Human Longevity to look for rare genetic differences between individuals.

▶ [We Still Haven't Found a Fountain of Youth in Our DNA](#)

by Brian Alexander, *MIT Technology Review*

The Cypher Genomics project has been attempting to identify genetic variants that contribute to longevity, but so far there's no smoking gun.

▶ ['Buffer genes' may protect these 13 people from rare genetic diseases](#)

by Jocelyn Kaiser, *Science/AAAS*

Researchers analyzed the DNA of 589,000 anonymous donors, but could not contact the 13 people to verify they were healthy.

▶ [More People Seek Genetic Testing, But There Aren't Enough Counselors](#)

by Todd Bookman, *NPR*

The field of precision medicine is facing a bottleneck: "Who will actually interpret and provide those results to patients?"

▶ [Researchers push for personalized tumour vaccines](#)

by Heidi Ledford, *Nature News*

Enthusiasm comes amid concerns about "irrational exuberance" over the rapid shift toward the personalized approach.

▶ [Human Experimentation: Rethinking The 'Bad Old Days'](#)

by Barron Lerner, *Forbes*

The horrors in our medical past require that we not brush them aside as just wrong but that we look hard at why they happened.

▶ [Dead could be brought 'back to life' in groundbreaking project](#)

by Sarah Knapton, *The Telegraph [UK]*

A US biotech firm received permission to recruit 20 clinically dead patients for a stem cell treatment.

▶ [Stem cell agency okays \\$150 million 'powerhouse'](#)

by David Jensen, *Capitol Weekly*

The agency approved financing terms for a proposed public-private company that it hopes will accelerate the creation of stem cell therapies.

▶ [Here Are the Medals Given to Eugenically Healthy Humans in the 1920s](#)

by Ella Morton, *Atlas Obscura*

People were judged alongside livestock at state fairs in better baby and fitter family contests.

▶ [Meet the feminists who are trying to stop the 'dictator's' daughter from becoming president](#)

by Manuel Rueda, *Fusion*

More than 300,000 Peruvian women, most of them poor and indigenous, were sterilized by a birth control program run by president Alberto Fujimori during the 1990s.

▶ [Dwarfism, Chemical Limb Lengthening, and Informed Consent](#)

by Joseph Stramondo, *International Journal of Feminist Approaches to Bioethics Blog*

A California biotech company is testing a drug designed to "normalize" annual growth but not address health complications of dwarfism.

▶ [Inside the Hidden Global Supply Chain for Frozen Sperm, Eggs, and Embryos](#)

by Sarah Zhang, *WIRED*

Ever-changing laws and attitudes, which vary not only country by country but within a country, can make transportation logistically difficult.

▶ [As China's one-child policy ends, surrogacy services rise in the U.S.](#)

by Kevin Smith, *San Gabriel Valley Tribune*

"I've been contacted by 15 to 18 agencies out of China... 90 percent of them don't have any patients. They're just new agencies trying to make a buck."

▶ [Gay couple win custody battle against Thai surrogate mother](#)

by Oliver Holmes, *The Guardian [US]*

The central juvenile and family court ruled in favor of the American biological father of 15-month-old Baby Carmen.

▶ [Mexico Resists Becoming Next Reproductive Tourism "Paradise"](#)

Latin American Herald Tribune

Legislation has been introduced that would restrict surrogacy to Mexican citizens on a non-profit basis, in an effort to protect against the foreign surrogacy market.

▶ [C-sections done in surrogate pregnancies before 7 months](#)

by Shreejana Shrestha, *Republica [Nepal]*

In Nepal, premature C-sections for surrogate pregnancies are becoming more common.

▶ [Couple who lost young sons, become grandparents by surrogacy](#)

by Eram Agha, *The Times of India*

A couple will raise their twin granddaughters, born in a surrogacy arrangement that used their dead son's sperm.

▶ [The trouble with paying for sperm](#)

by Alana Cattapan & Françoise Baylis, *The Star [Toronto]*

The so-called shortage of Canadian sperm is not about men being unwilling to donate without pay.

▶ [More babies, fewer multiple births, are resulting from assisted reproduction](#)

by Melissa Healy, *Los Angeles Times*

In the United States, assisted reproduction has been largely self-regulated and strongly entrepreneurial.

▶ [I Want To Put A Baby In You: The Curious Case Of Louisiana](#)

by Ellen Trachman, *Above the Law*

Instead of reasonable regulation, the pending Louisiana bill transparently limits the types of people who can enter surrogacy arrangements.

▶ [Why Does Silicon Valley Want to Get So Many Women Pregnant?](#)

by Sarah Emerson, *Motherboard [VICE]*

Women's fertility apps have found a profitable niche in the predominantly male tech scene. The tech industry hopes they'll deliver a lot of valuable private information.

▶ [Turning to technology when nature isn't enough for pregnancy](#)

by Marion Callahan, *Bucks County Courier Times / The Herald*

"Gender is not a disease; it's a preference. Once you start doing it for preferences, not medical reasons, you are opening a door to a big slippery slope."

▶ [Here's Why that Race-Sex Abortion Ban Bill is So Discriminatory](#)

by Sital Kalantry, *Women's eNews*

The bill accuses women of racially discriminating against their own fetuses.

▶ [In IVF, Questions About 'Mosaic' Embryos](#)

by Kira Peikoff, *The New York Times*

20% of embryos have both "normal" and "abnormal" cells, generating false positive genetic test results, and questions among fertility clinics about whether to implant.

▶ [CIA's Venture Capital Arm Is Funding Skin Care Products That Collect DNA](#)

by Lee Fang, *The Intercept*

Skincential Sciences developed a patented technology that removes a thin outer layer of the skin for a youthful "glow"... and DNA collection.

▶ [Kuwait Becomes First Country to Collect DNA Samples From All Citizens and Visitors: Report](#)

by Seung Lee, *Newsweek*

Kuwait will use mobile centers to collect samples from citizens, and take cheek swabs at airports on all visitors. Anyone faking DNA samples faces up to seven years in prison.

▶ [Google's DeepMind shouldn't suck up our NHS records in secret](#)

by Randeep Ramesh, *The Guardian [US]*

The revelation that 1.6 million patients' records are being used by the company's artificial intelligence arm rings alarm bells.

▶ [Yeast Infection Led to Removal of Transplanted Uterus](#)

by Denise Grady, *The New York Times*

Just two weeks after the first US uterus transplant, the organ had to be removed because a common yeast infection posed life-threatening risks.

▶ [US moves to sell gene-edited mushrooms fuel doubts over British](#)

[ban on GM imports](#)

by Robin McKie, *The Guardian*

The USDA approved CRISPR-modified crops, but a European regulatory committee's delays are dismaying some UK researchers.

▶ [Gene-edited CRISPR mushroom escapes US regulation](#)

by Emily Waltz, *Nature*

A mushroom has become the first CRISPR-edited organism to attain approval for sale without USDA regulation.

▶ [Save the Mosquitos](#)

by Ashley Dawson, *Jacobin*

We should fight Zika with better public health, not genetically modified mosquitos.

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