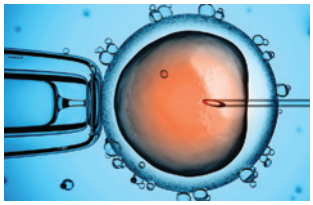
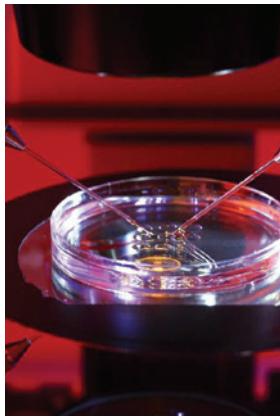
Genetic Literacy Project

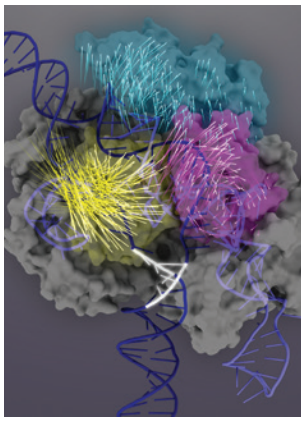
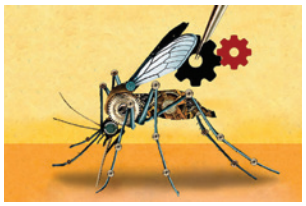
SCIENCE NOT IDEOLOGY









ANNUAL REPORT 2018

FACT-BASED SCIENCE TO
SERVE THE PUBLIC INTEREST

> I consider the Genetic Literacy Project to be the most informative website on biotechnology, an area that continues to be societally controversial. Sites like the GLP will be a critical resource in freeing biotechnology from overregulation. I also appreciate Jon Entine's unflinching efforts to use journalism—accurate journalism—to uncover the pernicious influence of politics on the scientific integrity of decision-making within the regulatory bureaucracy.
>
> – Nina Fedoroff, molecular biologist, former president of the American Association for the Advancement of Science, National Medal of Science Laureate, and GLP board member

MESSAGE FROM JON ENTINE

Executive Director, Genetic Literacy Project

We are entering the "biotech decades"—a transformative era in medicine and farming akin to the digital revolution of the 1980s and 90s. It's the early stages of a neo-biological metamorphosis, drawing on remarkable technologies—transgenics, CRISPR gene editing, synthetic biology and gene therapy—that are reducing diseases and developing more abundant, climate-resistant and more nutritious food. We are unlocking our understanding of food science, artificial intelligence, neuroscience, the use of safer chemicals, the microbiome, fertility, the digitalizing of health—and often blurring the lines about what makes us human, what defines sex, death and more.

This revolution is not guaranteed, however. There are storm clouds. Certainly, biotechnology presents scientific challenges and ethical and religious conundrums that we must navigate. But like the Luddites of the early 19th century, there are groups dedicated to distorting and even blocking potentially revolutionary advancements, regardless of the human cost. That's why the Genetic Literacy Project exists—to serve as a beacon, looking backward to illuminate what brought us to this point and forward to help navigate the possibilities ahead.

Why did I, after a life-long career as a network TV news producer, print journalist, and author, launch the GLP in 2011? I trace my interest in genetics to a documentary I produced in 1989 with Tom Brokaw at NBC News on race and sports that sparked a constructive public discussion on misunderstandings about genetics and human differences.

My focus on genetics tragically deepened when my older sister was diagnosed with breast cancer traced to one of three genetic mutations that disproportionately affect Jews, who were an insular population for many centuries. Suddenly, the tragic genealogy of my family fell into place. When in high school, my aunt, grandmother and mother, all living in my home, died within two years, victims of breast or ovarian cancer. Because science was then not yet able to explain the origins of these types of cancer, our family believed their deaths were unfortunate coincidences. By the 1990s, as our knowledge of genetics began to expand, we learned they were victims not of bad luck but of a bad gene.

My family tree disappears into the Eastern European diaspora, so it's difficult to trace the history of this wayward gene in my lineage. The only thing that can be said with near certainty is that it's a grim marker of our Jewish ancestry. During the 2000s, both of my sisters battled additional cancers linked to this malignant gene, and I was diagnosed as a carrier. Most frightening, when my daughter was tested, she too was found to be a carrier.

By this time I was writing about genetics, human and agriculture, with the frenzy of the possessed—numerous books and hundreds of articles focusing on biomedicine, the development of life-saving drugs like bio-engineered insulin and sustainable genetically engineered crops. But my ability to influence policy and counter growing public misconceptions on genetic issues was limited. Seven years ago, with generous support from independent foundations, I had the opportunity to launch the Genetic Literacy Project.

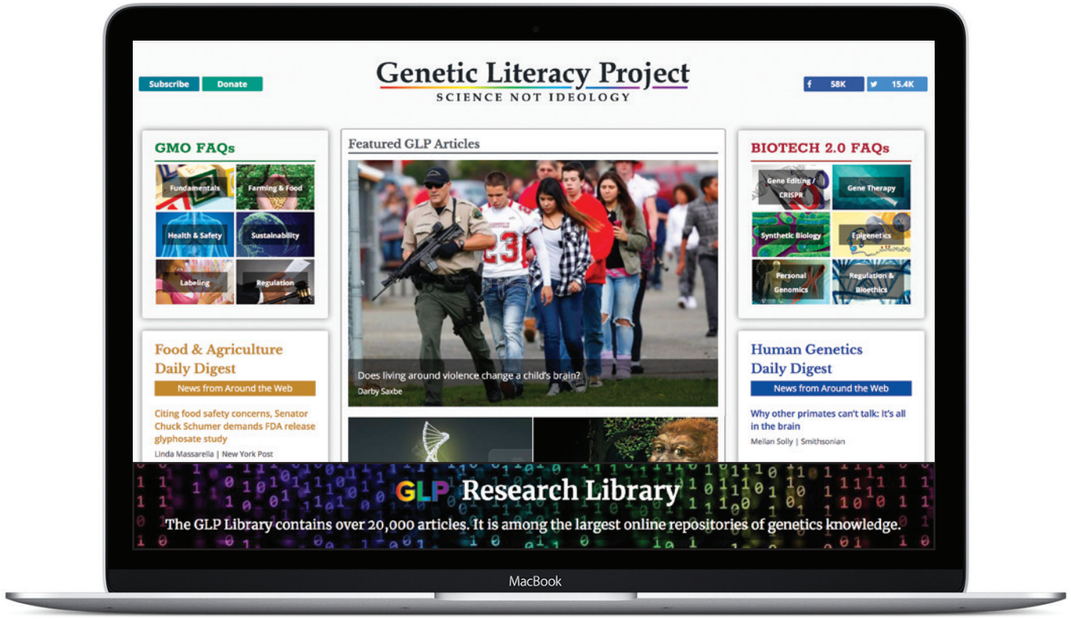
The pages that follow provide a snapshot of what the GLP has accomplished and our plans for the future.

I hope you see yourself and your generosity in these pages. Those who provide the GLP with financial and moral support are crucial to this effort, as much as our dedicated team or scientists working in this field. Our achievements are your achievements, our successes your successes. I hope you will continue to join us in persistent and courageous partnership toward a better quality of life for all people.

With gratitude,

WHO WE ARE, WHAT WE DO

The mission of The Genetic Literacy Project is to educate and inform the public, media, industry and policy makers about the science and societal implications of human and agricultural genetics and biotechnology and to promote science literacy. Our goal is to disentangle science from ideology, prevent legislative over-reach, promote cooperation among academic and industry researchers and encourage an ethically and scientifically sound development of innovative genetic technologies that also respect our religious diversity. We have a remarkable team of writers, editors and support staff to oversee our website, help organize our public and private conferences and policy briefings and develop specialized resources to effect real change in the fast-moving biotechnology arena.



GeneticLiteracyProject.org is *THE* unique place on the web for covering the intersection of biotechnology, science innovation, policy and the media. It is at the center of our mission. But we do far more than just 'follow the news'. Our website houses the most comprehensive and expansive searchable library on human and agricultural biotechnology. No other site comes close to our influence and reach in delivering the research and content that supports sound genetic technologies. Each week we cover hundreds of articles. And we don't just report. We look behind the headlines to offer the science and research communities, industry, the public, and policy experts unique perspectives they can get nowhere else.

OUR EXPANDING RESOURCES

The Genetic Literacy Project has developed special, user-friendly sections to help our readers navigate the emerging issues stirred by the revolution in biotechnology.

FAQ sections help educators and the public make their way through the ideological minefields in the debates over GMOs, CRISPR, gene therapy and synthetic biology.

We profile the activists and advocacy organizations that are spreading misinformation about the science of biotechnology.

> "Jon Entine is a principled, skeptical journalist who has the courage to tell the truth, even when that offends the cautious. I trust his research and admire his writing. I would encourage you to consider seriously his work with the Genetic Literacy Project.
>
> – John Stossel, ABC News, Fox Business

Kenyan Farmer: On Cusp of a Biotech Revolution, Africa Faces Resistance from Europe and Anti-GMO Activists

GMO Beyond The Science

Over the past 3 years, the GLP has run a multi-part series delving into the environmental, political and health issues often overlooked in the ongoing debate over transgenics and New Breeding Techniques such as CRISPR.

Bees, Butterflies and Fears of a Pollinator Collapse

Independent facts about pollinators, addressing advocacy and media misinformation claiming pesticides are driving a 'bee-apocalypse' when in fact global bee populations are at record highs.

MAKING AN IMPACT…
CHANGING POLICY

During 2012, a presidential election year, the debate over the future of food was at a fever pitch. Anti-biotechnology groups such as Natural Resources Defense Council, Greenpeace, Center for Food Safety and the Environmental Working Group were mobilized against GMOs, targeting one specific food in particular: an Atlantic salmon modified to grow twice as quickly as conventional salmon, promising huge sustainability advantages. Despite its documented ecological advantages and health and safety endorsements from numerous government agencies, anti-GMO activists saw the AquaBounty salmon as a Trojan Horse that could soften opposition to genetic engineering, which they rejected out of hand.

For 17 years, the bioengineered salmon had been winding its way through a labyrinthine process before finally securing preliminary Food and Drug Administration approval—only to land in regulatory purgatory when the documents were not publicly released. GLP began its investigation in 2012. What did we find? That the Obama White House had been illegally blocking the FDA from releasing the stamped-and-approved documents. The GLP, in an article simultaneously posted on Slate and the GLP, and later in Forbes, exposed the White House intervention. In a humiliating turnaround for the Administration, and within hours after our investigation appeared online—and after two thousand scathing comments posted online—the suppressed approval was released.

SLATE

White House Ends Its Interference in a Scientific Review

Leaks suggest politics blocked genetically modified salmon. Now the fish is on its way to approval.

By Jon Entine

Unfortunately, the AquaBounty saga did not end with the GLP's exposé. Alaska Republican Senator Lisa Murkowski has blocked its introduction in the US, claiming the sustainable fish is an 'ill-advised science experiment', and it remains in regulatory limbo, a victim for now of ideological-infected science. The AquaAdvantage salmon has been approved and is being sold in Canada.

Los Angeles Times

DECEMBER 26, 2012

An investigation by Jon Entine published Dec. 19 by Slate.com and the nonprofit **Genetic Literacy Project** reported that all internal regulatory hurdles had been passed back in April but that the White House put a hold on release of the documents.

"Within days of the expected public release of the EA [environmental assessment] this spring, the application was frozen," wrote Entine, who is the **Genetic Literacy Project**'s executive director. "The delay, sources within the government say, came after meetings with the White House, which was debating the political implications of approving the GM salmon, a move likely to infuriate a portion of its base."

Within hours, the White House capitulated and the long-suppressed approval approval document was released, paving the way for the introduction of the first genetically engineered food.

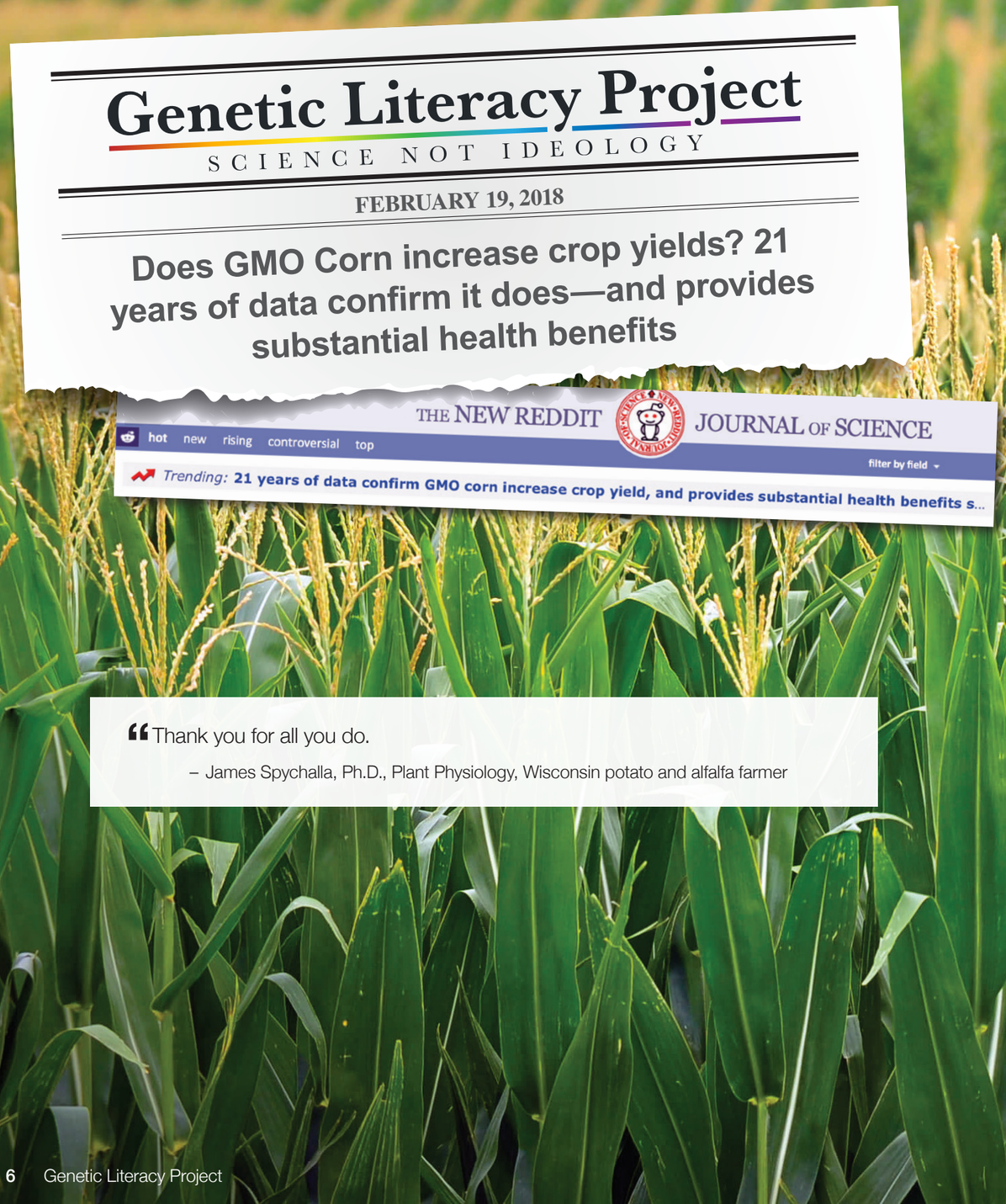
The GLP, in an article simultaneously posted on Slate and the Genetic Literacy Project, and later on Forbes, exposed the White House suppression of the FDA approval, garnering more than two thousand scathing comments. Within hours, an embarrassed White House ordered the release of the suppressed FDA approval.

The New York Times

MARCH 9, 2013

In December, Jon Entine, the executive director of the **Genetic Literacy Project**, a nonpartisan nonprofit group that promotes education about biotechnology issues, wrote an article in Slate suggesting that the holdup wasn't with the F.D.A., which had completed the report, but with the Obama administration, which had just finished a re-election campaign. He wrote, "The delay, sources within the government say, came after meetings with the White House, which was debating the political implications of approving the GM salmon, a move likely to infuriate a portion of its base." A few days after the article appeared, the F.D.A. published its assessment. The date on the report — May 4, 2012 — seemed to confirm Mr. Entine's account that it had been ready for months.

> "The opponents of technology/innovation are ramping up their attacks. Genetic Literacy Project provides an independent, honest and effective counter to those who would profit by blocking innovation and new products.
>
> – Ron Stotish, CEO, AquaBounty Technologies, board member of Biology Information Organization



> “Thank you for all you do.
>
> – James Spychalla, Ph.D., Plant Physiology, Wisconsin potato and alfalfa farmer

MAKING AN IMPACT…
SETTING THE DEBATE

The GLP’s impact? Earlier this year, the New York Times, on its front page, attacked the safety of GMOs and falsely reported that ‘genetic modification in the United States and Canada has not accelerated increases in crop yields.’

That conclusion is nonsense—contradicted by a massive report issued in 2016 by the National Academies of Sciences. The NAS study, together with dozens of independent academic studies, have found that transgenic crops increase yields by 25 percent while considerably reducing chemical use. These studies also demonstrate that bioengineered crops pose no risk to human health whatsoever and often offer considerable sustainability benefits, especially in reducing greenhouse gas emissions.

The GLP story was picked up by Google News, Reddit Science, RealClearScience, and amplified by dozens of others sites.

Our piece generated more than **53,000** hits and **2,500** comments within two days. The expose was also shared on Facebook **42,500** times and was the subject of a dozen other articles worldwide. This was a true David and Goliath moment:.The GLP’s numbers surpassed those of the original New York Times story, and the GLP’s more accurate analysis won the literacy battle over the the NYT’s sloppy reporting.

53,000
HITS

2,500
COMMENTS

42,500
SHARES

MEDIA CREDIBILITY AND IMPACT

GLP is widely considered one of the major science sites on the web despite its young history and its somewhat niche focus on genetics and biotechnology. The independent and respected Media Bias Fact Check evaluates websites for ideological and political bias in a range of categories, including science. It rates the GLP among the most credible science sites on the net, along with such resources as Air & Space Magazine, American Scientist, Ars Technica, Discover Magazine, MIT Technology Review, Nature, New Scientist, PubMed and Smithsonian Magazine.

AIR&SPACE

AMERICAN Scientist

ars technica

Discover MAGAZINE

MIT Technology Review

NATURE®

New Scientist

PubMed

Smithsonian Magazine

> "I make GLP part of my daily diet. You're covering everything I find important. Thanks for this excellent resource.
>
> – Ronald Kleinman, Physician-in-Chief, Mass General Hospital, Harvard Medical School

> "The GLP performs a dual role in 1) keeping its readers abreast of the latest developments in genetics, biotechnology, and medicine (e.g., CRISPR-cas9 gene editing, epigenetics) and 2) carefully analyzing and exposing the rampant misinformation surrounding issues such as genetically-engineered crops and animals (GMOs). At a time when 'alternative facts' are sanctioned by the White House, the GLP's mission of countering pseudoscience and providing well-documented explanations of the evolving science on often confusing and issues is more vital than ever.
>
> – Geoffrey Kabat, cancer epidemiologist, author of *Getting Risk Right,* and GLP board member

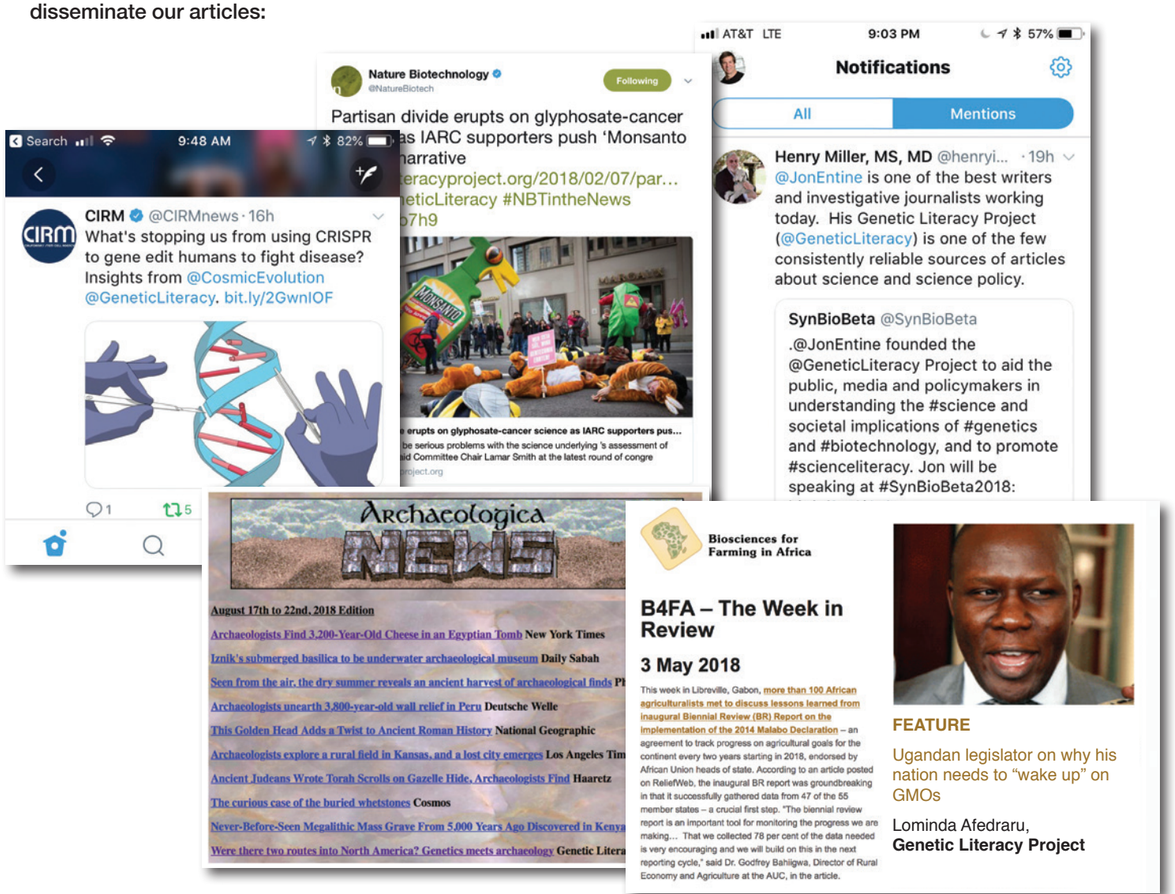
GLP INITIATIVES, YOUR IMPACT

Our 2017-2018 Initiatives

The GLP posts about 3,000 news stories and analyses each year—an astounding volume of original and aggregated articles highlighting critical developments in the ever-broadening field of genetics and related disciplines. More than 400 of those articles are fresh insights written by GLP writers, including scientists, journalists and affiliated news organizations. We have an increasingly large global audience—an expanding following outside the US—in Canada, the UK, across Europe, Australia, New Zealand, South America, Japan and China, among other places, with readers on every continent. Our stories generate commentaries and are amplified by news organizations around the world—often upwards of 8,000 referrals a day from across the ideological spectrum. Among them over the past year:

New York Times, Washington Post, Wall Street Journal, Los Angeles Times, Nature, Nature Genetics, Scientific American, Google News, Slate, Salon, New York Magazine, Newsweek, Forbes, NIH, Reuters, Bloomberg, BBC, FOX. NBC, AOL News, Guardian, Le Monde, NPR, Reason, Mother Jones, Wikipedia, New Yorker, Quora, Gizmodo, Aeon, Futurism, Discover, IFL Science, Vox, Science 2.0, RealClearScience, Retraction Watch, Sports Illustrated, Cornell Alliance for Science

Here are several examples of how news services, aggregation sites, industry resources and media pick up and disseminate our articles:



AN UPWARD TRAJECTORY OF ENGAGEMENT AND IMPACT

As scientific possibilities become realities, the public interest in genetic and biotechnology issues grows dramatically. As a result, we are experiencing an acute demand for our analysis and outreach. This demand has fueled tremendous growth in recent years. Our flagship resource is the GeneticLiteracyProject.org website, which drives positive change in the biotechnology debate and a streamlining of the regulatory process. Equipped with easy navigability, the GLP presents archived and realtime perspectives on virtually every evolution, genetic or biotechnology topic.

Website Metrics

18,000+ daily visitors

119,695 best ever day

47,438 best day 2018

120,284 best week 2018

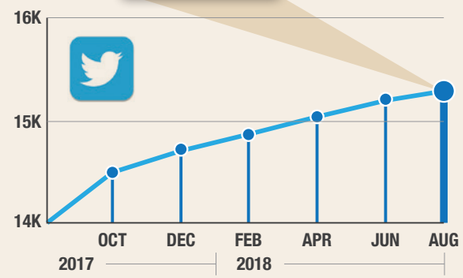
459,242 best month 2018

16,185,559 views since January 2015

2:01 average time spent on site

Social Media Metrics

15,401 Twitter followers

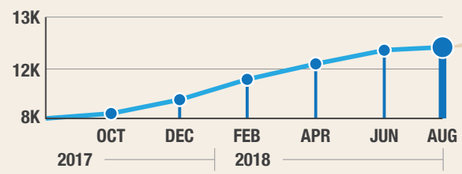


58,546 Facebook followers

The GLP strategically engages social media to promote its investigations and reach diverse audiences to leverage the vast potential of biotechnological research. Much like our website activity, our social media outreach has seen steady growth.

Newsletter Metrics

12,876 GLP newsletter subscribers

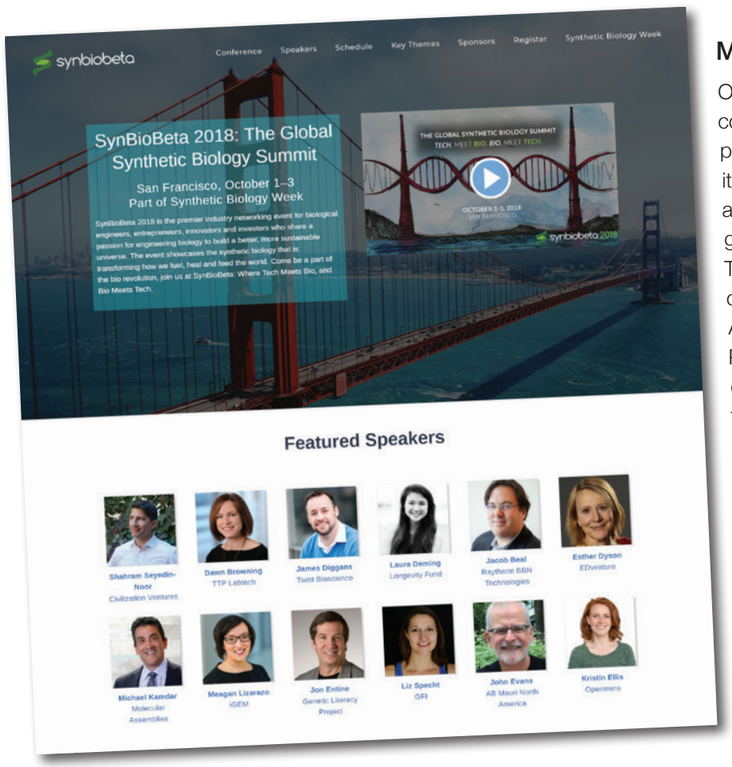


4,809 GLP newsletter subscribers added in 1-year (+62% growth)

RESULTS…
BEYOND OUR WEBSITE

Biotech Boot Camps

Over the years, the GLP has helped organize more than a half dozen Biotechnology Literacy Project Boot Camps to bring together scientists, journalists and policy officials to exchange ideas and strategies on how to improve genetic literacy. We've held them at a variety of North American universities including the University of Florida, the University of California-Davis, Penn States University, and most recently the University of Guelph in Ontario. These 2-4 day events, organized in cooperation with the nonprofit Academics Review and the science consulting firm v-Fluence, with contributions from universities, industry and the government, have brought together as many as 100 participants in seminar and debate sessions to discuss how best to educate the public on the nuances of biotechnology policy and innovation.



Making the Case Face-to-Face

Our scholars present at a variety of conferences, seminars and other events to promote the GLP's mission and disseminate its latest findings, network with organizations and scholars, and actively support the cause of genetic literacy in the US and around the world. The GLP has previously spoken at dozens of influential venues, including the National Academies of Sciences and the National Press Club of Australia. In 2018, GLP staffers delivered or will be giving key speeches at the Latin American Society of Endocrinology meeting in Columbia on the misinformation surrounding 'endocrine disrupting chemicals'; at the annual MENSA convention, focusing on race and biomedicine; at the annual SynBioBeta conference, which features the top global scientists and entrepreneurs in the fast-growing synthetic biology and CRISPR gene editing sectors; and at the Colorado Beekeepers Convention, as the GLP is known as one of the most respected sources for reporting on the so-called "bee apocalypse" and pollinator health.

CHALLENGES AND POSSIBILITIES

The Genetic Literacy Project is uniquely positioned to leverage its established role as guide, communicator, resource center, critic, teaching platform and policy-influencer. Going forward, three themes are emerging as the major foci of the GLP: gene editing, driven by CRISPR technology; concerns about over-regulation, which could limit the potential of biotechnology; and appropriate ethical and religious concerns that need to be addressed in the brave new world of DNA.

The GLP covers the biotechnology regulatory beat. We will devote expanding resources to the increasing threat of 'regulatory capture' of biotechnology by corporations and concerns that innovation-averse governments, heavily influenced by advocacy groups, will attempt to blunt biotechnology's potential by passing overly restrictive regulations.

Europe is worrisome. Activist environmentalists already have had considerable success in intimidating the EU into adopting an antiquated regulatory structure that effectively bans the introduction of gene edited crops. That means Europe is all but certain to miss out on the CRISPR revolution much like it's restrictive regulations effectively barred GMOs, forcing it to import tens of millions of tons of American and Latin grown livestock feed each year. Scientists are already fleeing to more research-friendly countries in Asia, Latin America and North America. Africa, which depends on Europe for many agricultural products, will likely be forced to kowtow to the EU's backward biotechnology policies. The ripple effects will be felt around the world with devastating consequences. The GLP will track this developing anti-science fiasco.

> "I have followed the writings of the GLP for many years. The site has evolved into an important resource for science professionals, students, journalists and policy makers struggling with the implications of the genetics revolution in fighting disease and improving agriculture.
>
> – Arthur Caplan, Professor of Bioethics at New York University Langone Medical Center and founding director of the Division of Medical Ethics

We will report on the alliance of many environmental and anti-biotechnology groups with Russia—a partnership of expediency that appears determined to block agricultural and human biotechnology advances.

These challenging issues underscore why the Genetic Literacy Project is much more than a go-to site for science literacy and genetic and biotechnology news and analysis; we are change agents. Each day, our superb and dedicated GLP staff of reporters, editors, digital and data visualization specialists, and social media experts scattered in eight states from Florida to Ohio to Alaska, actively counter the tidal wave of misinformation that stands in the way of significant scientific progress. We are not afraid to upend conventional wisdom—'Science Not Ideology' defines us. We relentlessly challenge the advocacy campaigns of special interest groups when they serve parochial interests. We stand for fact-based science to best serve the public interest. Our commitment:

- *encourage debate*
- *reduce regulation*
- *spur innovation*

LOOKING AHEAD: THE GENOMIC REVOLUTION

The Genetic Literacy Project will not rest on its laurels. Over the coming year, we are initiating a number of innovations to make our project even more useful to the public, media and policymakers.

Gene Editing Think Tank Consortium: Currently, we are in discussions with a range of ideologically diverse think tanks to organize policy briefings, white papers and events to advocate for streamlined regulations on emerging gene editing technologies, including CRISPR. The GLP is committed to spearheading this group.

Gene Editing Tracker and Rapid Response Tracker: GLP is assembling a service to track regulations of gene editing, synthetic biology, and gene therapy in biomedicine and CRISPR and other new breeding techniques in agriculture. Our goal is to serve as a monitoring sentinel for various stakeholder groups on regulations and NGO activism on biotechnology innovation.

Religious and Ethical Issues in Biotechnology: The GLP is committed to addressing the concerns raised about new technologies that other organizations also ignore. Our views on how the biotechnology revolution are not uniform and are often shaped by our deeply held values. We will be assembling experts for advice on various ways to proceed in this area and begin to sensitively assess the often conflicting views of Americans.

> "There are powerful, well-financed forces working tirelessly to stoke fear and misunderstanding of biotechnology. The GLP fearlessly and tirelessly stands firmly in their way.
>
> – Steven Novella, clinical neurologist, Yale University School of Medicine, founder of Neurological blog, founded The Skeptics

A FINAL NOTE

In the late 1990s, two students at Stanford University—one an émigré from the Soviet Union, the other a professor's son from Michigan—explored possible topics for doctoral research. Their curiosity led them to the emerging frontier of the Internet. How can we find needles in the global information haystack? They experimented with using links rather than search term frequency to determine how high a webpage appeared in search engine results.

The fruit of their efforts was a search engine named 'Backrub.' It would soon become Google. The rest is history.

Google was born when big ideas and endless perseverance translated into innovations that were first beneficial, then indispensable. It's a narrative that characterizes all the great technological advances of our time.

America's next phase of Google-like innovation and development is originating not in a garage or classroom, but in laboratories around the world. Transgenics and now gene editing allow scientists to identify and modify the genome of almost any organism with extraordinary precision. As the technology gathers steam, it will enable us to remove harmful genes in favor of healthier ones or improve the genes in humans, animals and plants, revolutionizing medicine and agriculture.

When the GLP launched seven years ago, biotechnology offered incredible promise but there was also substantial barriers to progress in what was then a nascent industry. Focusing on the intersection of biotechnology and public policy, the GLP, in partnership with our readers, is helping to usher in a new era of human progress, and your support makes all of this possible.

GENETIC LITERACY PROJECT TEAM

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Executive Director

Phyllis A. Ludwig
Chief Financial Officer

Tim Barker
Managing Editor

Anne Neathurai
Human Genetics Editor

Cameron J. English
Senior Agricultural Genetics and Special Projects Editor

Jessica P. Johnson
Gene Editing Research Director

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Senior Contributing Columnist

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Contributing Columnist

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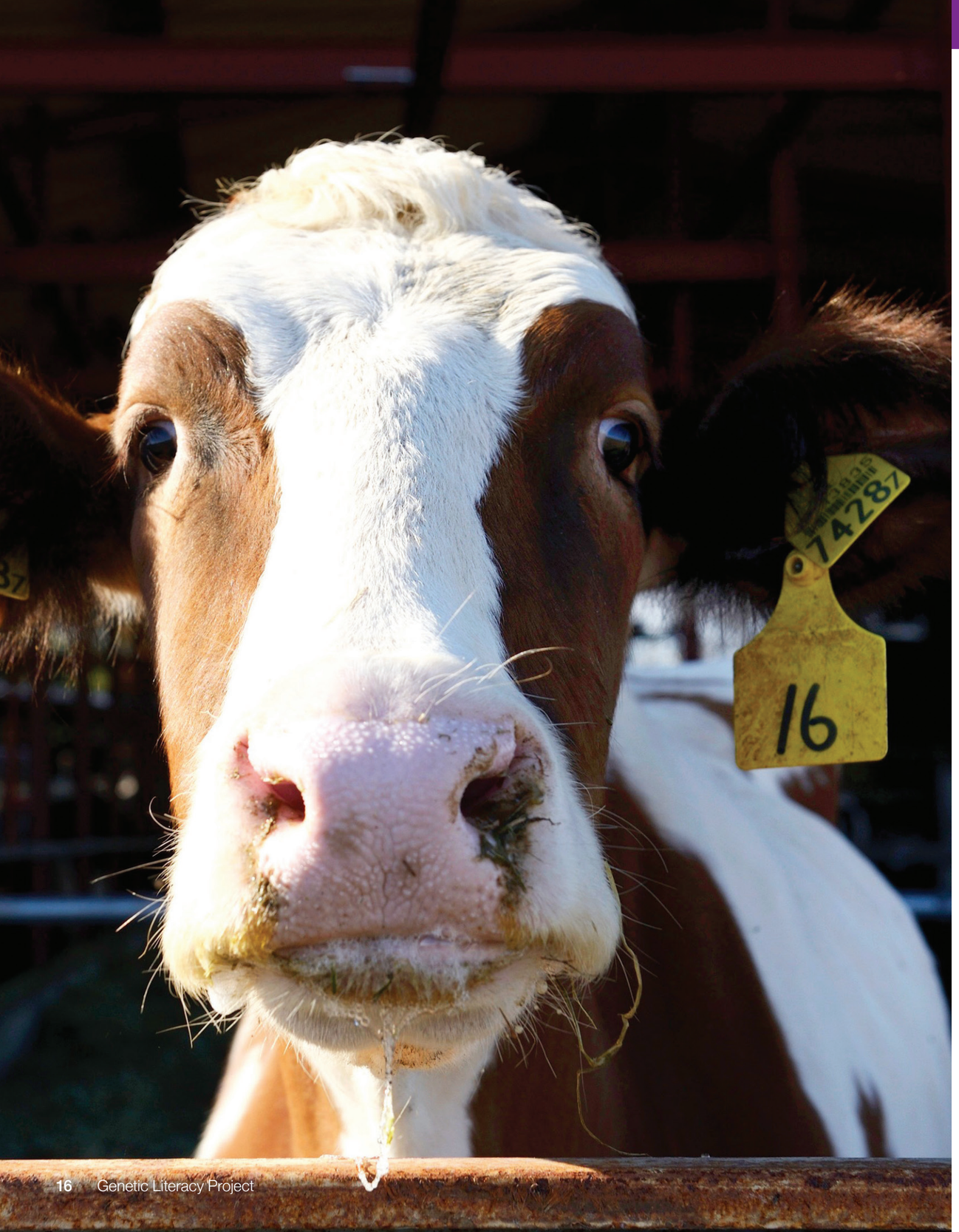


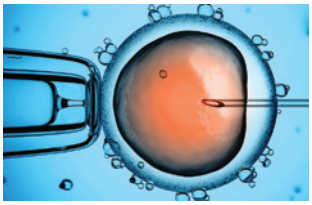
FINANCIAL INFORMATION

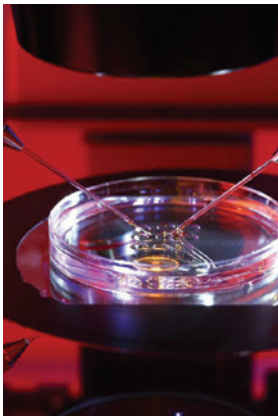
	FYE 2018	FYE 2017
Total Revenue and Support	**$ 613,179**	**$ 364,741**
Expenses		
Labor Expense (core staff)	289,610	322,601
Labor Expense (freelance)	21,065	16,228
Benefits	19,308	16,759
Digital Expenses	41,436	41,193
Development/Promotion	32,534	21,252
General and Administrative	111,596	40,030
Total Expenses	**$ 515,549**	**$ 458,062**
Change in Net Assets	**97,631**	**(93,322)**
Cash on Hand at Beginning of Fiscal Year	**399,566**	**492,887**
Cash on Hand at End of Fiscal Year	**$ 498,197**	**$ 399,565**
Revenue and Support		
John Templeton Foundation	267,687	49,446
Winkler Family Foundation	165,000	120,000
Phil Harvey	65,000	10,000
Center for Food Integrity	–	50,000
Global Farmer Network	25,000	–
Triad Foundation	5,000	–
Searle Freedom Trust	75,000	125,000
Individual Contributions	7,723	7,931
Total New Grants/Contributions	**$ 610,410**	**$ 362,377**
Investment Income	2,769	2,364
Total Revenue and Support	**$ 613,179**	**$ 364,741**

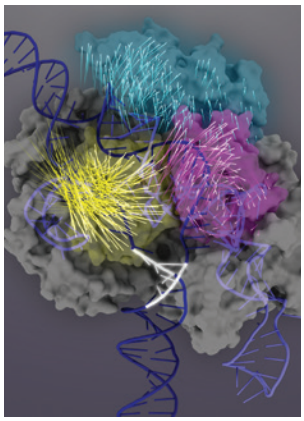
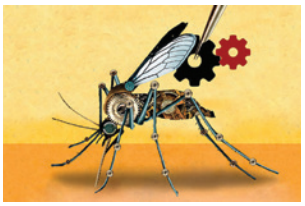
**FYE concluded on June 30*









Genetic Literacy Project

SCIENCE NOT IDEOLOGY

Science Literacy Project/Genetic Literacy Project

Phyllis Ludwig, GLP CFO, Ludwig Business Consultants

1120 Welsh Road

North Wales, PA 19454