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# PRIORITIES

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WILL  
ALTERNATIVE  
TRUTH PREVAIL?

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AMERICAN COUNCIL  
ON SCIENCE AND HEALTH

# Make Science And Health In America Great Again

*Hank Campbell, President  
American Council on Science and Health*

{ There has been a great deal of hyperbole and confusion about the recent and future direction of science and health in America, both in the applied and basic research sense, but for the public it's hard to separate what is a legitimate worry versus what has been manufactured due to lingering animosity over a contentious 2016 campaign season.

As usual, the loudest political activists have hijacked the discourse.

But not all scientists are on one side of the political aisle, and not everyone wants to march against the federal government based on guesses about what policy directions may be. Instead, many want to make a positive difference.

You don't need to be against something to be for something.



The pro-science community is generally right-of-center whereas the groups scaremongering food, medicine and energy are invariably on the left. But we don't get into left and right here, we are scientists and doctors doing what the corporate Fourth Estate can't or won't do to protect the public. This is our seventh administration, some have wanted our help on understanding science issues more and some have wanted it less. Regardless of the political party in power, we stand for the American people. We

show the White House, Congress and the Courts how to get it right and we criticize them when they get it wrong, regardless of affiliation.

We have been doing that for almost 40 years. Because some administrations have been more opposed to science than others,

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AMERICAN COUNCIL  
ON SCIENCE AND HEALTH

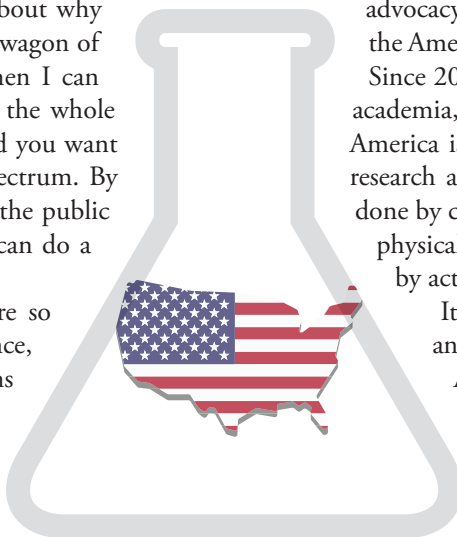
we have been asked why we don't call, in the phrase of Erasmus, "a spade a spade" about some of them.

In response, I'll paraphrase film studio magnate Louis B. Mayer, who responded to criticisms about why he didn't jump on the "horror movie" bandwagon of the 1930s with 'why reach two readers when I can have four?' Mayer wanted to make movies the whole family could go to see, not just parents, and you want us to educate people across the political spectrum. By being trusted science and health guides for the public no matter where people are politically, we can do a lot of good.

There are challenges, that is why you are so important. Most people are not anti-science, they are just concerned. If someone claims 'Chemical X is causing cancer' and no one shows otherwise, they are going to invoke the precautionary principle and want to avoid it. Such chemophobia was overtaking culture when the Council was founded in 1978. Back then, if you believed groups like Center for Science In The Public Interest (CSPI), eggs, bacon, toast, butter and coffee all caused heart attacks or cancer. They had declared war on all of breakfast.

The Council arrived and we showed the country it was safe to go into the refrigerator again. It wasn't a lucrative endeavor then - as ACSH co-founder Dr. Elizabeth Whelan noted, "your food is safe is a terrible call to action" - and it is not lucrative now. Scaremongering, however, has become a \$1 billion per year industry.

So why doesn't the pro-science side have a \$1 billion a year counterpart to environmentalism?



We're working on that. As a first step, we have a new campaign for 2017, Make Science In America Great Again, and it puts us on the road to creating the largest pro-science consumer advocacy group in the nation. Just a generation ago, the American public had high levels of trust in science. Since 2000, with rampant politicization of science in academia, that trust has declined. But most science in America is not done in academia, 60 percent of basic research and about 100 percent of applied research is done by companies. And many academics, in areas like physical sciences and in agriculture, are just as abused by activist groups as any in the private sector.

It's time to move on from political campaigns and get back to the business of insuring that American science continues to lead the world. With just 5 percent of the population, we contribute 30 percent of the knowledge. In the 21st century that will be more important than ever. And thanks to your continued support, we'll make sure we're right out in front.

This issue of Priorities provides good reasons why your efforts to defend science remain worthwhile. }

# Will "Alternative Truth" Prevail?

*Frank Schnell,  
Ph.D.*



*"When I use a word," Humpty Dumpty said in rather a scornful tone, "it means just what I choose it to mean — neither more nor less."*

*- Alice in Wonderland*

{ Science is, above all, a methodology designed for discovering objective "truths" about the natural world. All lawyers and politicians speak quite highly of Truth, and all routinely claim that it is on their side, rather than their opponents'. However, the real function of legal and political debate is not to discover truth, but to win. And, whenever "winning" is the prime directive, Truth is always the first casualty in the battle. Thus, in a court of law, neither the prosecution nor the defense will freely volunteer any inconvenient fact that might seriously detract from the strength of their own case. That's because the immediate objective of both sides is to win their case, whether or not guilt or innocence is accurately established in the process. The operative assumption, of

course, is that, in an adversarial system, “the truth will out.” However, if the truth actually does come out (in the words of Shakespeare, “a consummation devoutly to be wished”), it may be a fortuitous coincidence, but it is certainly not the inevitable consequence of design. Historically, the legal system has had only limited success (by scientific standards) in dealing with basic legal questions (e.g., slavery, prohibition, equality of the sexes, minority rights, & Florida elections). Why, then, should anyone imagine that the courts might be capable of resolving questions of science?

Generally speaking, government bureaucracies are even less qualified to answer fundamentally scientific questions than is the court system, no matter who is in the White House. For, neither political party has any more respect than the other does for good science. Each party publicly embraces “good science” when, and only when, it considers (rightly or wrongly) that science supports a pre-existing political objective which, typically, has nothing whatever to do with either Science or Truth.

True, Republican administrations tend to support “good science” more often than do democratic administrations, at least with regard to environmental issues. However, that is only because good science frequently supports the regulatory rollbacks that are so popular among businessmen and industrialists because they enhance profit margins. By contrast, good science seldom supports the apocalyptic predictions that are so popular among environmentalists because they: (1) mobilize grassroots political movements, (2) increase donations, and (3) precipitate stricter environmental legislation (with each result feeding the other two, synergistically).

Democratic administrations routinely pay lip service to good science, but are routinely hostile to any scientific facts that do not support the politically useful populist myths that are perpetuated by fanciful “risk” assessments, activist propaganda, and those unfounded health scares that appear and disappear with the regularity of bad weather. Of course, many Democrats are quite sincere in their environmental concerns and are even relatively well read on the topics near and dear to their hearts. Unfortunately, their philosophical affinity for apocalypticism usually prevents them from reading the best and most relevant scientific treatments of the topic of interest, hampering their ability to appraise hypothetical hazards in a realistic fashion. Even when such individuals are exposed to the best science on the

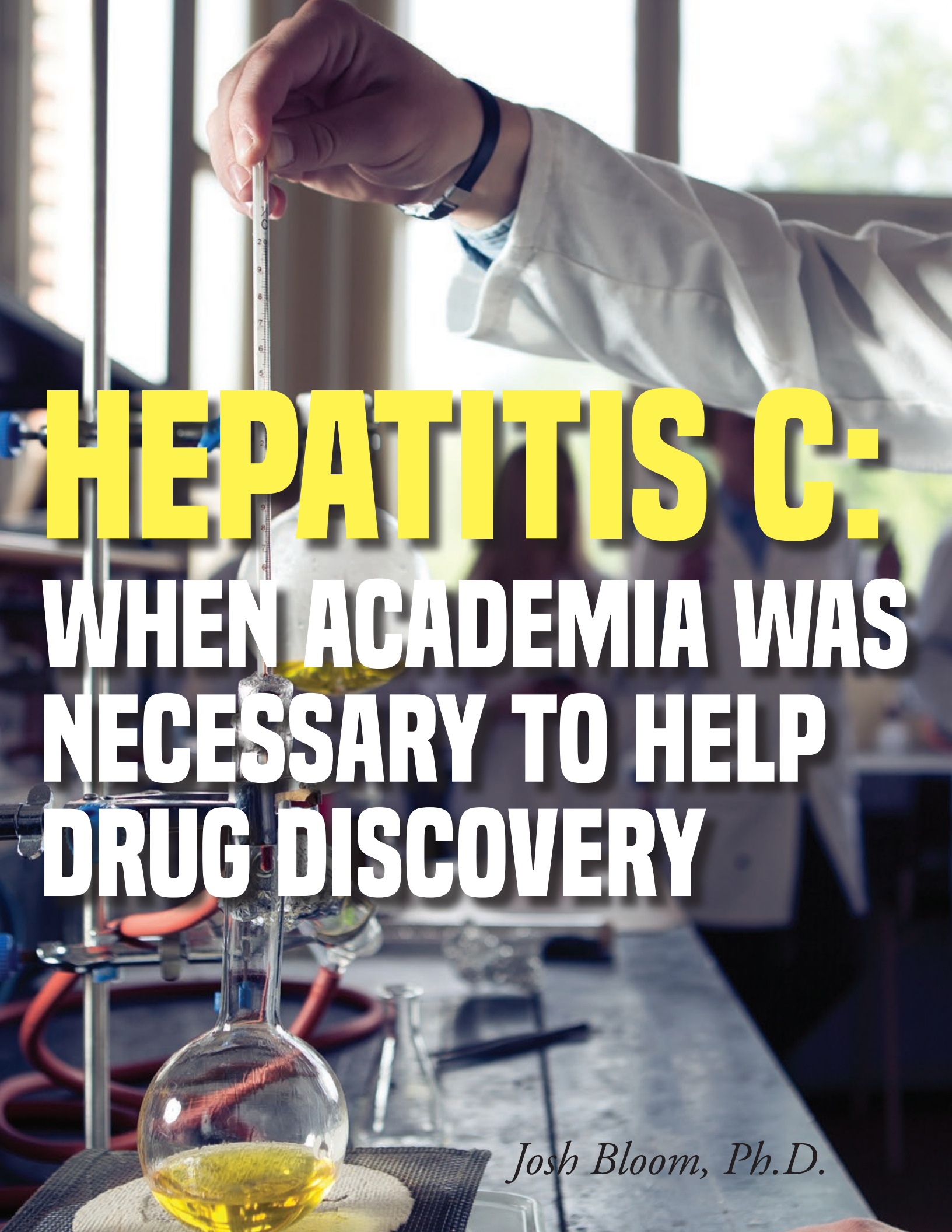
topic, their common response is to reject as “industry propaganda” any information which conflicts with their political preconceptions.

Therefore, to the extent that they use it at all, neither liberals nor conservatives can claim a monopoly on “good science.” In fact, as it is defined and practiced by self-interested lawyers and politicians, “good science” is practically indistinguishable from “good politics.” Political activists of either stripe have but one prime directive, and that is to win a political struggle against their political adversaries. And, as noted previously, winning an argument (especially in courtrooms and government bureaucracies) is often incompatible with defending objective truth. That is why, whenever they do quote “science” in support of their arguments, political activists usually do so selectively, and with more than a little bit of “spin.”

**Contrary to popular self-deception, it makes little difference whether the employer is government, industry, or even academe. When it comes to popular notions of scientific respectability, any distinction between “good guys” and “bad guys” is largely illusory**

○ As a rule, only scientists can be expected to earnestly defend the integrity of the scientific process. And, even their voices may become muffled or perverted when they have been co-opted by the special interests of their employers. And, contrary to popular self-deception, it makes little difference these days whether the employer is government, industry, or even academe. When it comes to popular notions of scientific respectability, any distinction between “good guys” and “bad guys” is largely illusory. Money, Power and Prestige are equally seductive to industry tycoons, government bureaucrats, and academics in search of celebrity. Scientific accuracy has never been as popular as political correctness and public acceptance. That, in a nutshell, is why the intellectual progress of humanity has been as slow as it has been, and why it will remain so. The ongoing battle between Human Reason and Human Nature will always be a lop-sided one. }

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# HEPATITIS C: WHEN ACADEMIA WAS NECESSARY TO HELP DRUG DISCOVERY

*Josh Bloom, Ph.D.*

Recently there has been talk of a 20 percent cut in funding for the National Institutes of Health, which is the primary source of academic life sciences grants. Prompted by science media concern, much of the public has wondered about the potential impact on biomedical research. Pharmacologist David Kroll of Chemical & Engineering News expressed it well on Twitter:

"Combine the administration's harsh climate toward pharma profits with a proposed 20 percent NIH budget cut...where will new drugs come from?"

It's a question many may have. People who are not familiar with the drug discovery process often believe that government-funded academia is the main driver of innovation but in reality, industry invents almost all drugs. When asked about what drugs are discovered in academia, Kroll noted where they do actually have importance (1).

"Virtually none are 'developed' by academia but 10-15 percent are discovered there... Academia contributes to revealing the pathophysiology for drug discovery and helps clarify mechanisms."

Despite the public belief that government-funded academia is the driver of drug development, they lack the billions of dollars, the work force, and the multidisciplinary expertise to overcome significant hurdles that stand between the lab and the pharmacy. Only the pharmaceutical industry can do this, and it is still plenty tough, even with billions of dollars and a decade or more.

But this does not mean that academia doesn't have its place in the discovery-development process. There can be no better example of the synergy between the two than something that is near

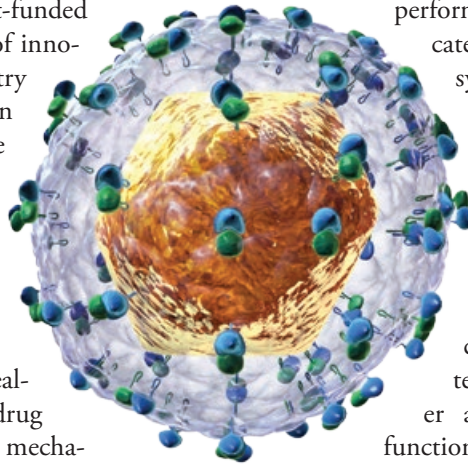
and dear to me—hepatitis C. For ten years, I was stuck right in the middle of it. At that time, almost every major drug company and dozens of smaller ones were working on it. In the end—25 years after the virus was discovered—both industry and academia had played crucial, but different roles, which resulted in drugs that cure the disease.

First, some background. There are two basic types of assays (tests) that are used to determine whether any given molecule might be useful in treating a disease or infection. I'll use viruses as an example. One type of assay is enzyme-based.

All viruses make enzymes, each of which performs a function to help replicate the virus. It is possible to synthesize the individual enzymes and look for chemical compounds that might inhibit (block) them.

These assays are usually automated, which enables thousands (sometimes millions) (2) of chemical compounds to be tested to determine whether any of them inhibit the function of the enzyme, and how strongly. Presumably, a good inhibitor of an essential viral enzyme would then stop the sequence of events that are required for the virus to replicate (3).

I used the term "presumably" for a reason. It's not that simple. It is a very long trip from a compound that inhibits an enzyme in a test tube in a lab to the pharmacy. One of the many hurdles is especially frustrating—the inhibitor may work amazingly well in inhibiting a given enzyme in a test tube assay, but it will often lack the chemical and physical properties that enable it to get into cells, which is where the viral replication occurs. If the inhibitor cannot enter a cell it will not pre-



vent replication (4). This lack of what we call cell permeability is the bane of drug discovery chemists, who often find themselves with a collection of highly potent inhibitors that are ultimately useless because they cannot cross cell membranes.

**Large collections of compounds are tested for their ability to inhibit a particular process that takes place within a cell, for example a virus replicating. If the compound inhibits replication in the cell this is great, but you do not know which enzyme it is inhibiting**

Fortunately, there is another approach—the cell-based assay. It is essentially the reverse of the enzyme-based assay. Large collections of compounds are tested for their ability to inhibit a particular process that takes place within a cell, for example a virus replicating. If the compound inhibits replication in the cell this is great, but you do not know which enzyme it is inhibiting (the target). This must be determined later. But it is far easier to determine how something works inside a cell than to struggle to get a compound into the cell when it doesn't want to go there.

Simple enough then? No. Early hepatitis C research was crippled because there was no cell-based assay. Astonishingly, hepatitis C, which replicates like mad in

your liver, will not do so in isolated liver cells. This is true for other viruses, like norovirus, also.

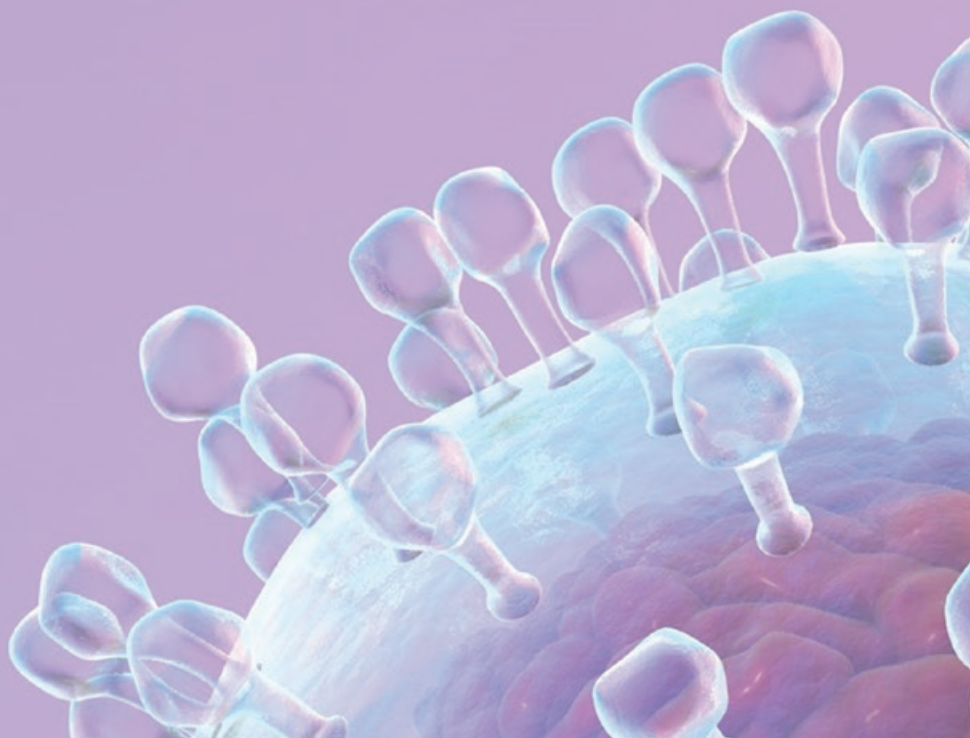
So, in the absence of a cell-based assay, what to do? One possibility would be to select the best inhibitor(s) and test them in an animal model of the infection. Not only does this approach cause pharmaceutical employee madness (it has a very low chance of success) the best animal model for hepatitis C is chimps, which are not used any more. So we hep C researchers were operating with both hands tied behind our backs, and going nowhere fast.

That is, until academia came to the rescue.

With the use of molecular biology, Ralf Bartenschlager, (Heidelberg University in Germany) and Charles Rice (Washington University School of Medicine) invented the HCV subgenomic replicon. The science is very complex, but in short, the replicon is a modified virus in which the genes that make the structural components of the virus—the envelop and capsid—are absent.

The only genes that remain are those that participate in the replication process. When the replicon is put into cultured liver cancer cells (5) it behaves (mostly) like the virus itself; it makes copies of itself, in other words, replicates. This gave chemists and virologists a tool that would enable them to search for compounds that inhibited a surrogate of HCV.

Since the replicon is an artificial construct, there was initial concern that it might not be predictive of viral replication in living beings. But it is. The HCV replicon has been validated, and its use is now standard practice in hepatitis C. Sovaldi, the first legitimate direct-acting cure





for hepatitis C, was selected (6) based on of its potency against the HCV replicon—a predictor of the drug's ability to stop viral replication at reasonable doses in people.

This is a case where the synergy between academia and industry could not be more clear. Without the sub-genomic replicon developed in universities, there was no way to predict whether a drug would stop hepatitis C. Without the thousands of analogs made in dozens of drug companies, Sovaldi never gets discovered at all. ○

A cure for one of the most important viral infections on earth (about 150 million people) resulted from drug companies building on the research of academic institutions. There is a well-defined function for both and that is why in the rush to create smaller government and cheaper drugs, we don't penalize research in both arenas that helps the entire world. }

#### Notes:

(1) One surrogate measure of innovation is the name(s) on the patent. The only people who can appear on a patent are the inventors of a drug, medical device, etc. Even one extra (or missing) name can invalidate the patent. If you look at drug patents, most of them will contain the name(s) of scientists of drug companies. I am on 25. This means the company invented the drug, not a university or the NIH.

(2) Drug companies have libraries of compounds—hundreds of thousands, or even millions—of unique chemical compounds, which are used for high throughput screening. These libraries consists of chemicals that were synthesized for other programs, often many years ago. A small sample of every newly synthesized chemical compound is set aside for this. Alternatively, collections of compounds can be bought from specialty companies that make their own libraries,

solely for the purpose of selling them for high throughput screening.

(3) The best example of the use of specific enzyme inhibition, which ultimately led to the discovery of vital drugs is HIV. There are approved drugs that target specific enzymes or receptors that inhibited specific enzymes that are essential for HIV replication that changed the infection from certain death sentence into a chronic, manageable disease.. The strategies employed for hepatitis C research were based largely on those that were discovered for HIV/AIDS.

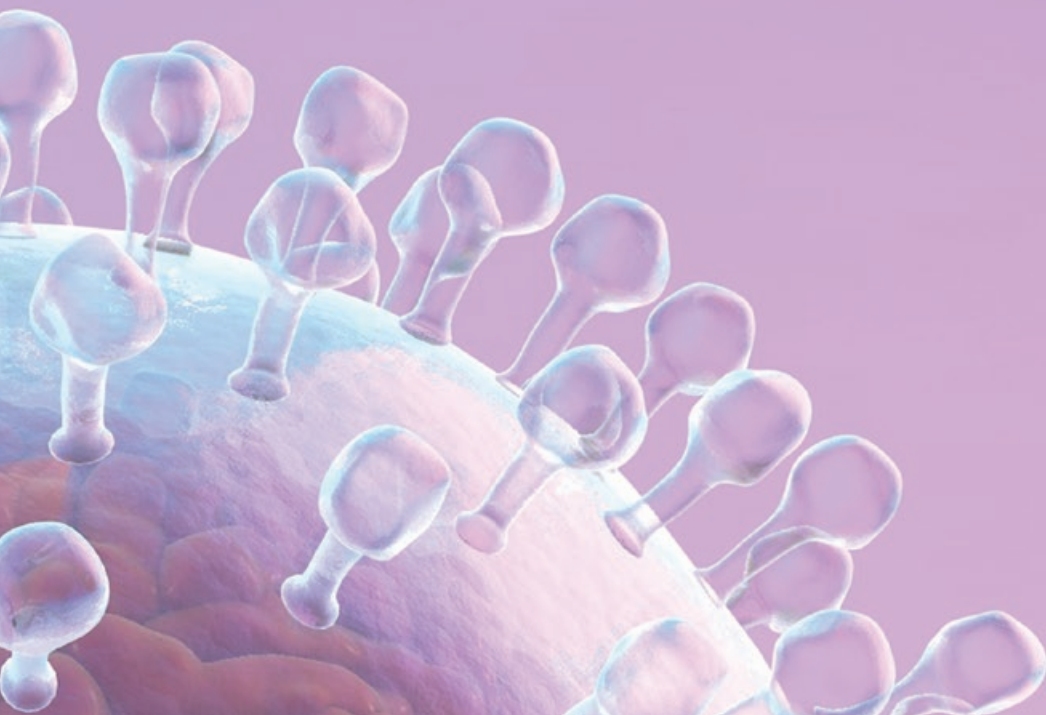
**A cure for one of the most important viral infections on earth resulted from drug companies building on the research of academic institutions. There is a well-defined function for both and that is why in the rush to create smaller government and cheaper drugs**

(4) Viruses are obligate parasites. This means that in the absence of a host cell, replication cannot take place.

(5) Cell-based assays usually use a cancerous variant of the cell in question. This enable scientists to keep growing the cells (this is called immortality). The cells used for HCV research are called Huh-7, and are all derived from a sample taken from a liver tumor in Japanese man in 1982.

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# Treating Alzheimer disease by stimulating the protection systems with CT scans

*Jerry M. Cuttler D.Sc.*

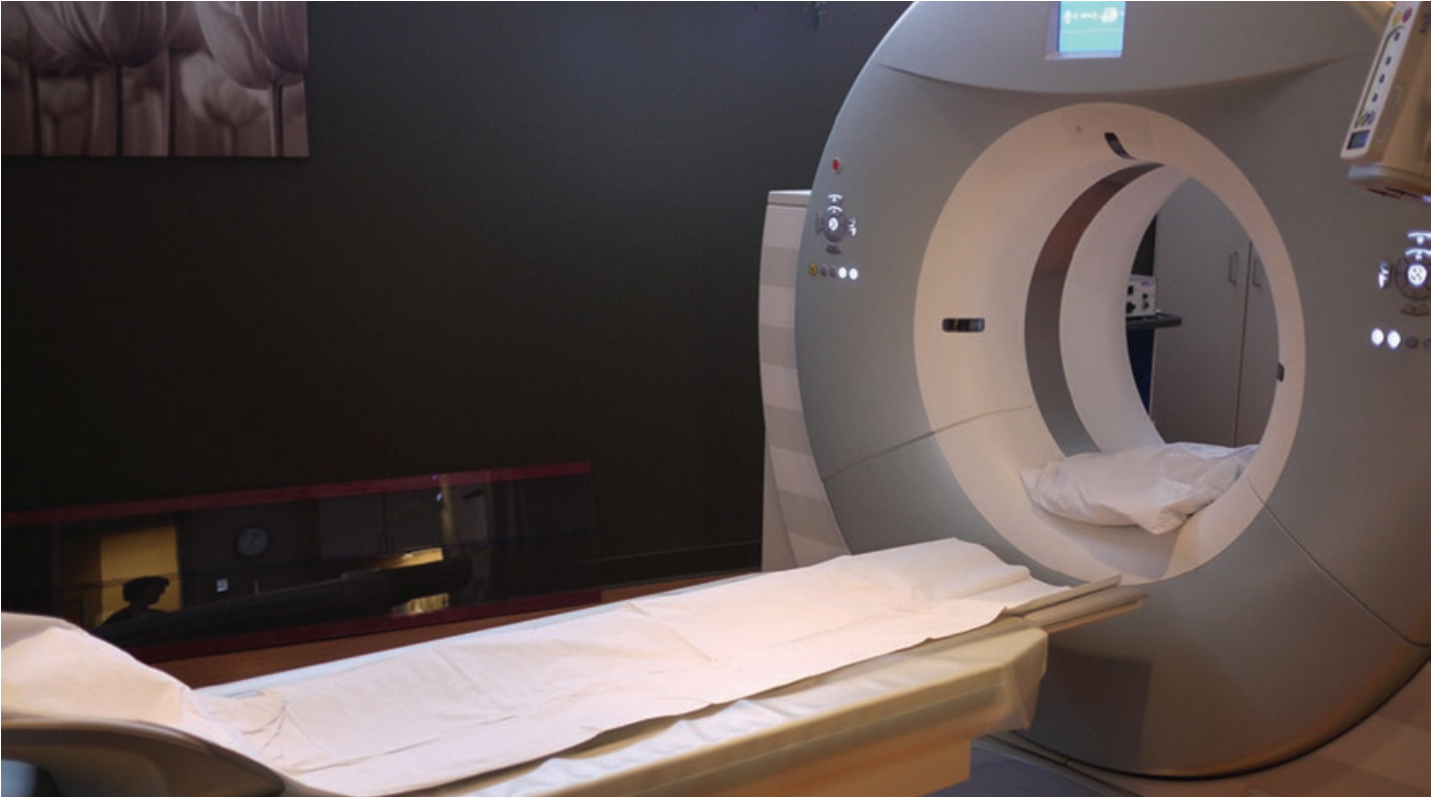
{ For the past 120 years, x-rays have been used to treat a wide variety of maladies and due to their prevalence, we probably know more about the effects of radiation than any other agent. A century ago, physicians who employed x-rays to image and diagnose illnesses discovered important remedies using low doses: it was linked to treatment for everything from boils and carbuncles to asthma and arthritis. Low radiation doses eliminated cancer metastases and delayed the progression of cancer.<sup>2</sup> The mechanism of action is now understood that low-dose radiation stimulated the patient's own protection systems.<sup>3</sup> High doses inhibit them.

Yet many consider even low dose radiation to be harmful now. Some groups even insist cell phones can cause cancer, though they don't have ionizing radiation at all. What changed? One reason radiation therapy fell out of favor was the availability of antibiotics but a second, and more important, factor was efforts to stop

atomic bomb development. In 1946, Nobel laureate Herman Muller gave the acceptance lecture which set the stage for adopting the linear dose-response model<sup>6</sup> and in 1956 a radiation scare gave the National Academy of Sciences, armed with a number of publications sympathetic to the beliefs of Muller, all the reason they needed.

The scare linked all human radiation exposure to an increased risk of genetic mutations (and cancer) but radiation exposure has still never been demonstrated to cause hereditary effects in humans. No statistically significant low-dose data support the cancer scare, and there is much scientific evidence that contradicts it. For example, a new paper presents evidence that lifelong low dose rates increase lifespan.<sup>7</sup>

Given the very high (and increasing) costs of patient care, it is time to study these potential treatments and resume proven low-dose remedies.



The following are anecdotes but make my point about a rethink of the linear dose-response model. In April 2015, a colleague informed me that his 81-year-old wife, having advanced Alzheimer disease and a short life expectancy, entered hospice care. I suggested treating her with low doses of x-rays. The only option available was CT scans to image her brain. The first treatment on July 23 was 2 scans. Two days later, her caregiver reported: “It is amazing. I have never seen someone improve this much. She wanted to get up and walk. She was talking some, with more sense, and she was feeding herself again.”<sup>4</sup>

Recovery continued, following the scans on August 6 and 20 though a major setback occurred right after the October 1 scan. Overall, her resilience led to a return of her cognitive ability, and in late November she was discharged from hospice to a stimulating day care program.<sup>4</sup> In anticipation that the improvement might be temporary, booster scans were started on February 24, 2016. The interval between scans is now about 6 weeks.<sup>5</sup>

This colleague has Parkinson Disease, which is also neurodegenerative. After seeing his wife’s improvement, he asked for the same treatment. The first CT scan, on October 6, completely eliminated the tremor during his sleep, and he decreased his medication from 6 to 2 or 3 pills† per day. Following an in-depth neuropsychological examination on June 13, 2016, he started a course of CT scans, with a 4-week interval between each scan.

Further examinations will be carried out to monitor changes in his condition.<sup>5</sup> }

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# PATHWAYS TO LOWER DRUG PRICES

*Stephen Barrett, M.D.*

{ The United States is a great place to get generic drugs. Our prices are among the lowest in the developed world because Costco, Kmart, Safeway, Target, Walmart, and many other supermarkets sell hundreds of generic drugs for \$10 to \$20 for a 3-month supply. But for brand-name medicine, you need to go outside the U.S. for real savings—which an estimated five million Americans do each year.

Drug prices are far higher in the United States than anywhere else. Prescription Justice, a non-profit group dedicated to tackling the crisis of high drug prices, has reported that about 45 million Americans did not fill a prescription due to the cost last year.

The factors that contribute to the high prices include barriers to personal importation and the inability of the Medicare program to negotiate what it pays for drugs. A recent poll conducted for the group by Zogby Analytics found that 79 percent of Americans believe prescription drug prices are too high and half believe that drug companies engage in price gouging and put profits over patients.

### **PERSONAL IMPORTATION OF SAFE AND EFFECTIVE DRUGS SHOULD BE PERMITTED**

Many drug companies buy ingredients and make most of their drugs outside the U.S. Then they charge much higher prices in the U.S. than in other countries for the same medication. Although Americans can buy most types of products from abroad, our government has declared it illegal under most circumstances to buy medicines this way, claiming that is unsafe. It can be unsafe, because there are rogue online pharmacies whose products are counterfeit, but safe online pharmacies are not difficult to find.

**Unfortunately for consumers, LegitScript automatically classifies non-U.S. pharmacies as “rogue” or “unapproved” even if they are perfectly legitimate and safe to deal with. VISA will not permit its credit cards to be used at “non-legitimate” sites. Google and Bing will not accept ads from these pharmacies**

Drug companies also oppose personal drug importation—not because of the quality of the products, but to stifle competition. They also fund programs to propagate the myth that buying drugs outside the U.S. is always unsafe; and they lobby the government to keep Americans captive to their U.S. prices.

The FDA and Consumers Union advise online shoppers to buy only from pharmacies accredited by the National Association of Boards of Pharmacy’s Verified Internet Pharmacy Practice Sites (VIPPS) program. The VIPPS program is valuable, but because non-U.S. vendors are automatically excluded, it is useless for people who want to buy from online foreign sources. Consumers Union also advises shoppers to utilize LegitScript, which says that it monitors more than 80,000 Internet pharmacies and classifies them as rogue, unapproved, unverified, or legitimate. LegitScript, which receives substantial funding from the FDA, lists Google, and Bing among its “partners,” and is a founding member

of the Alliance for Safe Online Pharmacies, a 501(c)(4) nonprofit whose members include seven drug companies, the American Pharmacists Association, and the National Association of Chain Drugstores.

Unfortunately for consumers, LegitScript automatically classifies non-U.S. pharmacies as “rogue” or “unapproved” even if they are perfectly legitimate and safe to deal with. VISA, which bases its policy on LegitScript verifications, will not permit its credit cards to be used at “non-legitimate” sites. Google and Bing will not accept ads from these pharmacies.

Despite these obstacles, prudent shoppers can obtain authentic medicines from licensed pharmacies in Canada, Australia, the United Kingdom, Israel, and several other countries. A free Web site, PharmacyChecker.com, maintains a database of trustworthy pharmacies and the prices they charge, which are usually less than half of their U.S. cost. Its verification program is run by a licensed pharmacist who previously directed the Massachusetts Board of Pharmacy’s pharmacy quality assurance program. PharmacyChecker also publishes feedback from thousands of people like me who use their site.

### **MEDICARE SHOULD BE ALLOWED TO NEGOTIATE WHAT IT PAYS FOR DRUGS**

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 established the Medicare Part D program that enabled many Medicare beneficiaries to purchase insurance that would relieve their drug costs. But the law also contained a little-publicized provision that prohibited the Medicare program from negotiating prices with drug companies. As a result, consumers and taxpayers ultimately pay billions of dollars per year more than necessary for prescription drugs.

### **CONGRESSIONAL ACTION NEEDED**

The situations described above could easily be fixed by authorizing the FDA to evaluate legitimate non-U.S. pharmacies and permitting Medicare to negotiate prices. Bills to accomplish this were introduced during the last Congressional session, but none made it out of committee even though polls show that the public strongly favors them. Legislation of this type will continue to be introduced and deserves the support of everyone concerned about the high cost of drugs. }

*Stephen Barrett, M.D., is a retired psychiatrist and member of the American Council on Science and Health Board of Scientific Advisors. Dr. Barrett publishes quackwatch.org, pharmwatch.org, 23 other consumer-protection Web sites and Consumer Health Digest, a free weekly e-mail newsletter.*



# The Conspiracy Bear

*This cuddly bear says 15 different phrases. Including:*

The moon landing  
was faked!

Eat organic or your kid  
won't get into Harvard!

BPA will change  
your son into your  
daughter!

GMOs cause autism!

Science is a  
conservative  
conspiracy!



# On GMO The “Right

{ Do we have a “right to know” what is in the food we are buying?

Of course we do, which is why a simplistic question like that will get a “yes” from most Americans. Yet we also have a right to free and unencumbered speech, but does that include the right to falsely cry “Fire!” in a crowded movie house?

Then the issue becomes more complex. Yet ‘yelling fire and calling it free speech’ is what a lot of groups promoting the organic food process are doing about advocating warning labels for their competition.

Scientifically, the issue is simple. All of the food we eat today has been genetically engineered since the beginnings of agriculture some 10,000 years ago. Nature causes genetic modification also, in the form of radiation and random mutation. Throughout all of history, we have selected and genetically optimized food to be more calorically dense, or grow better in certain areas. Eventually, we learned to hasten the process by grafting limbs of one plant onto another, cross-pollinating, and other methods. As an example, the agricultural scientist Luther Burbank combined Peaches and Plums and developed the popular fruit Nectarines.

This makes complete sense to scientists. Do you want to drive on a bridge that has been scientifically engineered or one that has been randomly mutated?

The scientist and Nobel laureate Dr. Norman Borlaug was a founder of the



# Labeling t to Know”

*Marvin J. “Chic” Schissel, D.D.S.*

American Council on Science and Health and father of the Green Revolution. He developed varieties of rice and wheat whose increased yields led to saving an estimated billion lives from starvation. As a child, I remember reading about famines in China and India when hundreds of thousands, perhaps millions, starved to death. Because of Borlaug's legacy, we no longer hear of such famines and his successors continue his mission. He was excited when we learned to speed up the process of genetic modification by microscopically transferring DNA sections from one plant to another. Next we will be able to improve on that also, using CRISPR/Cas-9 and other techniques that can replace a bad gene rather than adding any. It will begin with food but then we will be able to eliminate, for example, Huntington's Disease by replacing a mutated HTT gene with a non-diseased copy.

**Most foods that we eat have genetically engineered components, even if they are not GMOs. Mutagenesis, for example, was the predecessor to GMOs, and is in numerous foods considered "organic." If we were to label genetically modified foods, most of what is on the shelves would have to be labeled**

But if GMOs are any indication, we have an uphill battle. Rather than acknowledge that food is tested before going to market, that it has to prove what the government calls "substantial equivalence" to any other process, environmental groups insist it is " Frankenfood." Though GMOs appeared on shelves beginning in 1994, there is not a single instance of any such foods being dangerous. Not even a stomachache. Meanwhile, people are routinely poisoned or even killed by bacteria left over in the organic food process. Instead of being risky, genetically engineered varieties require less pesticides, are easier to grow, can incorporate important nutrients previously missing ("golden rice" with betacarotene, a

precursor to Vitamin A, is an example) and reduce costs by increasing harvests.

These are all great equalizers for farmers in countries where nature has not been as beneficial as in Europe and America. It will allow developing nations to feed themselves. Yet the developing world is where activists with large warchests are doing the most harm. They are telling people that science is dangerous.

Some activism is simply misplaced and they don't realize the organizations they support make big profits exploiting public ignorance. Greenpeace would be a Fortune 5000 company if they were a corporation rather than a non-profit. Organic shoppers don't realize they are part of a \$100 billion industry, as big as Big Ag can get, and marketing groups try to claim they don't use pesticides or fertilizer, when they instead just use chemicals that can be derived from nature or got an exemption from lobbyists at the National Organic Standards Board.

● Most foods that we eat have genetically engineered components, even if they are not GMOs. Mutagenesis, for example, was the predecessor to GMOs, and is in numerous foods considered "organic." If we were to label genetically modified foods, most of what is on the shelves would have to be labeled. That would mean farmers would have to retool at great expense, or go out of business; stores and distributors would have to revamp their operations, and the public would have to spend much more for food. It would make organic food more competitive while harming the poor.

Yes, of course we have a right to know what is in the food we are eating but along with rights come responsibilities. Activists should have to accept the consequences of their actions, including dreadful economic consequences from scaremongering farmers. Then if they choose not to buy GMO foods they at least understand what they are doing.

But activists don't want to accept responsibility, they want to be able to yell "fire!" in that movie theater without reprimand. How will the public know the difference if we don't make fearmongers accountable? }

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*Marvin J. "Chic" Schissel, D.D.S., is part of the American Council on Science and Health Board of Scientific Advisers and author of *Dentistry and Its Victims*.*



# American Council on Science and Health timeline

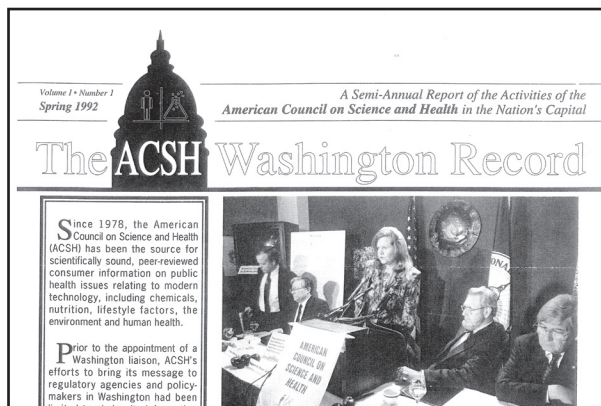
**1984**

**Dr. Whelan interviewed Dr. Alan Blum, editor of the New York State Journal of Medicine**, on the dangers of smoking and other addictive substances. But it wasn't Dr. Beth Whelan, it was Dr. *Christine* Whelan, her daughter, and she was in elementary school so did not have her Ph.D. yet. This was for the "No Kidding" radio show, a youth version of our "Healthline" program.



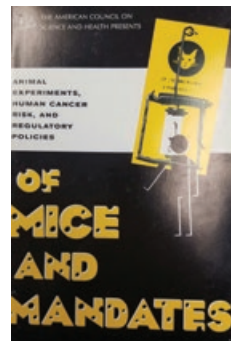
**1992**

**At the National Press Club**, journalist *Kenneth Smith*, toxicologist *Dr. Alan Moghissi*, ACSH co-founder *Dr. Elizabeth Whelan*, former Surgeon General *C. Everett Koop*, and *Dr. Ralph Reed* of the American Medical Association discussed the misuse of the "Delaney Clause", which requires that any additive which can cause cancer in rats must be banned. Even by 1992, the concept of "zero" had vanished when parts per quadrillion can be detected, and it had led to silly health scares like over Saccharine and the pesticide Alar.



**1997**

**We published "Of Mice And Mandates"**, definitively showing that mice are not actually little people, and that if animal models were all that mattered, we would have cured every disease 10,000 times by now - and on the other side, that every chemical in the most natural organic food would have made us extinct long ago. It's also arguably my favorite title in our 39 year history, and that is really saying something.



**2002**

**ACSH Senior Nutrition Fellow Dr. Ruth Kava was in Associated Press, UPI and other outlets** assuring the public that butter was not bad for you, hot dogs don't cause diabetes, and you can eat eggs for breakfast without fear. Today, all those food myths, promoted by litigation groups such as Center for Science in the Public Interest, have been debunked. We were first. You're welcome, America. In 15 years we'll look back to today and be able to show that we were defending reasonable amounts of salt and sugar too, and that the CDC was manufacturing a "pre-diabetes" epidemic.

**2017**

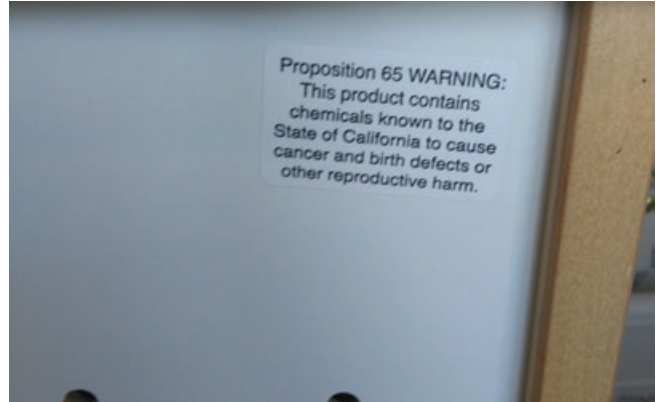
Please welcome **Tanya Dorhout**, VP in the compliance department of **Goldman Sachs**, as the newest member of our Board of Trustees.



*"We all live under the same sky, but we don't all have the same horizon" - Konrad Adenauer*



Dr. Julianna LeMieux teaching a citizen science class to liberal arts students at Bard College.



One of our readers sent this image from a California oncology ward. Yes, Prop 65 warnings are so bizarre and commonplace that harmless products have a cancer warning on them in the one place where people already have cancer.



Dr. Jamie Wells with long-time ACSH supporter and former trustee Dr. Paul Offit, the nation's foremost vaccine advocate.



Hank Campbell's sons, Colin and Aidan, trying to read his white paper on IARC's diesel emissions claims.



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