



Dr. Oz versus

Dr. Aus and Dr. Irish







# What are the advantages of genetically modified organisms (GMOs)?

Added to [Articles](#) on Mon 12/06/2010

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**Dr. Mehmet Oz** answered:

Although genetically modified organisms (GMOs) are controversial, they have a few advantages. The following points will help you understand GMOs:

- Heavily tested: There have been a great number of studies tracking the effects of GMOs on animals. Overwhelmingly, these studies indicate that GMOs are safe to consume.
- Impact on farming: GMOs allow plants to be modified to grow in environments that would be normally inhospitable.
- Cheaper food: Easier farming means more food which, in turn, means less expensive food. This is not only beneficial for the average consumer, but it can have global implications. Less expensive food makes it easier to feed hungry populations around the world.
- Increased nutritional value: GMOs can be modified to have greater nutritional value than the organism would have naturally. For example, scientists, hoping to eliminate the need for post-harvest processing, have genetically modified rice to contain significantly higher amounts of vitamin A. This "golden rice" is not yet legal in most countries, but experts expect it to be within the next few years.

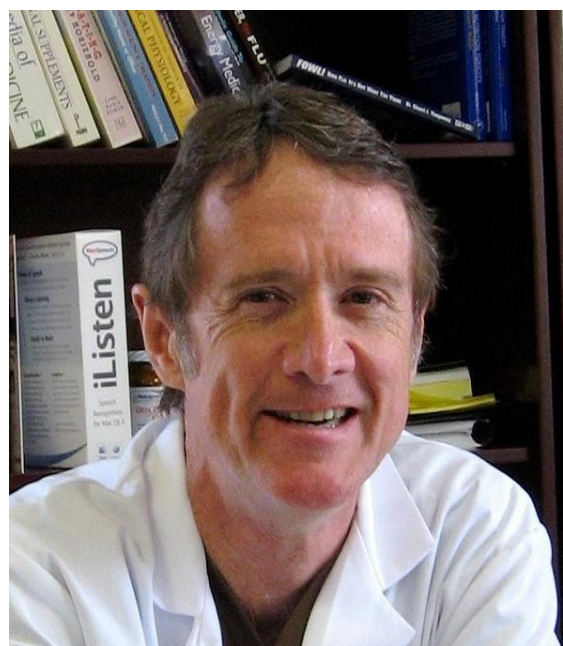




## Jeffrey Smith

Executive director,  
Institute for Responsible  
Technology, Fairfield, IA

Written two self-published books, *Seeds of Deception: Exposing Industry and Government Lies About the Safety of the Genetically Engineered Foods You're Eating*, and *Genetic Roulette: The Documented Health Risks of Genetically Engineered Foods*, which documents 65 health risks of the GM foods Americans eat every day.



## Dr. Robin Burkhoff, MD

Burkhoff Center for Advanced  
Medicine, CA

"Dr Bernhoft retrained in environmental medicine, 2002-6. By applying what he learned, he regained his health, and shed his sensitivity to perfumes and mold. Dr Bernhoft is now able to run 20 to 30 miles per week, and is three belts short of black belt in Shito Ryu karate. He has his life back, and is eager to use what he has learned to help others regain theirs.



## Gary Hirschburg

CEO, Stonyfield Organic  
Yogurt, Londonderry, NH

At a high school graduation he had the following advice "Be determined and take risks", he added, "and challenge the conventional wisdom. "Ask why not ..."  
**"Authorities and experts are always overrated", he said.**

## Dr. Aus

**Alison  
Van  
Eenennaam,  
UC Davis**

- **Agricultural scientist**
- **Animals**
- ♀ **Academic**
- **Mother**
- **Nickname “Sparky”**
- **Hot Aussie temper**



## Dr. Irish

**Martina  
Newell-  
McGloughlin,  
UC Davis**

- **Agricultural scientist**
- **Plants**
- ♀ **Academic**
- **Mother**
- **Nickname “Sparky”**
- **Hot Irish temper**



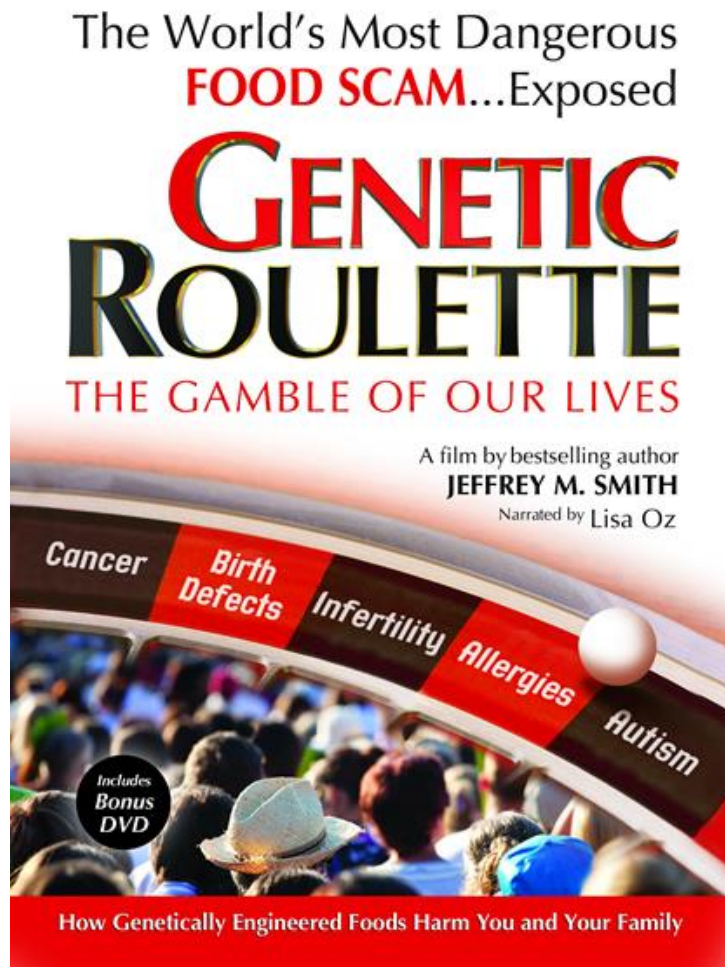


Jeffrey Smith demonstrating “yogic flying” during a Natural Law Party press conference in Springfield, Ill., on Oct. 22, 1996, where he was a member of a party delegation from Iowa. Associated Press photo.

Jeffrey Smith isn’t bound by the usual conventions. He once advocated getting thousands of people to collectively practice transcendental meditation – the yogic flying technique, to be precise, as he shows at left ([en.wikipedia.org/wiki/TM-Sidhi\\_program](http://en.wikipedia.org/wiki/TM-Sidhi_program)) – to reduce crime and increase “purity and harmony” in the “collective consciousness.”

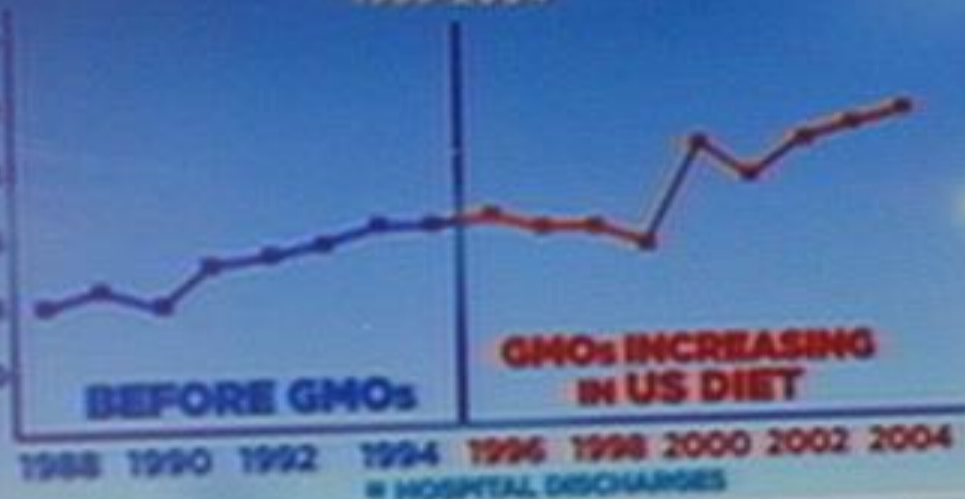
Smith is now better known for his theories about biotech agriculture, or GM foods. His self-published books *Seeds of Deception* and *Genetic Roulette* have built for him an online profile that has made Smith one of the most widely quoted opponents of biotech ag —despite his evident lack of scientific credentials or other formal training on the subject. (He *has* had formal training in swing dancing, however, which he used to teach professionally.)

<http://academicsreview.org/reviewed-individuals/jeffrey-smith>



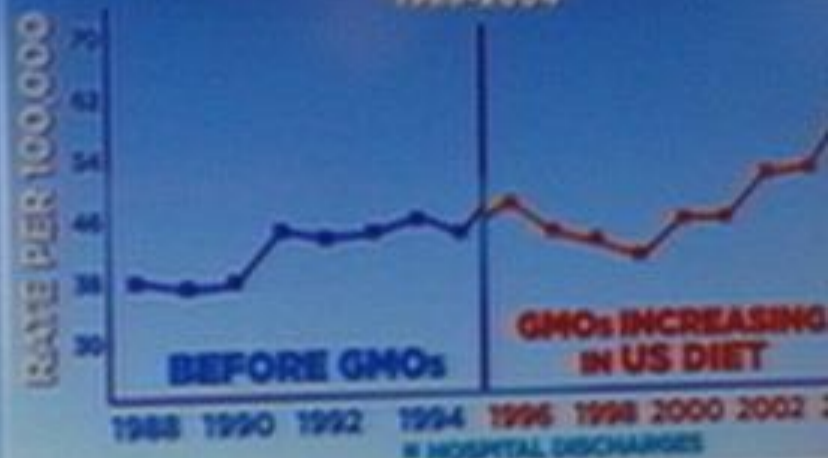
## INFLAMMATORY BOWEL DISEASE

1988-2004



## ULCERATIVE COLITIS

1988-2004



## GASTROESOPHAGEAL REFLUX

1988-2004



# hospital discharges from where?

Did humanity cease in 2004?



## Recent trends in the epidemiology of inflammatory bowel diseases: up or down?

Lakatos PL.

1st Department of Medicine, Semmelweis University, Koranyi str. 2/A, H-1083, Hungary. kislakpet@bel1.sote.hu

### Abstract

Inflammatory bowel disease (IBD) is traditionally considered to be common in the Western world, and its incidence has sharply increased since the early 1950s. In contrast, until the last decade, low prevalence and incidence rates have been reported from other parts of the world including Eastern Europe, South America, Asia and the Pacific region. Recent trends indicate a change in the epidemiology of IBD with previously low incidence areas now reporting a progressive rise in the incidence, while in West European and North American countries the figures have stabilized or slightly increased, with decreasing incidence rates for ulcerative colitis. Some of these changes may represent differences in diagnostic practices and increasing awareness of the disease. The quality of studies is also variable. Additional epidemiologic studies are needed to better define the burden of illness, explore the mechanism of association with environmental factors, and identify new risk factors.

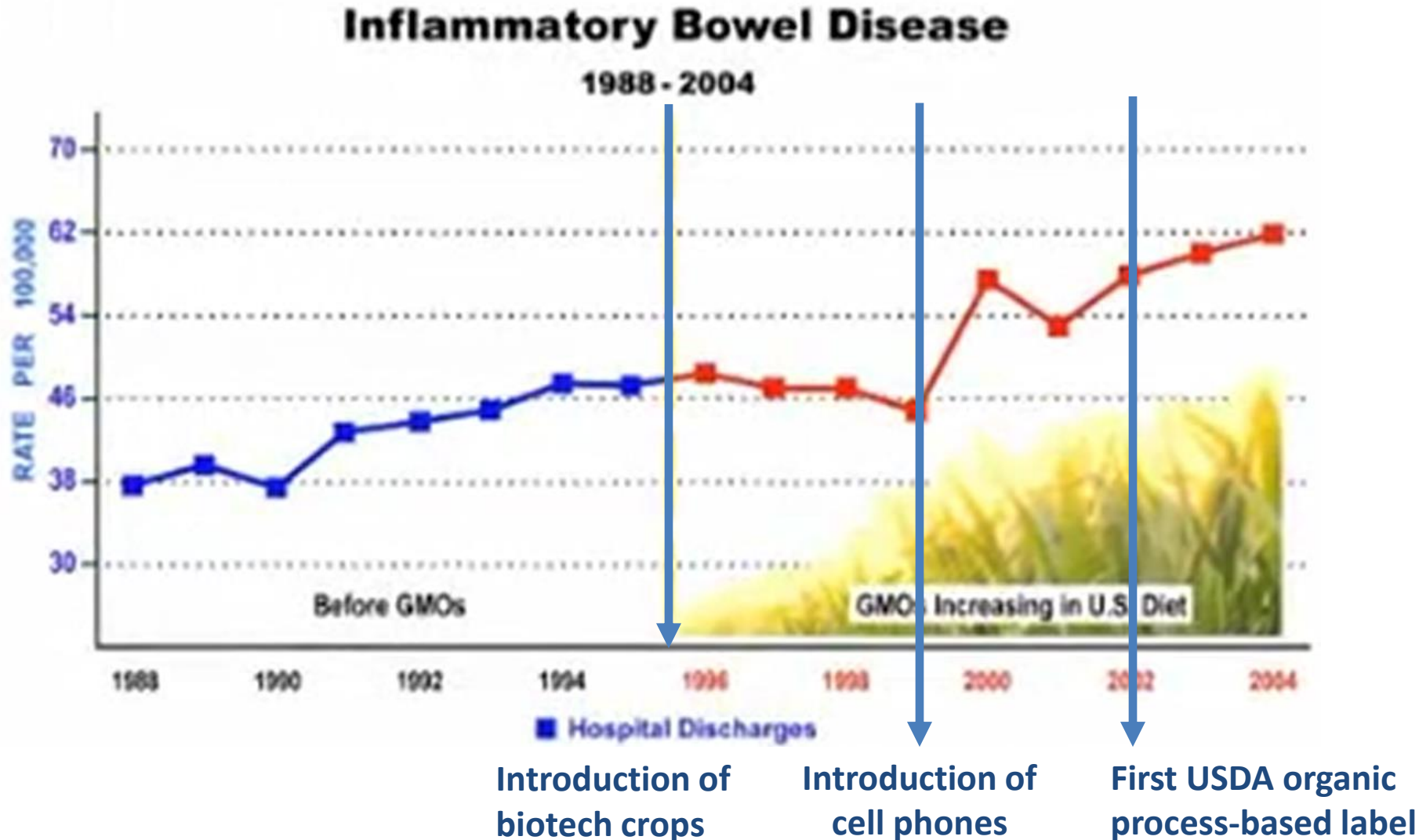
PMID: 17036379 [PubMed - indexed for MEDLINE] [Free full text](#)

“Inflammatory bowel disease (IBD) is a multifactorial disease with probable genetic heterogeneity. The geographical incidence of IBD varies considerably. The incidence **rates began to increase in the late 1930s** in the United States. The highest incidence rates are traditionally reported in **Northern and Western Europe** as well as North America, whereas lower rates are recorded in Africa, South America and Asia, including China. It is more common in developed, more industrialized countries, pointing at urbanization as a potential risk factor. In the late 1990s, the incidence of ulcerative colitis leveled off to a plateau **or even decreased**, while the incidence of Crohn’s disease was still increasing in most European countries. Recent data, however, suggest a further increase in the incidence of IBD, at least in some **North European countries**. Both ulcerative colitis and Crohn’s disease appear to be more frequent in the northern parts of the US than in the south.”



Spurious

**Example of a “bogus” Post-hoc fallacy:**  
**If B happens after A, then A must have resulted in B**





ELSEVIER

Contents lists available at SciVerse ScienceDirect

## Food and Chemical Toxicology

journal homepage: [www.elsevier.com/locate/foodchemtox](http://www.elsevier.com/locate/foodchemtox)

# Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize

Gilles-Eric Seralini<sup>a,\*</sup>, Emilie Clair<sup>a</sup>, Robin Mesnage<sup>a</sup>, Steeve Gress<sup>a</sup>, Nicolas Defarge<sup>a</sup>,  
Manuela Malatesta<sup>b</sup>, Didier Hennequin<sup>c</sup>, Joël Spiroux de Vendômois<sup>a</sup>

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## ARTICLE INFO

### Article history:

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### Keywords:

GMO

Roundup

NK603

Rat

Glyphosate-based herbicides

Endocrine disrupting effects

## ABSTRACT

The health effects of a Roundup-tolerant genetically modified maize (from 11% in the diet), cultivated with or without Roundup, and Roundup alone (from 0.1 ppb in water), were studied 2 years in rats. In females, all treated groups died 2–3 times more than controls, and more rapidly. This difference was visible in 3 male groups fed GMOs. All results were hormone and sex dependent, and the pathological profiles were comparable. Females developed large mammary tumors almost always more often than and before controls, the pituitary was the second most disabled organ; the sex hormonal balance was modified by GMO and Roundup treatments. In treated males, liver congestions and necrosis were 2.5–5.5 times higher. This pathology was confirmed by optic and transmission electron microscopy. Marked and severe kidney nephropathies were also generally 1.3–2.3 greater. Males presented 4 times more large palpable tumors than controls which occurred up to 600 days earlier. Biochemistry data confirmed very significant kidney chronic deficiencies; for all treatments and both sexes, 76% of the altered parameters were kidney related. These results can be explained by the non linear endocrine-disrupting effects of Roundup, but also by the overexpression of the transgene in the GMO and its metabolic consequences.

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**“This report describes the first life-long rodent (rat) feeding study investigating possible toxic effects rising from an Roundup-tolerant GM maize”**





Contents lists available at SciVerse ScienceDirect

## Food and Chemical Toxicology

journal homepage: [www.elsevier.com/locate/foodchemtox](http://www.elsevier.com/locate/foodchemtox)

Review

<http://www.sciencedirect.com/science/article/pii/S0278691511006399>

## Assessment of the health impact of GM plant diets in long-term and multigenerational animal feeding trials: A literature review

Chelsea Snell<sup>a</sup>, Aude Bernheim<sup>b</sup>, Jean-Baptiste Bergé<sup>c</sup>, Marcel Kuntz<sup>d</sup>, Gérard Pascal<sup>e</sup>, Alain Paris<sup>f</sup>, Agnès E. Ricroch<sup>b,\*</sup><sup>a</sup> University of Nottingham, School of Biosciences, Sutton Bonington Campus, Loughborough, Leicestershire LE12 5RD, United Kingdom<sup>b</sup> AgroParisTech, 16, rue Claude Bernard, 75231, Paris, Cedex 05, France<sup>c</sup> Anthala, 239, chemin de Saint Claude, 06600 Antibes, France<sup>d</sup> Laboratory Physiologie Cellulaire Végétale, CNRS – Université Joseph Fourier – INRA, Institut de Recherches en Technologies et Sciences pour le Vivant, 38054 Grenoble, Cedex 9, France<sup>e</sup> Le Breuil, 63220 Saint Alyre d'Arlanc, France<sup>f</sup> INRA – Met@risk, AgroParisTech, 16, rue Claude Bernard, 75231 Paris, Cedex 05, France

## ARTICLE INFO

## Article history:

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## Keywords:

GM plant

Animal feeding trial

Safety and nutritional assessment

Long-term studies

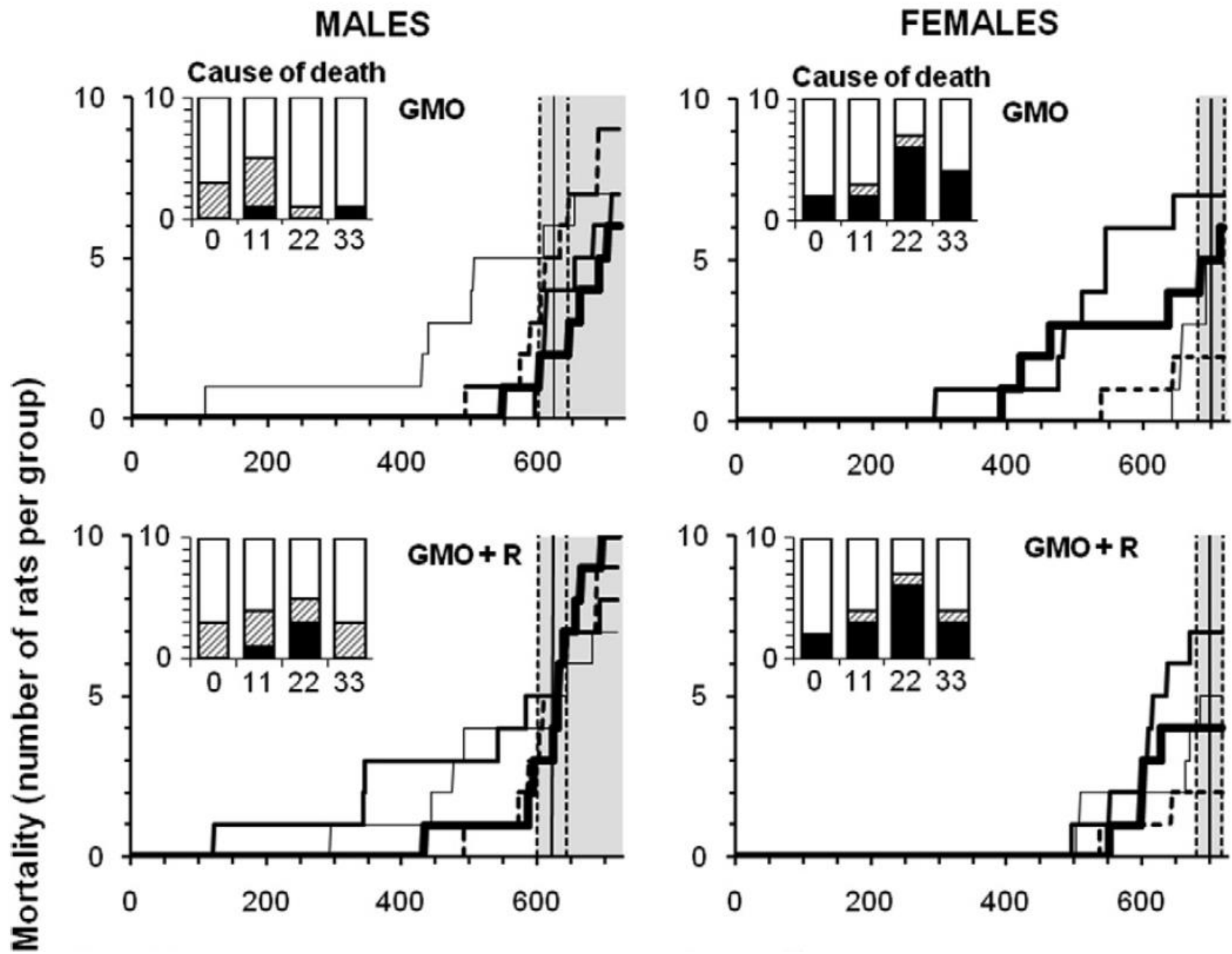
Multigenerational studies

Systematic review

## ABSTRACT

The aim of this systematic review was to collect data concerning the effects of diets containing GM maize, potato, soybean, rice, or triticale on animal health. We examined 12 long-term studies (of more than 90 days, up to 2 years in duration) and 12 multigenerational studies (from 2 to 5 generations). We referenced the 90-day studies on GM feed for which long-term or multigenerational study data were available. Many parameters have been examined using biochemical analyses, histological examination of specific organs, hematology and the detection of transgenic DNA. The statistical findings and methods have been considered from each study. Results from all the 24 studies do not suggest any health hazards and, in general, there were no statistically significant differences within parameters observed. However, some small differences were observed, though these fell within the normal variation range of the considered parameter and thus had no biological or toxicological significance. If required, a 90-day feeding study performed in rodents, according to the OECD Test Guideline, is generally considered sufficient in order to evaluate the health effects of GM feed. The studies reviewed present evidence to show that GM plants are nutritionally equivalent to their non-GM counterparts and can be safely used in food and feed.

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**Send to:**

Shokuhin Eiseigaku Zasshi. 2008 Aug;49(4):272-82.

# **[A 104-week feeding study of genetically modified soybeans in F344 rats].**

**Table 1.** Final body weights, food intake, soybean intake and survival rate of F344 rats fed diet containing GM and Non-GM soybeans for 104 weeks

Group	Final body weight	Food intake	Soybean intake	Survival rate
	g	g/rat/day	g/kgBW/day	%
Male				
GM	267 ± 30 <sup>a)</sup>	12.6 ± 0.7	11.4 ± 1.7	76
Non-GM	353 ± 35	12.6 ± 0.6	11.7 ± 1.9	73
CE-2	342 ± 37	13.2 ± 0.8	—	80
Female				
GM	237 ± 21	9.1 ± 1.4 <sup>#</sup>	14.6 ± 1.2	80
Non-GM	232 ± 22	8.7 ± 1.0 <sup>#</sup>	14.3 ± 1.4	70
CE-2	238 ± 23	10.5 ± 0.9	—	74

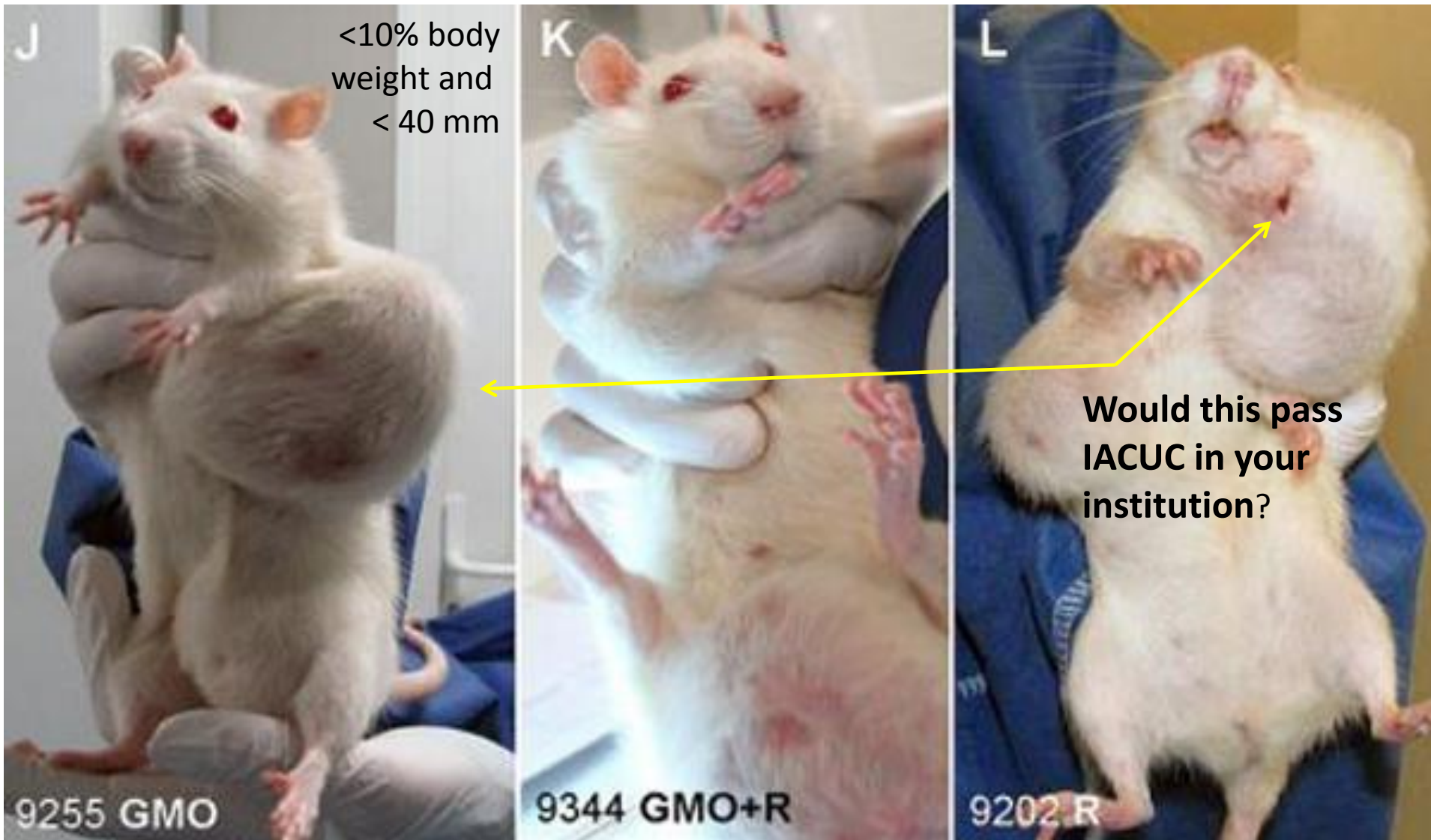
<sup>a)</sup>Values are mean ± SD.

N=50 in GM and non-GM groups

<sup>#</sup>: Significantly different from CE-2 group,  $p < 0.05$  N=35 in CE-2 (commercial chow) diet

**Study by a Japanese group financed using public funds from the Department of Environmental Health and Toxicology, Tokyo Metropolitan Institute of Public Health**

# OMG GMO WTF (i.e. Where are the facts?)



**This is going on national news!!!!!!!!!!!!!!!!!!!!!!**



# Incidences of Selected Lesions in Control Female Harlan Sprague–Dawley Rats from Two-Year Studies Performed by the National Toxicology Program

“The most commonly observed neoplasms in these female control Harlan Sprague–Dawley rats were **mammary gland fibroadenoma (71%)**, tumors of the pars distalis of the pituitary (41%) and thyroid gland C-cell tumors (30%).”

doi: 10.1080/01926230590961836

*Toxicol Pathol* June 2005 vol. 33 no. 4 477-483

Many papers over 70 years (e.g. Chandra et al., *Arch. Toxicol* **66**:496-502 (1992); Schardein et al., *Pathol. Vet.* **5**:238-252 (1968), have reported that 50-90% of Sprague Dawley rats cumulatively develop spontaneous tumours within two years. Harlan Europe who market these inbred SD rodents state, “pituitary gland tumours were found in 20% of the males and 39% of the females. This relatively low incidence had little effect on the survival of the females (50%) as the high incidence (76%) of mammary gland tumours (predominantly fibroadenomas) resulted in unscheduled sacrifices of many females. Other common neoplasms were benign medullary tumours (27% in males, 11% in females) and endometrial stromal polyps (22%) in females”. In addition to Harlan’s records, the literature on SD rodents reports up to 25% premature deaths, spontaneous cancers in most of the major organs including damage to kidneys, liver and the intestine, numerous rodents with multiple tumours, many so large the animals had to be euthanized and similar to those in the photographs in Butler’s article and Seralini et al’s paper. Tumour appearance was log-linear with age (and thus random).

---

These two academics seem to be oblivious to the magnitude of what is going on here!!

How does this iphone camera work?

He is a doctor trained in science – he would not lie on national TV...Hippocratic oath and all!

Where is the GMO content label on this cookie – GMO OMG





# How do I avoid genetically modified organisms or GMOs in my food?

Dr. Mehmet Oz answered:

COLLAPSE

The issue of genetically modified organisms (GMOs) is a complicated one. It requires you, the consumer, to make a decision about how you will feed your family. If you feel confident in the safety of GMOs, you can go to the grocery store bolstered by the knowledge that you are purchasing some of the most heavily tested food in history. If, however, you are skeptical about these studies and the safety of GMOs and would prefer to purchase food without them, follow these simple steps:

- **Go Organic:** The simplest way to avoid GMOs is to buy organic. The USDA certifies that organic foods are not bio-engineered in any way.
- **Foods to Watch Out For:** Today, at least 85% of soybeans, corn, sugar beets and canola are grown from GMO seeds. Because of this, it is particularly important to avoid packaged foods with corn and soy if you are trying to cut GMOs out of your family's diet.
- **Look for the Label:** A recent study found that over 90% of Americans are in favor of labeling foods that contain GMOs. While the government does not mandate labeling, many companies have partnered with the Non-GMO Project to undergo extensive third-party verification over their non-GMO claims. The Non-GMO Project is the only North American organization offering independent testing and GMO controls. A Non-GMO seal ensures that the best practices have been followed for GMO avoidance.

Helpful? 0 person(s) found this helpful

More Related Answers from [Dr. Mehmet Oz](#)

Dr. Sarah LoBisco answered:

EXPAND

The only way you can guarantee that GMOs aren't in your food is to buy Organic or to buy "verified" GMO Free products. Some tips to keep in mind, according to Natural News are: #1) "Non-GMO" food products can contain trace... [More](#)





## How can I reverse metabolic syndrome?



HOUSE CALLS

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**Dr. Mehmet Oz** answered:

Weight loss can reverse metabolic syndrome; controlling portion size and eating a low-glycemic diet can reduce weight. Your ongoing diet should be low in saturated fats and total calories; largely vegetarian; and rich in good fats like olive oil, proteins from foods like poultry, fish, wild game, unroasted nuts; and vegetable sources like any non-GMO (foods that are not genetically modified) soy foods.

Hide the salt shaker. Make sure your sodium intake is no higher than 2,300 mg (about one tablespoon of salt, total) or less a day -- or even lower to 1,500 mg if you already have high blood pressure or if you're in a high-risk group like middle-aged or older adults, or African Americans. Lowering your daily sodium by even a small amount could drop your pressure by 2 to 8 mmHg.

- Cut down on caffeine and alcoholic beverages.
- Eat smaller meals more frequently throughout the day.
- Don't skip breakfast. You'll end up loading up on calories that won't get burned off by the end of the day.



**It's a foreboding I have – maybe ill-placed – of an America in my children's generation or my grandchildren's generation .....when clutching our horoscopes, our critical faculties in steep decline, unable to distinguish between what's true and what feels good, we slide almost without noticing, into superstition and darkness.**

**Carl Sagan**  
(9 Nov 1934 - 20 Dec 1996)

# **Communicating Science**

**Alison Van Eenennaam**

**Animal Genomics and Biotechnology**

**Cooperative Extension Specialist**

**UC Davis**

- What does not work
- What might work



FEWER MOLES

MORE MOLES



SCIENTISTS  
ARE BAD;  
ACTIVISTS  
ARE GOOD



EATING  
MEAT  
CAUSES  
GLOBAL  
WARMING



MEAT IS BAD  
FOR YOU –  
MEATLESS  
MONDAY



FARMERS  
MISTREAT  
ANIMALS



ANTIBIOTIC  
USE IN  
ANIMAL AG



PINK  
SLIME



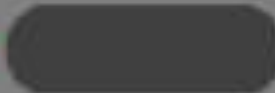
CONVENTIONAL  
AGRICULTURE  
DESTROYS THE  
ENVIRONMENT



GMOs  
OMG



ORGANIC  
IS BEST



# Dorothy, we are not in Kansas anymore



- Special interest groups have become disciplined, strategic and have little interest in scientific accuracy
- Need to communicate in language the public understands
- Social media has changed everything – need to respond in real time

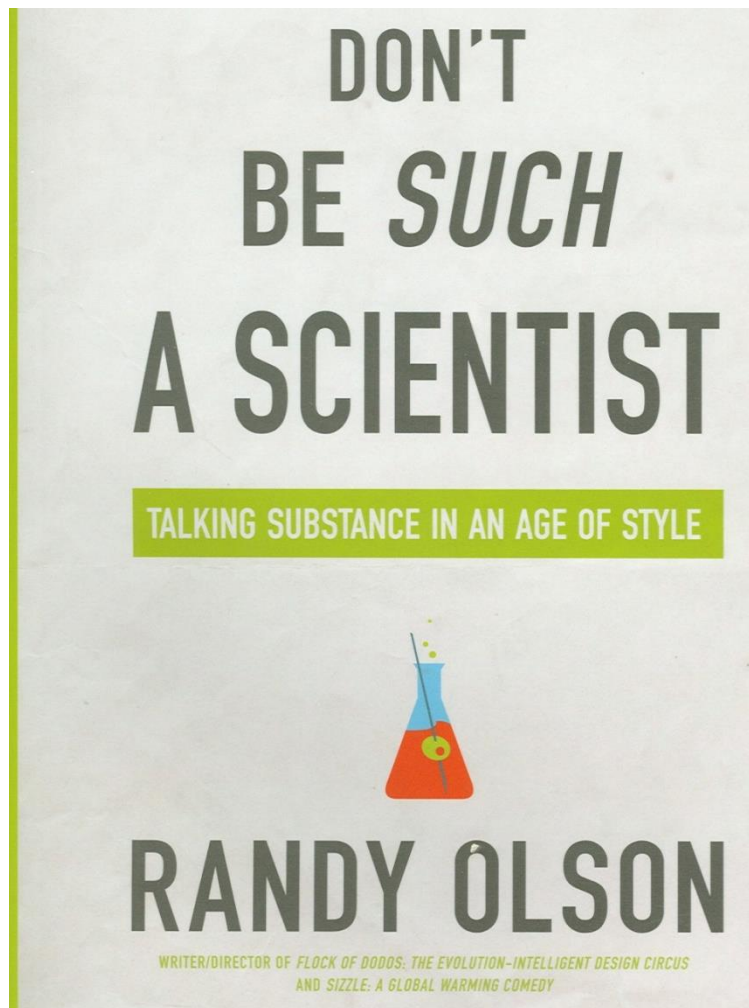
Special interest groups have become disciplined, strategic, and have little interest in scientific accuracy







# Need to communicate in language the public understands



# How Academic versus General audiences respond to various aspects of communication

Communication aspect	Academic	General
Main information channel	Audio and visual	Visual
Structure	Information is fine	Need a story
Mode of response	Cerebral	Visceral
Need humor?	Not necessarily	Pretty much
Like sincerity?	Suspicious of it	Always
Sex appeal?	Potential disaster	The ultimate
Prearoused?	Yes	No
Effective elements	Information	Humour, sincerity, sex
Effective organs	Head	Heart, gut, gonads
Preferred voice	Robotic	Human

# Social media has changed everything

## – need to respond in real time

**Sent:** Wednesday, September 19, 2012 9:42 AM

**To:** Alison L. Van Eenennaam

**Subject:** FW: Massive Tumors in Rats Fed GMOs - Press Call at 2:30 with Leading Experts

**I'm food and agriculture reporter with .....in Washington, DC. I came across your name looking for a second opinion on the study (and upcoming press conference) referenced in the press release below. Do you have some time this afternoon for a phone call? Please let me know the best time to reach you and the best number to call. If you're not available, is there someone else you'd recommend?**

### Massive Tumors in Rats Fed GMOs in First Long-Term Study

*Leading Experts to Hold Press Call Today at 2:30pm EDT*

#### Statement from Yes on Proposition 37, California Right to Know GMO Labeling Campaign

Oakland, CA - Genetically engineered corn was linked mammary tumors, kidney and liver damage and other serious illnesses in the first ever peer-reviewed, long-term animal study of these foods. The findings were published today in the journal Food and Chemical Toxicology.

Read the study here: <http://research.sustainablefoodtrust.org/wp-content/uploads/2012/09/Final-Paper.pdf>

Reuters story about the study: <http://www.reuters.com/article/2012/09/19/gmcrops-safety-idUSL5E8KJAGN20120919>

While numerous 90-day studies have already linked GMO foods to allergies and other health problems, today's publication marks the first-ever long term animal study on the health effects of genetically engineered foods, and comes as California voters consider the Proposition 37 Right to Know initiative to label genetically engineered foods.

In response to this study, Yes on Proposition 37 California Right to Know Campaign Manager Gary Ruskin released the following statement:

"The results of this study are worrying. They underscore the importance of giving California families the right to know whether our food is genetically engineered, and to decide for ourselves whether we want to gamble with our health by eating GMO foods that have not been adequately studied and have not been proven safe. By requiring simple labels on genetically engineered foods, Proposition 37 gives Californians the ability to choose whether to expose ourselves and our families to any potential health risks. The right to know is fundamental, and that's why 50 countries around the world have already enacted labeling requirements for genetically engineered food."

The study's authors, together with the non-profit organization Sustainable Food Trust, will be hosting a press conference call today to discuss the study at 11:30 a.m. PDT

#### WHAT:

Telephone press conference press briefing on first animal feeding trial studying the lifetime effects of exposure to Roundup tolerant GM maize, and Roundup, the world's best-selling weedkiller.



# **What might work?**

**Calling on poor science or political science in a way that gets publicity**

Replace “spurious” or “poor experimental design”  
with .....

bogus, big talk, bunkum, cock-and-bull story,  
disingenuous, exaggeration, fairy tale, fancy talk,  
farfetched story, fib, fiction, fine talk, fish story,  
flam, flimflam, half-truth, highfalutin, highfaluting,  
hot air, lie, mendacity, pious fiction, prevarication,  
snide, sinister, trumped-up story

**BE PASSIONATE ABOUT SCIENCE**

*“There is little benefit to society if attempts to increase public participation in the regulatory process are used as an opportunity to vilify technology.”*

## Transgenic salmon: a final leap to the grocery shelf?

Nature Biotechnology (2011) **29**: 706–710.

Alison L Van Eenennaam & William M Muir

Despite being caught up in regulatory proceedings for 15 years or more, AquAdvantage salmon, the first animal genetically engineered (GE) for food purposes, continues to raise concerns. Are any of these concerns scientifically justified?

© 2011 Nature America, Inc. All rights reserved.

The tortuous passage of AquAdvantage salmon through the US regulatory system provides a stark reminder of the adage that sometimes it is good not to be first. A fast-growing transgenic fish containing a gene encoding Chinook salmon growth hormone under the control of an antifreeze protein promoter and terminator from ocean pout, AquAdvantage salmon has been subjected to one of the most prolonged, if not exhaustive, regulatory assessments in history. This process culminated last September with a meeting of the Veterinary Medicine Advisory Committee (VMAC) as well as a public hearing, together with the release of a comprehensive health and safety briefing and an environmental assessment package on the transgenic animal developed by AquaBounty Technologies of Waltham, Massachusetts. Despite VMAC's determination



AquaBounty Technologies



### Alaska trip from the pages of National Geographic

Provided by Lindblad Expeditions



### Shocking discovery for joint relief

Provided by Instaflex



### What is the best non-prescription eyelash enhancer?

Provided by DermStore.com  
Advertising by  eLifeStyle

## NEWS ANALYSIS

# Scientists fret over FDA slowness on genetically altered animals

Approval of foods from genetically modified animals is unjustifiably slow, scientists say; some are looking abroad.



Comments

11



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142



AquaBounty's genetically modified salmon, rear, is shown with an unmodified salmon of the same age. (AquaBounty Technologies / October 1, 2012)



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# What might work?

## **ADVOCACY OF SCIENCE**

**Calling on poor science or political science in a way that gets publicity**

**Righteous indignation when scientific process becomes corrupted for political purposes**



9255 GMO



9344 GMO+R



9202 R

**What really concerned me were the photos of the rats with abnormally large tumors,” she said. “I realize that they were trying to prove a point, but you don’t make animals suffer to do it. At our lab, once a tumor exceeds 40 millimeters, the animal is sacrificed. We take animal welfare very seriously, and for these researchers to allow the [treated] rats to grow tumors as large as the ones they photographed is absolutely appalling.”**

# What is missing?



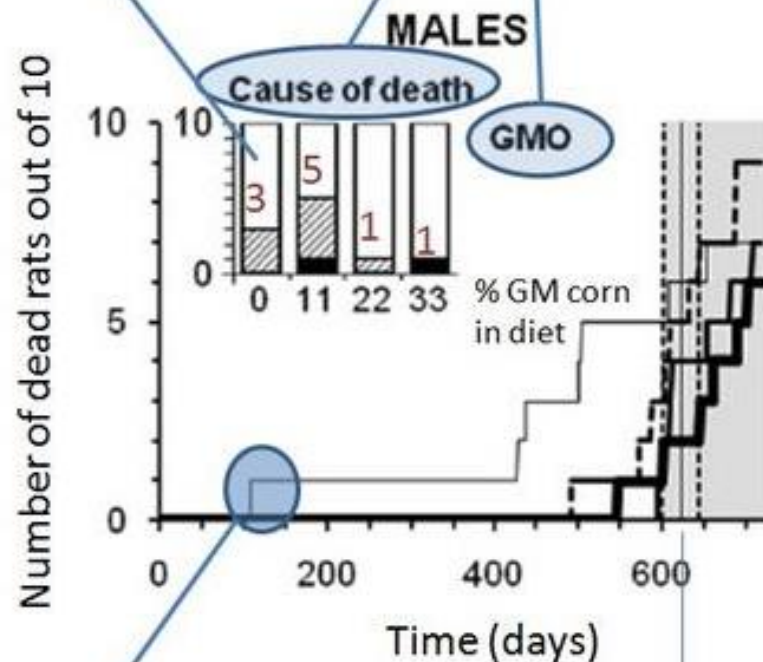
Control image downloaded from <http://www.ratfanclub.org/mamtumpics.html>  
Approx. 70% of female Sprague–Dawley rats get mammary tumors by 2 years of age



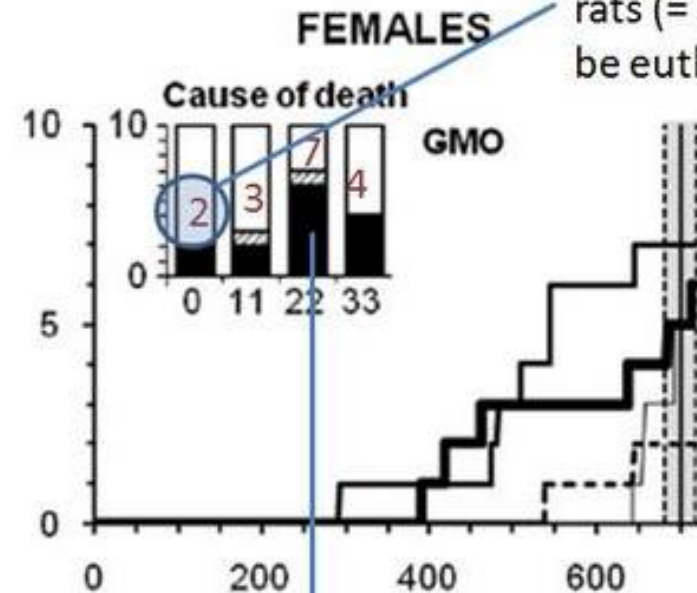
Number of rats is plotted.  
3 rats died out of 10 tested  
So no error bars here:  
we're comparing 3 with 5  
and 1 (!) rat here

The word GMO next to cause of death is "accidental"!  
"Cause" has a myriad of 2 possibilities: spontaneous (grey) or euthanasia (black). The plotted experiment is the one with only GMO tested, hence the word in the graph. You also have RoundUp and GMO + RoundUp

G.-E. Séralini et al. / Food and Chemical Toxicology xxx (2012) xxx-xxx



1 (!) dead rat



20% of control rats (= 2) had to be euthanised!

Higher number of euthanised rats (black). Rats are euthanised because of too big tumours (objective), but also by unspecified reasons (referred to by the scientific term "etc." in the legend and "such as" in methods)

- 11% GM corn in diet
- 22%
- 33%
- - - 33% non-GM (control)

Average life span control group

# **As a scientist these are the concerns about mandatory GE labeling**

- There have been hundreds of animal feeding studies showing no health effects and singling out GE for labeling suggests there is something wrong with them
- Safety is supported by NAS, AMA, WHO, FDA, EFSA, mainstream medical.....
- Studies show that biotech crops have had environmental benefits

National Research Council (NRC). ***Impact of Genetically Engineered Crops on Farm Sustainability in the United States***. Washington, DC: The National Academies Press, 2010.

Many U.S. farmers who grow genetically engineered (GE) crops are realizing substantial economic and environmental benefits -- such as lower production costs, fewer pest problems, reduced use of pesticides, and better yields -- compared with conventional crops, says a new report from the NRC.

"Many American farmers are enjoying higher profits due to the widespread use of certain genetically engineered crops and are reducing environmental impacts on and off the farm," said David Ervin, professor of environmental management and economics, Portland State University, Portland, Ore., and chair of the committee that wrote the report

First introduced in 1996, genetically engineered crops now constitute more than 80 percent of soybeans, corn, and cotton grown in the United States. GE soybeans, corn, and cotton are designed to be resistant to the herbicide glyphosate, which has fewer adverse environmental effects compared with most other herbicides used to control weeds. In addition to glyphosate resistance, GE corn and cotton plants also are designed to produce a Bt protein that is deadly when ingested by susceptible insect pests.

## ENVIRONMENTAL BENEFITS

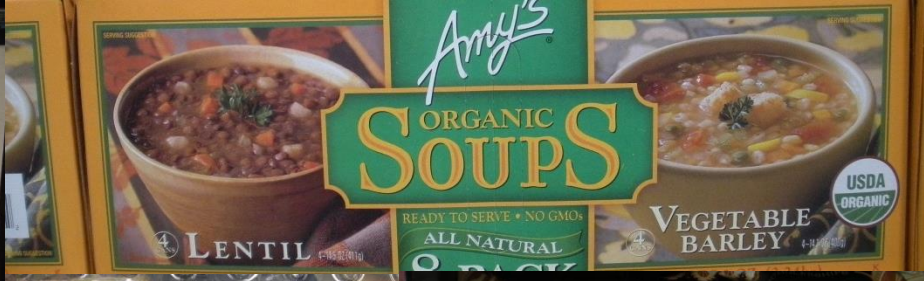
Improvements in water quality could prove to be the largest single benefit of GE crops, the report says. Insecticide use has declined since GE crops were introduced, and farmers who grow GE crops use fewer insecticides and herbicides that linger in soil and waterways. In addition, farmers who grow herbicide-resistant crops till less often to control weeds and are more likely to practice conservation tillage, which improves soil quality and water filtration and reduces erosion.

Available for free online at [http://www.nap.edu/catalog.php?record\\_id=12804#toc](http://www.nap.edu/catalog.php?record_id=12804#toc)



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- Mandatory process based labeling singles out GE process in absence of difference in product – there are many processes used in food production



# Mandatory process-based labeling singles out GE process in absence of difference in product – there are many processes used in food production

What would be the cost of mandatory consumer “right to know” process-based labeling about all aspects of the food production process?



E  
X  
E  
M  
P  
T



E  
X  
E  
M  
P  
T  
  
N  
O  
T



**Proposition 37:** The measure, however, exempts certain categories of food and food additives from the above labeling requirements. For example, alcoholic beverages, organic foods, and restaurant food and other prepared foods intended for immediate consumption would be exempted.

In addition, producers and sellers of the products are exempt from labeling requirements if they

- (1) obtain a sworn statement indicating that the product does not intentionally or knowingly contain GE ingredients or
- (2) receive independent certification that their product does not contain GE ingredients.

However, the measure prohibits the use of terms such as “natural,” “naturally made,” “naturally grown,” and “all natural” in the labeling and advertising of any food that is genetically engineered.

<http://www.lao.ca.gov/ballot/2011/110813.aspx>







Ingredients: Whole Grain Oats, Sugar, Canola Oil, Dark Chocolate Pieces (sugar, chocolate liquor, cocoa butter, soy lecithin, natural flavor, salt), Yellow Corn Flour, Honey, Soy Flour, Cocoa, Brown Sugar Syrup, Salt, Soy Lecithin, Natural Flavor, Baking Soda.

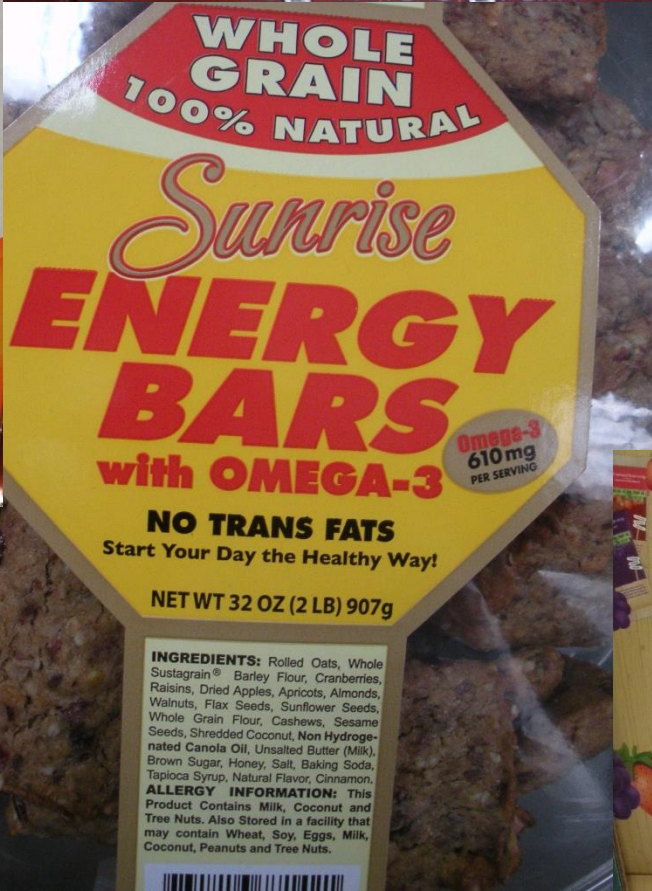
CONTAINS SOY; MAY CONTAIN PEANUT, ALMOND AND PECAN INGREDIENTS.

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GENERAL MILLS SALES, INC.  
MINNEAPOLIS, MN 55440 USA

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Carbohydrate Choices: 2

3876336102





ITEM #1508

Original Down  
Under Recipe

Traditional

**Aussie Bites™**

with **Omega-3**

**Omega-3**  
610 mg  
PER SERVING

**Rolled Oats, Honey, Apricots,  
Raisins, Sunflower Seeds,  
Flax Seeds and More!**

**NET WT 30 OZ (1 LB 14 OZ) 850 g**

**INGREDIENTS:** Rolled Oats, Whole Grain Flour, Unsalted Butter, Sugar, Honey, Raisins, Dried Apricots, Sunflower Kernels, Flax Seeds, Shredded Coconut, **Non-Hydrogenated Canola Oil**, Baking Soda, Salt.

**Allergy Information:** Manufactured in a facility that may produce products that contain wheat, soy, eggs, milk, peanuts, and tree nuts.

100% NATURAL  
**WHOLE GRAIN**  
NO TRANS FAT

**Litigation.** According to the measure, violation of the measure's provisions could be prosecuted by state, local, or private parties.

The measure states that the court could award these parties all reasonable costs incurred in investigating and prosecuting the action.

In addition, the measure specifies that consumers could sue for violation of the measure's provisions under the state Consumer Legal Remedies Act.

In order to bring such action forward, **the consumer would NOT be required to demonstrate any specific damage from the alleged violation.**

<http://www.lao.ca.gov/ballot/2011/110813.aspx>

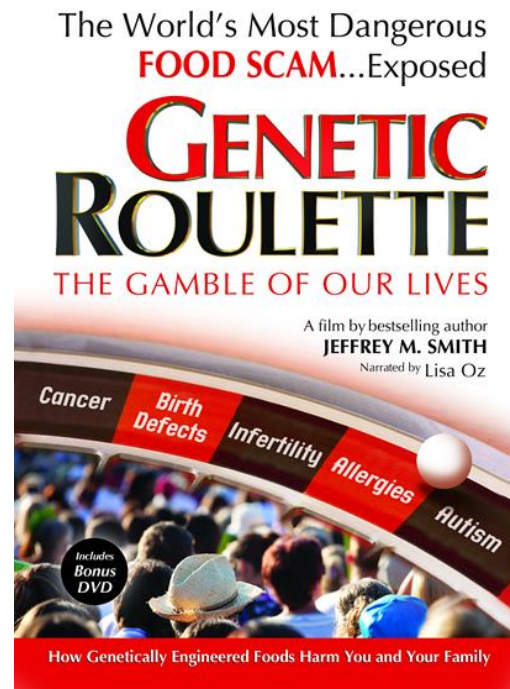
# What might work?

## ADVOCACY OF SCIENCE

**Calling on poor science or political science in a way that gets publicity**

**Righteous indignation when scientific process becomes corrupted for political purposes**

**Utilize our students – assign classes to examine the science behind sensational claims**



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**Training charismatic advocates – farmers and scientists**





- I like the outdoors
- I like animals
- I am not in a lab coat
- I care

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**Rebranding our research to match societal concerns**

# Feeding the world message is getting old



<http://www.smh.com.au/news/world/why-you-will-never-see-a-front-page-like-this/2005/06/30/1119724757442.html>



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**If funding gets questioned – lob it back at the questioner because there are many “industries” – there is agricultural industry, the biotech industry, the organic industry, and the ACTIVIST industry – all of which get their money from somewhere.....**

**This is my vested interest in science....**



**We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology**

**Carl Sagan**

(9 Nov 1934 - 20 Dec 1996)