



## **Presentation to the Monsanto Tribunal**

by Claire Robinson, editor, GMWatch

This presentation focuses on Monsanto's history of involvement in dishonest, deceptive, and non-transparent efforts to control the scientific and public discourse on genetically modified (GM) foods and crops (and associated pesticides), and to force its products into countries across the globe. It addresses the questions of whether Monsanto has violated the right to health and a healthy environment, and has damaged freedom of expression and of academic research.

### **Monsanto and other GMO developer companies design regulatory systems for GMOs<sup>1</sup>**

Monsanto and other agricultural biotechnology and chemical companies have heavily influenced the regulatory system by which genetically modified organisms (GMOs) are evaluated for safety in various countries across the globe. They have done this through the International Life Sciences Institute (ILSI), a lobby group that works in the arena of regulatory science and is funded by companies including Monsanto, Bayer, Dow, and Syngenta.<sup>2</sup>

The full story is as follows.

Worldwide, regulators approve GM crops and foods as safe based on the concept of "substantial equivalence". Substantial equivalence assumes that if a GMO contains similar amounts of a few basic components such as protein, fat, and carbohydrate as its non-GM

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<sup>1</sup> This section is adapted from Fagan J, Antoniou M and Robinson C. *GMO Myths and Truths*, 2<sup>nd</sup> edition. Earth Open Source, 2014. <http://earthopensource.org/gmomylthsandtruths/sample-page/2-science-regulation/2-1-myth-gm-foods-strictly-tested-regulated-safety/>

<sup>2</sup> Sourcewatch. 2016. [http://www.sourcewatch.org/index.php/International\\_Life\\_Sciences\\_Institute](http://www.sourcewatch.org/index.php/International_Life_Sciences_Institute)

counterpart, then the GMO is substantially equivalent to the non-GMO and no rigorous safety testing is required.

The concept of substantial equivalence as applied to GMOs was first put forward by the industry and the Organization for Economic Cooperation and Development (OECD), a body dedicated not to protecting public health but to facilitating international trade.<sup>3 4</sup>

Claims of substantial equivalence for GM foods have been widely criticized and revealed as scientifically inaccurate by independent researchers<sup>5 6 7 8</sup> and by the Royal Society of Canada.<sup>9</sup> A useful analogy to help us understand what is meant by substantial equivalence is that of a BSE-infected cow and a healthy cow. They are substantially equivalent to one another, in that their chemical composition is the same. The only difference is in the shape of a protein (prion) that constitutes a minute proportion of the total mass of the cow. This difference that would not be picked up by current substantial equivalence assessments. Yet few would claim that eating a BSE-infected cow is as safe as eating a healthy cow.

In reality, when GM foods and crops and their non-GM 'parents' are analyzed and compared, frequently unintended and unexpected differences are found.<sup>10</sup>

Europe has controversially adopted the concept of substantial equivalence in its GM food assessments – but under another name. The European Food Safety Authority (EFSA) does not use the discredited

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<sup>3</sup> Organisation for Economic Cooperation and Development (OECD). Safety evaluation of foods derived by modern biotechnology: Concepts and principles. OECD Publishing; 1993.

[http://dbtbiosafety.nic.in/guideline/OACD/Concepts\\_and\\_Principles\\_1993.pdf](http://dbtbiosafety.nic.in/guideline/OACD/Concepts_and_Principles_1993.pdf).

<sup>4</sup> Then C, Bauer-Pankus A. European Food Safety Authority: A playing field for the biotech industry. Testbiotech; 2010. <http://www.testbiotech.de/en/node/431>.

<sup>5</sup> Pusztai A, Bardocz S, Ewen SWB. Genetically modified foods: Potential human health effects. In: D'Mello JPF, ed. Food Safety: Contaminants and Toxins. Wallingford, Oxon: CABI Publishing; 2003:347–372. <http://www.leopold.iastate.edu/news/pastevents/pusztai/0851996078Ch16.pdf>.

<sup>6</sup> Nodari RO, Guerra MP. Implications of transgenics for environmental and agricultural sustainability. Hist Cienc Saude Manguinhos. 2000;7(2):481-91.

<sup>7</sup> Zdunczyk Z. In vivo experiments on the safety evaluation of GM components of feeds and foods. J Anim Feed Sci. 2001;10:195-210.

<sup>8</sup> Zolla L, Rinalducci S, Antonioli P, Righetti PG. Proteomics as a complementary tool for identifying unintended side effects occurring in transgenic maize seeds as a result of genetic modifications. J Proteome Res. 2008;7:1850-61. doi:10.1021/pr0705082.

<sup>9</sup> Royal Society of Canada. Elements of precaution: Recommendations for the regulation of food biotechnology in Canada. An expert panel report on the future of food biotechnology. 2001. [http://www.rsc.ca/files/publications/expert\\_panels/foodbiotechnology/GMreportEN.pdf](http://www.rsc.ca/files/publications/expert_panels/foodbiotechnology/GMreportEN.pdf).

<sup>10</sup> For a small selection of references, see "The sham of substantial equivalence" in GMO Myths and Truths: <http://earthopensource.org/gmomythsandtruths/sample-page/2-science-regulation/2-1-myth-gm-foods-strictly-tested-regulated-safety/>

term “substantial equivalence” but has allowed industry to replace it with another term with the same meaning: “comparative assessment” or “comparative safety assessment”.

The story of how the comparative safety assessment made its way into Europe’s GMO regulatory system is a tale of revolving doors and conflicts of interest with industry.

The change of name from “substantial equivalence” to “comparative safety assessment” was suggested in a 2003 paper on risk assessment of GM plants.<sup>11</sup> The paper was co-authored by Harry Kuiper, then chair of EFSA’s GMO Panel, with Esther Kok. In 2010 Kok joined EFSA as an expert on GMO risk assessment.<sup>12</sup> In their 2003 paper, Kuiper and Kok freely admitted that the concept of substantial equivalence remained unchanged and that the name change was in part meant to deflect the “controversy” that had grown up around the term.<sup>13</sup>

At the same time that Kuiper and Kok published their 2003 paper, they were part of a task force of the GMO industry-funded International Life Sciences Institute (ILSI), that was working on re-designing GMO risk assessment.<sup>14</sup> In 2004 Kuiper and Kok co-authored an ILSI paper on the risk assessment of GM foods, which defines comparative safety assessment. The other co-authors include representatives from GM crop companies that sponsor ILSI, including Monsanto, Bayer, Dow, and Syngenta.<sup>15</sup>

EFSA has followed ILSI’s suggestion of treating the comparative safety assessment as the basis for GM safety assessments. EFSA has promoted the concept in its guidance documents on assessment of environmental risks of GM plants<sup>16</sup> and of risks posed by food and feed

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<sup>11</sup> Kok EJ, Kuiper HA. Comparative safety assessment for biotech crops. *Trends Biotechnol.* 2003;21:439–444.

<sup>12</sup> European Food Safety Authority (EFSA). Annual declaration of interests – Esther Kok. 2010.

<sup>13</sup> Kok EJ, Kuiper HA. Comparative safety assessment for biotech crops. *Trends Biotechnol.* 2003;21:439–444.

<sup>14</sup> Then C, Bauer-Pankus A. European Food Safety Authority: A playing field for the biotech industry. *Testbiotech*; 2010. Available at: <http://www.testbiotech.de/en/node/431>.

<sup>15</sup> International Life Sciences Institute (ILSI). Nutritional and safety assessments of foods and feeds nutritionally improved through biotechnology, prepared by a task force of the ILSI International Food Biotechnology Committee. *Compr Rev Food Sci Food Saf.* 2004;3:38–104.

<sup>16</sup> European Food Safety Authority (EFSA) GMO Panel. Guidance on the environmental risk assessment of genetically modified plants. *EFSA J.* 2010;8:1879–1990. doi:10.2903/j.efsa.2010.1879.

derived from GM animals,<sup>17</sup> as well as in a peer-reviewed paper on the safety assessment of GM plants, food and feed.<sup>18</sup>

In 2013 the EU Commission incorporated the industry- and EFSA-generated concept of the comparative safety assessment into its new regulation on GM food and feed.<sup>19</sup>

There is nothing wrong with beginning a safety assessment with a comparative assessment, as long as this is followed by further rigorous comparative tests on the GMO and its non-GMO parent, such as –omics analyses (to measure protein content, metabolites and gene expression) and long-term animal feeding trials.

But a major problem with the comparative safety assessment is that, as the name suggests, regulatory and advisory authorities are beginning to treat it as a safety assessment in itself, rather than as just the first in a series of mandatory steps in the assessment process. In other words, EFSA and the EU Commission are moving towards a scenario in which if the GMO passes this weak test – and many have, in spite of having significant differences from the non-GM comparators – then they are not subjected to further rigorous testing.

Allowing GMO developer companies to design regulatory procedures for their own products is equivalent to allowing a student to write his own examination paper.

## **Monsanto pressures US EPA to defend glyphosate**

Faced with lawsuits brought by people who believe they have been made ill by glyphosate herbicides and the reluctance of EU member states to re-approve glyphosate, Monsanto has been pulling out all stops to defend these products. That includes pressuring the US regulator to declare glyphosate safe.

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<sup>17</sup> European Food Safety Authority (EFSA). Guidance on the risk assessment of food and feed from genetically modified animals and on animal health and welfare aspects. EFSA J. 2012;10:2501. [43 pp.].

<sup>18</sup> European Food Safety Authority (EFSA) GMO Panel Working Group on Animal Feeding Trials. Safety and nutritional assessment of GM plants and derived food and feed: The role of animal feeding trials. Food Chem Toxicol. 2008;46:S2-70. doi:10.1016/j.fct.2008.02.008.

<sup>19</sup> European Parliament and Council. Commission implementing regulation (EU) no. 503/2013 of 3 April 2013 on applications for authorisation of genetically modified food and feed in accordance with Regulation (EC) No 1829/2003 of the European Parliament and of the Council and amending Commission Regulations (EC) No 641/2004 and (EC) No 1981/2006. Off J Eur Union. 2013. <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:157:0001:0048:EN:PDF>.

Veteran agricultural journalist Carey Gillam wrote, “The pressure on the EPA to defend glyphosate began immediately after the World Health Organization’s International Agency for Research on Cancer (IARC) declared in March 2015 that research showed glyphosate was ‘probably’ carcinogenic to humans. The IARC decision was announced on Friday, March 20, 2015 and by the following Monday morning, Monsanto’s Dan Jenkins, the company’s regulatory affairs leader, was already calling and emailing EPA officials demanding they “correct” the record on glyphosate. Emails obtained through Freedom of Information request show Jenkins submitted ‘talking points’ to the EPA to try to contradict IARC. And since then Monsanto has only intensified its efforts to invalidate the findings of the IARC group, attacking the veteran scientists as an “unelected, undemocratic, unaccountable and foreign body.”<sup>20</sup>

Thus far Monsanto seems to be getting its wish. In a September 12 report, the EPA offered an evaluation of glyphosate’s cancer-causing potential that ended with a “proposed” conclusion that glyphosate was “‘not likely to be carcinogenic to humans’ at doses relevant to human health risk assessment.”<sup>21</sup> However, the EPA will be holding more meetings in October to discuss the topic further.

## **Roundup and birth defects**

In 2011 a group of scientists, collaborating with me as the main writer, published a report called “Roundup and birth defects”.<sup>22</sup> A peer-reviewed version was published the following year in the *Journal of Environmental and Analytical Toxicology*.<sup>23</sup>

Based on an examination of the summaries of industry data and regulatory documents collected by the German government in support of the 2002 European approval of the ‘active ingredient’ glyphosate, the authors found that:

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<sup>20</sup> Gillam C. Upcoming EPA meetings on safety of Monsanto weed killer drawing Scrutiny. Huffington Post, 29 Sept 2016. [http://www.huffingtonpost.com/carey-gillam/upcoming-epa-meetings-on\\_b\\_12245584.html](http://www.huffingtonpost.com/carey-gillam/upcoming-epa-meetings-on_b_12245584.html)

<sup>21</sup> US EPA. Glyphosate Issue Paper: Evaluation of Carcinogenic Potential. EPA’s Office of Pesticide Programs, September 12, 2016. [https://www.epa.gov/sites/production/files/2016-09/documents/glyphosate\\_issue\\_paper\\_evaluation\\_of\\_carcinogenic\\_potential.pdf](https://www.epa.gov/sites/production/files/2016-09/documents/glyphosate_issue_paper_evaluation_of_carcinogenic_potential.pdf)

<sup>22</sup> Antoniou M et al. Roundup and birth defects: Is the public being kept in the dark? *Earth Open Source*, 2011. <http://bit.ly/2dDdfHP>

<sup>23</sup> Antoniou M et al. Teratogenic effects of glyphosate-based herbicides: Divergence of regulatory decisions from scientific evidence. *Journal of Environmental and Analytical Toxicology* 2012, S:4.

- Industry (including Monsanto) has known since the 1980s and 1990s that glyphosate causes malformations in experimental animals at the doses employed in its studies.
- The German government has known since at least 1998 that glyphosate causes malformations.
- The EU Commission has known since at least 2002 that glyphosate causes malformations. This was the year its DG SANCO division published its final review report, laying out the basis for the 2002 approval of glyphosate.
- The public, in contrast, has been kept in the dark by industry and regulators about the ability of glyphosate and Roundup to cause malformations. In addition, the work of independent scientists who have drawn attention to the herbicide's teratogenic effects has been ignored, denigrated, or dismissed. These actions on the part of industry and regulators have endangered public health.
- Based on an objective examination of the industry data summaries, the acceptable daily intake (ADI) for glyphosate should have been set at one-third of the current level of 0.3 mg/kg bw/d – in other words, it should have been set at 0.1 mg/kg bw/d.
- Taking independent, non-industry animal studies into consideration, which were performed with the complete formulations as sold and used rather than just the isolated 'active ingredient' glyphosate, the ADI should have been set at least 12 times lower, at 0.025 mg/kg bw/d.

Of course, no one is exposed to the unrealistically high doses that are tested in industry studies. Also, few people are exposed to glyphosate alone – most people are exposed to the complete herbicide formulations, which are more toxic. So these studies alone do not prove that the doses of glyphosate herbicide that we are actually exposed to cause malformations.

However, there are three important responses to that valid point:

1. Modern science recognizes that very low, environmentally relevant doses of some chemicals can have a more toxic effect than higher doses – these chemicals are known as endocrine disruptors.<sup>24</sup> These very low doses of herbicides and pesticides have never been tested for regulatory purposes over a long-term exposure period. So we cannot assume that low doses are safe, although

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<sup>24</sup> Vandenberg LN et al. Hormones and endocrine-disrupting chemicals: Low-dose effects and nonmonotonic dose responses. *Endocrine Reviews*, June 2012, 33(3):378–455. <http://www.ncbi.nlm.nih.gov/pubmed/22419778>

- current regulatory science *does* wrongly assume that.
2. There are many reports from South America of high rates of birth defects and cancers in people living in regions close to fields where GM soy is sprayed with Roundup herbicide and other chemicals.<sup>25</sup>  
<sup>26</sup> This suggests that realistic doses of glyphosate herbicides, either alone or in combination with other chemicals, do have serious health effects.
  3. The European pesticides regulation<sup>27</sup> has a ‘hazard cut-off’ provision for reproductive toxicity. This means that if a pesticide/herbicide shows reproductive toxicity in the industry tests, which use high doses, it is not legally allowable to argue that the doses people are actually exposed to are safe. The pesticide must simply be banned.

Given the reluctance of regulators to act on indications of glyphosate herbicides’ toxicity, it is urgent that realistic doses of the complete formulations are tested in long-term animal studies by independent scientists.

### **Monsanto and the US government use bullying and illicit tactics to pressure other countries to accept GMOs**

While Monsanto positions itself as a science-based company, its way of getting its products accepted in countries across the globe often owes little to science and much to bullying and illicit tactics.

**“Causing pain” to countries that don’t want GM crops:** In 2011 diplomatic cables disclosed by Wikileaks showed that the US government represents Monsanto’s interests by pushing other countries to adopt GM crops.

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<sup>25</sup> Lopez SL et al. Pesticides used in South American GMO-based agriculture: A review of their effects on humans and animal models. In: Fishbein JC and Heilman JM (eds): *Advances in Molecular Toxicology* Vol 6. New York: Elsevier, 2012:41–75.

<sup>26</sup> Comision Provincial de Investigación de Contaminantes del Agua. Primer informe [first report]. Resistencia, Chaco, Argentina, April 2010.

[http://www.gmwatch.org/files/Chaco\\_Government\\_Report\\_Spanish.pdf](http://www.gmwatch.org/files/Chaco_Government_Report_Spanish.pdf) ; English translation at [http://www.gmwatch.org/files/Chaco\\_Government\\_Report\\_English.pdf](http://www.gmwatch.org/files/Chaco_Government_Report_English.pdf)

<sup>27</sup> Regulation (EC) No 1107/2009 of the European Parliament and of the Council of 21 October 2009 concerning the placing of plant protection products on the market and repealing Council Directives 79/117/EEC and 91/414/EEC. <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32009R1107>

The cables revealed (as reported by The Guardian) that the US embassy in Paris advised Washington to start a military-style trade war against any European Union country that opposed GM crops.<sup>28</sup>

In response to moves by France to ban a Monsanto GM corn variety in late 2007, the ambassador, Craig Stapleton, a friend and business partner of former US president George Bush, asked Washington to penalise the EU and particularly countries which did not support the use of GM crops.

"Country team Paris recommends that we calibrate a target retaliation list that causes some pain across the EU since this is a collective responsibility, but that also focuses in part on the worst culprits.

"The list should be measured rather than vicious and must be sustainable over the long term, since we should not expect an early victory. Moving to retaliation will make clear that the current path has real costs to EU interests and could help strengthen European pro-biotech voices," said Stapleton, who with Bush co-owned the Dallas/Fort Worth-based Texas Rangers baseball team in the 1990s.

In other cables, US diplomats around the world are found to have pushed GM crops as a strategic government and commercial imperative.

In addition, the cables show US diplomats working directly for GM companies such as Monsanto. "In response to recent urgent requests by Spanish rural affairs ministry state secretary Josep Puxeu and Monsanto, post requests renewed US government support of Spain's science-based agricultural biotechnology position through high-level US government intervention."

**Bribery in Indonesia:** In 2005 the BBC reported that Monsanto had agreed to pay a \$1.5m (£799,000) fine for bribing an Indonesian official in a bid to avoid environmental impact studies being conducted on its GM Bt insecticide-containing cotton.<sup>29</sup>

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<sup>28</sup> Vidal J, WikiLeaks: US targets EU over GM crops. The Guardian, 3 Jan 2011.  
<https://www.theguardian.com/world/2011/jan/03/wikileaks-us-eu-gm-crops>

<sup>29</sup> BBC News. Monsanto fined \$1.5m for bribery. 7 Jan 2005.  
<http://news.bbc.co.uk/1/hi/business/4153635.stm>



Bt cotton was introduced in South Sulawesi province in 2001. Two years later it was withdrawn after its failure to perform triggered farmer protests.<sup>30</sup>

## **Smear campaigns against inconvenient studies**

Monsanto has used underhand, deceptive, and non-transparent tactics to try to discredit scientific studies that present results that threaten the company's interests – and to smear the scientists concerned. In some cases Monsanto's activities are overt, but more usually the company's interests and messages are represented and voiced by third parties such as public relations firms or ostensibly independent academics and scientists (the "third-party" PR technique).

**Séralini study:** In 2012 a long-term toxicity study was published<sup>31</sup> showing that two Monsanto products, a GM herbicide-tolerant maize (NK603) and the Roundup herbicide it was engineered to tolerate, had toxic effects on rats when fed over the long-term period of 2 years. Effects included liver and kidney damage in most treatment groups. In addition, a trend of increased tumour rates was found in most treatment groups, though this would have to be confirmed in a dedicated cancer study using larger numbers of animals.

Within hours of the study's publication, a massive public relations campaign sprang into operation to try to discredit the study and pressurize the editor of the journal that published it, *Food and Chemical Toxicology*, to retract it.

The PR campaign was marked by dishonest attacks on the science of the Séralini paper and a lack of transparency on the part of those behind the campaign.

Monsanto's direct involvement lay in circulating quotes from third-party experts (a PR technique whereby corporate messages are put into the mouths of supposedly independent experts) denigrating the study. The quotes were collected and disseminated to the press by the UK Science Media Centre, an organization that defends and promotes GM

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<sup>30</sup> GRAIN. Bt cotton - the facts behind the hype. January 2007.

<https://www.grain.org/es/article/entries/582-bt-cotton-the-facts-behind-the-hype>

<sup>31</sup> Séralini et al. RETRACTED: Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Food Chem Toxicol.* 2012;50(11):4221-4231.

<http://www.sciencedirect.com/science/article/pii/S0278691512005637>

technology and that is 70% funded by corporations,<sup>32</sup> including Monsanto and other big GMO developer firms.<sup>33</sup>

Monsanto's influence in the smear campaign against Séralini also appears to have been exerted indirectly at one remove, through the internet PR firm v-Fluence and the lobby group AgBioWorld, among others. v-Fluence has strong connections with Monsanto.

GMWatch founder/director Jonathan Matthews describes these links and gives a full account of the anti-Séralini smear campaign in his article, "Smelling a corporate rat".<sup>34</sup> The article is reproduced below, with internal links preserved and some updated links added.

**Quist/Chapela study:** The article shows that the tactics used against the Séralini study were similar to those used over 10 years previously against the scientists Ignacio Chapela and David Quist, after they published their findings of GMO contamination of native Mexican maize.<sup>35</sup> Many of the same Monsanto- and industry-linked actors were involved in both smear campaigns.

## Smelling a corporate rat

Jonathan Matthews

Spinwatch, 11 Dec 2012

<http://www.spinwatch.org/index.php/issues/science/item/164-smelling-a-corporate-rat>

*A new study suggesting a Monsanto GM maize and the company's Roundup herbicide may pose serious health risks has been widely attacked, not just by scientists and commentators but also by scientific bodies and regulators. Here, Jonathan Matthews of GMWatch looks at the role of industry-linked scientists and lobbyists in a campaign aimed at getting the paper retracted.*

*You can also [download this article as a PDF](#).*

At the end of November Reuters ran the headline [Science Journal Urged to Retract Monsanto GM Study](#) and New Scientist [also reported](#) the growing pressure for retraction. These articles marked the latest stage in a campaign that kicked off the moment the study was published in mid-

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<sup>32</sup> Corporate Europe Observatory. Study on Monsanto's GM maize intensifies concerns about EFSA's reliability – Monsanto strikes back with PR offensive. 21 Sept 2012.

<https://corporateeurope.org/news/study-monsantos-gm-maize-intensifies-concerns-about-efsas-reliability-monsanto-strikes-back-pr>

<sup>33</sup> Science Media Centre. Funding. 2012. <http://bit.ly/11sRAzV>.

<sup>34</sup> Matthew J. Smelling a corporate rat. Spinwatch, 11 Dec 2012.

<http://www.spinwatch.org/index.php/issues/science/item/164-smelling-a-corporate-rat>

<sup>35</sup> Quist D, Chapela IH. Transgenic DNA introgressed into traditional maize landraces in Oaxaca, Mexico. *Nature* 414:541-543. <http://www.ncbi.nlm.nih.gov/pubmed/11734853>

September, when researchers led by Prof. Gilles-Eric Séralini at the University of Caen in France announced [their findings](#) of serious health problems in rats that had been fed a Monsanto maize genetically engineered to be resistant to the company's herbicide Roundup, as well as in rats just fed low doses of the herbicide itself. In both cases the rats fed with the GM maize and/or minute amounts of the herbicide in water were several times more likely to develop lethal tumours and suffer severe liver and kidney damage when compared to the controls.

### **Science Media Centre spearheads the attack**

Although the publication of the results of the long-term feeding trial in Food and Chemical Toxicology made front page news in France, it got a very different reception in the English-speaking world. This was thanks to the rapid rebuttal efforts of the London-based Science Media Centre (SMC), which almost as soon as the study was published began [spoon-feeding journalists with ready-made quotes from scientists](#) savaging the study.

The SMC's director Fiona Fox was subsequently [reported as saying](#) that she took pride in the fact that the SMC's "emphatic thumbs down had largely been acknowledged throughout UK newsrooms: apart from the Mail, only the Daily Telegraph and the Financial Times covered the story in their print editions – and both used quotes supplied by the Science Media Centre." She added that several television news programmes had also rejected the story after reading the quotes.

The SMC's quotes were pumped out internationally via its clones, like [the Australian Science Media Centre](#), with like-minded local experts layered on the top. The quotes were also [circulated to the media by Monsanto and other GM lobby groups](#). As a result, the quotes ended up in a lot of media coverage worldwide. One even [popped up in the New York Times](#) along with the scathing comments of Bruce M. Chassy, professor emeritus of food science at the University of Illinois.

### **Retraction campaign kicks in**

Another key player in whipping up hostility to the paper was the American business magazine Forbes. In the ten days following the study's release, Forbes published no less than six separate attack pieces targeting not just the research but also the researchers. The first two pieces drew extensively on the quotes from the Science Media Centre and ran with them, but the Forbes piece that grabbed the most attention, particularly on social media, was one that kicked off with a headline that [labelled the paper a fraud](#). The article went on to accuse Prof. Séralini not just of

"gross scientific misconduct" but also of having "a long and sordid history" of "activism". The article concluded by bluntly telling the editors of Food and Chemical Toxicology that the only "honorable course of action for the journal would be to retract the paper immediately".

The retraction campaign was by then well under way. An [online petition](#) was up and running, demanding in the name of "the scientific community" that Séralini hand over all his raw data. The petition was aggressively promoted via social media, often with [the implication that the researchers had something to hide](#). The assertion that the study was "fraudulent" obviously played well into this campaign, which culminated in the Reuters and New Scientist pieces reporting the retraction calls. Both these articles reported on the petition, as well as containing lacerating comments from two UK scientists – [comments once again provided by the Science Media Centre](#).

One of the published comments – from Prof. Maurice Moloney – said it was "appalling" that such a study should ever have been published in a respected journal. And a researcher from the UK's John Innes Centre demanded to know whether it was not "time for Food and Chemical Toxicology to retract the manuscript?" The only other scientist quoted claimed the publication of the paper was more than just "a dangerous case of failure of the peer-review system." It represented a threat to not just the credibility of the journal but "the scientific method overall". This apocalyptic claim was backed up by the news that hundreds of outraged scientists had signed the online petition.

### **Who's behind the retraction petition?**

[Writing in The Guardian](#) at the end of September, John Vidal described the attacks already raining down on Séralini and his team as "a triumph for the scientific and corporate establishment which has used similar tactics to crush other scientists". These included, Vidal said, "Arpad Pusztai of the Rowett Institute in Scotland, who was sacked after his research suggested GM potatoes damaged the stomach lining and immune system of rats, and David Quist and Ignacio Chapela", who studied the flow of genes from illegally planted GM maize to Mexican indigenous maize.

The vociferous attacks on Quist and Chapela resulted in the apparent retraction of their paper by the journal Nature, even though [such a move was not supported by the majority of its reviewers](#) and subsequent

research [confirmed the paper's main finding](#).<sup>36</sup> But, as the French journalist Benjamin Sourice [has pointed out](#), the simplest way to definitively discredit a study and nullify its impact is to pressurise the journal that published it to retract it from its list of publications.

In the case of Quist and Chapela, [an investigation that I undertook with the journalist and author Andy Rowell of Spinwatch](#) revealed how the campaign of retraction had been carefully orchestrated from the start by Monsanto's PR people. It used proxies to whip up feeling against the lead author by branding Dr Chapela an "activist" rather than a scientist and by maintaining his findings were bogus and arrived at through collusion with environmental NGOs. Our research, which was [widely reported in both print and broadcast media](#), suggested that at the heart of that retraction campaign sat Monsanto's former chief internet strategist and director of corporate communications. [Jay Byrne](#) had gone on to found his own internet PR company v-Fluence, based like Monsanto in the corporation's home town of St Louis.

Although Byrne [appeared to be the campaign's chief architect](#), its principal conduit was the lobby group AgBioWorld, overseen by the GM scientist CS Prakash. The ["ipetition"](#) on Séralini contains no information as to who sponsored it, but its first signatory is CS Prakash. Prakash also seems to have set up [an earlier more primitive version of the petition](#), which clearly identifies him as its sponsor.

Some time after GMWatch [flagged up](#) the likely role of Prakash and AgBioWorld in the ipetition, the organisation acknowledged its authorship [in a press release](#) which asserted that "the petitioning scientists are calling on the publishing journal editors to retract the Séralini study" if he failed to give in to their demand that he hand over all his data.

The AgBioWorld press release contained a quote by Bruce Chassy, who was also [the first signatory of the earlier Séralini petition](#). Chassy was also [the co-author of the Forbes piece](#) accusing Séralini of fraud.

The article's other author was Henry Miller, a darling of the rightwing press who operates out of the Hoover Institution, among [other industry backed lobby groups](#). Miller, like Chassy, has long been associated with Prakash's AgBioWorld. Miller recently co-authored [another vitriolic](#)

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<sup>36</sup> Serratos-Hernández J-A, Gómez-Olivares J-L, Salinas-Arreortua N, Buendía-Rodríguez E, Islas-Gutiérrez F, de-Ita A. Transgenic proteins in maize in the Soil Conservation area of Federal District, Mexico. *Front Ecol Environ*. 2007;5(5):247-252. doi:10.1890/1540-9295(2007)5[247:TPIMIT]2.0.CO;2; Pineyro-Nelson A, Van Heerwaarden J, Perales HR, et al. Transgenes in Mexican maize: molecular evidence and methodological considerations for GMO detection in landrace populations. *Mol Ecol*. 2009;18:750-61. doi:10.1111/j.1365-294X.2008.03993.x.

[piece on GM for Forbes](#), denouncing the "fear profiteers" of the anti-GM "protest industry". Miller's co-author on that occasion was none other than former Monsanto PR boss Jay Byrne of v-Fluence. Tellingly, Michael Pollan, the renowned New York Times food writer and professor of journalism at the UC Berkeley Graduate School of Journalism, described the piece by Byrne and Miller as [a breathtaking example of "the Big Lie"](#).

Byrne hasn't published any media pieces on Séralini. But it is apparent from [Byrne's Twitter account](#) that he was almost solely preoccupied with discrediting the Séralini study from the day of its publication for about the next month. Byrne describes himself on Twitter as v-Fluence CEO and as "Contributing author, Let Them Eat Precaution", a book on GM edited by Jon Entine. Entine, as it happens, is the author of probably more articles to date attacking Séralini than any other commentator.

### **Agribiz apologist**

Entine's book emerged out of an [American Enterprise Institute](#) conference overseen by Entine at which Byrne was an invited speaker. And Byrne's v-Fluence turns up again in company with Entine at another AEI conference he oversaw – this one attacking corporate social responsibility (CSR). [According to Business Ethics](#): "A second AEI conference featured AEI fellow Jon Entine – a long-time critic of SRI [socially responsible investing] – and Sarah Fuhrmann of v-Fluence Interactive Public Relations. Several v-Fluence employees are ex-public affairs staffers for Monsanto – where they honed skills fighting CSR initiatives that targeted genetically modified foods."

Entine hasn't just worked with Byrne and v-Fluence, but has also done paid work for Byrne's company. In a piece about Entine by the food and farming commentator Tom Philpott, [The Making of an Agribusiness Apologist](#), Entine denies being a hired gun for Syngenta in his work defending pesticides and downplays the fact that his company (ESG MediaMetrics) lists Monsanto as a client. This is how he explains it: "Nine years ago, I did a \$2000 research project for v-Fluence, a social media company formed by former Monsanto executives. That's the entirety of my Monsanto relationship." Presumably Entine [lists Monsanto and not Jay Byrne's firm as his company's paymaster](#) because he recognises that what he does for v-Fluence he's really doing for Monsanto.

Entine's [first attack](#) on Séralini came out on Forbes within 24 hours of the paper's publication. His [second piece](#) a few days later contained further attacks, not just on Séralini, whom he accused of steadfastly

refusing to share his raw data, but on almost anyone who attempted to defend the study. Entine also published [a third more recent article](#) which focuses particularly on letters to Food and Chemical Toxicology requesting Séralini's paper be retracted. In this he notes, "More than two dozen scientists from around the world co-signed a stinging rebuke of the Séralini study, concluding: 'We appeal to you to subject the paper to rigorous re-review by appropriate experts and promptly retract it if it fails to meet widely held scientific standards of design and analysis, as we believe it fails to do.'"

[The letter](#) Entine is referring to was signed by, among others, CS Prakash, Henry Miller and Bruce Chassy. Several of the other signatories also have connections to AgBioWorld. Entine's [book on GM](#), incidentally, also has contributions from CS Prakash and his AgBioWorld co-founder, Greg Conko of the Competitive Enterprise Institute.

### Cancer-prone rat

Another signatory of this joint letter to Food and Chemical Toxicology is Prof. Anthony Trewavas. Trewavas was also one of the experts quoted by the SMC [in their media release](#) that had such an impact on the reporting of the Séralini study.

In his SMC comments, which ended up being [quoted in well over 20 different publications](#) worldwide, Trewavas accuses the researchers of using a cancer-prone rat and claims: "[A] line [of rats] which is very susceptible to tumours can easily bias any result." This line of argument was also developed for the SMC by another expert, Maurice Moloney who says Sprague-Dawley rats frequently develop mammary tumours

It is this cancer-prone rat claim, which Trewavas and Moloney first set running, that more than any other underpins the Chassy-Miller allegation of fraud. The suggestion is that the study was deliberately designed to generate tumours, i.e. that Séralini and his team intentionally chose the Sprague-Dawley rat for their research in order to produce exactly the result they wanted - cancer!

But although variants on this claim have been widely reported, there are a number of problems with it. Not only is this line of rats the same one that [Monsanto used for the study](#) that underlies the regulatory approval of this GM maize (NK603), but Sprague-Dawley rats have also been used repeatedly in toxicology and carcinogenesis trials, [including long-term ones](#). They were even [used in industry's own two-year research studies](#) submitted to regulators to support the regulatory approval of glyphosate – the active ingredient in Monsanto's Roundup, one of the

two substances that Séralini's team were researching.

And the fact that this strain of rat has [a 30%-plus tendency to “spontaneous” cancers across its lifetime actually means it a good model for humans](#), who have a similar susceptibility to the disease. What's more, even allowing for the Sprague-Dawley rats having a tendency to spontaneous tumours, Séralini's team found the rats fed on either the GM maize or the herbicide suffered an increase in the number of tumours and they had an earlier onset when compared to those in the control group. The researchers also took account of the spontaneous tumour issue by comparing their results to the rates of similar types of tumour in other published studies using the same strain of rat.

This is not say that the Séralini study does not have its shortcomings. It's true that the study had fewer rats than are recommended for cancer studies, but Séralini did not set out to look for tumours. His study was a chronic toxicity one that unexpectedly found striking evidence of increased tumours in the treated rats. Given this finding, the onus should now be on Monsanto to fund a full-scale carcinogenicity study using larger groups of rats to prove that its products are safe – something it has so far failed to do.

Angelika Hilbeck of the Swiss Federal Institute of Technology (ETH Zurich) describes the "wrong rat" argument first put forward by Trewavas and Moloney as "absurd". [Hilbeck says](#), "Séralini chose the same strain of rat as Monsanto. Do we really think that a substance should be tested on an animal that is not sensitive to it? With these defamations they wanted to distract us from the fact that Séralini used the same methodology as Monsanto. Because if you take Séralini seriously as a researcher, you have to take seriously his study and the comparison with Monsanto's study. That would put into question Monsanto's study and hence the approval of GM maize."

### **Double standards used to condemn studies showing risk**

In fact, many of the charges that have been made against the Séralini study could be levelled against the studies that have been used to approve GM crops, which are less detailed than Séralini's and typically shorter-term. This is why [a report by the European Network of Scientists for Social and Environmental Responsibility \(ENSSER\)](#) concluded that a careful comparison of the Séralini rat feeding trial with Monsanto trials shows that if the Séralini experiments are considered insufficient to demonstrate harm, then those carried out by Monsanto cannot prove safety. This is because, whatever its limitations, Séralini's study was conducted to generally higher scientific standards than the studies



underlying GM food approvals.

ENSSER highlights the double standards whereby studies on GM crops like Séralini's that show adverse effects are subjected to obsessive yet often poorly justified criticism of their experimental and statistical methods, while those like Monsanto's that claim safety are taken at face value. In this way risk is assessed in an asymmetrical fashion so that the burden of proof is not on the biotech industry to provide adequate evidence of the safety of its products, but is on public researchers like Séralini to prove harm beyond any doubt. [Other experts](#) have echoed the charge of double standards, including around 140 French scientists who, [in a public statement published in Le Monde](#), declared that it was contrary to scientific ethics to damn an experimental protocol when it gave results that were not wanted, while accepting it when it gave results that were.

These double standards can also be seen in the petition demanding that Séralini hand over all of his raw data to his critics. Those championing the petition have no history of demanding from Monsanto full public disclosure of all the raw data underlying its studies supporting safety (the industry studies on glyphosate, for example, are [kept secret under 'commercial confidentiality' agreements between industry and regulators](#)). This is why Séralini has said he will undertake full disclosure when the same level of disclosure takes place for all the studies underlying GM food approvals, so that like can be compared with like.

### **Public science and private interests**

One of the early UK signatories of the petition, as well as a co-signatory, like Prof. Trewavas, of the letter to Food and Chemical Toxicology from Prakash, Chassy and Miller, is [Prof. Chris Leaver](#). Leaver, like Trewavas, is a GM scientist. He is also a former advisor to the Science Media Centre and a former consultant to the GM/agrochemical giant Syngenta. Since 1984 Prof. Leaver has also been [on the Governing Council](#) of the UK's leading public plant biotech institute, [the John Innes Centre](#) – something else he has in common with Prof. Trewavas, who was also for several years on the JIC's Governing Council.

The JIC has been a key player in the criticism of Séralini. This is apparent as soon as you look at the SMC's three media releases on the study. [The first](#) quoted eight experts including a senior scientist at the JIC and a former member of its Governing Council (Trewavas). [The second](#) quoted just one expert, Cathie Martin of the JIC. [The third](#) quoted five experts, of which three, including Cathie Martin, were from the JIC.

What makes this predominance particularly revealing is that the scientists in question are not experts on toxicology or animal studies. Their expertise is in plant genetics and GM. What's more, the JIC and its Sainsbury Laboratory have had tens of millions of pounds in investment from GM giants like Syngenta. In fact, they are so dependent on the public acceptance of GM that a previous acting director of the JIC [confided to his local paper](#) that any major slowdown or halt in the development of GM crops "would be very, very serious for us".

These vested interests are personal as well as institutional. Cathie Martin, for instance, says in [her JIC profile](#), "I am inventor on seven patents and I recently co-founded a spin-out company (Norfolk Plant Sciences) with Professor Jonathan Jones FRS, to bring the benefits of plant biotechnology to Europe and the US." [Jones](#), who is quoted along with Martin in one of the SMC releases, co-founded another biotech firm, [Mendel Biotechnology](#), which has Monsanto as its "most important customer and collaborator".

The failure of Jones, who is also an advisor to Mendel Biotechnology, to be more explicit about his industry links, has [generated controversy](#). Yet journalists are given no indication of these kind of conflicts of interest by the SMC's releases, as [the journalist Joanna Blythman has noted](#): "The SMC introduced these experts to the media solely by listing the universities and public institutions that employ them, failing to give the full flavour of their interests." And the problem goes much wider than the JIC, as [Blythman notes with regard to the experts quoted in the SMC's first media release](#): "seven out of eight are either evangelical advocates of GM food, or have received funding from, or worked with, prominent biotech corporations."

Take, for instance, the very first expert quoted by the SMC, Prof. Maurice Moloney. This year, the SMC has featured Moloney [in no fewer than four different media releases on GM](#). They typically identify him only as "Institute Director and Chief Executive, Rothamsted Research", which is an independent charitable agricultural research centre. What journalists aren't told is that Moloney is so enamoured of GM that [he drives around in a Porsche with a GMO number plate](#), and has a CV to match. He is the inventor on more than 300 patents and his GM research underpins one of Monsanto's main GM crops. He has also founded his own GM company in which the GM giant Dow AgroScience was an investor. The fact that Prof. Moloney's career and business interests have long been centered around GM is not something the SMC seems to think journalists need to know.

## Letters to journal fail to disclose conflicts of interest

This pattern of significant but undisclosed conflicts of interest is relevant to not only the majority of the SMC's experts but also to many of Séralini's other critics, including those responsible for the twenty or so letters published by Food and Chemical Toxicology in response to Séralini's paper. Some of the letter writers are, in fact, exactly the same people that the SMC quotes. They are also often to be found amongst [the earliest signatories of the AgBioWorld ipetition](#). Maurice Moloney, for example, not only turns up twice in the SMC's media rebuttals of Séralini, but comes in at no. 11 on the list of ipetition signatories, and [he wrote a letter to the journal](#).

Another [letter writer demanding retraction is Prof. Mark Tester](#). Like Moloney and the JIC, Tester is a firm favourite with the SMC, [featuring in three of this year's SMC's media releases](#) and in many more over the years. He was already a favoured expert a decade ago when the SMC was [accused of orchestrating a spin campaign](#) to discredit a BBC drama on GM crops. [The University of Adelaide staff directory](#) broadens out Prof. Tester's academic profile in a way the SMC never has: "His commercial acumen is clear from his establishment of private companies and successful interactions with multinational companies such as Monsanto, Syngenta, Bayer and Pioneer-DuPont."

Many other letter writers also have undisclosed industry links. Take, for instance, Martina Newell-McGloughlin. [She identifies herself](#) as the director of the International Biotechnology Program at the University of California/Davis, but fails to mention that [the Program is funded by the likes of Monsanto, Syngenta, DuPont and Bayer](#). Another letter writer and a colleague at UC Davis, Kent Bradford, [has consulted for Monsanto](#). Lucia de Souza [wrote to the journal](#) with Leila Macedo Oda on behalf of [ANBio – the Brazilian Biosafety Association](#), without mentioning that ANBio's funders include Monsanto, Bayer, and DuPont.

Then there are the letter writers who fail to mention their previous employers, [like Andrew Cockburn](#), Monsanto's former director of scientific affairs (Europe and Africa); [L. Val Giddings](#), former Vice President of the [Biotechnology Industry Organisation](#); and [Sivramiah \(Shanthu\) Shantharam](#), former Syngenta man and until recently head of the biotech industry's main lobby group in India.

Even letter writers who at first glance seem like they must be entirely independent of the biotech industry can turn out to have links. Take, for instance, [Erio Barale-Thomas](#), one of the few toxicologists [to criticize the Séralini paper in the journal](#). Barale-Thomas, who says he writes on

behalf of the Administrative Council of the French Society of Toxicological Pathology, takes Séralini to task for his failure to declare a conflict of interest in his paper, namely that Séralini is president of CRIIGEN, an independent research group with concerns about GM, which contributed funding to the research. Yet CRIIGEN's contribution to funding the study was declared in the paper, while Barale-Thomas does not disclose in his letter [his own biotech interests](#). He is not only principal scientist at Janssen Biotech, but immediately prior to that he worked for the GM crop and agrochemical giant Bayer CropScience (1998-2003).

Another French scientist among the letter writers is Prof. Marc Fellous, whose declared connections are academic posts in the sphere of human genetics. What he doesn't mention is that he heads up the [French Association of Plant Biotechnology](#), which lobbies for GM crops and has been so aggressive in its attacks on Séralini that last year he successfully sued Fellous for defamation.

### Science or ideology?

Another letter writer [is the pathologist Sir Colin Berry](#). Like Trewavas, [Berry is an advisor to the Scientific Alliance](#), an organization which campaigns on environmental issues, particularly climate change, energy policy and agriculture. It is pro-GM, pro-nuclear and sceptical about climate change. Its director, [Martin Livermore](#), runs an agri-food PR consultancy, prior to which he did PR for the GM giant DuPont. [The Alliance](#) was established by the lobby firm Foresight Communication with money from right-wing business interests.

Trewavas is one of only a couple of scientists who not only signed onto the Prakash, Chassy, Miller letter but also sent [their own letter of complaint to the journal](#). Trewavas concludes it like this: "this paper and this journal have dealt the value of evidence-based knowledge a serious blow and it can only be rectified if the paper is withdrawn by the authors with an apology for misleading the public and the scientific community alike... Ideology and politics must be kept out of scientific study or we all suffer."

It is revealing that critics like Berry and Trewavas claim to champion an evidence-based approach while operating out of lobby groups that attack the scientific consensus on issues like climate change. [Berry](#), incidentally, is also a shareholder in the company that owns the aggressively libertarian online magazine [Spiked](#), which also promotes climate scepticism. [Fiona Fox](#), the director of the [Science Media Centre](#), was a long-time affiliate of [the anti-environmental LM network](#) that are behind Spiked.

The network around AgBioWorld also contains people with similar attitudes on environmental issues. These include [Henry Miller](#), who co-wrote the article accusing Séralini of fraud, and AgBioWorld's co-founder [Greg Conko](#) of the Exxon-funded [Competitive Enterprise Institute](#), which [specializes in](#) denialist "straight talk on global warming."

Given this, it is ironic that AgBioWorld's Séralini petition was set up in the name of "the scientific community." Similarly, [Maurice Moloney says in his letter](#) to Food and Chemical Toxicology that he thinks he can speak "for the vast majority of the biological sciences community." But as we have seen, Moloney and many of the other letter writers link to a narrow and heavily commercialised sector of the biological sciences, albeit one with powerful backers. And some in this community have links to extremist lobby groups more concerned with ideology than evidence.

### **Peeling the GM onion**

Identifying the real forces behind the front-men and carefully selected experts of "the scientific community" can be like peeling back the layers of an onion. Take Anthony Trewavas, the scientist who first helped get the cancer-prone rat claim into circulation. In 2001 Prof. Trewavas was named in the High Court in London as the source of a letter published in a Scottish newspaper that made libelous claims against GM critics ([Greenpeace wins damages over professor's "unfounded" allegations](#)). Trewavas subsequently denied being the author of the libel letter published under his name, though he did admit circulating the material, which he said he had got from AgBioWorld. He said it had been written by a "lady in London" but "she" later turned out to be [a front for the same Monsanto PR people](#) who [covertly directed the campaign](#) that resulted in Nature's apparent retraction of Chapela's GM maize paper.

Trewavas, a long-time associate of Prakash and AgBioWorld, also [played a notable role](#) in that campaign. In that case, Trewavas [encouraged people to demand](#) Chapela be fired by the University of California, Berkeley, unless he handed over his maize samples for checking: "We should be asking Berkeley to request Chapela to release his samples so that they at least can be checked... Refusal to do so should then be used to request Berkeley to relinquish Chapella's [sic] position." Such calls to arms against Chapela were mostly posted on the AgBioWorld listserv. This use of the listserv eventually enabled Monsanto's [covert orchestration](#) of the campaign to be exposed.

### **The attack dog in the night-time**

Interestingly, as the attacks on Prof. Séralini and his paper spread across both mainstream and social media, AgBioWorld's listserv went missing. In the two months following the publication of Séralini's paper, [not a single bulletin went out on the listserv](#) that [played such a pivotal role](#) in achieving retraction of the Mexican maize paper.

AgBioWorld's sudden silence calls to mind a famous exchange in The Memoirs of Sherlock Holmes:

Detective: "Is there any other point to which you would wish to draw my attention?"

Holmes: "To the curious incident of the dog in the night-time."

Detective: "The dog did nothing in the night-time."

Holmes: "That was the curious incident."

With Séralini, it's the curious silence of Monsanto's attack dog that suggests that this time the covert PR war is being conducted by other means.

If the silence of AgBioWorld's listserv is suggestive, so too is the attempt to silence [GMWatch](#). Within days of the publication of the Séralini paper, our website came under major DDOS (Distributed Denial of Service) attacks. The contours of the attacks followed the peaks of the controversy, with the two biggest and most debilitating attacks coinciding with days on which the major rebuttals of Séralini's paper were published. [The GMWatch website](#) had by then become a clearing house for rapid responses in English to the attacks on Séralini. We have no proof as to who was behind the attacks – that's hard to establish with DDOS. But oddly enough, [an article in the Guardian](#) about the retraction campaign against Quist and Chapela noted, "Just before the [Mexican maize] paper in Nature was publicly challenged, the server hosting the accounts used by its authors was disabled by a particularly effective attack which crippled their capacity to fight back."

More than a decade later history seems to be repeating itself in the covert war over GM crops.

What is most remarkable about the events covered in this article is the similarity between the attacks on Quist/Chapela and those on Séralini. Many of the same actors are involved, and Monsanto-linked people are key. While their activities are hugely damaging to the individual reputations of the scientists targeted, it could be argued that the biggest loser is scientific integrity, with a consequent loss of

public trust in science.

## **Séralini wins defamation cases – Miller’s “fraud” allegation ruled a libel**

Some of the claims and allegations that were made by Séralini’s attackers have been tested in court – and roundly discredited.

In September 2016 the French news magazine Marianne and its reporter Jean-Claude Jaillette lost a defamation case to Prof Gilles-Eric Séralini and his fellow researchers in the Court of Appeals in Paris on 7 September 2016. In an article for Marianne about the Séralini long-term toxicity study of GM maize and Roundup, Jaillette had repeated the allegation of scientific fraud that originated from the American lobbyist Henry I. Miller.<sup>37</sup>

In the same month Séralini won another court case, this time against Marc Fellous, a GMO proponent who was formerly President of the Biomolecular Engineering Commission (CGB), which assessed the safety of GMOs in France for the ministries of agriculture and environment from 1998 to 2007. In 2016 he became [president](#) of the French Association for Plant Biotechnology, a lobby group that was set up to promote GM crops. In the court case, Fellous was found guilty of forgery and the use of forgery in order to defame Séralini and CRIIGEN, the research association with which Séralini is associated, which focuses on the risks of genetic engineering and pesticides and the development of alternatives.

The case had its roots in a previous court case last November in which the judge ruled that Fellous had defamed Séralini. During that court case, Fellous had used or copied the signature of a scientist without his agreement (“forgery” and “use of forgery”) to argue that Séralini and his co-researchers were wrong in their reassessment of Monsanto studies. The Séralini team’s re-assessment [reported](#) finding signs of toxicity in the raw data from Monsanto’s own rat feeding studies with GM maize.<sup>38</sup>

These rulings show that it cannot be assumed that the attackers of inconvenient studies are correct and justified in their allegations.

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<sup>37</sup> GMWatch. Séralini wins defamation case against French news magazine Marianne. GMWatch, 11 September 2016. <http://www.gmwatch.org/news/latest-news/17208>

<sup>38</sup> GMWatch. Séralini wins again in court against his attackers. GMWatch, 26 September 2016. <http://www.gmwatch.org/news/latest-news/17236>

## **Monsanto used fake citizens to attack scientists and GMO critics**

An article by the environmental journalist George Monbiot, based on research by Jonathan Matthews of GMWatch, described how the smear campaign against Quist and Chapela was whipped up on the AgBioWorld listserv by two people who went by the names Mary Murphy and Andura Smetacek. Exhaustive attempts to track down these people were unsuccessful. They appear to have been fake citizens. Matthews' research traced Smetacek via the internet protocol address on her messages to the server gatekeeper2.monsanto.com. It belongs to Monsanto.

As for Mary Murphy, Monbiot wrote that she “had been bombarding internet listservers with messages denouncing the scientists and environmentalists who were critical of GM crops. The computer from which some of these messages were sent belongs to a public relations company called Bivings, which works for Monsanto. The boss of Bivings wrote to the Guardian, fiercely denying that his company had been running covert campaigns. His head of online PR, however, admitted to the BBC's Newsnight that one of the messages came from someone ‘working for Bivings’ or ‘clients using our services’. But Bivings denies any knowledge of the use of its computer for such a campaign.”<sup>39</sup>

Monbiot then drew a link between these events and Jay Byrne, formerly Monsanto's director of internet outreach. In 2001 Byrne, wrote Monbiot, “explained to a number of other firms the tactics he had used at Monsanto. He showed how, before he got to work, the top GM sites listed by an internet search engine were all critical of the technology. Following his intervention, the top sites were all supportive ones (four of them established by Monsanto's PR firm Bivings). He told them to ‘think of the internet as a weapon on the table. Either you pick it up or your competitor does, but somebody is going to get killed’.

“While he was working for Monsanto, Byrne told the internet newsletter Wow that he ‘spends his time and effort participating’ in web discussions about biotech. He singled out the site AgBioWorld, where he ‘ensures his company gets proper play’. AgBioWorld is the site on which Smetacek launched her campaign.”

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<sup>39</sup> Monbiot G. The covert biotech war. The Guardian, 19 Nov 2002.  
<https://www.theguardian.com/science/2002/nov/19/gm.food>



## **Are AgBioWorld and v-Fluence interchangeable?**

Since Jonathan Matthews wrote “Smelling a corporate rat” about the Séralini affair in 2012, further evidence has come to light regarding the press release<sup>40</sup> mentioned in the article. The press release asserted that “the petitioning scientists are calling on the publishing journal editors to retract the Séralini study” if he failed to give in to their demand that he hand over all his data. The new evidence seems to confirm the extraordinarily close relationship between AgBioWorld and v-Fluence, the St Louis based PR firm founded by Jay Byrne, Monsanto’s former chief internet strategist and director of corporate communications.

The first two images below show the 2012 press release in an early form, as archived by the Wayback Machine internet archive on 24 Jan 2013.<sup>41</sup> The source of the press release is given as AgBioWorld Foundation. But at the foot of the press release are the words, “All Press Releases By v-Fluence Interactive”.

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<sup>40</sup> <http://www.prlog.org/11999640-scientists-call-on-french-researchers-to-release-gmo-test-data.html>

<sup>41</sup> <http://web.archive.org/web/20130124131751/http://www.prlog.org/11999640-scientists-call-on-french-researchers-to-release-gmo-test-data.html>

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## Scientists call on French researchers to release GMO test data

More than 700 scientists and academicians have signed petitions calling on French researcher Gilles-Eric Seralini to release research data behind his recently publicized health claims associated with biotech crops.

FOR IMMEDIATE RELEASE

*PRLog (Press Release) - Oct. 15, 2012* - More than 700 scientists and academicians have signed petitions calling on French researcher Gilles-Eric Seralini to release research data behind his recently publicized health claims associated with biotech crops. The signers include senior scientists, prize winning researchers and respected academics from a wide range of highly regarded research institutions, international organizations and universities from around the globe.

The petitioners, from every continent representing more than 40 countries, are urging transparency in the promotion of sound science on important issues of public health. They are joining calls by regulatory bodies including the European Food Safety Authority (EFSA) and Food Standards Australia New Zealand (FSANZ) to Seralini and his collaborators at the Committee for Research & Independent Information on Genetic Engineering (CRIIGEN) to provide the research data to back up their allegations of health and safety risks links to GMOs.

"The serious demands by Seralini that regulatory bodies and the public make decisions about how food is grown based on his report require that he be transparent about the means and measures by which he has drawn conclusions," said Klaus Ammann, PhD, professor plant systems, Biosafety Committee of the Government of Switzerland, Chairman EFB Section on Biodiversity, University of Bern, Switzerland notes, "Anything less than the normal, full disclosures of data, leaves us all victims of political manipulation and highly theatrical propaganda – this is not science."

"The basic code of scientific ethics requires that scientists release all data associated with a peer reviewed scientific paper," noted Bruce Chassy, PhD, professor emeritus, Food Science & Nutrition, University of Illinois, United States.

"The claims made by this study contradict an extensive body of independent and widely accepted

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"The basic code of scientific ethics requires that scientists release all data associated with a peer reviewed scientific paper," noted Bruce Chassy, PhD, professor emeritus, Food Science & Nutrition, University of Illinois, United States.

"The claims made by this study contradict an extensive body of independent and widely accepted scientific research," said C.S. Prakash, PhD, Professor, Plant Molecular Genetics, Tuskegee University. "The few details shared about the Seralini study indicate significant flaws in common research and analytical practices, the only way to take this seriously is to allow an open review of the data behind these claims."

Hundreds of scientists are pointing to the recent findings by the European Food Safety Authority (EFSA), the German Federal Office of Consumer Protection and Food safety (BVL) and the Federal Institute for Risk Assessment (BfR) which concluded that the Seralini's deductions are not justified because of shortcomings in study design, data evaluation and presentation methods. In the absence of disclosure, the petitioning scientists are calling on the publishing journal editors to retract the Seralini study.

Petition link: <http://www.ipetitions.com/petition/dr-seralini-please-rel...>

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Tags : Seralini, CRIIGEN, gmo, gmos, GE Foods, genetically modified, genetically engineered, biotechnology

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At the very least, this would seem to confirm a direct link between AgBioWorld and v-Fluence. Interestingly though, the press release as it now exists on the PRLog website has had all mention of v-Fluence removed – see the images below as captured on 29 September 2016 from the website at <https://www.prlog.org/11999640-scientists-call-on-french-researchers-to-release-gmo-test-data.html>

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## Scientists call on French researchers to release GMO test data

More than 700 scientists and academicians have signed petitions calling on French researcher Gilles-Eric Seralini to release research data behind his recently publicized health claims associated with biotech crops.

**Oct. 15, 2012 - PRLog** -- More than 700 scientists and academicians have signed petitions calling on French researcher Gilles-Eric Seralini to release research data behind his recently publicized health claims associated with biotech crops. The signers include senior scientists, prize winning researchers and respected academics from a wide range of highly regarded research institutions, international organizations and universities from around the globe.

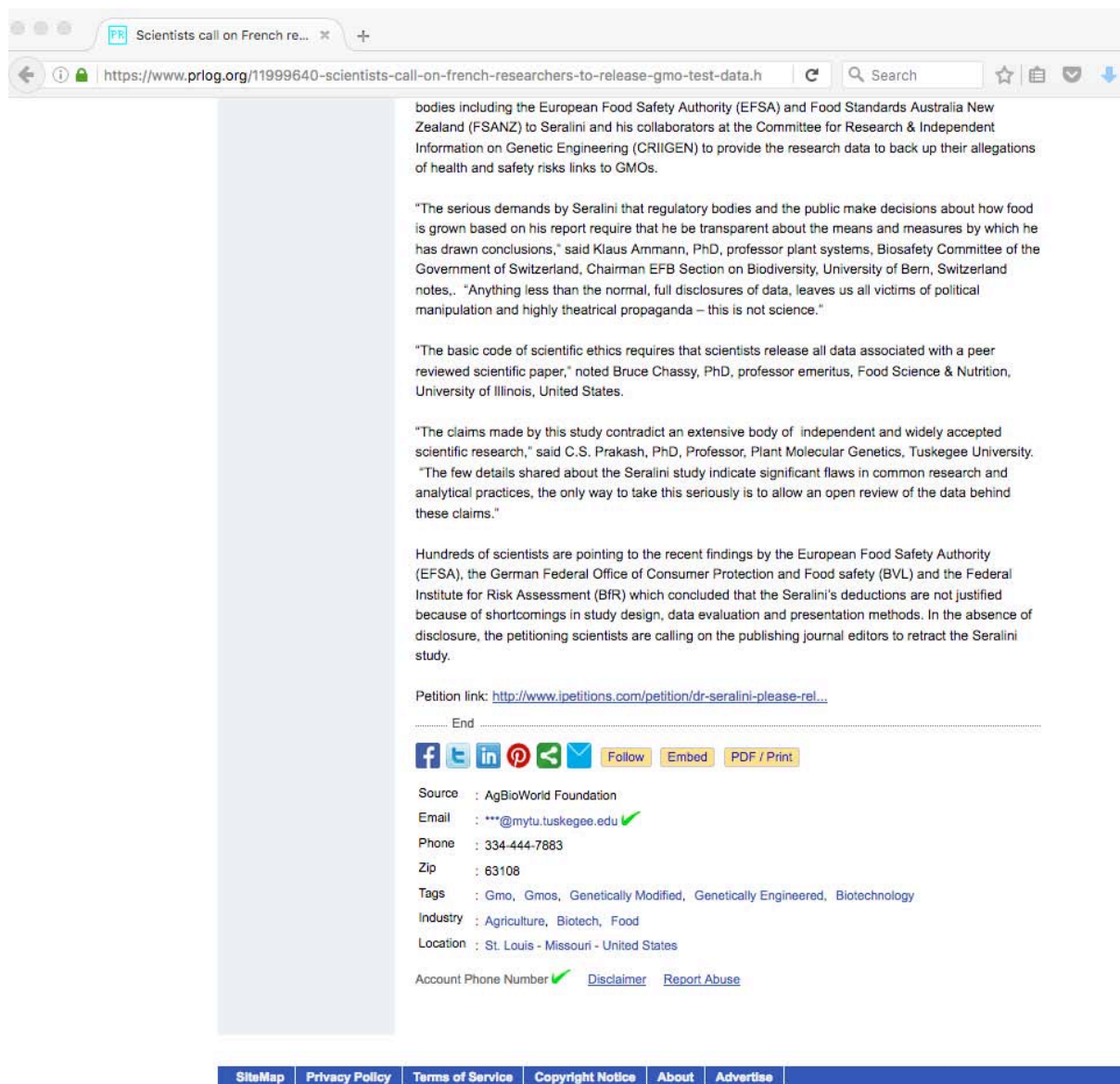
The petitioners, from every continent representing more than 40 countries, are urging transparency in the promotion of sound science on important issues of public health. They are joining calls by regulatory bodies including the European Food Safety Authority (EFSA) and Food Standards Australia New Zealand (FSANZ) to Seralini and his collaborators at the Committee for Research & Independent Information on Genetic Engineering (CRIIGEN) to provide the research data to back up their allegations of health and safety risks links to GMOs.

"The serious demands by Seralini that regulatory bodies and the public make decisions about how food is grown based on his report require that he be transparent about the means and measures by which he has drawn conclusions," said Klaus Ammann, PhD, professor plant systems, Biosafety Committee of the Government of Switzerland, Chairman EFB Section on Biodiversity, University of Bern, Switzerland notes.. "Anything less than the normal, full disclosures of data, leaves us all victims of political manipulation and highly theatrical propaganda -- this is not science."

"The basic code of scientific ethics requires that scientists release all data associated with a peer reviewed scientific paper," noted Bruce Chassy, PhD, professor emeritus, Food Science & Nutrition, University of Illinois, United States.

"The claims made by this study contradict an extensive body of independent and widely accepted scientific research," said C.S. Prakash, PhD, Professor, Plant Molecular Genetics, Tuskegee University. "The few details shared about the Seralini study indicate significant flaws in common research and analytical practices, the only way to take this seriously is to allow an open review of the data behind these claims."

Hundreds of scientists are pointing to the recent findings by the European Food Safety Authority (EFSA), the German Federal Office of Consumer Protection and Food safety (BVL) and the Federal Institute for Risk Assessment (BfR) which concluded that the Seralini's deductions are not justified because of shortcomings in study design, data evaluation and presentation methods. In the absence of disclosure, the petitioning scientists are calling on the publishing journal editors to retract the Seralini study.



This suggests a belated attempt to cover up the link between AgBioWorld and v-Fluence.

However, other elements of the press release bear out the link. The phone no. (334-444-7883) provided to journalists in the press release is for a place in Alabama about 45 minutes' drive from Tuskegee. AgBioWorld's C. S. Prakash has a position at Tuskegee University. It may be his home number or the number of someone closely associated with him. However, the location given in the press release for AgBioWorld is not Alabama but St Louis and the zip code given (63108) is that of v-Fluence.<sup>42</sup>

Some observers might conclude from these facts that AgBioWorld and

<sup>42</sup> <http://www.b2byellowpages.com/company-information/308062166-v-fluence.html>

the PR firm v-Fluence are interchangeable.

## Outcome of the Séralini study retraction campaign

The retraction campaign against the Séralini study was eventually successful, in that the editor of Food and Chemical Toxicology, A. Wallace Hayes, retracted it after a year of sustained pressure.<sup>43</sup>

The reason given by A. Wallace Hayes for retracting the study appears to be unprecedented in the history of scientific publishing. According to the Committee on Publication Ethics (COPE), retraction is reserved for cases of unreliable findings due to honest error, misconduct, redundant publication or plagiarism, and unethical research.<sup>44</sup> But Hayes said that the retraction was solely based on the “inconclusive” nature of the outcomes concerning rates of tumour incidence and mortality, based on the relatively low number of animals and the strain of rat used.<sup>45</sup> Since the authors had stated in their paper that this was not a carcinogenicity study, which requires larger numbers of animals, but a chronic toxicity study, for which lower numbers are more usual, this was a disingenuous ‘straw man’ criticism.

The retraction followed a non-transparent post-publication second review process by anonymous persons of unknown professional competence using undisclosed terms of reference.<sup>46</sup> It also followed the appointment of a former Monsanto scientist, Richard E. Goodman, to the journal’s editorial board.<sup>47</sup>

In fact Goodman still appears to be financially dependent on Monsanto. As journalist Stéphane Foucart noted in a 2016 article in the French newspaper Le Monde, Goodman himself wrote in a message of 2012 that “50% of [his] salary” actually comes from a project funded by Monsanto, Bayer, BASF, Dow, DuPont and Syngenta, and consists of

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<sup>43</sup> Elsevier. Elsevier announces article retraction from Journal Food and Chemical Toxicology. 2013. Available at: <http://www.elsevier.com/about/press-releases/research-and-journals/elsevier-announces-article-retraction-from-journal-food-and-chemical-toxicology#sthash.VfY74Y24.dpuf>. Also see Hayes AW. Letter to Professor GE Séralini. 2013. [http://www.gmwatch.org/files/Letter\\_AWHayes\\_GES.pdf](http://www.gmwatch.org/files/Letter_AWHayes_GES.pdf).

<sup>44</sup> Committee on Publication Ethics (COPE). Retraction guidelines. 2009. <http://publicationethics.org/files/retraction%20guidelines.pdf>

<sup>45</sup> Hayes AW. Letter to Professor GE Séralini. 2013. [http://www.gmwatch.org/files/Letter\\_AWHayes\\_GES.pdf](http://www.gmwatch.org/files/Letter_AWHayes_GES.pdf)

<sup>46</sup> Hayes AW. Letter to Professor GE Séralini. 2013. Available at: [http://www.gmwatch.org/files/Letter\\_AWHayes\\_GES.pdf](http://www.gmwatch.org/files/Letter_AWHayes_GES.pdf)

<sup>47</sup> Robinson C, Latham J. The Goodman affair: Monsanto targets the heart of science. Independent Science News. 20 May 2013. <https://www.independentsciencenews.org/science-media/the-goodman-affair-monsanto-targets-the-heart-of-science/>

establishing a database of food allergens.<sup>48</sup> As at October 2016, he is still in this position at the University of Nebraska.<sup>49</sup>

### **Goodman asks Monsanto to provide criticisms of the Séralini study**

Foucart's article contained revelations from emails disclosed as a result of freedom of information requests by the US transparency NGO, US Right to Know.<sup>50</sup>

The article uncovered a close collaborative relationship between Goodman and Monsanto. In September 2012, when the Séralini study was published, Goodman was not yet a member of the editorial board of FCT. On 19 September, Foucart wrote, Goodman informed his Monsanto correspondent about the publication of Séralini's article and that he "would appreciate" it if the firm could provide him with criticisms. "We're reviewing the paper," the Monsanto correspondent replied. "I will send you the arguments that we have developed." A few days later, Goodman was named "associate editor" of FCT, on the decision of the toxicologist A. Wallace Hayes, then editor of the journal.

This appointment was not publicly announced until February 2013. Foucart notes that the addition of Goodman on the editorial board of the magazine was actually a direct and immediate consequence of the Séralini publication. On November 2, 2012, when the "Séralini affair" was in full flow, Hayes announced in an email to Monsanto employees that Goodman would from now on be in charge of biotechnology at the journal. Hayes added: "My request, as editor, and from Professor Goodman, is that those of you who are highly critical of the recent paper by Séralini and his co-authors volunteer as potential reviewers."

Foucart commented that Hayes was formally inviting Monsanto toxicologists to appraise for acceptance or rejection studies on GMOs that are submitted to the journal for review. The documents consulted by Le Monde did not say if Hayes – who did not respond to Le Monde's inquiries – limited this request to Monsanto scientists.

### **Goodman asks Monsanto for scientific arguments to counter critics**

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<sup>48</sup> Reported in Robinson C. Emails reveal role of Monsanto in Séralini study retraction. GMWatch, 20 July 2016. <http://www.gmwatch.org/news/latest-news/17121>

<sup>49</sup> <http://farrp.unl.edu/dr-richard-e-goodman-research-professor>

<sup>50</sup> Reported in Robinson C. Emails reveal role of Monsanto in Séralini study retraction. GMWatch, 20 July 2016. <http://www.gmwatch.org/news/latest-news/17121>



In some cases, Foucart reported, Goodman seemed to defer to the judgement of Monsanto's toxicologists when he had to evaluate an article containing aspects that were beyond his knowledge. "I'm looking at an 'anti' [presumably 'anti-GMOs or pesticides'] paper," he wrote in October 2014 to one of his Monsanto correspondents. "They cite a Sri Lankan study of 2014 on a possible link between glyphosate exposure and kidney disease, as well as a mechanism [to explain this toxicity]." Goodman added: "I'm not enough of a chemist or toxicologist to understand the strengths and the weaknesses of their logic: can you give me some solid scientific arguments about whether it is, or is not, plausible."

Glyphosate, the active ingredient of Roundup herbicide, is a key product of Monsanto, as it is sold with the company's GM glyphosate-tolerant crops.

According to Foucart, nothing in the documents consulted by Le Monde supported the idea that Goodman played a role in the retraction of the Séralini study. That decision was taken by Hayes, who has plenty of his own conflicts of interest with industry.<sup>51</sup> In January 2015, Goodman resigned his position at the journal, due to time constraints.

### **Scientific response to the Séralini study retraction**

In a series of articles and petitions, hundreds of scientists worldwide condemned the retraction of the Séralini study variously as an "act of scientific censorship" and as unjustified on scientific and ethical grounds.<sup>52</sup> Many scientists pointed out that vast numbers of published

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<sup>51</sup> Reported in Robinson C. Emails reveal role of Monsanto in Séralini study retraction. GMWatch, 20 July 2016. <http://www.gmwatch.org/news/latest-news/17121>

<sup>52</sup> Heinemann J. Let's give the scientific literature a good clean up. Biosafetycooperative.newsvine.com. 2013. <http://bit.ly/1aeULiB>; Schubert D. Science study controversy impacts world health. U-T San Diego. January 8, 2014. <http://www.utsandiego.com/news/2014/jan/08/science-food-health/>; European Network of Scientists for Social and Environmental Responsibility (ENSSER). Journal's retraction of rat feeding paper is a travesty of science and looks like a bow to industry: ENSSER comments on the retraction of the Séralini et al. 2012 study. Berlin, Germany; 2013. <http://bit.ly/1cytNa4>; AFP. Mexican scientists criticise journal's retraction of study on GMO. terra.cl. December 18, 2013. <http://bit.ly/1jv11HZ>; English translation available at: <http://gmwatch.org/index.php/news/archive/2013/15225>; Portier CJ, Goldman LR, Goldstein BD. Inconclusive findings: Now you see them, now you don't! Environ Health Perspect. 2014;122(2); EndScienceCensorship.org. Statement: Journal retraction of Séralini GMO study is invalid and an attack on scientific integrity. 2014. <http://www.endsciencesensorship.org/en/page/Statement#.UwUSP14vFY4>; Antoniou M, Clark EA, Hilbeck A, et al. Reason given for retraction – inconclusiveness – is invalid. 2014. <http://www.endsciencesensorship.org/en/page/retraction-reason#.Uweb4I4vFY4>; Institute of Science

scientific papers are “inconclusive”, at least in some aspects, and that inconclusiveness is not a valid reason for retraction. If it were ever believed to be so, the scientific literature would be decimated because numerous papers would have to be retracted.<sup>53 54</sup>

## Study republished

In 2014 the Séralini study was republished in another journal, Environmental Sciences Europe,<sup>55</sup> after passing another round of peer review to ensure that the scientific elements remained unchanged from the first publication.<sup>56</sup> It remains a citable publication.

## Was the Séralini study “bad science”?

Some may argue that even the deceptive tactics used to smear the Séralini study do not ultimately matter because the study was “bad science” and needed to be retracted in order to keep science pure and unsullied by flawed papers.

But this argument does not stand up to analysis. Every scientific study has strengths and limitations, and that includes studies that are claimed to show that GMOs are safe. The strengths of the Séralini study include:

- It was the only long-term feeding study with a GMO and its associated herbicide.
- It was the only study designed to distinguish between effects of the GMO alone, the herbicide alone, and the two in combination.
- It tested a large number of toxicological endpoints.
- It used the complete formulation of the herbicide Roundup as sold and used by farmers and others, not just the isolated ‘active ingredient’, glyphosate. Only the isolated active ingredient is tested for long-term safety in the industry studies performed to gain regulatory approval, even though people in general are not exposed to glyphosate alone but the more-toxic formulations, such

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in Society. Open letter on retraction and pledge to boycott Elsevier. 2013. [http://www.issis.org.uk/Open\\_letter\\_to\\_FCT\\_and\\_Elsevier.php#form](http://www.issis.org.uk/Open_letter_to_FCT_and_Elsevier.php#form).

<sup>53</sup> <http://www.endsciencencensorship.org>

<sup>54</sup> Schubert D. Science study controversy impacts world health. U-T San Diego. January 8, 2014. <http://www.utsandiego.com/news/2014/jan/08/science-food-health/>

<sup>55</sup> Séralini et al. Republished study: long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. Environmental Sciences Europe. 2014. 26:14. <https://enveurope.springeropen.com/articles/10.1186/s12302-014-0014-5>

<sup>56</sup> Robinson C. Was Séralini’s republished paper peer-reviewed? GMWatch, 28 June 2014. <http://gmwatch.org/index.php/news/archive/2014/15511>

as Roundup.

- It used a 'clean' base diet, free from chemical and GMO contaminants, thus enabling any effects of the test substances, the GMO and the herbicide, to be clearly seen without the 'data noise' potentially caused by such contaminants.
- It used an environmentally relevant dose of Roundup, to which human and animal consumers could easily be exposed.

The major limitation of the study is that it used relatively small numbers of rats per group (10 per sex per group). To put this in perspective, however, this is comparable to, and in some cases superior to, the numbers used in many studies that conclude that the GMO under test is safe.<sup>57</sup>

Moreover, as the authors explain in their republished study, they used the same number of rats as are analyzed for blood and urine biochemistry in chronic toxicity studies mandated by the OECD for industry tests on chemicals for regulatory purposes (10 out of a total of 20 rats per sex per group).<sup>58</sup>

Thus if we dismiss the Séralini study on the grounds that it used too few rats, then we must dismiss all these other studies that used comparable or lower numbers of rats, that are cited to justify claims that GMOs and chemicals are safe.

This number of rats makes the Séralini study too small for a carcinogenicity (cancer) study, meaning that the tumour observations need to be followed up with a dedicated carcinogenicity study using larger numbers of rats.

In sum, the Séralini study was a carefully designed pilot study which offers valuable data to inform followup research. One such followup study is analyzed below.

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<sup>57</sup> Snell C et al. Assessment of the health impact of GM plant diets in long-term 4 and multigenerational animal feeding trials: A literature review. *Food Chem Toxicol* 50(3-4):1134-1148. 2011.

<sup>58</sup> Séralini et al. Republished study: long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize. *Environmental Sciences Europe*. 2014. 26:14. <https://enveurope.springeropen.com/articles/10.1186/s12302-014-0014-5>

## Transcriptomics analysis reflects liver and kidney damage following Roundup exposure

**Figure 1: Transcriptomics analysis of liver and kidneys from Seralini study**

Mesnage et al. *Environmental Health* (2015) 14:70  
DOI 10.1186/s12940-015-0056-1



RESEARCH

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### Transcriptome profile analysis reflects rat liver and kidney damage following chronic ultra-low dose Roundup exposure



Robin Mesnage<sup>1</sup>, Matthew Arno<sup>2</sup>, Manuela Costanzo<sup>3</sup>, Manuela Malatesta<sup>3</sup>, Gilles-Eric Seralini<sup>4</sup> and Michael N. Antoniou<sup>1\*</sup>

This study<sup>59</sup> is a followup investigation of the Seralini long-term toxicity study on GM maize and Roundup.

The new study, by Dr Michael Antoniou of King's College London and colleagues, was published in the journal *Environmental Health* in September 2015. It presents an analysis that reflects the finding of the Seralini study that the lowest dose of Roundup tested – an environmentally relevant dose – caused liver and kidney damage in the rats.

Dr Antoniou's investigation focused on analyzing the liver and kidneys from 10 female rats in the Seralini study that had received the lowest dose of Roundup in their drinking water, which were compared with the liver and kidneys of 10 control animals receiving plain drinking water (no Roundup).

<sup>59</sup> Mesnage et al. Transcriptome profile analysis reflects rat liver and kidney damage following chronic ultra-low dose Roundup exposure. *Environmental Health* 2015;14:70.  
<https://ehjournal.biomedcentral.com/articles/10.1186/s12940-015-0056-1>

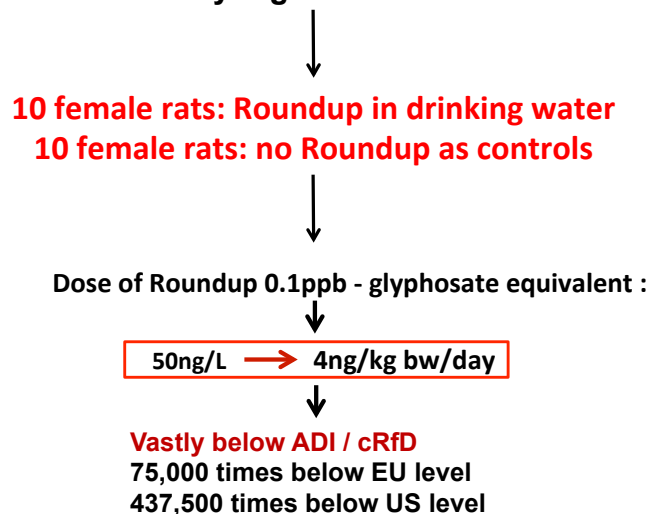
This lowest dose of Roundup consisted of diluting this formulation to 0.1 ppb in the drinking water, giving a corresponding glyphosate equivalent concentration of 50 nanograms per litre or 50 parts per trillion.

(Glyphosate equivalent = the concentration of glyphosate present in the final dilution of the Roundup.)

This lowest dose in turn resulted in a daily intake of glyphosate of 4 nanograms per kilogram of bodyweight per day, which is 75,000 times below the EU acceptable daily intake (ADI) and 437,500 times below the US chronic reference dose (ADI equivalent).

In other words, this dose was far below what is permitted by regulators and believed to be safe to consume on a daily basis over the long term.

**Figure 2: Study of toxic effects of Roundup herbicide in adult female rats under a daily regimen for 24 consecutive months**



The analysis that these organs were subjected to is known as a transcriptomics analysis. This measures the level of expression (function) of all the genes present in the animal. This type of molecular profiling analysis is an established cutting-edge method that is very highly predictive of health or disease status of the organ system under investigation.

### **Figure 3: Molecular Profiling – transcriptomics analysis**

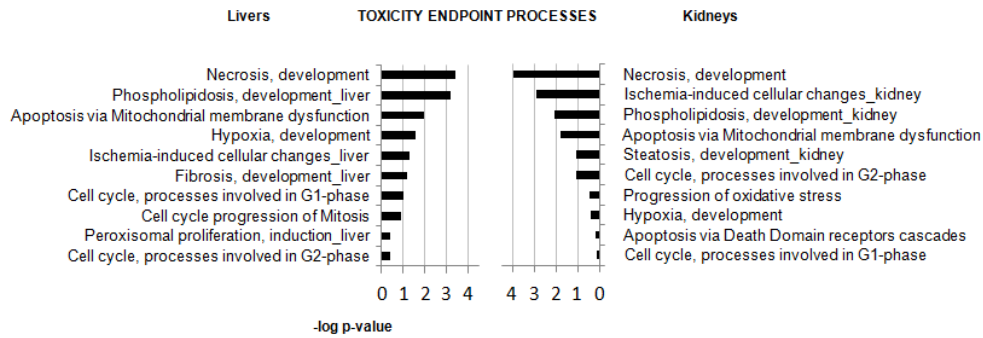
- **Comprehensive in-depth gene expression / function**
- **Highly sensitive**
- **Highly predictive of health or disease status**

The analysis showed that a total of 4,224 genes in the liver and 4,447 genes in the kidney were either reduced or increased in their level of expression in the Roundup treatment group, compared with controls, to a highly statistically significant degree.

Of these, a total of 1,319 gene functions were similarly disturbed in both organs.

The altered gene functions common to both liver and kidney were scrutinized against a database that has been collected over many years and which has correlated gene expression profiles with the health or disease status of a given organ system.

**Figure 4: Gene function disruption explains the pathologies observed at the anatomical and a blood/urine biochemical level**



**Organ damage**  
(Necrosis, fibrosis, ischemia, oxidative stress)

The gene expression changes seen in the new analysis clearly reflected the liver and kidney pathologies suggested by the anatomical and biochemical (blood and urine) findings in the Séralini study.

**Figure 5: Summary of Seralini study findings on lowest dose Roundup treatment group at an anatomical and blood/urine biochemical level**

- 3 times more pathologies at anatomical level revealed by histological (microscopic) analysis
- Blood/urine biochemistry suggest impairment of liver and especially kidney function
- Testosterone (96% increase)/estrogen (26% decrease) imbalance suggesting endocrine disrupting effects
- Electron microscopy analysis of liver shows statistically significant alterations in cell nuclear structure suggesting major changes in gene function.

More precisely, the alterations in gene expression profile in both liver and kidneys correlated with disease states such as fibrosis (scarring), necrosis (areas of dead tissue), phospholipidosis (disturbed fat metabolism), and damage to mitochondria (the centres of respiration in cells).

It is important to bear in mind that transcriptomics cannot predict disease or health states with absolute certainty, as not all changes in gene function result in changes in levels of the genes' protein products and metabolites. So although transcriptomics is highly predictive, it does not provide definitive proof of the implied corresponding disease status. Such definitive proof has to be provided by additional molecular profiling analysis, namely proteomics (protein profile) and metabolomics (small molecule metabolite profile). The proteomics and metabolomics analyses give a direct measure of the organ's composition, so they are able to provide a direct indicator of the health or disease status of the organ in question.

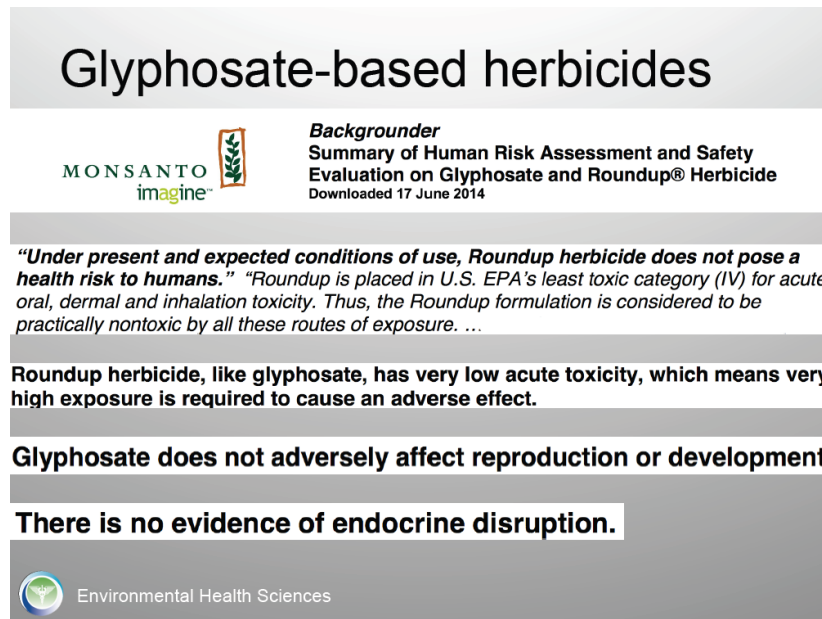
Dr Antoniou has informed me that follow-up proteomics and metabolomics analyses of the same liver and kidney tissues that were subjected to the transcriptomics analysis are under way.

Nevertheless, the results from the transcriptomics analysis show that an ultra-low dose of Roundup that is thousands of times below regulatory permitted daily intake levels can be toxic when consumed on a long-term basis. The fact that such a low dose was toxic suggests that Roundup may be an endocrine disruptor, a class of chemicals that can have toxic effects even at very low doses.

These results call into question the regulatory safety limits (acceptable daily intake and reference dose – see Figure 2) set for glyphosate and the claims of safety for glyphosate herbicides on Monsanto's website.



**Figure 6: Claims of safety for glyphosate herbicides on Monsanto's website**



The screenshot displays a webpage titled "Glyphosate-based herbicides". It features the Monsanto logo and a "Backgrounder" document titled "Summary of Human Risk Assessment and Safety Evaluation on Glyphosate and Roundup® Herbicide", dated June 17, 2014. The page contains several key safety claims:

- “Under present and expected conditions of use, Roundup herbicide does not pose a health risk to humans.”** “Roundup is placed in U.S. EPA’s least toxic category (IV) for acute oral, dermal and inhalation toxicity. Thus, the Roundup formulation is considered to be practically nontoxic by all these routes of exposure. ...
- Roundup herbicide, like glyphosate, has very low acute toxicity, which means very high exposure is required to cause an adverse effect.**
- Glyphosate does not adversely affect reproduction or development.**
- There is no evidence of endocrine disruption.**

The page is attributed to Environmental Health Sciences.

Even though this analysis is still incomplete, it clearly shows that valuable data were provided by the Séralini study. The Séralini study and Dr Antoniou’s followup investigation have major implications for public health since a review of biomonitoring studies of glyphosate residues in human population groups<sup>60</sup> suggests a body burden of this pesticide that is higher than that found to be toxic over the long term in these two studies.

Based on these data, it can be concluded that lobbyists and public relations operatives, including Monsanto-connected ones, should not have attempted to discredit the Séralini study. Their actions aimed to shut down a line of investigation that could potentially prevent thousands or millions of cases of disease and deaths.

### **GMO proponent Kevin Folta received money from Monsanto – but claimed he was independent**

In 2015 emails disclosed as a result of freedom of information requests

<sup>60</sup> Niemann L et al. A critical review of glyphosate findings in human urine samples and comparison with the exposure of operators and consumers. Journal für Verbraucherschutz und Lebensmittelsicherheit. March 2015;10(1):3–12.

by US Right to Know uncovered that Prof Kevin Folta of the University of Florida had successfully solicited a \$25,000 grant from Monsanto for his biotechnology outreach activities.<sup>61</sup>

Folta was a vociferous attacker<sup>62</sup> of the Séralini study and is an untiring proponent and defender of GMOs and their associated pesticides. He even declared that he had drunk Roundup herbicide to prove its safety.<sup>63</sup> This is in spite of the fact that the World Health Organization's cancer agency IARC has declared glyphosate (the active ingredient of Roundup) to be a probable human carcinogen.<sup>64</sup>

In spite of the Monsanto grant, Folta subsequently claimed he had "nothing to do with Monsanto",<sup>65</sup> emphasizing that he is an independent scientist working in a public institution and funded from public sources.<sup>66</sup> Folta even advised Monsanto on how to pay the \$25,000 grant so that it was not "publicly noted"<sup>67</sup> (see image below from Folta's email to Monsanto).

#### **Total Budget**

The total budget is \$25,000. If funded directly to the program as a SHARE contribution (essentially unrestricted funds) it is not subject to IDC and is not in a "conflict-of-interest" account. In other words, SHARE contributions are not publicly noted. This eliminates the potential concern of the funding organization influencing the message.

An article in the New York Times that covered the story commented on the third-party strategy employed by Monsanto with Folta: "At [Monsanto](#), sales of genetically modified seeds were steadily rising. But executives at the company's St Louis headquarters were privately worried about attacks on the safety of their products.

<sup>61</sup> Robinson C, Matthews J. Kevin Folta received \$25,000 from Monsanto. GMWatch, 7 Aug 2015. <http://gmwatch.org/news/latest-news/16340>

<sup>62</sup> <http://kfolta.blogspot.co.uk/2012/09/rats-tumors-and-critical-assessment-of.html>;  
<https://twitter.com/kevinfolta/status/538091355898384385>

<sup>63</sup> Robinson C, Matthews J. Kevin Folta received \$25,000 from Monsanto. GMWatch, 7 Aug 2015. <http://gmwatch.org/news/latest-news/16340>

<sup>64</sup> IARC. IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 112 (2015): Glyphosate. 2015. <http://monographs.iarc.fr/ENG/Monographs/vol112/>

<sup>65</sup> Kevin Folta, in an interview with comedian Joe Rogan. June 4, 2015 .

<https://www.youtube.com/watch?v=SD1J6KiGAWU>

<sup>66</sup> Matthews J. Death threats, libel, and lies – Part 2: Documented liar? GMWatch, 13 Sept 2015. <http://gmwatch.org/news/latest-news/16408-death-threats-libel-and-lies-part-2-documented-liar>

<sup>67</sup> Robinson C. Folta affair exposed in the New York Times. GMWatch, 6 September 2015. <http://www.gmwatch.org/news/latest-news/16393>

“So Monsanto, the world’s largest seed company, and its industry partners retooled their lobbying and public relations strategy to spotlight a rarefied group of advocates: academics, brought in for the gloss of impartiality and weight of authority that come with a professor’s pedigree.

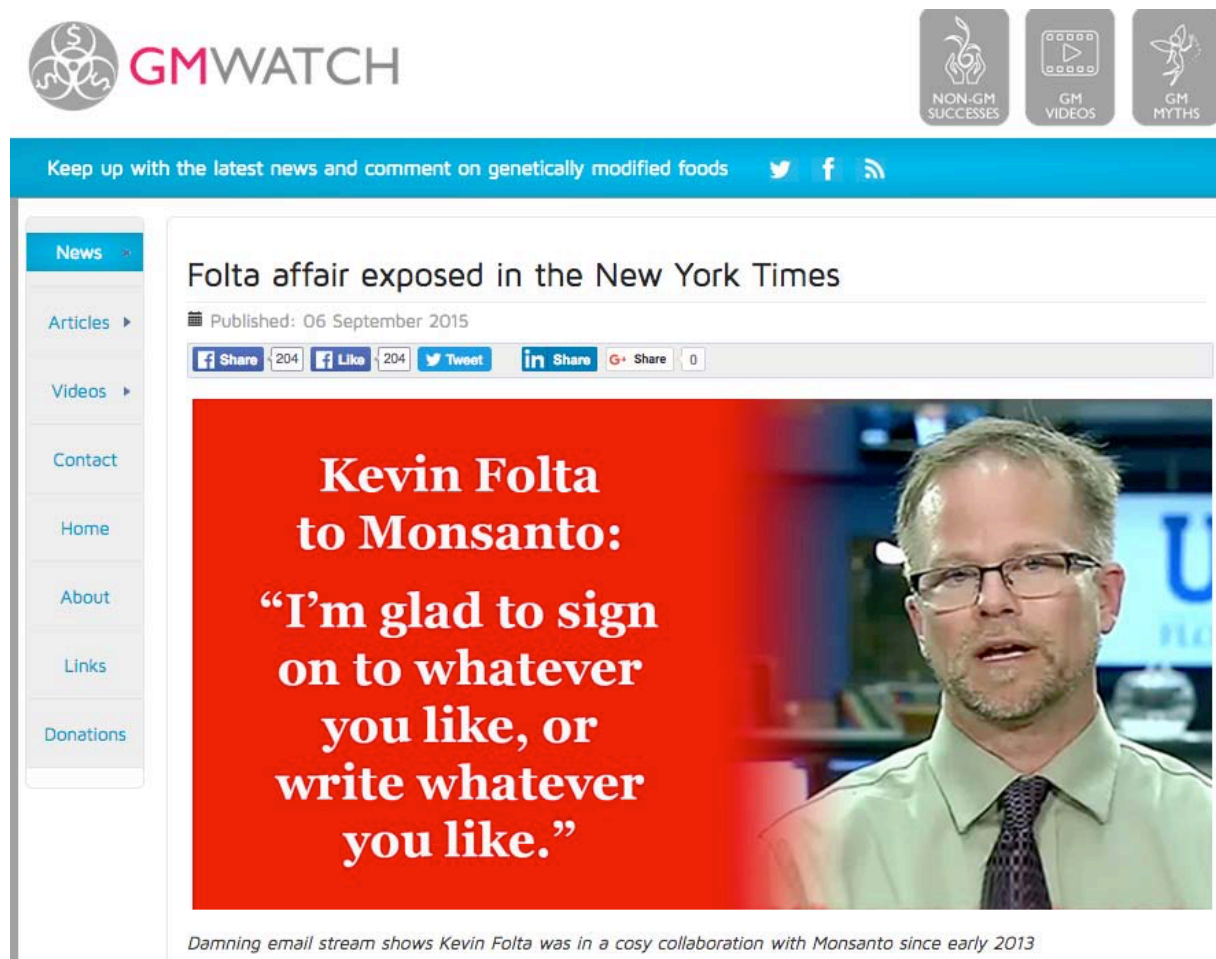
“ ‘Professors/researchers/scientists have a big white hat in this debate and support in their states, from politicians to producers,’ Bill Mashek, a vice president at Ketchum, a public relations firm hired by the biotechnology industry, said in [an email](#) to a University of Florida professor [Folta]. ‘Keep it up!’ ”<sup>68</sup>

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<sup>68</sup> Lipton E. Food industry enlisted academics in GMO lobbying war, emails show. New York Times, 5 Sept 2015. <http://www.nytimes.com/2015/09/06/us/food-industry-enlisted-academics-in-gmo-lobbying-war-emails-show.html>

## Folta to Monsanto: “Glad to sign on to whatever you like, or write whatever you like”

Some may respond that it doesn't matter where Folta's money came from and that what is important is that he maintained scientific integrity. But the disclosed emails, posted online by the New York Times, suggest that scientific integrity took second place to Folta's loyalty to Monsanto. Folta [wrote](#) to a Monsanto manager: “I'm glad to sign on to whatever you like, or write whatever you like.”<sup>69</sup>



The image is a screenshot of the GMWatch website. At the top, there is a navigation bar with the GMWatch logo on the left and three icons on the right: 'NON-GM SUCCESSES', 'GM VIDEOS', and 'GM MYTHS'. Below the navigation bar is a blue banner with the text 'Keep up with the latest news and comment on genetically modified foods' and social media icons for Twitter, Facebook, and RSS. On the left side, there is a vertical menu with links for 'News', 'Articles', 'Videos', 'Contact', 'Home', 'About', 'Links', and 'Donations'. The main content area features a news article titled 'Folta affair exposed in the New York Times', published on 06 September 2015. Below the title are social media sharing buttons for Facebook (Share 204, Like 204), Twitter (Tweet), LinkedIn (Share), and Google+ (Share 0). The article's main image is a red graphic with white text that reads: 'Kevin Folta to Monsanto: "I'm glad to sign on to whatever you like, or write whatever you like."' To the right of the red graphic is a photograph of Kevin Folta, a man with glasses wearing a light green shirt and a dark tie. Below the image is a caption: 'Damning email stream shows Kevin Folta was in a cosy collaboration with Monsanto since early 2013'.

It seems an out-of-place comment for a scientist to make.

After Monsanto agreed to Folta's funding bid for \$25,000 for a pro-GMO communications programme, Folta [wrote](#) to a Monsanto executive, “I'm grateful for this opportunity and promise a solid return on the investment.”

<sup>69</sup> Robinson C. Folta affair exposed in the New York Times. GMWatch, 6 September 2015. <http://www.gmwatch.org/news/latest-news/16393>

Another Monsanto executive called the Folta deal “a great 3rd-party approach to developing the advocacy that we’re looking to develop [sic.]”.

Among his outreach work for the GMO industry, Folta answered questions on GMOs for the pro-GMO website GMO Answers, which is run by the PR firm to the GMO industry, Ketchum. Ketchum provided canned answers for Folta to repeat for the reading public. Folta had previously [said](#) of Ketchum’s pre-prepared points in an article published in Nature, “I don’t know if I used them, modified them or what...”

The email string published by the New York Times remedies Folta’s memory failure. The New York Times’s editors note: “Dr. Folta was encouraged to make any changes he wanted, but he largely stuck with the script.”

Two examples, in which Folta reproduced Ketchum’s responses under his own name, are provided.<sup>70</sup>

### **Extensive networking of the GMO/chemical industry with academics**

An article by Dr Jonathan Latham in Independent Science News<sup>71</sup> details what the New York Times left out of its coverage of the Folta affair.

Latham writes, “The money Folta received is insignificant besides the tens of millions his university was taking from Syngenta (>\$10million), Monsanto(>\$1million), Pioneer (>\$10million), and BASF (>\$1million). Money that it’s hard to believe did not have a role in protecting Kevin Folta as he roamed zealously (and often offensively) over the internet, via his twitter account, [blog](#), podcast, and OpEds, squelching dissent and ridiculing GMO critics wherever he went.

“Also missing from the main *Times* article is a sense of the extensive and intricate networking of a small army of academics furthering the interests of Monsanto and other parts of the chemical, agribusiness and biotech industries. Folta rarely acted alone. His networks are filled with economists, molecular biologists, plant pathologists, development

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<sup>70</sup> Robinson C. Folta affair exposed in the New York Times. GMWatch, 6 September 2015. <http://www.gmwatch.org/news/latest-news/16393>

<sup>71</sup> Latham J. The puppetmasters of academia (or what the NY Times left out). Independent Science News, 8 Sept 2015. <https://www.independentsciencenews.org/science-media/the-puppetmasters-of-academia-ny-times-left-out/>

specialists, and agronomists, many of them much more celebrated than Kevin Folta, but all of them in a knowing loop with industry and the PR firms. Their job was acknowledged openly in emails (“We are all bad-ass shills for the truth. It’s a pleasure shilling with you.” Or, as Folta himself put it: “I’m glad to sign on to whatever you like, or write whatever you like.”). More generally, the group’s role was to initiate academic publications and other articles and to firefight legislative, media and scientific threats to the GMO and pesticide industries, all the while keeping their industry links hidden.”

Latham lists the academics identified by these emails as cooperating with industry and PR firms. They include:

- Profs. Bruce Chassy (University of Illinois) and Alan McHughen (University of California, Riverside), who worked together to destroy the credibility of Russian scientist and GMO critic Irina Ermakova
- Prof. Calestuous Juma (Harvard University), longtime advocate of GMOs for Africa.
- Prof. Wayne Parrott (University of Georgia), a serial intervener in academic GMO debates.
- Prof. Roger Beachy (Danforth Center, formerly USAID).
- Prof. Ron Herring (Cornell), who has helped to promote GMOs in India and fought to [defuse](#) the farmer suicide debate in India.
- Prof. CS Prakash (Tuskegee University), convener of the influential listserv AgBioWorld, the principal conduit for the campaigns to get the Séralini and Quist/Chapela studies retracted.
- Prof. Nina Fedoroff (Penn State) – the most prominent of all of the scientists looped into all of the *Times* emails. Fedoroff was the 2011-2012 President of the American Association for the Advancement of Science. The AAAS is the foremost scientific body in the US. During her Presidency, Fedoroff, who is also a contributor to the *NY Times*, used her position to coordinate and sign a letter on behalf of 60 prominent scientists. This letter was sent to EPA as part of an effort to defeat a pesticide regulatory effort. The real coordinator was Monsanto but Fedoroff participated in phone conferences and email exchanges with them (including with the prominent lobbyist Stanley Abramson) and gets credit in the emails for “moving the ball far down the field”.

Latham adds, “The story that academia’s most vocal GMO defenders, and some of its most prominent scientists, are copied into these emails is missing. The focus on individuals like Folta occludes a demonstration, for the first time ever, of long-suspected and intricate coordination and cooperation among them.

“Also looped in to various of the emails are supposedly independent individuals and organisations who speak in favour of biotechnology, self-reportedly out of personal passion. These include Dr Steve Savage, Karl Haro von Mogel of Biofortified, Mischa Popoff (of the Heartland Institute) and Jon Entine (then affiliated with George Mason University and now head of the Genetic Literacy Project and a *Forbes Magazine* columnist). All are revealed by the emails, but not the article, as biotech insiders.

“Cooperation among academics is not a crime. But these emails show, as in the EPA letter example, that a company (usually Monsanto, but also Dow and Syngenta and a PR firm, often several of them, plus sometimes the biotech lobbyists BIO or CropLife America) were invariably looped in to these emails, and further, that initiatives usually began with one of these non-academic entities, and were shepherded by them. Only rarely is there even a suggestion from the emails that the various academics were out in front, though that was always the intended impression of the result.”<sup>72</sup>

### **Cornell’s Alliance for Science connives with industry-linked GMO promoters**

Latham concluded, “Perhaps the biggest of all revelations within these emails is the connivance of senior university administrators, especially at Cornell University. The *NY Times* article focuses on the misdeeds of Mississippi State University Vice President David Shaw. But, looped into one email string, along with the PR firm Ketchum and Jon Entine are various Cornell email addresses and names. These are ignored by Lipton [journalist Eric Lipton, in his New York Times article], but the email addresses belong to very senior members of the Cornell administration. They include Ronnie Coffman (Director of Cornell’s College of Agriculture and Life Science) and Sarah Evanega Davidson (now director of the Gates-funded [Cornell Alliance for Science](#)).

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<sup>72</sup> Latham J. The puppetmasters of academia (or what the NY Times left out). Independent Science News, 8 Sept 2015. <https://www.independentsciencenews.org/science-media/the-puppetmasters-of-academia-ny-times-left-out/>

“The Alliance for Science is a PR project and international training center for academics and others who want to work with the biotech industry to promote GMOs. It is funded (\$5.6 million) by the Gates Foundation. Its upcoming program of speakers at Cornell for September include Tamar Haspel (Washington Post reporter), Amy Harmon (New York Times reporter) and Prof. Dan Kahan (Yale Law School). These speakers are the exact ones mentioned in a proposal worked out between Kevin Folta and Monsanto in a series of email exchanges intended to enhance biotech outreach. These email exchanges also propose setting up ‘Ask Me Anything’ events to be held at universities around the country with Kevin Folta as of the panelists.”<sup>73</sup>

### **Monsanto tells professor what to write**

According to a story in the Boston Globe, emails disclosed as a result of freedom of information requests showed that “A Harvard Kennedy School professor wrote a widely disseminated policy paper last year in support of genetically modified organisms at the behest of seed giant Monsanto, without disclosing his connection... Monsanto not only suggested the topic to professor Calestous Juma. It went so far as to provide a summary of what the paper could say and a suggested headline. The company then connected the professor with a marketing company to pump it out over the Internet as part of Monsanto’s strategy to win over the public and lawmakers...”

“A spokesman for the Kennedy School declined to comment on Juma’s failure to disclose his ties to Monsanto. Harvard’s conflict of interest policy states ‘faculty members should not permit outside activities and financial interests to compromise their primary commitment to the mission of the university.’ Juma said he did not make a conscious effort not to disclose his connection to Monsanto.”<sup>74</sup>

### **Third-party academics help Monsanto manipulate regulators**

The emails disclosed through freedom of information requests, according to the New York Times, show that industry’s use of third-party academics

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<sup>73</sup> Latham J. The puppetmasters of academia (or what the NY Times left out). Independent Science News, 8 Sept 2015. <https://www.independentsciencenews.org/science-media/the-puppetmasters-of-academia-ny-times-left-out/>

<sup>74</sup> Krantz L. Harvard professor failed to disclose connection. Boston Globe, 1 October 2015. <http://www.bostonglobe.com/metro/2015/10/01/harvard-professor-failed-disclose-monsanto-connection-paper-touting-gmos/ILJipJQml5WKS6RAgQbnrN/story.html?event=event25>



has “helped produce important payoffs, including the approval by federal regulators of new genetically modified seeds after academic experts intervened with the United States [Department of Agriculture](#) on the industry’s behalf”.

One example is Bruce M. Chassy, a professor emeritus at the University of Illinois who promotes and defends GMOs and associated pesticides through the website Academics Review and other channels. As mentioned above, Chassy was at the forefront in attacking Prof Séralini and his research showing health risks from a GMO maize and Roundup herbicide.

The New York Times article describes how Monsanto, in late 2011, gave a grant to Chassy to support “biotechnology outreach and education activities”.

In the same email in which Chassy negotiated the release of the grant funds, he discussed with a Monsanto executive a months-long effort to persuade the [Environmental Protection Agency](#) to abandon its proposal [to tighten the regulation of pesticides](#) used on insect-resistant seeds.

“Is there a coordinated plan to maintain pressure and emphasis on EPA’s evolving regulations?” Eric Sachs, the chief of Monsanto’s global scientific affairs group, wrote in a [related email](#) to Chassy. “Have you considered having a small group of scientists request a meeting with Lisa Jackson,” referring to the EPA administrator at the time.

In an interview, Chassy said he had initiated the fight against the EPA plan before Monsanto pressed him. But he conceded that the money he had received from the company had helped amplify his voice through travel, a website he created and other means.

“What industry does is when they find people saying things they like, they make it possible for your voice to be heard in more places and more loudly,” he said.<sup>75</sup>

An investigation by the Chicago public radio station WBEZ found that the sum given to Chassy by Monsanto was more than \$57,000 over less than two years.

Like Kevin Folta, Chassy appears to have tried to hide the source of the

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<sup>75</sup> Lipton E. Food industry enlisted academics in GMO lobbying war, emails show. New York Times, 5 Sept 2015. <http://www.nytimes.com/2015/09/06/us/food-industry-enlisted-academics-in-gmo-lobbying-war-emails-show.html>

money from the public. WBEZ stated: “Chassy did not disclose his financial relationship with Monsanto on state or university forms aimed at detecting potential conflicts of interest. Documents further show that Chassy and the university directed Monsanto to deposit the payments through the University of Illinois Foundation, a body whose records are shielded from public scrutiny. The foundation also has the ability to take in private money and disburse it to an individual as a “university payment” – exempt from disclosure.”<sup>76</sup>

WBEZ added, “Chassy co-wrote a three-part series on The Huffington Post calling efforts to label GMO ingredients in the American food supply ‘a disaster in waiting’. In those articles Chassy identified himself simply as ‘Professor Emeritus of Food Science and Human Nutrition, University of Illinois-Urbana-Champaign’.

“To some who study transparency in science, Chassy’s failure to publicly disclose his ties with a company while he was speaking and writing about GMOs crosses a line. ‘That, to me, it’s a disgrace,’ said Sheldon Krimsky, a bioethicist who studies academic conflict of interest at Tufts University. ‘At least [Chassy] should have had the courage to say, “Well, look, I get some funding from Monsanto.” But instead he’s pretending to be a neutral, independent scientist.’ ”

Independent journalist and former congressional investigator Paul Thacker commented in the WBEZ article, “You can see, I think, very clearly in the GMO controversy where we are seeing a lot of the academics who are speaking up and who are speaking about how GMOs are great or that there is little to no worries about them, but when you peel that back, usually through FOIA requests, you find that they are taking money from industry.”

## **Academics Review**

Chassy is perhaps best known to the GMO-interested public as the founder, with David Tribe, PhD, of the pro-GMO and anti-organics organisation Academics Review.

The Academics Review website says it was co-founded by “two independent professors ... on opposite ends of the planet.”

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<sup>76</sup> Eng M. Why didn't an Illinois professor have to disclose GMO funding? WBez.org, March 15, 2016. <https://www.wbez.org/shows/wbez-news/u-of-i-professor-did-not-disclose-gmo-funding/eb99bdd2-683d-4108-9528-de1375c3e9fb>

They [claim](#) the group “only accepts unrestricted donations from non-corporate sources.”

But emails obtained by US Right to Know, according to that organisation’s co-director Stacy Malkan, “reveal plans to find corporate funding for Academics Review while keeping corporate fingerprints hidden”.<sup>77</sup>

In a March 11, 2010 [email exchange](#) with Chassy, Jay Byrne, the former head of communications at Monsanto who now runs the [PR and market research firm](#) v-Fluence, offered to act as a “commercial vehicle” to help find corporate funding for Academics Review.

In an [email exchange with Chassy](#) dated November 30, 2010, Eric Sachs, a senior public relations operative for Monsanto, discussed finding corporate support for Academics Review while “keeping Monsanto in the background.”

In 2014 Academics Review released a [report](#) attacking organic food, which claimed that consumers were being duped into spending more money for organic food because of deceptive marketing practices by the organic industry. The report described [Academics Review](#) as “a non-profit led by independent academic experts in agriculture and food sciences”. The press release announcing the report said: “Academics Review has no conflicts-of-interest associated with this publication, and all associated costs for which were paid for using our general funds without any specific donor’ influence or direction.”<sup>78</sup>

But US Right to Know pointed out that what was not mentioned in the report, the press release or on the website was that executives for Monsanto, the world’s leading purveyor of agrichemicals and GM seeds, “along with key Monsanto allies, engaged in fund raising for Academics Review, collaborated on strategy and even discussed plans to hide industry funding”, according to the emails obtained by the group.<sup>79</sup>

US Right to Know concluded, “Monsanto’s motives in attacking the organic industry are obvious: Monsanto’s seeds and chemicals are banned from use in organic farming, and a large part of Monsanto’s

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<sup>77</sup> Malkan S. Monsanto fingerprints found all over attack on organic food. US Right to Know, 1 July 2016. <http://usrtk.org/tag/academics-review/>

<sup>78</sup> Academics Review. 2014. <http://academicsreview.org/2014/04/why-consumers-pay-more-for-organic-foods-fear-sells-and-marketers-know-it/>

<sup>79</sup> Malkan S. Monsanto fingerprints found all over attack on organic food. US Right to Know, 1 July 2016. <http://usrtk.org/tag/academics-review/>

messaging is that its products are superior to organics as tools to boost global food production.”

## **Jay Byrne acts as bouncer at conference promoting pro-GMO Nobel stunt**

This summer a publicity stunt was organized whereby over 100 Nobel laureates signed a letter attacking Greenpeace over its opposition to GMOs in general and GMO vitamin A golden rice in particular. In highly emotive language, the [letter](#), published by a shadowy website called supportprecisionagriculture.org, claimed, “Greenpeace has spearheaded opposition to Golden Rice, which has the potential to reduce or eliminate much of the death and disease caused by a vitamin A deficiency (VAD), which has the greatest impact on the poorest people in Africa and Southeast Asia.”<sup>80</sup>

We at GMWatch thought that it was strange that so many Nobel laureates could be so badly informed. That’s because in reality, as Prof Glenn Davis Stone pointed out in a peer-reviewed study co-authored with development expert Dominic Glover, GM golden rice is years away from being ready and there’s no evidence that activists are to blame for the delay.<sup>81</sup>

In fact, in 2014 the body responsible for the rollout of golden rice, the International Rice Research Institute (IRRI), announced that the rice had given disappointing yields in field trials and needed further research and development to produce a crop that farmers would be willing to grow.<sup>82</sup>

The new propaganda campaign is [said](#) to have been organized by Sir Richard J. Roberts. Roberts is a Nobel Laureate in physiology or medicine for the discovery of genetic sequences known as introns, and chief scientific officer for New England Biolabs. According to their [website](#), New England Biolabs is “a collective of scientists committed to

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<sup>80</sup> Robinson C. Pro-GMO campaign exploits Nobel laureates to attack Greenpeace and fool the people. GMWatch, 30 June 2016. <http://www.gmwatch.org/news/latest-news/17077>

<sup>81</sup> Stone GD, Glover D. Disembedding grain: Golden Rice, the Green Revolution, and heirloom seeds in the Philippines. D. Agric Hum Values (2016). doi:10.1007/s10460-016-9696-1. <http://link.springer.com/article/10.1007/s10460-016-9696-1>

<sup>82</sup> IRRI. What is the status of the Golden Rice project coordinated by IRRI? 13 May 2014. Reproduced on GMWatch.org, 13 May 2014. <http://www.gmwatch.org/index.php/news/archive/2014/15431>. I am citing the original version, republished by GMWatch at the above URL, as IRRI subsequently watered down its original statement to remove the notion of failure, without noting that the page had been edited or updated: for more details plus a screenshot of the original statement, see <http://www.gmwatch.org/news/latest-news/16503>.



some NGOs were invited to attend. Really? Why not Greenpeace – the subject of this campaign?”<sup>85</sup>

The timing of this press event may have been significant. Could it have been timed to coincide with the run-up to the GMO labelling vote in the US Senate, with the added bonus of burying Stone’s inconvenient golden rice critique?

## **Conclusion**

Monsanto claims to be a science-based company. But the examples given in this presentation suggest that it frequently engages in dishonest, deceptive and non-transparent activities in its attempts to gain acceptance for its GM crops and their associated pesticides. It tries to discredit and shut down scientific research and debate that threaten its commercial interests. And rather than relying on rigorous science to foster confidence in, and demand for, its products, it promotes weak regulatory processes and uses bullying and illicit tactics to pressure countries to allow these products to be marketed in their territories.

The end result of such behaviour is a distortion of scientific knowledge and discourse, with consequent risks to human and animal health and the environment.

Considering the above account in the context of the terms of reference of the Monsanto Tribunal, Monsanto has violated the right to health and a healthy environment, and has damaged freedom of expression and of academic research.

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<sup>85</sup> Robinson C. Pro-GMO campaign exploits Nobel laureates to attack Greenpeace and fool the people. GMWatch, 30 June 2016. <http://www.gmwatch.org/news/latest-news/17077>