

## Trials should be settled by ‘scientific evidence, not speculation and emotion’: In unusual twist, California medical groups join appeal of jury verdict finding Monsanto’s Roundup causes cancer

**D**octors and medical professionals in California have stepped into the ongoing courtroom fight between Bayer/Monsanto and a former groundskeeper who blames the popular [Roundup](#) herbicide for his terminal cancer.

Last month, three state medical associations filed an [amicus brief](#) supporting Bayer’s appeal of a jury’s verdict in a civil suit that found the weedkiller to have been a factor in causing Dewayne Johnson’s non-Hodgkin’s lymphoma. Initially, the San Francisco Superior Court jury [awarded](#) Johnson \$289 million, but that figure was later [reduced](#) by a judge to \$78 million.

The verdict is under [appeal](#) by Bayer, which [acquired](#) Monsanto in mid 2018 and is facing an avalanche of similar [lawsuits](#) across the country. Now it finds itself with several new allies, following the move by the California Medical Association, California Dental Association and California Hospital Association.

### Why did the physicians take this extraordinary step?

It’s not all that unusual for interested parties to file amicus briefs in high profile cases such as this. But what is unusual is seeing medical doctors take a step that could be seen as supportive of the safety of glyphosate. Of course, there’s also the fact that doctors, dentists and hospitals are often the target of emotionally-tinged lawsuits alleging negligence. In their brief, the associations made clear that they are not taking a side on the glyphosate/cancer issue. Instead, they expressed concern about how cases such as this — where physician testimony is critical — are handled:

Amici’s point is that the answer to complex scientific questions such as that which the jury was required to resolve in this case should be based on accepted scientific evidence and rigorous scientific reasoning, not speculation and emotion.

In their brief, the associations challenged the basis for the verdict, arguing that jurors may have been influenced by trial lawyers, employing strategies that ‘demonize’ defendants in such cases:

Plaintiffs do so not only to achieve large damage awards, but also to persuade juries to decide issues of negligence and causation based on emotion, rather than reason.

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They further suggested that the appeals court may come to a different conclusion, after reviewing the scientific evidence in the case:

Overall, the point is that this case is suspicious because of two problems in tort litigation that health care providers have seen in professional liability litigation. First, in those cases where causation turns on complex questions of science, the decision-making sometimes is based on speculation. Second, the decision-making sometimes is based on emotion.

The groups also took issue with what they say was a failure by the plaintiffs to provide scientific evidence supporting the claim that Johnson's cancer was caused by exposure to the weedkiller. They note that Johnson's own treating physicians — including NHL experts at Stanford University — agreed that the cause of the cancer was unknown. But Chadi Nabhan, the doctor testifying in support the cancer claim, pointed to the fact that Johnson is considerably younger than the typical patient with non-Hodgkin's lymphoma. There's a problem with that line of thought, the associations said:

The obvious implication is that all unknown causes are age related. The problem with that testimony is that there is no evidence to support that assumption. Rather, that was a speculative leap that Dr. Nabhan made.

## **What does mainstream research conclude about the dangers of glyphosate?**

Furthering their criticism of Dr. Nabhan, the associations note that the doctor acknowledged during the trial that 80-90 percent of such cancers are caused by unknown factors, and that he is "unable to identify a cause of NHL in the majority of his patients."

Not surprisingly, the trial also included references to the controversial 2015 action by the International Agency for Research on Cancer, which classified Roundup's active ingredient glyphosate as "probably carcinogenic." The agency's monograph — a "hazard evaluation," dealing with long-term exposure — has been heavily disputed by industry, health organizations and regulatory bodies. Much of the criticism has focused on the fact that IARC did no original research and considered only a few dozen studies, eliminating all studies with financial links to industry or in which a researcher had professional associations with industry. It also did not consider hundreds of independent studies.

## **See also the GLP's FAQ: Is glyphosate (Roundup) dangerous?**

It remains to be seen whether these organizations' arguments will have any bearing on the appeals process. Bayer has asked the court to toss out the verdict. Failing that, the company is asking for a new trial, arguing that jurors weren't allowed to hear evidence that the U.S. Environmental Protection Agency and foreign regulators had deemed glyphosate not likely carcinogenic to humans.

What do global regulatory and research agencies conclude about the health impact of <b>GLYPHOSATE?</b>			
Risk Assessment <small>What is the likelihood that use of glyphosate causes harm based on current knowledge?</small>			
 EPA United States Environmental Protection Agency	USA	"Human health risk assessment concludes that glyphosate is not likely to be carcinogenic to humans... based on overwhelming risks to human health since the product is used according to the pesticide label"	2017
 EPA Office of Pesticide Programs	USA	"No strong support for... suggestion of cancer or carcinogenic potential... based on the weight of evidence... Even small, non-statistically significant changes... were contradicted by studies of equal or higher quality. The strongest support is for 'not likely to be carcinogenic to humans'."	2017
 NTP National Toxicology Program	USA	"Little evidence of toxicity, and there was no concern of glyphosate causing damage to DNA"	1992
 Health Canada	Canada	"Insects containing glyphosate do not present unacceptable risks to human health in the environment when used according to the use and product label directions... Risks to (poisoned) handlers are not of concern for all consumers"	2017
 ECHA European Chemical Agency	Europe	"No pesticide regulatory authority in the world currently considers glyphosate to be a cancer risk to humans at the levels at which humans are currently exposed"	2015
 ECHA European Chemical Agency	Europe	"Based on the epidemiological data as well as on data from long-term studies in rats and mice, having a weight of evidence approach, no hazard classification for carcinogenicity is warranted"	2017
 EFSA European Food Safety Authority	Europe	"Glyphosate is unlikely to be genotoxic or to pose a carcinogenic threat to humans... neither this or carcinogenic data nor the evidence from animal studies demonstrated causality between exposure to glyphosate and the development of cancer in humans"	2015
 ANSES Agence nationale de sécurité sanitaire	France	"Level of evidence of carcinogenicity in animals and humans is considered to be relatively limited"	2016
 BfR Bundesinstitut für Risikobewertung	Germany	"As glyphosate-based products... will no longer be of interest for use from the end of 2023, due to a lack of evidence of solubility data which would allow all glyphosate risk to be known"	2019
 Swissmedic Federal Office of Public Health and Veterinary Office (VDO)	Switzerland	"Residues of glyphosate in the 'background' do not represent a risk of cancer"	2018
 Australian Government Veterinary Pesticides and Veterinary Medicines Authority	Australia	"Glyphosate does not pose a carcinogenic risk to humans... Products containing glyphosate are safe to use as per the label instructions"	2016
 EPA Environmental Protection Authority	New Zealand	"Unlikely to be carcinogenic to humans or genotoxic (damaging to genetic material or DNA), and should not be classified as a mutagen or carcinogen"	2018
 ANVISA Agência Nacional de Vigilância Sanitária	Brazil	"No evidence to indicate that the herbicide glyphosate is carcinogenic"	2016
 Food Safety Commission of Japan	Japan	"No carcinogenicity, carcinogenicity, reproductive toxicity, teratogenicity, and genotoxicity"	2018
 Rural Development Administration	Korea	"Epidemiological studies on glyphosate... found no cancer risk"	2017
 World Health Organization Pesticide and Agriculture Organization of the United Nations	Global	"Glyphosate is unlikely to be genotoxic or to pose a carcinogenic risk to humans from exposure through the diet"	2015
 World Health Organization Drinking-water quality guidelines	Global	"Under usual conditions, the presence of glyphosate and AMPA [glyphosate degradation product] and glyphosate's primary metabolite in drinking-water does not represent a hazard to human health"	2004
 World Health Organization International Programme on Chemical Safety	Global	"Available data on occupational exposure for workers applying Roundup indicate exposure levels far below the NOAEL [no observed adverse effect level] from the relevant animal experiments"	1994
Longitudinal Study <small>How glyphosate residues (ppm) pesticide application scenarios</small>			
 Agricultural Health Study	USA	"No associations were apparent between glyphosate and any solid tumors or lymphoid malignancies (leukemia, including non-Hodgkin's lymphoma and in children... were evidence of increased risk of NHL, acute myeloid leukemia, a young-onset leukemia group that requires confirmation"	2016
Hazard Assessment <small>What is the potential for or nature/severity of adverse exposure?</small>			
 International Agency for Research on Cancer World Health Organization	Global	"Limited evidence in humans for the carcinogenicity of glyphosate... Evidence in humans is from studies of exposure to, mostly agricultural (e.g. not from dietary exposure)... a positive association has been observed for non-Hodgkin's lymphoma... There is strong evidence that exposure to glyphosate in glyphosate-based formulations is genotoxic"	2015
 Genetic Literacy Project	USA	"US EPA classifies glyphosate as 'likely carcinogenic' (Group 2A, possibly carcinogenic to humans) along with red meat, but inorganic, and working as a buffer... The evidence on carcinogenicity was less robust than for agents such as tobacco, asbestos, lead, and other carcinogens and more..."	2015

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According to Drew Kershen, professor emeritus at University of Oklahoma College of Law, and a GLP board member:

As for impact, it is completely impossible to predict. Yes, amici briefs do have impact and significant impact in some particular cases. Court are routinely persuaded by the arguments in amici briefs. But, at the same time, most amici briefs have zero impact on the appellate court in which amici filed the brief.

Regardless of the outcome, there remains intense debate [online](#) and [in the media](#) about whether the herbicide poses a health threat to agricultural workers or the general public as a result of residues in food.,

At least [15 regulatory and research agencies](#) [see chart] have conducted extensive [long-term studies, reviews](#) or [assessments](#) to assess whether glyphosate, when used as directed, increases the risk of certain cancers. Not one organization, including three at the World Health Organization, including WHO itself, concurred with IARC's highly controversial conclusion that glyphosate could cause harm to workers.

In the time since the [IARC report](#) was released, a groundbreaking, longitudinal epidemiological study—[Glyphosate Use and Cancer Incidence in the Agricultural Health Study \(2017\)](#)—was published in the Journal of the National Cancer Institute based on data collected by the Agricultural Health Study since 1993. The AHS evaluated 54,251 pesticide applicators, including 44,932 who had handled glyphosate, concluding:

In this large, prospective cohort study, no association was apparent between glyphosate and any solid tumors or lymphoid malignancies overall, including NHL [non-Hodgkins lymphoma] and its subtypes. There was some evidence of increased risk of AML among the highest exposed group that requires confirmation.

## **Do trace residues of glyphosate in food pose cancer dangers?**

All of the agencies, including IARC, are unanimous in one finding: There is no evidence that glyphosate poses any harm to consumers worried about trace residues in their food. Despite many blogs by anti-biotechnology advocacy groups touting 'studies' (usually not very scientific, such as [here, most recently](#)) finding glyphosate in beer or cereal at the parts per billion or parts per trillion level, or finding traces of glyphosate in blood or urine, there is no scientific study that suggests those minuscule trace residues pose any threat to humans.

In January 2019, in the wake of the first two trial verdicts, Health Canada reviewed the evidence for a third time and issued this extraordinarily strong summary statement:

After a thorough scientific review, we have concluded that the concerns raised by the objectors could not be scientifically supported when considering the entire body of relevant data. The objections raised did not create doubt or concern regarding the scientific basis for the 2017 re-evaluation decision for glyphosate. Therefore, the Department's final decision will stand....No pesticide regulatory authority in the world currently considers glyphosate to be a cancer risk to humans at the levels at which humans are currently exposed.

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