Filed 8/9/21

CERTIFIED FOR PUBLICATION

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

FIRST APPELLATE DISTRICT

DIVISION TWO

ALBERTA PILLIOD et al., Plaintiffs and Appellants, v. MONSANTO COMPANY, Defendant and Appellant.	A158228 (Alameda County Super. Ct. No. RG17862702)

After years of spraying Roundup herbicide on their property, Alberta Pilliod and her husband, Alva Pilliod, each developed non-Hodgkin's lymphoma. The Pilliods sued Monsanto Company, the manufacturer of Roundup, for damages based on claims of design defect and failure to warn. After a six-week trial, the jury found for the Pilliods, awarded Alberta over $37 million in compensatory damages, awarded Alva over $18 million in compensatory damages, and awarded each of them $1 billion in punitive damages. The trial court conditionally denied Monsanto's motion for new trial, contingent on the Pilliods' acceptance of substantially reduced compensatory and punitive damages, resulting in a total award to Alberta of about $56 million (including about $45 million in punitive damages) and a total award to Alva of about $31 million (including about $25 million in punitive damages). The Pilliods accepted the reductions.

On appeal, Monsanto argues that the Pilliods' claims are preempted by federal law, the jury's liability findings are not supported by substantial

evidence, the jury was improperly instructed as to the Pilliods' design defect claim, the jury's causation findings are legally and factually flawed, the trial court abused its discretion by admitting certain evidence, and the verdict is the product of attorney misconduct. Monsanto also argues that the punitive damages awards should be stricken or further reduced because they are unsupported by evidence and constitutionally excessive. In their cross-appeal, the Pilliods argue that the trial court erred in reducing the jury's awards for compensatory and punitive damages. We shall affirm.

FACTUAL AND PROCEDURAL BACKGROUND

We summarize the facts and evidence in the light most favorable to the judgment. (*Cassim v. Allstate Ins.* (2004) 33 Cal.4th 780, 787 (*Cassim*).)

A. *Roundup Herbicide*

Monsanto manufactures Roundup products, which contain glyphosate, an herbicide that kills grasses and broadleaf plants. Glyphosate, the most commonly used herbicide around the world, acts systemically: it is absorbed by the plant, travels to the root, and kills the plant at the root so it will not grow back. The United States Environmental Protection Agency (EPA) evaluates the safety of herbicides and determines whether they can be sold in this country. Monsanto has had approval from EPA to sell glyphosate-based herbicides since 1974.

In order to obtain that approval, Monsanto provided EPA with the results of studies that examined the effects of glyphosate on animals, including cancer studies conducted on animals by Industrial Bio-Test Laboratories (IBT). The studies were later found to be invalid, and Monsanto eventually repeated them in accordance with EPA guidelines.[1]

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[1] Further information about IBT and Monsanto's response to the invalidity of the studies appears below in section E of the Discussion.

In 1985, an EPA panel classified glyphosate as a possible human carcinogen, based on a 1983 study in which glyphosate produced a dose-related increase in rare kidney tumors and malignant lymphomas in mice (1983 Study).

In 1991, EPA reclassified glyphosate as a substance for which there is "evidence of non-carcinogenicity for humans," on the basis of a "lack of convincing carcinogenicity evidence in adequate studies in two animal species." The reclassification notice emphasized that the designation "should not be interpreted as a definitive conclusion that the agent will not be a carcinogen under any circumstances." The 1991 reclassification remained in effect through the time of trial.

In the decades since EPA first approved the sale of glyphosate-based herbicide, glyphosate and Roundup have been extensively studied. Three types of data are widely accepted as being relevant to determine whether a substance causes cancer: human cancer data (the realm of epidemiology, which studies human populations to understand the causes of disease), experimental animal data, and mechanism data. Mechanism data includes studies of how a substance is absorbed and metabolized, as well as studies of genotoxicity and oxidative stress.[2]

In 2015, a "working group" of 17 scientists, convened by the International Agency for Research on Cancer (IARC), determined that Roundup and glyphosate are probably carcinogenic to humans, based on the group's review of published human cancer data, experimental animal data,

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[2] Genotoxicity refers to damage to a cell's DNA. Such damage can cause mutations in DNA, which can lead to cancer. Oxidative stress occurs when cells generate free oxygen radicals, which can bind to DNA, leading to genotoxicity.

and mechanism data.[3] The IARC is part of the World Health Organization. One of the Pilliods' experts characterized the IARC as "the worldwide authority on establishing whether an agent is a carcinogen." One of Monsanto's experts, whose textbook on cancer epidemiology cites the IARC hundreds of times, declined to go that far, but conceded that the IARC is "one of the important cancer agencies." The methodology used by the IARC to assess causality is widely used and accepted by scientists around the world.

Although the IARC's determination, issued in 2015, postdates the period of the Pilliods' most extensive use of Roundup (1982 through 2011), data that was cited and relied upon by the IARC was available to Monsanto as long ago as 1980.

As a result of the IARC's classification of glyphosate as a "probable human carcinogen," glyphosate is listed as a substance known to the State of California to cause cancer under Proposition 65 (Health & Saf. Code, §§ 25249.5–25249.13). Monsanto presented evidence that since the IARC announced its classification, numerous regulatory agencies around the world have concluded that glyphosate is not carcinogenic or is not likely to be carcinogenic. In particular, in September 2016, EPA's Office of Pesticide Programs reviewed and evaluated over 120 epidemiological, animal carcinogenicity, and genotoxicity studies of glyphosate and concluded that "the available data and weight-of-evidence" support the statement that

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[3] Monsanto emphasizes that the IARC conducted a "hazard assessment," which determines whether a substance has the potential to cause cancer at some dose, and not a "risk assessment," which considers whether the level of exposure to humans causes harm. The Pilliods emphasize that the IARC assessment was based on epidemiology data indicating that at real-world exposure levels, Roundup formulations cause non-Hodgkin's lymphoma.

glyphosate is " 'not likely to be carcinogenic to humans' at doses relevant to human health risk assessment."[4]

But in 2017, a Scientific Advisory Panel of independent scientists that EPA had asked to review its assessment of glyphosate issued a report concluding that EPA's 2016 evaluation failed to follow EPA's own guidelines in several ways. Further, according to the Panel's report, though "some Panel members agreed with the characterization of glyphosate as "not likely to be carcinogenic to humans," other Panel members felt that a better characterization would be "suggestive evidence of carcinogenic potential." And "many Panelists noted that crucial data were equivocal, and that additional date on cancer morbidity and/or mortality from studies of glyphosate-exposed workers would be desirable."

Glyphosate is not the only ingredient in Roundup, and testimony at the trial was not limited to glyphosate. Roundup also contains a surfactant, which enhances the absorption of the herbicide through the waxy surface of a plant.[5] The surfactant also enhances the absorption of the herbicide through skin.[6]

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[4] The office noted, however, that "due to conflicting results and various limitations identified in [epidemiological] studies investigating [non-Hodgkin's lymphoma], a conclusion regarding the association between glyphosate exposure and risk of [non-Hodgkin's lymphoma] cannot be determined based on the available data."

[5] Roundup also contains water; small amounts of formulating ingredients, such as coloring and foaming agents; and trace amounts of contaminants that are known to be carcinogenic.

[6] EPA is concerned with the cancer-causing potential of glyphosate alone, rather than glyphosate-based pesticide formulations. In this respect the approach taken by EPA differs from that taken by the IARC. EPA's Scientific Advisory Panel pointed out, however, that epidemiologic studies of

The surfactant used in Roundup in the United States, polyethoxylated tallow amine (POEA), is banned in Europe, where a less toxic surfactant is used. Roundup is much more toxic and genotoxic than glyphosate. Since the 1990's, scientists have warned that POEA appeared to make Roundup more toxic and genotoxic than glyphosate alone. In 2010, when discussion was beginning about banning POEA in Europe, Dr. William Heydens, Monsanto's "product safety assessment strategy lead," wrote in an email that Monsanto should defend the use of POEA even as it was being phased out because of concern that a ban on the substance would lead to a "domino effect" in other parts of the world. Dr. Heydens wrote in a 2015 email that Monsanto believed that "the surfactant in the formulation . . . played a role" in a tumor promotion study.

In an internal email written in 2003, Dr. Donna Farmer, a senior toxicologist at Monsanto, wrote that Monsanto could not say that *Roundup* is not a carcinogen, because it had not done the necessary testing on the formulation to make the statement, but Monsanto could say that *glyphosate* is not a carcinogen and infer that there is no reason to believe Roundup would cause cancer. Monsanto admits that it never conducted a long-term animal carcinogenicity study on any of the glyphosate-containing formulations that it sold in the United States. Dr. Michael Koch, a Monsanto employee who works as a regulatory toxicologist, testified in January 2019 that there was no need to conduct such a study because glyphosate has been studied at higher concentrations than exist in Roundup and because "the safety dataset from the other components . . . has been found to show no safety concerns." But in addition to the 1983 Study (which showed that

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glyphosate necessarily consider people who make or use glyphosate-based formulations.

glyphosate induced increased rates of rare kidney tumors and malignant lymphomas in mice), animal studies on glyphosate that were published in 1993, 1997, 1999, 2001 and 2009 showed increases in lymphoma and/or kidney tumors. And a 2010 study showed that Roundup applied to the skin of mice promoted tumors.

B. *Plaintiffs' Cancer Diagnoses*

In June 2011, at the age of 69, Alva was diagnosed with diffuse large B-cell lymphoma, stage IV, which manifested in his bones.[7] This type of lymphoma is a common type of non-Hodgkin's lymphoma and is considered an aggressive cancer. In April 2015, at about age 70, Alberta was also diagnosed with diffuse large B-cell lymphoma; her cancer manifested in her central nervous system.

For years, the Pilliods had used Roundup to kill weeds on four residential properties. They started spraying Roundup at their primary residence in 1982. Alberta estimated that they sprayed about a gallon of Roundup on that property each week, nine months per year, until 2011. They also sprayed Roundup at three other properties throughout the years. Alberta estimated that at one of the three, they used two gallons each week, nine months per year, for two years; at another they used one gallon per month, nine months per year, for 10 years; and at a third, which they owned for two years, they used a total of about nine gallons. Alberta estimated that she did about 25 percent of the spraying and her husband did 75 percent.

The Pilliods used both premixed Roundup and concentrated Roundup, which Alva would mix with water in a sprayer. Alberta estimated that they used the concentrate about 20 percent of the time. When Alberta sprayed

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[7] Lymphoma is a cancer of lymphocytes, white blood cells that are part of the immune system.

Roundup, there would be a mist in the air, which got on her hands. When Roundup got on her skin, she did not wash it off right away, because she believed it was safe. The Pilliods worked in their yard together, so occasionally if one was spraying Roundup, the other would encounter the mist. Alberta normally wore flip-flops, shorts, and a tank top or T-shirt when she was spraying Roundup. Alva, who was concerned about exposure to the sun, often wore tennis shoes, long pants, long-sleeved shirts, a hat, and sometimes gloves. Roundup would sometimes spill on Alva's hands when he was mixing concentrate and water. He rarely wore gloves when mixing concentrate, explaining that he believed "[t]here was no need to," and that "it's easier controlling all this stuff without gloves on." When he was spraying Roundup, Alva did not usually wear gloves; Roundup would "run down on [his] hands" and would sometimes get on his feet when he sprayed it.

Alberta testified that her belief that Roundup was "really safe to use" was based on commercials she saw on television, in which people were depicted spraying Roundup in shorts and without gloves. She told her husband "it was like sugar water." She testified that she read the Roundup label, which said nothing about wearing a mask or gloves when using it, or that users should not wear shorts or sandals, or any warning about the risk of cancer. She also testified that if Monsanto had warned of a risk of cancer associated with Roundup, she would not have used it.

Alva testified that when he first started using Roundup, he read the label to see if there were any precautions, and saw nothing about wearing gloves or protective gear, and nothing about cancer.

Alberta testified that her husband stopped using Roundup at their primary residence in about 2011, after he became ill and "too weakened to

use it," but before he was diagnosed with non-Hodgkin's lymphoma. She continued using Roundup after her husband was diagnosed with non-Hodgkin's lymphoma until she became sick in 2015, but "not as much." Alva testified that he stopped using Roundup in late 2016, when he read articles about Roundup causing non-Hodgkin's lymphoma. Since they stopped using Roundup, the Pilliods have used a spray of salt and vinegar to kill weeds.

1. *Alva's Diagnosis and Treatment*

By 2011, Alva had retired. Over the course of his life, he had suffered some bouts of illness, but whenever his medical issues were over, he resumed a physically active life. He enjoyed sailing (including sailing from California to Hawaii and back in a 30-foot boat), parachuting, and bungee jumping. He remained active during retirement: he and his wife enjoyed many activities together, such as long walks, scuba diving, travelling, and working in their vegetable and flower gardens. Alva did a lot of maintenance on houses in addition to yard work, and he liked to jog.

In the months before he was diagnosed with stage IV non-Hodgkin's lymphoma, Alva experienced great pain to the point where he could barely move.

He was treated with six rounds of chemotherapy, which worsened neurological symptoms that he had exhibited for many years.

Alva's cancer went into remission by 2013 and had not recurred at the time of trial. It is unlikely that the large-cell lymphoma will come back, but Alva must be monitored for possible complications from the chemotherapy and for other types of lymphomas, because a personal history of lymphomas is an increased risk for other lymphomas. Alva has not been able to resume all his former activities: he no longer works on houses or does long-distance

sailing. Both his son and his wife testified that since his chemotherapy, he has not been the same as before.

2. *Alberta's Diagnosis and Treatment*

Alberta retired from teaching and school administration in 2004, and then went back to work as a substitute administrator. Her son described her as "a very social, happy person," who would go to the gym, walk, snorkel and ski. She and Alva took a trip around the world, and each year Alberta would travel to Hawaii to visit her son and his family. In spring 2015, shortly before a planned trip to Hawaii, she began to experience dizziness and vertigo. The feeling worsened during her trip, and upon returning home she underwent a series of tests, including a biopsy that required drilling into her skull. After about a month of testing, she was diagnosed with non-Hodgkin's lymphoma in her brain and was told that she would die within 18 months, regardless of treatment.

After her 2015 diagnosis, Alberta underwent a painful chemotherapy regime that required multi-day hospital stays and resulted in illness and more hospitalization. She went into remission by September 2015 but suffered a recurrence in her brain in July 2016. She was treated with further chemotherapy. By October 2017 Alberta showed no evidence of disease. She was placed on an experimental maintenance drug treatment in 2017 and remained on that treatment at the time of trial; doctors expect she will continue the drug treatment for the rest of her life.

Alberta began to suffer depression, which required treatment with medication. As a result of her cancer, she is generally dizzy, she has double vision, hearing loss and some memory loss, and she falls frequently. Her activities are limited because she tires easily. She has not resumed her annual visits to her son in Hawaii. She testified that she would still be

working if not for the cancer and has not been able to travel as a result of her health as well as her inability to earn money by working. She is embarrassed that when she walks she "just wobble[s] all the time."

C. *Proceedings in the Trial Court*

In 2017, the Pilliods sued Monsanto for compensatory and punitive damages, alleging that they each developed non-Hodgkin's lymphoma as a result of using the same Roundup products. They asserted causes of action for design defect under the consumer expectations test and failure to warn. The Pilliods' claims were based on Monsanto's labeling, marketing, and promotion of Roundup. Monsanto denies that Roundup can cause non-Hodgkin's lymphoma, and likewise denies that there is any basis to warn consumers that Roundup can cause non-Hodgkin's lymphoma. Eventually the case was assigned to the Honorable Winifred Y. Smith, a most experienced trial judge.

Monsanto moved to sever the Pilliods' claims for trial, arguing that one trial involving two plaintiffs with distinct injuries, causation analyses, and damages could confuse the jury and would prejudice Monsanto and outweigh any benefit from trying their claims together. Judge Smith denied the motion.

Trial ran from late March through early May 2019. The evidence concerned two primary issues: first, whether Monsanto knew or should have known that Roundup causes cancer at the time Monsanto manufactured and distributed the Roundup products that the Pilliods used, and second, whether Roundup was a substantial factor in causing the Pilliods to develop cancer.

1. *The Pilliods' Witnesses*

The Pilliods presented the jury with testimony from a number of highly-credentialed experts, from physicians who had treated the Pilliods,

from Monsanto employees and corporate representatives, and from Alberta, Alva, and their son.

The Pilliods' experts included Dr. Charles Benbrook, an economist with experience in pesticide use and regulation, who had published peer-reviewed scientific papers on pesticides, including papers on glyphosate-based herbicides, and who had researched the regulatory history of glyphosate in the United States.

The Pilliods called several experts to testify on issues of causation. Dr. Christopher Portier, who helped draft the 2005 EPA guidelines for evaluating the carcinogenicity of chemicals, and who participated as an invited specialist in the IARC evaluation of glyphosate, testified that Roundup causes tumors in mammals, malignant lymphoma in mice, genetic damage in human lymphocytes, oxidative stress in human cells, and probably causes non-Hodgkin's lymphoma in humans at real-world exposure. As to non-Hodgkin's lymphoma, Dr. Portier testified, "I'm almost 100 percent there, but not 100 percent there. It's probably yes." Dr. Portier testified he was in the 90 to 95 percent range, explaining, "The animal evidence is very strong. I'm still less comfortable with the epidemiology evidence. I would like another one or two good solid studies in there to get me to that point of absolutely, undeniably, yes, this causes non-Hodgkin's lymphoma."

Dr. Charles William Jameson, a chemist who for 30 years dedicated his career to identifying environmental carcinogens and who participated in 12 IARC working groups, including the panel that evaluated glyphosate, testified that "[t]o a reasonable degree of scientific certainty, glyphosate and glyphosate-formulated products are probable human carcinogens, and that data is very strong that glyphosate causes non-Hodgkin's lymphoma in exposed workers."

Dr. Beate Ritz, a physician with a Ph.D. in medical sociology and a Ph.D. in epidemiology who advises the State of California on the health effects of pesticides, testified at some length about epidemiology studies. In particular, Dr. Ritz testified about the Agricultural Health Study, a large-scale epidemiology study of the cancer risk from pesticides, the interpretation of which was the subject of testimony and argument at trial. (Dr. Ritz had served on the advisory board for this study.) Dr. Ritz testified that based on her consideration of animal studies, cell studies, and epidemiology studies she concluded that Roundup causes non-Hodgkin's lymphoma in real world exposure, and that the risk of non-Hodgkin's lymphoma increases with increasing exposure to Roundup.

Dr. Aaron Blair, an epidemiologist who chaired the IARC working group that evaluated glyphosate, testified about how the working group operated and about the IARC's report. He discussed a number of studies on which the working group relied that showed increased risk of non-Hodgkin's lymphoma for people who had been exposed to glyphosate. Dr. Blair confirmed that, even though he had authored a publication stating that the results of the Agricultural Health Study did not show an association between glyphosate and non-Hodgkin's lymphoma, in the IARC working group he voted that based on the totality of the evidence, there was an association between glyphosate and non-Hodgkin's lymphoma. He testified that the opinions he had at the IARC meeting had not changed.

Dr. William Sawyer, a forensic toxicologist who had studied glyphosate since the 1990's, testified that based on his review of epidemiology data, animal data, and mechanism data, Roundup can cause non-Hodgkin's lymphoma. He testified that POEA, the toxic surfactant in Roundup products used by the Pilliods, enhances the genotoxicity of glyphosate, with

the result that Roundup is about 50 times more genotoxic than glyphosate alone. He explained that the sprayers used for Roundup create an aerosol that can drift onto the skin. He also testified that POEA and glyphosate are skin irritants, and that POEA enhances the absorption of glyphosate through the skin. He testified that the Pilliods' exposure to Roundup far exceeded the level of exposure sufficient to increase their risk of contracting non-Hodgkin's lymphoma; and that their exposure was exacerbated by the fact that they did not wear gloves or other protective gear. If they had worn them when spraying, their exposure and their risk of getting non-Hodgkin's lymphoma would have been reduced. It was undisputed at trial that the Roundup label for lawn and garden products does not advise users to wear gloves when using the product.

Dr. Dennis Weisenburger, a physician board-certified in anatomic and clinical pathology with special training in the diagnosis of diseases of the blood and bone marrow (including non-Hodgkin's lymphoma), testified about *case-specific causation* issues as to the Pilliods themselves. He has studied the relationship between pesticides and non-Hodgkin's lymphoma since the 1980's and opined that as a general matter Roundup causes non-Hodgkin's lymphoma in humans in real-world exposure. He also opined that, to a reasonable scientific certainty, repeated Roundup exposure was a substantial factor in causing non-Hodgkin's lymphoma in both Alberta and Alva. He based his opinions on his research in the field, including scientific papers he read and reviewed as well as papers he authored, and on his review of the Pilliods' medical records, their deposition testimony, telephone conversations with the Pilliods, and the deposition testimony of the treating physicians. Dr. Weisenburger testified that up to 70 percent of cases of non-Hodgkin's lymphoma are idiopathic, meaning that there is no known cause of the

disease, but that did not apply to the Pilliods. For the Pilliods, Roundup was "an obvious cause," and more likely than not the cause of their disease.

Dr. Weisenburger explained that he conducted "differential diagnos[e]s" to conclude that environmental exposure to Roundup was a substantial contributing factor in the Pilliods' illnesses.[8] Dr. Weisenburger considered the known accepted causes of non-Hodgkin's lymphoma, as well as the risk factors for non-Hodgkin's lymphoma that pertained to each of the Pilliods, including whether the risk factors were substantial in each case. He testified that risk factors for non-Hodgkin's lymphoma include increased age, male sex, and Caucasian race, but those risk factors do not cause cancer. Other risk factors include pesticide use, a family history of blood cancer, obesity, certain viral infections, certain bacterial infections, immunodeficiency, certain autoimmune diseases, chronic inflammation, and the use of solvents.

Dr. Weisenburger testified that only three of the causative risk factors pertained to Alberta: obesity, the use of Roundup (the only pesticide the Pilliods used in any significant amount during the relevant 30 years), and an

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[8] " 'Differential diagnosis, or differential etiology, is a standard scientific technique of identifying the cause of a medical problem by eliminating the likely causes until the most probable one is isolated . . . [Citation.] . . . [¶] The first step in the diagnostic process is to compile a comprehensive list of hypotheses that might explain the set of salient clinical findings under consideration. [Citation.] The issue at this point in the process is which of the competing causes are *generally* capable of causing the patient's symptoms or mortality. . . . [¶] After the expert rules in all of the potential hypotheses that might explain a patient's symptoms, he or she must then engage in a process of elimination, eliminating hypotheses on the basis of a continuing examination of the evidence so as to reach a conclusion as to the most likely cause of the findings in that particular case.' " (*Johnson & Johnson Talcum Powder Cases* (2019) 37 Cal.App.5th 292, 308, fn. 6 (*Echeverria*).)

autoimmune disease, Hashimoto's thyroiditis. He ruled out Hashimoto's thyroiditis, because it is associated with lymphomas in the thyroid gland, not the brain, leaving obesity and the use of Roundup. He explained that obesity was a minor risk factor and that it may have contributed to her non-Hodgkin's lymphoma, but was not a substantial contributing factor. Roundup, on the other hand, was a far greater risk factor than obesity and, because it causes lymphoma and because people exposed to it have a higher increased risk for non-Hodgkin's lymphoma, was the substantial contributing cause of Alberta's disease.

Dr. Weisenburger testified that with respect to Alva, the relevant risk factors were being overweight (although Alva was not technically "obese") and exposure to Roundup. His weight put him at a slightly, but not substantially, increased risk for non-Hodgkin's lymphoma, but Roundup was a substantial contributing factor.

Dr. Chadi Nabhan, a physician specializing in lymphoma who is board certified in hematology, oncology, and internal medicine, also testified about *case-specific causation issues*. He testified that even before he was contacted by the Pilliods' lawyers, he was well aware that pesticides cause non-Hodgkin's lymphoma, although he had no knowledge or opinion about Roundup in particular. He also testified that, based on his subsequent research, which included literature and confidential Monsanto documents he received from the Pilliods' lawyers, as well as literature he researched on his own, Roundup causes non-Hodgkin's lymphoma. Based on his review of the Pilliods' medical records, telephone discussions with the Pilliods, and the deposition testimony of the Pilliods and their treating physicians, he testified that Roundup was a cause of Alberta's and Alva's non-Hodgkin's lymphoma. Like Dr. Weisenburger, Dr. Nabhan explained how differential diagnoses led

him to conclude that Roundup was a substantial factor in causing each of the Pilliods' non-Hodgkin's lymphoma.

2. *Monsanto's Witnesses*

Monsanto, too, offered testimony from highly-credentialed expert witnesses, including Dr. Lorelei Mucci, a leader for the program in cancer epidemiology at the Dana-Farber/Harvard Cancer Center. She opined that based on her "review of all the epidemiology studies, there's no evidence of a causal association between Roundup and non-Hodgkin's lymphoma."

Monsanto also presented testimony from two physicians, both experts in lymphoma, who testified on the causes of the disease generally and with respect to the individual plaintiffs. Dr. Celeste Bello testified as to Alberta, and Dr. Alexandra Levine testified as to Alva.

Dr. Bello opined that the cause of Alberta's non-Hodgkin's lymphoma was unknown, that Roundup did not contribute to her disease, and that the data from epidemiology studies did not support a link between Roundup and non-Hodgkin's lymphoma. Dr. Bello further opined that Alberta's medical history showed several risk factors for the development of non-Hodgkin's lymphoma, including her age, obesity, Hashimoto's thyroiditis, a personal history of cancer (two incidents of bladder cancer), and a family history of cancer.[9]

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[9] Dr. Weisenburger and Dr. Nabhan, plaintiffs' experts on specific causation, had testified that age is not a causative risk factor, and that Hashimoto's thyroiditis, the history of bladder cancer, and the family history of cancer, which did not include blood-borne cancers, were not risk factors for Alberta. They also testified that obesity was not a substantial contributing factor to Alberta's illness. Monsanto argues on appeal that plaintiffs' experts failed to explain why they ruled out cigarette smoking as a cause of Alberta's non-Hodgkin's lymphoma. But Monsanto ignores testimony from Dr.

Dr. Levine characterized Alva's non-Hodgkin's lymphoma as having no known cause. She further opined that "the majority of the data are clear in terms of the fact that Roundup does not cause lymphoma." She testified that Alva's medical history showed that he had a deficient and abnormal immune system, which she characterized as a "very prominent" risk factor for non-Hodgkin's lymphoma. Evidence of Alva's abnormal immune system included a diagnosis of ulcerative colitis and his history of recurrent skin cancer, multiple episodes of viral infection meningoencephalitis (infection and inflammation of the brain and surrounding tissues), and recurrent genital warts, which are also caused by a virus. He also had a family history of cancer.[10]

3. *Verdict and Judgment*

The jury returned verdicts for the Pilliods on all their claims: design defect under the consumer expectations test, strict liability and negligent failure to warn, negligence, and punitive damages. The jury awarded Alberta

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Weisenburger and from Alberta's treating physician that smoking is not a risk factor for non-Hodgkin's lymphoma.

[10] Dr. Weisenburger and Dr. Nabhan testified that Alva did not have a compromised or deficient immune system. They also testified that because Alva had no family history of blood-borne cancer, family history was not a risk factor for him. Each of them also testified about Alva's history of skin cancer and history of viral infections and genital warts, and concluded that those conditions did not cause Alva's non-Hodgkin's lymphoma. Based on discussions with Alva about the symptoms, treatment and resolution of the complaint that led to the diagnosis of ulcerative colitis, Dr. Weisenburger testified that he did not agree that Alva ever had ulcerative colitis or an autoimmune disease. Dr. Nabhan testified that Alva's condition was not typical ulcerative colitis, that ulcerative colitis was a "very soft" risk factor, and that the immunosuppressive medications given to treat ulcerative colitis can be associated with a higher risk of non-Hodgkin's lymphoma, but that Alva had not taken any of them.

about $200,000 in past economic loss (an amount to which the parties had stipulated), about $3 million in future economic loss, $8 million in past noneconomic loss, $26 million in future noneconomic loss, and $1 billion in punitive damages. The jury awarded Alva about $47,000 in past economic loss (also stipulated), $8 million in past noneconomic loss, $10 million in future noneconomic loss, and $1 billion in punitive damages.

After judgment was entered, Monsanto filed a motion for judgment notwithstanding the verdict (JNOV) on multiple grounds, and filed a motion for new trial, claiming that the verdicts were not supported by the weight of the evidence, the damages awards were excessive, and there had been irregularities in the proceedings, including prejudicial misconduct by plaintiffs' counsel. The trial court denied the motion for JNOV, and conditionally granted the motion for a new trial unless Alberta consented to entry of judgment in the amount of $56,005,830 and Alva consented to entry of judgment in the amount of $30,736,480. The Pilliods' accepted the reduced judgments, reserving the right to appeal the reduction if Monsanto appealed.

Monsanto timely appealed from the judgment and the orders denying its motions for JNOV and new trial. The Pilliods then cross-appealed from the trial court's reduction of damages, as they are permitted to do. (*Miller v. Nat'l Am. Life Ins. Co.* (1976) 54 Cal.App.3d 331, 345.)

DISCUSSION

We begin by addressing Monsanto's challenges to the jury's findings on liability and to the conduct of the trial. We then turn to the parties' challenges to the awards of damages.[11]

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[11] We took under submission for decision with the merits certain requests for judicial notice, which we now grant, except that we deny plaintiffs' opposed July 31, 2020 request concerning a Bayer press release.

A. *Preemption*

Monsanto argues that the Pilliods' claims, which are brought under California common law, are preempted by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA, 7 U.S.C. § 136 et seq.), which governs the use, sale, and labeling of pesticides, including herbicides. (*Bates v. Dow Agrosciences LLC* (2005) 544 U.S. 431, 434, fn. 1 [citing 7 U.S.C. §§ 136(t), (u)], 437 (*Bates*).) On that basis, Monsanto contends that we should reverse the judgment and direct the trial court to enter judgment for Monsanto. We are not persuaded.

1. *Principles of Preemption and Standard of Review*

As our Supreme Court has explained, the supremacy clause of the United States Constitution "makes federal law paramount, and vests Congress with the power to preempt state law." (*Viva! International Voice for Animals v. Adidas Promotional Retail Operations, Inc.* (2007) 41 Cal.4th 929, 935.) Two types of preemption are relevant here: express preemption, which "arises when Congress 'define[s] explicitly the extent to which its enactments pre-empt state law," and conflict preemption, which occurs "when simultaneous compliance with both state and federal directives is impossible." (*Id.* at p. 936.) We follow the parties in referring to conflict preemption as "impossibility preemption."

The jurisprudence of preemption rests on two principles. "First, 'the purpose of Congress is the ultimate touchstone in every pre-emption case.' [Citations.] Second, '[i]n all pre-emption cases, and particularly in those in

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With respect to the amicus brief filed by the United States in *Hardeman v. Monsanto Co.* (9th Cir. 2021) 997 F.3d 941, 950 (*Hardeman*)), another case in which a plaintiff alleged that non-Hodgkin's lymphoma was caused by Roundup, we take judicial notice of the legal arguments asserted by the United States but decline to consider those arguments "legislative facts."

which Congress has "legislated . . . in a field which the States have traditionally occupied," . . . we "start with the assumption that the historic police powers of the States were not to be superseded by the Federal Act unless that was the clear and manifest purpose of Congress." ' " (*Wyeth v. Levine* (2009) 555 U.S. 555, 565 (*Wyeth*).)

Federal preemption of state law is a question of law that we review de novo. (*Farm Raised Salmon Cases* (2008) 42 Cal.4th 1077, 1089, fn. 10.)

2. *FIFRA Labeling Requirements*

The United States Supreme Court summarized the relevant portions of FIFRA in *Bates*:

"Under FIFRA . . . a manufacturer seeking to register a pesticide must submit a proposed label to EPA as well as certain supporting data. 7 U.S.C. §§ 136a(c)(1)(C), (F). The agency will register the pesticide if it determines that the pesticide is efficacious . . . , § 136a(c)(5)(A); that it will not cause unreasonable adverse effects on humans and the environment, §§ 136a(c)(5)(C), (D) . . . ; and that its label complies with the statute's prohibition on misbranding, § 136a(c)(5)(B) . . . . A pesticide is 'misbranded' if its label contains a statement that is 'false or misleading in any particular,' . . . . 7 U.S.C. § 136(q)(1)(A); 40 CFR § 156.10(a)(5)(ii). A pesticide is also misbranded if its label does not contain adequate instructions for use, or if its label omits necessary warnings or cautionary statements. 7 U.S.C. §§ 136(q)(1)(F), (G)." (*Bates*, *supra*, 544 U.S. at p. 438.)

"Because it is unlawful under the statute to sell a pesticide that is registered but nevertheless misbranded, manufacturers have a continuing obligation to adhere to FIFRA's labeling requirements. § 136j(a)(1)(E); see also § 136a(f)(2) (registration is prima facie evidence that the pesticide and its labeling comply with the statute's requirements, but registration does not

provide a defense to the violation of the statute); § 136a(f)(1) (a manufacturer may seek approval to amend its label). Additionally, manufacturers have a duty to report incidents involving a pesticide's toxic effects that may not be adequately reflected in its label's warnings, [citation] and EPA may institute cancellation proceedings [citation] and take other enforcement action if it determines that a registered pesticide is misbranded." (*Bates*, *supra*, 544 U.S. at pp. 438-439.)

FIFRA confirms that states have "broad authority to regulate the sale and use of pesticides." (*Bates*, *supra*, 544 U.S. at p. 446, citing 7 U.S.C. § 136v(a).) Thus, "a state agency may ban the sale of a pesticide if it finds, for instance, that one of the pesticide's label-approved uses is unsafe." (*Ibid.*)

Even so, FIFRA prohibits states from imposing "any requirements for labeling or packaging *in addition to or different from* those required under this subchapter [i.e., FIFRA]."[12] (7 U.S.C. § 136v(b), italics added.) This is the key language at issue in Monsanto's preemption argument.

In *Bates*, the United States Supreme Court held that "the term 'requirements' in § 136v(b) reaches beyond positive enactments, such as statutes and regulations, to embrace common-law duties." (*Bates*, *supra*, 544 U.S. at p. 443.) "For a particular state rule to be pre-empted, it must satisfy two conditions. First, it must be a requirement '*for labeling or packaging*'; rules governing the design of a product, for example, are not pre-empted. Second, it must impose a labeling or packaging requirement that is '*in addition to or different from* those required under this subchapter.' A state regulation requiring the word 'poison' to appear in red letters, for instance,

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[12] FIFRA defines "labeling" as "all labels and all other written, printed, or graphic matter— [¶] accompanying the pesticide . . . at any time." (7 U.S.C. § 136(p)(2)(A).)

would not be pre-empted if an EPA regulation imposed the same requirement." (*Id.* at p. 444.) A state law can survive preemption even if it does not explicitly incorporate FIFRA's standards, and it is a question of law whether common-law duties pertaining to labeling and packaging are equivalent to the FIFRA misbranding provisions. (*Id.* at p. 447.)

3. *Analysis*

Monsanto contends that because the Pilliods' failure to warn and design defect claims are based on state-law labeling and packaging requirements that are "in addition to" and "different from" requirements imposed by FIFRA, the claims are *expressly* preempted. Even assuming that the Pilliods' claims, including their design defect claim, are entirely based on labeling and packaging requirements, we conclude that there is no express preemption here. That is because Monsanto identifies no state-law requirements that are in addition to or different from the misbranding requirements imposed by FIFRA, which is what it must do to show that the claims are preempted.

Consider the elements of the Pilliods' state law claims. To prove negligent failure to warn under California law, a plaintiff must show "that a manufacturer . . . did not warn of a particular risk for reasons which fell below the acceptable standard of care, i.e., what a reasonably prudent manufacturer would have known and warned about." (*Anderson v. Owens-Corning Fiberglas Corp.* (1991) 53 Cal.3d 987, 1002 (*Anderson*).) To prove failure to warn in strict liability, a plaintiff must show "that the defendant did not warn of a particular risk that was known or knowable in light of the generally recognized and prevailing best scientific and medical knowledge available at the time of manufacture and distribution." (*Ibid.*) FIFRA provides that a pesticide is misbranded if its labeling "does not contain

directions for use which are necessary for effecting the purpose for which the product is intended and if complied with . . . are adequate to protect health" (7 U.S.C. § 136(q)(1)(F)) or if its label "does not contain a warning or caution statement which may be necessary and if complied with . . . is adequate to protect health." (7 U.S.C. § 136(q)(1)(G).) California common law therefore does not impose any requirements that are different from or in addition to the requirements of FIFRA. (*Hardeman*, *supra*, 997 F.3d at p. 955 [FIFRA is "broader than California's requirement under negligence" and "at minimum, consistent with California's requirement under strict liability"].)

In response to the Pilliods' contention that Monsanto should have warned that Roundup causes cancer, Monsanto argues that any state-law requirement for such a warning is preempted because EPA reviewed the factual basis for the label statements as they existed at the time the Pilliods used the product and "made an authoritative agency determination rejecting the warning purportedly required by state law." This argument lacks merit. It disregards the provision in FIFRA that registration and approval of a label is not a defense to a claim of misbranding. (7 U.S.C. § 136a(f)(2).) It also ignores the explication in *Bates* that "FIFRA contemplates that pesticide labels will evolve over time, as manufacturers gain more information about their products' performance in diverse settings," and the observation that "tort suits can serve as a catalyst in this process." (*Bates*, *supra*, 544 U.S. at p. 451.) These statements in *Bates* are followed by an extensive quotation from *Ferebee v. Chevron Chemical Co.* (D.C. Cir. 1984) 736 F.2d 1529 (*Ferebee*) which we reproduce here: " 'By encouraging plaintiffs to bring suit for injuries not previously recognized as traceable to pesticides such as [the pesticide there at issue], a state tort action of the kind under review may aid in the exposure of new dangers associated with pesticides. Successful actions

of this sort may lead manufacturers to petition EPA to allow more detailed labelling of their products; alternatively, EPA itself may decide that revised labels are required in light of the new information that has been brought to its attention through common law suits. In addition, the specter of damage actions may provide manufacturers with added dynamic incentives to continue to keep abreast of all possible injuries stemming from use of their product so as to forestall such actions through product improvement.' " (*Bates*, *supra*, 544 U.S. at p. 451, quoting *Ferebee*, *supra*, 736 F.2d at pp. 1541-1542.)

In addition to arguing that express preemption bars the Pilliods' claims, Monsanto argues that *impossibility* preemption applies here because Monsanto cannot unilaterally alter Roundup's labeling or formulation without EPA's prior approval. Monsanto's argument rests on the proposition that "[i]f a private party . . . cannot comply with state law without first obtaining the approval of a federal regulatory agency, then the application of that law to that private party is preempted." (*Gustavsen v. Alcon Laboratories, Inc.* (1st Cir. 2018) 903 F.3d 1, 9.) That proposition is drawn from cases decided under the Federal Food, Drug, and Cosmetic Act (FDCA, 21 U.S.C. § 301 et seq.) and pertaining to generic drugs, such as *PLIVA, Inc. v. Mensing* (2011) 564 U.S. 604 (*Mensing*) and *Mutual Pharmaceutical Co. v. Bartlett* (2013) 570 U.S. 472 (*Bartlett*).

Monsanto also argues that impossibility preemption bars the Pilliods' claims because there is "clear evidence" that EPA would not have approved the warnings that the Pilliods claim are required by state law. This argument similarly relies on cases decided under the FDCA, but these cases pertain to brand-name, rather than generic, drugs: *Merck Sharp & Dohme Corp. v. Albrecht* (2019) ___ U.S. ___ [139 S.Ct. 1668, 1672] (*Albrecht*), and

Wyeth, *supra*, 555 U.S. at pp. 570-571. Under these cases, if there is 'clear evidence' that the FDA would not have approved a change to a drug's label, then preemption bars a state law claim that the manufacturer "failed to warn consumers of the change-related risks associated with using the drug."[13] (*Albrecht*, *supra*, 139 S.Ct. at p. 1672.)

But Monsanto fails to explain why preemption analyses under the entirely separate statutory scheme that applies to drugs should be applied to herbicides under FIFRA. Monsanto's omission is particularly glaring in light of the Pilliods' extensive discussion of how FIFRA and the FDCA differ from each other in important respects where preemption provisions are concerned.

Accordingly, although impossibility preemption may result in state law claims being barred under the FDCA, we are not persuaded that the doctrine can be reconciled with FIFRA, which confirms that states are authorized to regulate the sale and use of pesticides and authorizes states to ban the sale of a pesticide that it finds unsafe. (*Bates*, *supra*, 544 U.S. at p. 446, citing 7 U.S.C. § 136v(a)); see also *Hardeman*, *supra*, 997 F.3d at pp. 958-959 [rejecting Monsanto's implied preemption argument to the extent it relies on *Mensing* because of differences between the FDCA and FIFRA regulatory schemes]; *Ansagay v. Dow Agrosciences LLC* (D.Haw. 2015) 153 F.Supp.3d 1270, 1283-1285 [discussing *Bates*, *Mensing*, and *Bartlett* and noting that the FDCA, unlike FIFRA, lacks express provisions concerning preemption and

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[13] " 'Clear evidence' is evidence that shows that the drug manufacturer fully informed the FDA of the justifications for the warning required by state law and that the FDA, in turn, informed the drug manufacturer that the FDA would not approve a change to the drug's label to include that warning." (*Albrecht*, *supra*, 139 S.Ct. at p. 1672.) The FDA's communication of its disapproval must be made by means of an "agency action carrying the force of law." (*Id.* at p. 1679.)

that the "statutory scheme in the FDCA does not contemplate FIFRA's level of state participation in regulating products within a federal statute's purview"].) And we are not aware of any published opinion by any court—state or federal—that adopts Monsanto's positions with respect to impossibility preemption.

Accordingly, we conclude that Monsanto has not shown that FIFRA preempts the Pilliods' claims.

B. *Application of the Consumer Expectations Test to the Design Defect Claims*

Monsanto contends that it is entitled to judgment on the Pilliods' design defect claims, arguing that because the consumer expectations test is inapplicable, the trial court should not have submitted the claims to the jury on this theory. The argument is not persuasive.

1. *Applicable Law and Standard of Review*

A manufacturer is liable for a design defect if the "design of its product causes injury while the product is being used in a reasonably foreseeable way." (*Soule v. General Motors Corp.* (1994) 8 Cal.4th 548, 560 (*Soule*).) Where "ordinary users or consumers of a product may have reasonable, widely accepted minimum expectations about the circumstances under which it should perform safely[, c]onsumers govern their own conduct by these expectations, and products on the market should conform to them." (*Id.* at p. 566.) Thus, the consumer expectations test for a design defect is appropriate only where "the *everyday experience* of the product's users permits a conclusion that the product's design violated *minimum* safety assumptions, and is thus defective *regardless of expert opinion about the merits of the design.*" (*Id.* at p. 567.)

We review claims of instructional error de novo. (*Trejo v. Johnson & Johnson* (2017) 13 Cal.App.5th 110, 156 (*Trejo*).)

2. *Analysis*

Monsanto argues that an ordinary user could not develop an expectation about whether Roundup could cause cancer based on its everyday use, as demonstrated by the need for expert testimony about how and why Roundup caused harm to the plaintiffs. But the need for expert testimony on legal causation does not preclude the use of the consumer expectations test (*Soule*, *supra*, 8 Cal.4th at p. 569, fn. 6): it "does not mean that an ordinary user of the product would be unable to form assumptions about the safety of the product[ ]. The consumer expectations test does not require inquiry into how exposure to a particular level of [a substance] may lead to the development of cancer. To the contrary, the test asks the jury to decide 'whether the circumstances of the product's failure permit an inference that the product's design performed below the legitimate, commonly accepted minimum safety assumptions of its ordinary consumers.' " (*Jones v. John Crane, Inc.* (2005) 132 Cal.App.4th 990, 1003 (*Jones*), quoting *Soule*, *supra*, 8 Cal.4th at pp. 568-569.)[14]

The Pilliods' case is one where "the jury, fully apprised of the circumstances of the . . . injury, may conclude that the product's design failed

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[14] Monsanto argues that cases like *Jones*, in which the defective product at issue exposes users to asbestos (*Jones*, *supra*, 132 Cal.App.4th at p. 996), do not support the use of the consumer expectations test here. Monsanto contends that those cases concern products that are manufactured in a way that allows them to release a known toxin, and do not apply to a product containing glyphosate, which, according to Monsanto, is *not* a known carcinogen. Even if Monsanto were correct about the limitation of the consumer expectations test—and Monsanto cites no case that so holds—the argument would be unavailing: the question whether Monsanto knew or should have known that Roundup or glyphosate were carcinogenic is an issue of fact subject to the substantial evidence standard. As we shall discuss, there is substantial evidence to support such findings.

to perform as safely as the product's ordinary consumers would expect." (*Soule*, *supra*, 8 Cal.4th at p. 569, fn. 6.) The jury was informed about the circumstances in which the Pilliods used Roundup and about how Roundup was marketed. Advertisements depicted Roundup as a product that could be safely sprayed by ordinary consumers without the need for any particular precautions or protective gear, and the product label touted Roundup as harmful only to plants, explaining that it "*targets an enzyme found in plants, but not in people or pets.*" (Emphasis added.) The consumer expectations test is appropriate here, as it was in *Arnold v. Dow Chemical Co.* (2001) 91 Cal.App.4th 698, where the plaintiffs claimed that pesticide products " 'were defective in their design because they failed to perform as safely as an ordinary user would expect (as evidenced by the reactions and illnesses of [plaintiffs]) when used in an intended or reasonably foreseeable manner (i.e., when used as the product was marketed to be used and in accordance with the instructions on the product).' " (*Id.* at p. 717.)

Monsanto rests its argument on cases in which the consumer expectations test was held inapplicable, but those cases are distinguishable. In *Soule*, our Supreme Court held that the consumer expectations test did not apply where the plaintiff's design defect theory required "examin[ing] the precise behavior of several obscure components of her car under the complex circumstances of a particular accident," a collision in which the speed, angle, and point of impact were disputed. (*Soule*, *supra*, 8 Cal.4th at p. 570.) Although an ordinary consumer would not have experience or understanding of "how safely an automobile's design should perform under the esoteric circumstances of the collision at issue" in that case (*ibid.*), the Pilliods, as ordinary consumers, had experience and understanding of how an herbicide

could affect them when used in accordance with the manufacturers marketing and instructions.

In a second case on which Monsanto relies, *Morson v. Superior Court* (2001) 90 Cal.App.4th 775 (*Morson*), the Court of Appeal held that the consumer expectations test was inappropriate where plaintiffs claimed they became symptomatic of allergies to latex only after significant exposure as a result of using latex gloves. In *Morson*, however, the "alleged circumstances of the product's failure involve[d] technical and mechanical details about the operation of the manufacturing process, and then the effect of the product upon an individual plaintiffs' health." (*Id.* at p. 792.) The plaintiffs in *Morson* sought to prove that their conditions were caused by more than a natural allergy to latex, "such that a product defect or a wrongdoing by a defendant could have been causative factors." (*Id.* at p. 794.) The court there concluded that "[t]he alleged creation or exacerbation of allergies by a product, such as by the presence of certain levels of proteins on the surface of latex gloves, to which the user is exposed, are not subjects of commonly accepted minimum safety assumptions of an ordinary consumer." (*Id.* at p. 795.) The court further noted that the ordinary consumer test was inappropriate because the plaintiffs were medical professionals whose health was allegedly harmed by gloves that they ordinarily used as a safety measure to serve as barrier against infection and foreign substances, thus protecting them from other kinds of harm to their health. (*Id.* at pp. 792-793.) Here, in contrast, we conclude that ordinary consumers do have expectations about whether they will develop cancer as a result of using widely sold and advertised herbicides. Their expectation is they will not.

Monsanto also relies on *Trejo*, where the Court of Appeal held that the consumer expectations test did not apply where the plaintiff alleged a design

defect after developing a rare skin disease as a reaction to over-the-counter ibuprofen. (*Trejo*, *supra*, 13 Cal.App.5th at pp. 116, 156.) In *Trejo*, the test was inappropriate because the plaintiff suffered "an 'idiosyncratic' side effect," and, as in *Morson*, the circumstances of the product failure "involve[d] technical details and expert testimony regarding 'the effect of the product upon an individual plaintiff's health.' " (*Id.* at p. 160.) In *Trejo*, as in *Morson*, expert testimony was needed to allow the finder of fact to understand the pros and cons of claims that the defective design of a product led to " 'allergic and/or idiosyncratic reactions.' " (*Id.* at p. 158, quoting *Morson*, *supra*, 90 Cal.App.4th at p. 795.) This was particularly evident in *Trejo*, where the trial court "repeatedly sustained objections and admonished plaintiffs' counsel not to allow expert testimony related to the consumer expectation test." (*Id.* at p. 159.) Monsanto points to no such expert testimony related to the Pilliods' expectations.

C. *Substantial Evidence of Failure-to-Warn and Design Defect Findings*

Monsanto argues that we should reverse and direct the trial court to enter judgment in its favor because there is no substantial evidence to support the jury's failure to warn and design defect findings.

1. *Applicable Law and Standard of Review*

In a substantial evidence challenge, "we are bound by the 'elementary, but often overlooked principle of law that . . . the power of an appellate court begins and ends with a determination as to whether there is any substantial evidence, contradicted or uncontradicted,' to support the findings below." (*Jessup Farms v. Baldwin* (1983) 33 Cal.3d 639, 660, quoting *Crawford v. Southern Pacific Co.* (1935) 3 Cal.2d 427, 429.) A fundamental corollary to the substantial evidence rule is the " 'conflicting inference' rule" by which "the appellate court must indulge all *reasonable* inferences that may be

deduced from the facts *in support of the party who prevailed* in the proceedings below." (Eisenberg et al., Cal. Practice Guide: Civil Appeals & Writs (The Rutter Group 2020) ¶ 8:60, p. 8-28.) Thus, "[e]ven if the facts were admitted or uncontradicted, the appellate court will not substitute its deductions for the reasonable inferences actually or presumptively drawn by the trial court." (*Ibid.*) We apply the substantial evidence standard to the record as a whole. It has long been established that an appellant must present in its brief all the material evidence on the issue, not just the evidence that supports its position, and failure to so state the evidence may be deemed a waiver of the substantial evidence challenge. (*Foreman & Clark Corp. v. Fallon* (1971) 3 Cal.3d 875, 881 (*Foreman & Clark*) [substantial evidence challenge requires parties to " 'set forth in their brief *all* the material evidence on the point and *not merely their own evidence*' " (quoting *Kruckow v. Lesser* (1952) 111 Cal.App.2d 198, 200 and adding italics)].)

2. *Analysis*

As appellant, Monsanto " ' "must marshall *all* of the record evidence relevant to the point in question and affirmatively demonstrate its insufficiency to sustain the challenged finding." ' " (*Hartt v. County of Los Angeles* (2011) 197 Cal.App.4th 1391, 1402.) But rather than fairly stating all the relevant evidence, Monsanto has made a lopsided presentation that relies primarily on the evidence in *its* favor.[15] This type of presentation may work for a jury, but it will not work for the Court of Appeal.

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[15] Respondents' brief calls out Monsanto for failing to fairly state all the evidence and correctly notes that a court may consider that failure a basis to deem the arguments forfeited. (*Chicago Title Ins. Co. v AMZ Ins. Services, Inc.* (2010) 188 Cal.App.4th 401, 416, citing cases, including *Foreman & Clark, supra.*) Monsanto offers no reply to the argument.

The trial described in Monsanto's opening brief bears little resemblance to the trial reflected in the record. Monsanto discusses at length how EPA and other regulatory entities have evaluated scientific data, rather than fairly discussing the data and analyses that were presented at trial by the Pilliods' witnesses, some of which we have summarized above. Notably, Monsanto has little to say about the substance of the testimony from the Pilliods' general causation experts that supports the verdicts, and Monsanto fails to provide fair summaries of the substance of testimony of the Pilliods' specific causation experts, Dr. Weisenburger and Dr. Nabhan.

We find that substantial evidence supports the jury's verdicts. Although the evidence was disputed, there was substantial evidence from the testimony of plaintiffs' experts on causation (Dr. Portier, Dr. Jameson, Dr. Ritz, Dr. Blair, Dr. Sawyer, Dr. Weisenburger, and Dr. Nabhan) to support the findings that Roundup can cause non-Hodgkin's lymphoma, and did cause non-Hodgkin's lymphoma in both Alberta and Alva.

There was substantial evidence from the testimony of the Pilliods and from the advertising and labeling of Roundup to support a finding that Roundup failed to perform as safely as an ordinary consumer would have expected when the product was used in a reasonably foreseeable way.

And there was substantial evidence to support the jury's findings on the failure to warn claims. A duty to warn arises when a "potential risk," here the risk of cancer, is "known or knowable in light of the generally recognized and prevailing best scientific and medical knowledge available at the time of manufacture and distribution." (*Anderson*, *supra*, 53 Cal.3d at pp. 991, 1002.) "A 'potential risk' is one 'existing in possibility' or 'capable of development into actuality.' " (*Valentine v. Baxter Healthcare Corp.* (1999) 68 Cal.App.4th 1467, 1483.)

Monsanto argues that "the prevailing best scientific scholarship concluded that the evidence did not establish a potential cancer risk" from Roundup at the times relevant to the Pilliods' use of the product. Monsanto, however, says little about the scholarship, and instead relies heavily on the conclusions of regulatory agencies, particularly EPA.

The jury was presented with substantial, if disputed, evidence that there is a risk of cancer from exposure to glyphosate and Roundup, and that the risk was knowable, even if not known, in light of the best scientific and medical knowledge that was available. Testimony about the IARC working group informed the jury that published scientific studies available as long ago as the 1980's support the conclusion that Roundup and glyphosate are probably carcinogenic to humans. Furthermore, as we discuss below in connection with the issue of punitive damages, the jury heard evidence that Monsanto's responses to the 1983 Study and other scientific studies reflect a failure on Monsanto's part to adequately investigate the effects of glyphosate, even in the face of its own internal studies. And the jury heard evidence of Monsanto's efforts to manipulate scientific discourse about glyphosate through its uncredited contributions to scientific studies. From this, the jury could infer not only that the potential cancer risk associated with glyphosate and Roundup was known or knowable in light of the best scientific and medical knowledge of the time it was manufactured, distributed, and sold to the Pilliods, but also that Monsanto labored for decades to suppress knowledge of the risk.

D. *Causation*

Monsanto makes two arguments with respect to the issue of causation. Monsanto first argues that we should reverse and direct the trial court to enter judgment in its favor because there is no reliable foundation for the

specific causation opinions presented by the Pilliods' experts. In the alternative, Monsanto argues that we should reverse and remand for a new trial because the issue of causation was "fatally infected" as a result of the Pilliods' claims being tried together. We consider the arguments in turn and reject them both.

1. *Foundation for Plaintiffs' Experts' Opinions*

To show that a defendant's product is a substantial factor in causing a plaintiff's disease, the plaintiff need not establish the product "as the proximate cause of injury with absolute certainty *so as to exclude every other possible cause of a plaintiff's illness*, even if the expert's opinion was reached by performance of a differential diagnosis." (*Cooper v. Takeda Pharmaceuticals America, Inc.* (2015) 239 Cal.App.4th 555, 578.) Instead, " 'the plaintiff must offer an expert opinion that contains a reasoned explanation illuminating why the facts have convinced the expert, and therefore should convince the jury, that it is *more probable than not*' " that the product was a cause-in-fact of the disease. (*Ibid.*) Then the burden shifts to the defendant to prove "the existence of an alternative explanation, supported by substantial evidence and not mere speculation," to defeat the plaintiffs' explanation as a matter of law. (*Ibid.*)

Dr. Weisenburger and Dr. Nabhan opined that Roundup is a substantial factor in causing the Pilliods' cancer. Monsanto argues that these opinions lack reliable foundation, and therefore are speculative and cannot constitute substantial evidence to support the verdicts. Specifically, Monsanto argues that Plaintiffs' experts had no reliable methodology for *including* Roundup as a possible cause of the Pilliods' cases of non-Hodgkin's lymphoma or for *excluding* alternative possible causes (including the

possibility that their cancers are idiopathic, as is the case for the majority of patients with non-Hodgkin's lymphoma).

Monsanto's repeated criticism of the underlying "methodology" used by plaintiffs' experts in conducting their differential diagnoses appears in its argument that there is no substantial evidence to support the inclusion of Roundup as a possible cause of the Pilliods' cancers and no substantial evidence to support the exclusion of other possible causes of the cancers.

Thus, as Monsanto acknowledges, its argument as to the inclusion of Roundup as a possible cause rests on its contention that Dr. Weisenburger and Dr. Nabhan "had no basis to consider Roundup as a potential cause in the first place." But, as we discussed above, Monsanto does not fairly present the evidence that Roundup is a potential cause of non-Hodgkin's lymphoma, or the testimony of Dr. Weisenburger and Dr. Nabhan. (*Foreman & Clark*, *supra*, 3 Cal.3d at p. 881.) The Pilliods presented extensive expert testimony based on epidemiology data, animal data, and mechanism data, that Roundup causes non-Hodgkin's lymphoma. Dr. Weisenburger and Dr. Nabhan testified as to their review of research in the field as well as case-specific evidence. In the face of this largely unexamined record, Monsanto provides a brief discussion of the epidemiology studies that it views as favorable and asserts in a conclusory fashion that Dr. Weisenburger and Dr. Nabhan "disregarded" those studies, "largely" relied on less probative epidemiology studies, and "failed to comprehensively review all of the relevant scientific data."

Similarly, Monsanto's conclusory contentions that Dr. Weisenburger and Dr. Nabhan "dismissed" or "discounted" alternative causes, or did not explain why they had ruled out those alternatives, are unpersuasive in light of Monsanto's failure to fairly present the substance of their testimony.

Having reviewed the evidence, we reject the argument that the opinions of the Pilliods' specific causation experts lacked a reliable foundation. The specific causation testimony here was like the specific causation in *Echeverria*, which the appellate court held was not insufficient as a matter of law (overruling the trial court). (*Echeverria*, *supra*, 37 Cal.App.5th at pp. 323, 332): As reflected in our summary of the trial testimony, the specific causation experts here (Dr. Weisenburger and Dr. Nabhan), like the expert in *Echeverria*, explained why they rejected the alternative causes proposed by defendant. (*Id.* at p. 329.) As in *Echeverria*, they "used varying language to describe [their] process of rejecting other risk factors as the cause of [the Pilliods' cancers]. Taken as a whole . . . and drawing all inferences in favor of the verdict, the record supports the conclusion that [the experts] did 'rule out' alternative causes, either concluding they were not independent risk factors, or explicitly testifying that in [their] opinion these other factors were not a cause. . . . Defendants challenged [their] explanations on cross-examination and offered competing expert testimony. It was appropriate for the *jury* to determine the credibility of [their] testimony and to weigh it against contradictory evidence." (*Id.* at pp. 329-330.)

Likewise, although Monsanto's experts concluded that the Pilliods' cancers were idiopathic, and plaintiffs' experts agreed that in most cases the causes of non-Hodgkin's lymphoma are unknown, a fair reading of Dr. Weisenburger's and Dr. Nabhan's testimony does not support Monsanto's conclusion that they "made no attempt to explain why idiopathic causes could be excluded from consideration," and instead "made a speculative leap from [p]laintiffs' Roundup exposure to the conclusion that because [Roundup] could be ruled in as a potential cause, it must have been *the* cause." As was the

case in *Echeverria*, the experts here directed their opinions to answering the question whether there was a known cause of the Pilliods' cancer, and their testimony "indicated [they] did not ignore idiopathy but instead determined there was in fact a known cause of the cancer, based on the factors [they] described." (*Echeverria*, *supra*, 37 Cal.App.5th at p. 330.) And as in *Echeverria*, the experts' credibility was for the jury to determine. (*Ibid.*)

2. *Denial of Monsanto's Motion to Sever*

In the alternative, Monsanto contends the trial court abused its discretion in denying Monsanto's motion to sever the Pilliods' cases for trial, and that as a result, the jury was able to ignore the differences between the plaintiffs and reach a verdict based on the belief that Roundup can cause cancer generally without regard to whether Roundup caused each plaintiff's cancer. The argument is meritless.

a. *Applicable Law and Standard of Review*

The trial court has broad authority to sever the trials of properly joined parties "as the interests of justice may require." (Code Civ. Proc., § 379.5.) Similarly, the court may order separate trials of issues or causes of action "in furtherance of convenience or to avoid prejudice, or when separate trials will be conducive to expedition and economy." (*Id.*, § 1048, subd. (b).) We review the trial court's decision on a motion to sever for abuse of discretion. (*Todd-Stenberg v. Dalkon Shield Claimants Trust* (1996) 48 Cal.App.4th 976, 978-979.)

b. *Analysis*

It is apparent to us that considerations of convenience, expedition, and economy supported the trial court's decision not to sever the Pilliods' claims. Most of the evidence at trial pertained to both plaintiffs, including the evidence of general causation and Monsanto's conduct. The evidence of when

and where Roundup was used was largely the same for both plaintiffs. As the trial court observed in addressing Monsanto's motion for new trial, "the evidence that both spouses used Roundup and both developed [non-Hodgkin's lymphoma] would almost certainly have been presented to each jury had the claims been tried separately."

Further, the jury instructions emphasized consistently that each plaintiff's case was to be considered separately. Before opening statements and again before closing arguments, the trial court instructed that the jury "should decide the case of each plaintiff separately as if it were a separate lawsuit." Before closing arguments, the trial court elaborated that different facts pertained to each plaintiff: "Although their claims were presented together in a single trial, Mr. Pilliod and Mrs. Pilliod are separate plaintiffs who assert separate claims against Monsanto. Although some of the evidence you heard is applicable to both Mr. Pilliod and Mrs. Pilliod, other evidence you heard is applicable only to one of them individually. [¶] For example, you heard evidence that Mr. Pilliod and Mrs. Pilliod each used different amounts of Roundup and were diagnosed with cancer at different times." The court also made clear that in deciding the claim of one plaintiff the jury could not consider evidence that applied only to the other. "Absent some contrary indication in the record, we presume the jury follows its instructions." (*Cassim*, *supra*, 33 Cal.4th at p. 803.)

Monsanto argues that the trial was "pervaded" by plaintiffs' argument that the mere fact that the Pilliods were married and developed non-Hodgkin's lymphoma must mean that Roundup was the cause. This does not accurately characterize the trial record and is no basis to reverse the judgment.

As examples, Monsanto points to plaintiffs' opening statement, where counsel described Alberta's personal opinion that it was so unlikely that she and her husband would both develop non-Hodgkin's lymphoma, "it must be an environmental exposure, a chemical, Roundup." Monsanto also points to plaintiffs' counsel's statement in closing that it was "pretty rare for two genetically unrelated people" to get diffuse large B-cell lymphoma, so the jury should "look for . . . common exposures that help explain why they both got the cancer. And they both have a very big common exposure: 30 years of Roundup exposure."[16] These remarks do not strike us as prejudicial, particularly in the context of the 6-week trial as a whole.

Monsanto also points to Dr. Nabhan's testimony on specific causation. Again, Monsanto mischaracterizes the testimony. Dr. Nabhan did not testify that it was " 'common sense' that the Pilliods' cancers were both caused by the same factor." Dr. Nabhan stated that in his view there was substantial evidence that Roundup was a substantial cause of both the Pilliods' cancers, considered separately.[17] Dr. Nabhan also stated that it was common sense that when two people who live together for decades develop a disease, any physician would ask whether there was a common factor between the two. Dr. Nabhan further testified about a study showing that having a spouse with non-Hodgkin's lymphoma is associated with an increased risk of

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[16] Monsanto's closing argument included a lengthy discussion of the Pilliods' individual medical histories and risk factors, and the views of Monsanto's experts that there was no known cause of the Pilliods' cancers.

[17] Dr. Weisenburger, plaintiffs' other expert on specific causation, testified similarly.

developing non-Hodgkin's lymphoma.[18] Monsanto does not convince us that this testimony was prejudicial, especially in view of Monsanto's failure to object to the testimony during the trial.

To the extent Monsanto contends that the plaintiffs encouraged the jury to ignore the differences between the Pilliods, Monsanto disregards the overriding and mitigating effect of jury instructions as to these issues, as we have discussed above.

Finally, Monsanto's reliance on *Rubio v. Monsanto Co.* (C.D.Cal. 2016) 181 F.Supp.3d 746 is misplaced because *Rubio* is significantly different. There, the trial court concluded that fairness and efficiency warranted severing the trials of two plaintiffs who claimed that Roundup had caused their cancer. (*Id.* at p. 758.) In *Rubio*, unlike here, there was an argument that the two plaintiffs' claims were governed by the laws of two different states. (*Id.* at p. 756.) Further, the *Rubio* plaintiffs "applied the pesticide under vastly different circumstances, including frequency and duration of exposure. Plaintiffs lived in different parts of the country when using the chemical and therefore were exposed to different, other potential contributors to their health problems. The exposures were also separate by nearly twenty years, encompassing changes to Roundup's formulation, as well as other environmental factors." (*Id.* at p. 758.) The plaintiffs in *Rubio* were each

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[18] Dr. Bello, one of Monsanto's expert oncologists, confirmed Dr. Nabhan's interpretation of that study and also provided further testimony about the issue, stating that a larger study had found that the association was not statistically significant. In questioning Dr. Bello, Monsanto's counsel characterized Dr. Nabhan's testimony as, "it's got to be common sense that it must be Roundup because both Mr. Pilliod and Mrs. Pilliod developed non-Hodgkin's lymphoma." The trial court sustained plaintiffs' objection, commenting that the question did not accurately reflect what Dr. Nabhan had said.

diagnosed with a different type of cancer, 17 years apart. (*Id.* at pp. 754-755.) The Pilliods, in contrast, applied the same Roundup products in the same places at the same times, and were diagnosed with the same type of cancer within a few years of each other. Nor is this case like *David v. Medtronic, Inc.* (2015) 237 Cal.App.4th 734, where the Court of Appeal concluded that granting a severance motion was not error where the only factor common to the plaintiffs was that they had received implants of a particular medical device. (*Id.* at p. 741.) The Pilliods have far more in common than the mere fact that each was exposed to Roundup.

Thus we conclude that Monsanto fails to show that the trial court abused its discretion by allowing the Pilliods' claims to be tried together.

E. *Evidence of Fraud at Industrial Bio-Test Laboratories (IBT)*

Monsanto argues that we should reverse the judgment and remand for a new trial because the trial court erred by admitting irrelevant and prejudicial evidence that IBT engaged in fraud. The argument lacks merit.

1. *Additional Background*

Monsanto moved in limine to exclude any evidence, argument, or reference to IBT, the outside laboratory that performed studies on glyphosate that were used to support the initial registration of glyphosate by EPA and later found to be invalid. The trial court granted the motion in part and denied it in part in an order stating that the history of the IBT research was admissible, but that plaintiffs could not argue or imply that Monsanto was in any way involved.[19] The court was clear at the hearing on the motion that plaintiffs could not suggest that Dr. Paul Wright, who was employed by Monsanto and by IBT at different times, was working with or for Monsanto

[19] In Section F, we address Monsanto's claim that plaintiffs violated the trial court's in limine order.

while he was at IBT, but that plaintiffs could "[m]ak[e] the connection between IBT and Monsanto and the work [Wright] did," and suggest that Wright's interests and Monsanto's might be aligned.

Accordingly, the jury heard evidence that EPA's approval of glyphosate in 1974 was based on long-term animal cancer studies that had been conducted by IBT, a privately-owned commercial laboratory with which Monsanto had contracted for this purpose. IBT provided testing services for several industries, including the pesticide industry. Starting in 1976, EPA began a series of audits which revealed that information in the final reports from IBT to support the registration of various pesticides, including glyphosate, was not supported by the raw data. As described by Dr. William Heydens (Monsanto's product safety assessment strategy lead) in documents and in deposition testimony that was played at trial, and by plaintiffs' regulatory expert Dr. Charles Benbrook in live testimony trial, IBT had produced "fraudulent data." The jury also heard that Dr. Wright, who had been employed by Monsanto, went to work for IBT by August 1971, and then returned to work for Monsanto by October 1973.

The jury also heard testimony that the scientific fraud at IBT affected more companies than Monsanto: IBT had contracted with dozens of companies and conducted tests on many different products.[20] As a result of the problems at IBT, companies either realized they had invalid data and

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[20] In a 1983 report on the IBT review that was admitted into evidence and discussed by Dr. Benbrook (an economist with experience in pesticide use and regulation), EPA observed, "The IBT case caused serious concern and uncertainty about the potential hazards of the hundreds of pesticides involved, both for EPA and the public. Although it was advocated by some that all 212 pesticides tested in whole or in part by IBT be removed from the market pending retesting, that option is not available under current law."

began repeat studies themselves, or they were asked by EPA to repeat the studies.

The jury heard evidence that Monsanto could have removed Roundup from the market when it learned that EPA's approval for glyphosate had relied on fraudulent studies, but it did not do so.[21] Although Monsanto eventually repeated the studies at issue in accordance with EPA guidelines, there was no valid mouse study assessing the carcinogenicity of glyphosate until 1983 (the 1983 Study, referenced above, which showed increased rates of kidney tumors and malignant lymphomas in mice exposed to glyphosate), and that study was not begun until 1981.

2. *Applicable Law and Standard of Review*

To be admissible, evidence must be relevant, which means it must "tend[ ] . . . to prove or disprove any disputed fact that is of consequence to the determination of the action." (Evid. Code, §§ 210, 350.) A trial court may exclude relevant evidence "if its probative value is substantially outweighed by the probability that its admission will . . . create substantial danger of undue prejudice." (*Id.*, § 352.) For purposes of section 352, evidence is not prejudicial "merely because it undermines the opponent's position or shores up that of the proponent." (*Vorse v. Sarasy* (1997) 53 Cal.App.4th 998, 1008.) "[E]vidence should be excluded as unduly prejudicial when it is of such nature as to inflame the emotions of the jury, motivating them to use the information, not to logically evaluate the point upon which it is relevant, but to reward or punish one side because of the jurors' emotional reaction." (*Id.* at p. 1009.)

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[21] The IBT fraud was discovered in 1976; plaintiffs' contention at trial that Monsanto became aware of the fraud that same year was uncontested.

We review a trial court's rulings on the admissibility of evidence for abuse of discretion, and we will not reverse absent " 'a showing the trial court exercised its discretion in an arbitrary, capricious, or patently absurd manner that resulted in a manifest miscarriage of justice.' " (*Christ v. Schwartz* (2016) 2 Cal.App.5th 440, 446-447.)

3. *Analysis*

The evidence concerning IBT is relevant to liability and damages, particularly punitive damages. When the Pilliods began using Roundup in the early 1980's, Monsanto was selling the product just as it had before, even though it knew about the invalidity of the IBT studies. Alberta testified that she would not have bought Roundup in 1982 if she had known that the product had been brought to market on the basis of invalid studies. Thus the actions taken by Monsanto in response to its learning of the fraud at IBT are relevant to the Pilliods' theories of liability. Further, Monsanto's continuing to sell Roundup after learning that the original approval studies were invalid shows conscious disregard for public health and safety, which, combined with other evidence, supports a substantial award of punitive damages. (*Simon v. San Pablo U.S. Holding Co., Inc.* (2005) 35 Cal.4th 1159, 1180 (*Simon*).)

In its discussion of prejudice, Monsanto focuses on the evidence that Dr. Wright, who was employed by IBT in the early 1970's, presumably when IBT was testing glyphosate, and who was later implicated in the IBT scandal, was employed by Monsanto before and after he was employed by IBT. Monsanto argues that this evidence allowed the jury to infer that Monsanto played a role in, and should be held responsible for, IBT's conduct. But the jury was informed that the fraud at IBT affected other companies besides Monsanto. Further, in arguing that Roundup was "literally born in fraud," and discussing the problems with the IBT studies, plaintiffs mentioned Dr.

Wright and his involvement in the IBT fraud, but did not argue that Monsanto was responsible for what happened at IBT. The focus of the brief portion of closing argument with respect to IBT was that at the time the Pilliods started using Roundup, Monsanto knew that the approval of Roundup had been based on invalid studies concerning cancer, but did not inform consumers or remove the product from the market. When counsel followed his discussion of IBT with argument that, "we have mountains of evidence that Monsanto simply fabricates scientific evidence," he had moved on to the "next story": a lengthy argument about Monsanto's response to the 1983 Study, which was followed by an even longer argument about Monsanto's unethical "ghostwriting" of what purported to be articles by independent scientists.

We conclude that evidence of IBT's scientific fraud and Monsanto's response to the discovery of that fraud is relevant to plaintiffs' claims, and although unfavorable to Monsanto, is not unduly prejudicial, particularly in light of the other evidence of Monsanto's conduct that was presented to the jury, including specifically evidence of Monsanto's responses to data and analyses suggesting risks associated with Roundup use.

F. *Attorney Misconduct*

Monsanto argues that the matter should be remanded for a new trial because the jury's verdict was tainted by attorney misconduct. We agree with the trial court's ruling denying Monsanto's motion for new trial, which concluded that although plaintiffs' counsel engaged in some improper conduct, Monsanto has not demonstrated that the misconduct resulted in a miscarriage of justice. We therefore reject Monsanto's argument.

1. *Applicable Law and Standard of Review*

"The law, like boxing, prohibits hitting below the belt. The basic rule forbids an attorney to pander to the prejudice, passion or sympathy of the jury." (*Martinez v. Department of Transportation* (2015) 238 Cal.App.4th 559, 566.) Further, it is misconduct for an attorney to repeatedly violate the trial court's in limine rulings in the face of sustained objections. (*Id.* at p. 567.) Prejudicial misconduct by a party's attorney may justify a new trial. (*City of Los Angeles v. Decker* (1977) 18 Cal.3d 860, 870 (*Decker*).)

In ruling on a motion for new trial, a trial court has wide discretion, and we give "great deference" to that ruling on appeal. (*Decker*, *supra*, 18 Cal.3d at pp. 871-872.) However, where a motion for new trial on the ground of attorney misconduct has been denied, as is the case here, we review the entire record to make an independent determination of whether attorney misconduct was prejudicial. (*Id.* at p. 872.)

2. *Additional Background*

Monsanto identifies several incidents of purported misconduct that occurred in the course of the six-week trial.[22] We describe the incidents here.

First, in the course of an opening statement that lasted more than two hours, Monsanto claims that plaintiffs' counsel twice improperly characterized the case as "historic," and at one point suggested that the trial might cause EPA to change its opinion that glyphosate does not cause cancer.

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[22] Plaintiffs characterize these incidents as being either "not misconduct" or "harmless error." It is unclear whether we review the trial court's finding that there was misconduct under the abuse of discretion or independent standard. (See *Garcia v. ConMed Corp.* (2012) 204 Cal.App.4th 144, 149 (*Garcia*) [noting that our Supreme Court did not address this issue in *Cassim*, *supra*, 33 Cal.4th 780].) The parties here do not address this question in their briefs. Because we conclude that Monsanto was not prejudiced by any of the purported misconduct, we need not decide the issue.

Monsanto asked the court to declare a mistrial, or strike the opening statement, or give a curative instruction. The court denied the requests. Judge Smith noted that she had listened very carefully to the argument and found none of the statements prejudicial. Judge Smith characterized the statement about EPA as "close to the line," and told plaintiffs' counsel, "don't do that again"; the other statements were "hyperbole," and not prejudicial.[23]

Second, Monsanto claims plaintiffs' counsel repeatedly violated the trial court's in limine ruling that "[r]eferences to exposure to glyphosate will be limited to those on which experts base their opinions."[24] In opening statement, the Pilliods' counsel said the jury would hear testimony that the volume of glyphosate and Roundup "sprayed in our society dwarfs any pesticide ever in the history of mankind. It is ubiquitous." Counsel continued that it was difficult to conduct a study comparing those who had been exposed and those who had not because it was difficult to find people who had not been exposed, because "[i]t's pervasive." Along with its objections to the plaintiffs' characterization of the case, Monsanto objected that these statements violated the court's in limine order, which plaintiffs' counsel disputed. The trial court implicitly overruled the objection by not addressing it in denying Monsanto's requests for a remedy. Later, in questioning Dr. Ritz, the Pilliods' counsel read a statement from a report stating that in light of the amount of Roundup that had been applied in the

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[23] Monsanto does not contend that plaintiffs' counsel repeated this conduct after the court's admonition.

[24] Monsanto had asked the court to "exclude any evidence or argument about the presence of glyphosate . . . in breast milk, food or sources unrelated to Plaintiffs' alleged route of exposure (Roundup products)" arguing that the topics had been "sensationally covered," were irrelevant and speculative, and would distract the jury and prejudice Monsanto.

past decade, "glyphosate may be considered ubiquitous in our environment." This time, the trial court sustained Monsanto's objection and granted its motion to strike the statement. Then, in closing argument, the Pilliods' counsel commented it was almost impossible to conduct a study comparing people who had been exposed to glyphosate and those who had not, and continued, "Because people are exposed to glyphosate outside of spraying it, right? It's in the food. It's all over the place." In its motion for a mistrial, which the trial court denied, Monsanto argued that this was an improper reference and a repeat violation of the in limine order.

Third, Monsanto claims plaintiffs' counsel repeatedly violated the trial court's in limine order prohibiting argument or implication "that Monsanto 'was in any way involved' " in the IBT research. As we stated above, at the hearing on the motion in limine, the court ruled that although plaintiffs could not suggest that Wright was working with or for Monsanto while he was at IBT, they could suggest that Wright's interests and Monsanto's were aligned. Further, at a later hearing, the court explicitly authorized plaintiffs' counsel to tell the jury that Wright worked at Monsanto, went to IBT where he committed scientific fraud, and then went back to Monsanto. Monsanto cites only one instance of a purported violation of the in limine order: In questioning Dr. Benbrook about the IBT study and Dr. Wright, the Pilliods' counsel asked whether Wright had worked at Monsanto before going to IBT where he was involved in fraud. The trial court sustained Monsanto's objection to the question as argumentative and then, referring to the in limine order, granted Monsanto's motion to strike.[25]

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[25] Monsanto claims that even though the trial court granted the motion to strike, the "damage . . . was already done" by virtue of counsel asking whether Wright worked at Monsanto before IBT. The question may have

Fourth, Monsanto claims plaintiffs' counsel violated the trial court's in limine ruling regarding other Roundup product liability litigation that had been brought against Monsanto by plaintiffs who were diagnosed with non-Hodgkin's lymphoma. The trial court ruled that lawsuits about Roundup that were pending at the time of the Pilliods' exposure were relevant to show Monsanto's knowledge and notice, and that the parties could ask experts what they had been paid in other litigation.[26] But plaintiffs' counsel was not permitted to discuss the verdict in the *Johnson* case, which came down after the Pilliods stopped using Roundup. (*Johnson, supra,* 52 Cal.App.5th at p. 437.)

The claimed misconduct occurred when plaintiffs' counsel asked Monsanto's expert in voir dire about her testimony "at the *Johnson* trial." The court sustained Monsanto's objection that the question was not relevant to the witness's qualifications. At the next break, when Monsanto's counsel argued that referring to the *Johnson* case was a violation of the court's order, the court clarified that it was permissible to ask a witness about prior trial

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been argumentative, but Monsanto's claim of "damage" is overstated. The jury had already learned from the deposition testimony of Monsanto's corporate representative, William Reeves, to which Monsanto did not object, that Wright worked at Monsanto, then IBT, and then Monsanto, where he was working at the time that Roundup was approved for use in the United States.

[26] The jury was informed that the parties had stipulated: "As of November 1, 2016, 153 people had filed lawsuits against Monsanto alleging that glyphosate-based formulations caused non-Hodgkin's lymphoma. [¶] You may consider these lawsuits as evidence that Monsanto was on notice of claims of non-Hodgkin's lymphoma before Mr. Pilliod stopped spraying Roundup." The *Johnson* suit was filed in January 2016. (*Johnson v. Monsanto* (2020) 52 Cal.App.5th 434, 440 (*Johnson*).) The Pilliods contend, and Monsanto does not dispute, that *Hardeman, supra*, 997 F.3d at page 952, was also filed before the Pilliods stopped using Roundup.

testimony but instructed counsel not to mention the *Johnson* or *Hardeman* cases by name. Later, in examining another defense expert, plaintiffs' counsel asked, "Now, when you were first hired . . . , when you testified in that first proceeding, you didn't know Roundup was a pesticide. [¶] Do you remember that?" The witness asked counsel to "show me what you were referring to." Plaintiffs' counsel responded, "Sure. 1654 from Hardeman and we have copies if you want." Monsanto objected, and, after a sidebar discussion, plaintiffs' counsel was permitted to mention the date of the proceeding, ask the witness to review the transcript to refresh her recollection, and then ask the question. Later, Monsanto moved for a mistrial, arguing that plaintiffs were "trying to tie both witnesses to prior trials," which was prejudicial and in violation of in limine orders. The court denied the motion. It noted its previous ruling that there were to be no references to the *Hardeman* and *Johnson* trials and that prior proceedings were to be referenced only "obliquely," and stated, "you can't say Johnson, you can't say Hardeman because it does bring up trials that they are aware of."

Fifth, Monsanto claims that in closing argument plaintiffs' counsel made inflammatory statements about EPA and other regulatory agencies. Plaintiffs' counsel argued, "EPA, EFSA, all these different regulatory bodies, they've been saying Roundup is safe for 40 years. If it turns out that they're wrong, there's literally blood on their hands. Literally." Monsanto objected, and the trial court instructed on the spot, "Counsel, no 'blood on their hands.' " Plaintiffs' counsel apologized, and shortly thereafter said, "And, frankly, EPA has a bad track record. I mean, it just does. How many things have been cancer causers that it took a lawsuit to find the truth of?" Again, the trial court sustained Monsanto's objection.

Sixth, Monsanto claims plaintiffs' counsel misstated the law in closing argument when he said, "One of the things that I think is really important to understand[ing] how the law works is that the obligation to warn rests with Monsanto, not California EPA, not the EPA. What that label says and what it does not say is their choice and their choice alone." Monsanto argues that the statement is false because, as one of plaintiffs' experts admitted, Monsanto cannot legally sell a product unless the label is approved by EPA. Monsanto moved for a mistrial immediately after plaintiffs' closing, which the court denied. Plaintiffs' counsel argued that he was referring to evidence that Monsanto had the ability to control the content of the labels. Monsanto requested a curative instruction that EPA has to approve labels and is involved in the labeling process. The court denied the request, stating, "[W]hat was said was that, ultimately, how Monsanto chose to present the product was up to them. And that, yes, there's an approval process in place, but it was their decision—to include or not include specific language was their choice. I think that's what was implicated and what was said."

Seventh, Monsanto claims that plaintiffs' counsel appealed to the jury's fears when he twice handled a Roundup bottle with gloves in connection with his examination of witnesses. First, when questioning Dr. Sawyer, one of plaintiffs' expert witnesses, plaintiffs' counsel presented a Roundup bottle taken from the Pilliods' shed. The expert (a toxicologist) said, "You don't want to touch that. You really should be wearing gloves." Counsel responded, "Yes. I just thought the same thing." The court granted Monsanto's motion to strike. Later, during the direct examination of Alva, plaintiffs' counsel wore gloves to handle the bottle, which, counsel said had been "totally cleaned, so I probably don't even need gloves at this point." Counsel sprayed the bottle, apparently startling Alva. Counsel apologized

and assured his client that the bottle contained only water. Shortly thereafter a juror submitted a question asking: "[w]hy the lawyer puts on gloves if only water in the Roundup container?" In discussion with counsel, the court observed that "implicit in [the question] is that he wondered if it was safe." The trial court then told the jury that the bottle "only contained water and there's no reason to be concerned." Later in the trial, the court instructed Plaintiffs' counsel not to handle the bottle during closing argument to avoid raising further concerns.[27]

Monsanto's motion for new trial argued that there had been misconduct by plaintiffs' counsel during closing argument and throughout trial. The trial court denied the motion as to this ground. The court found that plaintiffs' counsel had "on occasion overstate[d] matters and violate[d] the court's orders."[28] But it also found that Monsanto had not demonstrated that the misconduct resulted in a miscarriage of justice; it also noted that it had issued curative instructions to the jury.

3. *Analysis*

To demonstrate prejudice, the appellant must show a reasonable probability that a more favorable result would have been achieved in the

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[27] Monsanto used its closing argument to further mitigate any effect of the testimony. In closing, Monsanto's counsel scoffed at the use of the gloves as a "charade," and an "insult [to the jury's] intelligence" and dismissed the expert who raised the issue as "so blatantly trying to manipulate you . . . , that you can see it for what it is and . . . reject it."

[28] In its written order denying the motion for new trial on this ground, the court directed plaintiffs' counsel to this passage from *Bigler-Engler v. Breg, Inc.* (2017) 7 Cal.App.5th 276, 298 (*Bigler-Engler*), exhorting attorneys to adhere to high professional standards: " ' "Intemperate and unprofessional conduct by counsel . . . runs a grave an unjustifiable risk of sacrificing an otherwise sound case for recovery, and as such is a disservice to a litigant." ' [Citation.] We expect more from our attorneys."

absence of the attorney misconduct. (*Bigler-Engler*, *supra*, 7 Cal.App.5th at p. 296.) The reviewing court evaluates the following factors to determine prejudice: " '(1) the nature and seriousness of the misconduct; (2) the general atmosphere, including the judge's control of the trial; (3) the likelihood of actual prejudice on the jury; and (4) the efficacy of objections or admonitions under all the circumstances.' " (*Ibid.*)

Considering the conduct of plaintiffs' counsel in light of the factors enumerated in *Bigler-Engler* and the entire record, we conclude that Monsanto has not shown prejudice. Although some of counsel's conduct was clearly improper, the record shows these were isolated and relatively minor incidents that occurred in the course of a complex six-week trial, not egregious and pervasive, as Monsanto contends. Nor do we agree with Monsanto's contention that the trial court overruled or ignored Monsanto's objections to "some of the most egregious misconduct." Most of Monsanto's objections were promptly addressed, as the discussion above reflects. Judge Smith was in complete control of the proceedings and the atmosphere in the courtroom was civil and respectful, although the issues were hotly contested.

In arguing that it likely suffered actual prejudice from the conduct of plaintiffs' counsel, Monsanto points to the size of the damages awards. This is not convincing. As we discuss below, we agree with the trial court's ruling that the jury's awards were excessive, but this is attributable to the evidence regarding Monsanto's conduct over multiple decades, plaintiffs' use of large quantities of Roundup over multiple decades, and the seriousness of plaintiffs' injuries, as well as Monsanto's wealth—all evidence that Monsanto downplays on appeal.

Monsanto argues that because plaintiffs' counsel "simply ignored the court's rulings," Monsanto's objections and the trial court's admonitions were

ineffective. But our review of the transcript shows that generally, when Monsanto's objections were sustained, plaintiffs' counsel moved on. Further, the jury was instructed at the beginning and end of the trial that what the attorneys say is not evidence, that if the court granted a motion to strike testimony, the jury must "totally disregard" it, and that if the court sustained an objection to a question, the question was to be ignored. Again, we presume the jury follows the instructions absent a contrary indication in the record. (*Cassim*, *supra*, 33 Cal.4th at p. 803.) Here, we have an indication that the jury did in fact follow its instructions: during deliberations, a juror asked whether certain testimony had been stricken, a question that would not have arisen if the jury had not understood and intended to follow the court's instructions.

Finally, we are not persuaded by Monsanto's argument that the trial court did not appropriately respond to an alleged misstatement of the law on pesticide labeling in plaintiffs' closing argument. The jury heard testimony that any Roundup label had to be approved by EPA, but the fact remains that it was entirely Monsanto's choice to submit particular labels to EPA for approval, to decline to seek approval for labels with cancer warnings, and to sell the product with the approved label in the face of information suggesting the label should include warnings. Further, Monsanto fails to show any prejudice from counsel's characterization of the law because the jury was instructed at the beginning and end of trial that it was required to follow the law as the judge explained it, and instructed at the end of trial that, "[i]f the attorneys have said anything different about what the law means, you follow

what I say." And in any event, EPA approval is not a defense to a claim of misbranding.[29] (7 U.S.C. § 136a(f)(2).)

We conclude that this case is like *Cassim*, *Garcia* and *Bigler-Engler*. In *Cassim*, our Supreme Court concluded that misconduct in closing argument did not result in prejudice, considering the "brevity and indirect nature" of the misconduct together with the trial court's jury instructions. (*Cassim*, *supra*, 33 Cal.4th at p. 805.) In *Garcia*, there was no prejudice where the offending arguments were brief, there was a "logical path" to the jury's verdict, and the trial court gave ameliorating instructions. (*Garcia*, *supra*, 204 Cal.App.4th at p. 162.) And in *Bigler-Engler*, where the misconduct included insulting opposing counsel, violating in limine orders, and persisting in asking improper questions despite sustained objections (*Bigler-Engler*, *supra*, 7 Cal.App.5th at p. 295) there was no resulting prejudice where the evidence supporting the verdict was strong, the trial was long and the violations of in limine orders were "relatively minor," most of the misconduct led to successful objections, and the court's instructions to the jury addressed many potential sources of prejudice. (*Id.* at pp. 297-298.)

Accordingly, we agree with the trial court that in several instances plaintiffs' counsel acted improperly. However, based on our independent review of the record, we conclude that Monsanto has not come close to showing a reasonable probability that it would have achieved a more favorable result absent the conduct of which it complains.

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[29] As Monsanto conceded in the trial court, its argument about the purported misstatement of law relates to its argument that plaintiffs' claims are preempted by FIFRA: in objecting to this aspect of the closing argument, Monsanto's counsel observed, "This all comes back to the preemption argument." We have rejected Monsanto's position on that issue.

G. *Damages*

We begin our discussion of damages with the Pilliods' argument in their cross-appeal that the jury's awards of noneconomic compensatory damages should be reinstated, and then turn to the parties' positions on punitive damages.

1. *Compensatory Damages for Noneconomic Loss*

a. *Additional Facts*

The jury awarded Alberta $8 million for past noneconomic loss and $26 million for future noneconomic loss, apparently persuaded by her counsel's argument that in view of the permanent brain damage she suffered as a result of non-Hodgkin's lymphoma, fair compensation would be $2 million per year for each of the four years from her diagnosis in 2015 to the trial in 2019, and $2 million per year for each year of the 13-year average life expectancy of a woman her age at the time of trial. The jury awarded Alva $8 million for past noneconomic loss and $10 million for future noneconomic loss, apparently persuaded by counsel's argument that fair compensation for Alva would be half the annual amount that was appropriate for Alberta. Counsel argued that although Alva's life had been greatly affected by non-Hodgkin's lymphoma, he had not suffered brain damage, and he should be awarded $1 million per year for the eight years from his diagnosis in 2011 to the time of trial, and $1 million per year for the 10-year average life expectancy of a man his age at trial.

The trial court found that the jury's awards of noneconomic damages were not supported by the evidence. In conditionally granting Monsanto's motion for new trial, it found that Alberta's reasonable noneconomic damages

amounted to $11 million (not $34 million), and likewise that Alva's reasonable noneconomic damages amounted to $6,100,000 (not $18 million).[30]

The trial judge gave a closely reasoned analysis, tying the reduction in compensatory damages to the evidence she had heard over the six-week trial. As to Alberta, the court found that she underwent a two-year period of intense medical treatment for non-Hodgkin's lymphoma and that the treatment itself greatly impaired Alberta's health, which had previously been relatively good. The court concluded that the evidence supported $1 million per year for Alberta for each of the two years in which she underwent intense medical care, and $600,000 per year for each of the other two past years and for each of the future 13 years.

As to Alva, the court found that he had a one-year period of intense medical care related to non-Hodgkin's lymphoma, and that the impairment to his health was due not only to non-Hodgkin's lymphoma but also to his history of epilepsy, skin cancer and other ailments. The court concluded that for Alva, the evidence supported $1 million for the year of intense medical care, and $300,000 per year for each of the other seven past years and for each of the future 10 years.

b. *Applicable Law and Standard of Review*

The relevant legal principles are set forth in *Pearl v. City of Los Angeles* (2019) 36 Cal.App.5th 475: "Code of Civil Procedure section 662.5, subdivision (a)(2), authorizes a court that has decided it would be proper to order a new trial limited to the issue of damages to issue a conditional order

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[30] The trial court also found that Alberta's reasonably supportable future economic damages were $50,000, not $3 million as awarded by the jury. Alberta does not contest the trial court's reduction of her future economic damages.

granting the new trial unless the party in whose favor the verdict has been rendered consents to a reduction of the award in an amount 'the court in its independent judgment determines from the evidence to be fair and reasonable.' A court exercising this authority acts as an independent trier of fact. [Citations.] [¶] The authority of the trial court in ruling on a new trial motion based on excessive damages 'differs materially' from review of a damage award by an appellate court. [Citations.] In sharp contrast to appellate considerations of a claim of excessive damages on a cold record, the trial court 'see[s] and hear[s] the witnesses' and can ascertain for itself 'the injury and the impairment that has resulted therefrom.' [Citations.] Accordingly, when a trial court grants a new trial on the issue of excessive damages, whether or not the order is conditioned by a demand for reduction, 'the presumption of correctness normally accorded on appeal to the jury's verdict is replaced by a presumption in favor of the order.' [¶] We review the trial court's use of its power of remittitur to reduce excessive damages for abuse of discretion." (*Id.* at pp. 485-486.)

c. *Analysis*

The Pilliods contend that the trial court applied the wrong legal standard in reducing compensatory damages and thereby abused its discretion. The Pilliods' argument rests on the premise that the basis for the trial court's reduction in damages was the application of the calendar preference statute to "create[ ] a presumption that older plaintiffs are entitled to less damages than similarly situated younger plaintiffs."[31] This argument is plainly incorrect.

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[31] At issue here is the provision in the Code of Civil Procedure requiring the trial court to grant a petition for calendar preference filed by a party to a civil action who is over 70 years of age if "[t]he party has a substantial

The Pilliods' base their argument on language in the trial court's order on Monsanto's motion for new trial, taken totally out of context. The trial court wrote: "Mr. Pilliod is 77 years old and Mrs. Pilliod is a few years younger. The Pilliods emphasize that they [led] active lives before their diagnoses. The measure of damages is not, however, to compare a plaintiffs' current combination of age, unrelated ailments, and injury with the plaintiff's *younger* former self without the injury. The measure of damages is to compare a plaintiff's current combination of age, unrelated ailments, and injury with the plaintiff's *hypothetical current* combination of age and unrelated ailments without the injury." (Italics added.)

Then the trial court went on to refer to the preference statute as support (insofar as it reflects a legislative acknowledgement) for the irrefutable proposition that with age comes risks: "In the preference statute, there is a legislatively acknowledged increased risk of death or incapacity due to being over the age of 70. [Citation.] The legislatively acknowledged risks that come with age that support a different, and lower, standard for trial preference logically must also be a factor in evaluating whether the effects of aging were and are the proximate cause of the injury, disability, impaired enjoyment of life, or increased susceptibility to future harm or injury."

We do not read the trial court's statement as indicating that the reduction in damages was made "on the basis" of the preference statute, or as creating or applying any presumption about the award of damages to people over age 70. The trial court was simply reiterating the commonsense proposition that any consideration of a person's hypothetical future self

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interest in the action as a whole" and if the party's health "is such that a preference is necessary to prevent prejudicing the party's interest in the litigation." (Code. Civ. Proc., § 36, subd. (a).)

should account for the likely effects of increasing age on that person's health and activity.

The trial court's discussion of the evidence in its new trial order shows that, far from applying an incorrect legal standard in reducing the plaintiffs' noneconomic damages, the trial court followed the law by carefully considering the evidence pertaining to each plaintiff's individual circumstances. (See *Bigler-Engler*, *supra*, 7 Cal.App.5th at pp. 299-300 [discussing the standards for assessing noneconomic damages].) The trial court appropriately considered not only each plaintiff's emotional distress and pain and suffering, but also the invasion of bodily integrity, and the resulting disability, impaired enjoyment of life, susceptibility to future harm and injury, and shortened life expectancy. (*Ibid.*) The trial court's analysis makes clear that it did not reduce the damages because of the trial preference statute. Plaintiffs fail to show that the trial court abused its discretion.

2. *Punitive Damages*

The jury awarded $1 billion in punitive damages to each of the Pilliods. The trial court reduced these awards significantly in its ruling on post-trial motions. The court found there was clear and convincing evidence that Monsanto made "continuous efforts to impede, discourage, or distort the scientific inquiry about glyphosate and those actions were reprehensible and showed a conscious disregard for health." At the same time, the court concluded that the ratios of punitive to compensatory damages as awarded by the jury (27 to 1 for Alberta and 54 to 1 for Alva) were unconstitutionally large. The court expressly stated that the compensatory damages—as it had reduced them—did not include any punitive element. The court found that the constitutionally permissible ratio of punitive damages to its reduced compensatory damages was 4 to 1. The trial court multiplied its reduced

awards of compensatory damages by four, resulting in a punitive damages award to Alberta of $44,804,664 and to Alva of $24,589,184.04.

Monsanto argues that the punitive damages awards should be stricken in their entirety because they are unsupported by evidence. In the alternative, Monsanto argues that under the Fourteenth Amendment even the 4 to 1 ratio of punitive to compensatory damages is excessive, and the awards violate due process by punishing Monsanto multiple times for the same conduct. On cross-appeal, the Pilliods challenge the trial court's reduction in the punitive damages awards while acknowledging that lower ratios of punitive to compensatory damages "would be more in line with legal precedent" than the ratios reflected in the jury's awards. They argue that federal and California law support a ratio of 10 to 1.

a. *Applicable Law and Standard of Review*

Well-established legal principles govern the award of punitive damages. "Punitive damages are available where the plaintiff proves 'by clear and convincing evidence that the defendant has been guilty of oppression, fraud or malice.' (Civ. Code, § 3294, subd. (a).) 'Malice' includes 'despicable conduct which is carried on by the defendant with a willful and conscious disregard of the rights or safety of others.' (Civ. Code, § 3294, subd. (c)(1).)" (*Johnson*, *supra*, 52 Cal.App.5th at p. 455.)

" 'Whether to award punitive damages and how much to award were issues for the jury and for the trial court on the new trial motion. All presumptions favor the correctness of the verdict and judgment.' [Citation.] We review the evidence supporting awards of punitive damages for substantial evidence. 'As in other cases involving the issue of substantial evidence, we are bound to "consider the evidence in the light *most favorable to the prevailing party*, giving him the benefit of *every reasonable inference*,

and *resolving conflicts* in support of the judgment." ' [Citation.] We are mindful that in light of the heightened burden of proof under Civil Code section 3294, subdivision (a) 'we must review the record in support of these findings in light of that burden. In other words, we must inquire whether the record contains "substantial evidence to support a determination by clear and convincing evidence." ' [Citations.] 'However, as with any challenge to the sufficiency of the evidence, it is the appellant's burden to set forth not just the facts in its favor, but all material evidence on the point. " 'Unless this is done the error is deemed to be waived.' " ' [Citation.]" (*Johnson, supra*, 52 Cal.App.5th at p. 455.)

Punitive damages are limited by principles of due process under the Fourteenth Amendment. (*Colucci v. T-Mobile USA, Inc.* (2020) 48 Cal.App.5th 442, 456.) "An award of grossly excessive or arbitrary punitive damages is constitutionally prohibited because due process entitles a defendant to fair notice of both the conduct that will subject it to punishment and the severity of the penalty that may be imposed for the conduct." (*Ibid.*) The United States Supreme Court has concluded that states must "provide for judicial review of the size of a punitive damages award," and has "developed a set of substantive guideposts that reviewing courts must consider in evaluating the size of punitive damages awards: '(1) the degree of reprehensibility of the defendant's misconduct; (2) the disparity between the actual or potential harm suffered by the plaintiff and the punitive damages award; and (3) the difference between the punitive damages awarded by the jury and the civil penalties authorized or imposed in comparable cases.' " (*Nickerson v. Stonebridge Life Ins. Co.* (2016) 63 Cal.4th 363, 371-372 (*Nickerson*), quoting *State Farm Mut. Automobile Ins. Co. v. Campbell* (2003) 538 U.S. 408, 418 (*State Farm*).) "A trial court conducts this inquiry in the

first instance; its application of the factors is subject to de novo review on appeal." (*Nickerson*, *supra*, 63 Cal.4th at p. 372.)

The most important of the three guideposts is the reprehensibility of the defendant's conduct. (*State Farm*, *supra*, 538 U.S. at p. 419.) "[P]unitive damages should only be awarded if the defendant's culpability, after having paid compensatory damages, is so reprehensible as to warrant the imposition of further sanctions to achieve punishment or deterrence." (*Ibid.*) Courts are to determine reprehensibility by considering five factors: "[whether] the harm caused was physical as opposed to economic; [whether] the tortious conduct evidenced an indifference to or a reckless disregard of the health or safety of others; [whether] the target of the conduct had financial vulnerability; [whether] the conduct involved repeated actions or was an isolated incident; and [whether] the harm was the result of intentional malice, trickery, or deceit, or mere accident."[32] (*Ibid.*)

As to the second of the three guideposts, the United States Supreme Court has declined "to impose a bright-line ratio which a punitive damages award cannot exceed," but has held that "few awards exceeding a single-digit ratio between punitive and compensatory damages, to a significant degree, will satisfy due process." (*State Farm*, *supra*, 538 U.S. at p. 425.) The Supreme Court explained that past decisions and statutory penalties providing for double, triple, and quadruple damages to deter and punish were "instructive." (*Ibid.*) And the California Supreme Court ruled that ratios of punitive to compensatory damages "significantly greater than 9 or 10 to 1 are suspect and, absent special justification . . . cannot survive appellate scrutiny under the due process clause." (*Simon*, *supra*, 35 Cal.4th at p. 1182.) This

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[32] The parties do not address the financial vulnerability of the targets of Monsanto's conduct, nor do we.

does not mean that multipliers less than 9 or 10 are presumptively valid under California law: "Especially when the compensatory damages are substantial or already contain a punitive element, lesser ratios 'can reach the outermost limit of the due process guarantee.' " (*Ibid.*)

The parties agree that the third guidepost (the possibility of civil penalties) does not apply in this case, and we do not discuss it further.

b. *Analysis*

i. *Substantial Evidence*

Monsanto contends that there is no evidence in the record to support any award of punitive damages. With that we disagree.

The Pilliods presented evidence that when they started using Roundup in the early 1980's, Monsanto was selling Roundup knowing that studies on which EPA had relied in approving glyphosate were invalid and based on unsupported data. From this, the jury could have inferred that Monsanto consciously disregarded public health and safety.

That inference is further supported by evidence that Monsanto subsequently failed to conduct adequate studies on glyphosate and Roundup, thus impeding, discouraging, or distorting scientific inquiry concerning glyphosate and Roundup. The first valid study on whether glyphosate causes cancer in mice was the 1983 Study, which showed increases of kidney tumors in exposed mice. On the basis of that study, EPA planned to classify glyphosate as a possible human carcinogen. Monsanto, having learned that the only way to change the EPA decision was through a new study or a finding of tumors in the control groups, hired a pathologist to "persuade the agency that the observed tumors are not related to glyphosate." That pathologist found a tumor in the control group, but EPA disagreed with the finding. EPA requested Monsanto perform a new mouse study and worked

with Monsanto scientists to design a special study to increase the statistical power of the results, but Monsanto did not conduct the study. Studies in mice conducted later found malignant lymphoma in mice exposed to glyphosate.

In the late 1990's, after four published studies concluded that glyphosate and Roundup have genotoxic effects, Monsanto retained Dr. James Parry, a recognized expert in genotoxicity, to review the studies. Dr. Mark Martens, a Monsanto toxicologist who was assigned to contact Dr. Parry about the studies, characterized them as "not in concordance with the existing results on genotoxicity with—on glyphosate," and believed they "needed attention." Dr. Parry reported that the data in the publications provided evidence that "[g]lyphosate is capable of producing genotoxicity both *in vivo* and *in vitro* by a mechanism based upon the production of oxidative damage." He noted that one study showed Roundup to be more genotoxic than glyphosate alone and recommended an assessment to determine whether components of the Roundup formulation "act synergistically to increase the potential genotoxicity of [g]lyphosate." Monsanto then sent Dr. Parry "all relevant reports and publications" on glyphosate and its formulations, including Monsanto's own studies, subject to a confidentiality agreement. Dr. Parry reviewed that material and reported back that there were "a number of deficiencies" in the studies Monsanto had provided, identified unresolved issues concerning the genotoxicity of glyphosate, and recommended additional studies. Monsanto performed only some of the recommended studies. Although Monsanto presented evidence that Dr. Parry eventually agreed at a meeting with Monsanto personnel that glyphosate is not genotoxic and that some of the studies he recommended were unnecessary, there is no written statement from Dr. Parry to that effect.

From evidence of the failure to conduct adequate studies, the jury could infer that Monsanto was dismissive of concerns about glyphosate's safety.

Other aspects of Monsanto's response to Dr. Parry's work provided evidence of Monsanto's attempts to minimize concerns about the safety of Roundup, which further supports an inference that Monsanto acted with a conscious disregard of public safety. After reading Dr. Parry's second report, Dr. Heydens, Monsanto's product safety assessment strategy lead, wrote in an email to Monsanto toxicologists Mark Martens and Donna Farmer: "[L]et's step back and look at what we are really trying to achieve here. We want to find/develop someone who is comfortable with the genotox profile of glyphosate/Roundup and who can be influential with regulators and Scientific Outreach operations when genotox issues arise. My read is that Parry is not currently such a person, and it would take quite some time and $$$/studies to get him there. We simply aren't going to do the studies Parry suggests. Mark, do you think Parry can become a strong advocate without doing this work Parry? [*sic*] If not, we should ***seriously*** start looking for one or more other individuals to work with. Even if we think we can eventually bring Parry around closer to where we need him, we should be currently looking for a second/back-up genotox. supporter. We have not made much progress and are currently very vulnerable in this area. We have time to fix that, but only if we make this a high priority now."[33]

[33] Moreover, Monsanto did not provide Dr. Parry's reports to EPA. Although Monsanto characterizes its decision not to submit them as "the normal scientific process," Plaintiffs' regulatory expert, Dr. Benbrook, who had been staff director of the congressional subcommittee with jurisdiction over FIFRA, opined that the failure to provide them to EPA was a violation of federal regulations.

Even more evidence of Monsanto's disregard for safety concerns about Roundup and glyphosate with respect to cancer was in emails and other Monsanto-internal documents. For example, when Dr. Farmer at Monsanto was sent an email with a 2008 press release about an epidemiological study showing that exposure to glyphosate can more than double the risk of developing non-Hodgkin's lymphoma, her email response was: "We have been aware of this paper for awhile [*sic*] and knew it would only be a matter of time before the activists pick it up. I have some epi experts reviewing it." The focus of Dr. Farmer's email was "how do we combat this?"

The jury heard evidence that Monsanto did not adequately disclose its contributions to published articles that found no link between glyphosate and cancer, and engaged in a practice known as "ghostwriting," in which Monsanto scientists would write sections of articles that outside experts "would just edit & sign their names." This evidence supports an inference that Monsanto acted to manipulate the scientific discourse with conscious disregard for public safety. Monsanto argues that its contributions to the literature were recognized in the "acknowledgements" section or "did not rise to the level warranting authorship or recognition," and claims there is no evidence that the studies were inaccurate or "in any way compromised (or influenced) the decisions" of regulatory bodies. Even so, the jury could have inferred Monsanto acted improperly in failing to disclose its involvement in studies that effectively promoted its product.

All this evidence, which Monsanto largely ignores, amounts to substantial evidence from which the jury could infer that Monsanto acted with a willful and conscious disregard for the safety of others (Civ. Code, § 3294, subd. (c)(1)) in its efforts to shape scientific inquiry into glyphosate and Roundup, and therefore supports an award of punitive damages.

Further, we not persuaded by Monsanto's reliance on *Echeverria*, *supra*, 37 Cal.App.5th 292, in arguing that punitive damages may not be awarded in a case like this one. *Echeverria* is a failure-to-warn case in which plaintiff alleged that talcum powder caused ovarian cancer. (*Id.* at pp. 296-297.) There, the Court of Appeal concluded that although there was substantial evidence to support the jury's finding of liability against one of the defendants, the evidence did not support a finding of malice and therefore did not support a punitive damages award. (*Id.* at pp. 332-335.) This case is distinguishable from *Echeverria*. Here, but not in *Echeverria*, there was evidence that the defendant sold a product while knowing of the invalidity of studies on which a federal agency had relied. Here, there was evidence that Monsanto acted to impede or distort scientific inquiry into glyphosate. No such evidence is discussed in *Echeverria*: in contrast, the defendant there adopted a strategy of "describ[ing] the flaws of . . . studies, point[ing] out inconclusive results, and highlight[ing] the absence of any established causal link." (*Id.* at p. 333.) And although in both this case and *Echeverria* there are disagreements among experts as to the dangers posed by the substances at issue, the scientific studies at issue in *Echeverria* supported the IARC characterization of the substance there (perineal use of talc) as only "*possibly carcinogenic to humans*," which means, "A possible association [with] cancer for which a causal interpretation is considered by the working group to be credible, but chance, bias, and confounding could not be ruled out with reasonable confidence." (*Echeverria*, *supra*, 37 Cal.App.5th at p. 298, italics added.) That classification is given to about 31 percent of the chemicals reviewed by the IARC. In contrast, the IARC determined that glyphosate is "*probably carcinogenic to humans*," a classification given to just 8 percent of the substances it studies. In addition, the IARC recognized that "[a] positive

association has been observed" for glyphosate and non-Hodgkin's lymphoma, the cancer affecting the Pilliods.

ii. *Due Process*

The Pilliods argue that substantial punitive damages awards are warranted in view of the reprehensibility of Monsanto's actions and Monsanto's "net worth" of almost $8 billion.[34] Monsanto argues a constitutional violation. Considering the reprehensibility factors in light of the evidence we have described in detail above, we conclude that the evidence supports a finding that Monsanto's conduct was sufficiently reprehensible to warrant the punitive damages as reduced by the trial judge.

The jury found that Monsanto's conduct caused Alva and Alberta grave physical harm. Each of them developed non-Hodgkin's lymphoma. Alva experienced pain to the point he could barely move. He endured six rounds of chemotherapy that worsened the neurological symptoms that he had shown for many years. As we have described, he is not the same person he was before his chemotherapy. Alberta's chemotherapy regime required multi-day hospital stays and, as we have also described, brought on more life changing ailments and more need for medication and treatment. She no longer travels or works.

As we have discussed in detail, Monsanto's conduct evidenced reckless disregard of the health and safety of the multitude of unsuspecting consumers it kept in the dark. This was not an isolated incident; Monsanto's conduct involved repeated actions over a period of many years motivated by

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[34] The jury was informed that the parties had stipulated as follows: "In 2018 Monsanto's net worth was $7.8 billion"; "In 2017 Monsanto's net sales of agricultural chemicals totaled $3.6 billion, with a gross profit of $892 million"; and "In 2017 Monsanto spent $1.6 billion on research and development."

the desire for sales and profit. The harm Monsanto caused was the result of malice. (*State Farm*, *supra*, 538 U.S. at p. 419.)

Summed up, the evidence shows Monsanto's intransigent unwillingness to inform the public about the carcinogenic dangers of a product it made abundantly available at hardware stores and garden shops across the country. Monsanto knew that studies supporting the safety of Roundup were invalid when the Pilliods began spraying Roundup in their yards, wearing no gloves or protective gear, spurred on by television commercials showing people spraying Roundup wearing shorts, and undeterred by any label or product information to suggest warning or caution. At the same time, Monsanto made ongoing efforts, in the words of the trial judge, to "impede, discourage or distort scientific inquiry and the resulting science about glyphosate" in conscious disregard of public health.[35]

The trial court's awards of four times the reduced compensatory damages are undoubtedly substantial, and even such reprehensible conduct as Monsanto's cannot justify a constitutionally excessive punitive damages award. (*State Farm*, *supra*, 538 U.S. at p. 427.) We conclude the relationship between compensatory and punitive damages as awarded by the trial judge does not exceed constitutional limits.

Both Alva's punitive damages award of $25 million and Alberta's separate punitive damages award of $45 million are greater than the

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[35] Although Monsanto fails to adequately discuss the evidence, which it asserts in a most conclusory fashion, Monsanto contends that its conduct was not reprehensible because it "acted in good faith and consistent with the existing worldwide scientific and regulatory consensus." Monsanto's good faith is an issue of fact, however, and, as we have described, the jury heard evidence that Monsanto did *not* act in good faith and that it manipulated the worldwide scientific and regulatory consensus.

punitive damages awards in the *Johnson* and *Hardeman* Roundup cases. Johnson's punitive damages award, even as reduced on appeal, is over $10 million, representing a 1 to 1 ratio to compensatory damages (*Johnson*, *supra*, 52 Cal.App.5th at p. 463), and Hardeman's, as reduced by the federal district court and affirmed by the Ninth Circuit, is $20 million, representing a 3.8 to 1 ratio to compensatory damages. (*Hardeman*, *supra*, 997 F.3d at p. 976.)

The Pilliods' argument in their cross-appeal that the ratio of punitive to compensatory damages should be 10 to 1 is unpersuasive. Their position is that because only ratios significantly greater than 10 to 1 are suspect, and because California courts have upheld punitive damages awards that are 9, 10, and 16 times the compensatory damages, we should find that a 10 to 1 ratio is constitutional here. But they do not discuss at any depth the cases in which such high ratios have been upheld, or explain why the facts and circumstances should be considered analogous.

Monsanto argues that the 4 to 1 ratio of punitive to compensatory damages imposed by the trial court violates due process, claiming that because the compensatory damages are substantial and include a punitive component, due process limits the Pilliods to punitive damages that equal but do not exceed their compensatory damages. This argument rests on the premise that the compensatory damages include a punitive component. The premise is faulty. The trial court was explicit that its reduced compensatory damages, although "substantial," did *not* include a punitive component. We can think of no reason to second guess the trial judge's finding on this point; there is nothing in the record to cast doubt on the judge's statement that there was no punitive component in the court's own calculation of the reduced compensatory damages awards. Further, the cases on which Monsanto relies

do not stand for the proposition that due process necessarily requires that where compensatory damages are substantial, punitive damages cannot exceed them. In *State Farm*, the United States Supreme Court wrote, "When compensatory damages are substantial, then a lesser ratio, perhaps only equal to compensatory damages, can reach the outermost limit of the due process guarantee. The precise award in any case, of course, must be based upon the facts and circumstances of the defendant's conduct and the harm to the plaintiff." (*State Farm*, *supra*, 538 U.S. at p. 425; see also *Roby v. McKesson Corp.* (2009) 47 Cal.4th 686, 718-720 [quoting *State Farm* and concluding in light of all the facts and circumstances, including civil penalties authorized in comparable cases, that a 1 to 1 ratio of punitive to compensatory damages was the federal constitutional limit].)

Monsanto also argues that the punitive damages awards, even as reduced by the trial court, violate due process by punishing Monsanto multiple times for the same conduct. Monsanto points to the combined total of punitive damages that it had been ordered to pay in the *Johnson* and *Hardeman* cases (now reduced to approximately $30 million), and to the "thousands of lawsuits" that remain pending.[36]

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[36] As of the filing of this opinion, the $60 million figure referred to in Monsanto's opening brief on appeal is now about $30 million as a result of the Court of Appeal's opinion in *Johnson*, which reduced the punitive damages award in that case to approximately $10 million. (*Johnson*, *supra*, 52 Cal.App.5th at p. 447, 462.) Monsanto also argues that the Pilliods' case establishes a "precedent that potentially thousands of litigants are each entitled to nearly $70 million in punitive damages based on the same conduct." But neither Alva nor Alberta was awarded anywhere close to $70 million in punitive damages. And although Monsanto contends that a series of $70 million punitive damages awards would threaten the solvency of the company and therefore would serve no legitimate purpose, and constitute an

California courts have recognized that "[p]unitive damages previously imposed for the same conduct are relevant in determining the amount of punitive damages required to sufficiently punish and deter," and that "[t]he likelihood of future punitive damage awards may also be considered, although it is entitled to considerably less weight." (*Stevens v. Owens-Corning Fiberglas Corp.* (1996) 49 Cal.App.4th 1645, 1661 (*Stevens*).) Even though evidence of other punitive damages awards was not presented to the jury we may consider the issue in our due process review. (*Nickerson*, *supra*, 63 Cal.4th at pp. 375-376.) Although punitive damages have been awarded against Monsanto in the *Johnson* and *Hardeman* cases, Monsanto does not claim to have actually paid these awards. Roundup continues to be sold without any cancer warning at hardware stores and elsewhere. Therefore, it does not appear that the punitive damages awards in *Hardeman* and *Johnson* sufficed to "punish and deter" Monsanto's conduct. (*Stevens*, *supra*, 49 Cal.App.4th at p. 1161.) In these circumstances, where reprehensible conduct remains to be punished and deterred, we do not find that a multiplier of four times the compensatory damages "exceeds the state's power to punish." (*Nickerson*, *supra*, 63 Cal.4th at p. 375.)

It is impossible to know just exactly what caused the jury to conclude that $1 billion was an appropriate punitive damage award for each of the plaintiffs in this appeal. What we do know, from the trial court's measured discussion of the evidence and appropriate sustaining of objections and admonishment of plaintiffs' counsel, is that the trial court's reduced punitive damage awards were not influenced upwards by counsel's hyperbole or objectionable or inappropriate remarks. We conclude that the Pilliods have

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arbitrary deprivation of property, they do not make such a contention with respect to the Pilliods' individual awards at issue in this appeal.

not shown error in the trial court's reduction of punitive damages, and that Monsanto has not shown constitutional error in the trial court's decision not to further reduce the punitive damages awards.

DISPOSITION

The judgment is affirmed. Each side shall bear its own costs on appeal.

Miller, J.

I CONCUR:

Kline, P.J.

A158228, *Pilliod v. Monsanto Company*

Richman, J., concurring and dissenting.

I agree with almost all of the majority opinion, all except its holding that affirms the awards for punitive damages—$44 million to Alberta, $24 million to Alva. The awards are based on a 4:1 ratio to the compensatory damages, a ratio that in my view is not constitutionally permissible in the circumstances here. Thus I dissent.

By way of brief introduction, I agree with the majority that the record supports punitive damages, though I am not as sanguine as is the majority to Monsanto's reprehensibility, as discussed in detail below. That said, I note Monsanto's acknowledgement that the award of punitive damages here is "based on the same underlying conduct" as in *Johnson v. Monsanto Co.* (2020) 52 Cal.App.5th 434, 459 (*Johnson*), where, it must be noted, our colleagues in Division One held that substantial evidence supported the award of punitive damages to a plaintiff diagnosed with non-Hodgkin's lymphoma after his use of Roundup. In short, I agree that an award of punitive damages is supported, but not $68 million, even if that amount was a substantial reduction by the trial court from the $2 billion awarded by the jury.

As to the trial court, I generally agree with the majority's implicit acknowledgment that Judge Smith handled this high visibility, high intensity case in exemplary fashion throughout, and indeed I commend her. I do, however, have trouble accepting her conclusion about the reduced noneconomic damage awards, awarding $11 million for Alberta, $6,100,000 for Alva. Referring to those reduced awards, Judge Smith noted that the awards, while "substantial," did not include a punitive component. That, of course, is easy to say. But it is hard to accept, as illustrated by the award to Alva.

Alva was a 77-year-old man with non-Hodgkin's lymphoma, but unlike his wife, had no brain damage. He also suffered from other health issues, including epilepsy, skin cancer, and various other ailments. The jury awarded him $18 million in non-economic damages, which the trial court reduced to $6,100,000: $1 million for one year of intensive medical care for the lymphoma, and $300,000 per year (half of that awarded to Alberta) for each of the past seven years and each of the future 10 years. Passing over as to just what it is that supports damages to Alva that were half of Alberta's, who had suffered permanent brain damage, I do not understand how a $6,100,000 award for non-economic damage to a person with an unquestionably shortened life expectancy could not have a punitive element in it. (See *Simon v. San Paulo U.S. Holding Co., Inc.* (2005) 35 Cal.4th 1159, 1189; *Bankhead v. ArvinMeritor, Inc.* (2012) 205 Cal.App.4th 68, 90 ["permissible ratio of punitive to compensatory damages" should be reduced where the noneconomic damages "appear to include a punitive component"].)

Beyond that, it is the size of the awards, even after reduction by Judge Smith, that gets to the heart of my concern here. That is, the enormity of the amounts awarded by the jury here—$52 million in non-economic damages; $2 billion (!) in punitives—results in a form of bootstrapping: A high award, even when reduced, still results in a high number. Or put slightly differently, large begets large, resulting here, for example, in awards never before seen, far surpassing any prior case. For example, there is *Johnson*, where a punitive award of $250 million was reduced by the trial court to $39+ million, and reduced further by the Court of Appeal to $10+ million. And *Hardeman*, where a $75 million award, described by the Court of Appeal as "grossly excessive," was reduced by the trial court to $20 million. As to this, a comment in the Restatement is apt: "It seems appropriate to take into

consideration both the punitive damages that have been awarded in prior suits and those that may be granted in the future, with greater weight being given to the prior awards." (Rest.2d Torts (1979), § 908, com. e.)

I also cannot fail to observe that the enormous verdicts here were given to clients of a trial counsel who, as the majority puts it, engaged in "several instances [where] counsel acted improperly." Not bad enough, or often enough, in the majority's view, to cause a reversal, but nevertheless conduct that was "improper[]." As indeed it was.

Judge Smith herself noted that counsel committed misconduct. And, as noted, the majority describes the many instances of improper conduct, which included, among other things, counsel's opening statement where he said the jury would be deciding an "historic" battle with Monsanto, a type of comment the trial judge in *Johnson* admonished counsel was improper, describing the comment as "really inappropriate." Beyond that, on several occasions counsel violated various rulings by Judge Smith here, including rulings: prohibiting the references to the presence of glyphosate in sources other than Roundup; limiting evidence and argument about IBT; and prohibiting reference to the *Johnson* and *Hardeman* cases. And counsel argued that that EPA (and other regulatory agencies) would have "blood on their hands" if their positions on glyphosate were found to be wrong. Such conduct should not be overlooked, as it could lead to a verdict that "suggests passion, prejudice, or corruption on the part of the jury." (See *Seffert v. Los Angeles Transit Lines* (1961) 56 Cal.2d 498, 506–507; *Bigler-Engler v. Breg, Inc.* (2017) 7 Cal.App.5th 276, 304 [counsel's inflammatory rhetoric might have explained jury's excessive award]; see generally *Briley v. City of West Covina* (2021) 66 Cal.App.5th 119.)

But whatever the cause, or causes, of the enormous verdicts, the result here is in my view a punitive damage award that cannot stand. It is grossly excessive.

"The due process clause of the Fourteenth Amendment to the United States Constitution places constraints on state court awards of punitive damages." (*Roby v. McKesson Corp.* (2009) 47 Cal.4th 686, 712.) And the United States Supreme Court has thus held that states must provide for judicial review of the size of a punitive damages award, and has "developed a set of substantive guideposts that reviewing courts must consider in evaluating the size of punitive damages awards: '(1) the degree of reprehensibility of the defendant's misconduct; (2) the disparity between the actual or potential harm suffered by the plaintiff and the punitive damages award; and (3) the difference between the punitive damages awarded by the jury and the civil penalties authorized or imposed in comparable cases.' " (*Nickerson v. Stonebridge Life Ins. Co.* (2016) 63 Cal.4th 363, 371–372, quoting *State Farm Mutual Automobile Ins. Co. v. Campbell* (2003) 538 U.S. 408, 418 (*State Farm*).) In considering the guideposts, the degree of reprehensibility is "[t]he most important indicium of the reasonableness of a punitive damages award" (*State Farm*, 538 U.S. at p. 419), which is determined by "considering whether: the harm caused was physical as opposed to economic; the tortious conduct evinced an indifference to or a reckless disregard of the health or safety of others; the target of the conduct had financial vulnerability; the conduct involved repeated actions or was an isolated incident; and the harm was the result of intentional malice, trickery, or deceit, or mere accident." (*Ibid.*)

The majority discusses Monsanto's conduct, and misconduct, for many pages, along the way criticizing Monsanto's briefing for mistreatment of the

record. The majority's exposition does not discuss the five reprehensibility factors per se, but from a substantial evidence standpoint. And then, in the next section entitled "due process," it concludes as follows: "Considering the reprehensibility factors in light of the evidence we have described in detail above, we conclude that the evidence supports a finding that Monsanto's conduct was sufficiently reprehensible to warrant the punitive damages as reduced by the trial judge."

And while I do not—indeed could not—take issue with the majority's recitation of the evidence on which it relies, certainly not in light of how the record must be viewed on appeal, it is fair to say that there was another side to the story, especially in light of the conflicts on the fundamental questions involved here about Roundup and whether it actually did cause cancer. Without going into detail, this included evidence that there was consensus among regulatory agencies that Roundup did not cause a risk to humans at real world exposure levels. There was no evidence that Monsanto believed, let alone knew, that Roundup or glyphosate was carcinogenic. No evidence that Monsanto used "trickery" or "deceit" in working with scientists to author literature or to respond to an IARC determination with which Monsanto (and many regulators and scientists worldwide) disagreed. And no evidence that Monsanto hid any scientific study from regulators or the scientific community. On top of all that, plaintiffs' general causation expert Portier admitted that before 2015, he did not believe glyphosate was carcinogenic. And plaintiffs' specific causation expert Nabhan acknowledged that, even as of the time of trial, whether glyphosate is a carcinogen was a question about which "reasonable people can disagree." In sum, there is evidence in the record on both sides of the issues, what I would describe as a genuine dispute.

Superimposed on all the above is the fact that Monsanto has already been met with enormous punitive damage awards, $10+ million in *Johnson*, $20 million in *Hardeman*, as best I understand based fundamentally on the same general set of facts, not to mention that Monsanto faces what it claims are the "thousands of cases that loom in the future." As the majority recognizes, "California courts have recognized that '[p]unitive damages previously imposed for the same conduct are relevant in determining the amount of punitive damages required to sufficiently punish and deter,' and that '[t]he likelihood of future punitive damage awards may also be considered, although it is entitled to considerably less weight.' (*Stevens v. Owens-Corning Fiberglas Corp.* (1996) 49 Cal.App.4th 1645, 1661.)" This, of course, is consistent with the purpose of punitive damages, which are not to compensate plaintiffs but as "private fines intended to punish the defendant and to deter future wrongdoing." (*Nickerson v. Stonebridge Life Ins. Co.*, *supra*, 63 Cal.4th at p. 371.)

Assuming, as I do, that Monsanto's reprehensibility is at the lower end, I find persuasive *Roby v. McKesson Corp.*, *supra*, 47 Cal.4th 686. There, applying and quoting *State Farm*, the court held that even the reduced amount of punitive damages awarded by the Court of Appeal was excessive, and that "a ratio of one to one might be the federal constitutional maximum in a case involving . . . relatively low reprehensibility and a substantial award of noneconomic damages: 'When compensatory damages are substantial, then a lesser ratio, *perhaps only equal to compensatory damages*, can reach the outermost limit of the due process guarantee.' " (*Roby v. McKesson Corp.*, *supra*, 47 Cal.4th at p. 718.) That to me is the right result here, not the 4:1 ratio affirmed by the majority.

Richman, J.

Trial Court: Superior Court of Alameda County

Trial Judge: Hon. Winifred Smith

The Miller Firm, LLC, Michael J. Miller, Jeffrey A. Travers, Curtis G. Hoke; Baum, Hedlund, Aristei & Goldman, P.C., R. Brent Wisner, Pedram Esfandiary; Audet & Partners, LLP, Mark E. Burton, for Plaintiffs and Appellants

Cole Pedroza LLP, Curtis A. Cole, Cassidy C. Davenport, Scott M. Klausner for Amicus curiae California Medical Association, California Dental Association and California Hospital Association in support of plaintiffs and appellants

Horvitz & Levy LLP, David M. Axelrad, Jason R. Litt, Dean A. Bochner; Bryan Cave Leighton Paisner LLP, K. Lee Marshall, Alexandra C. Whitworth, for Defendant and Appellant

Kendall, Brill & Kelly LLP, Laura W. Brill, Nicholas F. Daum, Sharon S. Song, for Amicus curiae Genentech in support of defendant and appellant

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