

MAY 17 2018

CLERK OF THE COURT

BY: [Signature] Deputy Clerk

SUPERIOR COURT OF CALIFORNIA
COUNTY OF SAN FRANCISCO

DEWAYNE JOHNSON, ET AL.

Plaintiffs,

vs.

MONSANTO COMPANY, ET AL.

Defendants.

Case No. CGC – 16-550128

**ORDER ON (1) MONSANTO'S
OMNIBUS SARGON MOTION; (2)
MONSANTO'S MOTION FOR
SUMMARY JUDGMENT; (3)
PLAINTIFF'S OMNIBUS SARGON
MOTION; (4) PLAINTIFF'S MOTION
FOR SUMMARY ADJUDICATION**

Plaintiff Dewayne Johnson brought this products liability action against Monsanto alleging he contracted non-Hodgkin lymphoma (NHL) as a result of his exposure to glyphosate, which is contained in Monsanto's herbicides such as Roundup®. Complaint ¶¶ 74-75. Five motions are presently before me: (1) Monsanto's Motion to Exclude Johnson's Experts; (2) Monsanto's Motion for Summary Judgment or Summary Adjudication; (3) Johnson's Motion to Exclude Improper Opinions of Monsanto's Experts; (4) Johnson's Motion for Summary Adjudication; and (5) Johnson's Motion for Judicial Notice.

I heard argument May 10, 2018.

I. Requests for Judicial Notice and Evidentiary Issues

These rulings apply only to the motions decided in this order, and not to the trial.

1 **Monsanto's Motion for Summary Judgment or Summary**
2 **Adjudication**

3 Monsanto requests judicial notice of 18 exhibits, all of which are either EPA decisions or
4 publications, records in the Federal Register, Congressional testimony, or publications of the
5 California EPA. Monsanto RJN, 1-3. These unopposed requests are granted. E.C. §§ 451(b),
6 452(c), 452(h).

7 Monsanto objected to Exhibits 1, 7, 9-40 on hearsay grounds.¹ Monsanto Objections, 2-
8 9. However, many of the exhibits are offered to show Monsanto's state of mind, acts, or
9 conduct. For these purposes, the hearsay objection is overruled. E.C. § 1250. The Exhibits that
10 are admissible for those purposes and are considered here are Exs. 11-12, 14, 19, 21, 22, 24, 25.

11 Monsanto objected to Exhibit 6 and excerpts from Dr. Benbrook's testimony on the basis
12 that his expert testimony is inadmissible. Monsanto Objections, 2, 5, 8-9. The objection is
13 sustained only to the extent this Order grants the motion to exclude Dr. Benbrook's testimony.
14

15 Monsanto also objects to Johnson's original and amended separate statements—the latter
16 filed after Monsanto had submitted its reply with a new section setting forth additional material
17 facts. Monsanto Objections, 4-9; Monsanto Objection to Amended Separate Statement, 1-3. A
18 deficient separate statement generally may be corrected. *Rush v. White Corp.*, 13 Cal.App.5th
19 1086, 1100 (2017). In that spirit, I consider the amended separate statement.
20

21 Monsanto asks me to strike, in whole or in part, Johnson's oversized opposition brief. I
22 consider the impermissibly oversized brief as a late-filed paper, C.R.C. 3.1113(g), which is to
23 say I may reject it. *Rancho Mirage Country Club Homeowners Assn. v. Hazelbaker*, 2
24 Cal.App.5th 252, 262 (2016) (citing C.R.C. 3.1300(d)). I rebuke Johnson's counsel, but I am
25

26
27

¹ While Monsanto also asserts foundation and personal knowledge objections, those objections are based on the
ground that the declarant cannot attest to facts sufficient to establish a hearsay exception.

1 unwilling to impose the draconian penalty on his client of refusing to consider the brief because
2 it was five pages too long.

3 **Johnson's Motion for Summary Adjudication**

4 Monsanto submitted eighteen objections to Johnson's evidence. Monsanto's Objections
5 ¶¶ 1-18. None is material to the resolution of the motion.

6 Monsanto requests judicial notice of 10 exhibits, all of which are government documents
7 available on the EPA website or in the Federal Register. Monsanto RJN, 2-3. These unopposed
8 requests for judicial notice are granted. E.C. §§ 451(b), 452(c).

9 In reply, Johnson requests judicial notice of five exhibits, all of which are posted online
10 by government entities. Johnson RJN, 1-3. These unopposed requests for judicial notice are
11 granted, but the truth of the disputable factual representations in the documents – such as the
12 factual representations in the glyphosate fact sheet – are not noticed. E.C. §§ 452(c), (h).

13 **Johnson's Motion for Judicial Notice**

14 Johnson moves for judicial notice of the fact that the Office of Environmental Health
15 Hazard Assessment (OEHHA) added glyphosate to the Proposition 65 list and of a brief OEHHA
16 submitted defending the decision in which the OEHHA explained that it was relying on IARC.
17 The ostensible purpose of this request for judicial notice is to bolster Johnson's experts to the
18 extent they, like the state of California, give weight to IARC's determination that glyphosate is a
19 probable carcinogen. I will under E.C. § 452(c) take judicial notice of these matters for the
20 purposes of the present motions, but not for purposes of trial.

1 **II. Motions to Exclude Experts**

2 **1. The Reliability of Expert Opinion based on Peer Review Studies.**

3 I make some preliminary observations concerning attacks on expert opinion based on the
4 purported inadequacy of the studies relied on by the experts. This particularly applies to much of
5 Monsanto's motions, because Monsanto argues that the studies relied on by Johnson's experts
6 were shown by other studies (including subsequent studies), or by other experts, to be lacking.
7 E.g., Motion at 2:8 ff.; 3:8 ff.; 4:8 ff.; 7:1 (touting the NCI 2018 as the "best" study); 18:11 ff.;
8 20:13. Johnson implicitly makes similar arguments when he says that Monsanto's experts failed
9 to adhere to studies or guidelines issued by IARC, Motion at 7, and when Johnson accuses the
10 defense experts of relying on some but not other studies. E.g., *id.* at 8:12 ff.; Reply at 8.
11

12 At argument, plaintiff's counsel took the position that except for undescribed extreme
13 situations, courts in a *Sargon* hearing must accept expert testimony founded on peer review
14 studies, essentially pretermittting my review of the validity of the studies underpinning plaintiff's
15 experts' opinions. Plaintiff relies primarily relied on *Cooper v. Takeda Pharmaceuticals*
16 *America, Inc.*, 239 Cal.App.4th 555, 592 (2015). One may ask whether *Cooper* really forecloses
17 a court's investigation into the validity of peer review studies; the opinion does lend itself to that
18 reading, chastising—and reversing—the trial judge because he
19

20
21 did engage in settling a scientific controversy when it looked piecemeal at a large body of
22 epidemiological studies before finding the expert's opinion based on those studies wholly
23 lacking in foundation, when it engaged in an analysis of whether studies reporting
24 secondary endpoints were inherently unreliable, and when it disregarded other studies
25 because it found the methodology, which was fully explained to the scientific community
26 in peer-reviewed journals, to be misleading.

27 *Cooper*, 239 Cal.App.4th at 592.

The flaws identified by the trial judge in *Cooper* were not for him in the *Sargon* hearing:
they were to be explored with the jury. *Cooper*, 239 Cal.App.4th at 593. See also, e.g., *United*

1 *States v. Malone*, 828 F.3d 331, 337 (5th Cir. 2016) (“The studies relied upon by Dr. Trecki
2 undoubtedly meet this bar. There is no dispute that these studies were conducted by professional
3 scientists using established methods and many were subjected to peer review. *This is more than*
4 *enough to qualify them as ‘reasonably reliable.’*”) (emphasis supplied).²

5
6 *Cooper* and *Malone* bar the trial judge’s resolution of a scientific controversy, but this
7 begs the question of what counts as a valid scientific controversy. Not every issue is
8 scientifically debatable: there are, for example, peer review studies in astrology,³ but presumably
9 no court would accept those as creating a pertinent controversy. Not every peer reviewed study
10 is valid science.

11 While published peer review studies are not a prerequisite for expert opinion,⁴ when they
12 are used, they surely cannot by reason of their publication status literally be immune from attack,
13 even in the *Sargon* setting. Even if it is not true that most research finding are unreliable,⁵ it is

14
15
16 ² While I cite federal cases in this *Sargon* context, it still remains unclear whether state courts should exercise their
17 gate-keeping function as rigorously as federal courts under *Daubert*. E.g., David L. Faigman et al., “Wading into the
18 Daubert Tide: *Sargon Enterprises, Inc. v. University of Southern California*,” 64 HASTINGS L.J. 1665, 1687 (2013)
(the authors were also the authors of the Loyola Law Review item relied on by *Sargon*).

19 ³ <http://www.astrology.co.uk/tests/studies.htm> (“These statistically significant results have been published in peer
20 reviewed journals (including *Correlation*, a specialist astrological journal)”; Ken McRitchie, “The Good Science of
21 Astrology: Separating Effects from Artifacts,” April 2011 (“This article has been peer reviewed by subject matter
22 experts refereed through the publisher”), [http://www.theoryofastrology.com/effects/ISAR-April-2011-Journal-](http://www.theoryofastrology.com/effects/ISAR-April-2011-Journal-KM.pdf)
23 [KM.pdf](http://www.theoryofastrology.com/effects/ISAR-April-2011-Journal-KM.pdf). (The question of course, is who the “peers” are for these articles.)

24 ⁴ *Summit 6, LLC v. Samsung Electronics Co., Ltd.*, 802 F.3d 1283, 1298 (Fed. Cir. 2015) (“[p]ublication ... is not
25 a *sine qua non* of admissibility,” and “in some instances well-grounded but innovative theories will not have been
26 published,”) (quoting *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 593); *U.S. v. Carlson*, 810 F.3d 544,
27 553(8th Cir. 2016), citing *Russell v. Whirlpool Corp.*, 702 F.3d 450, 458 (8th Cir. 2012).

⁵ John P. A. Ioannidis, “Why Most Published Research Findings Are False,” *PLoS Med* (August 2005)
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1182327/> (from the Summary: “a research finding is less likely to
be true when the studies conducted in a field are smaller; when effect sizes are smaller; when there is a greater
number and lesser preselection of tested relationships; where there is greater flexibility in designs, definitions,
outcomes, and analytical modes; when there is greater financial and other interest and prejudice; and when more
teams are involved in a scientific field in chase of statistical significance. Simulations show that for most study
designs and settings, it is more likely for a research claim to be false than true. Moreover, for many current scientific
fields, claimed research findings may often be simply accurate measures of the prevailing bias.”); Paul E. Smaldino,
“The natural selection of bad science,” *Royal Society Open Science* (21 Sept. 2016) available at
<http://rsos.royalsocietypublishing.org/content/3/9/160384> (“Many prominent researchers believe that as much as
half of the scientific literature—not only in medicine, by also in psychology and other fields—may be wrong. Fatal
errors and retractions, especially of prominent publications, are increasing. The report that emerged from this

1 clear that many peer review studies are infected by “innocent, yet sloppy, error in the
2 methodology of the experiment that the authors themselves caught,”⁶ outright misconduct,⁷ bias
3 and conflicts of interest,⁸ and scams.⁹ Given these issues and the number of retracted papers,¹⁰
4 some commentators understandably contend the process is deeply flawed,¹¹ although it may be
5 better than alternatives.¹² So if at a *Sargon* hearing a peer reviewed study were shown to be
6 based on falsified data, presumably the court would not allow it, or an opinion based on it, to be
7 presented to the jury.

8
9 But it remains unclear under California law whether studies can be rejected for other
10 reason such as irreproducibility or p-hacking (cherry picking data until the results are
11
12
13

14 symposium echoes the slogan of one anonymous attendee: ‘Poor methods get results.’ Persistent problems with
15 scientific conduct have more to do with incentives than with pure misunderstandings. So fixing them has more to do
16 with removing incentives that reward poor research methods than with issuing more guidelines.... This paper argues
17 that some of the most powerful incentives in contemporary science actively encourage, reward and propagate poor
18 research methods and abuse of statistical procedures.” (notes omitted).

19 ⁶ Christopher Wanjek, “Lies, Mistakes & More: These Scientific Papers Got Nixed in 2017,” *LiveScience* (Dec, 27,
20 2017) <https://www.livescience.com/61275-scientific-retractions-2017.html>

21 ⁷ *Id.* (Wanjek)

22 ⁸ E.g., William L. Anderson et. al., “Daubert’s Backwash: Litigation-Generated Science” 34 U. MICH. J.L. REFORM
23 619, 644 & n. 147 (2001); Ned Miltenberg, “Myths About ‘Neutral’ Scientific Experts,” *Trial* (January 2000) at 62,
24 64 (noting “ethical lapses, in violation of peer review conflict-of-interest rules, plague the most renowned journals,
25 not just the second-rate ones”).

26 ⁹ Adam Marcus, “Phony peer review: The more we look, the more we find,” STATNews: APRIL 28, 2017,
27 <https://www.statnews.com/2017/04/28/phony-peer-review/> (noting retractions of papers); Sneha Kulkarni, “What
causes peer review scams and how can they be prevented?” Wiley Online Library
<https://www.editage.cn/insights/sites/default/files/What%20causes%20peer%20review%20scams%20and%20how%20can%20they%20be%20prevented.pdf>; Cat Ferguson, et al., “The Peer-Review Scam” 515 *Nature* 480 (27 Nov
2014) (scams, retracted articles), <https://www.nature.com/news/publishing-the-peer-review-scam-1.16400>

21 ¹⁰ Christie Aschwanden, “Science isn’t Broken” <https://fivethirtyeight.com/features/science-isnt-broken/#part3>

22 ¹¹ Stuart Macdonald, “Emperor’s New Clothes: The Reinvention of Peer Review as Myth,” *Journal of Management*
23 *Inquiry* (2014) (“vast literature has accumulated, the general tenor of which is that peer review is deeply flawed,
24 capable of much improvement in all manner of ways, but better than the alternatives.”
25 https://www.researchgate.net/profile/Stuart_Macdonald5/publication/277886859_Emperor%27s_New_Clothes/links/5989ce17a6fdcc75626383b6/Emperors-New-Clothes.pdf. For a list of articles and other resources noting issues
26 with peer review, see e.g., notes under “Reporting bias & related issues (peer reviews)” in Curtis Karnow, “Experts,
Statistics, Science & Bad Science,” https://works.bepress.com/curtis_karnow/26/

27 ¹² Stuart Macdonald, op cit.; Mark Ware, “Peer review in scholarly journals: Perspective of the scholarly community
– Results from an international study,” 28 *Information Services & Use* (2008) 109–112
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.453.7782&rep=rep1&type=pdf#page=36>

1 “statistically significant”¹³) or sloppy work, primarily because state law has not developed a
2 robust sense of what counts as “scientific” and what therefore is beyond that pale and so should
3 not be seen by a jury. Even federal courts under the *Daubert* standard have admitted testimony
4 that “did not flow naturally from disinterested research, [where the] methodology was not
5 subject to peer review or publication, and [where the] theory had no known rate of error,”
6 because “these objections go to the weight of [the] testimony, not to its admissibility.” *U.S. v.*
7 *Carlson* 810 F.3d 544, 553 (8th Cir. 2016), citing *Russell v. Whirlpool Corp.* 702 F.3d 450, 458
8 (8th Cir. 2012).

10 The net result is that, at least in California courts, expert opinion actually founded on peer
11 review studies, most especially when the credentials of the expert are unassailable, may be very
12 difficult to exclude. This is so, as in *Cooper*, even when the studies have patent flaws, because
13 those can be the subject of cross examination. *Cooper*, 239 Cal. App. 4th at 593. Experts are
14 allowed to look a variety of inconsistent studies and decide—as experts—what the *net* effect is
15 from that review. *Cooper*, 239 Cal. App. 4th at 589-90. See also *Wendell v. GlaxoSmithKline*
16 *LLC*, 858 F.3d 1227, 1233 (9th Cir. 2017). The point may be that judges in *Sargon* hearings are
17 not evaluating peer review studies as such, but rather the expert opinion (which may be founded
18 on those studies). The standards for the two are not exactly the same.¹⁴

25 ¹³ Christie Aschwanden, “Statisticians Found One Thing They Can Agree On: It’s Time To Stop Misusing P-
26 Values,” *FiveThirtyEight* (March 7, 2016) <http://fivethirtyeight.com/features/statisticians-found-one-thing-they-can-agree-on-its-time-to-stop-misusing-p-values/>; <https://www.methodspace.com/primer-p-hacking/>. A wonderful
27 cartoon perfectly illustrates p-hacking: https://www.explainxkcd.com/wiki/index.php/882:_Significant

¹⁴ An opinion which could not meet peer review standards may be good enough for a jury. *Wendell v. GlaxoSmithKline LLC*, 858 F.3d 1227, 1235–36 (9th Cir. 2017).

1 **2. Monsanto's Motion**

2 **a. General Causation**

3 Monsanto seeks an order prohibiting Drs. Aaron Blair, Chadi Nabhan, Alfred Neugut,
4 Christopher Portier, Beate Ritz, Matthew Ross, and Dennis Weisenburger from testifying at trial
5 regarding any opinion that glyphosate can cause any type of NHL in humans. Monsanto
6 Proposed Order, 1. Monsanto separates the general causation issues into four categories: (1)
7 Epidemiology; (2) Toxicology; (3) Genotoxicity/Mechanism; and (4) Applicability of the
8 Bradford Hill criteria.
9

10 **i. Epidemiology**

11 Monsanto argues that all opinions of Drs. Ritz and Neugut and the epidemiology portions
12 of the opinions of Drs. Weisenburger, Nabhan, Portier, Benbrook, and Sawyer should be
13 excluded because: (1) Johnson's experts agree that the epidemiology does not establish a causal
14 relationship; (2) Attacks on the Agricultural Health Study (AHS) (2018) do not provide a basis
15 for affirmative claims made by Johnson's experts; (3) Attacks on the AHS are unavailing as a
16 matter of fact; and (4) The studies on which Johnson's experts rely do not reliably support a
17 causation opinion and, relatedly, Johnson's experts cannot rule out the possibility of chance or
18 the impact of confounding factors. Motion, 5-11.
19

20 In opposition, Johnson contends (1) Numerous individual studies¹⁵ and meta-analyses,¹⁶
21 on which experts may reasonably rely, demonstrate a positive association between glyphosate
22 exposure and NHL; (2) Epidemiological studies need not control for all other pesticide exposure
23 because pesticide exposure is only meaningful if the pesticide could cause NHL; (3) Monsanto
24
25

26
27 ¹⁵ Johnson cites McDuffie (2001), Hardell (2002), De Roos (2003), Erickson (2008), and NAPP (2015). Opposition, 9-13.

¹⁶ Opposition, 15 (discussing three meta-analyses).

1 places too much weight on the AHS; and (4) Johnson's experts take into consideration the full
2 body of scientific evidence in reaching their opinions. Opposition, 7-22.

3 Monsanto replies that Johnson's experts did not follow a reliable methodology because
4 they cherry-picked unreliable studies that would support their conclusions while ignoring studies
5 that would undermine their conclusions. Reply, 4. Specifically Monsanto argues (1) No
6 epidemiology study shows a statistically significant relative risk of 2.0 or greater when properly
7 adjusted, meaning when adjusted for confounders that have not been taken into account; (2) The
8 studies Johnson cites are unreliable because they do not contain adjusted risk ratios that are
9 controlled for other pesticides and, if they are adjusted, there is no statistically significant
10 association between glyphosate-based herbicides and NHL; (3) The studies Johnson discussed
11 are biased because, at least, some contain involved different latency periods; (4) The meta-
12 analyses are unreliable because they do not include the AHS; and (5) Johnson's experts
13 improperly dismissed the AHS. Reply, 4-9.

14 Whether the epidemiological opinions are admissible turns on whether "there is support
15 in the scientific literature for [the] expert opinion" and the opinion adheres "to standards
16 applicable to [the experts'] field of expertise." *Davis v. Honeywell Intern. Inc.*, 245 Cal.App.4th
17 477, 492 (2016).

18 Preliminarily Monsanto challenges any epidemiology opinion that is not based on a study
19 that shows a statistically significant relative risk of 2.0 or greater. *Cooper v. Takeda*
20 *Pharmaceuticals America, Inc.*, 239 Cal.App.4th 555 (2015) adopted the reasoning of a Ninth
21 Circuit opinion applying California law, stating that epidemiological studies are admissible to
22 prove that a product was more likely than not the cause of a person's disease only if the relative
23 risk is greater than 2.0. *Cooper*, 239 Cal.App.4th at 593. (The relative risk factor of 2.0 implies
24
25
26
27

1 a 50% chance that a specific person's disease was caused by the product.) So *Cooper* held that
2 an expert opinion that the defendant's product was more probably than not the cause of the
3 plaintiff's injury was admissible if based on epidemiological studies showing a relative risk
4 factor of greater than 2.0 and ruled out other possible causes. *Id.*

5
6 But in *Cooper* the expert based a *specific* causation opinion on epidemiological studies.
7 Here, Monsanto argues in the context of *general* causation. Johnson's experts discuss
8 epidemiological studies just as one factor in their opinion that glyphosate-based herbicides cause
9 NHL. Motion, 6 (arguing that Johnson's experts concede that epidemiology does not alone
10 establish causality). *Cooper* does not mandate exclusion of these opinions for this purpose even
11 if none of the studies shows a relative risk of greater than 2.0. Instead, the focus should remain
12 on whether the epidemiological opinions offered by Johnson's experts have support in the
13 scientific literature and adhere to standards applicable to epidemiological experts.

14
15 Monsanto focuses on Drs. Neugut and Ritz, basing this decision on its assertion that the
16 remaining experts apply the same methodology but have less epidemiology experience. Motion,
17 5-6 n.14. Drs. Neugut and Ritz offer the ultimate conclusion that, to a reasonable degree of
18 scientific certainty, glyphosate causes NHL and that glyphosate based formulations cause NHL.
19 Hoke Decl., Ex. 8 at 25 (Dr. Ritz), Ex. 11 at 23 (Dr. Neugut).¹⁷ Neither opinion is based solely
20 on epidemiological evidence. Hoke Decl., Exs. 8, 11.

21
22
23 ¹⁷ (1) Dr. Portier opined that there were six epidemiological studies that showed a modest increase in the odds ratio
24 and relative risk for NHL amongst those who were exposed to glyphosate, which collectively amounted to a strong
25 association between glyphosate exposure and NHL and were a factor in his broader causality analysis. Hoke Decl.,
26 Ex. 13 at 18, 75, Ex. 13A at 18-19, 76. Dr. Portier subsequently explained why the AHS does not change his
27 opinion. Hoke Decl., Ex. 15. (2) Dr. Nabhan discussed several epidemiological studies and incorporated a small
association between glyphosate exposure and NHL in his Bradford Hill analysis. Hoke Decl. Ex. 18, 11-16, 19. Dr.
Nabhan also supplied supplemental reports criticizing the AHS. Hoke Decl., Exs. 19-20. (3) Dr. Weisenburger
discussed the epidemiological studies and considered the association shown in several of the case-control studies in
his Bradford Hill analysis. Hoke Decl., Ex 21 at 4-6, 11. Dr. Weisenburger submitted a supplemental report
criticizing the AHS. Hoke Decl., Ex. 22. (4) Although Matthew Ross is listed in the proposed order, Monsanto
does not provide evidence of his opinions.

1 Dr. Neugut too does not base his conclusion solely on that epidemiological evidence.
2 Hoke Decl., Ex. 11 at 11-17. Dr. Ritz did offer a predicate opinion about the epidemiological
3 evidence – Dr. Ritz endorsed the IARC Working Group’s Monograph insofar as it conducted a
4 meta-analysis and reported a meta risk-ratio of 1.3. Hoke Decl., Ex. 8 at 16. Dr. Ritz also
5 offered a rebuttal report and a supplemental report in which she responded to Monsanto’s experts
6 and criticized the AHS. Hoke Decl., Exs. 9-10.

8 Johnson’s experts do not view epidemiological evidence as dispositive on causation.
9 Monsanto Opening Brief at 6 n.16 (citing evidence). They conceded that confounding and bias
10 may explain the association found in the epidemiological evidence if the epidemiological
11 evidence were viewed in isolation. *Id.*

13 Monsanto’s first attack on Johnson’s epidemiology experts is this: when all of the data
14 concerning the association between glyphosate and NHL is considered, there is no association
15 between the two. Motion, 4-5. This attack is based on the AHS study. Monsanto argues that
16 Johnson’s experts cannot exclude the AHS from their analysis because it followed a sound
17 methodology and was published in a respected journal. *Id.* at 7.¹⁸

19 Monsanto’s second attack on Johnson’s experts is this: the studies they rely on do not
20 control for confounding factors, such as exposure to other pesticides.¹⁹ Monsanto notes
21 testimony suggesting that there could be a confounding problem (Edwards Decl., Ex. 29 at
22 90:15-20, 91:23-92:4) and that one of Johnson’s experts chose not to rely on data from the NAPP
23

24 ¹⁸ Monsanto also argues that a plaintiff cannot establish causation through mere criticism of the AHS study. Motion,
25 7. But that’s not Johnson’s pitch. His expert reports were submitted before the AHS was published and based their
26 causation opinions on a variety of other factors, including then-extant epidemiological evidence. After publication
27 of the AHS, Johnson’s experts articulated reasons why the AHS did not impact their conclusions.

¹⁹ Monsanto argues that a chart in Dr. Ritz’s report includes the same data multiple times. Motion, 9-10. While this
may lead the casual reader to inflate the number of studies that have shown statistically significant associations
between glyphosate and NHL, it does not rebut the fact that *some* studies have shown a statistically significant
association between glyphosate and NHL.

1 study that was controlled for confounders because she questioned the validity of the approach
2 used to control for confounders (Edwards Decl., Ex. 26 at 292:11-293:21, 305:10-306:17).²⁰

3 This is not a suggestion that that there is no support in the scientific literature, but rather
4 an attack on the studies that support the expert opinions. Where the validity, strengths, and
5 weaknesses of studies are subject to scientific interpretation and debate, the trial court may not
6 step in and resolve the debate over the validity of the studies. *Cooper*, 239 Cal.App.4th at 589.²¹

7 Johnson's epidemiology experts should not be excluded. While Johnson's experts
8 concede the limitations of the epidemiological evidence, there is at least one study that controlled
9 for other pesticides and still found a statistically significant association between glyphosate and
10 NHL. Edwards Reply Decl., Ex. 8 at 22:23-24:6, Ex. 11 at 16:7-17:25 (Dr. Ritz's testimony
11 regarding De Roos (2003); Hoke Decl. Ex. 8 at 19 (discussing De Roos (2003)); Ex. 11 at 14-15
12 (same). Johnson's experts appreciated the risk the confounders could create an unreliable
13 association between glyphosate exposure and NHL but believed, in light of the studies they
14 reviewed and the other information that they considered, that potential confounders were not the
15
16
17

18 ²⁰ In reply, Monsanto launches a third attack pursuant to which it charges Johnson's experts with changing their
19 positions or selecting data on the basis of expediency in making their argument. Reply, 6-8. These misleading
20 arguments are unpersuasive. First, Monsanto asserts that Dr. Ritz admitted to pulling out estimates that make sense
21 for the argument she is trying to make. Reply, 6 (citing Edwards Reply Decl., Ex. 11 at 172:12-15). The cited
22 testimony reflects that Dr. Ritz was limiting her analysis to data in studies that is relevant to the issue that she was
23 considering, nothing more. Second, Monsanto argues that Dr. Weisenburger took the official position that the
24 latency period for glyphosate based herbicides to cause NHL would be 20 years or more. Reply, 6-7 (citing
25 Edwards Reply Decl., Ex. 12. The cited letter reflects that Dr. Weisenburg took the position that "the average
26 latency period for development of NHL due to long-term, low-level exposure to organic solvents is about 20 years.
27 Since exposure to glyphosate would be expected to be long-term, low-level exposure...I would expect the average
latency period for glyphosate exposure in relation to potential for NHL to be at the upper end of [the range from 1-
25 years], most likely 20 or more years from initial exposure." Third, Monsanto charges Dr. Ritz with flip-flopping
on the De Roos (2003) study. Reply, 7 (citing report and testimony). The cited evidence is to the contrary: Dr. Ritz
consistently gave significant weight to the De Roos (2003) study and consistently questioned whether it was indeed
necessary to control for all of the pesticides for which De Roos controlled. Fourth, Monsanto asserts that Dr. Ritz
refused to include the AHS in her meta-analysis because she never relies on summaries. Reply, 8. The testimony
cited by Monsanto discloses that Dr. Ritz was simply making the point that a meta-analysis cannot be performed by
lumping all of the extant studies into a single analysis without taking their quality into consideration. Edwards
Reply Decl., Ex. 13 at 112:18-114:19.

²¹ See my discussion above under the caption "The Reliability of Expert Opinion based on Peer Review Studies."

1 cause of the association. Motion, 6 n.16 (citing evidence), 8:9-9:3. And Monsanto has not
2 identified any pesticides that may, in fact, have confounded the data. Finally, the supplemental
3 expert reports demonstrate that Johnson's experts considered the strengths and weaknesses of the
4 AHS and the strengths and weaknesses of the case control study in reaching their conclusions
5 about epidemiology and causation. *E.g.*, Hoke Decl., Exs. 10, 12, 15. This is what was required
6 of them. *See Cooper*, 239 Cal.App.4th at 589.
7

8 **ii. Toxicology**

9 Monsanto asserts that Dr. Portier used the same methodology as all of Johnson's
10 toxicology experts and has the most expertise and the most detailed analysis. Motion, 11.
11 Accordingly, Monsanto targets Dr. Portier's analysis and says all the remaining toxicology
12 expert analyses fall with Dr. Portier's analysis. *Id.*
13

14 At the outset, Monsanto contends that there are fourteen toxicological studies, all of
15 which are negative – i.e., there is no finding of carcinogenicity. Motion, 13. Monsanto asserts
16 that all regulators that have reviewed the data have concluded that it shows that the animal data
17 does not show evidence of carcinogenicity. *Id.*

18 Turning to Dr. Portier's methodology, Monsanto argues that Dr. Portier committed the
19 following errors: (1) Dr. Portier analyzed the data that was the basis for statistical analyses of
20 renal tumors in mice that were performed in 1983 and 1985 using a variety of different tests
21 rather than using one methodology and sticking to it, a methodology that leads Monsanto to
22 argue that Dr. Portier selected methods based on the result he wanted; (2) Dr. Portier pooled data
23 from studies performed at different laboratories in different animals by different investigators at
24 different times, a methodology that Monsanto claims is without scientific support, in a manner
25 that suggests his approach was result-oriented because he included some studies in his pooled
26
27

1 analysis for some malignancies but not others; and (3) Dr. Portier recognized the possibility that
2 some statistically significant results may occur by chance alone but did not attempt to control for
3 such "statistical errors." *Id.* at 13-17.

4
5 In opposition, Johnson asserts (1) The animal carcinogenicity studies are a proper basis
6 for an expert opinion; (2) Drs. Portier and Jameson reached their opinions prior to being retained;
7 (3) Johnson's experts properly followed established guidelines; (4) All of the tests Dr. Portier
8 performed to analyze the renal tumors in mice are recognized as appropriate tests; (5) Dr.
9 Portier's pooling methodology is scientifically supported and supported by Dr. Portier's
10 experience; and (6) Dr. Portier's analysis demonstrates that he did not perform an analysis with a
11 pre-determined result in mind. Opposition, 22-29.

12
13 In reply, Monsanto contends that (1) Johnson does not have expert testimony that
14 contains a reliable methodology for extrapolating animal toxicology data to humans; (2) Dr.
15 Jameson's opinions were not disclosed and cannot be considered; and (3) Dr. Portier's pooling
16 methodology was improper. Reply, 9-11.

17 At the most basic level, Dr. Portier opined that glyphosate causes cancer in mammals.
18 Hoke Decl., Ex. 13A at 52, 74. To reach this conclusion, Dr. Portier analyzed 20 animal studies,
19 of which he found eight unacceptable for use. Hoke Decl., Ex. 13A at 50, 52; Hoke Decl., Ex.
20 13A at 19-52.

21
22 Dr. Portier's predicate conclusion that glyphosate causes cancer in mammals was one of
23 several predicate conclusions that, when considered together, led Dr. Portier ultimately to
24 conclude that glyphosate probably causes NHL. Hoke Decl., Ex. 13A at 76-78. Dr. Portier
25 considered the conclusion that glyphosate causes cancer in mammals "very strong" evidence that
26
27

1 a causal relationship between glyphosate exposure and NHL was biologically plausible. Hoke
2 Decl., Ex. 13A at 77.

3 Monsanto seems to challenge Dr. Portier's opinion because he cannot reliably extrapolate
4 animal toxicology data to humans. But Dr. Portier does not directly apply animal toxicology
5 data to humans. Rather, he concludes the fact that, according to his analysis, glyphosate causes
6 cancer in mammals (i.e., rodents) renders it *biologically plausible*, under the Bradford Hill
7 rubric, that glyphosate could cause a specific form of cancer, NHL, in humans. Monsanto does
8 not suggest this is a misapplication of the Bradford Hill criteria.²² Hoke Decl., Ex. 13A at 76.

9
10 This leaves Monsanto's three challenges to Dr. Portier's calculations. First, Monsanto
11 charges Dr. Portier with selecting a statistical test to reach a desired result in his analysis of renal
12 tumors in mice in connection with a 1983 bioassay. Motion, 13-14. Monsanto begins with
13 ambiguous deposition testimony that shows that Dr. Portier verified that the approximate p-value
14 from an Armitage linear trend test, which was an approximate trend test, appeared to be correct.
15 Edwards Decl., Ex. 21 at 47:1-17; Motion, 14. Dr. Portier subsequently used a different test and
16 again achieved a statistically significant result. Edwards Decl., Ex. 35 at Document 5.
17 Thereafter, a commenter criticized Dr. Portier for failing to use an exact trend test. Edwards
18 Decl., Ex. 35 at Document 6. In response, Dr. Portier rebutted the criticism and stood by his
19 analysis, but noted that the p-values would be marginal rather than statistically significant if an
20 exact trend test was used. Edwards Decl., Ex. 35 at Document 7. Dr. Portier did not manipulate
21 his methodology to attain a desired result; he selected a methodology and defended it against
22 criticism from another commentator.²³

23
24
25
26
27 ²² These criteria are explained below under the caption "Bradford Hill Criteria" at p.20 of this order.

²³ Significantly, Monsanto does not challenge the reliability of the methods that Dr. Portier used to attain a statistically significant result.

1 Second, Monsanto argues that Dr. Portier's pooling methodology is unsupported in the
2 literature and was executed by including studies only if they would facilitate a statistically
3 significant result. Motion, 15-16. *Id.* Dr. Portier admitted that the scientific literature does not
4 contain methods for the combined analysis of multiple animal cancer bioassays. Hoke Decl., Ex.
5 13A at 21. Dr. Portier imported a pooling methodology from epidemiology to combine animal
6 carcinogenicity studies by merging the data from the studies for analysis. Hoke Decl., Ex. 13A
7 at 21-22. Dr. Portier acknowledged that there is considerable genetic variability across animal
8 strains over both time and space, but nevertheless decided that pooling was appropriate because
9 it is no different from comparing results across studies. Hoke Decl., Ex. 13A at 51-52. Dr.
10 Portier's testimony indicated that he selected his pools by including the studies that would, when
11 combined, yield statistically significant positive findings. Edwards Decl., Ex. 21 at 210:6-
12 212:15, 214:3-219:23, 236:17-240:1.²⁴ Dr. Portier's report and deposition testimony do not
13 support the conclusion that it is scientifically acceptable or reliable to pool disparate rodent
14 assays or that the manner in which Dr. Portier conducted pooling was reliable.²⁵ Accordingly,
15 Dr. Portier's pooling opinions are excluded.

16
17
18 At argument Johnson contended excluding these pooling results does not invalidate his
19 ultimate opinion that glyphosate causes cancer in mammals. See also Hoke Decl., Ex. 14
20 (responding to criticism from Monsanto's expert). To the extent Dr. Portier can support his
21 ultimate conclusion on the basis of other rationales set forth in his expert reports, his ultimate
22 conclusions are not excluded by this order.
23

24
25 ²⁴ This appears to be a classic case of cherry picking input to generate putatively statically significant results—
sometimes derisively known as “p-hacking”. See above n. 13.

26 ²⁵ Johnson cites the December 2016 Scientific Advisory Panel as an endorsement of Dr. Portier's pooling analysis.
27 Hoke Decl., Ex. 42. It is true that some Panel members recommended adopting a pooled analysis approach for
combining multiple studies. Hoke Decl., Ex. 42 at 59. But they stated that such adoption would require the
development of full guidelines on how to conduct and evaluate these analyses. Hoke Decl., Ex. 42 at 59. This does
not endorse Dr. Portier's approach.

1 Third, Monsanto argues that Dr. Portier failed to adequately control for the fact that some
2 statistically significant results will appear in the rodent studies by chance. Motion, 16-17. The
3 argument is unclear and is not revisited in reply. Motion, 16-17. This is not a basis for
4 exclusion.²⁶

5
6 While Monsanto says the remaining experts will fall with Dr. Portier, it's not obvious the
7 other experts relied on Dr. Portier's pooling analysis. Hoke Decl., Ex. 8 at 24-25; Ex. 11 at 17-
8 18, Ex. 18 at 6-10, 20. Johnson's other experts opinions on this subject do not fall except to the
9 extent they predicate their opinions on the pooling analysis.

10 Dr. Jameson is referenced in the opposition papers but may not have been disclosed as an
11 expert in this case. Edwards Decl., Exs. 3, 5. For the purposes of this motion, it is enough to
12 note that Dr. Jameson was not the subject of the pending motion. Reply, 10 (arguing, in
13 response to references to Dr. Jameson in the opposition papers, that Dr. Jameson's testimony
14 cannot be considered at trial or on summary judgment because he was not disclosed as an
15 expert).

17 **iii. Genotoxicity/Mechanism**

18 Monsanto asserts that genotoxicity – i.e., whether a chemical causes DNA damage or
19 other cellular changes – cannot alone establish carcinogenicity. Motion, 18. Monsanto also
20 argues that the regulators uniformly view the tests that have been performed on glyphosate as not
21 supporting a finding of carcinogenicity.

22
23 Monsanto asserts that genotoxicity or mechanistic data have only been found to be
24 relevant under *Daubert* where scientifically sound human data is unavailable. *Id.* at 19.

25
26
27 ²⁶ Because statistical significance is a measure of the odds that the results of a study are the result of chance, and
commonly the significance level is set at .05, there is always some chance (1 out of 20) in any “statistically
significant” set of results that they are in fact the result of chance. E.g. REFERENCE MANUAL ON SCIENTIFIC
EVIDENCE at 251 ff. (3rd ed. 2011).

1 Monsanto argues that the genotoxicity or mechanistic data are inadmissible here because (1) Dr.
2 Portier improperly counted the studies showing positive and negative results; (2) In vitro studies
3 cannot be extrapolated to this case; and (3) The Bolognesi (2009) and Paz-y-Mino (2007) studies
4 on which Johnson's experts rely are methodologically flawed and, in any event, do not support
5 the experts' conclusions. *Id.* at 19-20.
6

7 Plaintiff retorts (1) The Bolognesi and Paz-y-Mino studies are reliable and Dr. Portier
8 properly relied on them; and (2) Dr. Portier reliably analyzed each of the genotoxicity or
9 mechanistic studies, he did not "add up" positive studies. Opposition, 29-32. Monsanto does not
10 address this topic in reply.
11

12 Monsanto does not specify which opinions it challenges. As a general matter, Monsanto
13 suggests that it objects to any consideration of genotoxicity or mechanism testimony. This
14 approach is unsupported by Monsanto's citations and conflicts with the Bradford Hill criteria,
15 which require consideration of biological plausibility. Hoke Decl., Ex. 11 at 22 (considering
16 biological mechanisms – genotoxicity and oxidative stress – adduced for glyphosate's mode of
17 action in evaluating biological plausibility under Bradford Hill), Ex. 13A at 52-74.
18

19 Monsanto's concern that in vitro studies cannot be extrapolated to humans does not
20 justify exclusion of the opinions in this case. The experts do not consider the genotoxicity
21 studies to be direct evidence of causality, but instead consider it as a factor supporting *biological*
22 *plausibility* under the Bradford Hill rubric. Hoke Decl., Ex. 11 at 22, Ex. 13A at 52-74.
23

24 This seems to be supported by the scientific literature. *In re Zicam Cold Remedy Marketing,*
25 *Sales Practices, and Products Liability Litigation*, 2011 WL 798898, at *9-*10 (D. Ariz. Feb.
26 24, 2011) (in vitro study was reliable so its results were admissible although it was not direct
27 evidence of toxicity to humans, expert would be required to explain extrapolation theory).

1 Monsanto's argument that Dr. Portier simply added up the positive and negative studies
2 does not support exclusion. Dr. Portier explained that the table was a summary of the studies that
3 did not address the subtlety needed to interpret any one study, but instead was intended to enable
4 the reader to see the experimental data in a single glance. Hoke Decl., Ex. 13A at 65-66. The
5 inclusion of a summary table does not render the analysis flawed.
6

7 Finally, Monsanto's challenge to the Bolognesi and Paz-y-Mino studies are unpersuasive.
8 Aside from Monsanto's facial challenge to the methodologies in those studies,²⁷ Monsanto relies
9 on subsequent statements by authors that allegedly undercut the study findings. Motion, 20.²⁸
10 Specifically, Monsanto quotes a newspaper article, which in turn quotes a co-author of the
11 Bolognesi study for the proposition that there was no difference in the micronuclei between
12 exposed individuals and control individuals. *Id.*; Edwards Decl., Ex. 47.²⁹ Johnson responds by
13 citing studies in which the primary Bolognesi author describes the study differently, albeit while
14 expressing reservations about the conclusions that can be drawn from the study. Hoke Decl.,
15 Exs. 72-73. In addition, Monsanto cites a second study conducted by Paz-y-Mino that evaluated
16 a separate instance of glyphosate spraying and found that the study population did not present
17 significant chromosomal and DNA alterations. Edwards Decl., Ex. 48.
18

19 There is no argument that Johnson's experts afforded undue weight to these studies.
20
21 *Compare* Hoke Decl., Ex. 13A at 55-56 (discussing all three studies). Nor is there any apparent
22
23

24 ²⁷ Monsanto cites the studies themselves as evidence that they are methodologically flawed. Motion, 20 n.44.

25 ²⁸ Monsanto cites *Arias v. DynCorp*, 928 F.Supp.2d 10, 24-25 (D.D.C. 2013) as excluding an expert NHL causation
26 opinion based on the Bolognesi and Paz-y-Mino studies. Motion, 20. But *Arias* did not discuss the Bolognesi and
27 Paz-y-Mino studies but instead excluded an expert opinion that failed to explain the basis for reliance on certain
epidemiological studies vis-à-vis other epidemiological studies. *Arias*, 928 F.Supp.2d at 24-25.

²⁹ This quotation is in tension with Monsanto's simultaneous reliance on the statement in the Bolognesi study that
there was a "low" genotoxic risk potentially associated with exposure to GBH. Motion, 20 (citing Edwards Decl.,
Ex. 45 at 986).

1 reason why Johnson's experts cannot offer opinions on these three published studies. The
2 motion to exclude any testimony on these studies is denied.³⁰

3
4 **iv. Bradford Hill Criteria**

5 Johnson's experts applied the Bradford Hill criteria. Motion, 21. Monsanto contends
6 that this was improper because the Bradford Hill criteria can only be applied when there is
7 epidemiology that demonstrates a "specific, clear-cut association between the two variables
8 under examination" – i.e., an association that is positive and "strongly statistically significant"
9 after confounders have been eliminated. Monsanto argues that Johnson's experts cannot use the
10 Bradford Hill criteria here because (i) the epidemiological data does not demonstrate a sufficient
11 association and (ii) the studies on which they rely cannot establish temporality or strength and
12 because the AHS found no evidence of dose response.
13

14 The parties appear to agree generally that the Bradford Hill criteria and its nine factors or
15 viewpoints are an acceptable means of evaluating causality if done correctly. Motion, 21-22.
16 "None of [the] nine viewpoints can bring indisputable evidence for or against the cause-and-
17 effect hypothesis and none can be required as a *sine qua non*." Edwards Decl., Ex. 49 at 11.
18 Scientists apply the Bradford Hill criteria once an association has been found between an
19 exposure to an agent and development of a disease. *In re Lipitor (Atorvastatin Calcium)*
20 *Marketing, Sales Practices and Products Liability Litigation*, 174 F.Supp.3d 911, 916 (D.S.C.
21 2016) (*Lipitor*). The nine factors are (1) strength of the association, (2) replication of the
22 findings, (3) specificity of the association, (4) temporal relationship, (5) dose-response
23 relationship (aka biological gradient), (6) biological plausibility, (7) consistency with other
24
25

26 ³⁰ Monsanto also submits evidence to support the conclusion that glyphosate is not, in fact, genotoxic. Edwards
27 Decl., Ex. 1 at 135 (containing only a conclusion without analysis), Ex. 43 at 10 (conclusion with limited analysis),
Ex. 44 at 132 (concluding that the studies showing lack of genotoxic potential outweigh the studies showing positive
results). In light of the other evidence in the record, this evidence at most indicates that there is a scientific dispute.

1 knowledge (aka coherence), (8) consideration of alternative explanations, and (9) cessation of
2 exposure. *Id.* “Whether an established association is causal is a matter of scientific judgment,
3 and scientists appropriately employing this method may come to different judgments about
4 whether a causal inference is appropriate.” *Id.* (internal quotations omitted).
5

6 As I have noted, there is some scientific evidence of an association between glyphosate
7 exposure and NHL. To the extent Monsanto’s motion to exclude any Bradford Hill opinions is
8 based on the absence of an association, it is denied. *Compare Lipitor*, 174 F.Supp.3d at 924-25
9 (noting that Bradford Hill criteria only apply if there is an association that has been established
10 through studies with statistically significant results); *Soldo v. Sandoz Pharmaceuticals Corp.*,
11 244 F.Supp.2d 434, 461 (W.D. Pa. 2003); *Dunn v. Sandoz Pharmaceuticals Corp.*, 275
12 F.Supp.2d 672, 679-80 (M.D.N.C. 2003); *Hollander v. Sandoz Pharmaceuticals Corp.*, 95
13 F.Supp.2d 1230, 1237 (W.D. Okla. 2000) (rejecting Bradford Hill analysis premised on case
14 reports because those reports are not a scientific basis for a conclusion regarding causation).
15

16 Monsanto also makes specific challenges to the application of the Bradford Hill criteria.

17 With respect to the strength criterion, the cited secondary source does not appear to
18 address the application of the Bradford Hill criterion but rather the strength of epidemiological
19 evidence necessary to independently prove causation. Edwards Decl., Ex. 50 at 612 n.193. This
20 does not suggest that Johnson’s experts have misapplied the criterion or that all reasonable
21 scientists would agree as to its application here. *See, e.g., Hoke Decl.*, Ex. 8 at 23 (finding a
22 weak to moderate association), Ex. 11 at 22 (reciting the strength of the association in
23 mathematical terms); Edwards Decl., Ex. 49 at 11.
24

25 With respect to the temporality criterion, it is at least true that case-control studies
26 evaluate whether the glyphosate exposure preceded the contraction of NHL. *See, e.g., Hoke*
27

1 Decl., Ex. 11 at 21, Ex. 13A at 11. Monsanto's criticism does not suggest a misapplication of
2 this factor.

3 With respect to dose response, the absence of dose response in AHS does not foreclose
4 the existence of other data supporting a positive dose response finding. *E.g.*, Hoke Decl., Ex. 11
5 at 22 (noting two studies that "suggest" there is a dose response relationship). And causality can
6 be established without a positive or strong dose response finding. Edwards Decl., Ex. 49 at 11.
7

8 With respect to consistency, Monsanto's conclusory assertion does not establish that
9 Johnson's experts erred in their evaluation of consistency. *See, e.g.*, Hoke Decl., Ex. 8 at 24
10 (discussing consistency factor), Ex. 11 at 22 (same).
11

12 For these reasons the motion to exclude the Bradford Hill analyses is denied.

13 **b. Specific Causation**

14 Monsanto seeks an order prohibiting Drs. Chadi Nabhan and William Sawyer from
15 testifying at trial regarding any opinion that exposure to glyphosate caused Johnson to develop
16 mycosis fungoides, including Dr. Sawyer's exposure analysis.

17 **i. Dr. Nabhan**

18 First, Monsanto argues that Dr. Nabhan improperly extrapolated from literature
19 concerning NHL generally to mycosis fungoides specifically. Motion, 22-23. Second,
20 Monsanto contends that Dr. Nabhan improperly based his opinion on the fact that Johnson was
21 exposed to glyphosate before contracting mycosis fungoides to infer causation without ruling out
22 other causes—he did not provide a proper methodology to "rule in" and "rule out" various risk
23 factors. Reply, 12-13. Monsanto explains that Dr. Nabhan has no way of evaluating whether
24 glyphosate was a more likely cause than other possible causes, no basis to extrapolate from NHL
25 literature to mycosis fungoides, and has performed no exposure analysis. *Id.* at 13-14.
26
27

1 Dr. Nabhan submitted an expert report and supplemental report in support of general
2 causation. Hoke Decl., Exs. 18-19, 20. Dr. Nabhan adopted his general causation opinions,
3 discussed the history of Johnson's mycosis fungoides (a type of NHL), and discussed the history
4 of Johnson's exposure to glyphosate through Monsanto's products, Hoke Decl., Ex. 20 at 2-9,
5 and concluded that Monsanto's Roundup was a substantial causative factor in the development
6 and progression of Johnson's NHL and that all other medically known causes of the disease had
7 been ruled out based on Johnson's history. Hoke Decl., Ex. 20 at 8-9.

9 At deposition, Dr. Nabhan testified that there is presently insufficient data to evaluate
10 whether or not glyphosate is associated with each *subtype* of NHL. Edwards Decl., Ex. 22 at
11 105:17-107:8. Nevertheless, he opined that the data pertaining to NHL generally can be used to
12 draw conclusions about all of the subtypes, including the one at issue here, mycosis fungoides.
13 Edwards Decl., Ex. 22 at 105:23-106:11; Edwards Decl., Ex. 51 at 105:16-107:2. Dr. Nabhan
14 emphasized that the only risk factor in Johnson's record was his occupational exposure to
15 glyphosate compounds. Edwards Decl., Ex. 51 at 138:6-16. Nevertheless, Dr. Nabhan agreed
16 that Johnson "could have" developed mycosis fungoides even if he had never been exposed to
17 glyphosate. Edwards Decl., Ex. 51 at 138:21-25; *see also* Edwards Reply Decl., Ex. 4 at 258:23-
18 259:7 (Dr. Nabhan cannot give a percentage increase in the risk of NHL if an individual is
19 exposed to glyphosate).

22 Monsanto relies entirely on Dr. Nabhan's own testimony to challenge the admissibility of
23 his specific causation opinion.

24 First, I reject Monsanto's argument that there is no scientific basis for Dr. Nabhan to rely
25 on studies that apply to NHL generally in the context of mycosis fungoides. There is a scientific
26 basis for Dr. Nabhan's opinion – mycosis fungoides is a subtype of NHL. While Dr. Nabhan
27

1 admits uncertainty, his opinion is not mere speculation. His report explicitly lists the alternative
2 known causes of NHL that he ruled out based on his review of Johnson's record. Hoke Decl.,
3 Ex. 20 at 8-9. Monsanto has not identified any known causes that Dr. Nabhan failed to consider.
4 While Dr. Nabhan cannot rule out chance, he has a scientific basis to support his conclusion as to
5 specific causation – his general causation opinion with respect to NHL, the fact that mycosis
6 fungoides is a subtype of NHL, the temporal connection between Johnson's exposure to
7 glyphosate and development of mycosis fungoides, and the absence of exposure to other known
8 causes.
9

10 The parties have drawn my attention to two cases, *Wendell v. GlaxoSmithKline LLC*, 858
11 F.3d 1227 (9th Cir. 2017) and *Milward v. Acuity Specialty Products Group, Inc.*, 639 F.3d 11
12 (1st Cir. 2011). In *Wendell*, the Ninth Circuit held the trial court erred in excluding expert
13 testimony that was not supported by epidemiological or animal studies because it improperly
14 ignored the experts' experience, reliance on a variety of literature and studies, review of medical
15 records and history, and performance of a differential diagnosis. *Wendell*, 858 F.3d at 1232-37.
16 Here, Dr. Nabhan has extensive experience as a treating physician to support his conclusions. In
17 *Milward*, the First Circuit held it was improper to treat the lack of statistically significant
18 epidemiological evidence as a crucial flaw where the rarity of the disease and the difficulties of
19 data collection made it difficult to conduct a statistically significant study. *Milward*, 649 F.3d at
20 24. Dr. Nabhan's un rebutted testimony supports the conclusion that the same conditions apply to
21 mycosis fungoides.
22

23
24 An underlying issue in the parties' debate on specific causation—but not expressly
25 addressed by them—is how to account for idiopathy.³¹ Under *Daubert* in federal courts, it can
26

27 ³¹ I.e. a condition occurring for unknown reasons. *Best v. Lowe's Home Centers, Inc.*, 563 F.3d 171, 174 (6th Cir. 2009).

1 be fatal if an expert fails to explain why a specific plaintiff's disease should not be classified as
2 idiopathic when generally speaking most of its instances are idiopathic. *Kilpatrick v. Breg, Inc.*,
3 613 F.3d 1329, 1343 (11th Cir. 2010) (expert cannot "explain why potentially unknown,
4 or idiopathic alternative causes were not ruled out"); *Chapman v. Procter & Gamble Distrib.*,
5 *LLC*, 766 F.3d 1296, 1311 (11th Cir. 2014) (failed to consider idiopathic cause); *Tamraz v.*
6 *Lincoln Elec. Co.*, 620 F.3d 665, 671 (6th Cir. 2010) (same). Idiopathy need not be entirely
7 ruled out, but there needs to be an explanation as to why an identified cause is considered likely.
8 E.g., *Wendell*, 858 F.3d at 1235, 1237. Ruling out idiopathy only because another cause is ruled
9 in—when there is no basis to rule it in—isn't admissible expert opinion. *Milward v. Rust-Oleum*
10 *Corp.* 820 F.3d 469, 476 (1st Cir. 2016).

11
12 Thus I turn to the extent to which Dr. Nabhan ruled in the Monsanto product as a cause.

13
14 With respect to specific causation, Dr. Nabhan incorporated his entire general causation
15 analysis and highlighted the following factors: (1) Plaintiff's exposure history (i.e., the number
16 of times Plaintiff sprayed glyphosate-based herbicides, the amount of time spent on each
17 occurrence, the protective gear worn, and the occurrence of spilling events); (2) The fact that
18 Plaintiff's exposure was greater than the exposure in two epidemiological studies that reported
19 relative risk of greater than 2.0; (3) Plaintiff's mycosis fungoides diagnosis, including its timing;
20 and (4) The absence of other known causal factors of NHL to which Plaintiff was exposed (i.e.,
21 immunosuppressive therapy; although there are some associations – such as Plaintiff's sex – that
22 may indicate he is more susceptible to the disease than other members of the population). *Id.*,
23 Ex. 20. Dr. Nabhan admitted that he could not rule out other contributing factors; but he is not
24 required to do so. *Cooper*, 239 Cal.App.4th at 585-86; *Wendell*, 858 F.3d at 1237.

25
26 Dr. Nabhan's specific causation opinion is not excluded.
27

1 **ii. Dr. Sawyer**

2 Monsanto argues that Dr. Sawyer's specific causation opinion should be excluded
3 because (1) Dr. Sawyer calculated a "slope factor" by extrapolating numerous rodent studies to
4 humans without justifying his extrapolation; (2) Cancer slope factors should not be applied to
5 reach a causation conclusion in an individual case; (3) Dr. Sawyer engaged in an outcome driven
6 approach; (4) Dr. Sawyer's slope factor is not tailored to this case because it includes exposure to
7 glyphosate beyond occupational exposure; and (5) Dr. Sawyer's slope factor does not support
8 causation because the risk he states was caused by occupational exposure to glyphosate is less
9 than the background risk for African-American males of Johnson's age. Motion, 24-27.
10 Moreover, Monsanto argues that Dr. Sawyer's opinion on Tyvek permeability, which was
11 offered on the basis of an experiment Dr. Sawyer conducted the night before his deposition,
12 should be excluded because it was not timely disclosed and is not reliable. *Id.* at 27-28.
13

14 Johnson retorts that (1) Dr. Sawyer extrapolated a slope factor using appropriate
15 scientific methodology to assess whether Johnson's exposure was within the range capable of
16 causing him to contract NHL; (2) Dr. Sawyer relied on dose response data in epidemiology
17 studies, as evaluated by epidemiological experts, to reach his specific causation opinion; and (3)
18 Dr. Sawyer's experiment to determine whether Tyvek is permeable to water is admissible
19 because it was disclosed at deposition and reliably assesses Tyvek's permeability. Opposition,
20 38-42.
21

22 Dr. Sawyer's permeability experiment is excluded. Dr. Sawyer poured water onto Tyvek
23 to assess whether Johnson's testimony that Tyvek is water permeable was true. Hoke Decl., Ex.
24 68 at 17-18. Determining whether Tyvek is water permeable does not require expertise, so the
25 experiment will not be helpful to the jury. E. C. § 801; Hoke Dec., Ex. 68 at 17-18. However,
26
27

1 this does not preclude Dr. Sawyer from crediting, and relying upon, Johnson's testimony that his
2 Tyvek suit was permeable to both water and Roundup, as Dr. Sawyer did in his expert report.
3 See Hoke Decl., Ex. 7 at 162.

4
5 Turning to Dr. Sawyer's specific causation opinion, Dr. Sawyer concluded, to a
6 reasonable toxicological certainty, that Johnson's glyphosate exposures induced or significantly
7 contributed to the onset of Johnson's T-cell lymphoma. Hoke Decl., Ex. 7 at 8, 166. Dr.
8 Sawyer's conclusion was based on Johnson's exposure to glyphosate, the absence of other risk
9 factors in his medical history, animal studies pertaining to glyphosate, and human
10 epidemiological studies pertaining to glyphosate. *Id.*

11 Dr. Sawyer used a cancer slope factor as one element of his analysis. Hoke Decl., Ex. 68
12 at 11-13. Dr. Sawyer asserts that he derived the slope factor in humans from a rodent study
13 consistent with U.S. EPA guidelines. See Hoke Decl., Ex. 7 at 121-22, 127-28, Ex. 68 at 9-11.

14
15 Monsanto criticizes Dr. Sawyer's extrapolation from rodent studies to calculate a slope
16 factor applicable to humans. Motion, 24; Reply, 14. Monsanto cites cases for the proposition
17 that experts must establish the validity of any extrapolation from animal studies to humans. See
18 Motion, 24; Reply, 14; *Metabolife Intern., Inc. v. Wornick*, 264 F.3d 832, 842-43 (9th Cir. 2001)
19 ("Difficulties with extrapolation might render animal studies unreliable under *Daubert*; however,
20 such a determination must be made on problems inherent to the studies themselves, not a general
21 apprehension at inter-species and inter-dosage extrapolation").

22
23 Dr. Sawyer himself seemed to agree that the cancer slope factor did not help analysis of
24 specific causation. Edwards Decl. ¶ 55. Ex 54. Sawyer Depo. at 543:7-14; Hoke Decl., Ex. 68 at
25 15. As became clear at argument, Dr. Sawyer used software employed by the EPA to determine
26 safe regulatory levels. But that is "[p]articuarly problematic... [because r]egulatory standards
27

1 are set for purposes far different than determining the preponderance of evidence in a toxic tort
2 case. For example, if regulatory standards are discussed in toxic tort cases to provide a reference
3 point for assessing exposure levels, it must be recognized that there is a great deal of variability
4 in the extent of evidence required to support different regulations.” REFERENCE MANUAL ON
5 SCIENTIFIC EVIDENCE at 665 (3rd ed. 2011). See *id.* at 665-66. Thus Johnson’s counsel agreed
6 that the cancer slope opinion be excluded at trial, with the right to raise the issue if Monsanto in
7 some way opens the door to its relevance.
8

9 Otherwise, Dr. Sawyer apparently relies on other factors to reach his specific causation
10 opinion, which Monsanto leaves largely unaddressed. For these reasons, assuming Dr. Sawyer is
11 willing to rely on grounds other than the cancer slope factor, his specific causation opinion is not
12 excluded.
13

14 **c. Corporate Conduct and EPA Regulations**

15 Monsanto seeks an order prohibiting Drs. Charles Benbrook and William Sawyer from
16 testifying at trial regarding any opinion of Monsanto’s corporate conduct and prohibiting Dr.
17 Benbrook from testifying regarding any alleged violations of EPA regulations.
18

19 **i. Dr. Benbrook**

20 Apparently Dr. Benbrook intends to testify that Monsanto should have warned the public
21 about the risk of NHL associated with the use of and exposure to glyphosate and glyphosate-
22 based formulations on the basis of a methodology that consists of reviewing Monsanto emails
23 and memoranda and interpreting those documents. Motion, 28.

24 Dr. Benbrook’s basic opinion is that Monsanto failed to adequately warn about the risk of
25 NHL associated with the use of Roundup and RangerPro beginning in or before 2001. Hoke
26 Decl., Ex. 23 at 5.
27

1 Dr. Benbrook has a B.A. in Economics and a Ph.D. in Agricultural Economics. Hoke
2 Decl., Ex. 23 at 31. From 1981-1983, Dr. Benbrook was the Staff Director of the Subcommittee
3 on Department Operations, Research and Foreign Agriculture of the House Committee on
4 Agriculture. Hoke Decl., Ex. 23 at 31. From 1984 to 1990, Dr. Benbrook served as the
5 Executive Director of the Board on Agriculture, a unit of the National Academy of
6 Sciences/National Research Council. Hoke Decl., Ex. 23 at 33. Dr. Benbrook started Benbrook
7 Consulting Services (BCS) in 1990. Hoke Decl., Ex. 23 at 35. Since that time, BCS has carried
8 out several dozen projects involving pesticide use, risks, and regulation for federal and State
9 government agencies, companies, private institutions, and non-governmental organizations.
10 Hoke Decl., Ex. 23 at 35. From 1998-2005, Dr. Benbrook maintained a website that focused on
11 Roundup Ready crops. Hoke Decl., Ex. 23 at 36. Dr. Benbrook has written papers on the impact
12 of genetically engineered crops on pesticide use and trends in the use of glyphosate-based
13 herbicides. Hoke Decl., Ex. 23 at 37-38. In recent years, Dr. Benbrook has taken professorial
14 positions, one of which focused on developing and applying analytical tools to quantify the
15 impact of agricultural technology and farm production systems on agriculture's environmental
16 footprint and public health outcomes. Hoke Decl., Ex. 23 at 38-39. As Johnson notes, Benbrook
17 has previously been approved by a court to testify: "(1) about the general roles of the EPA, the
18 registrant, and the state in the registration process for pesticides; (2) the general regulatory
19 framework set up by FIFRA; (3) the industry standards and the stewardship duty; (4) the factual
20 circumstances surrounding the 1995 changes to the label and the obtaining of the 24(c) label; and
21 (4) their opinions on whether DuPont's conduct satisfied industry standards and any stewardship
22 duty." *Adams v. U.S.*, 2009 WL 1085481, at *3 (D. Idaho Apr. 20, 2009).
23
24
25
26
27

1 Dr. Benbrook's background does not demonstrate much familiarity with the EPA or
2 Monsanto's internal knowledge or regulatory compliance. He does have some experience
3 tracking the rise of glyphosate-based herbicides and some experience with the regulatory regime
4 applicable to herbicides. Based on this experience, Dr. Benbrook may testify as to the general
5 framework of the EPA regulatory decision making process. Hoke Decl., Ex. 23 at 40-44. But he
6 should not testify on other subjects, as follows:
7

8 First, Dr. Benbrook may not offer any opinions as to the proper interpretation of
9 documents, such as emails, or to argue that inferences of knowledge or intent can be derived
10 from those documents. Opposition, 45 (stating that Dr. Benbrook is not being offered to provide
11 such opinions); Edwards Decl., Ex. 4 at 9 (my order in other litigation); *see, e.g.*, Hoke Decl.,
12 Ex. 23 at ¶¶ 803-833. Dr. Benbrook's opinions about the knowledge and intent of Monsanto and
13 other actors invade the province of the jury and are often speculative. E. C. § 801(a).
14

15 Second, Dr. Benbrook may not opine on Monsanto's legal obligations. *Summers v. A.L.*
16 *Gilbert Co.*, 69 Cal.App.4th 1155, 1178 (1999) (expert may not opine on a question of law); *see,*
17 *e.g.*, Hoke Decl., Ex. 23 at ¶ 1084.

18 Third, Dr. Benbrook may not relate case-specific facts asserted in hearsay statements
19 unless they are independently proven by competent evidence or are covered by a hearsay
20 exception. *People v. Sanchez*, 63 Cal.4th 665, 686 (2016); *see, e.g.*, Hoke Decl., Ex. 23 at ¶ 843.
21

22 Fourth, Dr. Benbrook may not offer an opinion as to whether the EPA would have
23 approved an amendment to the Roundup label. Dr. Benbrook has no specific expertise
24 pertaining to the EPA's approval of amended labels. *See* Hoke Decl., Ex. 23 at ¶ 61.

25 Fifth, while Dr. Benbrook might have experience regarding industry standards and
26 stewardship obligations, at argument Johnson agreed these were irrelevant.
27

1 Sixth, Dr. Benbrook may not testify Monsanto misled the EPA. He brings no relevant
2 expertise to the table on that issue.

3
4 **ii. Dr. Sawyer**

5 The only opinion specifically identified in the moving papers is Dr. Sawyer's opinion that
6 the EPA applied a unique approach for glyphosate only, that was inconsistent with established
7 methodology, guidelines, and procedures. Edwards Decl., Ec. 56 at 96-97; *see also* Motion, 40
8 (stating, without citation, that much of Dr. Sawyer's report copies texts from Monsanto's emails
9 and offers personal opinions about those emails). As to the opinion identified in the moving
10 papers, Dr. Sawyer's CV does not demonstrate an expertise in EPA regulations. *See* Hoke Decl.,
11 Ex. 7 at Appendix B. Dr. Sawyer is precluded from offering the opinion that the EPA departed
12 from its regulations.
13

14 As to Dr. Sawyer's specific opinions with respect to the impact of non-compliance with
15 the ethical obligations owed by toxicologists, Monsanto has not demonstrated that Dr. Sawyer
16 disclaimed any such opinions. *See* Edwards Decl., Ex. 30 at 46:14-18 (Dr. Sawyer testified that
17 he is neither an "ethicist" nor an expert on "corporate ethics"). Nor has Monsanto supplied a
18 record sufficient to identify the opinions it challenges. While on the bases presented I do not
19 exclude Dr. Sawyer's opinions concerning non-compliance with ethical obligations owed by
20 toxicologists, these may be irrelevant for the same reasons Johnson agreed that Dr. Benbrook's
21 opinions on industry standards and stewardship obligations are irrelevant.³²
22

23 **d. Damages**

24 Monsanto seeks an order prohibiting James Mills from testifying with an opinion about
25 either (1) Johnson's future loss of income or (2) punitive damages based on the income of
26 Monsanto's CEO.
27

³² The relevancy issue is reserved for the trial judge.

1 **i. Loss of Income**

2 Mills calculated Johnson's lost income on an annual basis from the year 2016 through the
3 end of his life expectancy, less two years, rather than cutting off damages at an earlier retirement
4 age such as 67, in response to a request from counsel. Hoke Decl., Ex. 24; Edwards Decl., Ex.
5 66 at 41:14-43:13.
6

7 Monsanto argues that Mills' opinion should be excluded because he based his opinions
8 on counsel's request to assume that Johnson would work until 75 and did not conduct his own
9 analysis of when Johnson was likely to stop working.

10 First, Monsanto has not offered any basis to exclude Mills' opinion that Johnson suffered
11 \$52,878 per year in damages for each year that he would have continued his employment as a
12 pest manager at the Benicia Unified School District.
13

14 Second, Monsanto's argument that Mills should be barred from adding up the lost income
15 to present a total lost income figure that includes wages through the year 2046 presents nothing
16 more than the issue of whether there is other evidence to support that cut-off date. If (and only
17 if) Johnson introduce evidence (or the trial judge is satisfied by an offer of proof) that he would
18 have continued in his present employment until 2046, then Mills may use that as a predicate for
19 his opinion.
20

21 **ii. Punitive Damages**

22 At issue is the compensation paid to Monsanto's chairman and CEO, Hugh Grant. This,
23 says, Mills, is relevant to the financial condition of the company. Edwards Decl., Ex. 66 at
24 78:11-18; Hoke Decl., Ex. 82. Monsanto seeks to preclude Mills from citing Grant's
25 compensation in support of an opinion on punitive damages. Monsanto does not now move to
26 exclude Mills' entire punitive damages opinion. Reply, 23.
27

1 Monsanto does not dispute that the figure is relevant to Monsanto's financial capacity.
2 But on reply Monsanto argues that the testimony will be unduly prejudicial. Reply, 23. The
3 argument was not raised in the moving papers and is not treated here; as with other Evidence
4 Code § 352 issues, it is reserved for the trial judge. This order does not exclude the evidence.
5

6 **3. Johnson's Motion**

7 **a. General Causation**

8 Johnson seeks an order excluding the opinions of epidemiologists Drs. Lorelei Mucci and
9 Jennifer Rider. Hoke Decl., Exs. C at 1-2, D at 3-5.

10 In short, Dr. Rider discussed the epidemiological studies regarding glyphosate and
11 concluded that "there is insufficient epidemiologic evidence to make a scientific conclusion that
12 glyphosate-based herbicides are a cause of NHL" or that "the epidemiologic evidence does not
13 provide a basis sufficient to opine that glyphosate-based herbicides are causally related to NHL."
14 See *id.*, Ex. C at 3-4, 21-45, 47. Dr. Rider opines it is inappropriate to apply the Bradford Hill
15 criteria to synthesize study results to evaluate whether a causal relationship exists between
16 glyphosate and NHL. The reason for this opinion is that underlying studies may have been
17 subject to confounding or systematic bias. *Id.*, Ex. C. at 43-44.
18

19 Similarly, Dr. Mucci discussed the epidemiology of NHL, discussed epidemiological
20 studies regarding glyphosate, and concluded, "to a reasonable degree of scientific certainty, that
21 the epidemiological evidence does not provide a scientific basis to support a causal relationship
22 between exposure to glyphosate-based herbicides and the risk of NHL." See *id.*, Ex. D at 5-8,
23 29-60, 72. Dr. Mucci mentions the Bradford Hill criteria, but does not apply them. See *id.*, Ex.
24 D at 26.
25
26
27

1 Johnson appears to suggest that these two witnesses cannot offer these opinions because
2 they did not do a Bradford Hill analysis to evaluate biological plausibility, by which Johnson
3 means they did not consider the totality of the evidence – e.g., animal and mechanistic data –
4 before offering their opinions. Motion, 5-8. Johnson appears to be arguing that Drs. Mucci and
5 Rider cannot offer an ultimate opinion on the question of whether glyphosate-based herbicides
6 cause NHL without considering the Bradford Hill criteria, including non-epidemiological
7 evidence. Reply, 9:17-18 (must consider Bradford Hill criteria before “making any conclusions
8 about causality”).

10 Drs. Mucci’s and Rider’s opinions bear on the conclusion that the *epidemiological*
11 *evidence* does not by provide a sufficient basis to conclude that glyphosate-based herbicides
12 cause NHL, stopping short of offering an opinion on the distinct issue whether glyphosate-based
13 herbicides cause NHL. Hoke Decl., Exs. C at 47, D at 6, 72. Dr. Rider does, in one instance,
14 state her conclusion in a way that is amenable to the interpretation that the epidemiological
15 evidence precludes the conclusion that there is a causal relationship. *id.*, Ex. C at 4. But this
16 does not appear to be Dr. Rider’s proffered opinion.³³

18 The motion is denied.

19
20 **b. Specific Causation; Mitigation**

21 **i. Alternative Causes of Mycosis Fungoides**

22 Dr. Kuzel stated that alcohol and sunlight were the only two environmental factors to
23 which Johnson was exposed with a positive association with mycosis fungoides. Hoke Decl.,
24 Ex. A at 5-6. Johnson argues that it is improper for Dr. Kuzel to reference possible alternative
25 causes of mycosis fungoides unless he holds the opinion, to a reasonable degree of medical
26

27 ³³ In reply, Johnson criticizes Dr. Mucci’s meta-analysis for the first time. Reply, 10. I ignore this argument, made in passing, because it was not raised in the moving papers.

1 probability, that these alternative causes actually contributed to or increased Johnson's chance of
2 contracting mycosis fungoides. Motion, 3. Monsanto responds that pointing to alternative
3 causes for which there is stronger evidence of an association will undermine the credibility of
4 Johnson's evidence of causation. Opposition, 2.

5
6 Johnson does not dispute that Dr. Kuzel's opinions are based on matter on which he may
7 rely and within the area of his expertise. Motion, 3. Rather, Johnson argues that the inferences
8 that a jury may draw from these facts – i.e., that the other factors were more likely to cause
9 Johnson to contract NHL than glyphosate-based herbicides – are speculative. *Id.* Johnson
10 invokes *Cooper v. Takeda Pharmaceuticals America, Inc.*, 239 Cal.App.4th 555, 586 (2015).
11 The court there concluded that “it was entirely speculative for Takeda to assert that other known
12 risk factors *could have* played a role where it presented no *substantial evidence* to support such
13 notions.” *Id.* at 586.
14

15 This case is not *Cooper*. Here, Johnson is objecting to a foundational piece of evidence
16 because it could in conjunction with other evidence support an argument that other factors could
17 have contributed to Johnson's contraction of mycosis fungoides. Hoke Decl., Ex. A at 5-6
18 (stating that alcohol and sunlight exposure have a positive association with mycosis fungoides).
19 Dr. Kuzel may offer his opinion.
20

21 **ii. Latency**

22 Dr. Kuzel opined that the latency period between Johnson's first exposure to glyphosate-
23 based herbicides and the appearance of skin abnormalities ultimately recognized as a symptom
24 of mycosis fungoides was too brief for the glyphosate-based herbicides to have caused Johnson's
25 mycosis fungoides. Hoke Decl., Ex. A at 6. Dr. Kuzel based his opinion on the fact that “the
26 most likely timeframe for the relevant exposure would be many years or even decades prior to its
27

1 clinical manifestation.” *Id.* Dr. Kuzel also explained that a 1 cm. mass contains about one
2 billion cells, and that it would likely take multiple years to go from single cells to hundreds of
3 millions. *Id.* At deposition, Dr. Kuzel testified that he has “no comment about latency period in
4 specifics of glyphosate and non-Hodgkin’s lymphoma. I have specifics about latency in
5 general,” explaining that this was because “there is no link to glyphosate in non-Hodgkin’s
6 lymphoma so there is no way to calculate what the latency period would be” so it is “hard to
7 speculate on latency periods. But latency periods for carcinogens are in general long, years.”
8 *Id.*, Ex. B at 105:18-24, 139:21-140:20. Dr. Kuzel did state that he would not consider it
9 possible that glyphosate caused mycosis fungoides unless, in the absence of a fairly prolonged
10 exposure, the exposure had been five to ten years prior. Edwards Decl., Ex. 15 at 145:2-13.

11
12 Johnson argues that Dr. Kuzel’s latency opinions should be excluded because he did not
13 employ any methodology to reach them. Motion, 3-4. In opposition, Monsanto focuses on
14 testimony from Johnson’s experts that it views as consistent with Dr. Kuzel’s latency opinions
15 and his discussion of the amount of time it takes for tumors to grow. Opposition, 3-4.

16
17 Dr. Kuzel’s deposition testimony reveals that his opinion on latency periods relating to
18 Johnson’s specific mycosis fungoides is speculative, and it is excluded on that basis. Dr. Kuzel
19 himself states that it is “hard to speculate on latency periods” and offers nothing to support his
20 opinion except generalities about cell reproduction. *Sargon*, 55 Cal.4th at 771. But Dr. Kuzel
21 does have sufficient expertise to discuss latency generally.

22 23 **iii. Noncompliance with Treatment Recommendations**

24 Dr. Kuzel opines that Johnson’s condition “may have been exacerbated by his
25 inconsistent compliance with and refusal of some treatments.” Hoke Decl., Ex. A at 5. At
26 deposition, Dr. Kuzel testified that it is impossible for him to know whether Johnson’s condition
27

1 was exacerbated because he cannot observe what would have happened if Johnson had received
2 the treatments he missed. *Id.*, Ex. B at 159:9-161:16. Dr. Kuzel also testified that a question
3 about one specific missed treatment would be better directed to the treating physician. *Id.*, Ex. B
4 at 160:22-161:12.
5

6 As Monsanto aptly describes Johnson's motion, "Because Dr. Kuzel could not say for
7 sure whether noncompliance hurt Plaintiff, Plaintiff now moves to prevent him from saying that
8 it may have." Opposition, 4-5.

9 The argument here is similar to Johnson's implicit position as to Dr. Kuzel's opinion as
10 to other factors associated with mycosis fungoides. As was the case there, the motion to exclude
11 Dr. Kuzel's opinion is denied. Dr. Kuzel's opinion is based on subject matter within his
12 expertise.
13

14 **c. Benefits of Glyphosate**

15 Johnson seeks an order excluding the opinion of Dr. Kassim Al-Khatib. Proposed Order,
16 1. Johnson's motion is based solely on relevance and duplicative of a motion in limine. Motion,
17 8; Opposition, 7-8. The pertinent motion in limine was denied. *See* April 3, 2018 Order, 3. In
18 Johnson's reply brief, which followed denial of the motion in limine, Johnson made no mention
19 of Dr. Al-Khatib's opinion. Reply, 10 (requesting only exclusion of opinions of Drs. Kuzel,
20 Mucci, and Rider). For the reasons alluded to in my order denying the motion in limine, some
21 portions of Dr. Al-Khatib's opinion may be relevant. April 3, 2018 Order, 3:10-15. Whether or
22 not the request has been abandoned, the motion to exclude Dr. Al-Khatib's opinion as irrelevant
23 is denied.
24
25
26
27

1 **III. Motions for Summary Judgment or Summary Adjudication**

2 Monsanto moves for summary judgment on the basis of its motion to exclude Johnson's
3 medical causation experts: if the experts are excluded, Johnson will be left without evidence to
4 satisfy his burden of proving medical causation. Monsanto Motion, 6.
5

6 Monsanto also moves for summary judgment on the ground that all of Johnson's claims
7 are preempted by federal law. Third, Monsanto moves for summary adjudication of Johnson's
8 claim for punitive damages on the ground that Johnson cannot present any evidence to satisfy his
9 burden of proof.

10 Johnson moves for summary adjudication of Monsanto's sixth and seventh affirmative
11 defenses, which address preemption based on the Federal Insecticide, Fungicide, and
12 Rodenticide Act (FIFRA) and continuing EPA approval, respectively.
13

14 **a. Causation**

15 Monsanto's motion for summary judgment based on causation turns on the admissibility
16 of Johnson's experts. As discussed above, most of the opinions of Johnson's causation experts
17 are admissible. These suffice as evidence of both general and specific causation. The motion for
18 summary judgment on the basis of causation is denied.
19

20 **b. Preemption**

21 **1. Express Preemption of Failure to Warn Claims³⁴**

22 Under FIFRA, a "State may regulate the sale or use of any federally registered pesticide
23 or device in the State, but only if and to the extent the regulation does not permit any sale or use
24 prohibited by this subchapter. ... Such State shall not impose or continue in effect any
25 requirements for labeling or packaging in addition to or different from those required under this
26 subchapter." 7 U.S.C. § 136v(a)-(b).
27

³⁴ In reply, Monsanto seems to abandon this express preemption argument.

1 State law is preempted by FIFRA if (1) the state law must be a requirement “for labeling
2 or packaging,” rules governing the design of a product are not preempted; and (2) the state law
3 must impose a labeling or packaging requirement that is “in addition to or different from those
4 required under this subchapter.” *Bates v. Dow Agrosciences LLC*, 544 U.S. 431, 444 (2005);
5 *Mirzaie v. Monsanto Co.*, 2016 WL 146421, at *2 (C.D. Cal. Jan. 12, 2016) (holding that suit
6 seeking injunction to require Monsanto to change its Roundup label was preempted). A state-
7 law labeling requirement is not preempted if it equivalent to, and fully consistent with, FIFRA’s
8 misbranding provisions. *Bates*, 544 U.S. at 447; *Hardeman v. Monsanto Co.*, 216 F.Supp.3d
9 1037, 1038 (N.D. Cal. 2016).

11 Monsanto argues that 7 U.S.C. § 136v preempts any claim on the basis that Monsanto
12 improperly failed to include a cancer warning on its label. Motion, 11. To reach that conclusion,
13 Monsanto contends: (1) The EPA approved Monsanto’s label without a cancer warning; (2)
14 After the EPA approved Monsanto’s label, Monsanto was required to use the EPA-approved
15 label; and (3) A state law that requires a cancer warning on Monsanto’s label would, in this
16 context, impose a requirement that is in addition to or different from the requirements imposed
17 by FIFRA. *Id.* at 10-12.

18 Under FIFRA, a pesticide is misbranded if “the label does not contain a warning or
19 caution statement which may be necessary and if complied with, together with any requirements
20 imposed under section 136a(d) of this title, is adequate to protect health and the environment[.]”
21 7 U.S.C. § 136(q)(1)(G). California law requires a manufacturer to warn either of any risk that is
22 known or knowable (in strict liability), or at least those risks that a reasonably prudent
23 manufacturer would have known or warned about (in negligence). *Conte v. Wyeth, Inc.*, 168
24 Cal.App.4th 89, 101-02 (2008). California law is no broader than FIFRA. *Hardeman*, 216
25
26
27

1 F.Supp.3d at 1038. Indeed, Monsanto offers nothing to rebut the argument that a carcinogenic
2 pesticide is subject to a misbranding under FIFRA if it is sold without labeling that alerts users to
3 its carcinogenic properties.
4

5 Substantively, Monsanto's express preemption argument depends on the premise that
6 Monsanto is immune from FIFRA liability so long as it uses a label that has been approved by
7 the EPA or is otherwise consistent with the EPA's factual findings. That's not true. *Bates*, 544
8 U.S. at 434-35, 448, 451-53 (in an action where the pesticide had been approved by the EPA,
9 state law claims would be allowed to go forward if it was determined, on remand, that the state
10 law at issue was parallel to FIFRA); *Hardeman*, 216 F.Supp.3d at 1038-39; 7 U.S.C. §
11 136a(f)(2); *Carias v. Monsanto Co.*, 2016 WL 6803780, at *2-*7 (E.D.N.Y. Sept. 30, 2016);
12 *Hernandez v. Monsanto Co.*, 2016 WL 6822311, at *8 (C.D. Cal. July 12, 2016) ("if the EPA's
13 registration decision is not preemptive, it follows that the factual findings on which it relied in
14 making that decision are also not preemptive").
15

16 2. Conflict Preemption of Failure to Warn Claims

17 Monsanto argues that *Wyeth v. Levine*, 555 U.S. 555 (2009) and its progeny give rise to
18 the rule that warnings-based claims are impliedly preempted when the evidence shows that the
19 federal regulatory agency considered the safety risk at issue in the lawsuit but nevertheless
20 rejected concerns about the risk. Motion, 7. See *Cerveny v. Aventis, Inc.*, 855 F.3d 1091, 1105
21 (10th Cir. 2017) (where, in rejecting citizen petition, FDA analyzed claims and data virtually
22 identical to that submitted by plaintiffs, FDA's denial constituted clear evidence that the FDA
23 would not have approved the plaintiffs' desired warning). *Wyeth* and its progeny do not apply.
24 here.
25
26
27

1 *Wyeth* noted that the FDCA did not have any express preemption provision applicable to
2 prescription drugs, but it did have a savings clause indicating that a provision of state law would
3 only be invalidated upon a direct and positive conflict with the FDCA. *Id.* at 567. Accordingly,
4 *Wyeth* conducted a conflict preemption analysis. *See id.* at 568-73. Conflict preemption
5 involves a two-step process of ascertaining the construction of the federal and state laws and then
6 determining if they are in conflict. *Chicago & North Western Transp. Co. v. Kalo Brick & Tile*
7 *Co.*, 450 U.S. 311, 317 (1981). In *Wyeth*, the Court rejected *Wyeth*'s argument that it was
8 impossible to comply with both a state law that would have required *Wyeth* to strengthen its
9 label and FDA regulations regarding updating prescription drug labeling in the absence of clear
10 evidence that the FDA would not have approved the modified label pursuant to regulatory
11 channels available to *Wyeth*. *Wyeth*, 555 U.S. at 568-73; *see also, e.g., Cerveney v. Aventis, Inc.*,
12 855 F.3d 1091, 1105 (10th Cir. 2017) (FDA's denial of citizen petition raising same issues posed
13 by plaintiffs constituted clear evidence under *Wyeth*).
14
15

16 A fundamental premise of *Wyeth* and its progeny is that the state cannot outlaw the sale
17 of a prescription drug that has been approved by the FDA. Put differently, the fact that a
18 prescription drug manufacturer could avoid liability under both state law and federal law by
19 refraining from selling the product within a state is irrelevant to FDCA preemption. *See, e.g.,*
20 *Mutual Pharmaceutical Co., Inc. v. Bartlett*, 570 U.S. 472, 488 (2013) (*Bartlett*).
21

22 Under FIFRA, on the other hand, Congress has spoken.³⁵ FIFRA contains an express
23 preemption provision and it is limited to requirements "for labeling or packaging" that are "in
24 addition to or different from those required under [FIFRA]." *Bates*, 544 U.S. at 444; 7 U.S.C. §
25

26 ³⁵ Monsanto suggests that FIFRA's express preemption provision and case law interpreting its impact should be
27 ignored in evaluating conflict preemption because express provision does not necessarily mean that conflict
preemption is inapplicable. Reply, 6. But "the purpose of Congress is the ultimate touchstone in every pre-emption
case," *Wyeth*, 555 U.S. at 565. The express preemption provision is relevant to Congressional intent.

1 136v(b). For example, the state is expressly permitted to ban a pesticide that is approved by the
2 EPA. *Bates*, 544 U.S. at 446; 7 U.S.C. § 136v(a). Under the express terms of the statute, EPA
3 approval of a pesticide is *not* a defense for the commission of any offense under FIFRA, it is just
4 prima facie evidence that the pesticide and its labeling and packaging are compliant with FIFRA
5 and, accordingly, any state law that imposes labeling requirements consistent with FIFRA is not
6 preempted. *Carias*, 2016 WL 6803780, at *4-*6 (persuasively relying on statute to conclude that
7 EPA approval does not preempt failure to warn claim); 7 U.S.C. § 136a(f)(2).³⁶

8
9 It does not appear that any court has extended the *Wyeth* line of cases to FIFRA.
10 *Hardeman*, 216 F.Supp.3d at 1038 (noting that EPA's approval of Roundup's label would
11 preempt conflicting state law if it had the force of law under *Wyeth*, but finding no indication that
12 EPA's approval of Roundup's label had the force of law); *Hernandez*, 2016 WL 6822311, at *6-
13 *7; *see also Ansagay v. Dow Agrosciences LLC*, 153 F.Supp.3d 1270, 1283-85 (D. Haw. 2015);
14 *Sheppard v. Monsanto Co.*, 2016 WL 362074, at *6-*9 (D. Haw. June 29, 2016).

16 3. Preemption of Design Defect Claims

17 Monsanto argues that Johnson's design defect theories are premised on the assertion that
18 glyphosate is defective. Motion, 14. As a result, Monsanto contends that Johnson's design
19 defect theories would preclude Monsanto from ever selling glyphosate-based products.
20 Monsanto asserts that such a theory is preempted because it would conflict with EPA's approval
21 of Monsanto's glyphosate-based products. Johnson argues that Monsanto's preemption
22

23
24
25 ³⁶ Monsanto seeks to evade this interpretation of 7 U.S.C. § 136a(f)(2) by citation to *Reckitt Benckiser, Inc. v.*
26 *Jackson*, 762 F.Supp.2d 34, 45 (D.D.C. 2011). Monsanto Opposition to Johnson's Motion, 10. *Reckitt* held that 7
27 U.S.C. § 136a(f)(2) does not authorize the EPA to bring an enforcement action against registered products without
complying with FIFRA's provisions for canceling a registration. *Reckitt*, 762 F.Supp.2d at 41-42, 45. A subsequent
district court opinion persuasively rejected the assertion that *Reckitt* has any bearing on the import of 7 U.S.C. §
136a(f)(2), as it is relied upon for present purposes. *Mendoza v. Monsanto Co.*, 2016 WL 3648966, at *4 n.3 (E.D.
Cal. July 8, 2016).

1 arguments are based solely on FDCA authority that is inapplicable in the FIFRA context.

2 Opposition, 21-22.

3 Monsanto's conflict preemption argument as to the design defect claims fails for the
4 same reason as its conflict preemption argument as to the failure to warn claims. Monsanto
5 relies on inapposite FDCA authority. *See, e.g., Bartlett*, 570 U.S. at 488. At the same time,
6 Monsanto ignores FIFRA. But the touchstone of the preemption analysis is Congress' intent in
7 enacting FIFRA. *Wyeth*, 555 U.S. at 565. As detailed above, Congress explicitly permitted
8 states to ban products even if they are federally registered. *See Bates*, 544 U.S. at 446; 7 U.S.C.
9 § 136v(a). The United States Supreme Court has stated that the statute does not preempt design
10 defect claims. *Bates*, 544 U.S. at 444. Monsanto cannot ignore Congressional intent by pressing
11 a theory of conflict preemption. Reply, 6. Monsanto's argument that Johnson's design defect
12 claims may, if successful, force Monsanto to stop selling EPA-approved products in California
13 does not demonstrate a conflict between state and federal law. Rather, it describes a situation
14 that is expressly approved by federal law. *Bates*, 544 U.S. at 446; *Ansagay*, 153 F.Supp.3d at
15 1279-85.

16
17
18 **4. Preemption of Claims Based on Misrepresentations to**
19 **the EPA**

20 Monsanto asserts that any argument that Monsanto made misrepresentations to the EPA
21 are preempted under *Buckman Co. v. Plaintiffs' Legal Committee*, 531 U.S. 341 (2001). Motion,
22 14-15. Monsanto is not entitled to summary adjudication of Johnson's "arguments." C.C.P. §
23 437c(f)(1). Monsanto's contentions do not dispose of any cause of action. This aspect of
24 Monsanto's motion is denied as procedurally improper.
25
26
27

1 **5. Johnson's Motion for Summary Adjudication of**
2 **Preemption Defenses**

3 Johnson's motion for summary adjudication of the sixth and seventh affirmative defenses
4 turns on the same preemption arguments raised by Monsanto's preemption motion for summary
5 judgment. Motion, 8-15 (FIFRA does not expressly or impliedly preempt Johnson's claims as a
6 matter of law); Opposition, 2-15. The facts developed by the parties (e.g., Monsanto's evidence
7 pertaining to the EPA's approval of glyphosate-based products and finding to the effect that
8 glyphosate does not pose a carcinogenic risk to humans and the parties dispute as to whether the
9 EPA would have approved a request to modify the labeling, if Monsanto had made such a
10 request) are immaterial to the reasoning above.

12 Johnson's motions for summary adjudication of the sixth and seventh affirmative
13 defenses are granted.

14 **c. Punitive Damages**

15 Monsanto argues that summary adjudication of the punitive damages claim is appropriate
16 because: (1) EPA determined that glyphosate is not carcinogenic; (2) Monsanto and its scientists
17 have long believed in good faith that glyphosate-based herbicides and glyphosate are safe and do
18 not cause cancer; (3) A recent study supports the conclusion that glyphosate is not carcinogenic;
19 and (4) A recent district court found in the preliminary injunction context, that it would be
20 misleading to warn that Monsanto's glyphosate-based herbicides cause cancer against the current
21 scientific backdrop. Motion, 16-20.

23 In opposition, Johnson contends that a punitive damages award may be based on
24 Johnson's evidence that Monsanto: (1) Marketed and sold glyphosate-based herbicides without
25 warning consumers of the known risk of contracting NHL; (2) Did not conduct studies
26 recommended by the EPA and its own consultants to evaluate the risks of glyphosate-based
27

1 herbicides; (3) Did not evaluate the risks associated with the use of glyphosate in conjunction
2 with surfactants; (4) Marketed products with a surfactant despite knowledge of safer alternatives;
3 (5) Withheld information from the EPA regarding dermal absorption and consultant
4 recommendations; and (6) ghostwrote articles to publish positive safety data. Opposition, 25.
5

6 In reply, Monsanto argues: (1) None of the conduct that Johnson identified implicates
7 Monsanto, as opposed to its employees acting without authorization; (2) None of the conduct
8 that Johnson identified was causally related to the injury he suffered; (3) The conduct Johnson
9 identified was not sufficiently culpable to justify punitive damages; and (4) Johnson relies on
10 assertions in his brief that lack citation to evidence. Reply, 7-10.
11

12 Even if Monsanto has carried its initial burden, Johnson has carried his burden of
13 producing evidence that a reasonable jury could find amounts to clear and convincing evidence
14 of malice, fraud, or oppression. *Johnson & Johnson*, 192 Cal.App.4th at 762 (setting forth
15 standard). Johnson's theory of punitive damages is that Monsanto intentionally marketed a
16 defective product knowing that it might cause injury and death. *Boeken v. Philip Morris Inc.*,
17 127 Cal.App.4th 1640, 1690 (2005) (intentionally marketing a defective product knowing that it
18 might cause injury and death is highly reprehensible).
19

20 The internal correspondence noted by Johnson could support a jury finding that
21 Monsanto has long been aware of the risk that its glyphosate-based herbicides are carcinogenic,
22 and more dangerous than glyphosate in isolation, but has continuously sought to influence the
23 scientific literature to prevent its internal concerns from reaching the public sphere and to bolster
24 its defenses in products liability actions. Hoke Decl., Exs. 11-12 (introduced to show Monsanto
25 employees reaction to an internal memorandum in 1999), Ex. 14 (introduced to show
26 Monsanto's internal belief that glyphosate may be dangerous in combination with surfactants as
27

1 of 2002), Ex. 19 (introduced to show the Monsanto's employee believed it was inappropriate to
2 say that Roundup does not cause cancer because Monsanto had not done carcinogenicity studies
3 with Roundup as of 2009), Ex. 21 (introduced as evidence that Monsanto had a practice of
4 ghostwriting scientific literature about glyphosate in and around 2015), Ex. 22 (introduced as
5 evidence that Monsanto ghost wrote scientific literature about glyphosate as far back as 1999),
6 Ex. 24 (introduced as evidence of Monsanto's sponsorship of literature for the purpose of
7 defending products liability claims regarding glyphosate in 2012), Ex. 25 (introduced to show
8 that Monsanto calculated the benefits of securing certain experts to lend credibility to their
9 sponsored studies in 2012).

11 Thus there are triable issues of material fact and I must deny the motion.

14 **Summary and Conclusion**

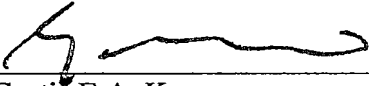
15 (1) Monsanto's Omnibus *Sargon* Motion: I exclude (A) Dr. Portier's pooling analysis
16 and any conclusions that depend on it; (B) Dr. Sawyer's water permeability test and cancer
17 slope opinions; (C) Dr. Benbrook's testimony as listed above (6 topics); (D) Mills' opinion as to
18 Johnson's total lost income assuming employment until two years before his life expectancy,
19 unless and until evidence that Johnson would have worked until two years before his life
20 expectancy is offered. Otherwise the motion is denied.

22 (2) Johnson's Omnibus *Sargon* Motion: I exclude (A) Dr. Rider's opinion that the
23 epidemiological evidence precludes the conclusion that there is a causal relationship between
24 glyphosate exposure and NHL (assuming she intends to express such an opinion); (B) Dr.
25 Kuzel's mycosis fungoides latency opinion, although Dr. Kuzel may opine generally as to
26 latency for cancers. Otherwise, the motion is denied.

1 (3) Monsanto's motions for summary judgment and adjudication: these are denied.

2 (4) Johnson's motion for summary adjudication: this is granted.

3
4
5 Dated: May 16 2018



Curtis E.A. Karnow
Judge Of The Superior Court

CERTIFICATE OF ELECTRONIC SERVICE
(CCP 1010.6(6) & CRC 2.260(g))

I, DANIAL LEMIRE, a Deputy Clerk of the Superior Court of the County of San Francisco, certify that I am not a party to the within action.

On **MAY 17 2018**, I electronically served THE ATTACHED DOCUMENT via File & ServeXpress on the recipients designated on the Transaction Receipt located on the File & ServeXpress website.

Dated: **MAY 17 2018**

T. Michael Yuen, Clerk

By: 

DANIAL LEMIRE, Deputy Clerk