

EXHIBIT B -
ORDERS AND JUDGMENTS FROM
WHICH THIS APPEAL IS TAKEN

**AUGUST 1, 2023 *FINAL JUDGMENT ORDER* (IRVING, J.),
GRANTING SUMMARY JUDGMENT IN FAVOR OF
DEFENDANTS AS TO ALL CLAIMS IN THE MURRAY CASES
AND ENTERING FINAL JUDGMENT IN FAVOR OF ALL
DEFENDANTS AS TO ALL CLAIMS ASSERTED BY ALL
MURRAY PLAINTIFFS**

Richard Schwamb, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2002 CA 001370 A
)
 Qualcomm Inc., *et al.*,)
)
 Defendants.)

Baldassare Agro, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2002 CA 001368 A
)
 Motorola, Inc., *et al.*,)
)
 Defendants.)

Alan Marks, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2010 CA 003206 B
)
 Motorola, Inc., *et al.*,)
)
 Defendants.)

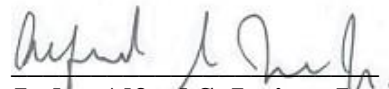
Shawn Kidd, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2010 CA 007995 B
)
 Motorola, Inc. *et al.*,)
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 Defendants.)
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- The July 3, 2019 Order (Josey-Herring, J.), which denied Plaintiffs’ *Motion for Reconsideration of the August 28, 2018 Superseding Amended Order*;
- The Court’s April 21, 2021 *Order Denying Plaintiffs’ Motion for Leave to Add a General Causation Expert to Phase I of Discovery* (Irving, J.);
- The Court’s denial of Plaintiffs’ request for consideration of the entire expert reports and supplemental expert reports during the September 2022 *Daubert* hearing (Irving, J.); and
- The Court’s April 25, 2023 Order (Irving, J.), which granted *Defendants’ Motion to Exclude Plaintiffs’ Expert Testimony*.

ACCORDINGLY, it is by the Court this 1st day of August 2023, hereby

ORDERED that, pursuant to Super. Ct. Civ. R. 56(f), summary judgment is **GRANTED** in favor of Defendants as to all claims in the above-captioned consolidated cases; and it is further

ORDERED that **FINAL JUDGMENT** is **ENTERED** in favor of all Defendants as to all claims asserted by Plaintiffs in the above-captioned consolidated cases.


Judge Alfred S. Irving, Jr.

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**APRIL 25, 2023 ORDER (IRVING, J.), GRANTING
DEFENDANTS' MOTION TO EXCLUDE PLAINTIFFS' EXPERT
TESTIMONY**

IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION

Michael Patrick Murray, *et al.*,)
)
Plaintiffs,)
v.)
Motorola, Inc., *et al.*,)
)
Defendants.)

Case No. 2001 CA 008479 B
Judge Alfred S. Irving, Jr.

Dino Schofield,)
)
Plaintiff,)
v.)
Motorola, Inc., *et al.*,)
)
Defendants.)

Case No. 2002 CA 001371 A

Pamela Cochran, *et al.*,)
)
Plaintiffs,)
v.)
Audiovox Communications Corp., *et al.*,)
)
Defendants.)

Case No. 2002 CA 001369 A

David Keller, *et al.*,)
)
Plaintiffs,)
v.)
Nokia, Inc., *et al.*,)
)
Defendants.)

Case No. 2002 CA 001372 A

Richard Schwamb, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2002 CA 001370 A
)
 Qualcomm Inc., *et al.*,)
)
 Defendants.)

Baldassare Agro, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2002 CA 001368 A
)
 Motorola, Inc., *et al.*,)
)
 Defendants.)

Alan Marks, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2010 CA 003206 B
)
 Motorola, Inc., *et al.*,)
)
 Defendants.)

Shawn Kidd, *et al.*,)
)
 Plaintiffs,)
)
 v.) Case No. 2010 CA 007995 B
)
 Motorola, Inc. *et al.*,)
)
 Defendants.)
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)

Cristin Prischman, as Personal Representative of the Estate of Paul G. Prischman)	
)	
)	
Plaintiff,)	
)	
v.)	Case No. 2011 CA 002113 B
)	
Motorola Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
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Bret Kenyon Bocook and Laura Lynn Bocook,)	
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Plaintiffs,)	
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v.)	Case No. 2011 CA 002453 B
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Motorola, Inc., <i>et al.</i> ,)	
)	
)	
Defendants.)	
)	
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Mindy S. Kemp Brown, individually and as Special Administrator of the Estate of Daniel Todd Brown,)	
)	
)	
Plaintiffs,)	
)	
v.)	Case No. 2011 CA 006710 B
)	
Nokia, Inc., <i>et al.</i> ,)	
)	
)	
Defendants.)	
)	
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Monique Solomon, individually and as Special Administrator of the Estate of Andrew J. Solomon,)	
)	
)	
Plaintiffs,)	
)	
v.)	Case No. 2011 CA 008472 B
)	
Motorola, Inc., <i>et al.</i> ,)	
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)	
Defendants.)	
)	
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Robert P. Noroski, individually, and as Personal)
Representative of the Estate of)
Heather Lynn Noroski,)
)
Plaintiffs,)
)
v.)
)
Samsung Telecomm America, LLC, *et al.*,)
)
Defendants.)

Case No. 2011 CA 008854 B

ORDER

Before the Court is Defendants’ July 19, 2019 *Motion to Exclude Plaintiffs’ Expert Testimony*. On September 9, 2019, Plaintiffs filed an *Answer to Defendants’ Motion to Exclude Plaintiffs’ Expert Testimony*. On October 9, 2019, Defendants filed a Reply. Unfortunately, the COVID-19 pandemic stymied the Court’s efforts in setting a date for an Evidentiary Hearing on the pleadings. The Court ultimately set the hearing date for September 12, 2022, when all Parties, their witnesses and the Court were available. The desire was to hold a fully in-person proceeding in view of the complexity of the issues and the number of Exhibits and Witnesses.

The Court was surprised to learn on the eve of the start of the evidentiary hearing that certain of Plaintiffs’ witnesses would nevertheless be appearing remotely because they had not met the immunization criteria for entry into the United States. No matter, the Court heard testimony and arguments across 11 days, from September 12, 2022, to September 29, 2022. The endeavor was to aid the Court in deciding whether to admit the testimony and opinions of Plaintiffs’ expert witnesses. Notwithstanding the briefing, the evidentiary hearing was never intended to address the admissibility of any of Defendants’ witnesses, whose role for purposes of the instant proceeding was simply to provide rebuttal testimony to Plaintiffs’ proffered experts’ opinions.

At the conclusion of the hearing, the Court directed each side of the litigation to file one brief, not to exceed 100 pages, and only after having exchanged their briefs, to afford each side an opportunity to address within the 100-page limit the other's response. Further, as the Court admonished throughout the proceeding and before, the Parties' presentations must comply with rulings of the predecessor judges, the Hon. Frederick H. Weisberg and the Hon. Anita Josey-Herring. The Parties each filed their post-hearing briefs on December 2, 2022.

In reaching its decision, the Court considered the record, the laws of this jurisdiction, the testimonial and documentary evidence presented during the evidentiary hearing, including arguments of counsel, and the post evidentiary briefs. For the reasons set forth below, the Court agrees with Defendants and will exclude the testimony of Plaintiffs' expert witnesses.

I. PROCEDURAL HISTORY

A. Judge Weisberg's August 8, 2014 Order

Plaintiffs are litigants in thirteen separate cases that were consolidated for purposes of a *Frye/Dyas*¹ hearing. See *Michael Patrick Murray, et al. v. Motorola Inc., et al.*, No. 2001 CA 008479 B, at 5 (D.C. Super. Ct. Aug. 8, 2014) (memorandum opinion and order on expert witness admissibility) [hereinafter "Judge Weisberg's August 8, 2014 Order"]. Each Plaintiff is an individual suffering from a brain tumor or an estate suing upon behalf of someone who died of brain cancer, allegedly caused by long-term exposure to cell phone radiation. *Id.* The first of these cases was filed in 2001.² *Id.* The Hon. A. Franklin Burgess, Jr., bifurcated the litigation in two phases for judicial economy: general causation and specific causation. *Id.* He determined

¹ *Dyas v. United States*, 376 A.2d 827 (D.C. 1977), cert. denied, 434 U.S. 973 (1977); *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923)

² Although this matter involves 13 consolidated cases, there are 67 non-consolidated cases, with six such cases having been filed as recently as 2020. The Parties in the 67 non-consolidated cases are awaiting the Court's decision on general causation in the instant case.

that, if a court determined Plaintiffs' evidence was sufficient to survive the general causation phase of the litigation, the Parties would then be postured to proceed to phase two, during which each Plaintiff would present specific causation evidence on a case-by-case basis. *Id.* at 6. As to the first phase of the litigation, Judge Burgess determined that “[t]o survive summary judgment on general causation, plaintiffs must present sufficient admissible expert testimony to place in dispute a genuine issue of material fact as to whether radiation from cell phones can cause two kinds of brain tumors, glioma and acoustic neuroma.” *Id.*

On August 8, 2014, Judge Weisberg issued an order ruling upon the admissibility of Plaintiffs' expert witnesses. Judge Weisberg began the Order with a question: “Can cell phones cause brain cancer?” *Id.* at 4. He continued:

If that were the question confronting the court at this phase of the case, the answer would be relatively clear. Although there are a few isolated strands of data pointing in the direction of causation, the court could not conclude, based on the present record, that there is enough evidence for *any* scientist to answer the question ‘yes’ with the requisite degree of scientific certainty.

Id. (emphasis in original). Thus, the question before Judge Weisberg, and similarly before this Court, is not whether cell phones can cause brain cancer, but whether Plaintiffs' expert witnesses “have expressed the opinion ‘to a reasonable degree of scientific certainty’ that cell phones more likely than not cause or promote certain brain tumors [and therefore] should be permitted to testify to those opinions before the jury.” *Id.* at 5.

Judge Weisberg noted that the questions the instant cases presented for the Court required application of the test set forth in *Dyas v. United States*, 376 A.2d 827 (D.C. 1977), *cert. denied*, 434 U.S. 973 (1977), and *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), as opposed to the test articulated in *Daubert v. Merrill Dow Pharms. Inc.*, 509 U.S. 579 (1993), and Federal Rule of Evidence 702, as amended in 2000 (“Rule 702”). Judge Weisberg's August 8, 2014 Order at

5. Judge Weisberg acknowledged that, under the *Frye/Dyas* test, expert testimony is presumptively admissible “if the subject is beyond the ken of an average layperson, the expert is qualified to offer an opinion on the subject, the expert uses a methodology that is generally accepted in the relevant scientific community to arrive at his opinion and the probative value of the expert’s testimony is not substantially outweighed by the risk of undue prejudice.” *Id.* In December 2013 and January 2014, Judge Weisberg conducted a four-week evidentiary hearing, receiving testimony from Plaintiffs’ eight experts and Defendants’ four rebuttal experts, and reviewed hundreds of pages of legal briefing both before and after the hearing. *Id.* at 6.

Judge Weisberg observed, as follows:

The opinions offered in this case that may be admissible under the District’s “methodology only” application of *Frye* would almost certainly be excluded under *Daubert* because the carcinogenicity of cell phones, *vel non*, is such an unsettled science *Daubert* jurisdictions typically “scrutinize reliability more carefully and appl[y] stricter standards.” The *Frye* test tends to make it easier for causation experts to get before the jury, even when they are in the minority and underlying science on causation is still quite controversial.

Id. at 26 (internal citations omitted) (citing Lloyd Dixon & Brian Gill, *Changes in the Standards for Admitting Expert Evidence in Federal Civil Cases Since the Daubert Decision*, RAND INST. FOR CIV. JUST., xiv-xx (2001); Margaret A. Berger, *What Has a Decade of Daubert Wrought?*, 95 AM. J. PUB. HEALTH S59-S65 (Jul. 27, 2004)). In other words, “if a reliable, but not yet generally accepted methodology produces ‘good science,’ *Daubert* will let it in, and if an accepted methodology produces ‘bad science,’ *Daubert* will keep it out[.]” *Id.* On the other hand, under *Frye*, “even if a new methodology produces ‘good science,’ it will usually be excluded, but if an accepted methodology produces ‘bad science,’ it is likely to be admitted.” *Id.*

The general causation question presented is “whether the non-ionizing radiation from cell phones has a non-thermal effect that causes, promotes, or accelerates the growth of brain tumors,

specifically gliomas and acoustic neuromas.” *Id.* at 9. Judge Weisberg noted that, at the time of writing of his order, “virtually all world-wide governmental health agencies that have studied the question have concluded that there is some, but not nearly enough scientific evidence to conclude that cell phone radiation can cause or promote brain cancer.” *Id.* Judge Weisberg cited to the World Health Organization’s International Agency for Research on Cancer (“IARC”) when so concluding. *Id.* Judge Weisberg noted:

Although “positive associations have been observed between exposure to radiofrequency radiation from wireless phones and glioma, and acoustic neuroma,” the epidemiological evidence remains “mixed.” The [IARC] Working Group dismissed several early case-control and cohort studies as being “largely uninformative” due to methodological shortcomings.

Id. at 10-11 (footnotes and original modifications omitted) (quoting IARC Monograph, Pls.’ Ex. PX0062 at 419). The primary sources of the epidemiological evidence were two case-control studies: (1) INTERPHONE studies; and (2) Hardell studies. *Id.* at 11-14. IARC concluded that both the INTERPHONE and Hardell studies “suffer from flawed study designs that do not fully control for bias, confounding, and chance, a view that is widely shared by most other organizations that have studied the subject.” *Id.* at 11-16 (citing to IARC Monograph, Pls.’ Ex. PX0062 at 192-99, 203-16, 218-21, 233-34, 413-417, 419).

Judge Weisberg then considered whether to admit any of the opinions of Plaintiffs’ experts. Judge Weisberg excluded the testimony of Dr. Shari Kramer, an epidemiologist. *See* Judge Weisberg’s August 8, 2014 Order at 29. He reasoned that, although Dr. Kramer testified she employed a weight-of-the-evidence analysis of the cancer risk from cell phones, she picked out the pieces of data she preferred and found convenient reasons to ignore the rest of the data, which is contrary to the generally accepted method of conducting a weight-of-the-evidence analysis. *Id.* at 34-35 (contrasting Dr. Kramer’s methods with Environmental Protection Agency

and IARC methods for conducting weight-of-the-evidence analysis). Further, Judge Weisberg excluded Dr. Kramer under Federal Rule of Evidence 403 (“Rule 403”) because (1) she relied almost entirely upon the results of the INTERPHONE and Hardell studies, which have been criticized for their methodological flaws; (2) she chose data that would best support her opinion and disregarded other data without explanation; and (3) she presented quotes out of context. *Id.* at 36-39.

Judge Weisberg excluded the testimony of Dr. “Vini” Gautam Khurana, a neurosurgeon and associate professor of neurosurgery at the Australian National University in Canberra. *Id.* at 46. He excluded the testimony on Rule 403 grounds because (1) Dr. Khurana appeared to cherry-pick certain studies that supported his predetermined position; (2) some studies he chose suffered from methodological flaws and were criticized by various authorities; and (3) Dr. Khurana admitted that he was not familiar with the tools of the trade of epidemiology, such as the calculation of odds ratios. *Id.* at 50-52.

Finally, Judge Weisberg excluded the testimony of Dr. Dimitris Panagopoulos, a biophysicist with research focusing on non-ionizing radiation. *Id.* at 64. Judge Weisberg excluded Dr. Panagopoulos because his opinions were primarily derived from exposing fruit flies to cell phone radiation, a novel technique, and not a generally accepted methodology under the *Frye/Dyas* test. *Id.* at 67-68.

Applying the *Frye/Dyas* test, Judge Weisberg concluded the expert opinions of Drs. Michael Kundi, Igor Belyaev, Wilhelm Mosgoeller, and Abraham Liboff on general causation passed muster. *Id.* at 39-46 (Dr. Kundi); *id.* at 52-58 (Dr. Belyaev); *id.* at 58-64 (Dr. Mosgoeller); *id.* at 69-72 (Dr. Liboff). In addition, Judge Weisberg ruled that Dr. Laura Plunkett’s proffered expert testimony on the general acceptance of predicting health effects in

humans from *in vitro* studies of human and mammalian cells passed muster under *Frye/Dyas*, but he found otherwise with respect to her other opinions and excluded them. *Id.* at 72-75.

On October 1, 2014, Judge Weisberg issued an order amending his August 8, 2014 order, acknowledging that his ruling involved a controlling question of law “as to which there is substantial ground for a difference of opinion and that an immediate appeal from the ruling or order may materially advance the ultimate termination of the litigation or case[.]” *See Michael Patrick Murray, et al. v. Motorola Inc., et al.*, Case No. 2001 CA 008479 B, at 2 (D.C. Super. Ct. Oct. 1, 2014) (order amending Aug. 8, 2014 memorandum opinion and including certification for interlocutory appeal) (quoting D.C. Code § 11-721(d)) [hereinafter “Judge Weisberg’s October 1, 2014 Order”]. This, he concluded, would “permit Defendants, pursuant to D.C. Code § 11-721(d), to seek interlocutory review of the question of whether the District of Columbia should adopt Federal Rule of Evidence 702 (or a revised *Frye* standard) for the admissibility of expert evidence[.]” *Id.* at 5. On October 15, 2014, Defendants filed their notice of appeal.

B. District of Columbia Court of Appeals’ Decision

On October 20, 2016, the District of Columbia Court of Appeals, sitting *en banc*, issued its decision on whether to change the legal standard that governs the admission of expert testimony from the *Frye/Dyas* test in favor of the standards embodied in Rule 702 of the Federal Rules of Evidence. *See Motorola Inc. v. Murray*, 147 A.3d 751, 752 (D.C. 2016) [hereinafter “*Motorola Inc.*”].

The Parties and *amici* recommended three options to the Court of Appeals: “(1) retain the *Dyas/Frye* test, by which we currently abide; (2) adopt Federal Rule 702, as amended to reflect the *Daubert* trilogy; or (3) craft a revised version of the *Dyas/Frye* test.” *Id.* at 756. The Court of Appeals decided to adopt Rule 702, explaining, as follows:

Like the “general acceptance” test, Rule 702 is concerned with the reliability of the “principles and methods” applied by the expert. Fed. R. Evid. 702 (c). But Rule 702 (d) goes further and expressly requires the court to determine whether “the expert has reliably applied the principles and methods to the facts of the case.” We conclude that Rule 702, with its expanded focus on whether reliable principles and methods have been reliably applied, states a rule that is preferable to the *Dyas/Frye* test. The ability to focus on the reliability of principles and methods, and their application, is a decided advantage that will lead to better decision-making by juries and trial judges alike.

We have considered revising the *Frye* test, as some jurisdictions have done, but there are substantial benefits to be gained from adopting a test that is widely used. See *Johnson v. United States*, 683 A.2d 1087, 1100 (D.C. 1996) (en banc) (noting “the advantage that uniformity with the federal rule and the vast majority of the state rules affords for interpretation and application”). We can learn from the decisions of other courts which apply Rule 702 or its state counterparts. Nevertheless, we are not proceeding with any illusions that the cases are uniform or even consistent. Nor will the transition be easy. But we are not the first jurisdiction to make this change, and the Advisory Committee Notes to Rule 702 provide helpful guidance for applying the rule. Echoing sentiments from *Daubert*, 509 U.S. at 593, we are confident that judges of the Superior Court, like their Article III counterparts, are fully capable of performing the gatekeeping function.

Id. at 756-57 (footnotes omitted). Accordingly, the Court of Appeals remanded the instant cases for further proceedings consistent with its opinion. *Id.* at 758-59.

C. Judge Weisberg’s Post-Appeal Discovery Order

On March 16, 2017, Judge Weisberg issued an order establishing the scope of additional discovery consistent with the Court of Appeals’ decision. Judge Weisberg observed that, since 2012, the question presented as set forth in the trial court’s case management orders remain unchanged: “do Plaintiffs have admissible expert testimony on the general causation issue in these cases—*i.e.*, whether radiation from cell phones can cause the types of brain tumors Plaintiffs have alleged?” See *Michael Patrick Murray, et al. v. Motorola Inc., et al.*, Case No. 2001 CA 008479 B, at 3 (D.C. Super. Ct. Mar. 16, 2017) (order denying Plaintiffs’ motion for

additional discovery) [hereinafter “Judge Weisberg’s March 16, 2017 Order”]. Judge Weisberg reiterated the purpose of the phased discovery requirement was to avoid expensive and time-consuming litigation if Plaintiffs could not meet the general causation hurdle. He further acknowledged that “no American court had ever allowed such a claim to get to a jury, all concluding that the wide consensus in the scientific community would not support it.” *Id.* Judge Weisberg reminded the Parties that the case management orders “were intended to determine whether the science had changed during the intervening years and whether the ruling on admissibility of expert testimony should change with it.” *Id.* He explained:

If Plaintiffs cannot qualify an expert on general causation based on existing science, and if summary judgment were to follow from that failure, it would *not* be because, based on *admissible* expert testimony, Plaintiffs have failed to raise a genuine issue of material fact in dispute as to whether cell phones can cause the alleged injuries. It would be because on the issue of general causation—which is a threshold issue the Plaintiffs are required to prove and one which cannot be proven without an expert—Plaintiffs have failed to proffer and qualify *any* expert after having been given a full and fair opportunity to do so.

Id. at 6 (emphasis in original).

As such, Judge Weisberg limited Plaintiffs to the experts they had already named consistent with the court’s initial case management order for the first phase of discovery. *Id.* at 5-6. Judge Weisberg noted that Plaintiffs were required to produce all of their experts on general causation, which experts he concluded would have been produced, were the Court at the time operating under Rule 702 and not *Frye/Dyas*:

The point of Phase I discovery was to test whether Plaintiffs had the science to back up their experts’ opinions on general causation. The science does not change, except for new science. Plaintiffs’ experts must base their opinions—before and after the change in the admissibility standard—on reliable scientific principles and methods that are reliably applied to the facts of the case. While the inquiry has changed from an exclusive focus on general acceptance of the methodology to a broader focus on the reliability of the

methodology and its application, the science that determines both acceptance and reliability remains the same.

Id. at 5. For example, “[b]oth before and after the change in the legal standard for evaluating admissibility, the science is based on validated and replicated experiments, case studies, and peer reviewed publications.” *Id.*

In consideration of the new admissibility standard and the age of the case, however, Judge Weisberg identified two instances where the record would potentially be unable to answer the question whether Plaintiffs had admissible expert testimony on the general causation issue in the instant cases:

(1) there may be scientific studies done after the experts submitted their reports for the Phase I litigation, which may support or undermine the opinions of Plaintiffs’ experts under the new standard, and the experts should be permitted to supplement their opinions accordingly; and (2) Plaintiffs’ experts rendered their initial opinions in the *Dyas/Frye* regime; and, although their opinions would not change simply because the legal standard for admissibility has changed, it is at least conceivable that some might articulate their opinions differently if they were called upon to address reliability of scientific principles and methods reliably applied to the facts of these cases, as required by Rule 702, and not merely the general acceptance of their respective methodologies.

Id. at 3-4. Therefore, Judge Weisberg directed the Parties’ experts to produce supplemental reports to address “any relevant studies or peer reviewed publications that have been added to the scientific literature since February 2013[.]” *Id.* at 7. In addition, he permitted the experts to produce supplemental reports “revising the way they express opinions to account for the change in the evidentiary standard from *Dyas/Frye* to Federal Rule 702, provided they explain why the change in the evidentiary standard necessitates a change in the way they articulate their opinion[.]” *Id.*

D. Chief Judge Josey-Herring's Superseding Amended Order

On August 28, 2018, the Hon. Anita Josey-Herring, having succeeded Judge Weisberg as the Calendar Judge, issued a Superseding Amended Order ruling upon *Defendants' Motion to Strike Unauthorized Portions of Supplemental Expert Reports*. See *Michael Patrick Murray, et al. v. Motorola Inc., et al.*, Case No. 2001 CA 008479 B, at 1 (D.C. Super. Ct. Aug. 8, 2018) (superseding amended order granting in part and denying in part Defendants' motion to strike) [hereinafter "Chief Judge Josey-Herring's August 28, 2018 Order"].³ Defendants argued that Plaintiffs had violated Judge Weisberg's March 16, 2017 order by: "(1) relying heavily on pre-2013 studies that they could have but failed to rely on in their original reports; and (2) revising how they express their original methodologies and opinions without even attempting to explain why the new Rule 702 admissibility standard requires such revision." *Id.* Chief Judge Josey-Herring ordered Plaintiffs to file supplemental briefing to identify: (1) which experts' reports were added since February 2013; (2) how each report was relevant and fell within the scope of the expert's original report; and (3) why each of Plaintiffs' six experts needed to revise the way in which they previously expressed their opinions in their original reports to meet the new standard under Rule 702. *Id.* at 1-2. Chief Judge Josey-Herring explained that:

Judge Weisberg's March 16, 2017 Order did not authorize, nor did this Court authorize, a re-do of expert discovery in this case. Although the March 16, 2017 Order permitted limited supplementation to address the change in the evidentiary standard from *Dyas/Frye* to *Daubert*, the Court did not seek to give the parties an unfair opportunity to counter the Court's previous evidentiary findings after the fact.

Id. at 2.

³ At the time of issuance of her Superseding Amended Order, the Hon. Anita Josey-Herring was an Associate Judge of the Superior Court. She became the current Chief Judge of the Superior Court in 2020. The Court will refer to her rulings and orders with the "Chief Judge" title.

On February 6, 2018, Plaintiffs submitted their supplemental brief and, on March 22, 2018, Defendants submitted their opposition. *Id.* After considering the filings, Chief Judge Josey-Herring noted, as a preliminary matter that, although Plaintiffs were required to “provide the Court with a detailed explanation for why each of the Plaintiffs['] experts seeking to revise their opinion(s) needed to do so based on the change in the evidentiary standard from *Dyas/Frye* to Rule 702, Plaintiffs failed to do so.” *Id.* Chief Judge Josey-Herring addressed each of the submissions, in turn, as follows.

1. Dr. Laura Plunkett

As to Dr. Plunkett, Chief Judge Josey-Herring granted Defendants’ request to strike as it pertained to the general causation opinions included in Dr. Plunkett’s supplemental report because they were not opinions offered in her original report. *Id.* at 3-4. Chief Judge Josey-Herring precluded Dr. Plunkett from citing to or referencing certain studies for the purpose of supporting her general causation opinion. *Id.* at 4-5. Chief Judge Josey-Herring, however, permitted Dr. Plunkett to refer to the studies for the limited purpose of opining that they are the types of studies that may be used or analyzed by experts when rendering their causation opinions. *Id.* at 5.

2. Dr. Abraham Liboff

Chief Judge Josey-Herring granted Defendants’ request to strike ten studies in Dr. Liboff’s supplemental report, which studies he relied upon to opine about the adverse health effects of cell phones because the studies do not relate to his opinion in his original report. *Id.* at 6-9. Chief Judge Josey-Herring granted Defendants’ request to strike a new section entitled “Epidemiological Studies” because Dr. Liboff only made a cursory reference to an epidemiological study in his original report and the brief reference failed to justify the

supplementation of an entire section devoted to epidemiological studies. *Id.* at 9-11. Chief Judge Josey-Herring struck two studies included in a new section entitled “Is the Incidence of Glioblastoma Increasing?” in which, for the first time, he cited the two studies in opining that the incidence of glioblastoma has increased. *Id.* at 11-12. In addition, Chief Judge Josey-Herring struck four studies included in a new section entitled “Interfacial Water,” in which Dr. Liboff opined, for the first time, that water is sensitive to weak electromagnetic fields. *Id.* at 13-14.

Chief Judge Josey-Herring, however, denied Defendants’ request to strike a new section entitled “Reactive Oxygen Species,” in which Dr. Liboff cited to a new study and opined that electromagnetic fields with frequencies ranging from 50 Hz to 1800 MHz increase reactive oxygen species. Chief Judge Josey-Herring found that the new section would adequately supplement page 15 of Dr. Liboff’s original report, where he opines about the ability of extremely low frequency electromagnetic fields to have biological effects. *Id.* at 12.

3. Dr. Michael Kundi

As a general observation, Chief Judge Josey-Herring was impressed that, “Dr. Kundi’s supplemental report, at 48 pages, is more than double the length of his 21-page original report. Moreover, in its briefing, Plaintiffs listed 46 studies published after February 2013 that Dr. Kundi cites or references in his supplemental report.” *Id.* at 15. Because Defendants did not raise an objection to Dr. Kundi’s inclusion of 26 such studies, Chief Judge Josey-Herring focused her attention upon the 20 remaining contested studies. *Id.*

Chief Judge Josey-Herring granted Defendants’ request to strike six studies that Dr. Kundi cited in support of a new opinion on recall bias because he never discussed such in his original report. *Id.* at 15-16. Chief Judge Josey-Herring granted Defendants’ request to strike six studies in which Dr. Kundi rendered a new meta-analysis opinion to the extent Dr. Kundi

relied upon them to conduct a meta-analysis; however, she allowed Dr. Kundi to supplement his “hazard assessment” and “methodological comparison” of the INTERPHONE and Hardell studies. *Id.* at 16-17. Chief Judge Josey-Herring denied Defendants’ request to strike six studies related to an opinion regarding the quality of official cancer registries to the extent that Dr. Kundi uses the studies to state that the cancer registry data, relied upon by studies previously cited in his original report, have been called into question. *Id.* at 18. Chief Judge Josey-Herring struck four studies that Dr. Kundi used to render a new opinion regarding dose-response in epidemiology because the studies were not in the original report. *Id.* at 18-19.

Chief Judge Josey-Herring struck three studies Dr. Kundi used to render a new opinion regarding specificity because specificity was not cited in Dr. Kundi’s original report; notwithstanding specificity is one of the Bradford Hill considerations made more relevant in light of the *Daubert* reliability requirement, Plaintiffs “failed to reference specificity in their brief outlining the reasoning for why Dr. Kundi needs to revise his report in light of the change in evidentiary standard.” *Id.* at 19-20.

Defendants moved to strike five studies relied upon by Dr. Kundi to render a new opinion regarding selection bias because Plaintiffs failed “(1) to adequately specify which portions of Dr. Kundi’s original report these studies were supplementing; and (2) to adequately tie Dr. Kundi’s new selection bias opinion to anything in his original report.” *Id.* at 20-21. Chief Judge Josey-Herring determined that selection bias was not included in the original report, and Dr. Kundi failed to explain why he utilized a “simplified procedure” previously but now needed to provide a “more complex understanding of the potential selection bias” in his supplemental report. *Id.* at 20. In addition, Chief Judge Josey-Herring opined that she was “seriously concerned about the reliability of Dr. Kundi’s revised proposed testimony given his admission

that in his capacity as an expert he failed to fully and accurately render an opinion in this very important matter.” *Id.* at 21.

Finally, Chief Judge Josey-Herring granted Defendants’ request to strike the section of Dr. Kundi’s supplemental report regarding confounding because the section was not included in his original report. *Id.* at 21. In addition, she found that Plaintiffs failed to demonstrate how the change in the evidentiary standard necessitated the inclusion of Dr. Kundi’s confounding opinion when the section was supported by a single brief citation to a study from 1958, which preceded his original report. *Id.* at 21-22.

4. Dr. Igor Belyaev

Chief Judge Josey-Herring was impressed that Dr. Belyaev’s supplemental report, at 257 pages, more than doubled the length of his 111-page original report and includes: “(1) his entire original report; (2) 280 new post-February 2013 studies; (3) 10 new sections that were not included in his original report; and (4) an additional 15.5 pages in a section relating to extremely low frequency (‘ELF’) fields that now includes 6 new subsections.” *Id.* at 22. Chief Judge Josey-Herring granted Defendants’ request to strike the original report from the supplemental report, given the supplemental report was intended to supplant the original report. *Id.* at 23-24.

Chief Judge Josey-Herring granted Defendants’ request to strike many other studies that supplement a blank line in Dr. Belyaev’s original report. *Id.* at 24-25.

In addition, Chief Judge Josey-Herring granted Defendants’ request to strike Dr. Belyaev’s references to the Bradford Hill criteria because he did not refer to the method in his original report. *Id.* at 25-26. Chief Judge Josey-Herring also struck the section entitled “Brain cancer time trends” because “(1) Dr. Belyaev’s original report did not analyze ‘time

trends' or incidence data; and (2) Dr. Belyaev stated on the record at the December 4, 2013 hearing that his report did not include any analysis regarding time incidence data.” *Id.* at 26.

5. Dr. Dimitris Panagopoulos

As to Dr. Panagopoulos, Chief Judge Josey-Herring granted Defendants' request to strike studies referenced within the section titled “Real Exposure Studies in Opposition to Studies with Simulated Exposures” because Dr. Panagopoulos never opined in his original report about the differences between the results of studies that used real cell phone exposures versus those studies that used simulated exposures. *Id.* at 28-32. She denied Defendants' request to strike studies regarding an opinion comparing effects from studies on radiofrequency and power-line frequency exposures to the extent the studies could properly supplement Dr. Panagopoulos' original report. *Id.* at 32-33. Chief Judge Josey-Herring granted Defendants' request to strike three studies Dr. Panagopoulos relied upon to render an opinion for the first time about the role that polarization plays in the bioactivity of all man-made electromagnetic fields. *Id.* at 33-35. Chief Judge Josey-Herring granted Defendants' request to strike studies that Dr. Panagopoulos relied upon to render a new opinion regarding positive versus negative studies because the studies were not within the scope of the original report, and she struck the entire section titled “Positive versus Negative Results” because the section was based on a single citation that was stricken to the extent that Dr. Panagopoulos relied on it to opine about positive versus negative results. *Id.* at 36-37.

Chief Judge Josey-Herring granted Defendants' request to strike studies upon which Dr. Panagopoulos relied to render a new opinion that “[t]umor promotion in mice after long-term [radiofrequency] exposure at levels below the current exposure limits is also repeatedly reported” to the extent that Dr. Panagopoulos relied upon the studies to opine about tumor promotion in

mice. *Id.* at 37-39 (quoting Panagopoulos 2017 Supp. Rep. at 30). Finally, Chief Judge Josey-Herring denied Defendants' request to strike Dr. Panagopoulos' opinion regarding actin cytoskeleton damage. *Id.* at 39-40.

6. Dr. Wilhelm Mosgoeller

Finally, as to Dr. Mosgoeller, Defendants requested that the court strike 24 post-2013 studies cited in his supplemental report because the studies were used to support three new opinions not in the original report. *Id.* at 41. Chief Judge Josey-Herring granted Defendants' request to strike studies used to support a new opinion regarding DNA repair induction by high frequency electromagnetic field ("HF-EMF") exposure. *Id.* at 42-45.

Defendants moved to strike studies that Dr. Mosgoeller relied upon to opine for the first time in section 4.1.5 of his supplemental report that: "(1) 'epidemiological studies provide evidence for an association of heavy exposure to mobile phone signals and a direct increase of brain tumors in humans;' and (2) 'epidemiological results can be reconciled with cellular mechanisms related to HF-EMF exposure and DNA genotoxicity.'" *Id.* at 45-48. Chief Judge Josey-Herring granted the request because the opinions were not included in the original report and "the change in the evidentiary standard does not necessitate that Dr. Mosgoeller include, for the first time, an opinion regarding human epidemiological studies." *Id.* For the same reasons articulated in excluding epidemiological studies, Chief Judge Josey-Herring granted Defendants' request to strike Dr. Mosgoeller's new opinion on co-carcinogenicity in Section 4.1.4.1. *Id.* at 48-50.

Defendants moved to strike Dr. Mosgoeller's new mechanism theory that HF-EMF exposure can induce oxidative DNA damages to biological structures. *Id.* at 50. Chief Judge Josey-Herring granted Defendants' request to strike without prejudice given that the theory was

available pre-2013 and was not included in the original report; however, Chief Judge Josey-Herring granted leave for Plaintiffs to file an additional brief explaining the unique features of: “(1) Dr. Mosgoeller’s ATHEM-2 experiment; and/or (2) the Yakymenko (2016) study that finally ‘spurred’ Dr. Mosgoeller to render his new opinions regarding how HF-EMF exposure can induce oxidative DNA damage.” *Id.* at 51. On November 14, 2018, Chief Judge Josey-Herring, after receiving additional briefing on Dr. Mosgoeller’s mechanism theory, ordered that her ruling would stand, granting Defendants’ request to strike the following: “(1) Dr. Mosgoeller’s new mechanism theory—listed as opinion number 6 and 7 on page 4 of Dr. Mosgoeller’s supplemental report—that ‘HF-EMF exposure can induce DNA damages to biological structures;’ and (2) the 12 post-2013 studies that Dr. Mosgoeller relied on to render both of those opinions.” *See Michael Patrick Murray, et al. v. Motorola Inc., et al.*, Case No. 2001 CA 008479 B, at 3 (D.C. Super. Ct. Nov. 14, 2018) (order denying Plaintiffs’ motion for reconsideration) [hereinafter “Chief Judge Josey-Herring’s November 14, 2018 Order”].

II. LEGAL STANDARD

Under District of Columbia law, admissibility of expert testimony is now governed by Rule 702 of the Federal Rules of Evidence, as amended after the U.S. Supreme Court’s decision in *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 570 (1993). *Motorola Inc.*, 147 A.3d at 756-57 (D.C. 2016) (*en banc*) (explaining rationale for abandoning *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), and *Dyas v. United States*, 376 A.2d 827 (D.C. 1977), and adopting Rule 702 as the test for admissibility of expert testimony). Rule 702 provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;

- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods; and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702.

Trial judges are the gatekeepers of expert testimony. *Motorola Inc.*, 147 A.3d at 757. “[T]he trial court’s role as gatekeeper is not intended to serve as a replacement for the adversary system.” *Id.* (quoting Fed. R. Evid. 702 advisory committee’s notes to 2000 amendment). “[I]n practice,’ however, ‘a gatekeeping role for the judge, no matter how flexible, inevitably on occasion will prevent the jury from learning of authentic insights and innovations.’” *Id.* at 754 (quoting *Daubert*, 509 U.S. at 597). “[T]he trial court will have the discretion (informed by careful inquiry) to exclude some expert testimony.” *Id.* at 757; *see also Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146-47 (1997); *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 158 (1999).

“The goal is to deny admission to expert testimony that is not reliable, but to admit competing theories if they are derived from reliable principles that have been reliably applied.” *Motorola Inc.*, 147 A.3d at 757; *see also Haidak v. Corso*, 841 A.2d 316, 327 (D.C. 2004) (“Expert testimony may be excluded when the expert is unable to show a reliable basis for their theory.”). “[T]he trial judge must have considerable leeway in deciding in a particular case how to go about determining whether particular expert testimony is reliable.” *Motorola Inc.*, 147 A.3d at 755 (quoting *Kumho Tire Co.*, 526 U.S. at 152). “The objective of the gatekeeping requirement ‘is to make certain that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field.’” *Id.*

The Court must first determine whether the expert’s specialized knowledge will help the trier of fact to understand the evidence or determine a fact in issue. Fed. R. Evid. 702(a). In

Daubert, the Supreme Court of the United States found that the requirement that expert testimony “assist the trier of fact to understand the evidence or to determine a fact in issue” goes “primarily to relevance [because] ‘[e]xpert testimony which does not relate to any issue in the case is not relevant and, ergo, non-helpful.’” *Daubert*, 509 U.S. at 591. This consideration has been described as “fit[.]” which “is not always obvious, and scientific validity for one purpose is not necessarily scientific validity for other, unrelated purposes.” *Id.* As an example, the Supreme Court explained:

The study of the phases of the moon, for example, may provide valid scientific ‘knowledge’ about whether a certain night was dark, and if darkness is a fact in issue, the knowledge will assist the trier of fact. However (absent creditable grounds supporting such a link), evidence that the moon was full on a certain night will not assist the trier of fact in determining whether an individual was unusually likely to have behaved irrationally on that night. Rule 702’s “helpfulness” standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.

Id. The Court “must ensure that the proposed expert testimony is ‘relevant to the task at hand,’ *i.e.*, that it logically advances a material aspect of the proposing party’s case.” *Daubert v. Merrell Dow Pharmaceuticals*, 43 F.3d 1311, 1315 (9th Cir. 1995) (internal citations omitted) [hereinafter “*Daubert II*”].

The advisory committee notes indicate that Rule 702 requires that: “(1) the expert be qualified; (2) the testimony address a subject matter on which the factfinder can be assisted by an expert; (3) the testimony be reliable; and (4) the testimony ‘fit’ the facts of the case.” Fed. R. Evid. 702 advisory committee’s notes to 2000 amendment.

“[T]he trial court must scrutinize not only the principles and methods used by the expert but also whether those principles and methods have been properly applied to the facts of the case.” Fed. R. Evid. 702 advisory committee’s notes to 2000 amendment. “[A]ny step that renders the analysis unreliable . . . renders the expert’s testimony inadmissible. This is true

whether the step completely changes a reliable methodology or merely misapplies that methodology.” *Id.* (quoting *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717, 745 (3d Cir. 1994)).

The Supreme Court supplied factors for consideration when determining if the reasoning or methodology underlying the testimony of an expert is scientifically valid and can be properly applied to the facts in issue, including whether an expert’s theory or technique has been tested, whether it has been subject to peer review or publication, the technique’s known or potential rate of error, and the existence and maintenance of standards controlling the technique’s operation. *Motorola Inc.*, 147 A.3d at 754 (citing *Daubert*, 509 U.S. at 593-94).

Further, the advisory committee’s notes to Rule 702 recognize that courts, both before and after *Daubert*, have found the following factors relevant in determining whether expert testimony is sufficiently reliable to be considered by the trier of fact: (1) “Whether experts are ‘proposing to testify about matters growing naturally and directly out of research they have conducted independent of the litigation, or whether they have developed their opinions expressly for purposes of testifying[.]’” *Daubert II*, 43 F.3d at 1317; (2) “Whether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion[.]” *see Joiner*, 522 U.S. at 146; (3) “Whether the expert has adequately accounted for obvious alternative explanations[.]” *see Claar v. Burlington N.R.R.*, 29 F.3d 499 (9th Cir. 1994); (4) “Whether the expert ‘is being as careful as he would be in his regular professional work outside his paid litigation consulting,’” *see Sheehan v. Daily Racing Form, Inc.*, 104 F.3d 940, 942 (7th Cir. 1997); and (5) “Whether the field of expertise claimed by the expert is known to reach reliable results for the type of opinion the expert would give.” *See Kumho Tire Co.*, 526 U.S. at 151.

The Supreme Court, after *Daubert*, refined its analysis in instructing that a trial court’s focus must be solely upon principles and methodology, and not on the conclusions they generate,

and acknowledged that “conclusions and methodology are not entirely distinct from one another.” *Motorola Inc.*, 147 A.3d at 755 (quoting *Joiner*, 522 U.S. at 146). However,

Nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. Thus, “[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.”

Motorola Inc., 147 A.3d at 755 (internal citations omitted) (quoting *Joiner*, 522 U.S. at 146). In other words, an expert’s opinion that rests on subjective beliefs and unsupported speculation must be excluded. *See Daubert*, 509 U.S. at 590 (“Similarly, the word ‘knowledge’ connotes more than subjective belief or unsupported speculation.”); *cf. Perkins v. Hansen*, 79 A.3d 342, 345 (D.C. 2013) (“Implicit in [the requirement that the expert opinion will probably aid the trier in the search for truth] is that the expert have a ‘reliable basis for his theory’ steeped in ‘fact or adequate data,’ as opposed to offering ‘a mere guess or conjecture.’” (quoting *Haidak*, 841 A.2d at 327; cleaned up)). “[T]o qualify as ‘scientific knowledge,’ an inference or assertion must be derived by the scientific method.” *Daubert*, 509 U.S. at 589.

The Court of Appeals has noted that “[t]here is no ‘grandfathering’ provision in Rule 702. The Court of Appeals, however, observed that *Daubert* commented that:

“general acceptance” can . . . have a bearing on the [reliability] inquiry. Widespread acceptance can be an important factor in ruling particular evidence admissible, and a known technique which has been able to attract only minimal support within the community may properly be viewed with skepticism.

Motorola Inc., 147 A.3d at 758 (internal citations and quotation marks omitted) (quoting *Daubert*, 509 U.S. at 594). “[T]he trial judge has the discretion ‘both to avoid unnecessary ‘reliability’ proceeding in ordinary cases where the reliability of an expert’s methods is properly taken for granted, and to require appropriate proceedings in the less usual or more complex cases where cause for questioning the expert’s reliability arises.’” Fed. R. Evid. 702 advisory

committee's notes to 2000 amendment (quoting *Kumho Tire*, 526 U.S. at 152). Further, when experts on one side are in a distinct minority, that “may well raise a red flag, for ‘[w]hen a scientist claims to rely on a method practiced by most scientists, yet presents conclusions that are shared by no other scientist, the [trial] court should be wary that the method has not been faithfully applied.’” *Motorola Inc.*, 147 A.3d at 757-58 (quoting Fed. R. Evid. 702 advisory committee's notes to 2000 amendment).

Rule 702 “does not operate in isolation.” *Motorola Inc.*, 147 A.3d at 754. This jurisdiction has adopted Federal Rules of Evidence 703 and 403.⁴ *Id.* at 754 n.7 (citing *In re Melton*, 597 A.2d 892, 901 & n.10) (D.C. 1991) (*en banc*) (adopting Rule 703), and *Johnson v. United States*, 683 A.2d 1087, 1100 (D.C. 1996) (*en banc*) (adopting Rule 403)). Rule 703 provides that facts or data relied upon by an expert must be “of a type reasonably relied upon by experts in the particular field in forming opinions or inferences upon the subject[.]” *In re Melton*, 597 A.2d at 901-02. Rule 403 permits the exclusion of relevant evidence where “the danger of unfair or undue prejudice substantially outweighs probative value[.]” *Johnson*, 683 A.2d at 1099. The Court of Appeals has further instructed that, “[t]o perform the gatekeeping function, the trial court normally will apply Rule 104(a).” *Motorola*, 147 A.3d at 754; *see also Jenkins v. United States*, 80 A.3d 978, 991 (D.C. 2013) (noting Rule 104(a), while not formally adopted, “accurately states the rule of evidence” generally followed under District of Columbia

⁴ Although Rule 702 does not operate in isolation, Rule 403 and *Daubert* address different aspects of evidence. “Rule 403 requires the court to balance the probative value of evidence against its potentially prejudicial impact on the jury’s perception of the case. *Daubert*, on the other hand, establishes a standard by which the court must evaluate expert testimony for its reliability before admitting it into court.” *United States v. Ramirez-Robles*, 386 F.3d 1234, 1245-46 (9th Cir. 2004). The Court, therefore, will consider Plaintiffs’ experts within the ambit of Rule 702 for admissibility of their testimony unless allowing the expert to testify requires the Court to balance the probative value of their testimony against its potential prejudicial impact.

law). Rule 104(a) requires the court to decide preliminary questions about whether a witness is qualified or evidence is admissible.

Finally, “[t]he burden is on the proponent of the testimony to establish its admissibility by a preponderance of proof.” *United States v. Libby*, 461 F. Supp. 2d 3, 6 (D.D.C. 2006) (internal quotations omitted); *see also United States v. Tibbs*, Case No. 2016 CF1 19431, 2019 D.C. Super. LEXIS 9, at *14 (D.C. Super. Ct. Sept. 5, 2019) (citing *Daubert*, 509 U.S. at 592 n.10). “The abuse of discretion standard of review applies regardless of whether the trial court decided ‘to admit or exclude scientific evidence.’” *Motorola Inc.*, 147 A.3d at 755 (quoting *Joiner*, 522 U.S. at 146).

III. DISCUSSION⁵

A. Admissibility of Dr. Michael Kundi’s Expert Testimony

1. Dr. Kundi’s Qualifications and Relevance under Rule 702(a)

Dr. Kundi represents that he is a retired professor of epidemiology and occupational health at the Medical University of Vienna. *See* Supp. Expert Report of Michael Kundi, Ph.D., at 4 [hereinafter “Dr. Kundi Supp. Exp. Rpt.”]. In 1979, Dr. Kundi received his Ph.D. in psychology and mathematics at the University of Vienna. *See* Curriculum vitae Michael Kundi. In 1989, Dr. Kundi received his medical habilitation degree in epidemiology and occupational health at the Medical University of Vienna. *Id.* In 1996, Dr. Kundi became the head of the Department for Occupational and Social Hygiene at the Medical University of Vienna. Dr. Kundi Supp. Exp. Rpt., at 4. In 2004, Dr. Kundi was appointed head of the Institute of

⁵ Because of the breadth of the record and the lengthy procedural history of the case, the Court will address each experts’ admissibility under each prong of Rule 702 even if the expert would not pass muster under any single one of them. The Court notes that failure to meet a particular prong would disqualify the expert under Rule 702. *See* Fed. R. Evid. 702 (requiring an expert witness to meet all four prongs for admissibility).

Environmental Health at the Medical University of Vienna until his retirement in October 2015.

Id. Dr. Kundi remains the coordinator of the Ph.D. program for public health at the Medical University of Vienna. *Id.* He has taught courses in methods of occupational health and epidemiology, hygiene, microbiology and preventive medicine, environmental and occupational medicine, environmental aspects in public health, biostatistics, epidemiological research methods, and qualitative research methods. *Id.* Dr. Kundi's research, training, and experience have been in the areas of epidemiology, microbiology, statistics, and occupational and environmental medicine. *Id.*

Dr. Kundi was the deputy head of the Austrian Standards Committee for Electromagnetic Fields until 2015. *Id.* at 5. He is the head of the toxicology working group at the Austrian Ministry for the Environment, and a member of the electromagnetic fields working group, of the nutrition and vaccination committees of the Highest Health Council at the Ministry of Health. *Id.* Dr. Kundi has been invited to the World Health Organization as a member of the advisory board for defining research agenda in the area of electromagnetic fields. *Id.* Dr. Kundi represents that he has authored and co-authored more than 400 peer-reviewed articles, which include biomedical research studies, epidemiological studies, meta-analyses, review articles, editorials, and research letters. *Id.* He indicates that he has also "written extensively on the biological and health relevant effects of electric, magnetic, and electromagnetic fields and on mobile phones and the risk of cancer, and has authored more than 30 articles relevant to these subjects." *Id.*

Dr. Kundi offers an opinion that, to a reasonable degree of scientific certainty, "there is a relationship between [mobile phone] use and glioma as well as acoustic neuroma and this relationship is one that must be causally interpreted given the evidence available so far." *Id.* at

48. Dr. Kundi opines that “exposure to radiofrequency radiation from mobile phones causes an increased risk of brain tumors, which arises more likely as tumor growth *promotor* as opposed to an *initiator*.” Pl.’s Daubert/R. 702 Post-Hearing Brief, at 25 (emphasis in original); Dr. Kundi Supp. Exp. Rpt., at 46-48.

Defendants have not objected to Dr. Kundi’s qualifications. Indeed, the Court finds that Dr. Kundi’s scientific knowledge would “help the trier of fact to understand the evidence or to determine a fact in issue[,]” under Rule 702(a). *See also* Fed. R. Evid. 702 advisory committee’s notes to 2000 Amendment; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

2. Dr. Kundi’s Testimony Under Rule 702(b)-(d)

Under Rule 702(b)-(d), Dr. Kundi’s testimony must (1) be based in sufficient facts or data; (2) be the product of reliable principles and methods; and (3) reliably apply the principles and methods to the facts of this case. *See* Fed. R. Evid. R. 702(b)-(d).

Dr. Kundi explains that he uses the “Pragmatic Dialogue Approach.” *See* Dr. Kundi Supp. Exp. Rpt., at 25. This approach consists of three steps:

In the first step[,] epidemiologic evidence is scrutinized to assess whether there is an association between an agent (in this case [mobile phone] use) and a disease (in this case brain tumors and in particular glioma and acoustic neuroma). In the second step, environmental and population equivalence is assessed. This means that sources of bias and potential confounding are evaluated that could have affected the estimates of association between the agent and the disease. In the third step, a dialogue between arguments in favor or against a causal relationship between the agent and the disease is set up that follows and applies the concepts of Sir Austin Bradford Hill.

Id.

Plaintiffs assert that Dr. Kundi’s opinions are well-founded upon his “(1) extensive literature search of all lines of evidence during which he considered each and every available peer reviewed scientific study related to electromagnetic fields and primary brain tumors,

assessing the reliability of the evidence and meticulously comparing methodology and outcomes”; and “(2) conducting many peer reviewed scientific studies specially pertaining to electromagnetic fields which are published in over 60 scientific journals.” Pls.’ Daubert/R. 702 Post-Hr’g Br., at 28.

The Court must exclude Dr. Kundi’s testimony. First, under Dr. Kundi’s methodology, he scrutinized evidence to assess whether there is an association between mobile phone use and glioma and acoustic neuromas. *See* Dr. Kundi Supp. Exp. Rpt., at 25. Dr. Kundi, however, fails to explain, through specific studies and data, why incidence data of glioma and acoustic neuromas have not increased over time, given that the increased usage of cell phones would ostensibly demonstrate a relationship between the agent of interest (*i.e.*, radiation emitted by cell phones) and the disease. Indeed, his opinion in his 2013 Expert Report indicated that, to a reasonable degree of scientific certainty, exposure to radiofrequency radiation from mobile phones causes an increased risk of brain tumors. Pls.’ Daubert/R. 702 Post-Hr’g Brief, at 25; Expert Report of Michael Kundi, at 2-3. Dr. Kundi restated this opinion in his supplemental expert report on the grounds that further evidence “became available that supports and corroborates [his] conclusions” that “there is a relationship between [mobile phone] use and glioma as well as acoustic neuroma” Dr. Kundi Supp. Exp. Rpt., at 46-48. However, Dr. Kundi’s promotion theory—namely, that radiofrequency *promotes*, rather than *initiates*, tumors, and therefore would not cause increases in gliomas and acoustic neuromas, and their reported incidence data, as quickly as opposed to a theory hypothesizing that radiofrequency initiates tumors—is not supported in Dr. Kundi’s Supplemental Report or his testimony. Def.’s Post-Hearing Brief, at 33; Hr’g Tr. 57:8-59:12.

Dr. Kundi proffers another theory for why the incidence rates of glioma and acoustic neuroma did not increase under his promotion theory. Specifically, Dr. Kundi explains that the increase in the incidence data was not as anticipated because the technology of cellphones and duration and amount of exposure did not remain constant. Pls.’ Post-Hearing Brief, at 31; Defs.’ Post-Hearing Brief, at 34. Interestingly, Dr. Kundi did not present this theory in his supplemental report. Instead, he expressed this theory seemingly for the first time during his testimony and with insufficient support from empirical studies.

Dr. Kundi could not point to epidemiological studies that demonstrated that tumor promotion occurs under his theory. He testified that he has “no evidence of promotion, let me add—let me add[,] from epidemiology.” Hr’g Tr. 09/15/22 a.m., 74:14-75:12; *see also* Hr’g Tr. 09/14/22 p.m. at 31. Further, Dr. Kundi indicated that evidence from animal and *in vitro* studies was limited, and he was unaware of any animal study showing the exposure to radiofrequency promotes gliomas or acoustic neuromas. *See* Hr’g Tr. 9/15/22 a.m., at 58:22-59:12, 63:4-64:6.

Dr. Kundi, therefore, fails to provide sufficient facts and data to support his opinions. He also provided alternative explanations during the 2022 evidentiary hearing, which explanations he failed to include in his supplemental report. As the Court of Appeals instructs, “[n]othing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert.” *Motorola Inc.*, 147 A.3d at 755 (quoting *Joiner*, 522 U.S. at 146). “Thus, ‘[a] court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.’” *Id.* That is the fatal flaw with Dr. Kundi’s opinion, here.

In the second step of his methodology, Dr. Kundi explained that he must account for bias and potential confounding that could affect the estimates of association between the agent and

the disease. *See* Dr. Kundi Supp. Exp. Rpt., at 25. Counsel for Plaintiffs and Dr. Kundi had the following exchange about the method Dr. Kundi employed:

Q. Tell the Court what you do as a scientist to reach the conclusion that you reached in this case, that radiation is causally connected to these diseases?

A. I did it like in every other case, when it comes to a decision about environmental factor or occupational factor and health outcome.

You take the totality of the evidence, and then you look into the human evidence and first place. This means practical epidemiological evidence, and you consider the association that might be there in the light of bias, confounding and chance. And you first rule out the chance, bias or confounding is responsible for the association, and you should then come to the conclusion that the reason the association. And you can rule out bias and confounding and chance with reasonable scientific certainty, then this is sufficient evidence from epidemiology.

But since I mentioned before we cannot rule out completely with scientific certainty, bias and confounding, there remains some responsibility, although with low likelihood that bias and confounding can be responsible. And this is how you proceed.

And then you start looking into other evidence and from epidemiology. You look into animal experiment and you look at *in vitro* studies, mechanistic studies if you want like that. This can increase or decrease your confidence. But the basis is the human evidence.

Hr'g Tr. 9/13/22 p.m., at 73:10-74:11.

In forming his causation opinion, however, Dr. Kundi relies upon studies that suffer from bias, without explaining how he ruled out that bias, before proceeding with the methodological steps he discussed in his testimony above. Specifically, Dr. Kundi relies upon Dr. Hardell's studies and the INTERPHONE studies. *See* Dr. Kundi Supp. Exp. Rpt., at 7-10,13, 20-26; Hr'g Tr. 9/14/22 a.m., at 56:15-18. After reviewing the IARC Monograph, which all Parties and Judge Weisberg found to be highly reliable and authoritative, Judge Weisberg correctly observed

that IARC found that “both the Interphone and Hardell studies suffer from flawed study designs that do not fully control for bias, confounding, and chance a view that is widely shared by most other organizations that have studied the subject.” Judge Weisberg’s August 8, 2014 Order at 10-13; Ex. GX1524, IARC Monograph at 203-216, 218-21, 233-34.

During the evidentiary hearing, counsel for Defendants and Dr. Kundi had the following exchange regarding the bias in the Hardell studies:

Q. Okay. Dr. Kundi, you’ve now agreed that in Dr. Hardell’s studies some of the risk estimates are spuriously elevated, true?

A. I think we can make it short. I agree that there are some unknown sources of bias that spuriously increases some risk estimates especially at low intensity and low duration of exposure.

Q. You agree that for periods of less than ten years of phone use in particular . . . Dr. Hardell’s studies produced results that are biologically implausible, correct?

A. Correct.

Q. You’ve concluded that at least of periods of ten years or less there are biases in Dr. Hardell’s data that cannot be ruled out as an explanation for the reported associations, right?

A. I have commented about that, and I said that there are very few situations where you can find an increased risk. It’s such short periods of time and it’s such low intensities.

Q. And so you’ve concluded that there are biases in Dr. Hardell’s data that cannot be ruled out as an explanation for the reported associations, true?

A. Yes, biases cannot be ruled out.

Q. And the bias in Dr. Hardell’s data impacts both his glioma data and his acoustic neuroma data, true?

A. That’s right.

...

Q. You told the Court yesterday that you can’t rule out bias completely with scientific certainty. Do you recall that?

A. I recall that.

Q. Right?

A. I stated that.

Q. But as to these risks in Dr. Hardell's studies, you've actually ruled in the existence of bias, right? We've agreed that those results are biased and biologically implausible, true?

A. Therefore, I'm not completely sure that the association cannot be interpreted as possibly bias or due to confounding. That's what I said.

Q. Are you agreeing with my question?

A. I agree the association could be bias.

...

Q. Now, the next column over, Dr. Kundi, is the greater-than-ten-year latency column, right?

A. Right.

Q. Okay. And you continue to rely on those risks in the greater-than-ten-year latency column. You believe that those are . . . accurate, right?

A. They—if my hypothesis about the source of bias is correct, then it gets more reliable as longer the latency.

Q. But you don't know?

A. I don't know, yeah.

Q. Okay. So it's possible that those greater-than-ten-year data are also unreliable?

A. It's possible.

Hr'g Tr. 9/15/22 a.m., at 39:8-40:9, 41:4-18, 45:12-25. Indeed, it appears that the Hardell study suffers generally from critical methodological flaws. Dr. Kundi's reliance on data drawn from the ten-year latency period set of observations in the Hardell study to arrive at his opinion, without accounting for the significant possibility of bias (or other confounding factors) as the

driver of the data and results in the Hardell study, fails to answer the overarching challenge to the Hardell study: It suffers from bias that is untreated.

In addition, Dr. Kundi failed to address bias as to the incidence of glioma rates, as evidenced by his election not to address contrary studies. When Dr. Kundi was asked whether he considered the incidence data in his report, he explained: “I included also incidence data, and I also wrote in my report those that have been published since my first report, and I cited them and discussed them.” Hr’ Tr. 9/14/22 p.m., at 9:24-10:2. To the contrary, Dr. Kundi failed to address multiple published studies. For example, two published studies⁶ indicated that Dr. Hardell’s incidence data results would have shown the incidence of glioma to have risen significantly over time, while the actual incidence data betrayed that assessment. Hr’g Tr. 9/15/22 a.m., at 12:12-29:10; *see also* admitted Exs. 1757, 1189, 1096. Further, although Dr. Kundi testified that he used his own calculation of the expected incidence rate in view of Dr. Hardell’s data, he did not include such a calculation or account for issues with Dr. Hardell’s data in making his calculation in either his original or supplemental report. Hr’g Tr. 9/15/22 a.m., at 30:18-31:1.

The method that Dr. Kundi uses to treat and explain bias in the epidemiological studies is, as well, inconsistent. Dr. Kundi discussed selection bias in the INTERPHONE studies extensively where the bias was away from an association of causation; however, in cohort studies where the bias was away from an association, Dr. Kundi dismissed the results as biased and uninformative without explaining why one study was more useful from another other than

⁶ Isabelle Deltour et al., *Mobile Phone Use and Incidence of Glioma in the Nordic Countries 1979-2008: Consistency Check*, 23 EPIDEMIOLOGY, no. 2, at 301-307 (2012); Simon Chapman et al., *Has the Incidence of Brain Cancer Risen in Australia Since the Introduction of Mobile Phones 29 Years Ago?*, 42 CANCER EPIDEMIOLOGY, June 2016, at 199-205.

stating that cohort studies were not as reliable as controlled studies. Hr’g Tr. 9/14/22 a.m.; 50:4-51:16; Hr’g Tr. 9/15/22 a.m., at 36:13-21, 40-41; Hr’g Tr. 09/21/22 p.m. at 64, 69-70.

As noted *supra*, *see supra* Part II, the Court must consider “[w]hether the expert has unjustifiably extrapolated from an accepted premise to an unfounded conclusion” and “[w]hether the expert has adequately accounted for obvious alternative explanations.” *Joiner*, 522 U.S. at 146; *Claar*, 29 F.3d at 500-03. Here, Dr. Kundi has not properly accounted for the bias underlying certain studies and he has failed to put forth a consistent method he employs when evaluating the studies upon which he chose to rely. *See In re Lipitor (Atorvastatin Calcium) Mktg., Sales Practices & Prds. Liab. Litig. (No. II) MDL 2502*, 892 F.3d 624, 634 (4th Cir. 2018) (“Result-driven analysis, or cherry-picking, undermines principles of the scientific method and is a quintessential example of applying methodologies (valid or otherwise) in an unreliable fashion.”)

Finally, in the third step of his methodology, Dr. Kundi applies the concepts propounded by Sir Austin Bradford Hill. As Judge Weisberg opined,

Proving causation depends—first and foremost—on epidemiology, which is largely an inductive, not deductive science. Epidemiology depends on drawing inferences from observed conditions, both in nature and in the laboratory Although they go by different names, most accepted methodologies rely heavily on, and share much in common with, Sir Austin Bradford Hill’s famous nine causation factors.

Judge Weisberg’s August 8, 2014 Order, at 27. The Bradford Hill factors assist in determining whether “there [is] any other way of explaining the set of facts before us, is there any other answer equally, or more, likely than cause and effect?” *See* Sir Austin Bradford Hill, *The Environment and Disease: Association or Causation?*, Jan. 14, 1965, GX1461, at 5 [hereinafter “Bradford Hill”]. In other words, the Bradford Hill factors help to decide whether there is a true cause-effect relationship between exposure and the disease rather than merely an association.

See In re Deepwater Horizon Belo Cases, 2022 U.S. Dist. LEXIS 225619, at *16 (N.D. Fla. Dec. 15, 2022); *Daniels-Feasel v. Forest Pharms., Inc.*, 2021 U.S. Dist. LEXIS 168292, at *8-10 (S.D.N.Y. Sept. 3, 2021). As such, “an expert must do more than just state that she is applying a respected methodology; she must follow through with it.” *Brown v. Burlington N. Santa Fe Ry.*, 765 F.3d 765, 773 (7th Cir. 2014).

The nine Bradford Hill factors are: “Strength, Consistency, Specificity, Temporality, Biological Gradient, Plausibility, Coherence, Experiment, and Analogy.” *Id.* at 27 n.35; *see generally* Bradford Hill.

“Strength” speaks to the association between the agent and the disease. The stronger the association, the more likely it is to be causal. On the flip side, the smaller the association, the more likely that there are other underlying contributors, such as bias or confounding. *See* Bradford Hill, at 1-2. As has been observed and discussed, the quarrel with Dr. Kundi’s methodology is that he has failed to control for bias or confounding in the studies he chose to support his opinion. *See supra* Part III-A-2, at 31-35. Moreover, Chief Judge Josey-Herring struck portions and studies of meta-analysis, recall bias, selection bias, and confounding which he used to support his conclusion. As such, Dr. Kundi does not provide sufficient data to support his opinion on the strength of association. *See supra* Part I-D-3, at 15-17.

“Consistency” speaks to whether the observed association has been repeatedly observed by different persons in different places, circumstances, and time. *See* Bradford Hill, at 2. As to this factor, Dr. Kundi opined that, “[e]specially after correcting for selection bias, studies were consistent concerning risk of long-term and heavy [mobile phone] use for glioma and acoustic neuroma. This consistency extends to studies from different regions and time periods.” Dr. Kundi Supp. Exp. Rpt., at 47. He further opined that, “[c]onsistency with respect to brain

tumor time-trends cannot be claimed for all regions, but problems inherent in descriptive epidemiologic studies relying on cancer registries prohibit far reaching conclusions.” *Id.* Chief Judge Josey-Herring, however, struck Dr. Kundi’s selection-bias opinion because it did not appear in his original report. *See supra* Part I-D-3., at 15-17. In addition, the epidemiological studies did not demonstrate a consistent association between mobile phone use and brain tumors consistent with the findings in the Hardell and INTERPHONE studies. Hr’g Tr. 9/14/22 p.m., at 47:6-47:20; 9/15/22 a.m. 47:7-18.

The third factor, “specificity,” means that the associations are more likely to be causal when they are specific, such as when exposure to an agent causes the disease. *See* Bradford Hill, at 3. Dr. Kundi opined that, “[t]here is evidence that risk is specifically high for tumors close to the antenna of a [mobile phone] when used close to the head. It seems that the risk is restricted to glioma and acoustic neuroma while meningiomas are (still) unaffected. These types of specificity can be claimed based on current evidence.” Dr. Kundi Supp. Exp. Rpt., at 47. Chief Judge Josey-Herring, however, struck the three studies relied upon by Dr. Kundi to render a new opinion regarding specificity because it was not cited in his original report. *See supra* Part I-D-3., at 15-17.

The fourth factor, “temporality,” refers to the temporal relationship of the association. *See* Bradford Hill, at 3-4. In other words, there should be a temporal progression between the agent and the disease. *Id.* Dr. Kundi opines that, “[a]lthough brain tumors have long latencies and [mobile phone] use commenced in cases studied so far vary likely when the tumor already covertly existed, evidence indicates that [mobile phone] use has an impact on tumor growth such that tumors are diagnosed earlier or tumors that would never become clinically symptomatic during the life-time of the individual.” Dr. Kundi Supp. Exp. Rpt., at 46. Dr. Kundi explains

that, “[a]s discussed for acoustic neuroma[,] early symptoms may lead to an impact on [mobile phone] use (reverse causation bias), but either assessing cases with serviceable hearing or long latencies removes such bias and leads to the conclusion that [mobile phone] use increases the risk of diagnosis with such a tumor.” *Id.* As the Court previously noted, the incidence data has not shown an increase as expected, and Dr. Kundi fails to address adequately the bias in the studies he relies upon and fails to argue alternative explanations in his supplemental report that is supported by sufficient data and facts. *See supra* Part III-A-2, at 31-35.

The fifth factor is “biological gradient,” also referred to as “dose-response curve,” which is premised on the principle that increased exposure results in an increase of incidence of disease, thus supporting a causal association between the agent and disease. *See* Bradford Hill, at 4. Dr. Kundi opines that, “[a] significant relationship between indicators of the duration and intensity of exposure to [mobile phone] frequencies has been found for glioma and acoustic neuroma in all studies included in this assessment.” Dr. Kundi Supp. Exp. Rpt., at 47. Chief Judge Josey-Herring, however, struck the four studies upon which Dr. Kundi relied to render a new opinion regarding dose-response because the new opinion was not cited or discussed in his original report. *See Supra* Part I-D-3, at 15-17.

The sixth factor, “plausibility,” refers to the extent to which the association can be plausibly explained by known scientific principles. *See* Bradford Hill, at 4. Sir Bradford Hill opined, however, that this factor cannot be demanded because “[w]hat is biologically plausible depends upon the biological knowledge of the day.” *Id.* Dr. Kundi opines that, “[w]hile there is ample evidence that low-dose non-thermal effects exist, a single interaction mechanism between an external [radiofrequency electromagnetic field] and cells, tissue[,] and the organism has not been established.” Dr. Kundi Supp. Exp. Rpt., at 47. This factor was also touched upon when

Dr. Kundi failed to provide sufficient facts or data to support his opinion under epidemiology, and the facts and data were limited for animal studies and *in vitro* studies. Hr’g Tr. 9/15/22 a.m., at 58:22-59:10, 63:16-64:6, 74:14-75:12.

The seventh factor is “coherence,” which is that the cause and effect should comport with the available generally known facts of the natural history and biology of the disease. *See* Bradford Hill, at 4. Dr. Kundi opines that, putting together knowledge from animal studies, *in vitro* studies, and epidemiology, “the observed association between [mobile phone] use and brain tumors does not contradict what is known about the natural history of the disease.” Dr. Kundi Supp. Exp. Rpt., at 47. As the Court has observed, the incidence data has not shown an increase as expected of glioma and acoustic neuroma, and Dr. Kundi fails to treat the bias in the studies he relies upon and fails to argue alternative explanations in his supplemental report supported by sufficient data and facts. *See supra* Part III-A-2, at 31-35.

The eighth factor, “experiment,” is premised on experimental manipulation producing evidence that may lead to a stronger support for a causal inference. *See* Bradford Hill, at 4-5. Dr. Kundi opines that, “[a]ctual experiments manipulating the way or type of [mobile phone] use are not available; however, analysis of users of car phones or headsets indicate that these groups have no increased glioma risk in contrast to those using the [mobile phone] close to the head.” Dr. Kundi Supp. Exp. Rpt., at 47. The ninth factor, “analogy,” is that a similar exposure and outcome could be translatable to an unexplored causal investigation. *See* Bradford Hill, at 5. Dr. Kundi opined that “there is some evidence from earlier epidemiologic studies on the relationship between [radiofrequency electromagnetic fields] other than those emitted by [mobile phones], indicating a moderately increased risk from such exposures for brain tumors.” Dr. Kundi Supp. Exp. Rpt., at 47. At bottom, the facts and data simply do not support

Dr. Kundi's attempt to apply these last two Bradford Hill factors. Moreover, Dr. Kundi previously testified that both experiment and analogy could not be assessed in this case. Hr'g Tr. 9/15/22 a.m., at 59:13-62:17.

The Court, therefore, finds that Dr. Kundi's opinion in his supplemental report is not supported when considering it in view of the nine Bradford Hill factors. In other words, Dr. Kundi provides insufficient facts or data to support his opinion that a cause-effect relationship exists between mobile phone use and acoustic neuromas and gliomas. *See* Fed. R. Evid. 702 (b)-(d); *In re Deepwater Horizon Belo Cases*, 2022 U.S. Dist. LEXIS 225619, at *16; *Daniels-Feasel*, 2021 U.S. Dist. LEXIS 168292, at *8-10; see also *Claar*, 29 F.3d 499 (9th Cir. 1994) (finding that an expert must adequately account for obvious alternative explanations). And, as noted herein, Chief Judge Josey-Herring struck major portions of Dr. Kundi's opinion that pertained to a Bradford Hill analysis because Dr. Kundi did not include such opinions in his original report. Further, it is worth noting here that Judge Weisberg's March 16, 2017 Order admonished against a re-do of expert discovery or a revision of opinions to counter previous evidentiary findings after the fact. *See* Chief Judge Josey-Herring's August 28, 2018 Order, at 2, 15-22; *Brown*, 765 F.3d at 773 (finding that an expert must do more than stating he has applied a respected methodology, but must also follow through with applying it).

Finally, the Court does not find the cases Plaintiffs cite, *Cook v. Rockwell Int'l Corp.* and *Milward v. Acuity Specialty Products Group, Inc.*, to be availing. The Court must exclude Dr. Kundi because his opinions simply do not satisfy Rule 702, and not because part of his opinions rely upon a review of the available literature. *See Cook v. Rockwell Int'l Corp.*, 580 F. Supp. 2d 1071, 1106-07 (D. Colo. 2006). Even though Dr. Kundi represents that he followed the Bradford Hill method and based his opinion on sufficient facts and data, such statement does not

mean he actually did so and thus satisfied Rule 702. *See Milward v. Acuity Specialty Prods. Grp., Inc.*, 639 F.3d 11, 14 (1st Cir. 2011).

B. Admissibility of Dr. Igor Belyaev's Expert Testimony

1. Dr. Belyaev's Qualifications and Relevance under Rule 702(a).

Dr. Belyaev is the Head Research Scientist and the Head of the Radiobiological Laboratory for the Cancer Research Institute, Biomedical Research Center, Slovak Academy of Science. *See* Supplemental Expert Report of Igor Belyaev, Ph.D., D.Sc., at 1 [hereinafter "Dr. Belyaev Supp. Exp. Rpt."]. He is "a cancer research scientist with a focus on the biophysical effects and molecular mechanisms of non-ionizing and ionizing radiations." *Id.*

In 1981, Dr. Belyaev received a master's degree in Radiation Physics and Dosimetry from the Moscow Engineering Physics Institute. *Id.* In 1986, he received a Ph.D. in radiobiology from the Institute of Biophysics at the Academy of Sciences of the Soviet Union.⁷ *Id.* In addition, in 1994, he received a D.Sc. in genetics from St. Petersburg State University. *Id.* From 1981 to 2004, Dr. Belyaev was an Associate Professor and held the following positions at the Department of Biophysics, Radiation Physics, and Ecology at the Moscow Engineering Physics Institute: "Junior Research Scientist, Senior Research Scientist, Head of the Laboratory, Head Research Scientist." *Id.* From 1994 to 2006, he taught, conducted research, and directed research teams at the Departments of Radiobiology, Molecular Genome Research, Genetic and Cellular Toxicology, Genetics, Toxicology, and Microbiology of Stockholm University. *Id.*

Dr. Belyaev was one of the members of the Working Group for the Evaluation of Radiofrequency Carcinogenicity of the International Agency on Research in Cancer, which

⁷ The Academy of Sciences of the Soviet Union was succeeded by the Russian Academy of Sciences after the collapse of the Soviet Union.

classified the carcinogenicity of cell phone radiation and produced the IARC Monograph cited throughout this Order. *Id.*; Judge Weisberg’s August 9, 2014 Order, at 53. He has worked on the Editorial Board for the following international journals: *Electromagnetic Biology and Medicine*; *Radiation Biology and Radioecology of the Russian Academy of Science*; and *ISRN Biophysics. Id.*

Dr. Belyaev offers seven opinions, all to a reasonable degree of scientific certainty:

- (1) “the electromagnetic radiation emitted by cellphones has biological effects independent of heating created by the cellphone or non-thermal [microwave] effects. These depend upon a variety of physical parameters and biological variables”;
- (2) “the non-thermal biological effects of cellphone [microwave] radiation are caused by known physical mechanisms”;
- (3) “the specific absorption rate (SAR) or power density (PD) multiplied by the time duration of exposure defines the effect of and corresponding risk related to cellphone electromagnetic radiation”;
- (4) “the dependence of the biological effects of cellphone radiation on a variety of genetic and physiological variables produces significant variety in individual responses to cellphone radiation and results in increased sensitivity in some groups such as young people”;
- (5) “the electromagnetic [microwave] radiation emitted by cellphones induces molecular pathways and cellular mechanisms that produces carcinogenesis (the creation of cancer) in human brain cells and that the electromagnetic [microwave] radiation emitted by cellphones causes brain cancer”;

- (6) “the extremely low frequency (ELF) electromagnetic radiation emitted by cellphones induces biological effects dependent upon a number of physical parameters and biological variables similar to [microwave] effects, induces similar molecular pathways and cellular mechanisms that produce carcinogenesis (the creation of cancer) in human brain cells, and may cause cancer under prolonged chronic exposure”; and
- (7) “that cellphone radiation, including ELF and [microwave] components, causes and/or significantly increases the risk of certain malignant and non-malignant head and brain tumors in humans and is therefore a substantial contributing factor in cancer causation.”

Id. at 7-8.

Although Dr. Belyaev’s qualifications are not disputed, the issue before the Court is whether his scientific knowledge and general causation opinion would help the trier of fact to understand the evidence or determine a fact in issue under Rule 702(a). Dr. Belyaev provides that “cellphone radiation causes and/or significantly increases the risk of *certain* malignant and non-malignant head and brain tumors in humans” Dr. Belyaev Supp. Exp. Rpt., at 8 (emphasis added). Even though acoustic neuroma and glioma may fall within the categories of malignant and non-malignant brain tumors, Dr. Belyaev does not specify or define the “*certain* malignant and non-malignant head and brain tumors” that develop from cellphone radiation and whether the tumors include acoustic neuroma and glioma. *Id.* Further, Dr. Belyaev concedes that he is not an expert on acoustic neuroma and glioma. During the evidentiary hearing, Dr. Belyaev and Defendants’ counsel engaged in the following exchange:

Q. Okay. So, Dr. Belyaev, I want to talk a little bit about, first of all[,] about some of your qualifications. Now, you are not a medical doctor, correct?

A. Yes, correct.

Q. And you are not an expert in the diagnoses or treatment of brain tumors?

A. No, I'm not an expert.

...

Q. Dr. Belyaev, you have not done any research into the causes of acoustic neuroma, correct?

A. I have not done any research in the causes of acoustic neuroma. Mr. Dee, may I ask a question? You have shown report from which deposition, 2013 or 2017?

Q. That was 2013.

A. Thank you.

Q. And Dr. Belyaev, like with acoustic neuroma, you're not an expert in the causes of glioma, are you?

A. I'm not an expert in all causes of glioma.

Q. Alright. And you have not done any research into the cause specifically of gliomas, correct?

A. Well, recently I have not such one study with glioblastoma cells.

Q. Okay. But you have not done any research into the cause specifically of glioma?

A. I have not done such research.

Q. And Dr. Belyaev, you understand the differences between initiation of cancer and promotion of cancer, right?

A. Yes.

Q. And you are not offering an opinion on whether [radiofrequency] emissions from cell phones initiate glioma, correct?

A. No, I don't offer such an opinion.

Q. In other words, you cannot say to a reasonable degree of scientific certainty that [radiofrequency] from cell phones initiates glioma, correct?

A. Correct.

Q. Likewise, you're not offering an opinion on whether [radiofrequency] emissions from cellphones promote glioma, correct?

A. Correct. I don't offer such an opinion.

Q. Yes. You cannot say to a reasonable degree of scientific certainty that [radiofrequency] from cell phones promote gliomas, correct?

A. I don't offer such an opinion, correct.

Q. You are not offering an opinion that the emissions from cell phones initiate acoustic neuroma, correct?

A. Correct.

Q. You also cannot say to a reasonable degree of scientific certainty that cell phone use promotes acoustic neuroma, correct?

A. Correct.

Hr'g Tr. 9/29/22 a.m., at 63:22-64:3, 68:11-70:2.

Even though Dr. Belyaev considers himself an expert in radiofrequency radiation and the possible causation of acoustic neuroma, his testimony and expert report indicate otherwise, as he fails to provide a causation opinion as to acoustic neuroma and glioma to a reasonable degree of scientific certainty. Hr'g Tr. 9/29/22 a.m., at 63:22-64:3, 64:17-22, 68:11-70:2; *see also In re Roundup Prod. Liab. Litig.*, 390 F. Supp. 3d 1102, 1115 (N.D. Cal. 2018) (“Moreover, it is not enough for the evidence in this case to go merely to the causal relationship between glyphosate and cancer in general; it must go to the relationship between glyphosate and [non-Hodgkin’s lymphoma] in particular.”); *Warner/Elektra/Atl. Corp. v. Cnty. of DuPage*, 762 F. Supp. 784, 789 (N.D. Ill. 1991) (“The only limitation upon evidence in this regard is that expert opinion upon causation must be expressed to a reasonable degree of scientific certainty.”). While the Court finds that Dr. Belyaev’s testimony may assist the factfinder in understanding some of the

evidence, he does not provide a causation opinion that fits this case. Fed. R. Evid. 702 advisory committee's notes to 2000 amendment; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

2. Dr. Belyaev's Testimony under Rule 702(b)-(d).

Dr. Belyaev asserts that, in forming his opinions and conclusions, he used a "generally accepted methodology for assessment of carcinogenicity adopted by IARC (IARC 2013)." Dr. Belyaev Supp. Exp. Rpt., at 3. He asserts that his opinions are based on all available studies and that he used IARC's "methodology in assessment of the [electromagnetic field] carcinogenicity, consisting of: exposure assessment; human carcinogenicity data, which include epidemiology studies and cancer incidence data; animal carcinogenicity data; other relevant data judged to be relevant to an evaluation of carcinogenicity (IARC 2013)." *Id.* "With regard to epidemiological studies, cancer bioassays, and mechanistic and other relevant data, only reports that have been published or accepted for publication in the openly available scientific literature are reviewed by IARC[.]" and in forming his opinion, he incorporated and relied on "only peer-reviewed original studies and reviews, which included descriptions of accepted scientific methodology." *Id.* at 4-5. Dr. Belyaev also indicates that he relied on the Bradford Hill criteria because IARC adopted them to show causality. *Id.* at 4. Dr. Belyaev also relied on his own experiments, and he correlated the results of his "experiments with published data and literature available within those same subject areas. Furthermore, these are experiments which can be and have been replicated." *Id.* at 2-5.

The Court will first discuss IARC methodology to determine if Dr. Belyaev applied such a methodology to the facts of the case. IARC's methodology for assessing the carcinogenicity of a particular agent is set forth in the IARC Monograph, which subdivides the assessment of an agent's carcinogenicity into the following assessment categories: exposure data; studies of

cancer in humans (pertinent epidemiological studies); studies of cancer in experimental animals; mechanistic and other relevant data; summary; and evaluation and rationale. Ex. GX1524, IARC Monograph 2013, at 14-31. “Evaluations of the strength of the evidence for carcinogenicity arising from human and experimental animal data are made, using standard terms” such as: (1) “sufficient evidence of carcinogenicity”; (2) “limited evidence of carcinogenicity”; (3) “inadequate evidence of carcinogenicity”; or (4) “evidence suggesting lack of carcinogenicity.” *Id.* at 27-28. Under an “overall evaluation” of the carcinogenicity of agents to humans, an evaluation can be made for a group of agents that have been evaluated by the Working Group. *Id.* at 29. “The agent is described according to the working of the following categories, and the designated group is given.” *Id.* The following group categories are:

- (1) Group 1: The agent is carcinogenic to humans;
- (2) Group 2A: The agent is probably carcinogenic to humans;
- (3) Group 2B: The agent is possibly carcinogenic to humans;
- (4) Group 3: The agent is not classifiable as to its carcinogenicity to humans; and
- (5) Group 4: The agent is probably not carcinogenic to humans.

Id. at 29-31. The Court notes that although Dr. Belyaev was a member of the Working Group and opines that radiofrequency is harmful to humans, the Working Group as a whole categorized radiofrequency radiation in Group 2B because “[t]here is *limited evidence* in humans for the carcinogenicity of radiofrequency radiation” and “[t]here is *limited evidence* in experimental animals for the carcinogenicity of radiofrequency radiation.” *Id.* at 419 (emphasis added).

Dr. Belyaev must have reliably applied the IARC methodology to the facts of the case for his opinion to be admissible. However, it is unclear whether he used the IARC methodology in his original report because he merely asserts that he used the process of the IARC methodology

to come to his conclusion without elaboration. Hr’g Tr. 9/29/22 a.m. at 77:14-80:25; *see also* GX0978, Expert Report of Igor Y. Belyaev, PhD, D.Sc. Further, Dr. Belyaev’s supplemental expert report does not follow the sections and descriptions provided above evaluating the data to exposure, epidemiology, animal studies, or mechanic studies and the strength of evidence. Hr’g Tr. 9/29/22 a.m., at 91:18-104:1-15 (describing the IARC methodology and Dr. Belyaev’s understanding of IARC methodology through Dr. Belyaev’s testimony). Indeed, Dr. Belyaev opined that it is important to classify the studies used for each category, with the strength of evidence being important to the overall evaluation. Hr’g Tr. 9/29/22 a.m., at 104:1-15.

In addition, it does not appear that Dr. Belyaev reliably applied the IARC methodology because he failed to analyze the epidemiology, which he appreciated was the “main component that drives the general causation conclusion[.]” Hr’g Tr. 09/29/22 p.m. at 7:3-8:6. Specifically, he did no analysis of bias, confounding, or chance, and did not perform a dose-response analysis of the epidemiological data. Hr’g Tr. 9/29/22 p.m., at 8:7-11:18, 45:7-17. What must be noted is that Chief Judge Josey-Herring struck Dr. Belyaev’s references to the Bradford Hill criteria in his supplemental report and “Brain cancer time trends” because he did not refer to the Bradford Hill criteria or incidence rates in his original report. Chief Judge Josey-Herring’s August 28, 2018 Order, at 25-26. Therefore, Dr. Belyaev is unable to demonstrate a cause-effect relationship between the agent and the disease, *i.e.*, the relationship is not merely an association. *See In re Deepwater Horizon Belo Cases*, 2022 U.S. Dist. LEXIS 225619, at *16; *Daniels-Feasel*, 2021 U.S. Dist. LEXIS 168292, at *8-10. Further, there was no analysis of the carcinogenicity of the animal studies as they relate to glioma or acoustic neuroma as the data was also limited. Hr’g Tr. 9/29/22 a.m., at 61:7-14; Hr’g Tr. 9/29/22 p.m., at 19:16-28:22. Dr. Belyaev must do more than simply state he followed the IARC methodology; he must

actually show how he reliably applied the methodology to reach his opinion. Fed. R. Evid. 702(d); *Brown*, 765 F.3d at 773.

Finally, Dr. Belyaev relied on some of his own laboratory research, which used a technique called Anomalous Viscosity Time Dependence (“AVTD”). Dr. Belyaev Supp. Exp. Rpt., at 2. Under Rule 702(c), Dr. Belyaev’s testimony must be the product of reliable principles and methods. Under the *Frye/Dyas* test, Judge Weisberg found that “while AVTD may be a reliable method, there is no evidence in the record that anyone outside of Dr. Belyaev’s laboratory uses it, even though the technique is now more than twenty-five years old[,]” and “some publications have characterized AVTD as being an unorthodox technique.” Judge Weisberg’s August 8, 2014 Order, at 55-56. In his supplemental report, Dr. Belyaev cites to two studies, authored by a Tatyana Kuchma,⁸ for the proposition that AVTD has been used outside of Russia by a researcher in Canada, and that it is thus a generally accepted and a reliable method. Dr. Belyaev Supp. Exp. Rpt., at 2. However, in his 2018 deposition, Dr. Belyaev represents that, although Ms. Kuchma is affiliated with McGill University in Canada, she conducted her AVTD studies in Russia. Defs.’ Post-Hr’g Brief Ex. A, at 821:4-825:5.

Under Rule 702(b)-(c), Dr. Belyaev’s testimony must be based upon sufficient facts or data and must be the product of reliable principles and methods. Here, Dr. Belyaev indicates that he uses replicated studies to reach his opinion. Hr’g Tr. 09/29/22 a.m. at 73:3-74:5. The following exchange between Defendants’ counsel and Dr. Belyaev illustrates his methodology toward replication studies, as follows:

⁸ T. Kuchma, *Modification of Bactericidal Effects of Microwave Heating and Hyperthermia by Hydrogen Peroxide*, 32 J. MICROWAVE POWER & ELECTROMAGNETIC ENERGY, no. 4, at 205-14 (1997); T. Kuchma, *Synergistic Effect of Microwave Heating and Hydrogen Peroxide on Inactivation of Microorganisms*, 33 J. MICROWAVE POWER & ELECTROMAGNETIC ENERGY, no. 2, at 77-87 (1998).

Q. I completely understand. It's fair to say that researchers in the biologic and physical sciences expect results to be replicated by independent data, analytical data, laboratories and instruments before they rely on them to draw causal inferences?

A. Yes It's fair to say.

Q. And you agree that replication is important because replicability provides assurance that the effect is not due to chance alone correct?

A. Yes, I agree.

Q. And it's fair to say that confirmation of results and conclusions from one study obtained independently by other investigators is a scientific gold standard, correct?

A. Yes, I agree.

Q. And you yourself do not reach scientific conclusions based on studies that have not been replicated independently by other scientists, correct?

A. Correct.

Q. You agree that . . . it would not be appropriate to rely on results and studies that are not statistically significant, correct?

A. Yes, correct.

Q. And that's because of results are not statistically significant, the results could be due to chance alone, correct?

A. Yes.

...

[Q.] Let's pull up the March 20th, 2013 deposition transcript of page 376 Lines 6 through 20 Let me read it for the record

Question. "Okay, would you agree that any scientific methodology for reaching the causal conclusion about [radiofrequency] emissions and cancer must include an explanation for the data that are inconsistent with the conclusions?"

Answer. "So my opinion is based on all data, those which are consistent and those which are inconsistent. So I am

based all evidence, which I have comprised in my report from different points of view, including consistent and inconsistent data.”

Question. “But in reaching that conclusion wouldn’t you agree that any scientific methodology must include an explanation for data that are inconsistent with that conclusion.”

Answer. “Yes, I agree.”

Did I ask you those questions and did you give those answers?

A. Yes, I agree.

Hr’g Tr 9/29/22 a.m., at 73:3-77:6. Dr. Belyaev, however, relied upon studies that were either not replicated or failed to be replicated to support his opinion. Hr’g Tr. 9/28/22 p.m., at 57:15-61:19; Hr’g Tr. 9/29/22 p.m., at 54:3-18; Hr’g Tr. 9/29/22 p.m., at 56:2-23. Further, Chief Judge Josey-Herring precluded him from relying upon the replication results of studies that she had stricken. *See* Chief Judge Josey-Herring’s July 3, 2019 Order, at 3.

Thus, the Court finds that Dr. Belyaev’s opinion is not supported by sufficient facts and data and he failed to apply reliable principles and methods to the facts of this case. *See* Fed. R. Evid. 702 (b)-(d); *In re Deepwater Horizon Belo Cases*, 2022 U.S. Dist. LEXIS 225619, at *16; *Daniels-Feasel*, 2021 U.S. Dist. LEXIS 168292, at *8-10; *see also Claar*, 29 F.3d 499 (9th Cir. 1994). The Court, therefore, will exclude Dr. Belyaev’s opinion for the aforementioned reasons.

C. Admissibility of Dr. Wilhelm Mosgoeller’s Expert Testimony

1. Dr. Mosgoeller’s Qualifications and Relevance under Rule 702(a).

Dr. Mosgoeller is a histologist and cell biologist. *See* Supplemental Expert Report of Wilhelm Mosgoeller, M.D., at 2 [hereinafter, “Dr. Mosgoeller Supp. Exp. Rpt.”]. In 1987, Dr. Mosgoeller graduated with a medical degree from the University of Vienna. *Id.* In 1995, he was appointed to be the head of the Cell and Tissue Culture Laboratory at the University of Vienna’s Institute of Histology and Embryology. *Id.* Since 1999, Dr. Mosgoeller has been

employed as an associate professor and medical doctor at the University of Vienna Medical School's Institute of Cancer Research. *Id.* Dr. Mosgoeller is a senior histologist, cell biologist and a principal clinical investigator with SCIgenia Science Support GmbH, Ltd., a biomedical consultancy in Vienna, Austria. *Id.* Dr. Mosgoeller has been a member of scientific societies related to cellular biology and regulatory affairs, including the Austrian Standards Institute for Electromagnetic Safety Standards, and committees within the Austrian Health Ministry. *Id.*

From 2002 to 2008, Dr. Mosgoeller was appointed by the Austrian Government's Workers' Compensation Board to investigate the non-thermal biological effects of weak electromagnetic fields and radiation. *Id.* This research program was titled "Athermal Effects of Radiofrequent Electromagnetic Fields," which is referred to by Dr. Mosgoeller as "ATHEM-1." *Id.* From 2008 to 2016, Dr. Mosgoeller coordinated another study titled "Athermal Effects of Radiofrequent Electromagnetic Fields (Gene-Toxicity)" known as "ATHEM-2." *Id.* The new research program considered genotoxic effects of exposure to radiofrequency radiation. *Id.*

Dr. Mosgoeller explains that he bases his opinions upon the review of peer-reviewed work, the Bradford Hill considerations, and his own research. *Id.* at 1. Dr. Mosgoeller offers the following opinions to a reasonable degree of scientific certainty:

1. Non-thermal radiation as emitted from mobile telephones causes biological effects in some human systems and cells.
2. In principle, these biological effects can be either beneficial, neutral, or adverse.
3. "Non-thermal" radiation from mobile telephones causes an increase in DNA breakage in certain types of human cells resulting in an increased risk of cancer.
4. Some cells (*e.g.*, metabolically active cells) respond most strongly to non-thermal [electromagnetic fields], a finding which is particularly concerning for children and youth, who have a greater percentage of metabolically active "growing" tissues.

5. Because of what we know about a-thermal effects it is not possible to define new safety regulations based on the currently available data. Therefore, the recommendations for risk minimizing strategies focus on the “principle of prudent avoidance,” *i.e.*, avoid the lower exposure whenever reasonably achievable.

Dr. Mosgoeller Supp. Exp. Rpt., at 3-4. Dr. Mosgoeller provided two additional opinions in his supplemental report (opinions 6 and 7); however, Chief Judge Josey-Herring struck the opinions because he failed to reference them in his original report. *See* Chief Judge Josey-Herring’s November 14, 2018 Order, at 2-3.

As to Dr. Mosgoeller, the Court must first determine whether his specialized knowledge will help the trier of fact to understand the evidence or determine a fact in issue. Fed. R. Evid. 702(a). Although Dr. Mosgoeller may be qualified to testify on matters specific to his field of research, his opinion does not fit the issues in this case. Indeed, Judge Weisberg concluded that “Dr. Mosgoeller is not able to say that exposure to cell phone radiation causes an increased risk of glioma or acoustic neuroma specifically. His opinion is therefore limited to biological plausibility and constitutes only a building block for plaintiffs’ overall causation theory.” Judge Weisberg’s August 8, 2014 Order, at 59 (internal citation omitted). Judge Weisberg concluded that, “[b]ecause cellular biology, histology, and in vitro studies on cell phone radiation are relevant to the general causation issues presented in this case, Dr. Mosgoeller’s expertise and opinions probably aid the factfinder.” *Id.* at 60.

During the evidentiary hearing, Dr. Mosgoeller and counsel for Defendants engaged in the following exchange over Dr. Mosgoeller’s opinions:

Q. You could turn to line 8 of the deposition—8 through 11 is what we’re going to focus on. Do you see that?

...

Question: “You’re not—offering the opinion in this case that cell phones—[electromagnetic fields] from cell phones cause glioma specifically, correct?”

Answer: “Correct. Yes.”

Did I ask you that question and did you give me that answer?

A. Of course, yes. Technically speaking it’s correct.

Q. Dr. Mosgoeller, you’re also not offering the opinion that [electromagnetic] fields from cell phones cause acoustic neuroma, correct?

A. Not specifically—oh, yes. It’s here. Not specifically acoustic neuroma. We investigated the principle, and whether it causes something or not depends on the exposure.

Q. Okay.

A. Within exposed neurons and within exposed acoustic neurons; therefore, the answer is, technically speaking, yes or you’re right, yes. My laboratory work does not specifically relate to it. But in real life, when you transfer the doctor to real life conditions, which I haven’t done, the answer would have been different.

Q. Dr. Mosgoeller, I understand. I just want to make it clear, that in this case, in these proceedings—I’m not talking about your lab studies. In these proceedings, you are not offering the opinion that [electromagnetic fields] from cell phones cause acoustic neuroma, correct?

A. That’s correct. Provided that—no, let’s leave it there. That’s correct, yes.

Hr’g Tr. 9/13/22 a.m., at 58:11-61:7. And, as the Parties are aware, because Dr. Mosgoeller failed to discuss epidemiology in his original report, Chief Judge Josey-Herring struck opinions six and seven, which discuss how electromagnetic fields may cause brain tumors. *See* Chief Judge Josey-Herring’s November 4, 2018 Order, at 41-51. With the aforementioned assessments, this Court finds that Dr. Mosgoeller’s opinions should also be limited to biological plausibility and would only be a building block for Plaintiffs’ overall causation theory. In other words, Dr. Mosgoeller’s opinions could help the trier of fact understand certain of the evidence;

however, there would be an analytical gap, unsupported by facts and data, between Dr. Mosgoeller's opinion on causation and the issue in this case whether cell phone radiation specifically causes acoustic neuromas and gliomas. Fed. R. Evid. 702(a); Fed. R. Evid. 702 advisory committee's notes to 2000 amendment; *Motorola Inc.*, 147 A.3d at 755; *Joiner*, 522 U.S. at 146; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

2. Dr. Mosgoeller's Testimony under Rule 702(b)-(d).

Under Rule 702(b)-(d), Dr. Mosgoeller's testimony must be based on sufficient facts or data, the product of reliable principles and methods, and Dr. Mosgoeller must reliably apply the principles and methods to the facts of this case. *See* Fed. R. Evid. R. 702(b)-(d).

As the Court of Appeals has recognized in deciding the appeal in this case, "general acceptance can . . . have a bearing on the [reliability] inquiry." *Motorola Inc.*, 147 A.3d at 758 (quoting *Daubert*, 509 U.S. at 594). "Widespread acceptance can be an important factor in ruling particular evidence admissible, and a known technique which has been able to attract only minimal support within the community may properly be viewed with skepticism." *Id.* (quoting *Daubert*, 509 U.S. at 594). When experts on one side are in a distinct minority, that "may well raise a red flag, for '[w]hen a scientist claims to rely on a method practiced by most scientists, yet presents conclusions that are shared by no other scientist, the [trial] court should be wary that the method has not been faithfully applied.'" *Motorola Inc.*, 147 A.3d at 757-58 (quoting *Lust v. Merrell Dow Pharms., Inc.*, 89 F.3d 594, 598 (9th Cir. 1996)).

Here, Dr. Mosgoeller acknowledged that it is not generally accepted within the scientific community that electromagnetic fields from cell phones are a cause of cancer in humans. Hr'g Tr. 9/13/22 a.m., at 62:21-63:4. Dr. Mosgoeller, likewise, testified that he was not aware that any international health and safety organization, as of 2018, had taken the position that radio

frequency emissions or electromagnetic fields from cell phones are a cause of cancer in humans. *Id.* at 64:10-16. Dr. Mosgoeller was specifically asked: “As of 2018, you were not aware of any government or regulatory body that has taken the position that [electromagnetic fields] from cell phones are a cause of cancer in humans, yes or no, correct?” *Id.* at 64:17-64:20. Dr. Mosgoeller responded, “[y]es, within the understanding that they ask for proof and effects.” *Id.* at 64:21-22. Dr. Mosgoeller was then asked, “[a]s of 2018, you were not aware of any standard setting organization that has taken the position that [radiofrequency] emissions from cell phones are a cause of cancer in humans, yes or no?” *Id.* at 64:23-65:1. Dr. Mosgoeller responded, “No. Of course there [are] no institutions; again, because they are looking for proof beyond any doubt, and as long as it’s not there, the answer is no.” *Id.* at 65:2-4. Dr. Mosgoeller’s opinions, therefore, are not generally accepted in the scientific community and are in the distinct minority, which raises a red flag whether he faithfully applied a reliable method. *See Motorola Inc.*, 147 A.3d at 757-58.

Dr. Mosgoeller’s opinion also suffers from analytical gaps. Specifically, he could not connect his theory of DNA breaks to cancer because whether a DNA break or mis-repair is either health relevant or completely harmless is highly dependent on whether *particular* genes are irradiated and damaged or broken. Hr’g Tr. 9/12/22 p.m., at 62:12-18, 64:21-65:6.

Dr. Mosgoeller, however, provides no support or causal link between an increase in DNA breaks from cell phone use to the heritable mutations that can lead to acoustic neuromas or gliomas. *See* Hr’g Tr. 9/27/22 a.m., at 45:1-50:10, 58:9, 59:7. In addition, Dr. Mosgoeller fails to quantify the risk of cancer from cell phone use from either an initiation or promotion standpoint, provides no support that DNA breaks indicate an elevated risk or predictor of cancer, and does not provide

the studies he relied upon to form his opinions, such as the toxicology textbooks he referenced during his testimony. Hr’g Tr. 9/12/22 p.m., at 62:4-62:17; Hr’g Tr. 9/13/22 a.m., at 66:10-67:9.

The Court does not find that Dr. Mosgoeller reliably applied the weight-of-the-evidence methodology to his literature review. As a federal district court explained:

Courts have recognized that it is imperative that experts who apply multi-criteria methodologies such as “weight of the evidence” must “rigorously explain how they have weighted the criteria. Otherwise, such methodologies are virtually standardless and their application to a particular problem can prove unacceptably manipulable. Rather than advancing the search for truth, these flexible methodologies may serve as vehicles to support a desired conclusion.”

In re Incretin-Based Therapies, 524 F. Supp. 3d 1007, 1043-44 (S.D. Cal. 2021) (quoting *In re Mirena Ius Levonorgestrel-Related Prod. Liab. Litig. (No. II)*, 341 F. Supp. 3d 213, 247 (S.D.N.Y. 2018)). Indeed, “the assessment or weighing of the evidence must not be arbitrary, but must itself be based on methods of science.” *Magistrini v. One Hour Martinizing Dry Cleaning*, 180 F. Supp. 2d 584, 602 (D.N.J. 2002). An expert must explain his scientific method for weighing the evidence. *Id.* at 607.

Dr. Mosgoeller indicates he uses a weight-of-evidence approach. Hr’g Tr. 9/12/22 p.m., at 22:22-25. He explained that the “[w]eight of evidence describes how much—how reliable information is. If it’s only one paper, the evidence is rather low or small.” *Id.* at 23:1-23:6. He further explained

If five papers show the same pinpoint and the same effect, the evidence is pretty good. If the decision or the scientific pinpoint you discuss is held from one paper where you think, okay, this is not really a strong paper, they investigate it only six animals and not 500. Then the study with six animals does have a lower weight of evidence than the same decision based on 500 you investigated.

Id. at 23:7-23:12 (paragraph break omitted).

Dr. Mosgoeller described his literature review to Defendants' counsel, as follows:

Q. That's fine. Did you at some point, Dr. Mosgoeller, begin to maintain your own personal library of peer reviewed articles, literature addressing these issues of electromagnetic fields, mobile phones, tumors, DNA breaks, cancer?

A. Of course, this is my—this a basis of all my job.

Q. And when did you begin to collect articles, literature, research that you placed in your own personal library under this topic?

A. 1995, 1996, something like this. I'm not sure about the exact date.

Q. Have you continued to do the things necessary to maintain and update that library over the years?

A. You will find it in my original report or the supplementary. I do—it's a computer and I given the passwords was keywords [*sic*]. And I do research on the National Institute of Health Library. And I get the record every week or so.

Q. So you actually seek out articles by using search terms, going to available libraries like the National Institute of Health?

A. I [get] a suggestion—I [get] an e-mail with a suggestion of hundred, two hundred papers that match my research criteria. And then I review those hundred. And typically, I would select four or five, up to nine or ten from one information e-mail.

Q. What causes an article to make it into your library? Do you just take the ones that you like?

A. No, of course not. Like I don't—I like it—no, like is not on the—

Q. What is the basis for getting it into your library.

A. The basis is to deal with electromagnetic fields interaction with biological material. I think I can put it like this. I pull out—I do not take publications where they describe a new method using mobile phones to bring the patients to the hospital to be sure they are complying with their treatment.

There are many studies and papers like this medical doctors like to use mobile phones. They even try to combine sugar

measurements. If you're diabet[ic], you measure your sugar and you send an estimate to a central computer and a medical doctor has—so, this is organizational issues that I'm not interested in. I'm not a doctor treating patients with diabetes.

Q. I see, I see. So your search terms sometimes turn up articles or produce articles for you that are not within the boundaries or the context of your research interest?

A. I have my keywords and they are wide—they cover wide range, but at the end I read the title in abstract to decide whether it's interesting for my work. And to be interesting for my research and my work, it meets a test—the research question must be around [electromagnetic field] exposure at the low—at low dose, non-thermal intensity and biological effects.

Q. Okay. And you were showing us with your hands like three, three and a half feet apart, it's a broad search term?

A. I [start] broad and narrow it down to be sure I get what I need or want.

Q. Okay. And what you need or want would be articles on point on this topic?

A. Yes.

Q. Do you accept some into your library and reject other based on the conclusion?

A. Of course not.

Q. Why not?

A. The conclusion is interesting, but not important. Important is the data.

Q. The data?

A. The data. The data and the methodology how this author achieved the data. To give you one example, this bottle is half full or half empty. Some people would conclude it's half empty, other people would conclude it's half full. So the conclusion is something very personal. But this bottle contains about 100-200 milliliters of water. We can measure this objectively. If I rely on the conclusion, half empty, half full, I have a contradicting result—

Q. But if you rely on the data, you know how much waters in the—

A. That's correct. This bottle contains 20 [milliliters] of water, that's a fact.

Hr' Tr. 9/12/22 a.m., at 87:21-91:5. In other words, Dr. Mosgoeller first defines his search field as “biological impact of electromagnetic field exposure of biologic materials.” He then searches those key terms on libraries like the National Institute of Health and evaluates the search results by the title of the publication. He marks the title of the publications that he wants to read before investigating the publication to determine whether it is relevant to the subject of his research. Publications then become part of a list of papers in his personal library that are sorted into different groupings based on the search terms. Thereafter, he reads the publications he has saved in his library and examines the methodology used in the publication before compiling lists of the papers and flagging certain data from each study to indicate particular information, such as if the study had positive or negative results. Ultimately, he incorporates the Bradford Hill criteria to evaluate a publication's findings and whether they are consistent, replicated, or could be explained by an alternative means. *See* Hr' Tr. 9/12/22 p.m., at 14:8-22:15.

The Court does not find this to be a systematic review of literature that can be replicated by another scientist for the following reasons: (1) it is not clear what scientific method Dr. Mosgoeller chose when describing the key terms in his search; (2) it is not clear how Dr. Mosgoeller used a scientific method to evaluate the titles of certain papers to be included in his personal library; (3) he does not indicate how he weighed positive studies against negative studies, (4) he does not provide an explanation of how he analyzed the studies to consider their strengths and weaknesses; and (5) he does not identify contrary studies and attempt to reconcile his opinion with contrary evidence, such as those in the scientific community. *See generally* Dr. Mosgoeller Supp. Exp. Rpt.; *In re Incretin-Based Therapies*, 524 F. Supp. 3d at 1043-44

(excluding the expert's report because, *inter alia*, the expert failed to independently analyze relevant epidemiological data, did not conduct an independent evaluation of evidence prior to relying on other's opinions, failed to apply his stated methodology of considering and weighting all relevant information, and offered no rigorous explanation so his analysis can be verified or replicated); *Lust v. Merrell Dow Pharms.*, 89 F.3d at 596 (finding that an expert could not "'pick and choose' from the scientific landscape and present the Court with what he believes the final picture looks like"); *Magistrini*, 180 F. Supp. 2d at 602.

In addition, Dr. Mosgoeller relies upon his ATHEM-1 and ATHEM-2 research; however, he failed to: (1) follow his own method of using replicated studies; (2) indicate failed replications of studies he relied upon for ATHEM-2 research and explain the failed replications; (3) explain studies that evaluated the ATHEM-2 research and found issues with the research on micronuclei formation and contrary results; and (4) provide evidence that studies he relied on for his DNA breaks opinion in ATHEM-1 have been replicated or explain any failed replication of such studies. *See* Hr'g Tr. 9/13/22 a.m., at 67:10-71:18, 79:25-80:4, 88:3-12; Hr'g Tr. 9/13/22 p.m., at 6:24-10:14.

For the aforementioned reasons, Dr. Mosgoeller's testimony is not based on sufficient facts and data, the product of reliable principles and methods, and he has not reliably applied the principles and methods to the facts of this case. Fed. R. Evid. 702(b)-(d); *See Motorola Inc.*, 147 A.3d at 755; *Joiner*, 522 U.S. at 146; *Brown*, 765 F.3d at 773. The Court, therefore, will exclude his testimony.

D. Admissibility of Dr. Abraham Liboff's Expert Testimony⁹

1. Dr. Liboff's Qualifications and Relevance under Rule 702(a).

Dr. Liboff is physicist and molecular biologist. *See* Supplemental Expert Report of Abraham R. Liboff, B.S., M.S., Ph.D., [herein after Dr. Liboff Supp. Exp. Rpt.], *Appendix A: Curriculum Vitae*. In 1964, Dr. Liboff received his Ph.D. from New York University. *Id.* From 1965 to 1972, Dr. Liboff was a senior researcher and associate professor in the New York University Department of Physics. *Id.* From 1972 to 2002, Dr. Liboff was a physics professor at Oakland University in Rochester, Michigan, where he served as Chair of the Physics Department and Director of the Doctoral Program in Medical Physics. *Id.* From 2004 to 2010, he was a research professor in the Center for Molecular Biology and Biotechnology at Florida Atlantic University. *Id.* Dr. Liboff is currently a Professor Emeritus of Physics at the Oakland University in Rochester, Michigan. *Id.*

Dr. Liboff served as an Editor for *Electromagnetic Biology and Medicine* and has, throughout his career, served as a peer reviewer for many scientific journals. *See* GX 2588, *Liboff De Bene Esse* Dep., at 46:16-24, 55:14-56:9. Dr. Liboff has been awarded 43 United States and foreign patents in the area of electromagnetic therapy, and published more than 100 peer review articles, book chapters, and reviews on electromagnetic fields and interaction with living systems. GX 2587, *Liboff C.V.*; GX 2588, *Liboff De Bene Esse* Dep., 33:13-18, 61:12-62:22; 70:7-17. Dr. Liboff holds the patent for devices that use Ion Cyclotron Resonance, a theory he developed and introduced in 1984 at a North Atlantic Treaty Organization conference,

⁹ The Court understands that Dr. Liboff died on January 9, 2023. *See* Ora Hirsch Pescovitz, *Bereavement Notice: Abraham Liboff – January 9, 2023*, OAKLAND UNIV.: OU OFFICIAL NEWSLETTER (Jan. 17, 2023), <https://www.oakland.edu/newsletters/in-memoriam/2023/abraham-liboff-january-9-2023>; Joseph R. Salvatore & Henry Lai, *In Memoriam*, 42 *ELECTROMAGNETIC BIOLOGY & MEDICINE* 1, 1-2 (2023).

and was selected by the WHO to serve as a member of the IARC Working Group in 2002 tasked with classifying the carcinogenicity of ELF electromagnetic fields. *See* GX 2588, Liboff *De Bene Esse* Dep., 64:17-65:16, 83:22-85:5; Liboff *De Bene Esse* Dep., 65:17-66:5 (Nov. 20, 2013). Judge Weisberg found Dr. Liboff qualified to testify as an expert on matters relating to biophysics, electromagnetics, and the biological effects of cell phone radiation. *See* Judge Weisberg's August 8, 2014 Order, at 71.

Dr. Liboff opines, to a reasonable degree of scientific certainty, that radiofrequency and ELF radiation from cell phones can cause non-thermal biological changes. *See* GX 2589, Liboff *De Bene Esse* Dep., 335:10-335:16; Judge Weisberg's August 8, 2014 Order, at 69. As Judge Weisberg observed, "Dr. Liboff does not offer an opinion on whether cell phones cause or promote glioma, acoustic neuroma, or any other type of tumor. Rather, his opinion is limited to biological plausibility, based on his belief that the radiofrequency and ELF radiation emitted by cell phones are 'biologically interactive' and have produced various effects in cells and animals." *See* Judge Weisberg's August 8, 2014 Order, at 69.

This Court does not find that Dr. Liboff's biological plausibility opinion is relevant to the general causation question whether cell phone radiation causes acoustic neuromas and gliomas. Dr. Liboff suggests two pathways by which electromagnetic fields from cell phones cause biological effects: (1) ELF modulation; and (2) radical pair excitation. GX2589, Liboff *De Bene Esse* Dep. Tr., at 214:10-217:14. Dr. Liboff offers that the only ELF-modulation effect he is aware of is electroencephalogram ("EEG") effects, while the only effect of radical pair excitation in humans he is aware of is chronodisruption. Dr. Liboff provides no evidence, however, that either pathway causes or leads to acoustic neuroma or glioma in humans. In contrast, IARC research notes that (1) there is no research data linking EEG effects to cancer; and (2) radical-

pair mechanisms in biological processes at field strengths below 500 microteslas is still lacking. *Id.* at 219:15-219:19, 225:23-261:25, 274:2-274:9, 275:22-276:25; GX1524.0373, IARC Monograph, at 363 (2013); GX1522.0101, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans Volume 80, *Non-Ionizing Radiation Part 1: Static and Extremely Low-Frequency (ELF) Electric and Magnetic Fields*, at 90 (2002). Therefore, Plaintiffs fail to connect how Dr. Liboff's testimony on biological plausibility is relevant to whether cell phone radiation causes acoustic neuromas and gliomas, and how his testimony could be relevant to helping a factfinder understand general principles at issue in this case. *See* Fed. R. Evid. 702(a); Fed. R. Evid. 702 advisory committee's notes to 2000 amendment; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

2. Dr. Liboff's Testimony under Rule 702(b)-(d).

Notwithstanding the Court's conclusion *supra* that Dr. Liboff's testimony would be unhelpful to the trier of fact, Fed. R. Evid. 702(a), under Rule 702(b)-(d), Dr. Liboff's testimony must be based on sufficient facts or data and the product of reliable principles and methods, and he must reliably apply the principles and methods to the facts of this case. *See* Fed. R. Evid. 702(b)-(d).

Dr. Liboff indicates that his opinions rely upon his own experiments, experiments of other scientists, discussions with other scientists at meetings and presentations, and a literature search. *See* GX2588, Liboff *De Bene Esse* Dep. Tr., at 90:5-90:23. Dr. Liboff engaged in the following exchange with Defendants' counsel about the methodology for his literature review:

Q. So you would agree that the publication process of scientific research is a major part of the scientific method?

A. Yes, it is.

Q. And you would agree that the publication process helps establish a consensus within the scientific community, correct?

A. Yes.

Q. You would agree that an important part of methodology for reviewing and determining whether experimental studies should be relied upon in reaching an opinion is whether the study has been independently verified by other scientists or laboratories?

A. Correct.

Q. You would agree that independent verification of a study is referred to as “replication,” correct?

A. Correct.

Q. The traditional approach in science requires that publications of an – experimental studies be greeted with some skepticism, correct?

A. Correct.

Q. In terms of the validity of a study, it should be replicated externally by an independent lab, correct?

A. Correct.

Q. It’s important to know, also, whether attempted replications of studies have shown contrary results, correct?

A. Correct.

Q. Now, as part of a generally accepted methodology, it is important to consider all relevant literature, including positive and negative studies, correct?

A. Correct.

Q. We can agree that its inappropriate to cherry-pick just those studies that agree with your own opinion and exclude those studies that are inconsistent with your opinion, correct?

A. Correct.

GX2589, Liboff *De Bene Esse* Dep. Tr., at 249:3-251:2. Although Dr. Liboff testified that he followed such standards in implementing his methodology for literature review, he fails to provide specifics regarding the times a study is replicated, address failed replications of studies

cited in his expert report, or explain why his opinions are not shared by others in the scientific community. *Id.* at 263:14-20, 268:18-22, 271:5-272:13, and 331:15-332:8. Indeed, Dr. Liboff reasons that addressing contrary literature would have made the report unreadable and “required far more effort than I was prepared to put forth.” GX2588, Liboff *De Bene Esse* Dep. Tr., at 120:21-121:2.

When asked to explain how he knows he has used a generally accepted methodology in the scientific community when he arrives at an opinion, Dr. Liboff responded that he knows when there is a “lack of criticism.” *Id.* at 91:10-14. He elaborated: “Others have not criticized me for doing so, so it’s been correct. Plus, the fact I’m at a point where I basically know how to approach these matters without thinking about them too much.” *Id.* at 91:14-20. When asked whether the methodology he employed is a reliable methodology, and why he thought it was a reliable methodology, Dr. Liboff explained: “[b]ecause, first of all, they were not criticized, but more important than that, they adhered unconsciously as they may have done to accepted principles that I’ve outlined elsewhere in terms of reproducing experiments trying to obtain the same experiment but by varying one other parameter to see what happens.” *Id.* at 94:13-95:14. Dr. Liboff explained that his methodology was acceptable and for a senior scientist, this is “not a matter that ordinarily comes up. It’s very importantly legally, I understand, and it’s part of what’s driving this particular discussion, but from the standpoint of the working scientist, that person really, really would say I am adhering to a procedure that is acceptable. You do it without thinking.” *Id.* at 95:2-14.

The Court appreciates that Dr. Liboff has enjoyed a long scientific career; however, under Rule 702, the Court must be able to discern whether he used sufficient facts or data and whether he used reliable principles or methodologies, and whether Dr. Liboff applied the reliable

principles and methods to the facts of the case. Fed. R. Evid. 702(b)-(d). These requirements cannot be satisfied by an expert indicating he reliably applied an accepted methodology without describing what methods he used and how he applied them. *Brown*, 765 F.3d at 773. In other words, the analytical gap between the data he used and his proffered opinion is too great.

Impressively, here, Dr. Liboff appears not to have followed his own methodology. *Motorola Inc.*, 147 A.3d at 755 (citing *Joiner*, 522 U.S. at 146). Instead, it appears that Plaintiffs rely to their detriment upon the *ipse dixit* of their expert. *Id.* The Court, therefore, finds that Dr. Liboff's expert testimony must be excluded.

E. Admissibility of Dr. Dimitris J. Panagopoulos's Expert Testimony

1. Dr. Panagopoulos' Qualifications and Relevance under Rule 702(a).

Dr. Panagopoulos is a biophysicist who has a background and expertise in non-ionizing radiation and electromagnetic fields. *See* Supplemental Expert Report of Dimitris J. Panagopoulos, Ph.D., at 4 [hereinafter "Dr. Panagopoulos Supp. Exp. Rpt."]. In 2001, he completed his Ph.D. in Biology at the University of Athens. *Id.* Since 2002, he has worked in the Department of Biology at the University of Athens as a researcher and lecturer. *Id.* Since 2014, Dr. Panagopoulos has worked at the National Center for Scientific Research "Demokritos," Laboratory of Health Physics, Radiobiology & Cytogenetics. *Id.*

Dr. Panagopoulos is a peer reviewer for several international scientific journals. *Id.* The journal *Mutation Research* named him a "Top 10 cited Author in 2007 & 2008" for his article titled *Cell Death induced by GSM 900 MHz and DCS 1800 MHz Mobile Telephone Radiation*. *Id.* Dr. Panagopoulos has been invited to testify on the health effects of cell phone radiation before the Greek Parliament and the Canadian Parliament. *Id.* He was also a member of the organizing committee of the first and second International Workshops on Biological Effects of Electromagnetic Fields in Greece. *Id.* at 5.

Dr. Panagopoulos' opinion is that "it is more probable than not that cell phone radiation causes adverse health effects in humans." *Id.* at 10. His opinion arises out of his *in vivo* experimental research involving exposing *Drosophila melanogaster*, the common fruit fly, to cell phone radiation and analyzing the DNA of their eggs for fragmentation. *Id.* at 8-10.

Dr. Panagopoulos notes that fruit flies are a well-studied organism, with cellular and gene similarities to mammals, but experience a higher resistance to radiation than mammals. *Id.* at 9. Cellular functions in fruit flies are identical to those in mammalian cells and substantial gene similarities exist between fruit flies and mammals, such as the same type of cell membranes, "free ions like calcium (Ca^{+2}), potassium (K^{+}), sodium (Na^{+}), initiating and accompanying all cellular events, and . . . the same intracellular organelles like mitochondria, ribosomes, endoplasmic reticulum, and nucleus containing the cell's genomic DNA." *Id.* Dr. Panagopoulos explains that, because of these similarities, it is his "opinion that similar severe DNA damage can be expected to occur in humans when exposed to radiation from cell phones." *Id.* at 10.

Dr. Panagopoulos explains that severe DNA damage recorded in his "experiments (DNA fragmentation) cannot be repaired by the organism's defense mechanisms, and it is the main cause of either cancer when occurring in somatic cells other than neural [cells], neurogenerative diseases when occurring in neural cells, and reproductive declines or even heritable mutations when occurring in the gametes (reproductive cells)." *Id.*

The Court finds that Dr. Panagopoulos' opinion is simply not relevant or does not fit the general causation question whether cell phone radiation causes acoustic neuromas and gliomas. As to Dr. Panagopoulos, Judge Weisberg observed that he "is not offering an opinion that cell phone radiation causes glioma or acoustic neuroma. Like Dr. Mosgoeller, his opinion is a building block in plaintiffs' general causation theory." Judge Weisberg's August 8, 2014 Order,

at 64. Furthermore, Dr. Panagopoulos concedes that he does not speak to brain cancer in this expert report. *See* Hr’g Tr. 9/21/22 a.m., at 24:20-21. To be sure, Dr. Panagopoulos and Defendants’ counsel engaged in the following exchange:

Q. In your expert reports, Dr. Panagopoulos, and that includes your supplemental 2017 report, you do not state an opinion that cell phones cause glioma in humans, correct?

A. No, I don’t sir. Yes, correct.

Q. And in your expert report, including your supplemental report of 2017, you do not state an opinion that cell phones cause acoustic neuroma. Is that correct?

A. Correct.

Hr’g Tr. 9/21/22 a.m., at 25:15-22. In addition, Dr. Panagopoulos has testified that: (1) he is neither a medical doctor nor an oncologist; (2) he does not conduct research on the cause of cancer in humans; (3) he is not an expert in human cancer; (4) he is not an expert in general methodologies for determining whether an exposure causes cancer in humans; (5) he does not conduct cancer research on animals; (6) he is not an expert in the molecular genetics of cancer; and (7) he does not conduct epidemiologic research on cancer or have a degree in epidemiology. *Id.* at 15:13-21:11. The Court does not find Dr. Panagopoulos’ testimony to be relevant to the question whether cell phone radiation causes gliomas or acoustic neuromas. Nor does the Court find Dr. Panagopoulos’ expertise would help the factfinder understand an issue in the case or general principles at issue in this case. *See* Fed. R. Evid. 702(a); Fed. R. Evid. 702 advisory committees’ notes to 2000 Amendment; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

2. Dr. Panagopoulos’ Testimony under Rule 702(b)-(d).

Under Rule 702(b)-(d), Dr. Panagopoulos’ testimony must be based on sufficient facts or data, the product of reliable principles and methods, and Dr. Panagopoulos must reliably apply the principles and methods to the facts of this case. *See* Fed. R. Evid. R. 702(b)-(d).

Dr. Panagopoulos does not apply a reliable principle and method. As the Parties are keenly aware, Judge Weisberg excluded Dr. Panagopoulos under the *Frye/Dyas* test because his method was not commonly accepted in the scientific community. See Judge Weisberg's August 8, 2014 Order, at 69. Judge Weisberg found that "Dr. Panagopoulos' exposure methodology is central to his laboratory experiments and to the causation opinions for which plaintiffs have proffered him as an expert. Because he did not use a generally accepted methodology, Dr. Panagopoulos does not satisfy the third requirement of *Dyas*, and his testimony must be excluded." *Id.* at 69. Judge Weisberg described the methodology, which is the same methodology before this, as follows:

Dr. Panagopoulos' opinions are derived principally from his own laboratory experiments exposing fruit flies to cell phone radiation. In these experiments, Dr. Panagopoulos (or another member of his research team) placed adult fruit flies, separated by gender, into test tubes, which contained standard fly food in the bottom and were sealed with cotton plugs to allow the flies to breathe but not escape. The researchers then positioned a commercially available cell phone against the test tube so that the antenna of the phone was touching and parallel to the tube. Dr. Panagopoulos testified that the researchers used a typical consumer cell phone for the experiments in order "to test the effects of the real thing." The vials of flies were then exposed or sham-exposed to cell phone radiation. Exposure consisted of a researcher reading a script into the phone during a phone call. For the sham-exposed group, the researcher read the same script, but the phone was turned off. Each exposure constituted a "dose," and the vials were dosed multiple times over the course of the experiment. After 48 hours, the male and female flies were combined into one vial to allow them to mate while exposures and sham-exposures continued for another 72 hours. The flies were then removed from the vials and the vials, containing developing embryos, were kept in a culture room for another six days without exposure to additional cell phone radiation. The researchers then counted the number of pupae in the exposed and sham-exposed samples to compare the reproductive capacity of each group. This count was blinded. The researchers also used the TUNEL assay and two other assays to analyze the ovaries of the exposed and sham-exposed female flies.

Based on these experiments, Dr. Panagopoulos found that exposure to radiation from cell phones cause severe DNA damage, impairing the flies' reproductive capacity. Based on his knowledge of the literature and genetic similarities between fruit flies and humans, Dr. Panagopoulos concluded that cell phone radiation more likely than not causes adverse health effects in humans. His opinion is that cell phone radiation can damage DNA in humans the same way it does in fruit flies, because the relevant cellular genetic structures of humans and flies are similar.

Id. at 66-67 (internal citation omitted). Again, Dr. Panagopoulos relies upon this methodology to form his opinion in his Supplemental Report.

Unfortunately, Dr. Panagopoulos is unable to explain why the Court should find the methodology to be reliable. Fed. R. Evid. 702(c); Hr'g Tr. 9/20/22 a.m., at 59:3-60:9. Plaintiffs attempt to rely upon stricken sections regarding the reliability of simulated signals versus more reliable real signals, even though Chief Judge Josey-Herring had already concluded that "Dr. Panagopoulos never used the word 'simulated' in his original report. Nor did[] Dr. Panagopoulos mention that studies and experiments were being conducted using real and/or simulated exposures." Chief Judge Josey-Herring's August 28, 2018 Order, at 28. In addition, tellingly, no one outside the University of Athens uses Dr. Panagopoulos' fruit-fly exposure method. His exposure methodology has not been generally accepted in the scientific community. What is perhaps more, Dr. Panagopoulos' methodology has been criticized or received negative comments from IARC, the British Health Protection Agency, and the International Commission on Non-Ionizing Radiation Protection. *See* 9/21/22 a.m. Hr'g Tr., at 38:14-43:21, 65:15-67:9; Judge Weisberg's August 8, 2014 Order, at 67-69; GX1524.301, IARC Monograph, at 291. In short, there is no widespread acceptance of the methodology Dr. Panagopoulos employs. This continues to raise a red flag as to the reliability of the method. *Motorola Inc.*, 147 A.3d at 757-58; *Lust*, 89 F.3d at 598; Fed. R. Evid. 702.

Dr. Panagopoulos also failed to follow his own methodological principles. *See* Dr. Panagopoulos Supp. Exp. Rpt., at 10-11; *In re Rezulin Prods. Liab. Litig.*, 309 F. Supp. 2d 531, 564 (S.D.N.Y. 2004) (finding that an expert’s “selectivity in defining the universe of relevant evidence thus violated his own standard of proper methodology[,]” “which suggests that he does not apply the same rigor in the courtroom that he would apply to his [professional] endeavors”). Dr. Panagopoulos explained that, under his methodology, for experiments, it is important “to follow very specific protocol[s] and keep, as much as possible, all environmental parameters, if possible, identical so that you do not have too much variability in your results.” Hr’g Tr. 9/20/22 a.m., at 45:4-9. However, Dr. Panagopoulos admitted that there are fluctuations with phone signals and variations in environmental parameters. Hr’g Tr. 9/20/22 a.m., at 61:5-62:9. Therefore, Dr. Panagopoulos could not account for the consistency—or lack thereof—he claims for his experiments. In addition, although Dr. Panagopoulos indicated that scientific replication is an important principle, there were no independent replications of his work. Further, Dr. Panagopoulos dismissed, without sound, thoughtful explanation, unfavorable independent replications as flawed. *See* 9/20/22 p.m. Hr’g r., at 11:19-12:7; Hr’g Tr. 9/21/22 a.m., at 37:6-54:6.

In addition, Dr. Panagopoulos’ methodology of reviewing other studies is not reliable because he fails to explain how the studies assisted him and whether the studies are reliable. Hr’g Tr. 9/21/22 a.m., at 5:16-6:1. Indeed, Dr. Panagopoulos relied more on generalities in referencing studies that purportedly support his opinion. Hr’g Tr. 9/20/22 p.m., at 42:5-53:14. This is illustrated through the following exchange between Plaintiffs’ counsel and

Dr. Panagopoulos:

Q. What I’m asking you is, when you review a study, how do you determine whether it’s something you will rely upon or not?

Where do you—what’s your criteria, your methodology for analyzing the study?

A. The criteria is more general criteria, whether the descriptions of their methods are well described, their methods—the description of the exposure system is described. If there are assays they used are negatively described, the results are clearly described. And if their conclusions are based really on the results. This is the general methodology.

I have considered many studies both with positive and negative findings. In my report I mostly cited studies that are in agreement of my opinion, supported. And I would like to say that in my—in several papers of mine, several publications of mine, I have analyzed both positive and negative findings.

I have analyzed several other studies with negative findings. I did that in my 2004 paper and I analyzed several findings of previous studies, most of them they were negative. And I even suggested what were their flaws. And I did the same in a 2013 study of mine, EMF magnetic field. I analyzed previous studies with several of them had negative findings and I analyzed several flaws I found in their methodology.

I mean I have done this in several publications to analyze studies regarding their methodology.

Hr’g Tr. 9/20/22 p.m., at 56:3-57:4. It is unclear to the Court what methodology Dr. Panagopoulos used in reviewing studies, or how he weighted or addressed negative studies against positive studies. *In re Incretin-Based Therapies*, 524 F. Supp. 3d at 1043-44; *In re Mirena Ius Levonorgestrel-Related Prod. Liab. Litig. (No. II)*, 341 F. Supp. 3d at 247; *Magistrini*, 180 F. Supp. 2d at 602. He explains that he chose to cite more positive studies for his opinion. This answer suggests that Dr. Panagopoulos cherry-picked studies to support pre-determined results. See Hr’g Tr. 9/20/22 p.m., at 56:15-16; *In re Rezulin Prods. Liab. Litig.*, 309 F. Supp. 2d at 564. In addition, using general statements to indicate that methodologies were reliably applied does not satisfy the requirements of Fed. R. Evid. 702. *Motorola Inc.*, 147 A.3d at 755; *Joiner*, 522 U.S. at 146; *Brown*, 765 F.3d at 773.

Finally, Dr. Panagopoulos does not bridge the analytical gap of tying together existing data with his opinion. *See Motorola Inc.*, 147 A.3d at 755; *Joiner*, 522 U.S. at 146. Specifically, Dr. Panagopoulos fails to provide how his research and experiments on fruit flies can be directly extrapolated to humans and how the effects on the fruit flies tie to cancer generally or brain cancer, and specifically gliomas or acoustic neuromas in humans. Hr’g Tr. 9/20/22 a.m., at 38:7-39:15; Hr’g Tr. 9/21/22 a.m., at 33:17- 36:19, 71:25-72:3. Dr. Panagopoulos fails to satisfy the requirements of Rule 702; therefore, the Court must exclude his testimony.

F. Admissibility of Dr. Laura Plunkett’s Expert Testimony

Dr. Plunkett is a pharmacologist, toxicologist, regulatory consultant, human health risk assessor, and principal of a consulting company. *See Supplemental Expert Report of Laura M. Plunkett, Ph.D., DABT* [hereinafter “Dr. Plunkett Supp. Exp. Rpt.”], at 2. In 1984, Dr. Plunkett received her Ph.D. in pharmacology from the College of Pharmacy of the University of Georgia. *Id.* at 3. From 1984 to 1986, she was a Pharmacology Research Associate Training fellow at the National Institute of General Medical Sciences, located in Bethesda, Maryland. *Id.* From 1986 to 1989, Dr. Plunkett was an Assistant Professor of Pharmacology and Toxicology in the medical school at the University of Arkansas for Medical Sciences. *Id.* From 1989 to 1997, she worked for ENVIRON Corporation, where she consulted on regulatory matters before the United States Food and Drug Administration and U.S. Environmental Protection Agency. *Id.* In 2001, Dr. Plunkett became a consultant at Investigative Biostrategies, LLC. *Id.* at 2.

Judge Weisberg concluded as follows:

Dr. Plunkett does not offer any opinions directed to the ultimate issue in this phase of the litigation, general causation of brain tumors, but instead she validates the methodologies of other experts and the inferences that can fairly be drawn from different lines of scientific evidence. She is essentially a support witness.

Judge Weisberg's August 8, 2014 Order, at 72. Judge Weisberg further noted that, in her 2013 report, Dr. Plunkett offered three opinions to a reasonable degree of scientific certainty, as follows: (1) "'Weight of Evidence' is a generally accepted methodology for inferring disease causation;" (2) "it is generally accepted to extrapolate results from fruit fly and other *in vivo* studies to predict health effects in humans;" and (3) "it is generally accepted to extrapolate findings from *in vitro* studies in human and mammalian cells to predict health effects in humans." *Id.* at 72-73.

In her supplemental report, Dr. Plunkett now opines:

There are a variety of new peer-reviewed studies that provide additional scientific support for a biologically plausible mechanism for RFR-induced tumor formation, specifically brain tumors and acoustic neuromas in humans. It is my opinion to a reasonable degree of scientific certainty that the likely mechanism involves induction of oxidative stress and initiation of carcinogenesis through a series of non-genotoxic events that eventually lead to DNA damage and transition of cells to preneoplastic and then neoplastic phenotypes.

Dr. Plunkett Supp. Exp. Rpt., at 25.

Chief Judge Josey-Herring, however, struck much of Dr. Plunkett's supplemental expert report because her opinion and conclusion, along with the studies that she cited in support of her new and expanded conclusion, far surpassed the scope of her original report. Chief Judge Josey-Herring's August 28, 2018 Order, at 3-5. Specifically, she ruled, as follows:

Dr. Plunkett never included this conclusion in her original expert report. Rather, in the statement of purpose section of her original expert report, Dr. Plunkett states that she would be testifying as to the "use" of standard methodology in the practice of toxicology and human health risk assessment with a particular emphasis on the use" of a weight of the evidence methodology. Nowhere in her original report, did Dr. Plunkett state that she would actually be utilizing a weight-of-the-evidence or other toxicology or human health risk assessment methodology to render an opinion about the issue of general causation. Moreover, Plaintiffs stated in their briefings that Dr. Plunkett "did not possess a general causation

opinion” before submitting her original report. *See* Pl.’s Opp’n to Def.’s Mot. Strike at 11. However, to justify the inclusion of this new opinion by Dr. Plunkett, Plaintiffs submit that Dr. Plunkett’s opinion has “evolved” since her last report, and therefore the instant conclusion is properly included in her supplemental report. *See* Pl.’s Opp’n to Def.’s Mot. Strike at 11-13.

In Judge Weisberg’s March 16, 2017 Order, the Court denied Plaintiffs’ Motion for Additional Discovery and held that Plaintiffs were not entitled to a general causation do-over. This sentiment was also emphasized and reiterated in the Court’s November 6, 2017 Order. *See* 11/06/2017 Order at 3 (Josey-Herring, J.). Therefore, Defendants’ request to strike will be granted as it pertains to the general causation opinions included in Dr. Plunkett’s supplemental report. As a result, the Court will strike any study or publication, regardless of its publication date, included in Dr. Plunkett’s supplemental report that supports her opinion on general causation. Specifically, as numbered in the Defendants’ response to Plaintiffs’ Supplemental Briefing, Dr. Plunkett may not cite to and/or reference Study #2-4 and #6-16 for the purpose of supporting her general causation opinion. Notwithstanding, Dr. Plunkett will be able to refer to those studies for the limited purpose of opining that these are the type of studies that may be used or analyzed by experts when rendering their causation opinions

Chief Judge Josey-Herring’s August 28, 2018 Order, at 4-5. Likewise, the Court must decline to consider Dr. Plunkett’s new opinion.

The Court does not find Dr. Plunkett’s remaining opinions as a support witness to be relevant now that the Court has excluded Plaintiffs’ other experts. Dr. Plunkett, by herself, does not offer a general causation opinion that cell phone radiation causes glioma or acoustic neuroma. *See* Fed. R. Evid. 702(a); Fed. R. Evid. 702 advisory committee’s notes to 2000 amendment; *Daubert*, 509 U.S. at 591; *Daubert II*, 43 F.3d at 1315.

Were the Court inclined to consider Dr. Plunkett’s testimony, it would only do so in relation to Dr. Mosgoeller’s opinions, based in part on the results of *in vitro* experiments, and Dr. Panagopoulos’ opinions, based on extrapolating results from fruit flies.

As to *in vitro* studies, Defendants indicate that they do not dispute the possibility of non-human studies playing a part in a causation opinion. Such is evidenced by their decision not to cross-examine Dr. Plunkett in 2013. Thus, the point is not at issue. Defs' Post-Hr'g Brief, at 87; Judge Weisberg's August 8, 2014 Order, at 73. Moreover, it is unclear whether her testimony would help the trier of fact understand the evidence because she does not connect her testimony specifically to Dr. Mosgoeller or the methodologies he used in his supplemental report to arrive at his opinion. *See Kumho Tire*, 526 U.S. at 156; Dr. Plunkett Supp. Exp. Rpt., at 5-8.

As to the methodology concerning fruit flies, Dr. Plunkett does not connect her testimony about fruit flies to Dr. Panagopoulos' methodology and his cause-and-effect analysis, which does not connect fruit fly studies to cancer. Dr. Plunkett Supp. Exp. Rpt., at 10; Hr'g Tr. 12/13/13 p.m., at 1508:25-1509:22.

What is more, even were the Court to allow Dr. Plunkett's testimony, it would be cumulative. Plaintiffs' other experts are clearly capable of explaining comprehensively their methodologies and the studies upon which they base their opinions. *See Fed. R. Evid.* 403. And, had Plaintiffs expressed general causation opinions, Dr. Plunkett's testimony is not relevant because it would not help the trier of fact understand evidence or a fact in issue in this case. *Fed. R. Evid.* 702(a).

G. Plaintiffs' Request to Exclude the Testimony of Defendants' Experts

Plaintiffs request exclusion of the testimonies of Defendants' two experts, Dr. Meir J. Stampfer and Dr. John J. Laterra, who provided credible testimony challenging Plaintiffs' experts' opinions and methodologies.

Dr. Stampfer is a Professor of Medicine at Harvard Medical School and Professor of Epidemiology and Nutrition at the Harvard T.H. Chan School of Public Health. *See Supp.*

Report of Meir J. Stampfer, M.D., M.P.H., Dr.P.H., at 2. He has co-authored more than 1,100 scientific articles, many of which are related to cancer epidemiology. He is the Principal Investigator of the National Institutes of Health-funded T32 Cancer Epidemiology training award at Harvard. *Id.*

Dr. Stampfer's opinion was that the results from newer studies taken with the prior epidemiological evidence support the conclusion that there "is no positive association between the use of cellular telephones and the risk of brain cancer." He testified that his "opinion remains, and is even strengthened because of the high-quality cohort data and continued stable brain cancer incidence rates over time, the epidemiological data show no evidence of a causal association." *Id.* He further opines that "Dr. Kundi's opinions presented in his expert report and testimony are scientifically flawed[.]" *Id.*

Dr. Laterra is a clinical neuro-oncologist and molecular biologist whose primary focus is brain tumors. *See Supp. Expert Report of John J. Laterra, M.D., Ph.D., at 1.* He is a Professor of Neurology, Oncology, and Neuroscience and the Director of the Division of Neuro-Oncology in the Department of Neurology at Johns Hopkins University School of Medicine since 1994. *Id.* He sits on the Scientific Advisory Council of the American Brain Tumor Association and is a Scientific Advisor for the brain cancer portfolio of the James S. McDonnell Foundation. *Id.* He has also served as a member of the National Institute of Health's Brain Disorders and Clinical Neurosciences Study Section. *Id.* Dr. Laterra's opined that "using the generally accepted Bradford Hill methodology for evaluating causation, there is no credible or generally accepted scientific evidence supporting a role for radiofrequency (RF) fields from wireless phones in the causation or subsequent behavior of brain tumors. (Laterra 2013 at 2)." The scientific literature published since 2013 confirms and strengthens that opinion[.]" *Id.* He bases his opinion on his

personal extensive review of scientific literature and “on the extensive body of newly emerging information elucidating the molecular basis of brain tumors and its impact on our understanding of brain cancer biology and its causation.” *Id.*

Plaintiffs argue that the Court should exclude the experts under *Daubert*/Rule 702 and Rule 403 because (1) they have not conducted a study on cell phones or radiofrequency radiation; (2) they have not otherwise performed cursory reviews of the scientific body of research; (3) they have used no discernable or consistent methodology; and (4) they were tasked to “attack” Plaintiffs’ experts. *See* Pl.’s *Daubert*/R. 702 Post-Hearing Brief, at 84-85.

As an initial matter, Plaintiffs are permitted to attack the credibility of Defendants’ experts’ testimony and supplemental reports under *Daubert*/Rule 702 in making their argument that their own experts’ methodology and opinions satisfy the requirements of Rule 702 and case law. The Court has considered Plaintiffs’ evidence and arguments, as well as Defendants’ evidence and arguments, in reaching a decision whether to admit Plaintiffs’ experts. Plaintiffs’ request to exclude Defendants’ experts’ testimony under Rule 702 is not before this Court.

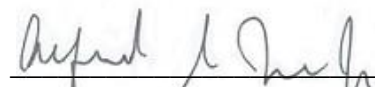
As the Parties appreciate, the general causation inquiry was bifurcated, with the first phase designated to assess whether Plaintiffs’ experts are admissible. *See* Judge Burgess’ December 7, 2011 Order; Judge Weisberg’s August 8, 2014 Order, at 5-6. During the November 15, 2011 hearing, Judge Burgess authorized Plaintiffs the latitude to challenge Defendants’ experts in terms of undermining the experts’ testimony; however, he ruled that Plaintiffs’ request to exclude Defendants’ experts would not be considered until the next phase of discovery. *See* Hr’g Tr. Nov. 15, 2011, at 74:5-76:17. What is more, likely aware that the request had no factual or legal basis, Plaintiffs have failed to show why Defendants’ two experts should be excluded under Rule 702. That is, they fail to show that their testimony would not

help the trier of fact to understand the evidence or determine a fact in issue, their opinions lack a basis in sufficient facts or data, are not the product of reliable principles and methods, or fail to apply the principles and methods reliably to the facts of the case. *See* Fed. R. Evid. 702.

Plaintiffs only generally attack the experts' qualifications. Pl.'s Daubert/R. 702 Post-Hearing Brief, at 84-87. The Court is not moved and will deny the request.

ACCORDINGLY, it is by the Court this 25th day of April 2023, hereby

ORDERED that Defendants' July 19, 2019 *Motion to Exclude Plaintiffs' Expert Testimony* is **GRANTED**.


Judge Alfred S. Irving, Jr.

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**DENIAL OF PLAINTIFFS' REQUEST FOR CONSIDERATION
OF THE ENTIRE EXPERT REPORTS AND SUPPLEMENTAL
EXPERT REPORTS DURING THE SEPTEMBER 2022 *DAUBERT*
HEARING (IRVING, J.)**

***APRIL 21, 2021 ORDER DENYING PLAINTIFFS' MOTION FOR
LEAVE TO ADD A GENERAL CAUSATION EXPERT TO PHASE I
OF DISCOVERY (IRVING, J.)***

**IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION**

Michael Patrick Murray, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2001 CA 008479 B
)	
Motorola, Inc., <i>et al.</i>,	)	Judge Alfred S. Irving, Jr.
)	
Defendants.)	
<hr/>		
Dino Schofield,)	
)	
Plaintiff,)	
v.	)	Case No. 2002 CA 001371 A
)	
Motorola, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
<hr/>		
Pamela Cochran, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001369 A
)	
Audiovox Communications Corp., <i>et al.</i> ,)	
)	
Defendants.)	
<hr/>		
David Keller, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001372 A
)	
Nokia, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
)	
)	
)	
)	
)	
<hr/>		

the Estate of Paul G. Prischman)
)
Plaintiff,)
)
v.) Case No. 2011 CA 002113 B
)
Motorola Inc., *et al.*,)
)
Defendants.)

Bret Kenyon Bocook and)
Laura Lynn Bocook,)
)
Plaintiffs,)
)
v.) Case No. 2011 CA 002453 B
)
Motorola, Inc., *et al.*,)
)
Defendants.)

Mindy S. Kemp Brown, individually and as)
Special Administrator of the Estate of)
Daniel Todd Brown,)
)
Plaintiffs,)
)
v.) Case No. 2011 CA 006710 B
)
Nokia, Inc., *et al.*,)
)
Defendants.)

Monique Solomon, individually and as Special)
Administrator of the Estate of Andrew J. Solomon,)
)
Plaintiffs,)
)
v.) Case No. 2011 CA 008472 B
)
Motorola, Inc., *et al.*,)
)
Defendants.)

Robert P. Noroski, individually, and as Personal)
Representative of the Estate of)

Heather Lynn Noroski,)	
)	
Plaintiffs,)	
)	
v.	)	Case No. 2011 CA 008854 B
)	
Samsung Telecomm America, LLC, <i>et al.</i> ,)	
)	
Defendants.)	

ORDER DENYING PLAINTIFFS’ MOTION FOR LEAVE TO ADD A GENERAL CAUSATION EXPERT TO PHASE I OF DISCOVERY

By this Order, the Court considers *Plaintiffs’ Motion for Leave to Amend Rule 26(B)(4) Expert Witness Designation in Order to Add Christopher J. Portier, BS, MS, Ph.D., as Testifying General Causation Expert in Environmental Health and Carcinogenicity Research* filed on March 3, 2021 and *Defendants’ Response to Plaintiffs’ Motion for Leave to Amend Rule 26(B)(4) Expert Witness Designation* filed on March 31, 2021. Plaintiffs seek leave to amend their Rule 26(b)(4) expert witness designation to include Dr. Christopher J. Portier as a general causation expert. As support, Plaintiffs provide that “[t]he scientific landscape regarding cell phone radiation and causation of cancer, and specifically glioma and acoustic neuroma, continues to significantly evolve throughout the duration of these cases[,] which have been pending for approximately 20 years.” Mot. for Leave 1. In opposition, Defendants assert that the court’s prior rulings preclude additional expert testimony.

Background

On December 7, 2011, the Hon. Franklin Burgess entered a case management order providing that the first phase of discovery would focus exclusively upon general causation, *i.e.*,

whether cell phones are capable of causing gliomas or acoustic neuromas in humans.¹ Phase II was to focus upon specific causation, whether specific cell phones caused specific tumors in individual plaintiffs. During a September 20, 2012 hearing, Judge Burgess cautioned Plaintiffs that, in the interest of efficiency, they would not be permitted to add additional expert witnesses after conducting a *Frye/Dyas* hearing.² Def. Opp'n Ex. 1, Sept. 20, 2012 Hr'g. Tr. 46:13-20. Plaintiffs' counsel acknowledged that "[they could not] add after that [time] unless [they had] good cause and ask[ed] the court for permission," to which Judge Burgess responded, "yes, that's definitely true." *Id.* at 46:6-11.

¹ All other discovery in the thirteen cases has been stayed. In addition, all subsequently filed cases where the parties have indicated that the causation issue would also apply to their case have been stayed.

² A *Frye/Dyas* hearing is intended to evaluate the admissibility of expert witnesses to present their opinions to a jury. In *Frye*, the D.C. Circuit Court of Appeals held that "while courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs." *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923). *Dyas* expanded upon the *Frye* standard for expert witness admissibility, adopting a three-part test for determining whether to admit expert testimony:

(1) the subject matter "must be so distinctively related to some science, profession, business or occupation *as to be beyond the ken of the average layman*"; (2) "the witness must have sufficient skill, knowledge, or experience in that field or calling as to make it appear that his opinion or inference *will probably aid the trier in his search for truth*"; and (3) expert testimony is inadmissible if "the state of the pertinent art or scientific knowledge does not permit a reasonable opinion to be asserted even by an expert."

Dyas v. United States, 376 A.2d 827, 832 (D.C. 1977) (quoting *McCormick on Evidence*, § 13 at 29-31 (E. Cleary, 2d ed. 1972)) (emphasis in original). For the purposes of the instant motion, the most important takeaway from the cases is that the focus of the admissibility determination was on the methodologies that an expert uses, not on whether those methods have been applied reliably.

On February 1, 2013, Plaintiffs filed a *Phase I General Causation Expert Witness List* (“Expert Witness List”) designating nine general causation witnesses. Defendants moved to exclude the experts’ testimony citing *Dyas v. United States*, 376 A.2d 827 (D.C. 1977). In December 2013 and January 2014, Judge Weisberg conducted a *Dyas/Frye* hearing. At the beginning of the hearing, Plaintiffs withdrew one of their experts. See Dec. 2, 2013 Hr’g. Tr. at 7:1-11.

On January 24, 2014, Judge Weisberg ordered the parties to submit briefs that addressed whether each of the expert witnesses followed a “methodology that is generally accepted in that witness’ scientific discipline.” Order, Jan. 24, 2014, at 4-5. On March 21, 2014, Plaintiffs and Defendants each filed post-hearing memoranda.

On August 8, 2014, Judge Weisberg issued a *Memorandum Opinion and Order on Expert Admissibility* (“the Admissibility Order”), addressing whether Plaintiffs’ experts should be permitted under *Dyas/Frye* to express their opinions to a jury. See Admissibility Order at 5. Judge Weisberg excluded two of Plaintiffs’ witnesses, but concluded that the remaining six experts had used generally accepted methodologies in forming their opinions and that, accordingly, they would be allowed to testify under *Dyas/Frye*. Judge Weisberg opined, however, that all of Plaintiffs’ experts “would almost certainly be excluded under *Daubert*.” Admissibility Order at 25.

On October 1, 2014, Judge Weisberg amended the Admissibility Order allowing Defendants an opportunity “to seek interlocutory review of the question of whether the District of Columbia should adopt Federal Rule of Evidence 702 (or a revised *Frye* standard [such as that provided in *Daubert*]) for the admissibility of expert evidence....” Order Amending Admissibility Order, 5. On October 20, 2016, the D.C. Court of Appeals unanimously adopted

Rule 702 of the Federal Rules of Evidence, replacing the *Dyas/Frye* standard. *See Motorola Inc. v. Murray*, 147 A.3d 751 (D.C. 2016) (*en banc*).

On January 17, 2017, Plaintiffs filed a *Motion for Additional Discovery*, asserting that “the entire scientific landscape ... [had] changed significantly” since the *Frye/Dyas* hearing, three years prior. Pls.’ Mot. For Addt’l Disc. 2. On March 16, 2017, Judge Weisberg issued an *Order Denying Plaintiffs’ Motion for Additional Discovery*. Judge Weisberg directly and definitively answered the question whether Plaintiffs should be allowed to name additional experts:

Why should Plaintiffs be limited to the experts they have already named? The answer is that when the current litigation began, the court’s initial case management order for Phase I discovery required Plaintiffs to produce *all* of their experts on general causation, with a report from each expert setting forth “a complete statement of all opinions the witness will express on general causation and the basis and reasons for them.” That order was entered without regard to the applicable standard on the admissibility of expert testimony in this jurisdiction, and was the same language that would have been used in a comparable order from a federal district court operating under Rule 702. *See* Federal Rules of Civil Procedure 26 (a)(2)(B)(i)... The point of Phase I discovery was to test whether Plaintiffs had the science to back up their experts’ opinions on general causation. The science does not change, except for new science. Plaintiffs’ experts must base their opinions – before and after the change in admissibility standard – on reliable scientific principles and methods that are reliably applied to the facts of the case. While the inquiry has changed from an exclusive focus on general acceptance of the methodology to a broader focus on the reliability of the methodology and its application, the science that determines both acceptance and reliability remains the same. Both before and after the change in legal standard for evaluating admissibility, the science is based on validated and replicated experiments, case studies, and peer reviewed publications. Although the Phase I experts should be permitted to factor into their opinions any intervening reliable experiments, case studies, and peer reviewed publications, there is no occasion for new experts to be named or for expanding the scope of Phase 1 discovery....

Order Denying Additional Discovery, 5-6. Judge Weisberg further ordered that:

Plaintiffs' experts and Defendants' experts may produce supplemental reports (1) addressing any relevant studies or peer reviewed publications that have been added to the scientific literature since February 2013, and (2) revising the way they express their opinions to account for the change in the evidentiary standard from *Dyas/Frye* to Federal Rule 702, provided they explain why the change in the evidentiary standard necessitates a change in the way they articulate their opinion.

Id at 7.

In an April 4, 2017 Scheduling Order, the Hon. Anita Josey-Herring confirmed that “there [was] no occasion for new experts to be named and [that] the scope of discovery [was] not to be expanded...” Scheduling Order, at 1.

Consistent with the Scheduling Order, the parties submitted supplemental expert reports in August and November 2017. On September 1, 2017, Defendants moved the Court to strike portions of Plaintiffs' supplemental expert reports. After considering several rounds of briefing, Judge Josey-Herring issued an August 24, 2018 Order wherein she struck large portions of Plaintiffs' supplemental expert reports, explaining that the “supplementation was not intended to permit the Plaintiffs to elicit new opinions not previously raised.” Order, at 8.

Subsequently, the Parties conducted depositions of Plaintiffs' experts, updated Defendants' expert reports, and fully briefed Defendants' July 19, 2019 Motion to Exclude those experts under Rule 702 and *Daubert*. On January 8, 2020, the Hon. Jennifer M. Anderson scheduled a *Daubert* Hearing to begin on June 15, 2020. The hearing has been delayed because of the COVID-19 pandemic. On March 3, 2021, Plaintiffs filed the instant motion, once more seeking to add an additional expert witness.

Analysis

In support of their motion, Plaintiffs identify a litany of scientific studies indicating that recent research conducted since the case was filed was relevant to the general causation issue.

See Mot. for Leave Mem. 2-6. Plaintiffs proffer that Dr. Portier, relying upon extensive scientific research conducted since the *Frye/Dyas* hearing, would opine that “the human epidemiology evidence on an association between cell phone use and the risk of glioma and acoustic neuroma in adults is strong...” *Id.* at 6. Plaintiffs fail, however, to present the request within the context of Judge Weisberg’s and Judge Josey-Herring’s admonitions that the scope of Phase I discovery was not to be expanded and that “there is no occasion for new experts to be named.” Order Denying Additional Discovery, 5-6.

Instead, Plaintiffs highlight the Court of Appeals decision in *Tisdale v. Howard University*, wherein the court identified five factors for evaluating whether to allow a party to file a Rule 26(b)(4) statement out of time. Those factors are:

- (1) whether allowing the evidence would incurably surprise or prejudice the opposite party;
- (2) whether excluding the evidence would incurably prejudice the party seeking to introduce it;
- (3) whether the party seeking to introduce the testimony failed to comply with the evidentiary rules inadvertently or willfully;
- (4) the impact of allowing the proposed testimony on the orderliness and efficiency of the trial; and
- (5) the impact of excluding the proposed testimony on the completeness of information before the court or jury.

Tisdale v. Howard Univ., 697 A.2d 53, 54 n.1 (D.C. 1997).

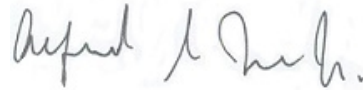
In view of Judge Weisberg’s and Judge Josey-Herring’s prior rulings on the subject, this Court finds no reason to diverge from the rulings and that conducting a *Tisdale* analysis is wholly unnecessary. Further, were the Court inclined to conduct such analysis, the Court would find that Plaintiffs’ failure to acknowledge and distinguish the prior court rulings when evaluating the first factor is fatal. Having already spent years debating the issue and having received multiple decisions finding in their favor, Defendants would be greatly prejudiced were the Court to issue an order directly circumventing Judge Weisberg’s and Judge Josey-Herring’s

prior orders. Further, allowing Dr. Portier's testimony four months before the *Daubert* hearing is scheduled to begin would disrupt the existing schedule and detrimentally affect the orderliness and efficiency of any trial.

The Court does not question Plaintiffs' representation that "Dr. Portier is well-qualified to render expert opinions with regard to the important public health matters at issue in these cases." Rather, the Court finds that allowing Dr. Portier to present expert testimony would expand the scope of Phase I discovery in contravention of prior well-reasoned court rulings. Mot. for Leave Mem. 18.

ACCORDINGLY, it is by the Court this 21st day of April 2021, hereby

ORDERED that *Plaintiffs' Motion for Leave to Amend Rule 26(B)(4) Expert Witness Designation in Order to Add Christopher J. Portier, BS, MS, Ph.D. as Testifying General Causation Expert in Environmental Health and Carcinogenicity Research* is **DENIED**.



Judge Alfred S. Irving, Jr.

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Counsel for Defendants United States Cellular Corporation
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JULY 3, 2019 *ORDER* (JOSEY-HERRING, J.), GRANTING IN PART (AND DENYING AS MOOT IN PART) DEFENDANTS' REQUEST TO STRIKE CERTAIN SECTIONS AND STUDIES INCLUDED IN DR. BELYAEV'S 2017 SUPPLEMENTAL REPORT

**IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION**

Michael Patrick Murray, <i>et al.</i> ,)	
)	
v.	)	Case No. 2001 CA 008479 B
)	
Motorola, Inc., <i>et al.</i>,	)	Judge Anita Josey-Herring
)	
Defendants.)	
)	
<hr/>		
Dino Schofield,)	
)	
v.)	Case No. 2002 CA 001371 A
)	
Motorola, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
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Pamela Cochran, <i>et al.</i> ,)	
)	
v.)	Case No. 2002 CA 001369 A
)	
Audiovox Communications Corp., <i>et al.</i> ,)	
)	
Defendants.)	
)	
<hr/>		
David Keller, <i>et al.</i> ,)	
)	
v.	)	Case No. 2002 CA 001372 A
)	
Nokia, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
<hr/>		
Richard Schwamb, <i>et al.</i> ,)	
)	
v.	)	Case No. 2002 CA 001370 A

Qualcomm Inc., *et al.*,

Defendants.

Baldassare Agro, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2002 CA 001368 A

Alan Marks, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2010 CA 003206 B

Shawn Kidd, *et al.*,

Plaintiffs,

v.

Motorola, Inc. *et al.*,

Defendants.

Case No. 2010 CA 007995 B

Cristin Prischman, as Personal Representative of
the Estate of Paul G. Prischman

Plaintiff,

v.

Motorola Inc., *et al.*,

Defendants.

Case No. 2011 CA 002113 B

Bret Kenyon Bocook and

Laura Lynn Bocook,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 002453 B

Mindy S. Kemp Brown, individually and as
Special Administrator of the Estate of
Daniel Todd Brown,

Plaintiffs,

v.

Nokia, Inc., *et al.*,

Defendants.

Case No. 2011 CA 006710 B

Monique Solomon, individually and as Special
Administrator of the Estate of Andrew J. Solomon,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 008472 B

Robert P. Noroski, individually, and as Personal
Representative of the Estate of
Heather Lynn Noroski,

Plaintiffs,

v.

Samsung Telecomm America, LLC, *et al.*,

Defendants.

Case No. 2011 CA 008854 B

ORDER

This matter comes before the Court upon the Plaintiffs' Brief Pursuant to the December 11, 2018 Order Directing Parties to Submit Additional Briefing filed on January 15, 2019 and the Defendants' Opposition filed on February 14, 2019. To place the instant briefing into context, this matter originally arose as a result of the Defendants' Motion to Strike Unauthorized Portions of Supplemental Expert Reports which included a request to strike a number of studies and/or sections included in Dr. Belyaev's 2017 Supplemental Report. The Court addressed the Defendants' Motion to Strike in its August 28, 2019 Order and, *inter alia*, granted in part and held in abeyance in part the Defendants' request to strike a number of studies and sections of Dr. Belyaev's 2017 Supplemental Report. Specifically, this Court held in abeyance Defendants' request to strike the 9 sections and 6 subsections contained in Dr. Belyaev's 2017 Supplemental Report that Defendants allege are new opinions. The Court held this decision in abeyance so that the Court could hold an evidentiary hearing to determine whether the topics covered in these new sections were (1) truly new science that was unavailable to Dr. Belyaev at the time he prepared his original report; and (2) necessary given the change in the evidentiary standard. *See* 8/28/18 Order (Josey-Herring, J.).

Stated differently, the Court wanted to hold a hearing to determine whether the studies and/or publications regarding the topics covered in each of these sections were available at the time Dr. Belyaev created his original report. The Court reasoned that if the topics and/or findings did exist then their inclusion would violate the March 16, 2017 Order. Conversely, if the studies and/or publications covered were not available back then, their inclusion would be permitted to the extent that the topics (1) were relevant to the issue at hand; and (2) were necessitated given the change in the evidentiary standard. *See* 8/28/18 Order (Josey-Herring, J.).

As a result, an evidentiary hearing was held on November 2, 2018. However, given the duration and complexity of the testimony provided, the Court ordered the Plaintiffs to submit a

brief that included 15 separate sections or one for each of the 9 sections and 6 subsections at issue in Dr. Belyaev's 2017 Supplemental Report. Moreover, each section of this briefing was to be no more than 1.5 pages and was to include references to how the studies and/or opinions contained in each contested section or subsection of Dr. Belyaev's 2017 Supplemental Report: (1) encompassed truly new science that was unavailable to Dr. Belyaev at the time he prepared his original report; (2) was relevant to the issue at hand; and (3) was necessary given the change in the evidentiary standard. Finally, each section of this briefing was to be supported by specific citations to the November 2, 2018 hearing transcript, any applicable exhibits, and quotations and/or parenthetical descriptions where appropriate. On January 15, 2019 the Plaintiffs submitted their brief in response to this Order and on February 14, 2019 the Defendants submitted their response.

For the sake of clarity, the Court will separately address each contested section of Dr. Belyaev's 2017 Supplemental Report. However, before embarking on its analysis, the Court would like to state, as it has done in the past, that the Plaintiffs' original 2013 expert reports were required to include "a complete statement of all opinions the witness will express on general causation and the basis and reasons for them without regard to the applicable standard on the admissibility of expert testimony in the jurisdiction." *See* 3/16/17 Order at 5 (Weisberg, J.). As a result, Dr. Belyaev was only permitted to supplement those opinions and topics covered in his original report.

Stated differently, Dr. Belyaev's 2017 Supplemental Report was bound by the scope of topics covered in his original report. The fact that post-February 2013 science may have "updated [Dr. Belyaev's] perspective" on an old study is irrelevant if he had the opportunity to mention or discuss that pre-February 2013 study in his original report but failed to do so for such analysis would be outside the scope of his original report. Furthermore, neither Judge Weisberg nor this Court authorized the Plaintiffs to re-do Phase I expert discovery in this case. Therefore, Dr., Belyaev was not permitted, under the pretext of supplementation, to include (1) entirely new opinions not

previously included in his original report; and/or (1) studies and topics that Dr. Belyaev could have—but didn’t—include or address in his original 2013 Report.¹ Therefore, for the following reasons, the Court will grant in part and deny as moot in part the Defendants’ request to strike a number of studies and/or sections included in Dr. Belyaev’s 2017 Supplemental Report.

I. Replication Studies

In its motion, the Defendants have moved to strike the Lerchl, Klose et al. (2015) study included in the “Replication Studies” Section of Dr. Belyaev’s 2017 Supplemental Report on the grounds that the Plaintiffs have justified the inclusion of this study by citing to a blank line—line 5 on page 39. Notwithstanding, this Court’s August 28, 2018 Order previously granted this request to strike and therefore the issue is moot.

II. Different Types of Mobile Communications May Produce Different Effects

In its motion, the Defendants have also moved to strike 2 studies included in the “Different Types of Mobile Communications May Produce Different Effects” Section of Dr. Belyaev’s 2017 Supplemental Report. The Defendants have moved for such relief on the grounds that the Plaintiffs justified the inclusion of both studies by citing to a blank line—line 5 on page 39. Notwithstanding, this Court’s August 28, 2018 Order previously granted this request to strike and therefore the issue is moot.

III. Combined Effects and Adaptive Response

In its motion, the Defendants have also moved to strike 10 studies included in the “Combined Effects and Adaptive Response” Section of Dr. Belyaev’s 2017 Supplemental Report. The Defendants have moved for such relief on the grounds that the Plaintiffs justified the inclusion

¹ In its brief, Plaintiffs raise an objection under D.C. Super. Ct. Civ. R. 26. However, the Plaintiffs state in their brief, that this objection is “more particularly set forth” in their “Motion for Reconsideration.” *See* Pl.’s Brief at 4. Therefore, in light of this representation and for the sake of clarity, the Court will address this objection when the Court rules on the Plaintiffs’ Motion for Reconsideration.

of these 10 studies by citing to a blank line—line 5 on page 39. Notwithstanding, this Court’s August 28, 2018 Order previously granted this request to strike and therefore the issue is moot.

IV. Sperm Quality

In its motion, the Defendants have also moved to strike 5 studies included in the “Sperm Quality” Section of Dr. Belyaev’s 2017 Supplemental Report. The Defendants have moved for such relief on the grounds that the Plaintiffs justified the inclusion of these 5 studies by citing to a blank line—line 5 on page 39. Notwithstanding, this Court’s August 28, 2018 Order previously granted this request to strike and therefore the issue is moot.

V. Epidemiological Studies: Effect of the Mobile Phone Position, External MW Sources, Study Quality

In its motion, the Defendants have also moved to strike 15 studies included in the “Epidemiological Studies: Effect of the Mobile Phone Position, External MW Sources, Study Quality” Section of Dr. Belyaev’s 2017 Supplemental Report. The Defendants have moved to strike 12 of these studies on the grounds that the Plaintiffs justified their inclusion by citing to a blank line—line 5 on page 39. Notwithstanding, this Court’s August 28, 2018 Order previously granted this request to strike and therefore the issue is moot. As to the remaining studies—(1) Bortkiewicz, Gadzicka et al. (2017); (2) de Vocht (2016); and (3) Schoeni, Rosser et al. (2015)—the Court makes the following findings.

A. Bortkiewicz, Gadzicka et al. (2017)

In its briefing, Plaintiffs argue that the Bortkiewicz, Gadzicka et al. (2017) study was properly included in Dr. Belyaev’s 2017 Supplemental Report to supplement line 18 on page 59 and line 29 on page 81 of Dr. Belyaev’s original report. However, contrary to the Plaintiffs’ assertions, neither Line 18 on page 59 nor line 29 on page 81 relates to the Bortkiewicz, Gadzicka et al. (2017) study. Specifically, Dr. Belyaev appears to include Bortkiewicz, Gadzicka et al. (2017) in his 2017 Report to

opine that “brain cancer risk . . . is dependent on [the] type of signal and mutual position of the affected organ and cell phone.” However, line 18 on page 59 of his original report discusses the “deleterious effects of MW on [the] reproductive pattern of male rats.” Additionally, line 29 on page 81 is a list of scientific studies that Dr. Belyaev uses to render the opinion that “the duration of exposure and the specific absorption rate (SAR) multiplied by the time duration of exposure defines the effect of and corresponding risk related to cell phone electromagnetic radiation.” In other words, neither of these sections of Dr. Belyaev’s original report relate to the findings of the Bortkiewicz, Gadzicka et al. (2017) study.

It is also noteworthy that the Bortkiewicz, Gadzicka et al. (2017) study is not a manipulative study but rather a “systematic review and meta-analysis” of “original papers” and “case-control[ed] studies published [up and un]till the end of March 2014.” As a result, it is extremely likely that the Bortkiewicz, Gadzicka et al. (2017) study analyzed and/or reviewed pre-February 2013 studies that were previously available to Dr. Belyaev at the time he prepared his original report. Notwithstanding the availability of these pre-February 2013 studies, this Court has neither found nor been directed to a section/portion of Dr. Belyaev’s 2013 Report in which he analyzes or discusses any study that looks at the significance of a cell phone’s positioning and/or type of signal in the context of brain cancer development. Therefore, the Court will strike the Bortkiewicz, Gadzicka et al. (2017) study from the “Epidemiological Studies: Effect of the Mobile Phone Position, External MW Sources, Study Quality” Section of Dr. Belyaev’s 2017 Supplemental Report.

B. de Vocht (2016)

In its briefing, Plaintiffs assert that the de Vocht (2016) study was included in Dr. Belyaev’s 2017 Supplemental Report for the purpose of supplementing lines 3-4 on page 39 and lines 16-42 on page 51 of Dr. Belyaev’s original report. However, neither of these sections discusses or analyzes the focus of the de Vocht (2016) study, the relevance or impact of a cell phone’s positioning in regards

to the development of brain cancer. Rather, lines 3-4 on page 39 states that “similar to the effects of ELF (Belyaev et al. 1999), MW effects have been reported to be dependent on concentration of divalent ions (Gapeev et al., 1997).” Moreover, lines 16-42 on page 51 includes a discussion of two epidemiological studies that analyze “dose-response relationship” and/or the importance of the “duration of [the] exposure.” In other words, the positioning of a cell phone and/or the relevance of this positioning in the context of brain cancer development was not discussed in either of these sections of Dr. Belyaev’s original report. Consequently, the Court will strike the de Vocht (2016) study from the “Epidemiological Studies: Effect of the Mobile Phone Position, External MW Sources, Study Quality” Section of Dr. Belyaev’s 2017 Supplemental Report.

C. Schoeni, Rosser et al. (2015)

In its briefing, Plaintiffs assert that the Schoeni, Rosser et al. (2015) study was properly included in Dr. Belyaev’s 2017 report because it supplements Line 3 on page 39 of Dr. Belayev’s original report. However, as previously stated above, Line 3 on page 89 merely states that “similar to the effects of ELF (Belyaev et al. 1999), MW effects have been reported to be dependent on concentration of divalent ions (Gapeev et al., 1997).” Moreover, the Schoeni, Rosser et al. (2015) study analyzes “the association between memory performance in adolescents and dose of RF exposure from mobile communication devices.” *See* Belyaev 2017 Supp. Rep. at 69. In other words, contrary to the Plaintiffs’ assertions, the Schoeni, Rosser et al. (2015) study was not properly included in Dr. Belyaev’s 2017 Supplemental Report for the purposes of supplementing line 3 on page 89 of Dr. Belyaev’s original report. As a result, this Court will strike the Schoeni, Rosser et al. (2015) study from the “Epidemiological Studies: Effect of the Mobile Phone Position, External MW Sources, Study Quality” Section of Dr. Belyaev’s 2017 Supplemental Report.

VI. Latency Brain Cancer

In its motion, the Defendants have also moved to strike the Section of Dr. Belyaev's 2017 Supplemental Report entitled "Latency Brain Cancer" on the grounds that Dr. Belyaev could have—but didn't—discuss and/or opine about brain cancer latency in his original report. For the following reasons, the Court will grant Defendants' request to strike this section of Dr. Belyaev's 2017 Supplemental Report. Specifically, this Court reaches this decision in light of the following exchange between Defense Counsel and Dr. Belyaev during the November 3, 2018 Evidentiary Hearing:

Defense Counsel: Dr. Belyaev, section -- your section roman numeral III-II(s) on pages seventy-three to seventy-four of your Supplemental Report entitled latency brain cancer, it's a completely new section in your Supplemental Report compared to your original report, right?

Dr. Belyaev: Right.

Defense Counsel: You didn't have a section like that in your original report?

Dr. Belyaev: No I didn't.

Defense Counsel: And you didn't do any analysis or render an opinion on brain tumor latency in your original report, right?

Dr. Belyaev: I didn't.

Defense Counsel: And right -- so just to be clear the original report did not include an opinion of what you believe is a latency period of cell phones in glioma if, in fact, there's causation, correct?

Dr. Belyaev: Sorry.

Defense Counsel: You have to answer verbally.

Dr. Belyaev: I didn't get the question, sorry.

Defense Counsel: So your original report did not include an opinion of what you believe is the latency period between cell phone use and glioma if, in fact, there is causation?

Dr. Belyaev: Sorry. It might be included somewhere in the text, I don't remember this.

Defense Counsel: Okay. And your original report did not include an opinion of what you believe is the latency period of cell phones and acoustic neuroma if, in fact, there's causation right, in your original report?

Dr. Belyaev: Well, I don't remember this.

11/3/18 Tr. 133:1-134:5.

As demonstrated by the above quoted section, Dr. Belyaev's original 2013 report did not contain a section dedicated to brain cancer latency. Notwithstanding this absence, Dr. Belyaev

stated at the November 2, 2018 Evidentiary Hearing that (1) the “topic of what [the] latency period is for brain tumors from cell phones, if there is causation, . . . predates 2013”; and (2) pre-February 2013 studies discussed “potential brain tumor latency.” *See* 11/3/18 Tr. 134:17-136:1. In other words, Dr. Belyaev could have—but didn’t—discuss or analyze brain cancer latency in his original report.

Moreover, this Court has neither found nor been directed to a section of Dr. Belyaev’s original report in which he discusses or opines about cancer latency. Specifically, in its briefing, Plaintiffs stated that the post-February 2013 studies in the Latency Brain Cancer Section of Dr. Belyaev’s 2017 report supplement the following portions of Dr. Belyaev’s original 2013 report: (1) lines 3-4 on page 39; (2) a blank line on page 39; (3) line 42 on page 51; and/or (4) lines 16-42 on page 51. However, contrary to the Plaintiffs’ assertions, none of these sections contain any reference to or discussion of brain cancer latency.

Finally, the Court is also not persuaded by Dr. Belyaev’s justification for why he failed to include any analysis on brain cancer latency in his original report. Specifically, during the evidentiary hearing, Dr. Belyaev attempted to distinguish between pre-February 2013 brain cancer latency studies and post-February 2013 brain cancer latency studies by classifying the former as merely “discussion” and the latter as “evidence.” However, this Court finds that such a distinction is without a difference, especially in light of the fact that Dr. Belyaev could have—but didn’t—include any substantive discussion of brain cancer latency in his original 2013 report. Therefore, for the reasons stated above, this Court will strike the “Latency Brain Cancer” Section of Dr. Belyaev’s 2017 Supplemental Report.

VII. Chronic Exposure to Radiation from Cell Phone-Animal Studies

In its motion, the Defendants have also moved to strike the Section of Dr. Belyaev’s 2017 Supplemental Report entitled “Chronic Exposure to Radiation from Cell Phone-Animal Studies” on

the grounds that this is an entirely new section that Dr. Belyaev included, for the first time, in his 2017 Supplemental Report. The Defendants also assert that Dr. Belyaev could have—but didn't—include this subsection in his original 2013 report. Notwithstanding, this Court's August 28, 2018 Order granted the Defendants' request to strike (1) all pre-February 2013 studies included for the first time in Dr. Belyaev's 2017 Supplemental Report; and (2) all but four of the post-February 2013 contested studies included in this section. Moreover, for the following reasons, the Court will also grant the Defendants' request to strike the remaining four post-February 2013 studies—(1) Tsybulin, Sidorik et al. (2013); (2) Mugunthan, Anbalagan et al. (2014); (3) Olgar, Hidisoglu et al. (2015); and (4) Junior, Guimaraes Eda et al. (2014).

As a matter of context, the Court would like to note the findings of each of the contested studies. Specifically, the Tsybulin, Sidorik et al. (2013) study exposed “Japanese Quail embryos to GSM 900 MHz cellular phone radiation” and found that the “effects of the GSM 900 MHz cellular phone radiation on early embryogenesis can be either stimulating or deleterious depending on the duration of exposure.” *See* Belyaev 2017 Rep. at 86. The Mugunthan, Anbalagan et al. (2014) study “evaluated histological effects of chronic exposure to MW emitted from 2G (900-1900 MHz) cell phone[s] on [the] kidneys of mice” and found that “chronic exposure to radiation from 2G cell phones could cause microscopic changes in glomerulus [and] proximal and distal convoluted tubules of the kidney.” *See* Belyaev 2017 Rep. at 89. The Olgar, Hidisoglu et al. (2015) study “exposed Wistar male rats to 2.1 GHz EMF . . . and investigated nitric oxide (NO) contractility and beta-adrenergic (beta-AR) responsiveness of ventricular myocytes” and concluded that “long-term exposure to 2.1 GHz MEF decreases beta-AR responsiveness of ventricular myocytes through NO signaling.” *See* Belyaev 2017 Rep. at 91. Finally, the Junior, Guimaraes Eda et al. (2014) study exposed male Wistar rates to “EMR from a Global System for Mobile (GSM) cell phone” and concluded that “the

exposed animals did not present anxiety patterns or working memory impairment, but stress behavior actions were observed upon exposure.” *See* Belyaev 2017 Rep. at 96.

In sum, it is unclear to the Court how and to what extent any of these studies are relevant to the ultimate question at hand—whether radiation from cell phones causes or promotes gliomas or acoustic neuromas in humans. Nonetheless, this Court also finds that the Plaintiffs have failed to adequately justify that these four studies were properly included in Dr. Belyaev’s 2017 Supplemental Report. Specifically, in its brief, Plaintiffs assert that Dr. Belyaev included the Olgar, Hidisoglu et al. (2015) study and the Tsybulin, Sidorik et al. (2013) study in his 2017 Supplemental Report to supplement lines 3-4 on page 39 of his original report. However, contrary to the Plaintiffs’ assertions, this section merely states the following: “[s]imilar to the effects of ELF (Belyaev, et al. 2010), MW effects have been reported to be dependent on concentration of divalent ions (Gapeev et al., 1997).” As a result, this Court will strike both studies from the “Chronic Exposure to Radiation from Cell Phone-Animal Studies” Section of Dr. Belyaev’s 2017 Supplemental Report.

Additionally, Plaintiffs assert that Dr. Belyaev included the Mugunthan, Anbalagan et al. (2014) study in his 2017 Supplemental Report to supplement two blank lines—line 38 on page 34 and line 5 on page 39. Additionally, this Court also finds that the sections containing both of these blank lines are similarly devoid of any connection to the Mugunthan, Anbalagan et al. (2014) study or its findings. Specifically, the Mugunthan, Anbalagan et al. (2014) study concluded that “chronic exposure to radiation from 2G cell phones could cause microscopic changes in [mouse] glomerulus [and mouse] proximal and distal convoluted tubules of the kidney.” *See* Belyaev 2017 Rep. at 89. However, (1) page 34 of Dr. Belyaev’s original report focuses on the “sex and age related differences” in “biological responses to microwaves;” and (2) page 39 focuses on how “stage of cell growth, oxygen, divalent ions and temperature are important variables affecting cellular response to microwaves.” As a result, this Court will strike the Mugunthan, Anbalagan et al. (2014) study from

the “Chronic Exposure to Radiation from Cell Phone-Animal Studies” Section of Dr. Belyaev’s 2017 Supplemental Report.

Finally, the Plaintiffs assert that Dr. Belyaev included the Junior, Guimaraes Eda et al. (2014) study in his 2017 Supplemental Report to supplement pages 46-49 of his original report. However, contrary to the Plaintiffs’ assertions, the Court finds that this section is devoid of any connection to the Junior, Guimaraes Eda et al. (2014) study. Specifically, while pages 46-49 analyzes the role that “exposure duration” and “dose” play in the effects of microwaves, the Junior, Guimaraes Eda et al. (2014) study focuses on whether EMR exposure can cause anxiety patterns or working memory impairment in rats. As a result, this Court will strike the Junior, Guimaraes Eda et al. (2014) study from the “Chronic Exposure to Radiation from Cell Phone-Animal Studies” Section of Dr. Belyaev’s 2017 Supplemental Report.

Additionally, the Court also makes the instant finding, in light of the following exchange that occurred at the November 3, 2018 evidentiary hearing:

Defense Counsel: Dr. Belyaev, the subsection that we’re talking about here, chronic exposure to radiation of cell phone animal studies is a new section, right? It didn’t exist in your original report, correct?

Dr. Belyaev: Yes.

Defense Counsel: And you didn’t have any kind of animal studies section in your original report, right?

Dr. Belyaev: I certainly have had animal studies in my original report.

Defense Counsel: You cited animal studies in your original report, I get that, but you didn’t have a separate section devoted just to animal studies, right?

Dr. Belyaev: Probably, yes, probably, yes. Probably, I didn’t.

Meaning you agree with me probably, yes?

Dr. Belyaev: Meaning, I agree with you, probably, yes.

Defense Counsel: And the animal section – subsection that you now have in your supplemental report is more than sixteen pages long . . . correct?

Dr. Belyaev: I should check it.

Defense Counsel: Yeah, take a look.

Plaintiffs’ Counsel: Your Honor, we’ll take Counsel’s word for his counting.

Defense Counsel: Okay.

The Court: Okay.

Defense Counsel: Great.

Defense Counsel: And you cited more than fifty-five studies in the Supplemental Report in this section on animal studies?

Dr. Belyaev: If you count it like this, then it's okay.

Defense Counsel: Okay. And you know that in the IARC Monograph from 2013, there was a separate section devoted to whole animal studies, correct?

Dr. Belyaev: Correct.

Defense Counsel: And in that section IARC analyzed more than forty whole animal studies, it looked at carcinogenicity in rodents, right?

Dr. Belyaev: That is true.

Defense: And all those studies pre-dated 2013, correct?

Dr. Belyaev: Correct.

Plaintiffs' Counsel: In your original report you testified you only cited two of those forty animal studies that IARC considered, right?

Dr. Belyaev: I don't remember that.

Plaintiffs' Counsel: Okay. Well, if you look at your hearing transcript binder --

Dr. Belyaev: Yes.

The Court: -- and it's the hearing transcript on page five -- Twenty-five -- sorry, five thirty.

Dr. Belyaev: Five thirty.

The Court: Five thirty.

Plaintiff's counsel: What line, Mr. Dee?

Defense's counsel: We're at line twenty-three. We'll start at line twenty-four.

Defense's counsel: Question: Okay. And you cited two animal studies in your report, Correct? Answer: Correct. And I asked you those questions and you gave me that answer?

Dr. Belyaev: I don't remember.

Defense's counsel: Well, you don't remember whether you gave that answer to that question in the hearing transcript?

Defense's counsel: Okay, but if it says so, then it's so.

The Court: I'm sorry, if it says what?

Dr. Belyaev: If it says so, then it's so.

Plaintiff's counsel: He's agreeing with the transcript, your honor.

The Court: Okay.

Dr. Belyaev: I'm agreeing with the transcript

11/3/18 Tr. at 142:22-145:17.

As is clear from the above quoted section, the "Chronic Exposure to Radiation from Cell Phone-Animal Studies" Section of Dr. Belyaev's 2017 Supplemental Report is a dramatic expansion upon his original report and, as discussed *infra*, the Plaintiffs have failed to adequately demonstrate that this expansion was necessitated and/or justified by the change in the evidentiary standard from *Dyas/Frye* to *Danbert*.

Furthermore, while Dr. Belyaev may have sporadically cited to or referenced animal studies in his original report, Dr. Belyaev did not devote an entire section of his report to this topic even though at least 40 such studies existed at the time he created his original report. Therefore, for the reasons stated above, this Court will strike the four remaining studies at issue in the “Chronic Exposure to Radiation from Cell Phone-Animal Studies” Section of Dr. Belyaev’s 2017 Supplemental Report.

VIII. Chronic Exposure to Radiation from Cell Phone-Human Studies

In its motion, the Defendants have also moved to strike the Section of Dr. Belyaev’s 2017 Supplemental Report entitled “Chronic Exposure to Radiation from Cell Phone-Human Studies” on the grounds that this is an entirely new section that Dr. Belyaev included, for the first time, in his Supplemental Report. Defendants also assert that Dr. Belyaev could have—but didn’t—include this subsection in his original 2013 report. Notwithstanding, this Court’s August 28, 2018 Order granted the Defendants’ request to strike (1) all pre-February 2013 studies included for the first time in Dr. Belyaev’s 2017 Supplemental Report; and (2) all but one of the contested post-February 2013 studies included in this section. Moreover, for the following reasons, the Court will strike the remaining contested study—Byun, Ha et al. (2013).

As a matter of context, the Byun, Ha et al. (2013) study “evaluated the association between mobile phone use and symptoms of Attention Deficit Hyperactivity Disorder (ADHD) considering the modifying effect of lead exposure” and found that “simultaneous exposure to lead and RF from mobile phone use was associated with increased ADHD symptom risk.” *See* Belyaev 2017 Rep. at 99. Additionally, this study also noted that “the ADHD symptom risk associated with mobile phone use for voice calls . . . was limited to children exposed to relatively high [levels of] lead after adjustment for several covariates.” *See* Belyaev 2017 Rep. at 99. In light of the Byun, Ha et al. (2013)

study's findings, it is unclear how and/or to what extent this study is relevant to the issue at hand—whether radiation from cell phones causes or promotes gliomas or acoustic neuromas in humans.

Additionally, during the November 3, 2018 evidentiary hearing, Dr. Belyaev testified that the findings of Byun, Ha et al. (2013) are “not direct evidence” of whether cell phones cause brain cancer. *See* 11.3.18 Tr. at 161:16-162:3. Notwithstanding this admission, Plaintiffs assert that the Byun, Ha et al. (2013) study was included in Dr. Belyaev's 2017 Supplemental Report to supplement Opinion #5 on lines 14-34 on page 82 of Dr. Belyaev's original report. In other words, the Plaintiffs assert that this study was included to support Dr. Belyaev's opinion that “electromagnetic MW radiation emitted by cell phones induces molecular pathways and cellular mechanisms that produce carcinogenesis (the creation of cancer) in human brain cells.” *See* Belyaev 2013 Rep. at 82. In sum, while Dr. Belyaev testified that Byun, Ha et al. (2013) was not direct evidence of whether cell phones cause cancer, Plaintiffs asserted otherwise in their briefing.

Moreover, while Opinion #5 focuses narrowly on MW and carcinogenesis, Byun, Ha et al. (2013) analyzes the interplay between RF and lead and its relation to ADHD. Furthermore, during the November 3, 2018 evidentiary hearing, it was established that the Byun, Ha et al. (2013) study cited to and/or relied on a pre-February 2013 study for its findings. As a result, the topic of whether there is an association between ADHD/behavioral issues and cell phone use existed at the time Dr. Belyaev submitted his original report. Therefore, Dr. Belyaev could have—but didn't—discuss this topic in his original report. As a result, for the reasons stated above, the Court will strike the Byun, Ha et al. (2013) study from the “Chronic Exposure to Radiation from Cell Phone-Human Studies” Section of Dr. Belyaev's 2017 Supplemental Report.

IX. Cell Phones Emit Extremely Low Frequency (ELF) Electromagnetic Fields That Have been Classified by IARC Since 2002 as a Class 2B Carcinogen

As a matter of background, it should be noted that Dr. Belyaev has added six new subsections under the “Cell Phones Emit Extremely Low Frequency (ELF) Electromagnetic Fields That Have been Classified by IARC Since 2002 as a Class 2B Carcinogen” Section of his original report. Specifically, Dr. Belyaev has added a new Subsection on (1) “Leukemia;” (2) “ELF and Brain Tumor Risk;” (3) “Animal Studies;” (4) “Possible Physical Mechanism;” (5) “Reactive Oxygen/Nitrogen Species and Molecular Pathways;” and (6) “Other ELF Effects Similar to Those Induced by MW.” Moreover, the addition of these six subsections has increased the length of this section from 1.5 pages to more than 16 pages.

Turning to the instant matter, the Defendants have moved to strike all six of these new subsections on the grounds that each (1) impermissibly contains new opinions that were not previously included in Dr. Belyaev’s 2013 original report; and/or (2) discusses topics that Dr. Belyaev could have—but didn’t—discuss in his original 2013 report.

Notwithstanding, this Court’s August 28, 2018 Order struck all pre-February 2013 studies that Dr. Belyaev included, for the first time, in his 2017 Supplemental Report. Moreover, the Defendants have only objected to the inclusion of two post-February 2013 studies included in this section and both occur in the subsection entitled “Other ELF Effects Similar to Those Induced by MW.” Therefore, this Court’s analysis will solely focus on the two contested studies in the “Other ELF Effects Similar to Those Induced by MW” Section of Dr. Belyaev’s 2017 Supplemental Report.

A. Other ELF Effects Similar to Those Induced by MW

In its motion, the Defendants have moved to strike two studies—Bae, Do et al. (2013) and Jadidi, Safari et al. (2013)—from the Section of Dr. Belyaev’s 2017 Supplemental Report entitled “Other ELF Effects Similar to Those Induced by MW.” The Defendants move to strike both studies on the grounds that the Plaintiffs impermissibly justified their inclusion by citing to two blank lines. Specifically, in its brief, Plaintiffs assert that the Bae, Do et al. (2013) study was included

to supplement line 10 on page 46 and the Jadidi, Safari et al. (2013) study was included to supplement line 15 on page 46. However, since both of these lines are in fact blank, the Court will strike both studies from “Other ELF Effects Similar to Those Induced by MW” Section of Dr. Belyaev’s 2017 Supplemental Report.

Alternatively and in addition, this Court also finds that both studies concern and/or discuss findings/topics that Dr. Belyaev could have—but didn’t—include in his original report. The Court reaches this conclusion after reviewing the portion of Dr. Belyaev’s 2017 Supplemental Report that contains both studies:

In line with many previous studies, recent studies provided further evidence that ELF can affect proliferation of various cell types including stem cells under specific conditions of exposure (Segatore, Setacci et al, 2012; **Bae, Do et al 2013; Jadidi, Safari et al. 2013**). Bai et al. investigated ELF effects on proliferation of epidermal stem cells (ESC) (Bai, Zhang et al. 2012). The ESC obtained from human foreskin were grafted into type-I three –dimensional collagen sponge scaffolds, and then were exposed to EMF on growth and proliferation of ESC were analyzed with staining of hematoxylin and eosin (H&E) and 4’, 6-diamidino-2-phenylindole (DAPI) under microscope or scanning electron microscope. The data of DAPI staining for 2 d, 7 d, 10 d and 14 d were collected respectively to investigate the cells proliferation. EMF promoted ESC proliferation compared with control.

See Belyaev 2017 Rep. at 129 (emphasis added).

As is clear from above, Dr. Belyaev states that the Bae, Do et al. (2013) and Jadidi, Safari et al. (2013) studies are “in line with many previous studies.” *See* Belyaev 2017 Rep. at 129. However, both of the “previous studies” included in this paragraph—Segatore, Setacci et al. (2012) and Bai, Zhang et al. (2012)—were not included in Dr. Belyaev’s original report even though both were published prior to 2013. Stated differently, the Court finds that Dr. Belyaev could have—but didn’t—cover this topic or related findings in his original report.

Moreover, almost half of the 17 studies cited in this subsection were not included in Dr. Belyaev’s original report even though they were all available prior to 2013. Therefore, for the reasons stated above, the Court will strike the Bae, Do et al. (2013) study and the Jadidi, Safari et al. (2013)

study from the “Other ELF Effects Similar to Those Induced by MW” Subsection of Dr. Belyaev’s 2017 Supplemental Report.

X. Humans and Epidemiological Studies

In its motion, the Defendants have also moved to strike one study from the Section of Dr. Belyaev’s 2017 Supplemental Report entitled “Human and Epidemiological Studies” on the grounds that the Plaintiffs justified its inclusion by citing to a blank line. Notwithstanding, this Court’s August 28, 2018 Order previously granted the Defendants’ request to strike this study and therefore the issue is moot.

XI. Protein Conformation

In its motion, the Defendants have also moved to strike two studies—Calabro and Magazu (2014) and Calabro 2016—from the “Protein Conformation” Section of Dr. Belyaev’s 2017 Supplemental Report on the grounds that Dr. Belyaev relied on both studies to impermissibly include a new opinion about protein conformation. Additionally, the Defendants also move to strike both studies on the grounds that Dr. Belyaev could have—but didn’t—discuss “protein conformation” in his original 2013 report.

In its brief, Plaintiffs assert that the Calabro and Magazu (2014) and Calabro (2016) studies were included in Dr. Belyaev’s 2017 Supplemental Report to supplement the discussion of “protein conformation as a result of exposure to ELF” that takes place in line 27 on page 62 of Dr. Belyaev’s original report. However, contrary to the Plaintiffs’ assertions, page 62 does not reference or discuss “protein conformation.” Alternatively and in addition, this Court also finds that Dr. Belyaev could have—but didn’t—address “protein conformation” in his original 2013 report. The Court reaches this conclusion in light of the fact that three of the five studies cited in this section were not previously included in Dr. Belyaev’s original 2013 report even though they were readily available. Moreover, one of these pre-February 2013 studies—Calabro and Magazu (2010)—was not only

authored by the same individuals as the two contested post-February 2013 studies at issue—Calabro and Magazu (2014) and Calabro (2016)—but it also addresses the same topic/findings. Therefore, the Court will strike the Calabro and Magazu (2014) and Calabro (2016) studies from the “Protein Conformation” Section of Dr. Belyaev’s 2017 Supplemental Report.

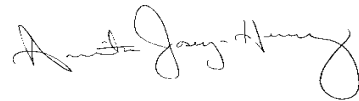
Finally, this Court finds that the Plaintiffs have failed to adequately justify that any of the newly included sections or studies were necessitated by the change in the evidentiary standard from *Dyas/Frye* to *Daubert*. Specifically, in response to this Court’s request for the Plaintiffs to justify how and/or why each newly added section or study was necessary given the change in the evidentiary standard, the Plaintiffs merely provided the Court with the same generic and conclusory statements that (1) each contested section or study was needed to ensure that Dr. Belyaev’s report was “complete,” “comprehensive,” and “coherent;” and (2) Dr. Belyaev’s prepared his 2017 Supplemental Report to be “in line with *Daubert* standards.” However, such non-specific statements fail to sufficiently respond to this Court’s directive. Moreover, this cursory wholesale generalization fails to warrant the substantial additions and/or changes that Dr. Belyaev has made to his original 2013 Expert Report.

Specifically, Dr. Belyaev’s 2017 Supplemental Report, at 257 pages, is more than double the length of his 111 page original report. Moreover, in this voluminous supplement, Dr. Belyaev included (1) 280 new post-February 2013 studies; (2) 10 new sections that were not included in his original report; and (3) an additional 15.5 pages in a section relating to ELF fields that now includes 6 new subsections. Stated differently, in order for the Court to have permitted such a large scale overhaul of Dr. Belyaev’s original expert report, the Plaintiffs had to have sufficiently established that such additions were needed to address truly new science and explicitly connected to (1) the matter at hand—whether radiation from cell phones causes or promotes gliomas or acoustic neuromas in humans; and (2) the basis for the instant supplementation—the change in the

applicable evidentiary standard. Therefore, in the absence of such a showing and for all of the reasons stated above, it is this 3rd day of July, 2019, hereby:

ORDERED that the Defendants' request to strike the aforementioned sections and/or studies included in Dr. Belyaev's 2017 Supplemental Report is **GRANTED IN PART AND DENIED AS MOOT IN PART** for the reasons stated above.

So ordered.



Hon. Judge Anita Josey-Herring
District of Columbia Superior Court

Copies to all parties via CaseFile Express

**JULY 3, 2019 ORDER (JOSEY-HERRING, J.), DENYING
PLAINTIFFS' MOTION FOR RECONSIDERATION OF THE
AUGUST 28, 2018 SUPERSEDING AMENDED ORDER**

**IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION**

Michael Patrick Murray, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2001 CA 008479 B
)	
Motorola, Inc., <i>et al.</i>,	)	Judge Anita Josey-Herring
)	
Defendants.)	
<hr/>		
Dino Schofield,)	
)	
Plaintiff,)	
v.	)	Case No. 2002 CA 001371 A
)	
Motorola, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
<hr/>		
Pamela Cochran, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001369 A
)	
Audiovox Communications Corp., <i>et al.</i> ,)	
)	
Defendants.)	
<hr/>		
David Keller, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001372 A
)	
Nokia, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
<hr/>		
Richard Schwamb, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001370 A

Qualcomm Inc., *et al.*,

Defendants.

Baldassare Agro, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2002 CA 001368 A

Alan Marks, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2010 CA 003206 B

Shawn Kidd, *et al.*,

Plaintiffs,

v.

Motorola, Inc. *et al.*,

Defendants.

Case No. 2010 CA 007995 B

Cristin Prischman, as Personal Representative of
the Estate of Paul G. Prischman

Plaintiff,

v.

Motorola Inc., *et al.*,

Defendants.

Case No. 2011 CA 002113 B

Bret Kenyon Bocook and

Laura Lynn Bocoock,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 002453 B

Mindy S. Kemp Brown, individually and as
Special Administrator of the Estate of
Daniel Todd Brown,

Plaintiffs,

v.

Nokia, Inc., *et al.*,

Defendants.

Case No. 2011 CA 006710 B

Monique Solomon, individually and as Special
Administrator of the Estate of Andrew J. Solomon,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 008472 B

Robert P. Noroski, individually, and as Personal
Representative of the Estate of
Heather Lynn Noroski,

Plaintiffs,

v.

Samsung Telecomm America, LLC, *et al.*,

Defendants.

Case No. 2011 CA 008854 B

ORDER

This matter comes before the Court upon the Plaintiffs' Motion for Reconsideration of the August 28, 2018 Superseding Amended Order filed on October 12, 2018 and the Defendant's Opposition filed on October 26, 2018. In its motion, the Plaintiffs move, pursuant to Rule 60(b)(1) & (6), to have the Court reconsider its August 28, 2018 Order and deny, in all respects, the Defendants' Motion to Strike Unauthorized Portions of Supplemental Expert Reports. Specifically, the Plaintiffs request that the Court reconsider (1) its decision to strike any post-February 2013 study; (2) its decision to strike all newly cited pre-February 2013 studies and related topics; and (3) its decision to strike a number of studies and/or opinions contained in the expert reports of (a) Dr. Abraham Liboff; (b) Dr. Dimitris Panagopoulos; (c) Dr. Michael Kundi; (d) Dr. Laura Plunkett; and (e) Dr. Igor Belyaev. In sum, the Plaintiffs have requested that the Court reconsider its entire August 28, 2018 Order.

The Plaintiffs move for such relief on the grounds that these decisions were "grounded in mistake and/or error, and if allowed to stand, . . . work an extreme and undue hardship upon [the] Plaintiffs" which will result in "a miscarriage of justice regarding scientific progress and the health and well-being of [the] Plaintiffs." *See* Pl.'s Mot. Recons. at 3.

In its opposition, the Defendants argue that the Plaintiffs have failed to make the requisite showing required by Rule 60(b)(1) & (6) and therefore the Court should deny the instant motion. Specifically, the Defendants assert that rather than indentifying any mistake or error made by the Court when reciting the facts or citing to applicable authority, Plaintiffs merely repackage the arguments that they previously and unsuccessfully raised before the Court. For the following reasons, the Court will deny the Plaintiffs' motion for reconsideration.

I. Standard of Review

As a preliminary matter, Rule 60(b) does not provide—nor does any other Rule of Civil Procedure—for the filing of motions to reconsider. Rather, Rule 60(b) merely provides a vehicle for the Court to “relieve a party or its legal representative from a final judgment, order, or proceeding” upon, *inter alia*,¹ a showing of “mistake, inadvertence, surprise, [excusable neglect] . . . or any other reason that justifies relief.” *See* D.C. Super. Ct. Civ. R. 60(b)(1) & (6).

Moreover, Rule 60(b) aims to “respect the finality of judgments” and therefore only provides for “post judgment relief” (1) “under exceptional circumstances;” (2) “in unusual and extraordinary situations justifying an exception to the overriding policy of finality;” and/or (3) “where the judgment may work an extreme and undue hardship.” *See Olivarius v. Stanley J. Sarnoff Endowment for Cardiovascular Sci., Inc.*, 858 A.2d 457, 464 (D.C. 2004)(citing *Clement v. District of Columbia Dep’t of Human Servs.*, 629 A.2d 1215, 1219 (D.C. 1993)). Additionally, “[r]elief will not be granted” under Rule 60(b) unless “substantial rights of the moving party have . . . been harmed” as a result of the contested judgment. *See Clement*, 629 A.2d at 1219. Finally, the decision of whether to grant a request pursuant to Rule 60(b) is, in most circumstances, committed . . . to the sound discretion of the trial court.” *See Theatt v. Winston*, 907 A.2d 780, 784 (D.C. 2006)(citing *Jones v. Hersh*, 845 A.2d 541, 544 (D.C. 2004)).

II. Analysis

Turning to the instant matter, this Court finds that all arguments raised herein were either (1) previously raised and subsequently denied by this Court in its August 28, 2018 Order; or (2) previously available to the Plaintiffs—but not raised—when Plaintiffs originally filed the many briefings that ultimately gave rise to this Court’s August 28, 2018 Order. Nevertheless, after

¹ The Plaintiffs have solely moved for relief under Rule 60(b)(1) & (6) and therefore the Court has not included the means of relief provided under Rule 60(b)(1)-(5).

reviewing the Plaintiffs' motion, the Court finds, for the following reasons, that all such arguments are either unpersuasive or without merit.

I. All Post-February 2013 Reports Stricken By Mistake

In its motion, the Plaintiffs move to have the Court reconsider its decision to strike any post-February 2013 study and opinion on the grounds—never before raised—that such opinions and studies were properly included as supplementation under Rule 26(a)(2)(B) and Rule 26(e). Notwithstanding, for the following reasons, the Court will deny the instant request.

As a preliminary matter, the supplemental expert reports at issue were filed (1) more than 3 years after the close of Phase I discovery; and (2) in direct response to Judge Weisberg's March 16, 2017 Order which only provided for limited supplementation in light of the new *Daubert* evidentiary standard. Moreover, although the March 16, 2017 Order reopened Phase I discovery for this limited purpose, the Court did not seek to give the parties an unfair opportunity to counter the Court's previous evidentiary findings after the fact. In other words, after hearing from all the parties and having the matter exhaustively litigated, the Court explicitly limited the scope of permissible expert report supplementation to—among other things—avoid the credible prejudice that would occur if the Court allowed for the wholesale reopening of Phase I discovery.

In light of this procedural posture, the Court finds that the Plaintiffs have failed to demonstrate that Rule 26(a)(2)(B) and/or Rule 26(e) provide the Plaintiffs with the unfettered ability to supplement their expert reports with any post-February 2013 study and related opinion. While the Plaintiffs correctly assert that Rule 26(a)(2)(B) requires expert witnesses to submit written reports and Rule 26(e) mandates that such reports be supplemented in certain circumstances, both rules are explicitly predicated on the absence of a court order stating otherwise. *See* D.C. Super. Ct. R. Civ. P. 26(a)(2)(B)(requiring the disclosure of written expert reports “[un]less otherwise stipulated or ordered by the court”)(emphasis added); *See* D.C. Super. Ct. R. Civ. P. 26(e)(1)(a party who has

made an “expert disclosure under Rule 26(a) . . . must supplement or correct its disclosure or response: [1] in a timely manner if the party learns in some material respect the disclosure or response is incomplete or incorrect, and if the additional or corrective information has not otherwise been made known to the other parties during the discovery process or in writing; **or [2] as ordered by the court**”(emphasis added). Therefore, given that the Court explicitly ordered the Plaintiffs to supplement their experts’ reports in a specific and precise manner, the Plaintiffs’ reliance on Rule 26 is misplaced and without merit. This Court is also not of the view that Rule 26 permits a party to upend the discovery process to gain an unfair tactical advantage and thereby disregarding other discovery rules and applicable deadlines.

Nevertheless, this Court also finds that the Plaintiffs’ instant argument fails to meet the high standard required for post-judgment relief under Rule 60(b). Specifically, the Court finds that the Plaintiffs have failed to sufficiently established that the Court’s overall decision to strike certain post-February 2013 studies or topics was the result of mistake or error. Similarly, the Plaintiffs have also failed to demonstrate that the circumstances surrounding the August 28, 2018 Order are “exceptional” or so “unusual and extraordinary” that an “exception to the overriding policy of finality” is justified. *See Olivarius*, 858 A.2d at 464. Finally, the Plaintiffs have not established that the August 28, 2018 Order “resulted in [any] extreme and undue hardship” or “harmed” the Plaintiffs’ “substantial rights.” *See Clement*, 629 A.2d at 1219. Therefore, in light of the Court’s previous findings, the Plaintiffs’ instant request for reconsideration under Rule 60(b) is denied.

II. Newly Cited Pre-February 2013 Studies

In its motion, the Plaintiffs also request that the Court reconsider its decision to strike all pre-February 2013 studies that were cited by the Plaintiffs’ experts for the first time in their supplemental reports. However, with the exception of reiterating the Rule 26 argument that was just addressed and subsequently denied above—all arguments raised in this section of Plaintiffs’ motion

were previously considered and subsequently denied by the Court in its August 28, 2018 Order. Alternatively and in addition, this Court also finds that the Plaintiffs have failed to establish, with any level of particularity, that the Court's decision to strike newly cited pre-February 2013 studies (1) was the result of a mistake or error; (2) harmed the Plaintiffs' "substantial rights;" (3) arose out of "exceptional circumstances;" and/or (4) created an "extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality." *See Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

III. Dr. Abraham Liboff

In its motion, the Plaintiffs also move to have the Court reconsider (1) its decision to strike post-February 2013 studies regarding adverse human health effects; (2) its decision to strike post-February 2013 studies and opinions relating to the usefulness of epidemiological studies in regards to the study of cell phone effects; (3) its decision to strike Study #13 and #18; and (4) its decision to strike post-February 2013 studies regarding interfacial water. However, in support of this request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, the Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs' cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that any of the four decisions (1) was the result of mistake or error; (2) harmed the Plaintiffs' "substantial rights;" (3) arose out of "exceptional circumstances;" and/or (4) created an "extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality." *See Olivarius*, 858 A.2d

at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

IV. Dr. Dimitrius Panagopoulos

In its motion, the Plaintiffs also move to have the Court reconsider (1) its decision to strike 31 post-February 2013 studies included in the “Real Exposure Studies in Opposition to Studies With Simulated Exposures section;” (2) its decision to strike 3 post-February 2013 studies and 7 previously un-cited pre-February 2013 studies related to the role of polarization in the bioactivity of man-made EMFs; (3) its decision to strike the “Positive versus Negative Results” section and its sole study—Study #27; and (4) its decision to strike Study #15. However, in support of this request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, the Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs' cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that any of the four decisions (1) was the result of mistake or error; (2) harmed the Plaintiffs' “substantial rights;” (3) arose out of “exceptional circumstances;” and/or (4) created an “extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality.” *See Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

V. Dr. Michael Kundi

In its motion, the Plaintiffs also moved to have the Court reconsider (1) its decision to strike Dr. Kundi's meta-analysis of several post-February 2013 studies; (2) its decision to strike 8 pre-

February 2013 studies regarding recall bias; (3) its decision to strike the confounding section of Dr. Kundi's supplemental report; and (4) its decision to strike 4 post-February 2013 studies that relate to dose-response and/or specificity. However, in support of this request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs' cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that any of the four decisions (1) was the result of mistake or error; (2) harmed the Plaintiffs' "substantial rights;" (3) arose out of "exceptional circumstances;" and/or (4) created an "extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality." See *Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

VI. Dr. Laura Plunkett

In its motion, the Plaintiffs also move to have the Court reconsider its decision to strike Dr. Plunkett's general causation opinion and any related study she relies to provide this opinion. However, in support of this request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs' cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that the Court's decision to strike this opinion and related studies (1) was the result of mistake or error; (2) harmed the Plaintiffs' "substantial rights;" (3) arose out of "exceptional circumstances;" and/or (4) created an "extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality." See *Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

VII. Dr. Igor Belyaev

In its motion, the Plaintiffs also move to have the Court reconsider (1) its decision to strike, in whole or in part, 91 post-2013 studies that Dr. Belyaev included his supplemental report for the purpose of supplementing a blank line on page 39;² (2) its decision to strike Study #11, #103, and

² In its motion, the Plaintiffs argue—for the first time—that contrary to its prior representations, Dr. Belyaev did not include 91 post-February 2013 studies in his supplemental report for the purpose of supplementing the "content" of a blank line on page 39. Rather, Plaintiffs state that this blank line—line 5 on page 39—represents the "precise location" that each of these 91 studies would have appeared had they existed at the time Dr. Belyaev prepared his original report. Plaintiffs also assert that each of these 91 studies analyzes or discusses "chronic animal/human RF exposure." However, for the following reasons, the Court finds that such a justification is without merit. First, while the Plaintiffs claim that this blank line represents "the precise location" that would have contained all 91 studies had they existed in 2013, the Plaintiffs also assert that this singular line is properly supplemented with studies covering and/or analyzing at least 19 different topics. Specifically, Plaintiffs state that line 5 on page 39 was properly supplemented with studies analyzing and/or discussing: (1) "sperm quality in the context of RF exposure;" (2) the "combined effects of MW on micro-glial cells;" (3) "epidemiological studies [and] the effect of mobile phone position, external MW sources, and study quality;" (4) "information about the bystander effect which is relevant to the issue of study quality;" (5) the "dependence of NT MW effects on exposure duration and dose and [the] underestimation of risks from cell phone usage;" (6) "combined effects and adaptive response to cell phone exposure;" (7) "brain cancer time trends and completeness of cancer registries;" (8) "epidemiological studies involving animals and humans;" (9) "human studies;" (10) the "results of chronically RF-exposed live animal studies;" (11) "latency period for brain cancer as interpreted through data available from open-access databases;" (12) the "chronic exposure to cell phone radiation in humans;" (13) "chronic exposure animal study with a positive finding;" (14) "chronic exposure animal study as a minority study with a negative finding;" (15) the "link between mobile phone use and the risk of intracranial tumors;" (16) how "cell phone use and texting negatively impacts academic performance, mental health, and subjective well-being in college students;" (17) "effects of chronic microwave exposure on hearing;" (18) "variables of study quality, source of funding, and time trends;" and (19) "different effects caused by different types of mobile

#165;³ (3) its decision to strike any reference to the Bradford Hill criteria; and (4) its decision to strike the “Brain Cancer Time Trends” section of Dr. Belyaev’s supplemental report. However, in support of this request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs’ cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that any of the four decisions (1) was the result of mistake or error; (2) harmed the Plaintiffs’ “substantial rights;” (3) arose out of “exceptional circumstances;” and/or (4) created an “extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality.” *See Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs’ instant request for post-judgment relief under Rule 60(b).

VIII. Dr. Mosgoeller

Finally, in its motion, the Plaintiffs move to have the Court reconsider (1) its decision to strike Section 4.1.5; (1) its decision to strike Study #27 and Tillman (2010); and (3) its decision to strike all post-February 2013 studies related to DNA repair induction. However, in support of this

communication.” Moreover, while Plaintiffs assert that this singular line relates to all of these different topics, the line appears in a section of Dr. Belyaev’s original report that solely discusses the notion that “[p]hysiological parameters such as the stage of cell growth, oxygen, divalent ions, and temperature are important variables affecting cellular response to microwaves.” *See Belyaev 2013 Rep.* at 36. Moreover, Dr. Belyaev’s 2017 Supplemental Report is curiously the only report in which the Plaintiffs employed a “location” based briefing technique. Stated differently, the Plaintiffs did not cite to a single other blank line when justifying any addition to their other 5 expert supplemental reports. Therefore, in light of the previously stated reasons, the Court will deny the Plaintiffs’ instant request.

³ As stated previously, this Court does not find that the Plaintiffs’ new explanation is meritorious and therefore this request is denied.

request, Plaintiffs merely repackage and/or restate arguments previously raised and subsequently denied by the Court. Alternatively, to the extent that any such argument was not previously raised, Plaintiffs have failed to provide adequate cause for this failure, and the Court finds that any such argument is without merit. Moreover, this Court is also unpersuaded by the Plaintiffs' cursory invocation of the *Daubert* standard to justify the inclusion of any of the previously mentioned studies and/or opinions.

In addition, the Plaintiffs have also failed to establish, with any level of particularity, that any of the four decisions (1) was the result of mistake or error; (2) harmed the Plaintiffs' "substantial rights;" (3) arose out of "exceptional circumstances;" and/or (4) created an "extraordinary and unusual situatio[n] justifying an exception to the overriding policy of finality." See *Olivarius*, 858 A.2d at 464; *Clement*, at at 1219. Therefore, for the reasons stated above, the Court will deny the Plaintiffs' instant request for post-judgment relief under Rule 60(b).

Therefore, for the reasons stated above it is this 3rd day of July, 2019, hereby:

ORDERED that the Plaintiffs' Motion for Reconsideration is **DENIED** for all of the reasons stated above. Additionally, given the tenuous legal grounds underlying a request for reconsideration, the scarce judicial resources that are consumed by such motions, and the fact that this Court no longer resides on the Civil I Calendar, the parties are precluded from filing any further requests for reconsideration without first obtaining leave of Court.

So ordered.



Hon. Judge Anita Josey-Herring
District of Columbia Superior Court

Copies to all parties via CaseFile Express

**NOVEMBER 14, 2018 *ORDER* (JOSEY-HERRING, J.),
MAINTAINING ORIGINAL DECISION GRANTING
DEFENDANTS' REQUEST TO STRIKE CERTAIN PORTIONS
OF DR. MOSGOELLER'S 2017 SUPPLEMENTAL REPORT**

**IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION**

Michael Patrick Murray, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.)	Case No. 2001 CA 008479 B
)	
Motorola, Inc., <i>et al.</i> ,)	Judge Anita Josey-Herring
)	
Defendants.)	
)	
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Dino Schofield,)	
)	
Plaintiff,)	
v.)	Case No. 2002 CA 001371 A
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Motorola, Inc., <i>et al.</i> ,)	
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Defendants.)	
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Pamela Cochran, <i>et al.</i> ,)	
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Plaintiffs,)	
v.)	Case No. 2002 CA 001369 A
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Audiovox Communications Corp., <i>et al.</i> ,)	
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Defendants.)	
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David Keller, <i>et al.</i> ,)	
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Nokia, Inc., <i>et al.</i> ,)	
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Richard Schwamb, <i>et al.</i> ,)	
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Qualcomm Inc., *et al.*,

Defendants.

Baldassare Agro, *et al.*,

Plaintiffs,

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Case No. 2002 CA 001368 A

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Motorola, Inc., *et al.*,

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Case No. 2010 CA 003206 B

Shawn Kidd, *et al.*,

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v.

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Cristin Prischman, as Personal Representative of
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Plaintiff,

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Case No. 2011 CA 002453 B

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Nokia, Inc., *et al.*,

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Monique Solomon, individually and as Special
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Plaintiffs,

v.

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Case No. 2011 CA 008472 B

Robert P. Noroski, individually, and as Personal
Representative of the Estate of
Heather Lynn Noroski,

Plaintiffs,

v.

Samsung Telecomm America, LLC, *et al.*,

Defendants.

Case No. 2011 CA 008854 B

ORDER

This matter comes before the Court upon the briefing submitted by the parties in response to this Court's August 28, 2018 Superseding Amended Order. In its August 28, 2018 Order, the Court granted without prejudice the Defendants' request to strike (1) Dr. Wilhelm Mosgoeller's new mechanism theory—listed as opinion number 6 and 7 on page 4 of Dr. Mosgoeller's supplemental report—that “HF-EMF exposure can induce oxidative DNA damages to biological structures;” and (2) the 12 post-2013 studies¹ that Dr. Mosgoeller relied on to render both of these opinions. The Court granted this request without prejudice because while the Plaintiffs conceded that Dr. Mosgoeller's theory regarding an association between HF-EMF exposure and a cell's ROS exposure/Induction of Oxidative damage was “available [prior to] 2013,” the Plaintiffs argued that Dr. Mosgoeller's conclusions as to the viability of this ROS mechanism of injury were [only recently] spurred by Yakymenko's]” 2016 publication entitled *Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation*.²

Given the conclusory nature of this explanation, the Court granted Defendants' request to strike Dr. Mosgoeller's new opinions and the studies related thereto but provided Plaintiffs with the opportunity to submit further briefing clarifying how (1) Dr. Mosgoeller's ATHEM-2 experiment; and/or (2) the Yakymenko (2016) study “spurred” Dr. Mosgoeller to render new opinions regarding

¹ This includes Study #1, #4, #6, #13, #17, #20, #23, #24, #30, #34, #44, and #47 as numbered in the Defendants' Response to Plaintiffs' Revised Supplemental Brief.

² Specifically, Plaintiffs state the following in regards to Dr. Mosgoeller's new opinion number 6 and 7 located on page 4 of Dr. Mosgoeller's supplemental report:

“Dr. Mosgoeller [stated in his] own words, [that] a mechanism emerged which explains the biological effects he previously was able to show himself and observe in the study results of others. Indeed, Dr. Mosgoeller explains that a study, Yakymenko (2016), analyzed the results of approximately 100 scientific reports and concluded there is an association between HF-EMF exposure and a cell's ROS exposure. **While this theory was available pre-2013**, Dr. Mosgoeller's conclusions as to the viability of this ROS mechanism of injury were spurred by Yakymenko (2016).

See Pl.'s Opp'n to Def.'s Mot. Strike at 20 (emphasis added).

how HF-EMF exposure can induce oxidative DNA damage. In other words, the Court directed the Plaintiffs to demonstrate how Dr. Mosgoeller's ATHEM-2 experiment and/or the Yakymenko (2016) study was so groundbreaking and reliable that Dr. Mosgoeller was finally "spurred" to agree with a theory that he previously failed to include in his original report even though the initial case management Order instructed all experts to provide the court with "a complete statement of all [general causation] opinions." *See* 3/16/17 Order at 5 (Weisberg, J.).

As a result, on September 11, 2018 the Plaintiffs filed its Brief in response to this Court's August 28, 2018 Order and on September 25, 2018 the Defendants submitted its Response. For the following reasons, the Court will maintain its original decision granting Defendants' request to strike (1) Dr. Mosgoeller's new mechanism theory—listed as opinion number 6 and 7 on page 4 of Dr. Mosgoeller's supplemental report—that "HF-EMF exposure can induce oxidative DNA damages to biological structures;" and (2) the 12 post-2013 studies that Dr. Mosgoeller relied on to render both of these opinions.

It is clear to this Court that the results of the ATHEM-2 study and/or the Yakymenko (2016) publication are neither sufficiently groundbreaking nor reliable to justify the wholesale inclusion of Dr. Mosgoeller's new mechanism theory—outlined in opinion number 6 and 7—for the first time in his supplemental 2017 report. Dr. Igor Belyaev, another Plaintiffs' expert, devoted numerous sections of his original 2013 report to the discussion of this mechanism theory. *See* Belyaev 2013 Rep. at 4, 54-59. Specifically, in his original report, Dr. Belyaev relied on at least six pre-2013 studies to opine that the "induction of oxidative stress and reduction of scavenging capacity of antioxidants" supported his ultimate opinion that "electromagnetic MW radiation emitted by cell phones induces molecular pathways and cellular mechanisms that produce carcinogenesis in human brain cells." *See* Belyaev 2013 Rep. at 82. Given that Dr. Belyaev opined about the relationship between HF-EMF exposure and DNA Oxidation in his original 2013 report,

the Court finds it dubious that Dr. Mosgoeller was only able to adopt similar opinions after Yakymenko (2016) was published.

Moreover, Yakymenko (2016) is not a manipulative study but rather an observational study that merely conducted a review of 100 other studies analyzing the “oxidative effects of low-intensity radiofrequency radiation in living cells.” See Yakymenko, et al., *Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation*, Electromagnetic Biology and Medicine Vol. 35 No. 2, 186 (2016). Additionally, of the 100 studies reviewed in Yakymenko (2016), 54 were published before 2013. Consequently, the Court is not persuaded by the Plaintiffs’ assertion that Dr. Mosgoeller was only “spurred” to opine about the relationship between Oxidative DNA damage and HF-EMF because of the Yakymenko (2016) observational review. This finding is also supported by the fact that (1) Dr. Mosgoeller failed to include in his original report all but 4 of the 54 pre-2013 studies reviewed in Yakymenko (2016); and (2) the 4 studies that were included were not relied on to support the proposition that HF-EMF exposure can induce oxidative DNA damage. Therefore, it is this 14th day of November, 2018, hereby:

ORDERED that the Court will maintain its original decision granting Defendants’ request to strike (1) Dr. Mosgoeller’s new mechanism theory—listed as opinion number 6 and 7 on page 4 of Dr. Mosgoeller’s supplemental report—that “HF-EMF exposure can induce oxidative DNA damages to biological structures;” and (2) the 12 post-2013 studies that Dr. Mosgoeller relied on to render both of these opinions. Therefore, Plaintiffs’ request that the Court reconsider and reverse its previous decision is **DENIED**.

So ordered.



Hon. Judge Anita Josey-Herring
District of Columbia Superior Court

Copies to all parties via CaseFile Express

AUGUST 28, 2018 *SUPERSEDING AMENDED ORDER* (JOSEY-HERRING, J.), GRANTING DEFENDANTS' SEPTEMBER 1, 2017 *MOTION TO STRIKE UNAUTHORIZED PORTIONS OF SUPPLEMENTAL EXPERT REPORTS*

IN THE SUPERIOR COURT OF THE DISTRICT OF COLUMBIA
CIVIL DIVISION

Michael Patrick Murray, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

)
)
)
) Case No. 2001 CA 008479 B
)
)

) Judge Anita Josey-Herring
)
)

Dino Schofield,

Plaintiff,

v.

Motorola, Inc., *et al.*,

Defendants.

)
)
)
) Case No. 2002 CA 001371 A
)
)

Pamela Cochran, *et al.*,

Plaintiffs,

v.

Audiovox Communications Corp., *et al.*,

Defendants.

)
)
)
) Case No. 2002 CA 001369 A
)
)

David Keller, *et al.*,

Plaintiffs,

v.

Nokia, Inc., *et al.*,

Defendants.

)
)
)
) Case No. 2002 CA 001372 A
)
)

Richard Schwamb, *et al.*,

Plaintiffs,

v.

)
)
)
) Case No. 2002 CA 001370 A
)
)

Qualcomm Inc., *et al.*,

Defendants.

Baldassare Agro, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2002 CA 001368 A

Alan Marks, *et al.*,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2010 CA 003206 B

Shawn Kidd, *et al.*,

Plaintiffs,

v.

Motorola, Inc. *et al.*,

Defendants.

Case No. 2010 CA 007995 B

Cristin Prischman, as Personal Representative of
the Estate of Paul G. Prischman

Plaintiff,

v.

Motorola Inc., *et al.*,

Defendants.

Case No. 2011 CA 002113 B

Bret Kenyon Bocook and

Laura Lynn Bocoock,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 002453 B

Mindy S. Kemp Brown, individually and as
Special Administrator of the Estate of
Daniel Todd Brown,

Plaintiffs,

v.

Nokia, Inc., *et al.*,

Defendants.

Case No. 2011 CA 006710 B

Monique Solomon, individually and as Special
Administrator of the Estate of Andrew J. Solomon,

Plaintiffs,

v.

Motorola, Inc., *et al.*,

Defendants.

Case No. 2011 CA 008472 B

Robert P. Noroski, individually, and as Personal
Representative of the Estate of
Heather Lynn Noroski,

Plaintiffs,

v.

Samsung Telecomm America, LLC, *et al.*,

Defendants.

Case No. 2011 CA 008854 B

SUPERSEDING AMENDED ORDER

This matter originally came before the Court upon Defendants' Motion to Strike Unauthorized Portions of Supplemental Expert Reports filed on September 1, 2017. Plaintiffs filed their response on September 11, 2017 and the Defendants replied on September 19, 2018. In its motion to strike, Defendants alleged that the Plaintiffs violated Judge Weisberg's March 16, 2017 Order by (1) relying heavily on pre-2013 studies that they could have but failed to rely on in their original reports; and (2) revising how they express their original methodologies and opinions without even attempting to explain why the New Rule 702 admissibility standard requires such revision. Def. Mot. to Strike 1. Given the sheer length of Plaintiffs' supplemental expert report and the extensive list of infractions alleged by the Defendants, this Court ordered the Plaintiffs to submit a brief that adhered to the following specifications:

- (1) Plaintiffs were to list, for each expert, the relevant studies or peer reviewed publications, added to the scientific literature since February 2013, that each of their experts relied on in their supplemental expert report.¹ An asterisk was also to be placed next to every author that was previously excluded by this Court under Rule 403 and every study that cites to and/or references a study or publication that was published by an author that was previously excluded by this Court under Rule 403.
- (2) Plaintiffs were also to specify how each study or publication, relied upon by their experts, was relevant to and/or fell under the scope of that expert's original report. This description was to include a page and line citation to the specific section(s) of that expert's original expert report that the new study or publication is meant to supplement. However, the citation could not merely refer to large amorphous portions of the expert's original expert report.
- (3) Lastly, Plaintiffs were directed to explain why each of their six experts needed to revise the way in which they previously expressed their opinions in their original expert reports. Specifically, Plaintiffs were instructed to justify why the change in the evidentiary standard from *Dyas/Frye* to Rule 702 necessitated a change in the way each of their experts previously articulated their opinions in their original expert reports. This explanation was not to have exceeded three pages per expert

¹ This list was to only include the study or publication's (a) title; (b) date of publication; and (b) author's or authors' name(s).

and was to explicitly cite to the four *Daubert* factors and/or any other indicia of reliability.

Furthermore, in issuing its Order for Supplemental Briefing, this Court explicitly stated that Judge Weisberg's March 16, 2017 Order did not authorize, nor did this Court authorize, a re-do of expert discovery in this case. Although the March 16, 2017 Order permitted limited supplementation to address the change in the evidentiary standard from *Dyas/Frye* to *Daubert*, the Court did not seek to give the parties an unfair opportunity to counter the Court's previous evidentiary findings after the fact.

On February 6, 2018, Plaintiffs submitted their brief in response to this Court's Order for Supplemental Briefing. On March 22, 2018, Defendants submitted their Opposition. In its Supplement, Plaintiffs listed, for each expert, the relevant studies or peer reviewed publications added to the scientific literature since February 2013 that each of the Plaintiffs' experts relied on in their supplemental expert report. Plaintiffs also ultimately described how each study or publication listed related to or fell under the scope of each expert's original report. Moreover, Plaintiffs included a page and line citation to the specific section(s) of that expert's original expert report that the new study or publication was meant to supplement. Lastly, Plaintiffs outlined the justification for why each of their six experts needed to revise the way in which they previously expressed their opinions in their original expert reports. Although the supplemental Order required Plaintiffs to provide the Court with a detailed explanation for why each of the Plaintiffs' experts seeking to revise their opinion(s) needed to do so based on the change in the evidentiary standard from *Dyas/Frye* to Rule 702, Plaintiffs failed to do so. The Court will analyze each expert in turn and for the sake of brevity

and clarity, all studies will be referred to as they were numbered in the Defendants' Response to Plaintiffs' Revised Supplemental Brief.²

I. Dr. Laura Plunkett

In his August 8, 2014 Order, Judge Weisberg made the following findings as to the proposed expert testimony of Dr. Plunkett. The Court stated that Dr. Plunkett would not be offering any opinion regarding the general causation of brain tumors, the ultimate issue in question during this phase of litigation. *See* 08/08/2014 Order at 72 (Weisberg, J.). Rather, Dr. Plunkett was to offer testimony that validated the methodologies of other experts and the inferences that can fairly be drawn from different lines of scientific evidence. In other words, the Court categorized Dr. Plunkett as a "support witness" that would offer testimony as to the following three opinions: (1) "Weight of Evidence" is a generally accepted methodology for inferring disease causation; (2) it is generally accepted to extrapolate results from fruit fly and other *in vivo* studies to predict health effects in humans; and (3) it is generally accepted to extrapolate findings from *in vitro* studies in human and mammalian cells to predict health effects in humans. Lastly, Judge Weisberg stated that Dr. Plunkett "offered no causation opinions" and therefore was prohibited "from testify[ing] on the ultimate issue of whether radiation from cell phones can cause or promote glioma or acoustic neuroma." *See* 08/08/2014 Order at 72 (Weisberg, J.). In her supplemental report, Dr. Plunkett made the following conclusion:

There are a variety of new peer-reviewed studies that provide additional scientific support for a biologically plausible mechanism for RFP-induced tumor formation, specifically brain tumors and acoustic neuromas in humans. It is my opinion to a reasonable degree of scientific certainty that the likely mechanism involves induction of oxidative stress and initiation of carcinogenesis through a series of non-genotoxic

² For example, if the Court refers to Study #2 in the section of this Order dedicated to Dr. Plunkett, then that means the Court is discussing the second post-2013 study: (1) listed without numbers in Dr. Plunkett's section of Plaintiffs' Revised Supplemental Brief; and/or (2) with numbers in Dr. Plunkett's section of Defendants' Response to Plaintiffs' Revised Supplemental Brief.

events that eventually lead to DNA damage and transition of cells to preneoplastic and then euplastic phenotypes.

See Plunkett 2017 Supp. Rep. at 25.

Dr. Plunkett never included this conclusion in her original expert report. Rather, in the statement of purpose section of her original expert report, Dr. Plunkett stated that she would be testifying as to the “use” of standard methodology in the practice of toxicology and human health risk assessment with a particular emphasis on the “use” of a weight of the evidence methodology. Nowhere in her original report, did Dr. Plunkett state that she would actually be utilizing a weight-of-the-evidence or other toxicology or human health risk assessment methodology to render an opinion about the issue of general causation. Moreover, Plaintiffs stated in their briefings that Dr. Plunkett “did not possess a general causation opinion” before submitting her original report. *See* Pl.’s Opp’n to Def.’s Mot. Strike at 11. However, to justify the inclusion of this new opinion by Dr. Plunkett, Plaintiffs submit that Dr. Plunkett’s opinion has “evolved” since her last report, and therefore the instant conclusion is properly included in her supplemental report. *See* Pl.’s Opp’n to Def.’s Mot. Strike at 11-13.

In Judge Weisberg’s March 16, 2017 Order, the Court denied Plaintiffs’ Motion for Additional Discovery and held that the Plaintiffs were not entitled to a general causation do-over. This sentiment was also emphasized and reiterated in this Court’s November 6, 2017 Order. *See* 11/06/2017 Order at 3 (Josey-Herring, J.). Therefore, Defendants’ request to strike will be granted as it pertains to the general causation opinions included in Dr. Plunkett’s supplemental report. As a result, the Court will strike any study or publication, regardless of its publication date, included in Dr. Plunkett’s supplemental report that supports her opinion on general causation. Specifically, as numbered in the Defendants’ response to Plaintiffs’ Supplemental Briefing, Dr. Plunkett may not cite to and/or reference Study #2-4 and #6-16 for the purpose of supporting her general causation

opinion. Notwithstanding, Dr. Plunkett will be able to refer to these studies for the limited purpose of opining that these are the type of studies that may be used or analyzed by experts when rendering their causation opinions. Finally, Defendants' did not object to the inclusion of Study #1, #5, and #17 in Dr. Plunkett's supplemental report. Therefore, the inclusion of these studies in Dr. Plunkett's supplemental report is not being challenged at this time.

Finally, even though it is clear that Dr. Plunkett's supplemental report has far surpassed the scope of her original report, the Court also finds that Plaintiffs failed to adequately demonstrate that the change in evidentiary standard from *Dyas/Frye* to Rule 702 necessitated a revision in the way that Dr. Plunkett previously articulated her original opinions. Specifically, when justifying Dr. Plunkett's need to revise her opinion, Plaintiffs largely focus on generally defining and describing how one utilizes a "risk assessment" and "weight-of-the-evidence (WOE)" methodology. Moreover, Plaintiffs failed to specify what precisely Dr. Plunkett needed to incorporate into her supplemental report given the change in evidentiary standard. Instead, Plaintiffs merely articulated general propositions which are substantively lacking. For example Plaintiffs contend that: (1) "[i]n reaching her opinions, Dr. Plunkett employed methodologies which satisfy the *Daubert* factors;" (2) "her methods have been tested and are accepted within the scientific community, not only by other toxicologists and risk assessors, but also by relevant government entities;" (3) "the steps and/or methods taken [by Dr. Plunkett] have been publication topics and peer subjected to peer review;" and (4) when "evaluating the available data, Dr. Plunkett, looks to not only a study's findings, but also the study's type, design, size, etc., thus addressing potential error rates that may affect a study's outcome." *See* Pl.'s Revised Supp. Brief at 275-77.

These conclusory assertions fall short of providing the Court with an adequate basis for evaluating why the change in the evidentiary standard from *Dyas/Frye* to Rule 702 necessitated that Dr. Plunkett revise the opinions she expressed in her original report. Therefore the Court finds that

Plaintiffs failed to adequately demonstrate that the change in evidentiary standard justified a change in how Dr. Plunkett originally articulated her opinions.

II. Dr. Abraham Liboff

In its briefing, Plaintiffs listed 51 studies, published after February 2013, that Dr. Liboff would like to cite to or reference in his supplemental report. In its motion, Defendants raised (1) no objection as to the wholesale inclusion of 29 of these studies; and (2) no objection as to the limited inclusion of 4 of these studies.³ Therefore, the inclusion of these studies in Dr. Liboff's supplemental report is not being challenged at this time. However, as to the remaining 22 studies, Defendants move to strike on the grounds that Dr. Liboff impermissibly relied on these studies to opine about: (1) the adverse health effects of mobile phone use; (2) brain-tumor incidence data and epidemiology; (3) reactive oxygen species; and (4) interfacial water. For the following reasons, the Court will grant in part and deny in part Defendants' requests to strike.

A. Adverse Health Effects of Mobile Phone Use

In its motion, Defendants moved to strike 10 studies⁴ on the grounds that Dr. Liboff has impermissibly relied on these studies to opine about the adverse health effects of cell phones. In its brief, Plaintiffs allege that these 10 studies were properly included in Dr. Liboff's supplemental report because each study relates to or falls under the scope of line 7 through 12 on page 15 of Dr. Liboff's original report. However, this portion of Dr. Liboff's original report does not relate to or mention the adverse health effects of cell phones. Rather, this section states that:

³ Specifically, Defendants do not object to the wholesale inclusion of Study #2, #4, #6, #12, #14-17, #20, #21, #23, #24, #26, #29, #32-34, #36-41, #44, #46, and #48-51. Additionally, Defendants do not object to Dr. Liboff's citation to Study #3 on page 4; Study #8 on pages 6, 7, and 11; Study #9 on pages 6 and 11; and Study #22 on page 4.

⁴ Specifically, Defendants move to strike Study #1, #5, #10-11, #19, #27-28, #31, #45, and #47.

The great advantage of this ICR⁵ hypothesis, as it applies to electromagnetic effects in living things, is that it provides an empirical investigative tool to researchers. Dozens of experiments designed around this hypothesis have been done in the last 25 years, yielding positive results and proving beyond doubt that **ELF⁶ electromagnetic fields**, in some cases at ultra-small intensities, are capable of causing a wide range of biological effects.

See Liboff 2013 Rep. at 15:7-12 (emphasis added).

Immediately following this paragraph, Dr. Liboff includes a chart listing “representative examples of experiments implicating weak low frequency electromagnetic fields in different biological effects.” This chart, entitled “Table 1,” was also described as “indicat[ing] a wide variety of biological effects resulting from electromagnetic exposure to a variety of **ELF signals**, including but not limited to ICR frequencies.” *See* Liboff 2013 Rep. at 15:7-13 (emphasis added). As is clear from the above quoted text, Dr. Liboff does not discuss, mention, or analyze the adverse health effects of cell phones on page 15 of his supplemental report. Moreover, all 10 of the studies cited by Dr. Liboff to opine about the adverse health effects of cell phones analyze Radiofrequency (RF) radiation. However, the above quoted section solely discusses extremely low frequency (ELF) radiation. Oddly, while Dr. Liboff does discuss RF radiation in his original report, Plaintiffs do not allege that the 10 studies at issue here supplement that section of Dr. Liboff’s original report. Moreover, even if they had, that section similarly does not mention the adverse health effects of cell phones.

Furthermore, in Judge Weisberg’s March 16, 2017 Order, the Court found that Dr. Liboff’s original report only “conclude[d], to a reasonable degree of scientific certainty, that radiofrequency (“RF”) and extremely low frequency (“ELF”) radiation from cell phones can cause non-thermal biological changes.” *See* 08/08/2014 Order at 71 (Weisberg, J.). The Court found that Dr. Liboff did not opine as to whether “cell phones cause or promote glioma, acoustic neuroma, or any other type

⁵ ICR stands for “ion cyclotron resonance” and this hypothesis proposes that critical biological ions are stimulated by specific frequencies related to the ion’s charge-to-mass ratio thereby giving rise to changes in biological expression.

⁶ ELF stands for “extremely-low-frequency” range defined as 3-300 Hz.

of tumor.” Rather, Dr. Liboff’s testimony was *limited* to “biological plausibility, based on his belief that the RF and ELF radiation emitted by cell phones are ‘biologically interactive’ and have produced various effects in cells and animals.” *See* 08/08/2014 Order at 72 (Weisberg, J.). In other words, Dr. Liboff was to opine as to the “biological effects of cell phone radiation” and the Court found that it was up to the Defendants to elicit, via cross examination or the presentation of evidence, that there are many steps between the biological effects cited by Dr. Liboff and the causation of cancer in humans.

Additionally, in the executive summary of his original report, Dr. Liboff states that his report will “solely” focus on the “question of biological plausibility” and that after “assess[ing] the likelihood that measurable biological effects are associated with the use of cell phones [he can] conclude that there is a reasonable scientific certainty that the radiation emitted from cell phones can cause biological change.” *See* Liboff 2013 Rep. at 3. While the Plaintiffs were permitted to supplement Dr. Liboff’s report with new studies; and/or revise his previous report to adhere to the *Daubert* standard, this supplementation was not intended to permit the Plaintiffs to elicit new opinions not previously raised. Discovery in this case cannot be a moving target. Therefore, for the forgoing reasons, the Court will grant Defendants’ request to strike Study #1, #5, #10-11, #19, #27-28, #31, and #47 to the extent that Dr. Liboff relied on these studies to opine about the adverse health effects of cell phones.

Plaintiffs also alleged that along with supplementing page 15, Study #45 also supplements (1) lines 30 through 32 of page 9; and (2) line 28 on page 23 through line 4 on page 24 of Dr. Liboff’s original report. Specifically, Plaintiffs allege that Study #45 supplements page 9 of Dr. Liboff’s original report by “strengthening Lai and Singh’s studies showing cell phone induced genotoxicity.” *See* Pl.’s Revised Supp. Brief at 261. However, contrary to Plaintiffs’ assertion, this section on page 9 of Dr. Liboff’s report does not mention Lai and Singh’s studies for the purpose of

opining that the radiation emitted from cell phones is either (a) “genotoxic;” or (b) capable of causing adverse health effects. Rather, this section of Dr. Liboff’s original report states that:

Many arguments that attempt to discount electromagnetically-related biological effects are based on the faulty notion that the capacity to affect biological systems, particularly within the cell nucleus, is limited to ionizing radiation. In this regard, Lai and Singh clearly demonstrated that DNA strand breaks occur in rat brain[s] following exposure to 2.45 GHz signals at SAR levels of 1 W/kg.

See Liboff 2013 Rep. at 9:30-32.

Additionally, Dr. Liboff concludes page 9 of his original report by opining that “despite the non-ionizing nature of cell phone radiation, it is nevertheless true that such radiation can result in changes within the cell nucleus, thereby providing the potential for changes in biological expression.” *See* Liboff 2013 Rep. at 9:34-36. Therefore, as is clear from the above quoted text, Dr. Liboff does not opine that cell phones induce genotoxicity or adverse health effects.

Furthermore, Plaintiffs also justify Dr. Liboff’s citation to Study #45 on the grounds that it supplements the bottom of page 23 through the top of page 24. However, this section of Dr. Liboff’s original report is merely his Summary Statement which is too broad and too general to justify any supplementation. Therefore, based on the reasoning outlined above, Defendants’ request to strike Study #45 is granted to the extent that Dr. Liboff relied on this study to opine about the adverse health effects of cell phones. However, Dr. Liboff is permitted to rely on Study #45 to the extent that it supports his opinion regarding the finding that “non-ionizing [radiation] . . . can result in changes within the cell nucleus, thereby providing the potential for changes in biological expression.” *See* Liboff 2013 Rep. at 9.

B. Epidemiology

As to the studies regarding epidemiology, the Court will grant Defendants’ request to strike in part. Specifically, Defendants allege that Dr. Liboff has included an entirely new section in his report entitled “Epidemiological Studies.” Consequently, Defendants moved to strike the five

studies cited in this section.⁷ In support of including the aforementioned studies, Plaintiffs asserted that these studies supplement page 9, 14, and 15 of Dr. Liboff's original report. However, on page 9⁸ and 15,⁹ Dr. Liboff neither mentions, references, nor relies on any epidemiological studies. Moreover, while Dr. Liboff does mention an epidemiological study on page 14, this reference does not adequately support the supplementation at issue here. Specifically, the applicable portion of page 14 states the following:

There is convincing evidence that weakly intense ELF electromagnetic fields affect a wide variety of living things. Research in this area was initiated by WR Adey in the mid-1970s and was further spurred by an epidemiological study by Wertheimer and Leeper in 1979 showing a connection between 60 Hz power lines and childhood leukemia.

See Liboff 2013 Rep. at 14:1-6.

⁷ This includes Study #3, #7, #22, #30, and #43 as labeled in Defendants' Response to Plaintiffs' Revised Supplemental Brief.

⁸ Specifically, the cited section on page 9 states:

In this regard, Lain and Singh clearly demonstrated that DNA strand breaks occur in rat brains following exposure to 2.45 GHz signals at SAR levels of 1W/kg. In addition, Belyaev found that exposure to weakly intense electromagnetic radiation affects DNA chromatin conformation in human lymphocytes, both at ELF and at RF frequencies. Thus, despite the non-ionizing nature of cell phone radiation, it is nevertheless true that such radiation can result in changes within the cell nucleus, thereby providing the potential for changes in biological expression.

See Liboff 2013 Rep. at 9:30-36.

⁹ Specifically, the cited section on page 15 includes a chart listing "representative examples of experiments implicating weak low frequency electromagnetic fields in different biological effects" and states that:

The great advantage of this ICR hypothesis, as it applies to electromagnetic effects in living things, is that it provides an empirical investigative tool to researchers. Dozens of experiments designed around this hypothesis have been done in the last 25 years, yielding positive results and proving beyond doubt that ELF electromagnetic fields, in some cases at ultra-small intensities, are capable of causing a wide range of biological effects.

See Liboff Rep. at 15:7-13.

While Dr. Liboff makes a cursory reference to an epidemiological study in this section of his original report, this brief reference is merely for background and subsequently fails to justify the supplementation of an entire section devoted to epidemiological studies. Therefore, Defendants' request to strike will be granted to the extent that Dr. Liboff has included Study #3, #7, #22, #30, and #43¹⁰ in his supplemental report for the purpose of rendering an opinion on the usefulness of epidemiological studies in regards to the study of cell phone effects. However, Dr. Liboff will be permitted to reference these studies in the same manner as he did on page 14 of his original report. Therefore, Dr. Liboff will be permitted to cite to these 5 studies for the sole and limited purpose of stating that they have also "spurred" the epidemiological research "initiated by W R Adey in the mid 1970s." *See* Liboff 2013 Expert Report at 14.

C. Brain Tumor Incidence Data

Defendants also moved to strike Study #13 and #18 on the grounds that Dr. Liboff has impermissibly relied on these studies to render a new opinion that was not previously included in his original report. Specifically, Defendants assert that Dr. Liboff's supplemental report includes a new section entitled "Is the Incidence of Glioblastoma Increasing" in which, for the first time, Dr. Liboff cites to Study #13 and #18 and opines that the incidence of glioblastoma has increased over the past few decades. *See* Liboff 2017 Expert Report at 4. Plaintiffs assert that both of these studies fall under the scope of Dr. Liboff's original report because each study supplements (1) lines 30 through 32 on page 9; and (2) lines 7 through 13 on page 15 of Dr. Liboff's original report.¹¹ However,

¹⁰ Plaintiffs also allege that Study #43 supplements the Summary Statement of Dr. Liboff's original report. However, as previously stated, this section of Dr. Liboff's original report is far too broad and conclusory to support any supplementation.

¹¹ Plaintiffs have also alleged that Study #13 and #18 supplement line 28 on page 23 through line 4 on page 29. However, the last page of Dr. Liboff's Supplemental Report is 24. Therefore, the Court will assume that Plaintiffs intended to cite to the end of the last page of Dr. Liboff's original report, page 24. However, as previously stated, this section contains Dr. Liboff's Summary Statement which is far too broad and conclusory to support any supplementation.

neither page 9 or 15 of Dr. Liboff's original report contains a reference to or discussion of (1) an incidence rate; (2) an incidence rate of glioblastoma; and/or (3) that the incidence rate of glioblastoma has increased. *See supra* note 8 and 9.

Moreover, in his August 8, 2014 Order, Judge Weisberg held that Dr. Liboff did not opine as to whether "cell phones cause or promote glioma, acoustic neuroma, or any other type of tumor." *See* 08/08/2014 Order at 72 (Weisberg, J.). Therefore, it would reasonably follow that Dr. Liboff would have never opined about the increased incidence rate of glioblastoma, a malignant tumor, in his original report. Therefore, Defendants' request to strike Study #13 and #18 is granted.

D. Reactive Oxygen Species

Defendants also moved to strike Study #42 on the grounds that Dr. Liboff has impermissibly relied on this study to render a new opinion that was not previously included in his original report. Specifically, Defendants assert that Dr. Liboff's supplemental report includes a new section entitled "Reactive Oxygen Species" in which Dr. Liboff opines, for the first time, that weak electromagnetic fields with frequencies ranging from 50 Hz to 1800MHZ act to increase reactive Oxygen Species. Plaintiffs assert that Study #42 supplements the Summary Statement of Dr. Liboff's original report. As previously stated, this section is far too vague and conclusory to support any supplementation. However, it would appear that this study would adequately supplement page 15 of Dr. Liboff's original report in which he opines about the ability of ELF electromagnetic fields to have biological effect. Therefore, if appropriate, Plaintiffs may supplement Dr. Liboff's original report with Study #42 to the extent that it relates to the ability of ELF electromagnetic fields to have biological effect. Consequently, Defendants' request to strike is denied as to that issue.

E. Interfacial Water

Defendants also moved to strike Study #8, #9, #25, and #35 on the grounds that Dr. Liboff has impermissibly relied on these studies to render a new opinion regarding interfacial water.¹² Specifically, Defendants assert that Dr. Liboff's supplemental report includes a new section entitled "Interfacial Water" in which Dr. Liboff opines, for the first time, about the idea that water is sensitive to weak electromagnetic fields. *See* Liboff 2017 Rep. at 10. Plaintiffs assert that the four previously mentioned studies supplement lines 11 through 17 on page 16 of Dr. Liboff's original report.¹³ However, page 16 is devoid of any reference or discussion of interfacial water.¹⁴ Moreover, in the section of Dr. Liboff's supplemental report entitled "Interfacial Water," Dr. Liboff states that "[l]ong before there was scientific interest in weak bioelectromagnetic effects, Nobellate Albert Szent-Gyorgyi directed attention to the interface separating biological substance from water that is found in all living things, suggesting that water is likely deeply involved in biological function." *See* Liboff 2017 Supp. Rep. at 10. In support of this statement, Dr. Liboff cites to Dr. Szent-Gyorgyi's study published in 1958. As a result, Dr. Liboff could have—but didn't—reference or mention information regarding interfacial water in his original report. Therefore, for the previously stated

¹² It should be noted that as to Study #8 and #9, Defendants do not object to Dr. Liboff's citation to Study #8 and #9 on pages 6, 7, and 11 of Dr. Liboff's supplemental report. Therefore, the inclusion of these studies in Dr. Liboff's supplemental report is not being challenged at this time.

¹³ Plaintiffs also cited to the Summary Statement section of Dr. Liboff's original report which, as previously stated, is far too broad and conclusory to support any supplementation.

¹⁴ This section of page 16 states:

More recent studies dealing with low-frequency ICR-like effects in biology have focused on using still smaller ultra-weak electromagnetic intensities. This work, extending down to fields as low as 40 nT, was initiated in Mikhail Zhadin's laboratory (39) in 1998 and has since been replicated elsewhere (40)(41). The import of this ongoing remarkable research is that it points to quantum-like processes at the molecular level in an unequivocal manner, very far indeed from the engineering approach that has mainly dominated the question of safety.

See Liboff 2013 Rep. at 16:11-17.

reasons, the Court will grant Defendants' request to strike Study #8, #9, #25, and #35 to the extent that Dr. Liboff relied on these studies to opine about interfacial water.

F. Revision Necessitated by Change in the Evidentiary Standard

Finally, the Court also finds that Plaintiffs failed to adequately demonstrate that the change in the evidentiary standard from *Dyas/Frye* to Rule 702 requires that Dr. Liboff revise the opinions he included in his original report. Rather than arguing that the unique factors of *Daubert* justified the revision of certain portions of Dr. Liboff's supplemental report, Plaintiffs opted to cursorily state that the opinions in Dr. Liboff's supplemental report met the Rule 702 standard. Such statements are not responsive to either this Court's Order for Supplemental Briefing nor Judge Weisberg's March 16, 2017 Order.

Specifically, in both Orders, this Court and Judge Weisberg made clear that experts could only revise the way they previously expressed their opinions if such a revision was necessitated by the change in the evidentiary standard. Stated differently, a revision of an expert's opinion was only permitted if such a revision arose directly from or out of the change in the evidentiary standard. In terms of Dr. Liboff, Plaintiffs have largely stated that his opinions either (1) met the *Daubert* standard, a question for a later date; or (2) that Dr. Liboff's report includes recent, i.e. post-2013, additions of tested, widely accepted, and peer reviewed and published studies. However, this rationale does not align with an adequate justification for revising Dr. Liboff's original report.

Finally, Plaintiffs also describe how a 2016 NTP rat study used "a reliable methodology to enable study of the possibility of cell-phone induced glioblastoma using the whole body radiation exposure on free-roaming rats, rather than prior less reproducible exposures using constrained rats." However, in order to justify a revision, the issue is not whether new studies are reliable but rather whether there are aspects of previous opinions rendered by Plaintiffs' experts that now need to be revised in order to more properly meet the new Rule 702 evidentiary standard. Moreover, as

previously stated, Dr. Liboff never opined in his original report that “cell phones cause or promote glioma, acoustic neuroma, or any other type of tumor.” *See* 08/08/2014 Order at 72 (Weisberg, J.). Therefore this Court finds that Plaintiffs failed to adequately demonstrate that the change in evidentiary standard justified a change in how Dr. Liboff originally articulated his opinions.

III. Dr. Michael Kundi

As a preliminary matter, it is worth noting that Dr. Kundi’s supplemental report, at 48 pages, is more than double the length of his 21 page original report. Moreover, in its briefing, Plaintiffs listed 46 studies published after February 2013 that Dr. Kundi cites to or references in his supplemental report. Defendants raised no objection as to the inclusion of 26 of these studies.¹⁵

As to the remaining 20 studies, Defendants moved to strike on the grounds that Dr. Kundi impermissibly relied on these 20 studies to support seven new opinions that were not previously included in Dr. Kundi’s original report. Specifically, Defendants allege that Dr. Kundi impermissibly relied on these 20 studies to opine about: (1) recall bias; (2) meta-analysis; (3) quality of official cancer registries; (4) dose-response in epidemiology; (5) specificity; (6) selection bias; and (7) confounding.

A. Recall Bias

Specifically, in its motion, Defendants moved to strike 6 studies¹⁶ cited in Dr. Kundi’s supplemental report on the grounds that Dr. Kundi impermissibly relied on these studies to render a new opinion regarding recall bias. In its briefing, Plaintiffs contend that these studies supplement page 6 through 10 of Dr. Kundi’s original report. Specifically, Plaintiffs assert that Dr. Kundi cited

¹⁵ Specifically, Defendants do not object to the inclusion of Study #2, #3, #4-6, #7-9, #12-15, #18-19, #29-30, #32-34, #37-38, #40, and #42-45. Additionally, Defendants do not object to Dr. Kundi’s citation to Study #10 on page 18; Study #11 on pages 10 and 22; Study #17 on pages 13, 23, and 40; Study #20 on pages 7-8 and 40; Study #21 on page 9; Study #22 on page 8; Study #31 on pages 9, 10, and 22; Study #35 on pages 11 and 22; and Study #46 on pages 12 and 22.

¹⁶ This includes study #16, #27, #28, #36, #39 and #41, as labeled in Defendants’ Response to Plaintiffs’ Revised Supplemental Brief.

these studies for the purpose of “more fully develop[ing] the topics of bias and confounding in light of the *Daubert* reliability requirement.” Therefore, Plaintiffs contend that these studies properly supplement Dr. Kundi’s discussion of bias in regards to the Interphone and Hardell Studies.

However, the cited section of Dr. Kundi’s original report is solely focused on systematic bias and this section never materially mentions or references recall bias. Moreover, in Dr. Kundi’s deposition he stated that “the words ‘recall bias’ and ‘information bias’ [do not] appear” in his original report and that he “did not analyze” either of these biases in his report. *See* Kundi Dep. 284:15-285:15, 304:7-16.¹⁷ Therefore, any reference to or discussion of recall bias would fall outside the scope of Dr. Kundi’s original report. Moreover, the March 16, 2017 Order did not permit any party to restart discovery. Consequently, Defendants’ request to strike Study #16, #27, #28, #36, #39 and #41 is granted to the extent that Dr. Kundi relies on these studies to opine about recall bias. Additionally, the Court will also strike the 8 pre-2013 studies¹⁸ cited in Dr. Kundi’s report to the extent that Dr. Kundi relied on them to opine about recall bias. While these studies existed at the time Dr. Kundi created his original report, they were not ultimately included. Therefore the Court will strike their inclusion in Dr. Kundi’s supplemental report to the extent that Dr. Kundi relied on them to opine about recall bias.

B. Meta-Analysis

Defendants also moved to strike Study #11, #20, #21, #31, #35, and #46 on the grounds that Dr. Kundi impermissibly relied on these 6 studies to render a new meta-analysis opinion. In its briefing, Plaintiffs assert that these 6 studies supplement pages 5 and 6 of Dr. Kundi’s original

¹⁷ It is also worth noting that in his August 8, 2014 Order, Judge Weisberg highlighted that the two epidemiological studies relied on by Dr. Kundi in his original report had issues with recall-bias which could then distort the overall data. *See* 8/8/14 Order at 11 (Weisberg, J.).

¹⁸ Specifically, the Court is striking the following studies: (1) Bert et al. 2005; (2) Samkange-Zeeb et al. 2004; (3) Aydin et al. 2011; (4) Heinavaara et al. 2011; (5) Hitter et al. 2012; (6) Inyang et al 2010; (7) Vrijheid et al. 2006a; and (8) Vrijheid et al 2006(b).

report. Specifically, Plaintiffs contend that Dr. Kundi cited these studies in “combination” with one another for the purpose of performing a meta-analysis related to either “acoustic neuroma risk” or “glioma studies/risk.” *See* Pl.’s Revised Supp. Brief at 15-16, 24, 27, and 35. Plaintiffs also state that “Dr. Kundi’s meta-analysis . . . merely appl[ies] his methodology—the Pragmatic Dialogue Approach—taking into account all of the scientific studies which are central to his expert opinion.” *See* Pl.’s Opp’n to Def. Mot. to Strike at 16.

However, contrary to Plaintiffs’ assertion, Dr. Kundi does not perform a meta-analysis related to either “acoustic neuroma risk” or “glioma studies/risk” on page 5 and 6 of his original report. Moreover, Dr. Kundi does not perform a meta-analysis anywhere else in his original report. Nonetheless, in his original report, Dr. Kundi does conduct a “hazard assessment” and/or “methodological comparison” of both the Interphone and Hardell studies. *See* Kundi 2013 Rep. at 6-7. Therefore, while the Court will grant Defendants’ request to strike the meta-analysis section of Dr. Kundi’s supplemental report, Dr. Kundi will be permitted to incorporate Study #11, #20, #21, #31, #35, and #46 into the “hazard assessment” and/or “methodological comparison” he conducted of the Interphone and Hardell studies. Stated differently, Defendants’ request to strike Study #11, #20, #21, #31, #35, and #46 is granted to the extent that Dr. Kundi relied on these studies to conduct a meta-analysis. However, Dr. Kundi will be permitted to supplement his “hazard assessment” and or “methodological comparison” of the Interphone and Hardell studies with Study #11, #20, #21, #31, #35, and #46.

C. Quality of Official Cancer Registries

Defendants also moved to strike 6 Studies¹⁹ cited in Dr. Kundi’s supplemental report on the grounds that Dr. Kundi has impermissibly relied on these studies to render a new opinion regarding

¹⁹ This includes Study #1, #10, and #23, #24, #25, and #26, as labeled in Defendants’ Response to Plaintiffs’ Revised Supplemental Brief.

the quality of official cancer registries. In its briefing, Plaintiffs assert that these studies supplement (1) one sentence on page 5; and (2) pages 13-15 of Dr. Kundi's original report. While Dr. Kundi does not explicitly call into question the quality of cancer registries in these portions of his report, Dr. Kundi does mention that "the Danish Cancer Registry . . . provid[ed] reliable and up-to-date cancer data." Therefore, if the studies at issue here do in fact call into question the reliability of the Danish Cancer Registry data or can reasonably call into question that data, then Plaintiffs properly included these studies in Dr. Kundi's Supplemental Report. Consequently, Defendants' request to strike will be denied to the extent that Dr. Kundi uses the instant studies to state that the cancer registry data, relied on by studies he previously cited or referenced in his original report, has since been called into question.

D. Dose-Response in Epidemiology

Defendants also moved to strike 4 Studies²⁰ cited in Dr. Kundi's supplemental report on the grounds that Dr. Kundi has impermissibly relied on these studies to render a new opinion regarding dose-response in epidemiology. In its briefing, Plaintiffs assert that these studies supplement (1) page 6; and (2) one sentence on page 15 of Dr. Kundi's original report. However, neither page 6 nor page 15 references nor discusses dose-response. Moreover, Dr. Kundi stated in his deposition that he did not "discuss dose-response for glioma in [his] report" and that it was of "no use to assess a dose/response relationship in this case." Kundi Dep. 268:23-269:15; 272:24-273:5 (dose-response "is not in my report"). Plaintiffs were not permitted to restart discovery and they cannot make additions to Dr. Kundi's report under the pretense of supplementation.

Moreover, Plaintiffs failed to specifically mention dose-response in epidemiology in the section of its brief dedicated to justifying Dr. Kundi's need to revise his report given the change in

²⁰ This includes Study #11, #17, #21 and #22, as labeled in Defendants' Response to Plaintiffs' Revised Supplemental Brief.

evidentiary standard. Rather, Plaintiffs merely affirmatively stated that because *Daubert* focuses on whether the expert's methodology was reliably and faithfully followed, Dr. Kundi "took measures in supplementing his 2013 Expert Report to first bring current the epidemiology evidence with those peer-reviewed, published studies that have become available since the *Frye/Dyas* hearing and then to explain his methodology and the steps he took in reaching his opinions." *See* Pl.'s Revised Supp. Brief at 269. However, as indicated in the March 16, 2017 Order, "Plaintiffs' experts must base their opinions—before and after the change in the admissibility standard—on reliable scientific principles and methods that are reliably applied to the facts of the case." *See* 3/16/18 Order at 1 (Weisberg, J.). Consequently, Defendants' request to strike Study #11, #17, #21 and #22 is granted to the extent that Dr. Kundi relied on these studies to opine about dose-response in epidemiology.

E. Specificity

Defendants also moved to strike 3 studies²¹ cited in Dr. Kundi's supplemental report on the grounds that Dr. Kundi impermissibly relied on these studies to render a new opinion regarding specificity. In its brief, Plaintiffs contend that these studies supplement page 5 and 6 of Dr. Kundi's original report. Additionally, in support of this supplementation, Plaintiffs state that specificity is one of the "[Bradford] Hill considerations made more relevant in light of the *Daubert* reliability requirement." However, Dr. Kundi does not discuss or reference specificity on either page 5 or 6 of his original report. Moreover, Plaintiffs failed to adequately articulate why *Daubert* has made specificity more relevant. Additionally, Plaintiffs also failed to reference specificity in their brief outlining the reasoning for why Dr. Kundi needs to revise his report in light of the change in evidentiary standard. As the Court has previously stated, the Plaintiffs were not permitted to re-do discovery but were rather provided with a limited opportunity to (1) supplement previously provided

²¹ Specifically, Study #11, #17, and #22. It should also be noted that the Defendants do not object to the use of Study #11 on pages 10 and 22 and therefore these citations are not being challenged at this time.

opinions with new scientific studies; and (2) implement revisions to the extent that such a revision is properly justified by the change in evidentiary standard. In the instant case, Plaintiffs failed to meet either of these justification categories and therefore the Defendants' request to strike Study #11, #17, and #22 is granted to the extent that Dr. Kundi relied on these 3 studies in his supplemental report to opine about specificity.

F. Selection Bias

Defendants also moved to strike 5 studies²² cited in Dr. Kundi's supplemental report on the grounds that Dr. Kundi impermissibly relied on these studies to render a new opinion regarding selection bias. Specifically, Defendants allege that Plaintiffs failed (1) to adequately specify which portions of Dr. Kundi's original report these studies were supplementing; and (2) to adequately tie Dr. Kundi's new selection bias opinion to anything in his original report. However, it would appear that Plaintiffs contend that Dr. Kundi has properly relied on these studies to "more fully develop[s] the topics of bias (and confounding) in light of the *Daubert* reliability requirement" and that these studies supplement the section of his "2013 expert Report" that conducted an "in-depth comparison of the Interphone (2010) and Hardell (2006) studies which discussed bias (Pages 6:4-10:24)."

However, in Dr. Kundi's supplemental report he stated that he previously "used a simplified procedure to staminate the selection OR" and "to have a more complete understanding of the potential selection bias, it is appropriate to differentiate scenarios differing in the way the subgroups are assigned a rate of exposure." *See* Kundi 2017 Supp. Rep. at 33. Pursuant to Dr. Kundi's own statements, the analysis included in his supplemental report was not included in his original report. Moreover, the Plaintiffs' cursory invocation of the *Daubert* standard fails to adequately explain why Dr. Kundi previously utilized a "simplified procedure" but now needs to provide a "more complete understanding of the potential selection bias." *See* Kundi 2017 Supp. Rep. at 33. The Court is

²² This includes Study #11, #20, #21, #35, and #46.

seriously concerned about the reliability of Dr. Kundi's revised proposed testimony given his admission that in his capacity as an expert he failed to fully and accurately render an opinion in this very important matter. It is also worth noting that Plaintiffs failed to specifically mention selection bias or the studies at issue here in the section of their brief dedicated to justifying why Dr. Kundi needs to revise his original report given the change in evidentiary standard. Rather, Plaintiffs merely stated that "[t]he manner in which Dr. Kundi expressed his opinions also addresses *Daubert's* potential error factor, explaining his assessment of bias and confounding elements (the internal validity) of the studies." *See* Pl.'s Revised Supp. Brief at 270. Consequently, Defendants' request to strike Study #11, #20, #21, #35, and #46 will be granted to the extent that Dr. Kundi relied on these studies to opine about selection bias.

G. Cofounding

Finally, Defendants also moved to strike the section of Dr. Kundi's report that includes opinions regarding cofounding. Specifically, Defendants moved to strike this section on the grounds that (1) it was not included in Dr. Kundi's original report; and (2) fails to cite to any post-2013 study for support. For the following reasons, the Court will grant Defendants' request to strike. First, this section of Dr. Kundi's report, pages 30-31 and 40-41, merely relies on a single study published in 1959. Moreover, Plaintiffs failed to adequately justify the inclusion of this opinion based on the change in evidentiary standard from *Frye/Dyas* to *Daubert*. Specifically, as stated above, in the section of its brief dedicated to justifying why Dr. Kundi needed to revise his report given the change in evidentiary standard, Plaintiffs merely state that "[t]he manner in which Dr. Kundi expressed his opinions also addresses *Daubert's* potential error factor, explaining his assessment of bias and confounding elements (the internal validity) of the studies." *See* Pl.'s Revised Supp. Brief at 270. However, this conclusory explanation citing to *Daubert* fails to adequately justify Dr. Kundi's wholesale inclusion of a topic that, while in existence at the time he created his original report, was

never ultimately included. Moreover, this failure is further magnified given that at the outset of this case, the Court's initial management Order governing expert reports required each expert to submit reports with "a complete statement of all opinions the witness will express on general causation and the basis and reasons for them . . . without regard to the applicable standard on the admissibility of expert testimony in this jurisdiction." *See* 3/16/17 Order at 5 (Weisberg, J.).

Therefore, the Court will grant Defendants' request to strike the section of Dr. Kundi's report regarding confounding on the grounds that (1) Plaintiffs failed to adequately demonstrate that the change in the evidentiary standard necessitated the inclusion of Dr. Kundi's confounding opinion; and (2) Dr. Kundi only supported this section of his report with a single brief citation to a study from 1958, a date preceding that of his original expert report. *See* Kundi 2017 Supp. Rep. at 41.

H. Revision Necessitated by Change in the Evidentiary Standard

As a general matter, the Court also finds that Plaintiffs failed to adequately provide the Court with any detailed justification for why the change in the evidentiary standard from *Dyas/Frye* to Rule 702 necessitated a change in the way in which Dr. Kundi previously articulated his opinions in his original report. Plaintiffs merely provided the Court with vague and conclusory statements that the Court found unpersuasive.

IV. Dr. Igor Belyaev

As a preliminary matter, it is worth noting that Dr. Belyaev's supplemental report, at 257 pages, is more than double the length of his 111 page original report. Moreover, in this voluminous supplement, Dr. Belyaev included (1) his entire original report; (2) 280 new post-February 2013 studies; (3) 10 new sections that were not included in his original report; and (4) an additional 15.5 pages in a section relating to ELF fields that now includes 6 new subsections. In its motion, Defendants moved to strike (1) Dr. Belyaev's wholesale inclusion of his original report in his supplemental report; and (2) 110 of the 280 post-February 2013 studies cited in Dr. Belyaev's

supplemental report.²³ Specifically, Defendants move to strike the 110 post-February 2013 studies on the grounds that Dr. Belyaev impermissibly relied on these studies to (1) include 10 entirely new sections in Dr. Belyaev's supplemental report; and (2) opine, for the first time, about (a) the Bradford Hill criteria and (b) brain cancer time trends. Defendants also allege that Plaintiffs failed to justify the inclusion of 94 of these new studies, in whole or in part, on the grounds that they supplement a blank line of Dr. Belyaev's original report. For the following reasons, the Court will grant in part, deny in part, and hold in abeyance in part, Defendants' requests to strike.

First, the Court will grant Defendants' request to strike the wholesale inclusion of Dr. Belyaev's original report in his supplemental report. Given that Dr. Belyaev's Supplemental Report

²³ Defendants do not object to the inclusion of 170 of the 280 post-February 2013 studies and therefore their inclusion in Dr. Belyaev's supplemental report is not being challenged at this time. Specifically, Defendants do not object to the use of the following studies as numbered in the Defendants' response: Study #1, #3-4, #6-7, #9-#10, #12-#17, #19, #21, #23, #25, #28, #34-37, #39-40, #42-43, #45, #47, #52-54, #56-65, #68-76, #78, #80-81, #84-#86, #89, #94-#97, #99-#100, #102, #104-#106, #108, #112-#117, #120, #124, #126-#128, #130, #134, #138-#144, #147-#152, #154, #156-#163, #167-#169, #171-#172, #180-#183, #189, #192-#204, #207, #209-#211, #213-#215, #217-#220, #222-#233, #235, #237-#240, #242, #244-53, #255-60, #262, #264-73, #276-#278, #280-#281. Additionally, Defendants do not object to two studies that were not numbered in the Plaintiffs' response. Specifically, Defendants do not object to the inclusion of the study entitled "Effects of 10-GHz microwaves on hematological parameters in Swiss Albino Mice and their Modulation by Prunus avium" by Sisodia R, Rifat F, Sharma A, Srivastava P, and Sharma K. Similarly Defendants also do not object to the inclusion of the study entitled "A biophysical approach to cancer dynamics: Quantum chaos and energy turbulence" by Uthamacumaran A. Furthermore, Defendants do not object to Dr. Belyaev's citation to Study #20 on page 147, Study #22 on pages 143 and 148, Study #31 on page 146, Study #44 on page 194, Study #55 on pages 15 and 150, Study #66 on pages 14 and 172, Study #88 on page 146, Study #93 on page 196, Study #118 on page 141, Study #119 on page 140, Study #123 on page 162, Study #131 on page 150, Study #137 on page 203, Study #146 on page 175, Study #153 on pages 176 and 182, Study #155 on page 141, Study #174 on page 47, Study #184 on page 197, Study #187 on page 199, Study #190 on pages 47 and 205, Study #203 on pages 144, 148, and 205, Study #213 on pages 48, 139, and 204-205, Study #214 on pages 146-147, Study #238 on pages 146-147, Study #239 on pages 197-198, Study #245 on pages 197-198, Study #262 on pages 148 and 204, Study #268 on pages 148 and 204, Study #270 on pages 48 and 205, Study #277 on page 150, Study #280 on pages 150 and 176, and Study # 281 on pages 150 and 174. Therefore, the inclusion of these studies in Dr. Belyaev's supplemental report is not being challenged at this time.

was intended to supplement rather than replace his original report, the Court, for the sake of clarity, will strike the inclusion of Dr. Belyaev's original report in his supplemental report.

Additionally, the Court will also grant Defendants' request to strike those studies that Plaintiffs contend supplement a blank line in Dr. Belyaev's original report. Specifically, Plaintiffs contend that line 5 on page 39 of Dr. Belyaev's original report justifies the inclusion, in whole or in part, of 91 studies. However, this line is in fact blank. Moreover, while typos and errors are no doubt expected to occur when filing such a voluminous briefing, the Court finds it puzzling that such an error could occur close to a hundred times. Moreover, none of the surrounding text on page 39, nor the fifth line of any other page contained in Dr. Belyaev's original report, relates to all 91 studies that are deemed to supplement line 5 on page 39. Therefore, the Court will strike the 48 studies that Plaintiffs claim solely supplement the blank line located on page 39.²⁴

Additionally, the Court will also grant Defendants' request to strike any reference Dr. Belyaev makes to a study that Plaintiffs claim partially supplements the blank line on page 39. For example, Dr. Belyaev cited to Study #8 on both pages 95 and 206 of his supplemental report and Plaintiffs assert that the citation on page 95 supplements the blank line on page 39 and the citation on page 206 supplements lines 14 through 34 on page 82. Therefore, the Court will strike Dr. Belyaev's citation to Study #8 on page 95 for the Plaintiffs failed to demonstrate that it properly supplements Dr. Belyaev's original report. Similarly, the Court will also strike 42 other studies, for a total of 43, on the grounds that Plaintiffs partially justified their citation by referencing the blank line on page 39 in Dr. Belyaev's original report.²⁵

²⁴ Specifically, Study #2, #5, #18, #20, #29, #30, #41, #48, #49, #67, #79, #82, #83, #93, #98, #101, #107, #109, #122, #125, #129, #132, #133, #135, #136, #155, #164, #170, #176, #177, #178, #179, #185, #186, #188, #191, #205, #206, #208, #216, #234, #241, #243, #254, #261, #263, #274, and #275.

²⁵ Specifically, the Court will strike Dr. Belyaev's citation to Study #22 on pages 76, 82, and 98; Study #24 on page 60; Study #31 on page 82; Study #32 on pages 98 and 103; Study #33 on pages

The Court will also similarly grant Defendants' request to strike Dr. Belyaev's citation to Study #11, #103, and #165 for Plaintiffs impermissibly justified the inclusion of these studies by citing to a blank line in Dr. Belyaev's original report.²⁶

Furthermore, the Court will also grant Defendants' request to strike Dr. Belyaev's references to the Bradford Hill criteria on page 4 of his supplemental report. The Court makes such a finding on the grounds that Dr. Belyaev testified, before Judge Weisberg, that nowhere in his report did he "use the words Bradford Hill."²⁷ Thus, the Court will strike any reference that Dr. Belyaev makes to

82 and 145; Study #44 on page 90; Study #51 on page 74; Study #55 on page 89; Study #66 on page 85; Study #77 on page 97; Study #88 on page 81; Study #110 on page 77; Study #116 on page 95; Study #118 on page 99; Study #119 on page 95; Study #121 on page 97; Study #123 on pages 64 and 65; Study #131 on page 86; Study #137 on pages 56, 98, and 103; Study #145 on page 66; Study #146 on page 66; Study #153 on pages 62 and 88; Study #166 on pages 79 and 80; Study #173 on pages 89 and 90; Study #174 on pages 47 and 89; Study #175 on page 94; Study #184 on page 63; Study #190 on page 87; Study #203 on pages 72, 73, 76, and 82; Study #212 on pages 76 and 77; Study #213 on page 58; Study #221 on pages 97 and 98; Study #236 on page 100; Study #238 on pages 67 and 68; Study #239 on page 87; Study #262 on pages 72 and 82; Study #268 on pages 71-73, 82, and 98; Study #270 on page 91; Study #277 on page 92; Study #279 on page 67; Study #280 on page 64; and Study #281 on pages 63, 174, and 175.

²⁶ Specifically, Plaintiffs allege that Study #11 supplements line 10 on page 46; Study #103 supplements line 15 on page 46; and Study #165 supplements line 25 on page 40. However, lines 10 and 15 on page 46 and line 25 on page 40 are all blank.

²⁷ The following exchange took place between Defense Counsel and Dr. Belyaev at the December 4, 2014 hearing:

Q: Dr. Belyaev, you testified that IARC follows the Bradford Hill criteria. Right?

A: Yes.

Q: And you testified that – you mentioned that you used the Bradford Hill criteria in your opinion. Correct?

A: Yes.

Q: Can you take a look at your report, Plaintiffs' Exhibit 5, and point to me where you discuss your Bradford Hill methodology?

A: You mean in my report?

Q: Yes.

A: So I didn't discuss the methodology. I just rely on the IARC methodology, which includes this one.

Q: So you didn't mention – you didn't include a Bradford Hill analysis in your report. Right?

the Bradford Hill criteria in his supplemental report for this study was published more than 50 years ago and thus its inclusion violates the March 16, 2017 Order.

Further, the Court will grant Defendants' request to strike the section of Dr. Belyaev's report regarding "brain cancer time trends" because (1) Dr. Belyaev's original report did not analyze "time trends" or incidence data; and (2) Dr. Belyaev stated on the record at the December 4, 2013 hearing that his report did not include any analysis regarding time incidence data.²⁸ Therefore, this information is a new opinion that was not previously contained in Dr. Belyaev's original report. Moreover, Plaintiffs have not justified how the change in the evidentiary standard necessitates the inclusion of this new opinion. As a result, the Court will strike the section of Dr. Belyaev's supplemental report entitled "Brain cancer time trends." It is noteworthy that this section contains

A: Yes. I mentioned – I relied upon – yes, I didn't include it in my report, but I relied on the methodology, and included in my report that they rely on the methodology by Hill

Q: It's fair to say you didn't use the words Bradford Hill anywhere in your report. Right?

A: Probably not.

See Frye Hrg. Tr. (Belyaev) 558:15-559:11

²⁸ The following exchange took place between Defense counsel and Dr. Belyaev at the December 4, 2013 hearing:

Q: You have a copy of your report, and it is – your report does not discuss incidence data at all, does it?

A: My report does not discuss incidence data. They were submitted in preliminary subpoena.

Reporter: I'm sorry. Can you repeat that?

A: Those incidence data that I have collected, they were submitted in the subpoena.

Q: It wasn't analyzed in any fashion in your report. Correct?

A: Correct.

Q: In fact there's no mention of any incidence data in your report. Right?

A: Yes.

Q: That's correct? I'm right?

A: Correct.

See Frye Hrg. Tr. (Belyaev) at 587:9-24.

10 studies²⁹ that were neither (1) previously included in Dr. Belyaev's original report; nor (2) published after February 2013. Therefore, in addition to the Court's previous ruling, the Court will also strike these 10 studies for failing to adhere to the March 16, 2017 Order which only permitted the parties to address relevant studies published after February 2013.

Finally, the Court will hold in abeyance Defendants' request to strike the 9 sections and 6 subsections contained in Dr. Belyaev's supplemental report that Defendants allege are new opinions. The Court will hold this request in abeyance until the Court is able to hold an evidentiary hearing. Specifically, the Court would like to hold a hearing to determine whether the topics covered in these new sections are (1) truly new science that was unavailable to Dr. Belyaev at the time he compiled his original report; and (2) necessary given the change in the evidentiary standard. Stated differently, the Court would like to hold a hearing to determine whether the studies and/or publications regarding the topics covered in each of these sections were available at the time Dr. Belyaev created his original report. If the topics and/or findings did exist then their inclusion would violate the March 16, 2017 Order. Conversely, if the topics covered were not available then their inclusion will be permitted to the extent that the topics are (1) relevant to the issue at hand; and (2) necessitated given the change in the evidentiary standard.

V. Dr. Panagopoulos

In its supplemental briefing, Plaintiffs listed 38 post-February 2013 studies that Dr. Panagopoulos has cited to or referenced in his supplemental report. In its motion, Defendants moved to strike all 38 studies on the grounds that Dr. Panagopoulos has impermissibly relied on these studies to support five new opinions that were not previously included in Dr. Panagopoulos'

²⁹ Specifically, the Court will strike (1) Dobes, Khurana et al. 2011; (2) Barchana et al. 2012; (3) Ding and Wang 2011; (4) Prasad and Haas-Kogan 2009; (5) Inkship et al. 2010; (6) Little, Rajaraman et al. 2012; (7) Zada, Bond et al. 2012; (8) Cardis, Deltour et al. 2008; (9) Deltour, Wiart et al. 2011; and (10) de Vocht, Burstyn et al. 2011.

original report. Specifically, Defendants allege that Dr. Panagopoulos has impermissibly relied on these 38 studies to support (1) a new opinion comparing real exposure studies to simulated exposures; (2) a new opinion comparing effects from studies on RF and power frequency exposures; (3) a new opinion related to polarization; (4) a new opinion related to positive versus negative studies; and (5) a new opinion related to tumor promotion. Additionally, Defendants also moved to strike Dr. Panagopoulos' opinion regarding actin cytoskeleton damage on the grounds that this opinion (a) was not included in Dr. Panagopoulos' original report; and (b) entirely relies on citations to pre-2013 studies. For the following reasons the Court will grant in part and deny in part Defendants' requests to strike.

A. Real Exposures Compared to Simulated Exposures

The Court will grant Defendants' request to strike as it relates to the 31³⁰ studies included in Dr. Panagopoulos' report under the section entitled "Real Exposure Studies in opposition to Studies with Simulated Exposures." In this section, Dr. Panagopoulos, for the first time, opines about the differences between the "results of studies that used real cell phone exposures" versus those "studies that used simulated exposures." *See* Panagopoulos 2017 Supp. Rep. at 36. However, Dr. Panagopoulos did not opine about this subject in his original report.

Dr. Panagopoulos never used the word "simulated" in his original report. Nor did, Dr. Panagopoulos mention that studies and experiments were being conducted using real and/or simulated exposures. Therefore, the Court will strike this section of Dr. Panagopoulos' supplemental report on the grounds that it improperly includes a new opinion that was not previously included in Dr. Panagopoulos' original report. Stated differently, the Court will strike this opinion because it does not fall under the scope of Dr. Panagopoulos' original report.

³⁰ Specifically, Study #1-14, #16-24, #26, #30, #32, and #34-38.

Further, the Plaintiffs also failed to adequately demonstrate that the 31 studies cited in this section of Dr. Panagopoulos' supplemental report properly related to or fell under the scope of his original report. Although, Plaintiffs allege that all 31 studies supplemented, in whole or in part, pages 22-24 of Dr. Panagopoulos' original report, nowhere on pages 22 through 24 does Dr. Panagopoulos opine about: (1) the differences between experiments using real versus simulated exposures; and/or (2) the possible explanations for such a difference. Rather this section addresses the following:

A. All living organisms can usually adapt to a mild external stress (like heat, cold, starvation, electromagnetic fields etc.). The milder and more constant the external stress, the better the adaptation.

All living organism in the terrestrial environment are constantly exposed since the beginning of their existence to terrestrial static electric and magnetic fields of average intensities -130V/m and -0.5 G respectively. Variations in the intensity of the terrestrial magnetic field of the order of ± 0.1 G during "magnetic storms" or "geomagnetic pulsations" mainly due to changes in solar activity are connected with increased rates of animal (and human) health incidents, including nervous and psychic diseases, hypertensive crises, heart attacks, cerebral accidents, and (consequently) mortality (Dubrov 1978; Presman 1977).

Thus, while living organisms adapt to constant values of natural static electric and magnetic fields, variations in these fields are responsible for increased biological and consequent health effects on living organisms. Since living organisms perceive electromagnetic fields (EMF) as environmental stress factors (Panagopoulos 2011a) they can adapt more easily to them when their parameters are kept constant or vary slightly. In addition, living organisms do not appear to have defense mechanisms against large or unpredictable variations of natural EMFs, and thus they do not have defense against unnatural (man-made) EMFs which are mostly not static but varying (alternating and pulsed fields, modulated fields including simultaneously many different frequencies etc.).

B. Digital mobile (cell) phone radiation is a type of stress that changes constantly and unpredictably, so that living organisms cannot adapt to it.

All types of Digital Cell Phone Radiation, like GSM 900 MHz (Global System for Mobile telecommunications), GSM 1800 MHz, (also called DCS 1800 MHz – Digital Cellular System), and GSM 1900 MHz, except of their radio-Frequency (RF) carrier signal, (900, 1800, or 1900 MHz) all use a pulse repetition frequency of 217 Hz, plus other Extremely Low Frequencies (ELF) necessary for the transmission of information (Panagopoulos and Margaritis 2008; Hillebrand 2002; Clark 2001; Hyland 2000; Hamnerius and Uddmar 2000; Tisal 1990). Although new systems of cell phone radiation are constantly produced, most existing systems use either the "Time Division Multiple Access" (TDMA) code or the "Code Division Multiple Access" (CDMA) code, to increase the number of simultaneous calls,

According to TDMA, the radiation is emitted in frames of 4.615 msec duration, at a repetition rate of 217 Hz. Each frame consists of eight “time slots” and each user occupies one of them. Within each time slot the RF radiation uses a type of phase modulation called “Gaussian Minimum Shift Keying” modulation (GMSK) to carry the information, (Tisal 1998; Hammerius and Uddmar 2000). The transmitted frames by both handsets and base stations are grouped into multi-frames of 25 by the absence of every 26th frame. This results to an additional multi-frame repetition frequency of 8.34 Hz. Finally, handsets emit an even lower frequency at 2 Hz whenever the user is not speaking during a call, for energy saving reasons, (“non-modulated” or “non-speaking” emission or “discontinuous transmission mode”-DTX), (Hyland 2000). When the handsets operate at DTX mode, the average emitted power is much less (about one tenth) than when they operate at “speaking” mode, (Panagopoulos et al. 2004).

Cell phone signals, combine high (RF) and low (ELF) frequencies. The combination of the RF carrier and the ELF pulsing frequencies is considered to increase the bioactivity of RF radiation, (Lin-Liu and Adey 1982; Penafiel et al. 1997). Moreover, according to theoretical calculations, the ELF frequencies included in any pulsed or modulates RF signal, are those more responsible for the biological effects (Panagopoulos et al. 2000; 2002; Panagopoulos 2001a).

The TDMA code allows each call to run along a channel (time slot) within corresponding available frequency band width, while the CDMA (mainly used in the more recent third generation (3G) signals) assigns a special electronic code to each call allowing the entire frequency band to be occupied simultaneously. In both cases and moreover in the CDMA, the RF frequency of the carrier signal varies continuously during a conversation.

The intensity of the emitted signal (radiation) during a phone call, varies significantly each moment depending on signal availability, air conductivity, position, etc. The frequency and the phase of the carrier wave constantly varies as explained, modulated by the information carries (speech, video, etc).

Thus, the parameters of this radiation change constantly and unpredictably each moment and large, sudden, and unpredictable variations in the emitted EMF/radiation take place constantly during a usual conversation. The more the carries information is increased in more recent phone types (3G, 4G, etc), the more complicated and unpredictably varying are the cell phone signals.

C. DNA damage if not properly repaired by the cell itself, may lead to cell death, or cancer (actually it is the main cause of cancer), neurodegenerative deceases [sic], or even inheritable mutations transferred to the next generations.

All cell types in all different organisms have ways to repair broken DNA but mistakes in the repair process usually occur. The more extensive the damage, the more difficult for the cell machinery to repair it without errors. Inability to completely restore the broken DNA may result in cancer, cell death or inheritable mutations in case of reproductive cells. Cellular damage is intrinsic to life and damaged cells can initiate cancer. Under normal conditions, cells can detect their own level of damage and either fix it or eventually dismiss themselves through apoptosis (self-destruction) to provide protection against cancer, The mechanisms of self protection may not work properly under stress (exposure to radiation, chemicals, heat, cold, during illness, during early or old age, etc).

See Panagopoulos 2013 Rep. at 22-24.

As is clear from the above quoted text, page 22-24 of Dr. Panagopoulos' original report has little if any connection to analyzing the differences between studies that use real versus simulated exposures. Thus, the Court will strike the 14 studies, contained in the section entitled "Real Exposure Studies in opposition to Studies with Simulated Exposures," that Plaintiffs claim solely supplement pages 22-24 of Dr. Panagopoulos' original report. As a result, the Court will strike Study #1, #3, #4, #8, #13, #17, #18, #19, #20, #21, #24, #26,³¹ #30, and #34 to the extent that Dr. Panagopoulos relied on them to opine about the differences between experiments using real versus simulated exposures.

Additionally, the Court will also strike the 15 studies,³² included in the section entitled "Real Exposure Studies in opposition to Studies with Simulated Exposures," that Plaintiffs allege supplement either (a) pages 22-24; or (b) pages 20-21 of Dr. Panagopoulos' original report. As previously mentioned, nowhere on pages 22-24 does Dr. Panagopoulos' discuss, analyze, or reference the differences between studies that use real versus simulated exposures. Moreover, this discussion is also similarly absent from pages 20-21. While Dr. Panagopoulos does discuss, on pages 20-21, other studies analyzing the effects of cell phone radiation on animals on pages 20-21, he does not reference or substantively indicate that these studies used real or simulated exposures. Therefore, the Court will strike the inclusion of all 15 of these studies to the extent that Dr.

³¹ It should be noted that Defendants do not object to Dr. Panagopoulos' citation to Study #26 on pages 8 and 32. Therefore, the inclusion of these studies in Dr. Panagopoulos' supplemental report is not being challenged at this time.

³² These studies include #2, #5, #6, #7, #9, #10, #11, #12, #14, #16, #22, #23, #35, #36, and #38. However, it should be noted that the Defendants do not object to the following citations by Dr. Panagopoulos in his supplemental report: (a) Study #2 on pages 24, 29, and 30; (b) Study #5 on page 30; (c) Study #7 on page 29 and 30; (d) and Study #10, #11, #12, and #22 on page 30. Therefore, these citations are not being challenged at this time.

Panagopoulos relied on them in his supplemental report to opine about the differences between experiments using real versus simulated exposures.

Defendants also moved to strike Dr. Panagopoulos' citation to Study #37 and #32 in the section of his supplemental report entitled "Real Exposure Studies in opposition to Studies with Simulated Exposures." Defendants move for such a request on the grounds that both studies impermissibly support Dr. Panagopoulos' new opinion discussing the differences between experiments that use real rather than simulated exposures. In its brief, Plaintiffs assert that Dr. Panagopoulos properly referenced both of these studies because each correctly supplements (a) pages 22-24; and (b) pages 16-18 of Dr. Panagopoulos' original report. However, as previously stated, Dr. Panagopoulos does not discuss, on pages 22-24, the differences between experiments that use real and simulated exposures. Moreover, this discussion, which Dr. Panagopoulos now seeks to include, is also similarly absent from pages 16-18.³³ Therefore, the court will strike Study #32 and #37 to the extent that Dr. Panagopoulos relied on both studies to opine about the differences between experiments that use real versus simulated exposures.

B. RF and Power-Line Frequency Exposures

Defendants also moved to strike Study #32 and #33 from Dr. Panagopoulos' original report on the grounds that Dr. Panagopoulos impermissibly relied on both studies to render a new opinion regarding RF exposures and power-line frequency exposures.³⁴ In its brief, Plaintiffs assert that

³³ Specifically, line 17 on page 16 through line 14 on page 18 of Dr. Panagopoulos' original report solely deals with a discussion of Dr. Panagopoulos' own experiment in which he exposed fruit flies to cell phone radiation. Nowhere in this section does Dr. Panagopoulos mention, reference, or discuss the differences between experiments that utilize real rather than simulated exposures.

³⁴ It should be noted that along with Study #32 and #33, Defendants also moved to strike Dr. Panagopoulos' citation to Study #29 on page 25 of his supplemental report. Specifically, Defendants moved to strike this citation on the grounds that Dr. Panagopoulos impermissibly relied on this study to opine about RF exposures and power-line frequency exposures. However, Plaintiffs do not claim that Dr. Panagopoulos cited to Study #29 on page 25 of his supplemental report. Moreover, it does not appear that Study #29 was cited on page 25 of Dr. Panagopoulos' supplemental report.

Study #32 and #33, included on page 25, supplement pages 16-18 and 23 of Dr. Panagopoulos' original report. In his supplemental report, Dr. Panagopoulos cited to Study #32 and #33 to opine that exposure to cell phone radiation induces a higher degree of DNA fragmentation than exposure to "50 Hz alternating magnetic field" and "pulsed electric field (400 kV/m)." *See* Panagopoulos 2017 Supp. Rep. at 25. Moreover, Dr. Panagopoulos clarified that exposure to a "50 Hz alternating magnetic field" was "similar to . . . [the field] produced by power lines but of a higher intensity (1-21 G) than the intensity close to power lines" and a "pulsed electric field" was "similar to that used in corona discharge photography." *See* Panagopoulos 2017 Supp. Rep. at 25.

While Dr. Panagopoulos does not directly discuss either "pulsed electric field" or "50 Hz alternating magnetic field" on pages 16-18 of his original report, Dr. Panagopoulos does briefly discuss how cell phone radiation causes a unique and/or larger degree of DNA damage when compared to other genotoxic agents like chemical stress, exposure to cytotoxic chemicals, poor nutrition, starvation, and lack of water. Therefore, while Dr. Panagopoulos does not specifically reference magnetic or electric fields similar to those associated with power lines and/or corona discharge photography on pages 16-18 of his original report, he does opine about the unique effects of cell phone radiation as compared to other external stresses. Consequently, Defendants' request to strike Study #32 and #33 is denied to the extent these studies can properly supplement pages 16-18 of Dr. Panagopoulos' original report.

C. Polarization

Defendants also moved to strike Study #13, #30, and #31 from Dr. Panagopoulos' supplemental report on the grounds that Dr. Panagopoulos impermissibly relied on these 3 studies

Rather, it appears that Dr. Panagopoulos only cited to Study #32 and #33 on this page. Additionally, both Study #29 and #33 have the same citation "(Panagopoulos 2016)." Consequently, the Court does not address Defendants' request to strike Dr. Panagopoulos' citation to Study #29 on page 25 of his supplemental report.

to render a new opinion regarding polarization. Specifically, Defendants move to strike Dr. Panagopoulos' citation to (a) Study #13 on page 39;³⁵ (b) Study #30 on pages 31-32; and (c) Study #31 on pages 31-32, and 40.³⁶ Defendants contend that Dr. Panagopoulos relied on these 3 Post-February 2013 studies, along with 17 pre-2013 studies, to opine for the first time about the role that polarization plays in the bioactivity of all man-made EMFs. Plaintiffs also contend that Dr. Panagopoulos cited to Study #13, #30, and #31 to supplement pages 16-18 and 22-24 of his original report.

For the following reasons, the Court will grant Defendants' request to strike. First, in the entire section entitled "The key-role of Polarization in the Bioactivity of all Man-Made EMFs," Dr. Panagopoulos cites to 20 studies and all but 3 were published before 2013. Moreover, 11 of these studies were published before 2003. Additionally, on page 31 of his supplemental report, Dr. Panagopoulos states that "mobile telephony signals . . . are totally polarized (just like every type of man-made EMF)." *See* Panagopoulos Supp. Rep. at 31. Therefore, the Court finds it curious that Dr. Panagopoulos only recently discovered, i.e. after February 2013, that EMFs cause adverse biological reaction because they are uniquely polarized. Notably, unlike Dr. Panagopoulos, Dr. Belyaev dedicated an entire section of his original 2013 report to "Polarization" and the notion that "Polarization data provides strong evidence of the existence of non-thermal microwave effects and suggests possible molecular targets and mechanisms." *See* Belyaev 2013 Rep. at 22. Therefore, it

³⁵ While Defendants state in their Opposition that they move to strike Dr. Panagopoulos' citation to Study #13 on page 38, Dr. Panagopoulos does not cite to Study #13 on page 38. Rather, Dr. Panagopoulos cites to Study #13 on page 39. Moreover, Defendants move to strike Study #13 on the grounds that it supports a new section entitled "The Key role of Polarization in the Bioactivity of all Man-Made EMFs." However, that section is located on page 39. Therefore, the Court will construe Defendants request to strike as if it was made in regards to Dr. Panagopoulos' citation to Study #13 on page 39 of Dr. Panagopoulos' original report.

³⁶ Defendants do not object to Dr. Panagopoulos' citation to Study #31 on page 35.

would appear that Dr. Panagopoulos could have—but didn't—reference polarization in his original report.

Further, Dr. Panagopoulos also failed to include a citation, in his original report, to 8 of the pre-2013 studies at issue here even though they were readily available. Also, nowhere on pages 16-18 or 22-24 of Dr. Panagopoulos' original report does he reference, discuss, or analyze polarization. Therefore, Defendants' request to strike Study #13, #30, and #31 will be granted to the extent that Dr. Panagopoulos relied on these studies to opine about the connection between polarization and the adverse effects of man-made EMFs. Additionally, the Court will also strike the 7 studies,³⁷ cited by Dr. Panagopoulos in the section of his report regarding polarization, that Dr. Panagopoulos could have—but failed to—cite in his original report.

D. Positive versus Negative Studies

Defendants also moved to strike Study #29 from Dr. Panagopoulos' supplemental report on the grounds that Dr. Panagopoulos impermissibly relied on this study to render a new opinion regarding positive versus negative studies.³⁸ Plaintiffs allege that Dr. Panagopoulos properly cited to Study #29 to supplement line 22 on page 22 through line 14 on page 24 of his original report. However, nowhere on pages 22-24 does Dr. Panagopoulos reference, discuss, or even mention the notion that “alarming positive results should be given more attention than studies showing no effects” and that such analysis is “in line with the Precautionary Principle.” *See* Panagopoulos 2017 Supp. Rep. at 41-42. Rather, line 22 on page 22 through line 14 on page 24 of Dr. Panagopoulos' original report states:

³⁷ Specifically, the Court will Strike (1) Goodman et al, (1995); (2) Blackan (2009); (3) Johansson (2009); (4) IARC (2002); (5) Stryer (1996); (6) Roller and Goldman (1968); and (7) Parsons (1993).

³⁸ Defendants also state in their Chart, attached as Exhibit E, that they are moving to strike Study #3 because Dr. Panagopoulos impermissibly relied on this study to opine about positive versus negative studies. However, Dr. Panagopoulos does not cite to Study #3 anywhere in the section of his supplemental report relating to positive versus negative studies. Therefore the Court will not consider this request to strike.

D. Digital mobile (cell) phone radiation is a type of stress that changes constantly and unpredictably, so that living organisms cannot adapt to it.

All types of Digital Cell Phone Radiation, like GSM 900 MHz (Global System for Mobile telecommunications), GSM 1800 MHz, (also called DCS 1800 MHz – Digital Cellular System), and GSM 1900 MHz, except of their radio-Frequency (RF) carrier signal, (900, 1800, or 1900 MHz) all use a pulse repetition frequency of 217 Hz, plus other Extremely Low Frequencies (ELF) necessary for the transmission of information (Panagopoulos and Margaritis 2008; Hillebrand 2002; Clark 2001; Hyland 2000; Hamnerius and Uddmar 2000; Tisal 1990). Although new systems of cell phone radiation are constantly produced, most existing systems use either the “Time Division Multiple Access” (TDMA) code or the “Code Division Multiple Access” (CDMA) code, to increase the number of simultaneous calls, According to TDMA, the radiation is emitted in frames of 4.615 msec duration, at a repetition rate of 217 Hz. Each frame consists of eight “time slots” and each user occupies one of them. Within each time slot the RF radiation uses a type of phase modulation called “Gaussian Minimum Shift Keying” modulation (GMSK) to carry the information, (Tisal 1998; Hamnerius and Uddmar 2000). The transmitted frames by both handsets and base stations are grouped into multi-frames of 25 by the absence of every 26th frame. This results to an additional multi-frame repetition frequency of 8.34 Hz. Finally, handsets emit an even lower frequency at 2 Hz whenever the user is not speaking during a call, for energy saving reasons, (“non-modulated” or “non-speaking” emission or “discontinuous transmission mode”-DTX), (Hyland 2000). When the handsets operate at DTX mode, the average emitted power is much less (about one tenth) than when they operate at “speaking” mode, (Panagopoulos et al. 2004).

Cell phone signals, combine high (RF) and low (ELF) frequencies. The combination of the RF carrier and the ELF pulsing frequencies is considered to increase the bioactivity of RF radiation, (Lin-Liu and Adey 1982; Penafiel et al. 1997). Moreover, according to theoretical calculations, the ELF frequencies included in any pulsed or modulates RF signal, are those more responsible for the biological effects (Panagopoulos et al. 2000; 2002; Panagopoulos 2001a).

The TDMA code allows each call to run along a channel (time slot) within corresponding available frequency band width, while the CDMA (mainly used in the more recent third generation (3G) signals) assigns a special electronic code to each call allowing the entire frequency band to be occupied simultaneously. In both cases and moreover in the CDMA, the RF frequency of the carrier signal varies continuously during a conversation.

The intensity of the emitted signal (radiation) during a phone call, varies significantly each moment depending on signal availability, air conductivity, position, etc. The frequency and the phase of the carrier wave constantly varies as explained, modulated by the information carries (speech, video, etc).

Thus, the parameters of this radiation change constantly and unpredictably each moment and large, sudden, and unpredictable variations in the emitted EMF/radiation take place constantly during a usual conversation. The more the carries information is increased in more recent phone types (3G, 4G, etc), the more complicated and unpredictably varying are the cell phone signals.

See Panagopoulos 2013 Rep. at 22:22-24:14.

As is clear from the above quoted text, Plaintiffs failed to adequately demonstrate how Dr. Panagopoulos citation to Study #29 properly supplements his original report. Stated differently, Plaintiffs failed to demonstrate that Dr. Panagopoulos' reliance on Study #29 to opine about the difference between positive versus negative studies falls under the scope of and/or is relevant to his original report. Therefore, the Court will grant Defendants' request to strike Study #29 to the extent that Dr. Panagopoulos relied on it to opine about positive versus negative results.

Additionally, the Court will also strike the entire section of Dr. Panagopoulos' supplemental report entitled "Positive versus Negative Results." The Court makes such a ruling on the grounds that (1) the entire section is based on a single citation, in the last sentence of the section, to Study #29; and (2) the Court has just stricken the inclusion of this study to the extent that Dr. Panagopoulos relied on it to opine about positive versus negative results. It is also worth noting that (1) unlike Dr. Panagopoulos, Dr. Kundi mentioned and conducted analysis pursuant to the Precautionary Principle in his original report; and (2) the Court addressed this principle in its August 8, 2014 Order. *See* 8/14/18 Order at 41 (Weisberg, J.)(addressing Dr. Kundi's application of the "Precautionary Principle"). Therefore the Precautionary Principle was in existence at the time Dr. Panagopoulos created his original report and thus Dr. Panagopoulos is precluded from including this information in his supplemental report on the theory that it was only added to the scientific literature after February 2013.

E. Tumor Promotion

Defendants also moved to strike Study #15 from Dr. Panagopoulos' supplemental report on the grounds that Dr. Panagopoulos impermissibly relied on this study and a pre-2013 study (Tillman et al., 2010) to render a new opinion regarding tumor promotion in mice. Specifically, the passage of Dr. Panagopoulos' supplemental report at issue states:

“Tumor promotion in mice after long-term RF exposure at levels below the current exposure limits is also repeatedly reported (Tillman et al. 2010; Lerchl et al. 2015).”

See Panagopoulos 2017 Supp. Rep. at 30.

In its brief, Plaintiffs allege that Dr. Panagopoulos correctly cited to Study #15 in its supplemental report to supplement line 1 on page 20 through line 19 on page 21. Moreover, Plaintiffs also stated that Study #15 (1) “replicat[ed] the Tillman, et al. (2010) study” but “with a higher number of animals;” and (2) “confirm[ed] the effect of the Tillman, et al. (2010) study.” *See* Pl.’s Revised Supp. Brief at 219-220. However, Dr. Panagopoulos did not cite to the Tillman et al. (2010) study in his original report even though it was readily available. Moreover, nowhere on pages 20-21 of Dr. Panagopoulos’ original report does he allude to the concept of tumor promotion. Specifically, line 1 on page 20 through line 19 on page 21 states:

5. Similar results regarding DNA damage or reproductive declines are found by other investigators on mammals and birds.

The results of some recent studies reporting effects of cell phone radiation on different animals, display a distinct agreement between them, although with different biological models and under different laboratory conditions. Such results are those regarding DNA damage or oxidative stress induction on reproductive cells of different organisms, resulting in decreased fertility and reproduction. This distinct similarity among results of different researchers makes unlikely the possibility that these results could be wrong.

Some of the studies report DNA damage or cell death or oxidative stress induction on reproductive insect and mammalian (including human) cells (Panagopoulos et al. 2007a; 2010; Panagopoulos 2012b; De Iulius et al. 2009; Agarwal et al. 2009; Mailankot et al. 2009; Yan et al. 2007). The findings of these studies seem to explain the results of other studies that simply report insect, bird, and mammalian (including human) infertility (Panagopoulos et al. 2004; 2007b; Gui et al. 2009; Agarwal et al. 2008; Batellier et al. 2008; Wdowiak et al. 2007; Magras and Xenos 1997; Vignera et al. 2012). Other recent reports regarding reduction of insect (especially bees) and bird populations during the last years (Stindl and Stindl 2010; Bacandritsos et al. 2010; van Engelsdorp et al. 2008; Everaert and Bauwens 2007; Balmori 2005; Cucurachi et al. 2013) also seem to correlate with the above studies since their finding may be explained by cell death induction on reproductive cells. Other studies report DNA damage or oxidative stress induction or increase in cellular damage features in somatic mammalian (including human) and insect cells after *in vitro* or *in vivo* exposure to microwaves (Guler et al. 2010; Tomruk et al. 2010; Franzellitti et al. 2010; Luukkonen et al. 2009; Yao et al. 2008; Yadav and Sharma 2008; Sokolovic et al. 2008; Lee et al. 2008; Lixia et al. 2006; Zhang et al. 2006;

Nikolova et al. 2005; Belyaev et al. 2005; Diem et al. 2005). At the same time, some epidemiological studies have already started to indicate a connection between cell-phone use and brain tumor induction in humans, (Hardell et al. 2009; 2007; Hardell and Carlberg 2009; Khurana et al. 2009).

Despite many other studies that report no effects, the consistency of the above findings and their rapidly increasing number during the last years is remarkable. All the above-mentioned recent studies from different research groups and on different biological models exhibit mutually supportive results and this makes unlikely the possibility that these results could be either wrong or due to random variations.

In addition, the last ten years some statistical studies indicate a connection between residential exposure to radiation of mobile telephony base station antennas (which emit an almost identical radiation with that of cell phones) and reported symptoms of unwellness (Hutter et al. 2006; Salama et al. 2004; Navarro et al. 2003; Abdel-Rassoul et al. 2007; Blettner et al. 2009; Viel et al. 2009; Kundi and Hutter 2009). These symptoms referred to as “microwave syndrome” include headaches, fatigue, sleep disturbances, memory loss, etc. and they could be explained by cellular stress induction or even DNA damage on a number of brain cells.

The effects at cellular level can be explained by irregular release within the cell of oxidative free radicals or hydrolytic enzymes like DNases which in turn can take place after irregular gating of iron channels on the cell membranes caused by the Extremely Low Frequency (ELF) pulses of this radiation, leading to disruption of the cell’s electrochemical balance and function (Panagopoulos et al. 2000; 2002; Phillips et al. 2009; Panagopoulos 2011 (a).

See Panagopoulos 2013 Rep. at 21:1-22:19.

Therefore, the Defendants’ request to strike Study #15 is granted to the extent that Dr. Panagopoulos relied on this study to opine about tumor promotion in mice.

F. Actin Cytoskeleton Damage

Finally, Defendants also moved to strike Dr. Panagopoulos’ opinion regarding actin cytoskeleton damage on the grounds that this opinion (1) solely relies on pre-2013 studies; and (2) was not previously included in Dr. Panagopoulos’ original report. Defendants assert that this impermissible opinion is expressed on pages 8, 14, 16, and 19-22 of Dr. Panagopoulos’ supplemental report. For the following reasons the Court will deny Defendants’ request to strike.

While Dr. Panagopoulos has partially expanded upon his discussion of actin cytoskeleton damage, Dr. Panagopoulos did opine about actin cytoskeleton damage in his original report. Specifically, Dr. Panagopoulos stated that he had “conducted and performed scientific experiments

which have shown that cell phone radiation can cause severe DNA damage (DNA fragmentation), **actin cytoskeleton damage**, and cell death induction in insect reproductive cells (gametes) (Panagopoulos et al. 2007b; 2010; **Chavdoula et al. 2010**); Panagopoulos 2012b).” *See* Panagopoulos 2013 Rep. at 15 (emphasis added). Moreover, the Chavdoula et al. (2010) study, cited in the previously quoted section of Dr. Panagopoulos’ original report, is the same study that Dr. Panagopoulos relies on in his supplemental report to opine about actin cytoskeleton damage.

Therefore, while this opinion has been partially expanded: (1) this opinion was previously included in Dr. Panagopoulos original report; (2) the minimal expansion of the opinion has not materially changed or altered the opinion rendered by Dr. Panagopoulos in his original report; and (3) thus this opinion is not new. As a result, the Court will deny Defendants’ request to strike Dr. Panagopoulos’ opinion regarding actin cytoskeleton damage to the extent that it supports Dr. Panagopoulos’ discussion of actin cytoskeleton damage in his original report. Similarly, the Court will also deny Defendants’ request to strike the pre-2013 studies that Dr. Panagopoulos relied on to opine about actin cytoskeleton damage. Specifically, the Court finds that all of the pre-2013 studies cited in connection with the sections of his report that mention actin cytoskeleton damage were included in Dr. Panagopoulos’ original report and therefore were not incorrectly included in Dr. Panagopoulos’ supplemental report.

G. Revision Necessitated by Change in the Evidentiary Standard

Finally, the Court finds that the Plaintiffs failed to adequately provide the Court with any detailed justification for why the change in the evidentiary standard from *Dyas/Frye* to Rule 702 justified the inclusion of the studies or opinions stricken by the Court in this Order. Specifically, in the section of its brief dedicated to justifying Dr. Panagopoulos’ need to revise his report given the change in evidentiary standard, Plaintiffs merely state that:

“Dr. Panagopoulos considered and addressed new scientific research and addressed the reliability factors of the new research, such as: (1) the remarkable consistency and similarity in scientific findings; (2) the testing and peer-review of methodology; (3) the low potential for error and widespread acceptance; (4) alternative explanations; and (5) internal and external study validity due to generalizability.”

See Pl.’s Revised Supp. Rep. at 283.

Additionally, Plaintiffs state that “Dr. Panagopoulos discusses 40 new peer-reviewed studies that fully corroborate his results on *Drosophila*, showing the direct relationship between *in vivo* cell phone exposure duration and human DNA/cellular damage.” However, as stated previously, Dr. Panagopoulos does not merely include new studies to “corroborate” the results of his original report, he impermissibly expands the scope of his original report by discussing topics not included in his original report. Moreover, Plaintiffs’ vague reference to “reliability factors” fails to justify Dr. Panagopoulos’ wholesale inclusion of new opinions and topics. Finally, Plaintiffs failed to demonstrate that the inclusion of any opinion or study, at issue in the Defendants’ motion to strike, arose directly out of the change in the evidentiary standard. As a result, the Court finds that the Plaintiffs failed to justify the inclusion of any of the opinions or studies, stricken by the Court in this Order, based on the change in the evidentiary standard.

VI. Dr. Mosgoeller

In its motion, Defendants moved to strike 24 post-2013 studies cited by Dr. Mosgoeller in his supplemental report on the grounds that Dr. Mosgoeller has impermissibly relied on these studies to support three new opinions that were not previously included in Dr. Mosgoeller’s original report.³⁹ Specifically, Defendants argue that Dr. Mosgoeller has impermissibly relied on these 24 studies to support a new opinion regarding (1) DNA repair induction; (2) epidemiology and co-

³⁹ Defendants do not object to Dr. Mosgoeller’s citation to the following studies: Study #2, #3, #5, #8, #10, #11, #12, #14, #15, #18, #25, #26, #28, #29, #32, #33, #35, #36, #37, #38, #41, #43, and #45. Therefore the inclusion of these studies in Dr. Mosgoeller’s supplemental report is not being challenged at this time.

carcinogenicity; and (3) oxidative DNA damage. For the following reasons the Court will grant in part and deny in part Defendants' requests to strike.

A. DNA Repair Induction

In its motion, Defendants moved to strike Study #21, #39, #42, and #46⁴⁰ on the grounds that Dr. Mosgoeller impermissibly relied on these 4 studies, along with other pre-2013 studies, to provide a new opinion regarding "DNA repair induction by HF-EMF exposure." In its brief, Plaintiffs allege that Dr. Mosgoeller correctly cited to Study #21, #39, #42, and #46 in his supplemental report because each study supplements lines 10-32 on page 11 of Dr. Mosgoeller's original report. Additionally, Plaintiffs also allege that all four studies "fall under the overall scope of Dr. Mosgoeller's [original] 2013 Expert Report." *See* Pl.'s Revised Supp. Brief at 46, 56, 58, and 61. Further, Plaintiffs also allege that (1) Study #42 supplements page 13 of Dr. Mosgoeller's original report; and (2) Study #46 was properly included in Dr. Mosgoeller's supplemental report because it is a "follow-up study" to another study, Zhijian, et al. (2010), that was previously included in Dr. Mosgoeller's original report.

However, contrary to Plaintiffs' assertion, Dr. Mosgoeller does not mention or discuss "DNA repair induction" anywhere on page 11 of his original report. Rather, that section states:

6 International scientific achievements and concluding remarks

DNA strand breaks associated with RF-EMF exposure were first described in laboratory animals [15-16]. Then it was interesting to see that in cell cultures (*in vitro*), discontinuous exposure (cycles of 5 min ON, 10 Minutes OFF) produces more breaks than continuous irradiation [4-5]. Although some DNA strand breaks regularly occur in healthy individuals, an increased incidence due to frequent RF-EMF exposure constitutes a risk for cancer.

Exposure-related DNA breaks have been observed by independent teams, *i.e.* the findings have been replicated several times internationally [17-19]. Our research I the ATHEM-1 projects employed two complimentary methods to enable parallel analysis of both DNA strand breaks and proteomic changes. The exposure related

⁴⁰ It should be noted that Defendants do not object to Dr. Mosgoeller's citation to Study #46 on page 6 of his supplemental report. Therefore this citation is not being challenged at this time.

proteomics changes plausibly explain the exposure-related DNA strand breaks in sensitive cells (see Gerner *et al.* [1]).

Intermittent exposure (cycles of 5 min. ON, 10 min. OFF), or so-called modulated RF-EMF, results in more DNA strand breaks than continuous exposure. Thermal mechanisms cannot explain these factual observations implying a challenge to our understanding of underlying mechanisms. The association of lower (intermittent exposure) or identical (modulated signal) power absorption per mass of tissue with an increased frequency of DNA strand breaks means that the effect cannot be solely attributed to the absorbed energy.

See Mosgoeller 2013 Rep. at 11:10-32.

Moreover, Plaintiffs' claim that Study #21, #39, #42, and #46 "fall under the overall scope of Dr. Mosgoeller's [original] 2013 Expert Report" is unpersuasive and violates this Court's order that the Plaintiffs: (1) provide the court with specific page and line citations for each new study; and (2) avoid citations to large amorphous portions of text. Therefore, the Court will strike Study #21 and #39, the two studies that Plaintiffs claim solely supplement page 11, to the extent that Dr. Mosgoeller relies on either study to opine about DNA Repair induction by HF-EMF exposure.

Additionally, Plaintiffs also contend that, along with supplementing page 11 of Dr. Mosgoeller's original report, Study #46 was properly included in Dr. Mosgoeller's supplemental report because it is a "follow-up study" to a study, Zhijian, et al. (2010), previously cited by Dr. Mosgoeller in his original report. Moreover, while Dr. Mosgoeller does cite to Zhijian, et al. (2010) in his original report, this citation only appears once and has minimal connection to Dr. Mosgoeller's citation and/or reference to Study #46 in his supplemental report. Specifically, Dr. Mosgoeller's cited to Zhijian, et al. (2010) in his original report for the proposition that:

In vitro studies most commonly use 'lymphocytes' [24-29; 22; 30-32]. Consistent with the results of the ATHEM-1 Project and the EU REFLEX project, lymphocytes exhibit no exposure-related DNA strand breaks [33; 26] and have thus often been described as being resistant to RF-EMF exposure.

See Dr. Mosgoeller 2013 Ex. Report at 12. (emphasis added).

It should be noted that the bracketed number “33” quoted above, denotes the 33rd study listed in Dr. Mosgoeller’s bibliography which is Zhijian, et al. (2010). Therefore, as is clear from the above quoted text, Dr. Mosgoeller is not citing to Zhijian, et al. (2010) in his original report to opine about “DNA repair induction by HF-EMF exposure.” Rather, Dr. Mosgoeller cites to Zhijian, et al. (2010) to opine that “lymphocytes exhibit no exposure related DNA strand breaks” which relates to one of his overall original opinions that “A-thermal radiation from cellular telephones causes an increase in DNA breakage in certain types of human cells resulting in an increased risk of cancer.” See Mosgoeller 2013 Rep. at 3. As a result, the Court will strike Study #46 from Dr. Mosgoeller’s supplemental report to the extent that Dr. Mosgoeller relied on this study to opine about DNA repair induction by HF-EMF. However, Dr. Mosgoeller will be permitted to cite to Study #46 to the extent that Study #46 validates or invalidates the opinion Dr. Mosgoeller expressed regarding Zhijian, et al. (2010) on page 12 of his original report.

In regards to Study #42, Plaintiffs contend that along with supplementing page 11 of Dr. Mosgoeller’s original report, Study #42 also supplements lines 1-24 on page 13. However, this Court finds that page 13 is devoid of any discussion or analysis of DNA repair induction. Rather, this section solely deals with “DNA strand breaks after exposure to RF-EMF.”⁴¹ As a result, the Court

⁴¹ Specifically, lines 1-24 on page 13 of Dr. Mosgoeller’s supplemental report states the following:

6.7 In vivo findings (animal experiments)

Internationally DNA strand breaks after exposure to RF-EMF have not only been observed *in vitro*, but also in various live animals. The *in vivo* findings in different laboratory animals confirm and strengthen the conclusions of *in vitro* studies.

Kesari *et al.* [37] exposed young rats for two (2) hours per day (35 days) to an unmodulated high-frequency electromagnetic field of 2450 MHz. The power flux density was 0.34 mW/cm² (threshold: 1 mW/cm²) which corresponds to an estimated whole-body SAR of 0.11 W/kg. The rate of DNA strand breaks in the brains of irradiated rats was significantly higher than in the control groups, showing that the genotoxic effects of RF-EMF can also be demonstrated in whole-body irradiated laboratory animals.

Guler G. *et al.* [38] exposed pregnant and non-pregnant rabbit to 1800 MHz signals similar to GSM signals at an electric field strength of 14 V/m (threshold: 58

will also strike Study #42 from Dr. Mosgoeller's supplemental report to the extent that Dr. Mosgoeller relied on this study to opine about DNA repair induction by HF-EMF.

B. Epidemiology

In its motion, Defendants also moved to strike Study #7, #9, #16, #19, and #31 on the grounds that Dr. Mosgoeller impermissibly relied on these 5 studies to opine for the first time in section 4.1.5 of his supplemental report that (1) "epidemiological studies provide evidence for an association of heavy exposure to mobile phone signals and a direct increase of brain tumors in humans;" and (2) "epidemiological results can be reconciled with cellular mechanisms related to HR-EMF exposure and DNA genotoxicity."

In its brief, Plaintiffs state that Dr. Mosgoeller properly cited to these 5 studies because each supplements lines 1-24 on page 13 of Dr. Mosgoeller's original report. Additionally, Plaintiffs also allege the following:

In expressing the information related to his opinions differently in his Supplemental Expert Report, Dr. Mosgoeller sought to fulfill other relevant *Daubert* factors as well. Although covered in his deposition and hearing testimony, Dr. Mosgoeller did not make clear in his [original] 2013 Expert Report an important step in his methodology. Particularly, he added in his Supplemental Expert Report information regarding his personal databank wherein he collects scientific literature related to EMF exposure and mobile phone use as it is published by performing weekly searches. This is a practice Dr. Mosgoeller has maintained for many years prior to participating in litigation. In preparing his report he conducted a review and analysis of international peer-reviewed research, including *in vitro* studies, *in vivo* studies, and human studies. Section 4.1 and its subparts within his Supplemental Expert Report

V/m) for 15 minutes per day for seven (7) days. After irradiation, a significant increase in oxidative DNA damage and lipid peroxidation levels was observed in the brain tissue of both experimental groups when compared with the controls. No changes of this type were observed in the newborn animals. This work thus demonstrates for another species of animal (*i.e.* in addition to laboratory rats) that modulated high-frequency electromagnetic fields at intensities far below current exposure standards causes DNA strand breaks in the brains of whole-body irradiated laboratory animals. The exposure related findings reported by Tomruk *et al.* [39], also based on rabbits, are similar to those reported above (Guler *et al.*) [38].

See Mosgoeller 2013 Rep. at 13:1-24.

are pertinent to this issue in that it is here that Dr. Mosgoeller provides a review and analysis of the more recent, relevant publications, a small portion of the total number of studies upon which his opinions rely in light of the date restrictions related to report submissions. As noted above, this type of methodology is testable in that literature he relied upon (pre- and post-2013 studies) and its underlying data could be reviewed. Further, such a literature review process is accepted within the scientific community.

See Pl.'s Revised Supp. Brief at 273-74.

In sum, it appears that Plaintiffs assert that Dr. Mosgoeller's inclusion of Study #7, #9, #16, #19, and #31 in section 4.1.5 of his supplemental report is warranted (1) because of the change in the evidentiary standard from *Dyas/Frye* to *Daubert*; and (2) because each study properly supplements lines 1-24 on page 13. However, the Court disagrees with Plaintiffs' assertions and therefore the Court will grant the Defendants' request to strike the five epidemiological studies currently at issue.

First, Dr. Mosgoeller is certainly permitted, in his supplemental report, to clarify and specify the methodology he utilized to maintain his "personal databank wherein he collects scientific literature related to EMF exposure and mobile phone use as it is published by performing weekly searches." Such a revision is permissible since it would be necessitated by the change in the evidentiary standard given that Rule 702/*Daubert*, unlike *Frye/Dyas*, emphasizes reliability which in turn hinges on whether Dr. Mosgoeller employed reliable methods in reaching his ultimate conclusions.

However, the change in evidentiary standard from *Dyas/Frye* to Rule 702 would not warrant the wholesale inclusion of opinions/studies relating to topics that Dr. Mosgoeller had the opportunity to discuss in his original report but ultimately neglected to cover. Specifically, it appears that Plaintiffs are alleging that the change in the evidentiary standard permits Dr. Mosgoeller to discuss and analyze, for the first time, human epidemiological studies and therefore opine for the first time that these studies (1) provide evidence for an "association of heavy exposure to mobile phone signals and a direct increase of brain tumors in humans;" and (2) demonstrate that

“epidemiological results can be reconciled with cellular mechanisms related to HR-EMF exposure and DNA genotoxicity.”

However, as has been stated throughout this Order, the March 16, 2017 Order did not permit the parties to restart the discovery process. Moreover, in the March 16, 2017 Order, the Court emphasized that “when the current litigation began, the Court’s initial case management order for Phase I discovery required Plaintiffs to produce *all* of their experts on general causation, with a report from each expert setting forth a complete statement of all opinions the witness will express on general causation and the basis and reasons for them.” Stated differently, the initial case management Order issued in the instant matter not only provided Dr. Mosgoeller with the opportunity to provide the Court with a “complete statement” of his opinions, it also specifically directed him to do so. It is also worth noting that unlike Dr. Mosgoeller, several of Plaintiffs’ other experts did discuss and analyze human epidemiological studies in their original reports. Therefore, for the foregoing reasons, the Court finds that the change in the evidentiary standard does not necessitate that Dr. Mosgoeller include, for the first time, an opinion regarding human epidemiological studies. Consequently, the Court will strike the opinions included in section 4.1.5 of Dr. Mosgoeller’s supplemental report.

Additionally, the Court also finds that the 5 studies⁴² cited by Dr. Mosgoeller in section 4.1.5 of his supplemental report neither relate to or fall under the scope of Dr. Mosgoeller’s original report. Specifically, Plaintiffs assert that these 5 studies supplement lines 1-24 on page 13 because this portion of page 13 concerns “*in vivo* studies showing DNA changes after exposure to EMF.” However, in this section of page 13, Dr. Mosgoeller solely discusses three animal studies that stand for the proposition that exposure to RF-EMF can cause DNA strand breaks. *See supra* note 41. As a result, the Court will strike Study #7, #9, #16, #19, and #31 to the extent that Dr. Mosgoeller relied

⁴² Specifically, Study #7, #9, #16, #19, and #31.

on these five studies to opine that (1) epidemiological studies provide evidence for an association of heavy exposure to mobile phone signals and a direct increase of brain tumors in humans;” and (2) “epidemiological results can be reconciled with cellular mechanisms related to HF-EMF exposure and DNA genotoxicity.”

Defendants also moved to strike Study #40 on the grounds that it was impermissibly cited to support Dr. Mosgoeller’s new opinion regarding the fact that “epidemiological results can be reconciled with the cellular mechanisms related to HF-EMF exposure and DNA genotoxicity.” In its briefing, Plaintiffs allege that Dr. Mosgoeller correctly cited to Study #40 in his supplemental report because Study #40 supplements (a) page 13; and (b) lines 1-32 on page 11 of Dr. Mosgoeller’s original report. However, as previously mentioned above, page 13 of Dr. Mosgoeller’s original report does not contain any discussion or analysis of epidemiological studies. Similarly, page 11 is also devoid of any discussion of epidemiological studies. Rather, page 11 deals with (1) Dr. Mosgoeller’s brief opinion stating that “children and young are at a higher risk” for experiencing biological effects after being exposed to EMF; and (2) a discussion regarding exposure related DNA breaks. As a result, the Court will grant Defendants’ request to strike Study #40 to the extent that Dr. Mosgoeller relied on it to opine that “epidemiological results can be reconciled with the cellular mechanisms related to HF-EMF exposure and DNA genotoxicity.”

C. Co-carcinogenicity

Defendants also moved to strike Study #27 and the new opinion on co-carcinogenicity in Section 4.1.4.1 of Dr. Mosgoeller’s supplemental report. Specifically, Defendants moved to strike Dr. Mosgoeller’s co-carcinogenicity opinion on the grounds that it is largely based on a pre-2013 study that Dr. Mosgoeller could have—but didn’t—cite in his original report. Additionally, Defendants moved to strike Study #27 on the grounds that it does not relate to or fall under the scope of Dr. Mosgoeller’s original report. In its briefing, Plaintiffs contend that Study #27 was

properly included in Dr. Mosgoeller's original report because it supplements lines 1-24 on page 13 of Dr. Mosgoeller's original report. Plaintiffs also contend that Study #27 supplements the portion of Dr. Mosgoeller's original report that deals with "consistency of findings" on lines 34 through 41 of page 11. However, for the following reasons, the Court will grant Defendants' request to strike.

First, the majority of Section 4.1.4.1 is based on Dr. Mosgoeller's citation to the Tillman, et al., (2010) study which Dr. Mosgoeller could have—but didn't—cite to in his original report. The March 16, 2017 Order did not permit experts to supplement their reports with pre-2013 studies that were not included in the experts' original reports. As a result, the Court will strike Dr. Mosgoeller's citation to Tillman, et al., 2010 in his supplemental report.

Additionally, the Court will also strike Dr. Mosgoeller's citation to Study #27. While Plaintiffs allege that Study #27 properly supplements page 13 of Dr. Mosgoeller's original report, page 13 does not include any analysis or discussion of co-carcinogenicity. Moreover, the word "co-carcinogenicity" does not even appear anywhere on page 13 of Dr. Mosgoeller's original report. *See supra* note 41. Similarly, the applicable section of page 11 of Dr. Mosgoeller's original report is also devoid of any reference or discussion of "co-carcinogenicity." Instead, page 11 states:

To date, *in vitro* studies using short- RF-EMF exposures (< 2 hours) have published negative results [20-23]. These negative findings with short term exposures do not contradict those investigations that found effects after longer exposure times [19; 17]. The following sections (6.2 to 6.8) explain why seeming contradictions are actually consistent findings.

See Mosgoeller 2013 Rep. at 11:34-41.

Additionally, Dr. Mosgoeller consistently referenced Study #27 in his supplemental report to demonstrate that the Tillman et al. (2010) study, a study not previously included in Dr. Mosgoeller's original report, was successfully reproduced. *See* Mosgoeller 2017 Supp. Rep. at 14 (the Tillman et al. (2010) study was "independently reproduced by" Study #27); Mosgoeller 2017 Supp. Rep. at 47 (the "Tillman et al. (2010) publication is interesting because the experiment was independently

reproduced” by Study #27). However, as previously stated, the March 16, 2017 Order did not permit experts to supplement their reports with pre-2013 studies that were not included in the experts’ original reports. Therefore the Court will grant Defendants’ request to strike Study #27 from Dr. Mosgoeller’s supplemental report to the extent that Dr. Mosgoeller relied on this study to opine (1) about co-carcinogenicity; and (2) that Study #27 reproduced the Tillman et al. (2010) study.

D. Oxidative DNA Damage

Finally, Defendants also moved to strike Dr. Mosgoeller’s new mechanism theory that “HF-EMF exposure can induce oxidative DNA damages to biological structures.” Defendants state that this new theory is embodied in two new opinions, listed as opinion number 6 and 7 on page 4 of Dr. Mosgoeller’s supplemental report. Additionally, along with Defendants’ request to strike both opinion number 6 and 7, Defendants also moved to strike all 12 of the post-2013 studies⁴³ that Dr. Mosgoeller relied on to render both of these opinions. Defendants moved to strike these opinions and studies on the grounds that (1) Plaintiffs admit that this new mechanism theory was available prior to 2013; and (2) all 12 studies neither relate to or fall under the scope of Dr. Mosgoeller’s original report.

For the following reasons the Court will grant Defendants’ request to strike without prejudice. Specifically, given the Plaintiffs’ concession that Dr. Mosgoeller’s theory regarding an association between HF-EMF exposure and a cell’s ROS exposure/Induction of Oxidative damage was “available pre-2013,”⁴⁴ the Court will strike Dr. Mosgoeller’s opinion regarding (1) the notion

⁴³ Specifically, this includes Study #1, #4, #6, #13, #17, #20, #23, #24, #30, #34, #44, and #47.

⁴⁴ Specifically, Plaintiffs state the following in regards to Dr. Mosgoeller’s new opinion number 6 and 7 located on page 6 of Dr. Mosgoeller’s supplemental report:

“Dr. Mosgoeller [stated in his] own words, a mechanism emerged which explains the biological effects he previously was able to show himself and observe in the study

that “HF-EMF exposure can induce oxidative DNA damages to biological structures;” and (2) that a “mechanism emerged – that explains HF-EMF exposure related DNA damage and can clarify discrepancies in the published literature.” *See* Mosgoeller 2017 Rep. at 4. Similarly, the Court will also strike the 12 post-2013 studies that Dr. Mosgoeller relied on to render these opinions. Notwithstanding, because it is unclear why Dr. Mosgoeller failed to include these new opinions in his original report, the Court will strike both of Dr. Mosgoeller’s new opinions and the 12 studies cited therein without prejudice.

As a result, the Plaintiffs will have until September 11, 2018 to provide the Court with a brief explaining the unique features of (1) Dr. Mosgoeller’s ATHEM-2 experiment; and/or (2) the Yakymenko (2016) study that finally “spurred” Dr. Mosgoeller to render his new opinions regarding how HF-EMF exposure can induce oxidative DNA damage. Specifically, Plaintiffs’ brief should demonstrate how Dr. Mosgoeller’s ATHEM-2 experiment and/or the Yakymenko (2016) study was so groundbreaking and reliable that Dr. Mosgoeller was finally “spurred” to agree with a theory that he previously failed to include in his original report even though the initial case management Order instructed all experts to provide the court with “a complete statement of all [general causation] opinions.” Thereafter, Defendants will have 14-days to respond.

VII. New Pre-February 2013 Studies

Defendants also moved to strike all new pre-2013 studies that are cited by the Plaintiffs’ experts for the first time in their supplemental reports. Defendants base this request on the grounds that such inclusions violate the March 16, 2017 Order which only permitted the limited inclusion of

results of others. Indeed, Dr. Mosgoeller explains that a study, Yakymenko (2016), analyzed the results of approximately 100 scientific reports and concluded there is an association between HF-EMF exposure and a cell’s ROS exposure. **While this theory was available pre-2013**, Dr. Mosgoeller’s conclusions as to the viability of this ROS mechanism of injury were spurred by Yakymenko (2016).

See Pl.’s Opp’n to Def.’s Mot. Strike at 20 (emphasis added).

studies published after 2013 that properly supplemented the expert's original report. In its Opposition, Plaintiffs stated that Defendants' arguments regarding Plaintiffs' experts' references to pre-2013 studies within their supplemental reports are "disingenuous and nonsensical" because: "(1) pre-2013 studies appear as references cited in post-2013 studies and formed the basis, in part, for the new evolving post-2013 scientific studies relied upon by Plaintiffs' experts; (2) the scientific findings in post-2013 studies caused pre-2013 studies to be viewed with an updated perspective; and (3) pre-2013 studies are relevant to addressing the reliability factor in the *Daubert*/Rule 702 standard which was not part of the *Frye/Dyas* standard." See Pl.'s Opp'n to Def.'s Mot. Strike at 6-7. For the following reasons, the Court will grant Defendants' request to strike.

As has been frequently stated in this Order, the March 16, 2017 Order did not permit experts to supplement their reports with studies that were published prior to February 2013. Moreover, "Plaintiffs' experts" were required to "base their opinions—before and after the change in the admissibility standard—on reliable scientific principles and methods that are reliably applied to the facts of the case." See 3/16/18 Order at 1 (Weisberg, J.). Additionally, the Court's initial management Order governing expert reports required each expert to submit reports with "a complete statement of all opinions the witness will express on general causation and the basis and reasons for them . . . without regard to the applicable standard on the admissibility of expert testimony in this jurisdiction." See 3/16/17 Order at 5 (Weisberg, J.). As a result, each expert was only permitted to supplement those opinions and topics covered in his or her original report. Stated differently, each expert's supplementation was bound by the scope of topics covered in that expert's original report. The fact that post-2013 science may have "updated [an expert's] perspective" on an old study is irrelevant if that expert had the opportunity to mention or discuss that pre-2013 study in their original report but failed to do so for such analysis would be outside the scope of that expert's original report. Moreover, as stated above, Plaintiffs failed to adequately justify that the change in

the evidentiary standard necessitated the wholesale addition of a pre-2013 study that a Plaintiffs' expert could have—but didn't—cite to or reference in their original report.

Therefore, Defendants' request to strike all pre-2013 studies that are cited by an expert for the first time in their supplemental report is granted. However, Plaintiffs' experts will be permitted to cite to or reference a new pre-2013 study that was not previously included in that expert's original report if, absent citing to the pre-2013 study, the expert would be prevented from meaningfully discussing a post-2013 study. In that event, references to the pre-2013 study should be limited solely for the purpose of providing context. As a result, any pre-2013 study or analysis that could have been previously provided cannot be included wholesale. If Plaintiffs contend that reliance on a pre-2013 study is necessary for purposes of context, Plaintiffs have the burden of justifying why such reliance is required.

To avoid any confusion, unless indicated otherwise in this Order, language herein stating that “to the extent that Plaintiffs' experts relied on [a study] or [a certain proposition]” and the Court ordered that study/proposition be stricken means that these studies/propositions are actually stricken and are not stricken provisionally.

Therefore it is this 28th day of August, 2018, hereby:

ORDERED that Defendants' Motion to Strike is **GRANTED IN PART, DENIED IN PART**, and **HELD IN ABEYANCE IN PART** for the reasons stated above; it is further

ORDERED that Defendants' request to strike the inclusion of Study #2-4 and #6-16 in Dr. Plunkett's supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike the inclusion of Study #1, #5, #10-11, #19, #27-28, #31, and #47 in Dr. Liboff's supplemental report is **GRANTED** to the extent that Dr. Liboff relied on these studies to opine about the adverse health effects of cell phones; it is further

ORDERED that Defendants' request to strike the inclusion of Study #45 in Dr. Liboff's supplemental report is **GRANTED** to the extent that Dr. Liboff relied on this study to opine about the adverse health effects of cell phones. However, Dr. Liboff is permitted to rely on Study #45 to the extent that it supports his opinion regarding the finding that "non-ionizing [radiation] . . . can result in changes within the cell nucleus, thereby providing the potential for changes in biological expression;" it is further

ORDERED that Defendants' request to strike the inclusion of Study #3, #7, #22, #30, and #43 in Dr. Liboff's is **GRANTED** to the extent that Dr. Liboff relies on these studies to render an opinion on the usefulness of epidemiological studies in regards to the study of cell phone effects. However, Dr. Liboff will be permitted to reference these studies in the same manner as he did on page fourteen of his original report. Therefore Dr. Liboff will be permitted to cite to these 5 studies for the sole and limited purpose of stating that they have also "spurred" the epidemiological research "initiated by W R Adey in the mid 1970s;" it is further

ORDERED that Defendants' request to strike the inclusion of Study #13 and #18 in Dr. Liboff's supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike the inclusion of Study #42 in Dr. Liboff's supplemental report is **DENIED**. Therefore, if appropriate, Plaintiffs may supplement Dr. Liboff's report with study #42 to the extent that it relates to the ability of ELF electromagnetic fields to have biological effect; it is further

ORDERED that Defendants' request to strike the inclusion of Study #8, #9, #25, and #35 in Dr. Liboff's supplemental report is **GRANTED** to the extent that Dr. Liboff relied on these studies to opine about interfacial water; it is further

ORDERED that Defendants' request to strike the inclusion of Study #16, #27, #28, #36, #39 and #41 in Dr. Kundi's supplemental report is **GRANTED** to the extent that Dr. Kundi relied

on these studies to opine about recall bias. Additionally, the Court will also strike the 8 pre-2013 studies⁴⁵ cited in Dr. Kundi's report to the extent that Dr. Kundi relied on them to opine about recall bias; it is further

ORDERED that Defendants' request to strike the inclusion of Study #11, #20, #21, #31, #35, and #46 is **GRANTED** to the extent that Dr. Kundi relied on these studies to conduct a meta-analysis. However, Dr. Kundi will be permitted to supplement his "hazard assessment" and or "methodological comparison" of the Interphone and Hardell studies with Study #11, #20, #21, #31, #35, and #46; it is further

ORDERED that Defendants' request to strike the inclusion of Study #1, #10, and #23, #24, #25, and #26 in Dr. Kundi's supplemental report is **DENIED** to the extent that Dr. Kundi used these studies to state that the cancer registry data, relied on by studies he previously cited or referenced in his original report, has since been called into question; it is further

ORDERED that Defendants' request to strike the inclusion of Study #11, #17, #21 and #22 in Dr. Kundi's supplemental report is **GRANTED** to the extent that Dr. Kundi relied on these studies to opine about dose-response in epidemiology; it is further

ORDERED that Defendants' request to strike the inclusion of Study #11, #17, and #22 in Dr. Kundi's supplemental report is **GRANTED** to the extent that Dr. Kundi relied on these 3 studies to opine about specificity; it is further

ORDERED that Defendants' request to strike the inclusion of Study #11, #20, #21, #35, and #46 in Dr. Kundi's supplemental report is **GRANTED** to the extent that Dr. Kundi relied on these studies to opine about selection bias; it is further

⁴⁵ Specifically, the Court is striking the following studies: (1) Bert et al. 2005; (2) Samkange-Zeeb et al. 2004; (3) Aydin et al. 2011; (4) Heinavaara et al. 2011; (5) Hitter et al. 2012; (6) Inyang et al 2010; (7) Vrijheid et al. 2006a; and (8) Vrijheid et al 2006(b).

ORDERED that Defendants' request to strike the section of Dr. Kundi's supplemental report regarding confounding is **GRANTED**; it is further

ORDERED that Defendants' request to strike the wholesale inclusion of Dr. Belyaev's original report in his supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike the inclusion of Study #2, #5, #18, #20, #29, #30, #41, #48, #49, #67, #79, #82, #83, #93, #98, #101, #107, #109, #122, #125, #129, #132, #133, #135, #136, #155, #164, #170, #176, #177, #178, #179, #185, #186, #188, #191, #205, #206, #208, #216, #234, #241, #243, #254, #261, #263, #274, and #275 in Dr. Belyaev's supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike is **GRANTED** as it relates Dr. Belyaev's citation, in his supplemental report, to Study #8 on page 95; Study #22 on pages 76, 82, and 98; Study #24 on page 60; Study #31 on page 82; Study #32 on pages 98 and 103; Study #33 on pages 82 and 145; Study #44 on page 90; Study #51 on page 74; Study #55 on page 89; Study #66 on page 85; Study #77 on page 97; Study #88 on page 81; Study #110 on page 77; Study #116 on page 95; Study #118 on page 99; Study #119 on page 95; Study #121 on page 97; Study #123 on pages 64 and 65; Study #131 on page 86; Study #137 on pages 56, 98, and 103; Study #145 on page 66; Study #146 on page 66; Study #153 on pages 62 and 88; Study #166 on pages 79 and 80; Study #173 on pages 89 and 90; Study #174 on pages 47 and 89; Study #175 on page 94; Study #184 on page 63; Study #190 on page 87; Study #203 on pages 72, 73, 76, and 82; Study #212 on pages 76 and 77; Study #213 on page 58; Study #221 on pages 97 and 98; Study #236 on page 100; Study #238 on pages 67 and 68; Study #239 on page 87; Study #262 on pages 72 and 82; Study #268 on pages 71-73, 82, and 98; Study #270 on page 91; Study #277 on page 92; Study #279 on page 67; Study #280 on page 64; and Study #281 on pages 63, 174, and 175; it is further

ORDERED that Defendants' request to strike the inclusion of Study #11, #103, and #165 in Dr. Belyaev's supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike Dr. Belyaev's references to the Bradford Hill criteria on page 4 of his supplemental report is **GRANTED**; it is further

ORDERED that Defendants' request to strike the section of Dr. Belyaev's report regarding "brain cancer time trends" is **GRANTED**; it is further

ORDERED that Defendants' request to strike is **GRANTED** as it relates to Dr. Belyaev's citation to the following studies in his supplemental report: (1) Dobes, Khurana et al. 2011; (2) Barchana et al. 2012; (3) Ding and Wang 2011; (4) Prasad and Haas-Kogan 2009; (5) Inkship et al. 2010; (6) Little, Rajaraman et al. 2012; (7) Zada, Bond et al. 2012; (8) Cardis, Deltour et al. 2008; (9) Deltour, Wiart et al. 2011; and (10) de Vocht, Burstyn et al. 2011; it is further

ORDERED that Defendants' request to strike the 9 sections and 6 subsections contained in Dr. Belyaev's supplemental report is **HELD IN ABEYANCE** until the Court is able to hold an evidentiary hearing; it is further

ORDERED that Defendants' request to strike the inclusion of Study #1, #3, #4, #8, #13, #17, #18, #19, #20, #21, #24, #26, #30, and #34 in Dr. Panagopoulos' supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on these studies to opine about the differences between experiments that use real rather than simulated exposures; it is further

ORDERED that Defendants' request to strike the inclusion of Study #2, #5, #6, #7, #9, #10, #11, #12, #14, #16, #22, #23, #35, #36, and #38 in Dr. Panagopoulos' supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on these studies to opine about the differences between experiments that use real rather than simulated exposures; it is further

ORDERED that Defendants' request to strike the inclusion of Study #32 and #37 in Dr. Panagopoulos' supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on

both studies to opine about the differences between experiments that use real rather than simulated exposures; it is further

ORDERED that Defendants' request to strike Dr. Panagopoulos' citation on page 25 of his supplemental report to Study #32 and #33 on the grounds that Dr. Panagopoulos impermissibly relied on both studies to render a new opinion regarding RF exposures and power-line frequency exposures is **DENIED** ; it is further

ORDERED that Defendants' request to strike the inclusion of Study #13, #30, and #31 in Dr. Panagopoulos' supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on these studies to opine about the connection between polarization and the adverse effects of man-made EMFs. Additionally, for the reasons stated above, the Court will also strike the following pre-2013 studies cited by Dr. Panagopoulos in the section of his report regarding polarization: (1) Goodman et al, (1995); (2) Blackan (2009); (3) Johansson (2009); (4) IARC (2002); (5) Stryer (1996); (6) Roller and Goldman (1968); and (7) Parsons (1993); it is further

ORDERED that Defendants' request to strike Dr. Panagopoulos' citation to Study #29 in his supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on this study to opine about positive versus negative results. Additionally, for the reasons stated above, the Court will also strike the entire section of Dr. Panagopoulos' supplemental report entitled "Positive versus Negative Results;" it is further

ORDERED that Defendants' request to strike the inclusion of Study #15 in Dr. Panagopoulos' supplemental report is **GRANTED** to the extent that Dr. Panagopoulos relied on this study to opine about tumor promotion in mice; it is further

ORDERED that Defendants' request to strike Dr. Panagopoulos' opinion regarding actin cytoskeleton damage is **DENIED** to the extent that it supports Dr. Panagopoulos' discussion of actin cytoskeleton damage in his original report; it is further

ORDERED that Defendants' request to strike the pre-2013 studies that Dr. Panagopoulos relied on to opine about actin cytoskeleton damage in his supplemental report is **DENIED**; it is further

ORDERED that Defendants' request to strike Dr. Mosgoeller's citation to Study #21 and #39 in his supplemental report is **GRANTED** to the extent that Dr. Mosgoeller relied on either study to opine about DNA Repair induction by HF-EMF exposure; it is further

ORDERED that Defendants' request to strike Dr. Mosgoeller's citation to Study #46 is **GRANTED** to the extent that Dr. Mosgoeller relied on this study to opine about DNA repair induction by HF-EMF. However, Dr. Mosgoeller will be permitted to cite to Study #46 to the extent that Study #46 validates or invalidates the opinion Dr. Mosgoeller expressed regarding Zhijian, et al. (2010) on page 12 of his original report; it is further

ORDERED that Defendants' request to strike Dr. Mosgoeller's citation to Study #42 in his supplemental report is **GRANTED** to the extent that Dr. Mosgoeller relied on this study to opine about DNA repair induction by HF-EMF; it is further

ORDERED that Defendants' request to strike opinions rendered by Dr. Mosgoeller in section 4.1.5 of his supplemental report is **GRANTED** for the reasons state above; it is further

ORDERED that Defendants' request to strike Dr. Mosgoeller's citation to Study #7, #9, #16, #19, and #31 in his supplemental report is **GRANTED** to the extent that Dr. Mosgoeller relied on these 5 studies to opine that (1) epidemiological studies provide evidence for an association of heavy exposure to mobile phone signals and a direct increase of brain tumors in humans;" and (2) "epidemiological results can be reconciled with cellular mechanisms related to HR-EMF exposure and DNA genotoxicity;" it is further

ORDERED that Defendants' request to strike Dr. Mosgoeller's citation to Study #40 in his supplemental report is **GRANTED** to the extent that Dr. Mosgoeller relied on this study to opine

that “epidemiological results can be reconciled with the cellular mechanisms related to HF-EMF exposure and DNA genotoxicity;” it is further

ORDERED that Defendants’ request to strike Dr. Mosgoeller’s citation to Study #27 in his supplemental report is **GRANTED** to the extent that Dr. Mosgoeller relied on this study to opine (1) about co-carcinogenicity; and/or (1) that Study #27 reproduced the Tillman et al. (2010) study; and it is further

ORDERED that Defendants’ request to strike Dr. Mosgoeller’s citation to the Tillman et al. (2010) study in his supplemental report is **GRANTED**; it is further

ORDERED that Defendants’ request to strike opinion number 6 and 7 on page 4 of Dr. Mosgoeller’s supplemental report is **GRANTED WITHOUT PREJUDICE**. Moreover, Defendants’ request to strike the 12 post-2013 studies⁴⁶ that Dr. Mosgoeller relies on to render both of these opinions is also **GRANTED WITHOUT PREJUDICE**. Additionally, the Plaintiffs will have until **September 11, 2018** to provide the Court with a brief explaining the unique features of (1) Dr. Mosgoeller’s ATHEM-2 experiment; and/or (2) the Yakymenko (2016) study, that finally “spurred” Dr. Mosgoeller to render his new opinions regarding how HF-EMF exposure can induce oxidative DNA damage. Specifically, Plaintiffs’ brief should demonstrate how Dr. Mosgoeller’s ATHEM-2 experiment and/or the Yakymenko (2016) study was so groundbreaking and reliable that Dr. Mosgoeller was finally “spurred” to agree with a theory that he previously failed to include in his original report even though the initial case management Order instructed all experts to provide the court with “a complete statement of all [general causation] opinions.” Thereafter, Defendants will have **14-days** to respond; it is further

ORDERED that Defendants’ request to strike all pre-2013 studies that are cited by an expert for the first time in their supplemental report is **GRANTED**. However, Plaintiffs’ experts

⁴⁶ This includes Study #1, #4, #6, #13, #17, #20, #23, #24, #30, #34, #44, and #47.

will be permitted to cite to or reference a new pre-2013 study that was not previously included in that expert's original report if, absent citing to the pre-2013 study, the expert would be prevented from meaningfully discussing a post-2013 study. In that event, references to the pre-2013 study should be limited solely for the purpose of providing context. As a result, any pre-2013 study or analysis that could have been previously provided cannot be included wholesale. If Plaintiffs contend that reliance on a pre-2013 study is necessary for purposes of context, Plaintiffs have the burden of justifying why such reliance is required.

So ordered.



Hon. Judge Anita Josey-Herring
District of Columbia Superior Court

Copies to all parties via CaseFile Express

**MARCH 16, 2017 *ORDER DENYING PLAINTIFFS' MOTION FOR
ADDITIONAL DISCOVERY* (WEISBERG, J.)**

IN THE SUPERIOR COURT FOR THE DISTRICT OF COLUMBIA
CIVIL DIVISION

Michael Patrick Murray, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2001 CA 008479 B
	)	Judge. Frederick H. Weisberg
Motorola, Inc., <i>et al.</i>,	)	Judge Anita Josey-Herring
)	
Defendants.)	
)	
<hr/> Dino Schofield,)	
)	
Plaintiff,)	
v.	)	Case No. 2002 CA 001371 A
)	
Motorola, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
<hr/> Pamela Cochran, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001369 A
)	
Audiovox Communications Corp., <i>et al.</i> ,)	
)	
Defendants.)	
)	
<hr/> David Keller, <i>et al.</i> ,)	
)	
Plaintiffs,)	
v.	)	Case No. 2002 CA 001372 A
)	
Nokia, Inc., <i>et al.</i> ,)	
)	
Defendants.)	
)	
<hr/> Richard Schwamb, <i>et al.</i> ,)	
)	
Plaintiffs,)	
)	

v.) Case No. 2002 CA 001370 A
)
Qualcomm Inc., *et al.*,)
)
Defendants.)

Baldassare Agro, *et al.*,)
)
Plaintiffs,)

v.) Case No. 2002 CA 001368 A
)
Motorola, Inc., *et al.*,)
)
Defendants.)

Alan Marks, *et al.*,)
)
Plaintiffs,)

v.) Case No. 2010 CA 003206 B
)
Motorola, Inc., *et al.*,)
)
Defendants.)

Shawn Kidd, *et al.*,)
)
Plaintiffs,)

v.) Case No. 2010 CA 007995 B
)
Motorola, Inc. *et al.*,)
)
Defendants.)

Cristin Prischman, as Personal Representative of)
the Estate of Paul G. Prischman)
)
Plaintiff,)

v.) Case No. 2011 CA 002113 B
)
Motorola Inc., *et al.*,)
)
Defendants.)

ORDER DENYING PLAINTIFFS' MOTION FOR ADDITIONAL DISCOVERY

This matter is before the court on remand from the District of Columbia Court of Appeals. The parties disagree on the proper scope of proceedings called for by the appellate court's decision. Defendants' position is that the only thing that has changed is the standard for evaluating the admissibility of Plaintiffs' proffered expert testimony on general causation. According to Defendants, the science has not changed, except for new studies and peer-reviewed research published since 2013, when Plaintiffs' experts on general causation submitted their reports, which Defendants propose to accommodate by having the experts simply update their reports based any new developments in the science, followed by a round of depositions limited to any new opinions the experts offer based on those recent developments. Plaintiffs contend that the Court's adoption of Federal Rule 702, with its emphasis on reliability, opens up the door to new experts and expanded discovery, including discovery of Defendants' internal documents relating to cell phone design, mitigation of risks attributable to RF and ELF radiation, "warning information," all communications surrounding the effort to obtain insurance coverage against such risks, and the like.¹

When the parties convened in November of 2011, it was Plaintiffs who were arguing for bifurcated proceedings, with the first phase limited to general causation, while Defendants took

¹ The issues relating to the scope of proceedings are further complicated by the fact that the fourteen "Murray cases" have been consolidated for purposes of the ruling on the admissibility of Plaintiffs' expert testimony on general causation, and some 38 (and counting) subsequently filed cases have been stayed by agreement of the parties, including agreement to be bound by the court's ultimate ruling in the "Murray cases," based in part on the understanding that the *Dyas/Frye* test would determine the outcome. At the hearing on December 12, 2016, Plaintiffs argued that it is unfair to hold them to their agreement now that the outcome will be determined by a new standard, which was not in effect at the time they adopted their strategy. Defendants disagreed. The parties have not briefed that issue, and the court does not address it in this order.

the position that greater efficiencies would be realized if Phase I were broadened to include both general causation and specific causation. Although Plaintiffs took the narrower view on the scope of Phase I, they nonetheless asked for Phase I discovery on all issues relating to general causation, not simply admissibility of expert testimony on general causation. The court agreed with Plaintiffs that Phase I would address general causation only, but ruled that Phase I would be limited to the admissibility of Plaintiffs' expert witnesses on general causation, with discovery narrowly tailored to that issue. At the time there were already fourteen individual cases pending, and the court was persuaded by Defendants' argument that if Plaintiffs were unable to present admissible expert witness testimony on general causation, the time and expense of full-blown discovery and litigation of these complex individual toxic tort cases could potentially be avoided.

The parties were next before the court on September 20, 2012, on Plaintiffs' motion to compel discovery. Plaintiffs argued that they needed additional wide-ranging discovery from Defendants and from third parties in order to effectively challenge Defendants' experts on general causation and to defend their own experts against anticipated cross examination by defense counsel. Plaintiffs insisted that it was unfair to require them to put up their experts without an opportunity for full discovery, or at least targeted discovery that would enable them to defend against a motion for summary judgment on general causation, including an opportunity to discover relevant materials from the Defendants' internal company files. With minor exceptions, the court denied Plaintiffs' motion, reasoning that Plaintiffs either had admissible expert testimony on general causation or they did not, and Plaintiffs had everything they needed for the court to be able to answer that question based on the many scientific studies available in the scientific literature, along with Defendants' production of their own published, unpublished, and

even incomplete studies pertaining to general causation. The discovery Plaintiffs are seeking now is essentially the same as they sought, unsuccessfully, in their motion to compel in 2012.

Since 2012, the question identified in the court's case management orders has not changed: do Plaintiffs have admissible expert testimony on the general causation issue in these cases – i.e., whether radiation from cell phones can cause the types of brain tumors Plaintiffs have alleged? The purpose of all parties in proposing phased discovery was to isolate that question and to answer it, before launching these complex toxic tort cases into very expensive and time consuming litigation that could be avoided if Plaintiffs are unable to get over that first hurdle. The court was aware that no American court had ever allowed such a claim to get to a jury, all concluding that the wide consensus in the scientific community would not support it. The case management orders were intended to determine whether the science had changed during the intervening years and whether the ruling on admissibility of expert testimony should change with it.

As it turned out, applying the *Dyas/Frye* standard in effect at the time, this court ultimately ruled that the methodology of some of Plaintiffs' experts was generally accepted; and, because *Dyas/Frye* enjoins the court to look only at acceptance of the methodology, the testimony of those experts could not be excluded. On an interlocutory appeal of that ruling, the Court of Appeals abandoned the *Dyas/Frye* standard and adopted in its place Federal Rule of Evidence 702. However, the question before the court on remand has not changed: do Plaintiffs have admissible expert testimony on the general causation issue in these cases? There are only two reasons that question cannot be answered under the new standard on the present record: (1) there may be scientific studies done after the experts submitted their reports for the Phase I litigation, which may support or undermine the opinions of Plaintiffs' experts under the new

standard, and the experts should be permitted to supplement their opinions accordingly; and (2) Plaintiffs' experts rendered their initial opinions in the *Dyas/Frye* regime; and, although their opinions would not change simply because the legal standard for admissibility has changed, it is at least conceivable that some might articulate their opinions differently if they were called upon to address reliability of scientific principles and methods reliably applied to the facts of these cases, as required by Rule 702, and not merely the general acceptance of their respective methodologies.

The change from *Dyas/Frye* to Rule 702 does not change the court's plan for the management of these complex toxic tort cases. The court's case management orders in 2011 and 2012 were not based on the standard for admissibility of expert testimony, although the Phase I litigation was focused on the general acceptance, *vel non*, of the experts' methodology, that being the sole relevant question under the then applicable standard for admissibility. The case management orders were driven by the reality that no American court had ever accepted the theory that non-ionizing radiation from cell phones could cause gliomas and acoustic neuromas, and it was unfair to force Defendants to defend such complex and expensive litigation unless Plaintiffs could present admissible expert testimony on general causation. After more than three years of litigating that issue, Plaintiffs were able to get some of their expert opinions past the general acceptance test of the now-discarded *Dyas/Frye* standard. It remains to be seen whether any of Plaintiffs' experts can also survive scrutiny under Rule 702. If they can, these cases can finally move out of the starting blocks. If they cannot, Defendants will be entitled to appropriate relief based on the fact that Plaintiffs were not able to put up a single expert with admissible testimony to support their theory of general causation.

Why should Plaintiffs be limited to the experts they have already named? The answer is that when the current litigation began, the court's initial case management order for Phase I discovery required Plaintiffs to produce *all* of their experts on general causation, with a report from each expert setting forth "a complete statement of all opinions the witness will express on general causation and the basis and reasons for them." That order was entered without regard to the applicable standard on the admissibility of expert testimony in this jurisdiction, and was the same language that would have been used in a comparable order from a federal district court operating under Rule 702. *See* Federal Rule of Civil Procedure 26 (a)(2)(B)(i). It is true that when Plaintiffs attempted to expand the scope of discovery, the court rejected that attempt and limited discovery to the general acceptance of the experts' methodology, because that was the relevant question under the then controlling *Dyas/Frye* standard. But the scope of discovery would have been the same under Rule 702. The point of Phase I discovery was to test whether Plaintiffs had the science to back up their experts' opinions on general causation. The science does not change, except for new science. Plaintiffs' experts must base their opinions – before and after the change in the admissibility standard – on reliable scientific principles and methods that are reliably applied to the facts of the case. While the inquiry has changed from an exclusive focus on general acceptance of the methodology to a broader focus on the reliability of the methodology and its application, the science that determines both acceptance and reliability remains the same. Both before and after the change in the legal standard for evaluating admissibility, the science is based on validated and replicated experiments, case studies, and peer reviewed publications. Although the Phase I experts should be permitted to factor into their opinions any intervening reliable experiments, case studies, and peer reviewed publications,

there is no occasion for new experts to be named or for expanding the scope of Phase I discovery, which has been in place in these cases since at least December of 2011.²

Plaintiffs complain that limiting discovery and expert witnesses in this way is unfair to them; and, if their experts do not qualify under Rule 702, the Defendants would be in a position to obtain summary judgment without giving the Plaintiffs an opportunity to conduct any discovery beyond the limited Phase I discovery on the question of admissibility of their expert witness testimony. However, that argument has already been rejected in the prior case management orders that have governed the litigation of these cases from the beginning, and the Court of Appeals' decision on interlocutory appeal does not change this court's reasoning in developing its case management plan. If Plaintiffs cannot qualify an expert on general causation based on existing science, and if summary judgment were to follow from that failure, it would *not* be because, based on *admissible* expert testimony, Plaintiffs have failed to raise a genuine issue of material fact in dispute as to whether cell phones can cause the alleged injuries. It would be because on the issue of general causation – which is a threshold issue the Plaintiffs are required to prove and one which cannot be proven without an expert – Plaintiffs have failed to proffer and qualify *any* expert after having been given a full and fair opportunity to do so. Conversely, if Plaintiffs can qualify an expert on general causation based on reliable scientific principles and methods reliably applied to the facts of these cases, they will certainly have a right

² Although the analogy is not perfect because of the different procedural context in which it arose, *Weisgram v. Marley Co.*, 528 U.S. 440, 455 (2000), is instructive. In *Weisgram*, a product liability case, the trial court admitted the plaintiff's expert under *Daubert*, and the jury found in favor of the plaintiff. On appeal, the Eighth Circuit held that the expert testimony should not have been admitted, and it directed a verdict in favor of the defendant, rejecting the plaintiff's argument that the court should remand the case to the trial court to consider a motion for a new trial with an opportunity to present new or better expert testimony. The Supreme Court affirmed, holding that the plaintiff had a fair opportunity to present her expert testimony the first time around and that the plaintiff's case failed as a matter of law without the expert testimony that was erroneously admitted. Here, Plaintiffs have had a full and fair opportunity to qualify their experts under *Dyas/Frye*. That standard having now been abandoned in favor of Rule 702, Plaintiffs obviously deserve a fair opportunity to qualify their experts under the new standard, but the court fails to see any basis to start all over with new experts and new discovery.

to additional discovery so they can develop their cases on the merits before being asked to defend against any motion for summary judgment on general causation or any other merits issue.

For the foregoing reasons, it is this 16th day of March, 2017,

ORDERED that Plaintiffs' Motion for Additional Discovery is denied; and it is further

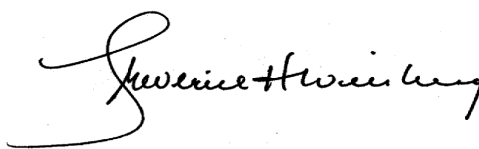
ORDERED that Defendants shall supplement the discovery produced pursuant to the court's December 7, 2011, and the October 9, 2012, Case Management and Discovery Orders; and it is further

ORDERED that Plaintiffs' experts³ and Defendants' experts may produce supplemental reports (1) addressing any relevant studies or peer reviewed publications that have been added to the scientific literature since February 2013, and (2) revising the way they express their opinions to account for the change in the evidentiary standard from *Dyas/Frye* to Federal Rule 702, provided they explain why the change in the evidentiary standard necessitates a change in the way they articulate their opinion; and it is further

ORDERED that the parties shall meet and confer on dates and present a proposed schedule to the court within 14 days, which shall include dates for the following deadlines:

- Defendants to supplement discovery;
- Plaintiffs submit supplemental expert reports to address studies published in the peer reviewed literature or produced by Defendants since February 2013;
- Defendants complete depositions of Plaintiffs' experts;
- Defendants submit rebuttal supplemental expert reports;
- Plaintiffs complete depositions of Defendants' experts;
- Defendants submit Motions to Exclude Expert Testimony
- Plaintiffs submit Oppositions;
- Defendants submit Replies.

³ It is at least possible that one or more of the experts the court excluded under *Dyas/Frye* could be admitted under Rule 702. The court leaves that issue to be resolved by the judge currently assigned, if the parties are unable to reach agreement.



Judge Frederick H. Weisberg

Copies to: All counsel listed in CaseFileXpress

Honorable Anita Josey-Herring