IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT, LAW DIVISION

CYNTHIA B. COWGER,	)	
	)	Case No. 2018-L-012099
Plaintiff,	)	
	)	IN RE: ASBESTOS LITIGATION
v.	)	
	)	Hon. Clare E. McWilliams
QUALITEX COMPANY,	)	
	)	Calendar: "J1"
Defendant.	)	

MEMORANDUM OPINION AND ORDER

This cause comes before the Court for ruling on Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the Purpose of Genetic Testing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a). The matter was fully briefed, and, on August 4, 2020, this Court ordered that a hearing be conducted, in accordance with both Illinois Rule of Evidence 702 and *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), in order to ascertain whether the opinion that inherited genetic mutations may alone cause mesothelioma, absent asbestos exposure, "is sufficiently established to have gained general acceptance in the particular field in which it belongs." *See* Ill. R. Evid. 702. In accordance with this mandate, a *Frye* hearing was conducted from December 9, 2020 through December 11, 2020. The Court, having considered the pleadings, memoranda, and exhibits attached thereto, in addition to the testimony and exhibits presented during the aforementioned *Frye* hearing, and otherwise being fully advised in the premises, states as follows:

I. INTRODUCTION

Over the course of these proceedings, Defendant Qualitex Company has continuously maintained that it is entitled to obtain a blood sample from the Plaintiff Cynthia B. Cowger, for the stated purpose of conducting genetic testing and ascertaining whether a genetic mutation

caused her mesothelioma, rather than any alleged exposure to asbestos. Upon careful consideration of the record in the instant case, this Court finds that the theory underlying Qualitex's request has not gained general acceptance whereby it would be permitted to conduct full genomic sequencing of the Plaintiff's genome.

II. BACKGROUND AND FACTUAL ALLEGATIONS

As this Court has previously observed, the relevant facts of the instant case concern allegations that the Plaintiff Cynthia B. Cowger (hereinafter referred to as "Plaintiff") "suffers from an asbestos-related disease" – namely, mesothelioma – as a result of having "wrongly [been] exposed to, inhaled, ingested, and otherwise absorbed asbestos fibers emanating from various sources which were mixed, mined, manufactured, distributed, sold, removed, installed, [or] used by [Defendant Qualitex Company] including, but not limited to: laundry press pads, and other commercial laundry equipment[,]" over the course of her employment as a laborer at "F.W. Means/Aramark" in Evansville, Indiana from 1974 to 1976. (*See* Memorandum Opinion and Order (entered Feb. 25, 2020), pp. 2-3 (quoting Plaintiff's First Amended Complaint, ¶¶ 3(a), 4, 13)). Defendant Qualitex Company (hereinafter referred to as "Qualitex") has denied these allegations and continuously maintained that "it expects the evidence to show that [the] Plaintiff was not exposed to any asbestos-containing product manufactured, supplied, or distributed by Qualitex." (*See* Defendant Qualitex Company's Reply to "Plaintiff's Opposition to Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff for Unspecified Genetic Testing" (hereinafter referred to as "Qualitex's Reply"), p. 4). However, in addition to this argument, Qualitex has secondarily alleged that, "for this Plaintiff, genetic mutations are the sole proximate cause of her mesothelioma." (*Id*., at p. 2).

After having taken this matter under advisement, on August 4, 2020, this Court ordered that "a *Frye* hearing must be conducted in order to ascertain whether the theory underlying Qualitex's requests [for a blood sample from the Plaintiff] (*i.e.*, "the opinion that inherited genetic mutations may alone cause mesothelioma, absent asbestos exposure") "is sufficiently established to have gained general acceptance in the particular field in which it belongs."" (*See* Memorandum Opinion and Order (entered Aug. 4, 2020), p. 7 (quoting Plaintiff's Sur-Reply to Qualitex's Motion to Compel (hereinafter referred to as "Plaintiff's Sur-Reply"), p. 4; Ill. R. Evid. 702)). In accordance with this mandate, a *Frye* hearing was conducted from December 9, 2020 through December 11, 2020, and, over the course of these proceedings, two witnesses were called to testify. As articulated by the Plaintiff within a separate submission to the Court in the form of a proposed Memorandum Opinion and Order (hereinafter referred to as "Exhibit A"), this Court would note the following assessment of these witnesses:

> "[Qualitex] called one witness at the *Frye* hearing, Dr. Leonel van Zyl, Ph.D., who is neither a medical doctor nor a toxicologist nor an expert on cancer [V. 138-39][1]. He has never published an article related to mesothelioma or asbestos exposure, [V. 142, 145], and [twenty-four] of his approximately [twenty-nine or thirty] published articles relate to plant genetics [V. 37, 145]. He is not board certified in genetics [V. 140]. He has never conducted any research studies on mesothelioma or asbestos exposure [V. 145-46], and his only work relating to mesothelioma has been "in the context of litigation," [V. 154], with the exception of consulting when his business partner's mother developed mesothelioma [V. 34, 154]. He is the CEO of ArrayXpress, [V. 141], which is the "lead principal" in the ToxicoGenomica alliance, [V. 160], another component of which is Law Science Policy, [V. 161], comprised of Mr. Kirk Hartley, a toxic tort defense attorney [V. 163].
>
> Plaintiff[ ] called Dr. Joseph Testa, Ph.D., FACMG, who has been working specifically in the field of cancer-related genetics since receiving his Ph.D. in genetics in 1976 [T. 8, 10]. He has been

[1]According to the Plaintiff, "[n]umbers in brackets preceded by "V." refer to pages of the *Frye* hearing rough draft transcript from December 9, 2020, whereas bracketed numbers preceded by "T." refer to pages from the December 10, 2020 rough draft transcript." (*See* Exhibit A, p. 2 n.1).

> studying tumor suppressor genes at the Fox Chase Cancer Center for thirty years [T. 13-15], and has [thirty-five] consecutive years of [National Institutes of Health] funding for mesothelioma research [T. 16]. He has published over [ninety] peer reviewed publications that address mesothelioma, [T. 21], and is the joint holder of a patent on the BAP1 gene as one that predisposes people to mesothelioma and other cancers [T. 23]. As Dr. van Zyl acknowledged, Dr. Testa helped discover the link between BAP1 and mesothelioma in 2011 [V. 12]." (*See* Exhibit A, p. 2).

On December 9, 2020, Qualitex called their witness, Dr. van Zyl, who opined that "it is generally accepted and reflected in the scientific literature that genetic mutations can give rise to mesothelioma absent asbestos exposure," in addition to observing that generally accepted techniques for ascertaining the existence of genetic mutations includes obtaining blood samples for genetic testing, which necessarily requires full genomic sequencing of a person's genome. (*See* Defendant Qualitex Company's Proposed Memorandum Opinion and Order (hereinafter referred to as "Exhibit B"), pp. 1-2, 8; *see also* Exhibit A, at pp. 2-3 (citing V. 75-76, 107-08, 177-78, 182)). According to Qualitex, "[t]here is a debate in the literature about the percentage of […] cancers that are caused by random endogenous mutations, environmental factors, or a combination of both." (*See* Exhibit B, at p. 4 (citing Qualitex Exhibit 12)).[2] However, notwithstanding this debate, "it is accepted that the spontaneous accumulation of somatic genetic mutations (*i.e.*[,] endogenous mutations), of which there are millions or more in one's body every day, can cause cancer regardless of exposure to any toxicant." (*Id*. (citing V. 39, T. 62)). Additionally, "it has been reported that between 20% and 66% of human cancers are caused by endogenous mutations." (*Id*. (citing Qualitex Exhibit 12)). To that end, it is the view of Qualitex "that it is now generally accepted that irrespective of exposure to a toxicant and of inherited mutations, some

[2]According to Qualitex's Exhibit Index, "Qualitex Exhibit 12" has been identified as the following: "Carbone, M., Arron, S.T., Beutler, B., Bononi, A., Cavenee, W., Cleaver, J.E., Croce, C.M., D'Andrea, A., Foulkes, W.D., and Gaudino, G. (2020). Tumour predisposition and cancer syndromes as models to study gene-environmental interactions. *Nat. Rev. Cancer* 1–17." (*See* Defendant Qualitex Company's Exhibit Index, p. 2).

mesotheliomas may occur because of the inevitable accumulation of spontaneous endogenous mutations." (*Id*. (citing Qualitex Exhibit 11)).[3] Referring once more to the testimony of Dr. van Zyl, it is his opinion that "the peer-reviewed literature does not state that a single hit to one allele of a related germline [tumor suppressor gene] causes mesothelioma[.]" (*Id*., at p. 5). Rather, it is Dr. van Zyl's opinion that "the literature demonstrates that there are other genetic pathways to additional mesothelioma-causing mutations that do not involve asbestos exposure." (*Id*., at p. 6).

On December 10, 2020, the Plaintiff called her witness, Dr. Testa, who opined that BAP1 tumor predisposition syndrome is the only inherited cancer syndrome that is generally accepted to be related to mesothelioma, so, therefore, it should come as no surprise that the "sequencing of a person's whole genome "hasn't even been done in research, [as it would go] way beyond the pale."" (*See* Exhibit A, at p. 3 (citing T. 74) (quoting T. 187) (emphasis omitted)). Additionally, while Dr. van Zyl may be of the mind that a BAP1 germline mutation can operate in a haploinsufficient manner (*i.e.*, "meaning that deletion of one allele […] is sufficient to cause cancer"), it is the opinion of Dr. Testa that "this idea of haploinsufficiency" is not widely accepted within the scientific community. (*Id*., at pp. 4-5 (citing V. 58-59) (quoting T. 81)). Furthermore, it is the belief of both the Plaintiff and Dr. Testa that those articles relied upon by Dr. van Zyl "show that, in individuals with BAP1 germline mutations, subsequent somatic mutations, such as those caused by asbestos, are required for the development of a malignant mesothelioma." (*Id*., at p. 5). Referring once more to the notion of acquiring a blood sample from the Plaintiff, it is worth noting that, over the course of the *Frye* hearing, it was brought to the Court's attention that the Plaintiff had previously consented to testing for a BAP1 genetic mutation, with the understanding that the

[3]According to Qualitex's Exhibit Index, "Qualitex Exhibit 11" has been identified as the following: "Carbone, M., Adusumilli, P.S., Alexander, H.R. Jr., et al. (2019). Mesothelioma: Scientific clues for prevention, diagnosis, and therapy. *CA Cancer J Clin.* 69(5):402-429. doi:10.3322/caac.21572." (*See* Defendant Qualitex Company's Exhibit Index, at p. 2).

Plaintiff was not "waiving or abandoning any opposition to the admissibility of [Qualitex's] proposed expert opinion that a genetic mutation alone, absent asbestos exposure, can cause mesothelioma." (*Id*., at p. 6 n.3).

III. *FRYE* HEARING

(1) *Applicable Legal Standard*

In the State of Illinois, "the admission of scientific evidence is governed by the *Frye* standard" to such a degree that the standard itself has been codified within the Illinois Rules of Evidence. *People v. New (In re Det. of New)*, 2014 IL 116306, ¶ 25 (Ill. 2014) (citing *People v. Simons (In re Simons)*, 213 Ill.2d 523, 529 (Ill. 2014); *Frye*, 293 F. at 1013); *see also People v. McKown*, 226 Ill.2d 245, 254 (Ill. 2007) (defining "scientific evidence" as that which is "the product of scientific tests or studies"). Specifically, Illinois Rule of Evidence 702 states the following, in pertinent part:

> "Where an expert witness testifies to an opinion based on a new or novel scientific methodology or principle, the proponent of the opinion has the burden of showing the methodology or scientific principle on which the opinion is based is sufficiently established to have gained general acceptance in the particular field in which it belongs."

"The purpose of the *Frye* test," more commonly referred to as the "general acceptance" test, "is to exclude new or novel scientific evidence that undeservedly creates "a perception of certainty when the basis for the evidence or opinion is actually invalid."" *New*, 2014 IL 116306, at ¶ 26 (quoting *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 199 Ill.2d 63, 78 (Ill. 2002), *abrogated on other grounds by Simons*, 213 Ill.2d at 530); *see also Noakes v. AMTRAK*, 363 Ill.App.3d 851, 855 (1st Dist. 2006). As a result, "[i]t is important to remember that the *Frye* test only applies to evidence that is both novel and scientific." *In re Marriage of Alexander*, 368 Ill.App.3d 192, 196 (5th Dist. 2006) (citing *People v. B.T. (In re K.T.)*, 361 Ill.App.3d 187, 202 (1st Dist. 2005)). Furthermore, in those

instances wherein the "scientific evidence [in question] has a history of legal challenges regarding its admissibility and has not [yet] been ruled upon in a *Frye* hearing in Illinois, the evidence [will be] considered novel for *Frye* purposes." *People v. Beck*, 2017 IL App (4th) 160654, ¶ 105 (4th Dist. 2017) (citing *McKown*, 226 Ill.2d at 258).

Upon arriving at a determination that *Frye* may be applied to a particular scientific principle or methodology, this Court may ascertain "the general acceptance of [the] scientific principle or methodology [in question] in either of two ways: (1) [by referring to] the results of a *Frye* hearing; or (2) by taking judicial notice of unequivocal and undisputed prior judicial decisions or technical writings on the subject." *People v. Melcher (In re Melcher)*, 2013 IL App (1st) 123085, ¶ 57 (1st Dist. 2013) (quoting *McKown*, 226 Ill.2d at 254). However, it is worth noting that, "[i]n this context, 'general acceptance' does not mean universal acceptance, and it does not require that the methodology in question be accepted by unanimity, consensus, or even a majority of experts." *Id*., at ¶ 55 (quoting *Simons*, 213 Ill.2d at 530); *see also Beck*, 2017 IL App (4th) 160654, at ¶ 106 (reinforcing the notion that, while "[g]eneral acceptance does not require unanimity, consensus, or even a majority, [it] does require something more than a scientific principle, technique or methodology that is experimental or of dubious validity") (quoting *New*, 2014 IL 116306, at ¶ 39). Rather, "it is sufficient that the underlying method used to generate an expert's opinion is reasonably relied upon by experts in the relevant field." *Melcher*, 2013 IL App (1st) 123085, at ¶ 55 (quoting *Simons*, 213 Ill.2d at 530).

(2) *Analysis*

As noted, at the conclusion of the *Frye* hearing for this matter, this Court was provided with written submissions from both the Plaintiff and Qualitex in the form of proposed Memorandum Opinions and Orders – the former of which referenced salient portions of Dr. Testa's

testimony in the form of statements of fact. (*See generally* Exhibit A). Accordingly, given Dr. Testa's steadfast reliance on sources such as the Online Mendelian Inheritance in Man[4] (hereinafter referred to as "OMIM") and this source's recognition of "BAP1 tumor predisposition syndrome [as] the sole inherited cancer syndrome generally accepted to be related to mesothelioma[,]" which this Court recognizes as authoritative, this Court finds that the theory underlying Qualitex's request has not gained general acceptance whereby it would be permitted to conduct full genomic sequencing of the Plaintiff's genome. (*Id*., at p. 7); *see also Stapleton v. Moore*, 403 Ill.App.3d 147, 159 (1st Dist. 2010) (noting that, "[u]nder prevailing practice, medical texts themselves may […] be recognized as authoritative").

To the extent that Dr. van Zyl opined that any number of genetic mutations are related to mesothelioma, including Lynch syndrome, Li-Fraumeni syndrome, and tumorous sclerosis, Dr. van Zyl readily acknowledged that the OMIM "is an authoritative source for details regarding various genetic syndromes" – a source which, once again, "recognizes BAP1 tumor predisposition syndrome as the *only* inherited cancer syndrome that is "generally accepted to be related to mesothelioma."" (*See* Exhibit A, at p. 3 (citing V. 75-76, 107-08, 278) (citing T. 74) (emphasis in original)). Additionally, despite having provided testimony that a BAP1 germline mutation can operate in a haploinsufficient manner, "Dr. van Zyl failed to produce a single peer-reviewed study [asserting that] BAP1 mutations can act in a haploinsufficient manner to cause mesothelioma" – an omission that only served to reinforce Dr. Testa's position "that "this idea of haploinsufficiency" is not widely accepted in the scientific community." (*Id*., at pp. 4-5 (citing V. 58-59) (citing T. 81)). Rather, in the absence of any peer-reviewed studies on this front, Dr. van

[4] The Online Mendelian Inheritance in Man "is a comprehensive, authoritative compendium of human genes and genetic phenotypes […] authored and edited at the McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University School of Medicine, under the direction of Dr. Ada Hamosh." (*See* OMIM® – ONLINE MENDELIAN INHERITANCE IN MAN®, https://www.omim.org/about (last visited Dec. 30, 2020)).

Zyl directed this Court's attention to a study[5] that was published in 2011, which Dr. Testa denounced as having "nothing to do with mesothelioma" and, perhaps most critically for Qualitex, was published "*before* the BAP1 gene was [even] discovered." (*Id*., at p. 5 (citing T. 80)). Finally, while Dr. van Zyl may have invoked numerous articles to support the theory that genetic mutations alone may cause mesothelioma, each of those "articles on which he relied show that, in individuals with BAP1 germline mutations, subsequent somatic mutations, such as those caused by asbestos, are required for the development of a malignant mesothelioma." (*Id*., at p. 5). Accordingly, this Court is of the mind that these observations, among many others, delineate precisely where Qualitex failed to meet their burden, in accordance with Illinois Rule of Evidence 702.

IV. CONCLUSION

This Court finds that the theory underlying Qualitex's requests for a blood sample from the Plaintiff has not gained general acceptance whereby it would be permitted to conduct full genomic sequencing of the Plaintiff's genome.

[5] According to Qualitex's Exhibit Index, the study in question was none other than the following: "Berger, A.H., Knudson, A.G., Pandolfi P.P. (2011). A continuum model for tumour suppression. *Nature* 476(7359):163-9." (*See* Defendant Qualitex Company's Exhibit Index, at p. 1).

IT IS HEREBY ORDERED:

1. Based on the foregoing, Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the Purpose of Genetic Testing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a), is hereby **DENIED**.

2. That since Plaintiff Cynthia B. Cowger has heretofore consented to testing for a BAP1 genetic mutation, with the understanding that the Plaintiff is not waiving nor abandoning any opposition to the admissibility of any proposed expert opinion that a genetic mutation alone, absent asbestos exposure, can cause mesothelioma, the parties are hereby ordered to confer on any discovery requirements attendant thereto within seven (7) days of the entry of this Memorandum Opinion and Order, so as to expedite the results of said testing.

3. This cause is hereby set for status and trial setting on January 12, 2021, at 1:15 PM CST.

DATE: December 30, 2020

ENTERED:

Hon. Clare E. McWilliams

ENTERED
Judge Clare Elizabeth McWilliams-1889
DEC 30 2020
IRIS Y. MARTINEZ
CLERK OF THE CIRCUIT COURT
OF COOK COUNTY, IL

EXHIBIT A

IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT, LAW DIVISION

CYNTHIA B. COWGER,	)	
	)	Case No. 2018-L-012099
Plaintiff,	)	
	)	IN RE: ASBESTOS LITIGATION
v.	)	
	)	Hon. Clare E. McWilliams
QUALITEX COMPANY,	)	
	)	Calendar: "J1"
Defendant.	)	

MEMORANDUM OPINION AND ORDER

This cause comes before the Court on Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the purpose of genetic testing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a). Following full briefing, the Court ordered that a *Frye* hearing be held to determine whether "the opinion that inherited genetic mutations may alone cause mesothelioma, absent asbestos exposure" is "sufficiently established to have gained general acceptance in the particular field in which it belongs." *See* Ill. R. Evid. 702. The Court, after considering the pleadings, memoranda, and exhibits attached thereto, as well as the testimony and evidence received at the *Frye* hearing, conducted on December 9-11, 2020, and otherwise being fully advised in the premises, states as follows:

I. INTRODUCTION

Qualitex Company has maintained that it is entitled to obtain a blood sample from Cynthia B. Cowger for the stated purpose of conducting genetic testing to ascertain whether a genetic mutation, absent any exposure to asbestos, caused her mesothelioma. After a *Frye* hearing, the Court finds that the theory underlying Defendant's purpose for such testing has not gained general acceptance in the relevant scientific field, and therefore denies Defendant's Motion to Compel a Blood Examination of Plaintiff.

II. FINDINGS OF FACT

Defendant called one witness at the *Frye* hearing, Dr. Leonel van Zyl, Ph.D., who is neither a medical doctor nor a toxicologist nor an expert on cancer [V. 138-39]. [1] He has never published an article related to mesothelioma or asbestos exposure, [V. 142, 145], and 24 of his approximately 29 or 30 published articles relate to plant genetics [V. 37, 145]. He is not board certified in genetics [V. 140]. He has never conducted any research studies on mesothelioma or asbestos exposure [V. 145-46], and his only work relating to mesothelioma has been "in the context of litigation," [V. 154], with the exception of consulting when his business partner's mother developed mesothelioma [V. 34, 154]. He is the CEO of ArrayXpress, [V. 141], which is the "lead principal" in the ToxicoGenomica alliance, [V. 160], another component of which is Law Science Policy, [V. 161], comprised of Mr. Kirk Hartley, a toxic tort defense attorney [V. 163].

Plaintiffs called Dr. Joseph Testa, Ph.D., FACMG, who has been working specifically in the field of cancer-related genetics since receiving his a Ph.D. in genetics in 1976 [T. 8, 10]. He has been studying tumor suppressor genes at the Fox Chase Cancer Center for thirty years [T. 13-15], and has 35 consecutive years of NIH funding for mesothelioma research [T. 16]. He has published over 90 peer reviewed publications that address mesothelioma, [T. 21], and is the joint holder of a patent on the BAP1 gene as one that predisposes people to mesothelioma and other cancers [T. 23]. As Dr. van Zyl acknowledged, Dr. Testa helped discover the link between BAP1 and mesothelioma in 2011 [V. 12].

First, with respect to Defendant's request for full genomic testing of Ms. Cowger, although Dr. van Zyl admitted that not all germline mutations or variants are relevant to the development of mesothelioma, if allowed to conduct testing, he would interrogate all 3.4 billion bases of her

[1] Numbers in brackets preceded by "V." refer to pages of the *Frye* hearing rough draft transcript from December 9, 2020, whereas bracketed numbers preceded by "T." refer to pages from the December 10, 2020 rough draft transcript.

genome [V. 177-78, 182].[2] Dr. Testa explained that sequencing a person's whole genome "hasn't even been done in research, so *it goes way beyond the pale*." [T. 187 (emphasis added)]. He elaborated that even research studies in this field did not sequence the entire genome of subjects, even though they are seeking to uncover new relevant genes [T. 92].

In order to justify the request for full genomic sequencing, Dr. van Zyl testified that a number of gene mutations, such as Lynch syndrome [V. 107-08], Li-Fraumeni syndrome [V. 75-76], and tumorous sclerosis [V. 75], are related to mesothelioma. He cited to the OMIM database, run by Johns Hopkins University, and acknowledged that it is an authoritative source for details regarding various genetic syndromes [V. 278].

However, Dr. Testa explained that OMIM recognizes BAP1 tumor predisposition syndrome as the *only* inherited cancer syndrome that is "generally accepted to be related to mesothelioma." [T. 74]. The OMIM record for BAP1 syndrome lists mesothelioma as a related cancer [V. 279], but does *not* list mesothelioma as a cancer associated with Li-Fraumeni syndrome [V. 281-82], Lynch syndrome [V. 284], tuberous sclerosis [V. 285], or NF2 [V. 285]. Rather, the entry for NF2 reports on one case of a patient who developed malignant mesothelioma "after a long occupational exposure to asbestos." [V. 286].

Next, with respect to the assertion that BAP1, or other genetic mutations, can alone cause mesothelioma, Dr. van Zyl testified that Dr. Testa's 2011 article states that "BAP1 by itself can cause mesothelioma." [V. 206]. However, he admitted that this statement was merely an alternative hypothesis, [V. 208-09]. Moreover, he also acknowledged that all the individuals in the actual study with the BAP1 mutations were exposed to asbestos, and its actual conclusion was that "when

[2] Dr. van Zyl originally proposed to conduct the testing at his non-CLIA certified lab. However, during summation at the *Frye* hearing, Defendant subsequently agreed that, if allowed to conduct testing, it would have a board certified geneticist do so at a CLIA certified lab.

individuals with BAP1 mutations are exposed to asbestos, mesothelioma predominates." [V. 209].

Beyond that, Dr. Testa explained that in the study underlying this report, the two families studied (the "W" and "L" families), had germline BAP1 mutations, and all of the people who developed mesothelioma lived in houses with either crocidolite or chrysotile asbestos [T. 77]. Dr. van Zyl acknowledged that this was correct [V. 210, Pl.'s Ex. 5].

Furthermore, Dr. Testa explained that he has conducted mouse studies "with mutations exactly like" those families, and there was *no* statistically significant amount of mice that developed mesothelioma without asbestos exposure [T. 56]. Dr. Testa discussed two other studies in which mice had germline mutations but were not exposed to asbestos: one by Genentech, and one by the Anton Burns laboratory [T. 58]. Neither study showed a statistically significant number of mice developing mesothelioma [T. 58]. By contrast, other studies in which such mice were exposed to various doses of asbestos, significant numbers *did* develop mesothelioma [T. 59-60].

Dr. van Zyl testified that mouse studies are "at the core of functional genetics," [V. 88], and claimed they have shown mesothelioma can result from genetic mutations alone [V. 89]. However, he admitted that in the mouse model studies conducted in part by Dr. Testa, viruses were injected into mice to cause specific genetic mutations [V. 258], and that the mutations were somatic, not germline mutations [V. 258]. Moreover, Dr. Testa explained that "there's a big danger" in looking at studies where mice are used in this manner because they are very in-bred and "tend to be very homozygous at virtually every gene throughout their genome." [T. 81]. By contrast, humans are heterozygous "throughout the genome." [T. 81]. The result is that "what happens in the mouse may be very different from what happens in the human." [T. 80-81].

Dr. van Zyl testified that BAP1 can act in a haploinsufficient manner, meaning that deletion of one allele – a germline, or inherited, mutation that is pathogenic – is sufficient to cause cancer

[V. 58-59]. However, Dr. Testa explained that "this idea of haploinsufficiency" is not widely accepted in the scientific community [T. 81].

Dr. van Zyl failed to produce a single peer-reviewed study that asserted BAP1 mutations can act in a haploinsufficient manner to cause mesothelioma. Rather, he pointed to the Berger study, published in 2011 *before* the BAP1 gene was discovered, and which Dr. Testa explained "has nothing to do with mesothelioma." [T. 80]. Further, the other articles on which he relied show that, in individuals with BAP1 germline mutations, subsequent somatic mutations, such as those caused by asbestos, are required for the development of a malignant mesothelioma. For example, Dr. van Zyl cited to:

- Various studies by Dr. Carbone. However, Dr. Testa explained that Dr. Carbone "was using asbestos with BAP-1 to get the cancer. He's never done a study to show that BAP-1 alone, a single mutation, causes the cancer." [T. 85].
- A 2018 Panou article. However, some subjects of the study had already died, and whether they had been exposed to asbestos came from medical records, as opposed to actual reporting [V. 267]. Moreover, the article noted that even self-reporting of such exposure "may limit accuracy," [V. 267], and Dr. Testa noted it can "limit accuracy tremendously." [T. 196]. It also refers to BAP1 as a "mesothelioma *susceptibility* gene," [V. 266] as opposed to a cause of the disease.
- A 2020 Panou review paper. Yet Dr. van Zyl agreed that the article, a review of 81 published articles [V. 265, 269, 270], states that the "prevalent spectrum of germline mutation in malignant mesothelioma is not fully determined and the genetic role in causation malignant mesothelioma de novo or enhancing asbestos carcinogenicity is not yet to be ascertained." [V. 270, Pl.'s Ex. I]. Moreover, he acknowledged that the paper further states that "BAP1 genetic alterations appear typically with one mutant allele in all cells while the somatic inactivation of the second allele results in tumorigenesis." [V. 272, Pl.'s Ex. I]. Finally, he acknowledged that in discussing "genetic polymorphism associated with malignant mesothelioma," the paper noted that there "is no compelling evidence in the two studies that the identified S and Ps can cause mesothelioma in the absence of asbestos exposure." [V. 272].
- A 2017 publication from Dr. Betti. Yet Dr. van Zyl agreed that Dr. Betti stated that "asbestos [is] required to develop mesothelioma, even in people with germline mutations." [V. 236-37, Pl.'s Ex. 7]. Additionally, Dr. Testa explained that a study published in 2018 by Dr. Betti reached the "ultimate conclusion was that people who have these germline mutations tend to be in a group that has lower exposure to asbestos than people who don't have any germline mutations." [T. 83].

- A 2019 Bertelsen paper [V. 262]. However, Dr. van Zyl agreed that the article states that "BAP1 is the best study predisposition gene for mesothelioma supported by both clinical findings and mass models." [V. 263]. He also agreed that the paper states that the "gene environment interaction where the genetic background increases the sensitivity of the patient to the carcinogenic effect of asbestos." [V. 263-64].
- A 2020 Badhai article. Dr. van Zyl claimed the study demonstrated that "BAP1 acts as a haploinsufficient tumor." [V. 90]. Nonetheless, he agreed that the article states that "BAP1 [deletion] alone does not cause malignant mesothelioma, but dramatically accelerates malignant mesothelial development when combined with NF2 and CDKN2AB hereinafter BNC disruption." [V. 264].

II. CONCLUSIONS OF LAW

Qualitex Company has maintained that it is entitled to obtain a blood sample from Cynthia B. Cowger for the purpose of genomic testing, which it claims would produce relevant evidence because it intends to offer the expert opinion at trial that inherited genetic mutations may alone cause mesothelioma. Plaintiff has argued that testing should be precluded,[3] as Defendant's theory is novel, and not generally accepted in the relevant scientific community. The Court previously held that this theory is "new" or "novel," and ordered a *Frye* hearing to determine whether it is sufficiently established so as to have gained general acceptance in its field. Ill. R. Evid. 702.

In Illinois, the "admission of expert testimony is governed by the standard first expressed in *Frye v. United States*, 293 F. 1013 (D.C.Cir.1923)," *In re Commitment of Simons*, 213 Ill. 2d 523, 529 (2004), and is "admissible at trial only if the methodology or scientific principle upon which the opinion is based is sufficiently established to have gained general acceptance in the particular field in which it belongs." *Id*. (internal quotations removed). This has been codified within the Illinois Rules of Evidence. *See* Ill. R. Evid. 702. "General acceptance" does not mean "universal acceptance," but it must be "reasonably relied upon by experts in the relevant field." *Id*.

[3] Other than testing Ms. Cowger for a BAP1 genetic mutation, so no order to compel for such testing is necessary. Plaintiff has consented to this testing without waiving or abandoning any opposition to the admissibility of defendant's proposed expert opinion that a genetic mutation alone, absent asbestos exposure, can cause mesothelioma.

at 530. Moreover, it must be "something more than a scientific principle, technique or methodology that is experimental or of dubious validity." *People v. Beck*, 2017 IL App (4th) 160654, ¶ 106 (4th Dist. 2017) (quoting *Detention of New*, 2014 IL 116306, ¶ 39 [2014]).

At the *Frye* hearing, the burden was on Qualitex, as the proponent of the scientific theory, to demonstrate general acceptance. *People v. McKown*, 236 Ill. 2d 278, 294 (2010). This Court finds that Qualitex failed to fulfill this burden. Dr. van Zyl may be a geneticist, but his particular background and expertise is not within the particular field of cancer-related genetics, whereas Dr. Testa has specifically worked within that field for decades, and has published many peer reviewed papers specific to that area during that time.

The Johns Hopkins OMIM database, recognized by both Dr. van Zyl and Dr. Testa as authoritative during the hearing is recognized as authoritative by this Court. *See Stapleton ex rel. Clark v. Moore*, 403 Ill. App. (3d) 147, 159 (2010). As Dr. Testa testified, and the OMIM states, the BAP1 tumor predisposition syndrome is the sole inherited cancer syndrome generally accepted to be related to mesothelioma. Although Dr. van Zyl points to various mouse studies to claim mesothelioma can occur without asbestos exposure, Dr. Testa – who has himself conducted and published such studies, and whose studies Dr. van Zyl in part relies upon – testified unequivocally that they do not prove that the disease can develop in humans in this manner. Finally, both witnesses discussed the 2020 article authored in part by Dr. Panou, a review of many published articles in the relevant field, which this Court also recognizes as authoritative, and which this Court finds does not reflect agreement in the field that genetic mutations alone may cause mesothelioma.

Accordingly, this Court finds that Qualitex has failed to demonstrate that its proposed expert opinion has "gained general acceptance in the particular field in which it belongs." *See* Ill. R. Evid. 702.

EXHIBIT A

IT IS HEREBY ORDERED:

Based on the foregoing, Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the Purpose of Genetic Testing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a), is DENIED. Plaintiff has agreed that Ms. Cowger will submit to testing exclusively for a BAP1 genetic mutation, so no order to compel such test is necessary.

DATE:

ENTERED:

_____

Hon. Clare E. McWilliams

008290.0202 #60168

IN THE CIRCUIT COURT OF COOK COUNTY, ILLINOIS
COUNTY DEPARTMENT - LAW DIVISION

CYNTHIA COWGER, Plaintiff, v. QUALITEX COMPANY, Defendants.	 No. 18 L 12099 IN RE: ASBESTOS LITIGATION

MEMORANDUM OPINION AND ORDER ON THE ADMISSIBILITY OF "THE OPINION THAT INHERITED GENETIC MUTATIONS MAY ALONE CAUSE MESOTHELIOMA, ABSENT ASBESTOS EXPOSURE" PURSUANT TO EVIDENCE RULE 702

This cause comes before the Court following the conclusion of a *Frye* hearing. The Court, after considering the written submissions from the parties, arguments of counsel, numerous scientific publications, technical writings, and the testimony of Dr. Len van Zyl and Dr. Joseph Testa regarding the role of genetic defects in the causation of cancer with and without exposure to environmental toxicants generally and more specifically, the issue of whether it is now generally accepted within the relevant scientific community the theory that "inherited genetic mutations may alone cause mesothelioma, absent asbestos exposure," and otherwise being fully advised in the premises, the Court finds as follows:

INTRODUCTION

There is no dispute that the methodology of genetic testing is generally accepted for purposes of investigating the cause of cancer, as many cancers are inherited and some are caused by multiple genetic mutations[1]. As noted in Qualitex Company's ("Qualitex") Motion to Compel

[1] *See Ass'n for Molecular Pathology v. Myriad Genetics, Inc.*, 569 U.S. 576, 576 (2013); *Village of Buffalo Grove v. Board of Trustees of Buffalo Grove Firefighters' Pension Fund*, 2020 IL App (2d) 190171; J*ohnson & Johnson Talcum Powder Cases*, 37 Cal. App. 5th 292, 309 (2019) (review denied Oct. 23, 2019); *Rhyne v. United States*

A Blood Examination, "[s]everal courts around the country have granted similar motions to compel genetic testing, including in asbestos cases." *See* Qualitex Mtn to Compel, Exhibits E, F, G. However, Plaintiff's Opposition pointed to "conflicting literature" on this topic and indicated that this Court should order a *Frye* hearing. "[I]n the absence of any decisions from any jurisdiction, including the State of Illinois, reporting the results of a Frye hearing on this particular subject…," this Court ordered a *Frye* hearing on what Plaintiff deems to be simply a "theory" that "inherited genetic mutations may alone cause mesothelioma, absent asbestos exposure." *See* Order dated August 4, 2020. In other words, this *Frye* hearing was to determine whether the scientific basis for conducting the genetic testing is "generally accepted in the scientific community" such that it is supported by the scientific literature and "reasonably relied upon by experts in the relevant field."

Defendant Qualitex's position is that multiple genetic mutations, including mutations in single or multiple tumor suppression genes ("TSG(s)") can cause mesothelioma outside of asbestos exposure. Despite conceding that this position is supported by the peer-reviewed scientific literature, Plaintiff maintains that literature is unreliable such that it should not be recognized by this Court.

STANDARD FOR ADMISSION OF SCIENTIFIC EVIDENCE

Illinois follows the 'general acceptance' standard established in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923), which states that "scientific evidence is only admissible at trial if the methodology or scientific principle upon which the opinion is based is sufficiently established to have gained general acceptance in the particular field in which it belongs." *Donaldson v. Cent. Ill. Pub. Serv. Co.*, 199 Ill. 2d 63, 76-77 (2002). When considering whether there is general

Steel Corporation, 2020 WL 4231585 (W.D.N.C., Jul. 23, 2020); *Lofgren v. Motorola*, 1998 WL 299925 (Ariz. Super. Ct. June 1, 1998); *Guzman v. Exxon Mobil*, Jefferson Parish, Louisiana Case No. 693-606

acceptance of a methodology, a court does not weigh the credibility of the witness or question the final conclusion. *Id.* at 77, 81; *Noakes v. Nat'l R.R. Passenger Corp.*, 363 Ill. App. 3d 851, 858 (1st Dist. 2006). Rather, it must focus on the underlying methodology used to generate the conclusion. *Donaldson*, 199 Ill. 2d at 77. Importantly, the Court's role is not to act as a gatekeeper but is limited to considering whether a new or novel scientific technique has gained general acceptance. *Id.* at 81-82.

"[G]eneral acceptance" does not mean universal acceptance and does not require that the methodology in question be accepted by unanimity, consensus, or even by a majority of experts." *In re Commitment of Simons*, 213 Ill. 2d 523, 530 (2004). It is sufficient that the underlying method used to generate an expert's opinion is reasonably relied upon by experts in the relevant field, *i.e.* "those with a scientific background and training sufficient to allow them to comprehend and understand [the methodology] and form a judgment about it." *People v. Luna*, 2013 IL App (1st) 072253, ¶ 75. Testimony by an expert witness that a technique is accepted by a scientific community is sufficient to establish general acceptance. See, e.g., *Ruffin v. Boler*, 384 Ill. App. 3d 7, 24 (2008). "[T]he mere existence of a dispute" within that community "does not preclude a finding that the procedure is generally accepted." *Donaldson*, 199 Ill.2d at 78. Similarly, newness alone is not a bar to admissibility "for every scientific technique that is eventually accepted must have its first day in court." *Mitchell v. Palos Community Hosp.*, 317 Ill. App. 3d 754, 762 (2000).

FRYE HEARING ANALYSIS

Genetic Mutations and Cancer

There is no dispute that it has been well accepted for decades that genetic mutations are responsible for causing cancer, including mesothelioma. *Frye* Hearing: van Zyl 39; Testa 116. Mutations can be hereditary, randomly generated by internal cellular processes or caused by environmental factors. Approximately 5% to 10% of all cancers are hereditary. National Cancer

Institute at the National Institutes of Health, "The Genetics of Cancer," (updated October 12, 2017)[2]; *see also Frye* Hearing: van Zyl 61; Testa 62.

There is a debate in the literature about the percentage of the remaining cancers that are caused by random endogenous mutations, environmental factors, or a combination of both. *See* Qualitex Exhibit 12. However, it is accepted that the spontaneous accumulation of somatic genetic mutations (i.e. endogenous mutations), of which there are millions or more in one's body every day, can cause cancer regardless of exposure to any toxicant. *Frye* Hearing: van Zyl 39; Testa 62. Further, it has been reported that between 20% and 66% of human cancers are caused by endogenous mutations. *See* Qualitex Exhibit 12.

Genetic Mutations and Mesothelioma

Dr. van Zyl and Dr. Testa both agree that asbestos does not directly cause mesothelioma; rather, asbestos causes an increase in reactive oxygen species (ROS) leading to somatic (acquired) genetic mutations that give rise to mesothelioma. *Frye* Hearing: van Zyl 91-92; Testa 43-44. In addition, it is now generally accepted in the literature that not all mesotheliomas are caused by somatic genetic mutations related to asbestos exposure. *See infra* reference to Exhibit D of Qualitex's Mtn to Compel at 212 and "Group Exhibit B" to Qualitex's Reply; *see also Frye* Hearing: Testa 141-42, 198 (agreeing that its "probably about right" that 20-30% of pleural mesothelioma tumors occur idiopathically and acknowledging that radiation may cause mesothelioma). The literature shows that it is now generally accepted that irrespective of exposure to a toxicant and of inherited mutations, some mesotheliomas may occur because of the inevitable accumulation of spontaneous endogenous mutations. *See* Qualitex Exhibit 11. Dr. Testa admitted

[2] https://www.cancer.gov/about-cancer/causes-prevention/genetics#:~:text=different%20genetic%20changes.-,Hereditary%20Cancer%20Syndromes,individuals%20to%20developing%20certain%20cancers

that he cannot point to any studies that say 100% of mesotheliomas involve an environmental cause. *Frye* Hearing: Testa 141.

The peer-reviewed studies show that in the absence of asbestos exposure, germline mutations drive mesothelioma tumor growth. *See* Qualitex Exhibits 4, 18, 20, 27, 28, 31, 48, 54, 61, 74. Peer reviewed literature shows that 12% of mesotheliomas are causally related to germline mutations in a TSG (tumor suppressor gene), and of that 12%, asbestos exposure is rarely reported, even after "[s]pecific questionnaires were developed to capture exposure more reliably." Qualitex Exhibit 11. These statistics were reported in a peer-reviewed paper published in "CA: A Cancer Journal for Clinicians," one of the oldest and most prestigious peer-reviewed journals in oncology with the highest impact factor of all ISI-ranked journals at 292.278. *See* American Cancer Society Journals.[3] Consistent with those findings, assuming no exposure to asbestos or any other environmental toxicant related to mesothelioma, Dr. Testa concedes that the cause of a person's mesothelioma could be genetic. *Frye* Hearing: Testa 140-141. In other words, someone with a germline mutation in TSG that drives mesothelioma tumorigenesis can develop the disease without asbestos exposure.

Plaintiff argues Qualitex's position is that a "single" mutation (meaning a single hit to one allele) can cause mesothelioma. As noted in Qualitex's Reply, this misconstrues Qualitex's argument and the evidence presented at the *Frye* hearing. As Dr. van Zyl explained, the peer-reviewed literature does not state that a single hit to one allele of a related germline TSG causes mesothelioma; instead, the literature demonstrates that there are other genetic pathways to additional mesothelioma-causing mutations that do not involve asbestos

[3] https://acsjournals.onlinelibrary.wiley.com/journal/15424863; https://clarivate.com/webofsciencegroup/essays/impact-factor/#:~:text=The%20annual%20JCR%20impact%20factor,years%20(see%20Figure%201).

exposure. Dr. Testa agreed that he could not deny this principle is supported in many peer-reviewed articles. *Frye* Hearing: Testa 161-62.

Further, Dr. Testa admitted during his *Frye* hearing testimony that multiple genes have been found repeatedly to be related to mesothelioma tumorigenesis. In fact, his recently published an article acknowledges the existence of two other TSG tumorigenic drivers in mesothelioma and also notes the importance of next generation sequencing in identifying "other putative or known tumor suppressor genes ("TSG(s))." *Frye* Hearing: Testa 142-43; Qualitex Exhibit Q.[4]

More specifically, as demonstrated at the *Frye* hearing, TSGs are involved in the development of both inherited and non-inherited forms of cancer. These genes assist in the repair of DNA mistakes and initiate programmed cell death. People born with mutations in certain TSGs repair somatic mutations less efficiently. This causes somatic mutations to accumulate over time, increasing the risk of cancer. *Frye* Hearing: Testa 118. *BAP1* is a TSG commonly associated with mesothelioma pathogenesis. *See* Qualitex Exhibit 11. But it is not the only one. Many other genes and pathways, including additional TSGs, have been associated with mesothelioma pathogenesis in the literature and accepted as such by the scientific community.[5] *Frye* Hearing: van Zyl 83-84, 86, 89-91; Testa 142-43. A 2020 article titled "Inherited Genetic Mutations and Polymorphisms in Malignant Mesothelioma: A Comprehensive Review" compiled a list of 39 genes (including TSGs), as well as other single nucleotide polymorphisms and genes associated with mesothelioma. *See* Qualitex Exhibit 53, Tables 1 and 2, and text. Further, in November 2020, Dr. Testa and colleagues identified another TSG involved in

[4] Somatic Epigenetic Silencing of RIPK3 Inactivates Necroptosis and Contributes to Chemoresistance in Malignant Mesothelioma, downloaded from clicancerres.aacrjournals.org on November 20, 2020, doi:10.1158/1078-0432.CCR-18-3683.

[5] These include the genes: *CDKN2A*, *P53*, *NF2*, *TP53*, *K-RAS*, *PTEN*, *PIK3CA*, *VHL*, *WT1*, *BRCA1*, *BRCA2*, *ATM*, *CHEK2*, *MSH6*, *TMEM127*, *SDHA*, and *MRE11A*. *See* Qualitex Exhibits 4, 7, 8, 16, 18, 20, 27, 28, 31, 48, 53, 54, 55, 57, 61, 65, 70, 73, 74, L, M, N, O, and P.

mesothelioma, the *RIPK3* gene that is silenced via epigenetic mechanism instead of mutation. *See* Qualitex Exhibit Q.

The scientific literature and both Drs. Van Zyl and Testa agree that there are currently two theories that model for tumorigenesis: the classic two- hit theory and haploinsufficiency. In the classic two-hit model of tumorigenesis, both alleles[6] of a TSG must be inactivated to trigger tumor formation. *See* Qualitex Exhibit 6. In the haploinsufficiency model of tumorigenesis, one allele is inactivated or deleted and the remaining functional copy is not adequate to preserve normal function, which contributes to tumor growth. *See id*. The literature reflects that numerous TSG mutations act in a haploinsufficient manner, including *BAP1*, *CDKN2A*, *NF2*, *TP53* and *BRCA1/2*. *See Frye* Hearing: van Zyl 92; ClinGen Dosage Sensitivity Page, dosage.clinicalgenome.org, last visited December 17, 2020.

In particular, the parties agree *BAP1* mutations are implicated in the development of mesothelioma, but they disagree with respect to whether *BAP1* acts in a haploinsufficient manner. Although Dr. Testa disagrees, the weight of the peer-reviewed literature indicates that the scientific principle that *BAP1* acts in such a manner has gained general acceptance in the relevant scientific community. *See* Qualitex Exhibits 4, 9, 13, 52, 56, 57, 63. Thus, for purposes of a *Frye* analysis, it is generally accepted within the scientific community that one mutated germline copy of the *BAP1* gene (or another TSG that is haploinsufficient) is sufficient to induce cancer. The scientific literature establishes a single mutation in a haploinsufficient TSG is by definition pathogenic and impairs a person's ability to fix somatic mutations, whether environmental or endogenous, therefore allowing the mutations to accumulate and become tumorigenic. Qualitex Exhibit 6.

[6] An individual inherits two alleles for each gene, one from each parent.

As noted above, it is generally accepted and reflected in the scientific literature that genetic mutations can give rise to mesothelioma absent asbestos exposure. Dr. Testa's criticisms of the peer-reviewed literature relied on by Dr. van Zyl are abstract and conjectural and represent Dr. Testa's opinion regarding the conclusions of other scientists and authors and are not representative of the views of experts throughout the community.[7] This may be relevant to the weight to be given to the opinions based upon this theory, but not its admissibility under *Frye*. *Donaldson*, 199 Ill.2d at 81 (noting that "[q]uestions concerning underlying data, and an expert's application of generally accepted techniques, go to the weight of the evidence, rather than its admissibility"). The relevant scientific community includes Dr. van Zyl and the authors of the peer-reviewed literature Qualitex cited, which is a substantial subset of experts specializing in genetics and cancer, including mesothelioma.

PRIVACY

The Court recognizes that Plaintiff has a privacy interest in her genetic information. The Court also recognizes that under Illinois Supreme Court Rule 215, this Court can order physical examinations, including blood samples for genetic testing, as an aid to discovery when a plaintiff's medical condition or the cause thereof is at issue. Under these circumstances, genome sequencing may provide compelling evidence regarding the causation of Plaintiff's mesothelioma. Because privacy concerns have always been a part of personal injury litigation, courts have found a balancing of interests may be appropriate.[5] The Court finds that these privacy concerns can be protected by limiting the testing to certain genes related to the

[7] *See* Order on Admissibility of Probabilistic Genotyping Evidence Pursuant to Evidence Rule 702, entered in *People v. Morgan, et al.*, Cook County Circuit Court, Criminal Division, 16CR08715 (July 19, 2019) (in finding the methodology generally accepted in the relevant scientific community, the Court noted the defense's evidence did not refute general acceptance and the criticisms of the methodology did not show major scientific dispute).

development of cancers, including those genes/pathways related to mesothelioma causation and through the entry of a protective order.

CONCLUSION

The Court finds that the use of genetic testing to determine the causes of cancer, including mesothelioma, is generally accepted in the relevant scientific community. The Court further finds that there is general acceptance as that phrase is used in the *Frye* analysis in Illinois, for the theory that genetic defects (in either genes and/or pathways) cause mesothelioma in the absence of asbestos exposure. Thus, genetic testing for defects in genes/pathways related to the development of cancers in general, and more specifically in mesothelioma, is generally accepted and admissible evidence under Illinois Rule of Evidence 702.

Accordingly, Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the Purpose of Genetic Testing using whole genome sequencing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a), is **GRANTED WITH A PROTECTIVE ORDER** to be agreed to and submitted by the parties.

FURTHER, IT IS HEREBY ORDERED THAT Plaintiff shall make herself available within twenty-eight (28) days to provide a blood sample sufficient to be used for whole genome sequencing at a Tempus, a CLIA certified lab in Chicago.

(Alternatively:)

Accordingly, Defendant Qualitex Company's Motion to Compel a Blood Examination of Plaintiff Cynthia B. Cowger for the Purpose of Genetic Testing using whole genome sequencing, pursuant to Illinois Supreme Court Rules 201(b) and 215(a), is **GRANTED IN PART** with respect to sequencing a limited panel of genes **WITH A PROTECTIVE ORDER** to be agreed to and submitted by the parties and **DENIED IN PART** with respect to Qualitex's request for whole genome sequencing.

FURTHER, IT IS HEREBY ORDERED THAT Plaintiff shall make herself available within twenty-eight (28) days to provide a blood sample sufficient to be used for the Tempus xT panel, which is a 648 cancer associated genes panel at Tempus, a CLIA certified lab in Chicago.