IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEBRASKA

JAMES LANGRELL,

Plaintiff,

vs.

UNION PACIFIC RAILROAD COMPANY,

Defendant.

8:18CV57

MEMORANDUM AND ORDER

This matter is before the Court on defendant Union Pacific Railroad Company's ("U.P." or "the Railroad") motion for summary judgment, Filing No. 38, and motion in limine, Filing No. 41. This is an action under the Federal Employers' Liability Act ("FELA"), 45 U.S.C. § 51 *et seq*. The plaintiff worked as a brakeman and conductor at U.P. for more than 20 years. He alleges that while he was employed at U.P., he was negligently exposed to number of carcinogens that contributed to his tonsil cancer.

I. BACKGROUND

U.P.'s motion for summary judgment is based on the contention that summary judgment is warranted if the Court excludes the testimony of either of the plaintiff's expert witnesses. It argues that without the expert testimony, the plaintiff will be unable to establish medical causation and/or unable to prove that Langrell was exposed to unreasonable amounts of any allegedly toxic substance while employed by the Railroad.

U.P. moves in limine to exclude the testimony of Joseph Landolph, Ph.D., and Dr. Robert Gale, M.D., Ph.D., under *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993). U.P. does not challenge the experts' qualifications. It contends, however, that

neither Dr. Gale's nor Dr. Landolph's methodologies are grounded in reliable science or fact. It also contends that the experts' opinions lack foundation, arguing that neither expert has knowledge of Langrell's worksite, equipment, or job tasks at the Railroad; neither interviewed or reviewed documents such as air monitoring records; and both relied on the few facts summarized by plaintiff's counsel on a one-page document. Further, the Railroad contends that neither expert calculated the level of Langrell's exposure. It argues that without any showing of the amount of exposure, it is scientifically impossible to "rule in" diesel exhaust, creosote, formaldehyde, PAH's or benzene as potential causes of Langrell's cancer.

The Railroad also challenges Dr. Landolph's use of calculations derived from California regulations governing toxic air districts that are not applicable to the facts of this case. Also, U.P. contends Dr. Gale fails to plausibly rule out other possible sole causes of Langrell's tonsil cancer such as his history of HPV virus infection, smoking and drinking. It further argues Dr. Gale did not reliably perform a differential etiology analysis.

In support of its motion, U.P. it submits the declarations of its own experts. Filing No. 40-8, Declaration of Dr. Christopher M. Long ("Dr. Long Decl."); Filing No. 40-9, Declaration of Dr. Paolo Boffeta ("Dr. Boffeta Decl."). Both experts refute the opinions and methods of the plaintiff's experts. *Id*.

II. FACTS

For purposes of the motion for summary judgment, the parties agree to the following facts. The plaintiff, James Langrell, began to work for the St. Louis Southwestern Railroad, which was nicknamed the Cotton Belt Railroad, in 1970. He left

that railroad in 1988. Nine years later, in 1995, Langrell began working for the Southern Pacific Railroad, which became the Union Pacific Railroad. Langrell was injured two years later, in 1997, and never worked for a railroad again. Langrell developed squamous cell carcinoma of the left tonsil in 2014. The DNA of a protein called P16 was found within Langrell's tonsil tumor. Filing No. 39, Defendant's Brief at 3-5, Filing No. 53, Plaintiff's Brief at 2.

Langrell identified Dr. Gale as a medical expert "who will testify as to general and specific causation of the Plaintiff's injuries." Filing No. 40-10, Ex. 10, Plaintiff's Expert Disclosures at 1. Dr. Gale opines: "Based on the data I reviewed and considered, I opine it is more likely than not to a reasonable degree of medical probability the occupational exposures of Mr. James Langrell to diesel engine exhaust particles, benzene, formaldehyde and creosote were a cause of his developing tonsil cancer." Filing No. 40-2, Ex. 2, Dr. Gale Expert Report at 4.

Plaintiff identified Dr. Landolph as a liability expert to testify as to "notice and foreseeability of the hazards associated with the Plaintiff's crafts, including exposure to carcinogens and the railroad industry's knowledge of the hazards of exposure to toxins" and to the nature of Langrell's exposures to various toxins present on the railroad. Filing No. 40-10, Ex. 10, Expert Disclosures at 1. The plaintiff disputes U.P.'s other purportedly undisputed statements of fact. Filing No. 53, Plaintiff's Brief at 3-4.

The record shows that Dr. Joseph Landolph has a Ph.D. in Physical Chemistry and Biophysical Chemistry from the University of California at Berkeley. Filing No. 54-1, Joseph Landolph, Ph.D., Curriculum Vitae. He has had postdoctoral training at the University of Southern California/Norris Comprehensive Cancer Center, Keck School of

Medicine with a specialization in Molecular and Cell Biology of Polycyclic Aromatic Hydrocarbon-Induced Morphological and Neoplastic Cell Transformation, Chemical Mutagenesis, and Chemical Carcinogenesis. *Id*. He is an Assistant/Associate Professor of Molecular Microbiology and Immunology, Pathology, and Molecular Pharmacology and Toxicology/Molecular Pharmacology and Pharmaceutical Sciences, at the Keck School of Medicine and School of Pharmacy, University of Southern California. *Id*. He offered expert opinions covering two main topics: (1) whether the chemical agents to which Mr. Langrell was exposed were capable of causing and/or contributing to the development of cancer, or specifically, tonsillar squamous cell carcinoma; and (2) the excess cancer risk for brakemen/conductors with a work duration exposure to diesel particulate matter of over twenty years. Filing No. 54-2, Dr. Landolph Report at 37-38.

Dr. Landolph based his opinion on conventional methodologies of science, review of scientific studies, a review of Langrell's medical records, and documentation outlining Mr. Langrell's work history and his cumulative exposures prepared by plaintiff's counsel, as well as his own experience in the fields of genotoxicity, mutagenesis, chemically induced morphological and neoplastic cell transformation, and chemical carcinogenesis, and his own work from his laboratory and published studies from other laboratories. *Id*. at 17-19. Specifically, he relied on several scientific studies with data on railroad workers and exposure to diesel exhaust. *See id*. at 38-55. He also relies on materials from the International Agency for the Research on Cancer ("IARC") which performs studies regarding diesel exposure and reviews diesel exhaust exposure among railroad workers and on worker inhalation rates identified by the California

Environmental Protection Agency. *Id.* at 24, 33-36; *see also* Filing No. 54-6, Deposition of Robert Gale, M.D. ("Dr. Gale Dep.") at 122, 159. In his report, Dr. Landolph states:

> It is my opion (sic) that the diesel particulate matter is capable of causing and/or contributing to the development of squamous cell oropharyngeal cancer (subsumed within the broader category of head and cancer), an anatomic area that includes the tonsillar fossa. It is my opinion that when Mr. Langrell inhaled diesel exhaust, this allowed the diesel exhaust and its benzene, BaP, other PAHs, and TCDD (dioxin) to penetrate to his oral cavity, nasal cavity, pharyngeal area, and respiratory system, and to cause the induction of the moderately differentiated squamous cell carcinoma of the tonsillar fossa that he developed. Inhalation of TCDD from diesel exhaust by Mr. Langrell also likely contributed to his development of the moderately differentiated squamous cell carcinoma of the tonsillar fossa that Mr. James Langrell developed, because dioxin is a carcinogen and tumor promoter at many organ sites in humans.

Filing No. 54-2, Dr. Landolph Expert Report at 38. In his deposition, Dr. Landolph testified that when considering dose-response, there is no threshold of exposure. Filing No. 54-3, Deposition of Joseph Landolph, Ph. D. ("Dr. Landolph Dep") at 189-91. He also testified that epidemiological studies support that position, as well as regulatory agencies. *Id.* at 191. He calculated Langrell's excess cancer risk by analyzing data from the State of California, based on worker inhalation rates. *See* Filing No. 54-2, Dr. Landolph Report at 33-36. Dr. Landolph stated in his deposition that he "made the calculation of how much respirable elemental carbon, REC, was in the air that he was

exposed to using the OEHHA tables and then took that and made a cancer risk calculation, and it shows a significantly enhanced yield of cancer risk for Mr. Langrell." Filing No. 54-3, Ex. 3, Landolph Dep. at 172-73.

Dr. Robert Gale has an M.D. from the State University of New York and had postgraduate medical training focused on internal medicine, hematology and oncology, at the University of California, Los Angeles ("UCLA"). Filing No. 54-4, Robert Gale, M.D., Ph.D.'s Curriculum Vitae. He also has a Ph.D. in microbiology and immunology from UCLA, focusing on cancer immunology. *Id.* Dr. Gale's studies at UCLA were funded by the U.S. National Institutes of Health ("NIH") and the Leukemia Society of America. *Id.* Dr. Gale is presently the Executive Director of Clinical Research, Hematology and Oncology at Celgene Corporation. *Id.*

Dr. Gale based his opinion on a review of epidemiological studies and materials and medical literature, the plaintiff's medical records, Dr. Landolph's industrial hygiene expert report, and a review the plaintiff's work history and exposures provided to him by the plaintiff's counsel. Filing No. 54-6, Dr. Gale Dep at 78-79. Additionally, he spoke to Dr. Landolph about Langrell's history of toxic exposure while employed at U.P. *Id.* at 81-82. Dr. Gale analyzed whether exposures from diesel engine exhaust particles, benzene, formaldehyde, and creosote could be a cause of cancer in humans, and, more specifically, whether it can be a cause of squamous cell tonsil cancer. Filing No. 54-5, Dr. Gale Report at 7-8. He then considered whether the exposures reported by Langrell were sufficient to contribute to Langrell's tonsillar squamous cell carcinoma. *Id.* at 8. Dr. Gale stated that the rarity of tonsillar squamous cell carcinoma makes it unlikely or impossible for epidemiological studies to be performed and directly link exposure to

diesel exhaust particulates to tonsil cancer, but he concluded that there is there is strong evidence that the "exposure to the compounds and chemicals contained in diesel engine exhaust particulates and other compounds and chemicals . . . must be a potential cause of squamous cell tonsil cancer," based on what is known about diesel exhaust particulates and the development of cancer in other organs and on what is known about tobacco smoke and tonsillar cancer. Filing No. 54-5, Ex. 5, Dr. Gale Expert Report at 8-9.

He testified he used a Bayesian approach,[1] allowing him to "consider interdependence of individual probabilities" and to render an opinion as to "whether the weight of the evidence indicates it is more likely than not to a reasonable degree of medical probability that exposure to the carcinogens discussed was a cause of tonsil cancer in Mr. Langrell." Filing No. 54-6, Dr. Gale Dep. at 179; Filing No. 54-5, Dr. Gale Report at 1. He also testified he used the Bradford Hill criteria[2] as a starting point and applied the EPA's 2005 documents on Guidelines for Cancer Risk Assessment. *Id.* at 104. Dr. Gale stated, "I followed the guidance in the reference manual on scientific evidence from the Federal Judicial Center" and that "my opinion is based on Bayesian

[1] "Bayesian" is defined as "being, relating to, or involving statistical methods that assign probabilities or distributions to events (such as rain tomorrow) or parameters (such as a population mean) based on experience or best guesses before experimentation and data collection and that apply Bayes' theorem to revise the probabilities and distributions after obtaining experimental data." *See* "Bayesian." Merriam-Webster.com Dictionary, Merriam-Webster, https://www.merriam-webster.com/dictionary/Bayesian. Accessed 27 May. 2020.

[2] The Federal Judicial Center ("FJC") Reference Manual sets out the "Bradford Hill" factors that epidemiologists consider in assessing general causation. FJC, Reference Manual on Scientific Evidence ("Reference Manual") at 375-76 (2d ed. 2000); *see also King v. Burlington N. Santa Fe Ry Co.,* 762 N.W.2d 24, 40-41 (Neb. 2009). The factors include (1) temporal relationship, (2) strength of the association, (3) dose-response relationship, (4) replication of the findings, (5) biological plausibility, (6) consideration of alternative explanations, (7) cessation of exposure, (8) specificity of the association, and (9) consistency with other knowledge. *See* Reference Manual at 375-76. The Reference Manual explains that one or more causation factors may be absent even when a true causal relationship exists. *Id.* at 376.

probabilities, which consider interdependence of individual probabilities." *Id*. at 178-79. The record shows Dr. Gale considered Langrell's family history, smoking and alcohol history, other diseases and exposures, oral hygiene, and the presence of a protein considered a biomarker of HPV-16 infection. Filing No. 54-5, Dr. Gale Report at 6-7; Filing No. 54-6, Dr. Gale Dep. at 160.

III. LAW

A. Summary Judgment

Summary judgment is appropriate when, viewing the facts and inferences in the light most favorable to the nonmoving party, "the pleadings, the discovery and disclosure materials on file, and any affidavits show that there is no genuine issue as to any material fact and that the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). The plain language of Rule 56(c) mandates the entry of summary judgment, after adequate time for discovery and upon motion, against a party who fails to make a showing sufficient to establish the existence of an element essential to that party's case, and on which that party will bear the burden of proof at trial. *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986).

"The movant 'bears the initial responsibility of informing the district court of the basis for its motion, and must identify 'those portions of [the record] . . . which it believes demonstrate the absence of a genuine issue of material fact.'" *Torgerson v. City of Rochester*, 643 F.3d 1031, 1042, (8th Cir. 2011) (*en banc*) (quoting *Celotex*, 477 U.S. at 323). If the movant does so, "the nonmovant must respond by submitting evidentiary materials that set out 'specific facts showing that there is a genuine issue for trial.'" *Id*. (quoting *Celotex*, 477 U.S. at 324

The evidence must be viewed in the light most favorable to the nonmoving party, giving the nonmoving party the benefit of all reasonable inferences. *Kenney v. Swift Transp., Inc.*, 347 F.3d 1041, 1044 (8th Cir. 2003). If "reasonable minds could differ as to the import of the evidence," summary judgment should not be granted. *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 251 (1986). "In ruling on a motion for summary judgment, a court must not weigh evidence or make credibility determinations." *Id.* "Where the unresolved issues are primarily legal rather than factual, summary judgment is particularly appropriate." *Koehn v. Indian Hills Cmty. Coll.*, 371 F.3d 394, 396 (8th Cir. 2004).

B. Expert Testimony

Federal Rule of Evidence 702 governs the admissibility of expert testimony and requires that: "(1) the evidence must be based on scientific, technical or other specialized knowledge that is useful to the finder of fact in deciding the ultimate issue of fact; (2) the witness must have sufficient expertise to assist the trier of fact; and (3) the evidence must be reliable or trustworthy." *Kudabeck v. Kroger Co.*, 338 F.3d 856, 859 (8th Cir. 2003). When faced with a proffer of expert testimony, trial judges are charged with the "gatekeeping" responsibility of ensuring that all expert evidence admitted is both relevant and reliable. *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 147 (1999); *Daubert*, 509 U.S. at 589; *United States v. Merrell*, 842 F.3d 577, 582 (8th Cir. 2016). The proponent of expert testimony bears the burden of providing admissibility by a preponderance of the evidence. *Lauzon v. Senco Prods.*, 270 F.3d 681, 686 (8th Cir. 2001).

Testimony is relevant if it is "sufficiently tied to the facts of the case that it will aid the jury in resolving a factual dispute." *Daubert*, 509 U.S. at 591. In the Eighth Circuit, a district court applies a three-part test when screening expert testimony under Rule 702:

> First, evidence based on scientific, technical, or other specialized knowledge must be useful to the finder of fact in deciding the ultimate issue of fact. This is the basic rule of relevancy. Second, the proposed witness must be qualified to assist the finder of fact. Third, the proposed evidence must be reliable or trustworthy in an evidentiary sense, so that, if the finder of fact accepts it as true, it provides the assistance the finder of fact requires.

Lauzon, 270 F.3d at 686 (internal citations and quotations omitted). Expert testimony assists the trier of fact when it provides information beyond the common knowledge of the trier of fact. *Kudabeck*, 338 F.3d at 860.

To satisfy the reliability requirement, the party offering the expert testimony must show by a preponderance of the evidence "that the methodology underlying [the expert's] conclusions is scientifically valid." *Barrett v. Rhodia, Inc.*, 606 F.3d 975, 980 (8th Cir. 2010) (citations omitted). In making the reliability determination, the court may consider:

> (1) whether the theory or technique can be or has been tested; (2) whether the theory or technique has been subjected to peer review or publication; (3) whether the theory or technique has a known or potential error rate and standards controlling the technique's operations; and (4) whether the theory or technique is generally accepted in the scientific community.

Russell v. Whirlpool Corp., 702 F.3d 450, 456 (8th Cir. 2012). Additional factors to consider include: "'whether the expertise was developed for litigation or naturally flowed from the expert's research; whether the proposed expert ruled out other alternative

explanations; and whether the proposed expert sufficiently connected the proposed testimony with the facts of the case.'" *Polski v. Quigley Corp*., 538 F.3d 836, 839 (8th Cir. 2008) (quoting *Sappington v. Skyjack, Inc*., 512 F.3d 440, 449 (8th Cir. 2008)). "This evidentiary inquiry is meant to be flexible and fact specific, and a court should use, adapt, or reject" these factors as the particular case demands. *Russell v. Whirlpool,* 702 F.3d at 456 (citation omitted).

When making the reliability inquiry, the court should focus on "principles and methodology, not on the conclusions that they generate." *Kuhn v. Wyeth, Inc.*, 686 F.3d 618, 625 (8th Cir. 2012). However, "conclusions and methodology are not entirely distinct from one another. Trained experts commonly extrapolate from existing data." *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997).

In applying the reliability requirement of *Daubert*, the Eighth Circuit draws a drawn a distinction between challenges to a scientific methodology and challenges to the application of that scientific methodology. *United States v. Gipson,* 383 F.3d 689, 696 (8th Cir. 2004). "When the *application* of a scientific methodology is challenged as unreliable under *Daubert* and the methodology itself is sufficiently reliable, outright exclusion of the evidence is warranted only if the methodology 'was so altered by a deficient application as to skew the methodology itself.'" *Id*. at 697 (emphasis in *Gipson*) (quoting *United States v. Martinez*, 3 F.3d 1191, 1198 (8th Cir. 1993)). Generally, deficiencies in application go to the weight of the evidence, not its admissibility. *See id*.

"'As a general rule, the factual basis of an expert opinion goes to the credibility of the testimony, not the admissibility, and it is up to the opposing party to examine the

factual basis for the opinion in cross-examination.'" *Bonner v. ISP Techs., Inc.*, 259 F.3d 924, 929 (8th Cir. 2001) (quoting *Hose v. Chicago Nw. Transp. Co.*, 70 F.3d 968, 976 (8th Cir. 1995)). "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at 596.

"[C]ases are legion" in the Eighth Circuit that "call for the liberal admission of expert testimony." *Johnson v. Mead Johnson & Co.*, LLC, 754 F.3d 557, 562 (8th Cir. 2014). "As long as the expert's scientific testimony rests upon 'good grounds, based on what is known' it should be tested by the adversary process with competing expert testimony and cross–examination, rather than excluded by the court at the outset." *Id.* (quoting *Daubert*, 509 U.S. at 590).

District courts are "not to weigh or assess the correctness of competing expert opinions." *Id.* The jury, not the trial court, should be the one to 'decide among the conflicting views of different experts.'" *Kumho Tire Co.,* 526 U.S. at 153. Medical experts often disagree on diagnosis and causation and questions of conflicting evidence must be left for the jury's determination. *Hose,* 70 F.3d at 976.

C. The FELA

Railroads are liable in damages for an employee's "injury or death resulting in whole or in part from the Railroad's negligence." 45 U.S.C. § 51. Appraising negligence under FELA "turns on principles of common law . . . , subject to such qualifications [that] Congress" introduces. *Consol. Rail Corp. v. Gottshall*, 512 U.S. 532, 543-44 (1994) (noting the qualifications are the modification or abrogation of several common-law defenses to liability, including contributory negligence and assumption of

risk). The FELA is to be liberally construed, but it is not a workers' compensation statute, and the basis of liability is "negligence, not the fact that injuries occur." *Id.* at 543.

FELA imposes upon employers a continuous duty to provide a reasonably safe place to work. *Cowden v. BNSF Ry. Co.*, 690 F.3d 884, 889 (8th Cir. 2012). The railroad's duty to provide a safe workplace is a duty of reasonable care. *CSX Transp., Inc. v. McBride*, 564 U.S. 685, 703 (2011). However, "a relaxed standard of causation applies under FELA." *Gottshall*, 512 U.S. at 543; *see Holloway v. Union Pac. R.R. Co.*, 762 F. App'x 350, 352 (8th Cir. 2019). The test is simply whether the railroad's negligence played a part—no matter how small—in bringing about the injury. *McBride*, 564 U.S. at 705; *see also Paul v. Mo. Pac. R.R. Co.*, 963 F.2d 1058, 1061 (8th Cir. 1992)(stating that "[u]nder FELA, the plaintiff carries only a slight burden on causation."). In FELA cases the negligence of the defendant need not be the sole cause or whole cause of the plaintiff's injuries.[3] *Claar v. Burlington N.R.R. Co.*, 29 F.3d 499, 503 (9th Cir. 1994).

Despite the lower causation standard under FELA, a plaintiff must still demonstrate some causal connection between a defendant's negligence and his or her injuries. *Brooks v. Union Pac. R.R. Co.*, 620 F.3d 896, 899 (8th Cir. 2010). In order to avoid summary judgment, a FELA plaintiff is required to produce admissible evidence that the railroad's negligence played a part in causing his alleged injury. *Id.* If an injury has "no obvious origin, 'expert testimony is necessary to establish even that small

[3] In contrast, "[t]o establish causation in a common law negligence action, a plaintiff generally must show that the defendant's conduct was a 'substantial factor in bringing about the harm.'" *Tufariello v. Long Island R.R. Co.*, 458 F.3d 80, 87 (2d Cir. 2006) (quoting Restatement 2d of Torts § 431(a)).

quantum of causation required by FELA.'" *Brooks*, 620 F.3d at 899 (quoting *Claar*, 29 F.3d at 504); *see also Mayhew v. Bell S.S. Co.*, 917 F.2d 961, 963 (6th Cir. 1990) ("[A]lthough a [FELA] plaintiff need not make a showing that the employer's negligence was the sole cause, there must be a sufficient showing (i.e. more than a possibility) that a causal relation existed.").

"The standard of causation under FELA and the standards for admission of expert testimony under the Federal Rules of Evidence are distinct issues and do not affect one another." *Claar*, 29 F.3d at 503. *Daubert 's* standards for determining the admissibility of expert testimony apply regardless of whether the plaintiff's burden to prove causation is reduced. *Wills v. Amerada Hess Corp.*, 379 F.3d 32, 47 (2d Cir. 2004) (involving Jones Act and stating that "the standards for determining the reliability and credibility of expert testimony are not altered merely because the burden of proof is relaxed"); *see also Taylor v. Consol. Rail Corp.*, No. 96-3579, 114 F.3d 1189 (Table), 1997 WL 321142, at *6–7 (6th Cir. June 11, 1997) (noting it is well established that the admissibility of expert testimony is controlled by *Daubert*, even in FELA cases); *Hose,* 70 F.3d at 976 (applying *Daubert* in an FELA case).[4]

A differential diagnosis is "an alternative method of establishing causation," one which may be utilized where the particular facts of the case do not lend themselves to quantitative analysis.[5] *Hardyman v. Norfolk & W. Ry. Co*., 243 F.3d 255, 261 (6th Cir.

[4] That is not to say that the lower standard of proof has no effect on a *Daubert* inquiry. *Daubert 's* relevancy inquiry (that is, whether the evidence assists the trier of fact) may be affected by the reduced statutory burden of proof. *Wills*, 379 F.3d at 47; *see Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1321 (9th Cir. 1995) (on remand from the Supreme Court) (stating that where the pertinent inquiry is whether the proffered expert testimony "will assist the trier of fact" in determining causation, the court looks to the governing substantive standard).

[5] Courts sometimes fail to distinguish between differential diagnosis and differential etiology. *King,* 762 N.W.2d at 49. Differential diagnosis refers to a physician's "determination of which one of two or more

2001) (rejecting defendant railroad's argument that the only way the plaintiff could establish causation would be with the proffer of a known "dose/response relationship" or "threshold phenomenon[,]"); *see also Russell v. Ill. Cent. R.R.*, No. W2013-02453-COA-R3-CV, 2015 WL 4039982 at *4 (finding that the process of considering all relevant potential causes of a plaintiff's cancer and eliminating alternative causes produces a reliable opinion). "In performing a differential diagnosis, a physician begins by 'ruling in' all scientifically plausible causes of the plaintiff's injury. The physician then 'rules out' the least plausible causes of injury until the most likely cause remains." *Glastetter v. Novartis Pharm. Corp.*, 252 F.3d 986, 989 (8th Cir. 2001). A reliable differential diagnosis typically, though not invariably, is performed after "physical examinations, the taking of medical histories, and the review of clinical tests, including laboratory tests," but "[a] doctor does not have to employ all of these techniques in order for the doctor's diagnosis to be reliable" and "[a] differential diagnosis may be reliable with less than all the types of information set out above." *Kannankeril v. Terminix Int'l, Inc.*, 128 F.3d 802, 807 (3d Cir. 1997).

In the Eighth Circuit, differential diagnoses in general pass muster under the four considerations identified in *Daubert*. *Johnson*, 754 F.3d at 564 (agreeing with other circuits that a differential diagnosis is a tested methodology, has been subjected to peer review/publication, does not frequently lead to incorrect results, and is generally accepted in the medical community). In fact, the Eighth Circuit has "termed an opinion [based on a differential diagnosis] 'presumptively admissible,' noting that a district court

---

diseases or conditions a patient is suffering from, by systematically comparing and contrasting their clinical findings." *Id.* "In contrast, etiology refers to determining the causes of a disease or disorder." *Id.* at 49-50.

may not exclude such expert testimony unless the diagnoses are 'scientifically invalid.'" *Id.* Also, the Eighth Circuit has "consistently ruled that experts are not required to rule out all possible causes when performing the differential etiology analysis." *Id.* at 563.

Under general negligence principles, in a toxic tort case, "at a minimum . . . there must be evidence from which the factfinder can conclude that the plaintiff was exposed to levels of [the toxic agent at issue] that are known to cause the kind of harm that the plaintiff claims to have suffered." *Mattis v. Carlon Elec. Prods.*, 295 F.3d 856, 860 (8th Cir. 2002)(addressing causation in the context ordinary negligence and a proximate cause standard). To prove causation in a toxic tort case, a plaintiff must show both that the alleged toxin is capable of causing injuries like that suffered by the plaintiff in persons subjected to the same level of exposure as the plaintiff, and that the toxin was the cause of the plaintiff's injury. *Wright v. Willamette Indus.*, 91 F.3d 1105, 1106 (8th Cir. 1996) (under Arkansas law, applying a proximate cause standard that required evidence from which a reasonable person could conclude that a defendant's emission had *probably caused* harm in order to recover). However, even under common-law negligence standards, a plaintiff does not need to produce a "mathematically precise table equating levels of exposure with levels of harm" to show that he was exposed to a toxic level of a chemical, but must only present "evidence from which a reasonable person could conclude that his exposure *probably caused* his injuries." *Bonner*, 259 F.3d at 928 (emphasis added). "[W]hile precise information concerning the exposure necessary to cause specific harm to humans and exact details pertaining to the plaintiff's exposure are beneficial, [it must be recognized that] such evidence is not always available, or necessary, . . . and need not invariably provide the basis for an

expert's opinion on causation." *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 264 (4th Cir. 1999) (involving strict liability, breach of warranty, and negligence action).

In the context of the FELA, a plaintiff need not necessarily prove the levels of a toxin to which he or she was exposed. *See Hardyman,* 243 F.3d at 262-66 (reversing trial court's ruling that plaintiff could establish causation only by showing a "dose/response relationship" between exposure levels and risk of disease and finding that an expert need not possess specific dosage information in order to testify about causation in an FELA case)*; Harbin v. Burlington N. R.R. Co.*, 921 F.2d 129, 132 (7th Cir. 1990) (finding a plaintiff need not identify the specific composition and density of soot present in his work environment to survive a summary judgment—although "expert testimony documenting the hazards posed by the presence of so many parts per million of soot in the air would certainly enhance [the plaintiff's] case, it is not essential under the regime of the [FELA]."); *Higgins v. Consol. Rail Corp.*, No. 1:06-CV-689 GLS/DRH, 2008 WL 5054224, at *4 (N.D.N.Y. Nov. 21, 2008) (finding an issue of fact as to causation even if expert testimony had been excluded because due to the slight burden of proof in FELA actions, and stating that a jury may make inferences in an FELA case that it otherwise could not); *Sunnycalb v. CSX Transp., Inc.*, 926 F. Supp. 2d 988, 995-96 (S.D. Ohio 2013) (finding that the plaintiff's inability to establish a precise level of chemical exposure did not bar recovery under FELA—the evidence was sufficient for the jury to draw the reasonable inference that CSX's negligence played a part in plaintiff's injuries); *Payne v. CSX Transp., Inc*., 467 S.W.3d 413, 457 (Tenn. 2015) ("[S]tated simply, the Plaintiff's experts were not required to establish 'a dose exposure above a certain amount' before they could testify about causation."); and *Russell v. Ill.*

Cent. R.R., No. W2013-02453-COA-R3-CV, 2015 WL 4039982 (rejecting defendant railroad's contention that an expert's opinions were not reliable because the differential diagnoses on which they were based "did not consider the dose, frequency or duration" of the plaintiff's exposure to carcinogens at work).

IV. DISCUSSION

The Court first finds the defendant's motions to exclude the testimony of Drs. Landolph and Gale should be denied. Both experts are clearly qualified to render their opinions and their opinions are relevant and reliable enough to pass muster under Rule 702 and *Daubert*.

The Court rejects the defendant's contention that Dr. Landolph's testimony lacks foundation and is unreliable because it is based only on plaintiff's counsel's assessment of Langrell's exposure. To the contrary, Dr. Landolph testified that he relied on studies of exposure involving railroad workers and similar occupations. He based his testimony on materials furnished by the plaintiff's attorney, a review of the literature, and his extensive knowledge, experience, and expertise. He also spoke to Dr. Gale. Based on that evidence, he testified that there was no safe threshold with regard to most of the carcinogens and that Langrell had been exposed to an excess cancer risk over the course of twenty years of work on the railroad. He based his opinion, in part on the length of time Langrell had been exposed to carcinogens at the railroad. His testimony is sufficient with respect to general causation. Dr. Landolph's review of the literature indicated that Langrell's exposure over his work life was elevated and put him at increased risk.

A differential diagnosis is a tested methodology that has been subjected to peer review/publication, has been shown not to frequently lead to incorrect results, and is accepted in the medical community. Dr. Gale testified that he performed a differential diagnosis or etiology. He testified to a reasonable degree of medical certainty that Langrell's exposure to toxins in diesel exhaust over twenty years of employment contributed to Langrell's tonsillar cancer. Dr. Gale's testimony is sufficient to assist the trier of fact on determining the requisite causal connection between the toxins at issue and the injury—that U.P.'s allegedly negligent conduct in exposing Langrell to diesel exhaust and other carcinogens over twenty years of employment—played a part in Langrell's development of tonsil cancer. He explained that conductors and brakemen exposed to diesel exhaust in the railroad industry by inhalation may be expected to experience at least additive effects and possibly synergistic effects in toxicity and they are at increased risk of incurring lung cancer, soft tissue sarcomas, and pharyngeal cancer, including tonsillar cancer, and other cancers. He properly extrapolated his opinion that exposure to diesel exhaust contributed to Langrell's tonsillar cancer.

The lack of quantitative data is not fatal to the admissibility of the experts' opinions since the lack of such data is typical in epidemiological cases. The alleged shortcomings in the experts' evaluations are properly the subject of cross-examination and do not call for exclusion of the testimony. Similarly, the experts' testimony is not so lacking in foundation as to be inadmissible.

U.P. mischaracterizes this action as a toxic tort case, without recognizing that it is a toxic tort case under the FELA. The defendant's criticisms would have more force if the case required a showing of proximate cause. If the plaintiff had to prove the

exposure proximately caused the injury, the experts' testimony would be less relevant and would not necessarily be sufficiently tied to the facts of the case to assist the jury. Under the FELA, however, the plaintiff need not demonstrate the railroad's conduct was the proximate cause, but only that it played a part—no matter how small—in the injury.

The Court finds the experts' opinions on causation have a factual basis and are supported by accepted scientific theories. The record shows the experts based their opinions on medical records, peer-reviewed studies, and evidence of exposures that covered a long period of time. They also relied on their education and experience in the fields of statistics, toxicology, carcinogenesis, and oncology. The defendant's criticisms go to the weight, rather than the admissibility of the testimony.

The defendant relies in part on the declarations of its experts to discredit Dr. Landolph and Dr. Gale. The defendant's showing presents a classic battle of the experts. The jury should decide among the conflicting views of different experts. If the Court were to credit the testimony of the Railroad's experts over the plaintiff's, it would invade the province of the jury.

Moreover, the Court finds the defendant's reliance on the exclusion of expert testimony in other cases in this district is unavailing. First, this Court is not bound by those decisions and they each involved a different expert, a different disease, a different job, and different factors relevant to the differential etiology analysis. Also, the cases are on appeal.[6]

[6] *See McLaughlin v. BNSF Ry. Co.*, No. 4:18-CV-3047, 2020 WL 641729, at *6 (D. Neb. Feb. 11, 2020) (the causation testimony of an expert was excluded because the expert failed to adequately rule in diesel exhaust as a cause, however small, of the carman plaintiff's lung cancer and failed to adequately rule out thirty-year, pack-and-a-half-a-day cigarette smoking as the sole cause of the lung cancer), *appeal docketed*, No. 20-1494 (8th Cir. Mar. 10, 2020); *West v. Union Pac. R.R. Co.*, No. 8:17CV36, 2020 WL 531994, at *5 (D. Neb. Feb. 3, 2020) (excluding the causation testimony of Dr. Ernest Chiodo that the plaintiff, a locomotive engineer who had renal cancer, was exposed to a high-level of diesel exhaust as

V. CONCLUSION

In conclusion, the Court's review of the record shows that the scientific testimony at issue rests on "appropriate validation—i.e., 'good grounds', based on what is known," *Daubert*, 509 U.S. 590, and "should be tested by the adversary process with competing expert testimony and cross-examination, rather than excluded by the court at the outset." *Johnson*, 754 F.3d at 562. The experts' opinion are not so "fundamentally unsupported that [the testimony] can offer no assistance to the jury." *Bonner*, 259 F.3d at 929–30.

The methodology employed by the plaintiff's experts is scientifically valid, can properly be applied to the facts of this case, and is reliable enough to assist the trier of fact. *See Daubert*, 509 U.S. at 593–94. This is not the sort of junk science that *Daubert* addresses. Even if there are grounds for some alternative conclusion or flaws in the experts' methods, the expert testimony at issue is within "the range where experts might reasonably differ," and the jury, not the trial court, should be the one to "decide among the conflicting views of different experts." *Kumho Tire*, 526 U.S. at 153.

With the admission of the expert testimony, there is an issue of fact for the jury on the exposures and whether the exposures contributed to the plaintiff's tonsil cancer. U.P. has not shown as a matter of law that the plaintiff cannot prevail in establishing that

---

speculation based only on the job the plaintiff held, without reliance on the testimony of an industrial hygiene expert or other facts or data), *appeal docketed*, No. 20-1422 (8th Cir. Mar. 4, 2020); and *Harder v. Union Pac. R.R. Co.*, No. 8:18CV58, 2020 WL 469880, at *1 (D. Neb. Jan. 29, 2020)(excluding expert testimony of Dr. Ernest Chiodo that the railroad machinist's follicular lymphoma (a type of Non-Hodgkin's Lymphoma) was caused by exposure to diesel exhaust, solvents, welding fumes, and benzenexic substances while working on locomotives because the expert was unaware of the plaintiff's length of exposure, concentration of exposure, and the atmosphere of exposure), *appeal docketed*, No. 20-1417 (8th Cir. Mar. 2, 2020).

U.P.'s negligence "played a part" in Langrell's tonsil cancer. Accordingly, the Court finds the defendant's motion for summary judgment should also be denied.

IT IS ORDERED:

1. The defendant's motion for summary judgment (Filing No. 38) is denied.

2. The defendant's motion in limine (Filing No. 41) is denied.

Dated this 5th day of June, 2020.

BY THE COURT:

s/ Joseph F. Bataillon
Senior United States District Judge