

IN THE
Supreme Court of the United States

SQM NORTH AMERICA CORPORATION,
Petitioner,

v.

CITY OF POMONA,
Respondent.

On Petition for a Writ of Certiorari to the
United States Court of Appeals for the Ninth Circuit

BRIEF OF *AMICI CURIAE*
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INTERNATIONAL ASSOCIATION
OF DEFENSE COUNSEL
(ADDITIONAL AMICI LISTED ON INSIDE COVER)
IN SUPPORT OF PETITIONER

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QUESTION PRESENTED

Whether a district court may exclude expert testimony as unreliable only when it is based on a “faulty methodology or theory” or whether any step of the analysis that is unreliable renders the expert’s testimony inadmissible.

RULE 29.6 DISCLOSURE STATEMENT

Pursuant to Rule 29.6 of the Rules of this Court, *amici curiae* state the following:

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RULES

Fed.R.Evid. 702..... *passim*

OTHER

Agency for Toxic Substances & Disease
Registry (ATSDR), Toxic Substances
Portal, “Perchlorates,” [http://www.atsdr.cdc.gov/
substances/toxsubstance.asp?
toxid=181](http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=181)..... 5

David Bernstein, *The Misbegotten Judicial
Resistance to the Daubert Revolution*,
89 NOTRE DAME L. REV. 27 (2013). 22

Nicolaas Bloembergen, et al., Brief Amicus
Curiae, *Daubert v. Merrell Dow Pharms., Inc.*,
509 U.S. 579 (1993) (No. 92-102),
1993 WL 13006286. 15-16

California Environmental Protection Agency,
State Water Resources Control
Board, “Perchlorate in Drinking Water,”
[http://www.waterboards.ca.gov/
drinking_water/certlic/drinkingwater/
Perchlorate.shtml](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Perchlorate.shtml). 6

California Department of Toxic Substances
Control, “Perchlorate,” “What is Perchlorate?”
[http://www.dtsc.ca.gov/hazardouswaste/
perchlorate/](http://www.dtsc.ca.gov/hazardouswaste/perchlorate/). 6

Federal Judicial Center & National Research
Council, REFERENCE MANUAL ON
SCIENTIFIC EVIDENCE (3d ed. 2011). 16

Lee Loevinger, *Science as Evidence*,
35 JURIMETRICS J. 153 (1995). 22

Wolfram Meier-Augustine, “Stable Isotope
Analysis: General Principles and Limitations,”
Academia.edu, [http://www.academia.edu/
1500626/Stable_Isotope_Analysis_General_
Principles_and_Limitations](http://www.academia.edu/1500626/Stable_Isotope_Analysis_General_Principles_and_Limitations). 7

National Research Council of the
National Academies, STRENGTHENING
FORENSIC SCIENCE IN THE UNITED
STATES: A PATH FORWARD (2009). 16

New England Journal of Medicine,
Journal of the American Medical Association,
and Annals of Internal Medicine Brief as
Amici Curiae supporting Respondent,
Daubert v. Merrell Dow Pharms., Inc.,
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Karl R. Popper, THE LOGIC OF SCIENTIFIC DISCOVERY (1959).	15-16
U.S. EPA, "Perchlorate," http://water.epa.gov/ drink/contaminants/unregulated/ perchlorate.cfm	5
United States Geological Survey, Fundamentals of Stable Isotope Geochemistry, http://wwwrcamnl.wr.usgs.gov/isoig/ res/funda.html	7
Jack B. Weinstein, <i>Rule 702 of the Federal Rules of Evidence is Sound; It Should Not Be Amended</i> , 138 F.R.D. 631, 632 (1991).	11

INTEREST OF *AMICI CURIAE*¹

The Atlantic Legal Foundation is a nonprofit, nonpartisan public interest law firm. It provides legal representation, without fee, to scientists, parents, educators, other individuals, small businesses and trade associations. The Foundation's mission is to advance the rule of law in courts and before administrative agencies by advocating for limited and efficient government, free enterprise, individual liberty, school choice, and sound science. The Foundation's leadership includes current and retired general counsels of some of the nation's largest and most respected corporations, partners in prominent law firms and distinguished legal scholars. In pursuit of its mandate, the Foundation has served as counsel for numerous distinguished scientists, including almost two dozen Nobel Prize winners in Chemistry, Medicine or Physiology and Physics, as *amici* in numerous cases before this Court

¹ Pursuant to Rule 37.2(a), timely notice of intent to file this *amici* brief was provided to the parties, the parties have consented to the filing of this brief; Petitioner has lodged with the Court a "universal consent" on behalf of both parties.

Pursuant to Rule 37.6, *amici* affirm that no counsel for any party authored this brief in whole or in part, and no counsel or party made a monetary contribution intended to fund the preparation or submission of this brief. No person other than *amici curiae* or their counsel made a monetary contribution to the preparation or submission of this brief.

involving admissibility of expert scientific evidence, including *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579 (1993), *General Elec. Co. v. Joiner*, 522 U.S. 136 (1997), and *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999). One of the Foundation's goals is to educate and inform judges about the correct scientific principles and methods to be applied to issues of causation in litigation. This case is of particular interest to the Foundation because some lower courts have deviated in important and troubling ways from the Court's approach to admissibility of expert evidence and trial courts' responsibilities as gatekeepers, deviance that should be corrected.

The International Association of Defense Counsel (IADC) is an association of corporate and insurance attorneys from the United States and around the globe whose practice is concentrated on the defense of civil lawsuits. The IADC is dedicated to the just and efficient administration of civil justice and the continual improvement of the civil justice system. The IADC supports a justice system in which plaintiffs are fairly compensated for genuine injuries, responsible defendants are held liable for appropriate damages, and non-responsible defendants are exonerated without unreasonable cost. In support of these principles, the IADC has filed briefs in cases such as this, supporting careful screening by trial judges of expert testimony.

The Federation of Defense & Corporate Counsel (FDCC) was formed in 1936 and has an

international membership of 1,400 defense and corporate counsel. FDCC members work in private practice, as general counsel of companies, and as insurance claims executives. Membership is limited to attorneys and insurance professionals nominated by their peers for having achieved professional distinction and demonstrated leadership in their respective fields. The FDCC is committed to promoting knowledge and professionalism in its ranks and has organized itself to that end. Its members have established a strong legacy of representing the interests of civil litigation defendants.

The American Insurance Association (AIA) is a leading national trade association representing approximately 300 property and casualty insurance companies that write a major share of property and casualty insurance, including public entity, public official and law enforcement liability policies, throughout the United States. AIA members collectively underwrite more than \$117 billion in premiums each year. AIA members range in size from small companies to the largest insurers with global operations. On issues of importance to the property and casualty insurance industry and marketplace, AIA advocates sound and progressive public policies on behalf of its members in legislative and regulatory forums at the federal and state levels and files amicus curiae briefs in significant cases before federal and state courts.

The Complex Insurance Claims Litigation Association (CICLA) is a trade association of major property and casualty insurance companies. CICLA seeks to assist courts in resolving questions of importance to insurers. In this role, since 1988, CICLA and its predecessor, the Insurance Environmental Litigation Association, have appeared as *amicus curiae* in significant appeals in state and federal courts across the nation, including this Court, *e.g.*, *Johnson Controls, Inc. v. Employers Insurance of Wausau*, 124 S. Ct. 2070 (2004); *Wilton v. Seven Falls*, 115 S. Ct. 2137 (1995). As a trade association of major property and casualty insurers, CICLA has experience with claims and lawsuits involving expert testimony. This appeal, moreover, concerns a question of substantial importance regarding the proper application of Federal Rule of Evidence 702.

Amici are concerned that the Ninth Circuit's decision leaving to the jury the question of an expert's reliability is an abdication of the trial court's gatekeeping role and represents a significant retreat from the effort to bring the judicial process into harmony with the scientific process that began with *Daubert*. They believe that review by this Court is necessary to ensure compliance by all federal courts with Rule 702 and this Court's *Daubert* trilogy.

INTRODUCTORY STATEMENT

This is a product liability and environmental tort case arising out of findings that the City of Pomona's (Pomona) water supply contains perchlorate above the limit established by California regulatory authorities. Pomona seeks to hold SQM North America Corporation (SQMNA) liable for costs associated with investigating and remediating perchlorate in its water supply above California state limits.

Perchlorate has been detected worldwide in soil, groundwater, and seawater; "perchlorate occurs naturally is [*sic*] in saltpeter deposits in Chile, where the saltpeter is used to make fertilizer." In the past, the United States used a lot of this fertilizer on tobacco plants, but now uses very little. Agency for Toxic Substances & Disease Registry (ATSDR), Toxic Substances Portal, "Perchlorates," <http://www.atsdr.cdc.gov/substances/toxsubstance.asp?toxid=181> (last accessed 10/8/2014.)

Synthetic perchlorate is widely used by the military and its contractors as an oxidizer in solid rocket fuel and by the aerospace industry, and it is used in numerous commercial products, including safety flares, fireworks, pyrotechnics, explosives, common batteries, and automobile restraint systems. Perchlorate can also be present in bleach and in some fertilizers. U.S. EPA, "Perchlorate," <http://water.epa.gov/drink/contaminants/unregulated/perchlorate.cfm> (last accessed 10/8/2014.)

“Perchlorate is both a naturally occurring and manmade contaminant increasingly found in groundwater, surface water and soil. Most perchlorate manufactured in the U.S. is used as an ingredient in solid fuel for rockets and missiles.” California Department of Toxic Substances Control, “Perchlorate,” “What is Perchlorate?,” <http://www.dtsc.ca.gov/hazardouswaste/perchlorate/> (last accessed 10/8/2014.)

Perchlorate may have adverse health effects because it can disrupt the thyroid gland’s ability to produce hormones needed for normal growth and development. U.S. EPA, “Perchlorate,” *supra*; California Environmental Protection Agency, State Water Resources Control Board, “Perchlorate in Drinking Water,” http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Perchlorate.shtml (last accessed 10/8/2014.)

Pomona attributes the perchlorate in its water supply to local use of Chilean fertilizers containing natural perchlorate during the first half of the twentieth century (Pet. App. 3a-4a), but there is no direct evidence that SQMNA’s products were used in Pomona.

Pomona’s case rests on the testimony of Dr. Neil Sturchio of the University of Illinois, who testified that he applied a complex, multi-step form of “stable isotope analysis”² to identify Chilean

² Stable isotope analysis is based on the premise that the ratios of stable isotopes vary across specimens, and
(continued...)

perchlorate as the dominant source of perchlorate in Pomona's groundwater.

SQMNA asserted that there are numerous shortcomings with respect to the validity as evidentiary proof of Pomona's proffer:

- Dr. Sturchio admitted that no other laboratory employs his approach. All of the "peer review" of Sturchio's method cited by Pomona are papers or

²(...continued)

this variation can be used to determine the source of a specimen. Isotopes of a given element contain the same number of protons (and electrons) and hence share the same chemical characteristics; however, they contain different numbers of neutrons and are therefore of different atomic mass. Multivariate stable isotope abundance analysis holds the potential to increase the overall discriminatory power of the forensic analysis, but is subject to complex procedures, including. If a sufficient body of background knowledge exists, *e.g.*, in the form of databases or published research, it may be possible to draw some generic conclusions from the stable isotope signature of a given material or compound. At a more basic level, stable isotope signatures can be used to compare a sample taken from a particular exhibit with those from one or more other exhibits. See Wolfram Meier-Augustine, "Stable Isotope Analysis: General Principles and Limitations," Academia.edu, http://www.academia.edu/1500626/Stable_Isotope_Analysis_General_Principles_and_Limitations (last accessed 10/8/2014); United States Geological Survey, Fundamentals of Stable Isotope Geochemistry, <http://wwwrcamnl.wr.usgs.gov/isoig/res/funda.html> (last accessed 10/8/2014.)

guides authored (or co-authored) by Dr. Sturchio or his colleagues.

- The Department of Defense “Guidance Manual for Forensic Analysis of Perchlorate in Groundwater using Chlorine and Oxygen Isotopic Analyses,” (DoD Manual), relied on by Pomona as “official” peer review and validation of Dr. Sturchio’s methodology was co-authored by Dr. Sturchio. The *Manual* acknowledges that Dr. Sturchio’s method is “provisional,” still under development, and has not been verified by independent testing by other laboratories. *See, e.g.*, 2-ER-118; 2-ER-124.; 2-ER-134; 2-ER-138; 2-ER-149; 2-ER-152.³

- Dr. Sturchio’s published reference database (which the DoD *Manual* makes clear is incomplete, *see* 2-ER-202.) includes only a few samples from comparison sources of synthetic perchlorate and of natural perchlorate from Chile, Texas, and Death Valley; it contains no sources from Pomona.⁴

- Dr. Sturchio provided no evidence regarding error rates associated with using such a limited

³ “ER” citations are to the Excerpts of Record filed in the Ninth Circuit, Case Nos. 12-55147, 12-55193, 12-55676.

⁴ SQMNA argues that because Dr. Sturchio admits that scientists do not know why isotope values vary from location to location, the database fails to account for many potential sources and thus is inadequate to support Dr. Sturchio’s conclusions in this case.

database to identify the sources of perchlorate in Pomona's water supply. *See* 3-ER-462-470.

SQMNA moved to exclude Dr. Sturchio's testimony as unreliable under Rule 702. After holding a *Daubert* hearing, at which Dr. Sturchio testified, the District Court concluded that: (1) Dr. Sturchio's techniques are not yet generally accepted in the scientific community, as evidenced by the provisional language used in the DoD Manual; (2) his procedures "have not been tested by other laboratories and are not subject to retesting given the failure to take dual samples"; and (3) his reference database is "too limited" to support his conclusions about the origin of perchlorate in Pomona's water "with an acceptable rate of error." Pet. App. 29a. The District Court excluded Dr. Sturchio's testimony. Pet. App. 29a.

The Ninth Circuit reversed, holding that the District Court abused its discretion in excluding Dr. Sturchio's testimony. The Circuit panel held that SQMNA's reliability challenges to Dr. Sturchio's method were for the jury to decide. Pet. App. 16a-20a⁵, explaining that "*only a faulty methodology or theory*, as opposed to imperfect execution of laboratory techniques, is a valid basis to exclude expert testimony." Pet. App. 17a (emphasis supplied).

⁵ The Ninth Circuit decision is reported at 750 F.3d 1036.

The Ninth Circuit panel acknowledged an apparent circuit split. It recognized that the rule it articulated conflicts with the Third Circuit's frequently cited holding in *In re Paoli R.R. Yard PCB Litig.*, 35 F.3d 717 (3d Cir. 1994) (*Paoli II*), that “*any* step that renders the analysis unreliable under the *Daubert* factors renders the expert's testimony inadmissible[,] . . . whether the step completely changes a reliable methodology or merely misapplies that methodology.” *Id.* at 745 (emphasis in original).

The Ninth Circuit panel further held that the sufficiency of Dr. Sturchio's reference database was a question for the jury because the parties' experts disagreed on that issue.

ARGUMENT

I. CERTIORARI SHOULD BE GRANTED TO PREVENT SEVERAL CIRCUITS, INCLUDING THE COURT BELOW, FROM MISAPPLYING OR IGNORING RULE 702 AND THIS COURT'S PRECEDENTS ON SCREENING OF EXPERT EVIDENCE.

A. Conflict With Rule 702 and The Teaching of This Court.

The Circuit Court's decision to overrule the district court's exclusion of Dr. Sturchio's testimony and opinions is inconsistent with Rule 702 and this Court's decisions in *Daubert*, *Kumho*, and *Joiner*. Unless corrected, the decision of the Ninth Circuit in this case, and others like it in

other circuits, will encourage federal trial courts to abdicate their critical, but sometimes intense and time-consuming “gatekeeping role” of screening out expert testimony that is unreliable, but seemingly powerful and influential.⁶ This is particularly troubling given the rise of expert testimony in litigation.

In *Daubert* the Court charged trial judges with the responsibility of acting as gatekeepers to exclude unreliable expert testimony. In *Kumho Tire* the Court clarified that this gatekeeper function includes determining reliability and admissibility where expert “testimony’s factual basis, data, principles, methods, or *their application* are called sufficiently into question,” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (quoting *Daubert*, 509 U.S. at 592) and that “district courts must scrutinize whether the principles and methods employed by an expert have been properly applied to the facts of the case.” *Id.* at 157 (internal quotation marks omitted). In *Joiner* this Court made it clear that “the trial judge must perform a screening function to ensure that the expert’s opinion is reliable and relevant to the facts at issue.” 522 U.S. at 143.

⁶ See *Daubert*, 509 U.S. 579 at 595: “[e]xpert evidence can be both powerful and quite misleading because of the difficulty in evaluating it,” quoting Jack B. Weinstein, *Rule 702 of the Federal Rules of Evidence is Sound; It Should Not Be Amended*, 138 F.R.D. 631, 632 (1991).

The Ninth Circuit’s holding that only a “faulty methodology or theory” warrants exclusion of expert testimony is in direct conflict with the rule in other circuits, as the Ninth Circuit itself recognized. *See* Pet. App. 17a. It also conflicts with the teaching of this Court.

The Ninth Circuit’s rule rests on a purportedly critical distinction between an expert’s principles or methodology on the one hand and “protocols” or conclusions on the other. However, this is a distinction which this Court rejected in *Daubert* and in *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 149 (1999) (trial court must determine reliability where expert “testimony’s factual basis, data, principles, methods, or *their application* are called sufficiently into question”) (quoting *Daubert*, 509 U.S. at 592). In order to protect the truth-seeking function of the judicial system, trial courts must retain the authority to exclude expert testimony where “any step” in the expert’s application of his or her chosen methodology renders the analysis itself unreliable.

The panel decision also ignores or minimizes this Court’s ruling in *Kumho Tire v. Carmichael*, 526 U.S. 137 (1999) that the question for the court as gatekeeper is not only the reliability of the expert’s methodology in general, but also whether the expert could reliably determine the cause of the defect in the particular sample at issue. In *Kumho Tire*, the issue before the district court was the reasonableness of using the expert’s approach, “along with [the expert’s] particular method of

analyzing the data thereby obtained, to draw a conclusion regarding *the particular matter to which the expert testimony was directly relevant.*” 526 U.S. at 154.

In order for a scientific technique to be reliable, there must be evidence in the record indicating the methodology “can be (and has been) tested.” Daubert, 509 U.S. at 593. The district court excluded Dr. Sturchio's testimony because his methods had not been tested by other laboratories and are not subject to retesting. (Pet. App. 13a.) The Circuit panel held that the district court incorrectly applied this standard, and that the “district court’s conclusion was erroneous for three reasons: (1) other laboratories have tested the methodologies from the DoD Manual used by Dr. Sturchio; (2) Dr. Sturchio's procedures are subject to retesting by another laboratory; and (3) challenges to the results obtained by using the techniques from the DoD Manual go to the weight of the evidence and are a question for the fact finder, not the trial court. The Circuit panel took too limited a view of the requirement of “testability.”

The Ninth Circuit panel held that Dr. Sturchio's methods used in his analysis of Pomona's groundwater were fully disclosed in the DoD Manual and that, although Dr. Sturchio operates the only commercial laboratory using this methodology, several government laboratories had used and tested the methodologies described in the DoD Manual, and this shows that Dr. Sturchio's methods can be objectively challenged. Pet. App.

14a-15a. The panel also held that Dr. Sturchio's processes are subject to retesting and thus others using the same data and methods would be able to replicate the results. Pet. App. 15a.⁷

The Circuit panel also held both of the grounds for exclusion cited by SQMNA – Dr. Sturchio's failure to use duplicate columns in collecting groundwater samples; and his failure to take split samples – are not required analytical steps for stable isotope analysis under the DoD Manual's procedures, and hence neither are necessary for retesting to occur. Pet. App. 15a.

The panel seems to have missed the main point: without duplicate samples, it is not possible to replicate Dr. Sturchio's analysis. While the panel acknowledged that Dr. Sturchio's test results had not been independently verified by another laboratory, it nevertheless held that while this “may serve to undermine or impeach the weight that should be afforded to Dr. Sturchio's testimony . . . it does not refute the scientific reliability of his analysis.” Pet. App. 15a-16a.

The Ninth Circuit erred in its treatment of the issue of testing and testability of Dr. Sturchio's method and process, primarily because it mistook or minimized the role of replicability in the scientific process. Testability of the expert's methods and conclusions is the first “key”

⁷ In contrast, the district court found that Dr. Sturchio's methods could not be retested “given the failure to take dual samples.” Pet. App. 29a.

reliability assessment that trial courts ordinarily must make before admitting expert scientific testimony. *See Daubert*, 509 U.S. at 593.

This is consistent with the scientific method as practiced in science itself. For a theory to be "scientific", it must set forth an hypothesis that is capable of being proven false by observation or experiment and the data produced through this testing must be capable of replication. Karl R. Popper, *THE LOGIC OF SCIENTIFIC DISCOVERY* 40-41 (1959). Replicability, which is asserted by the noted philosopher of science Karl Popper and others as the hallmark and guarantee of scientific acceptability, involves other scientists testing the accuracy of observations or of the predictions of an hypothesis. Scientific experiments are always expected to be replicable. "[T]he criterion of the scientific status of a theory is its falsifiability, or refutability, or testability." Karl R. Popper, *CONJECTURES AND REFUTATIONS: THE GROWTH OF SCIENTIFIC KNOWLEDGE* 37 (5th ed. 1989); *see also* Karl R. Popper, *THE LOGIC OF SCIENTIFIC DISCOVERY* at 32, 40-41, 46 (1959).⁸ The need to

⁸ *See* Brief Amicus Curiae of Nicolaas Bloembergen and other scientists at*14-*15, *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993) (No. 92-102), 1993 WL 13006286: "replicability. . . [is] the hallmark and guarantee of scientific acceptability, [and] involves other scientists testing the accuracy of observations or of the predictions of an hypothesis. Scientific experiments are, of course, always
(continued...)"

replicate research findings permeates most fields of science. Federal Judicial Center & National Research Council, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE at 604 (3d ed. 2011). Meaningful scientific validation, determination of error rates, and reliability testing are essential to ensure the reliability of all forms of forensic evidence. National Research Council of the National Academies, STRENGTHENING FORENSIC SCIENCE IN THE UNITED STATES: A PATH FORWARD 107-108 (2009).

Under these standards, Dr. Sturchio's use of stable isotope analysis to identify the source of perchlorate in groundwater clearly has not undergone proper validation. Although Government scientists have collaborated with him on discrete aspects of his perchlorate research, it

⁸(...continued)

expected to be replicable." *See also* Brief for the New England Journal of Medicine, Journal of the American Medical Association, and Annals of Internal Medicine as Amici Curiae supporting Respondent at *2, *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993) (No. 92-102), 1993 WL 13006387, cited in Federal Judicial Center & National Research Council, REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 64, n. 45 (3d ed. 2011): "‘Good science’ is a commonly accepted term used to describe the scientific community's system of quality control which protects the community and those who rely upon it from unsubstantiated scientific analysis. It mandates that each proposition undergo a rigorous trilogy of publication, replication and verification before it is relied upon."

is undisputed that no laboratory other than Dr. Sturchio's has ever tested or used his novel, multi-step process for analyzing the isotopes in low-level concentrations of groundwater perchlorate. Dr. Sturchio admitted this at the *Daubert* hearing, when he testified that his is "the only lab in the country" performing the analysis. 1-ER-14:3- 5.

Dr. Sturchio's procedures have not been replicated or validated by other scientists. The Circuit Court cited collaboration by government scientists and published papers (authored or co-authored by Dr. Sturchio) as evidence of validation Pet. App. 12a. But no laboratory other than Dr. Sturchio's has ever tested or used his novel process for analyzing isotopes in low concentrations of perchlorate in groundwater. *See* Pet. App. 11a. (Dr. Sturchio testified that his is "the only lab in the country" performing the analysis. 1-ER-14:3-5). Pet. App. 14a.

The Ninth Circuit concluded that because two Government laboratories collaborated on with Dr. Sturchio on the DoD Manual, his methods were reviewed and "subject to inter-laboratory calibration" and that this "demonstrates that Dr. Sturchio's is practiced by (at least) an recognized minority of scientists in the[] field." Pet. App. 12a. First, work with collaborators is not "independent" validation; second, there is no record evidence that any of these collaborators "practiced" Dr. Sturchio's method; and, third, this falls well short of anyone replicating Dr. Sturchio's testing of the samples of Pomona groundwater.

The Ninth Circuit’s decision is inconsistent with Federal Rule of Evidence 702. The 2000 amendment to Rule 702 requires the trial court to determine that the expert’s testimony “is the product of reliable principles *and methods*,” and that the testimony “is based on sufficient facts or data,” and that “the expert has *reliably applied* the principles and methods to the facts of the case.” (Emphasis supplied.) Rule 702 mandates that for expert testimony to be admissible, an expert witness must not only utilize reliable principles and methods, but also must have “reliably applied the principles and methods to the facts of the case.” Rule 702(d).⁹

The Ninth Circuit’s holding that the jury must decide the adequacy of an expert’s reference database whenever the experts disagree conflicts with Rule 702’s requirement that the trial court act as gatekeeper and admit only testimony that is based on “sufficient facts or data.” Because competing experts will almost always disagree on the sufficiency of the facts or data underlying novel scientific testimony, the panel decision sets the bar for admission in such cases unacceptably low and nullifies the authority that *Joiner* gives

⁹ The party offering expert testimony has the burden of establishing that the admissibility requirements are met by a preponderance of the evidence. *See Bourjaily v. United States*, 483 U.S. 171 (1987). The Circuit Court’s weighing of the evidence before the district court “failed to give the trial court the deference that is the hallmark of abuse-of-discretion review.” *Joiner*, 522 U.S. 136, 143.

trial courts to decide, as a threshold matter, that there is “too great an analytical gap between the data and the opinion proffered.” 522 U.S. at 146.

B. Conflict With Other Circuits.

The Ninth Circuit’s decision in this case not only contravenes Rule 702 and this Court’s precedents, it also conflicts with precedents in other circuits, as the Circuit Court panel itself noted.

Second Circuit. In *Amorgianos v. Nat’l R.R. Passenger Corp.*, 303 F.3d 256, 265-270 (2d Cir. 2002), the Second Circuit relied on the Rule 702 amendments and *Paoli II* (*see infra*) to affirm a trial court order excluding expert testimony offered to show a causal link between the plaintiff’s exposure to workplace toxins and his injuries. In that case, one expert “fail[ed] to apply his stated methodology reliably to the facts of the case” by omitting significant variables from his analysis. *Id.* at 268-269 (internal quotation marks omitted) and another expert’s testimony was unreliable and inadmissible because “the analytical gap between the studies on which she relied and her conclusions was simply too great.” *Id.* at 270.

Third Circuit. As discussed *supra*, the Third Circuit in *Paoli II* held that “*any* step” that renders the expert’s testimony unreliable is grounds for exclusion. *Paoli II*, 35 F.3d at 745. (emphasis in original) That court recognized that an expert’s improper *application* of a scientific

theory may make the expert's testimony unreliable.

Sixth Circuit. The Ninth Circuit's decision is also in conflict with *Tamraz v. Lincoln Electric Co.*, 620 F.3d 665 (6th Cir. 2010), in which the Sixth Circuit applied Rule 702(b) and (d) and reversed a trial court's admission of expert testimony that the defendants' products caused plaintiff's illness. The court held that the expert's reasoning was not scientific knowledge based upon "sufficient facts or data" or "the product of reliable principles and methods * * * *applied reliably* to the facts of the case." 620 F.3d at 670 (quoting Rule 702, emphasis supplied). The Sixth Circuit based this conclusion on gaps between the expert's conclusion and previously published studies and that the expert's testimony was "at most a working hypothesis." 620 F.3d at 670 -71.

Tenth Circuit. In *Attorney General of Oklahoma v. Tyson Foods, Inc.*, 565 F.3d 769 (10th Cir. 2009), the circuit court expressly rejected the argument "that *Daubert* should not have been used to assess the *application* of the experts' methodologies, but rather should have been used to assess *only the methodologies* upon which [they] relied." *Id.* at 779 (emphases in original).

Although the Ninth Circuit's approach conflicts with that of the Second, Third, Sixth, and Tenth Circuits, it is not unique. Despite this Court's rejection of the methodology-conclusion distinction in *Joiner* and Rule 702, other circuits continue to rely on that distinction to justify deferring the

Rule 702 reliability inquiry to the jury. These circuits hold, as did the Ninth Circuit in this case, that evaluating flaws in the application of scientific principles or methodology to the data (so-called “protocols”) is the role of cross-examination.

Two very recent circuit court decisions illustrate how the principles/methodology versus conclusions distinction undermines the trial court’s gatekeeping role as does the case at bar.

Seventh Circuit. In *Manpower, Inc. v. Insurance Co. of Pennsylvania*, 732 F.3d 796 (7th Cir. 2013), the Seventh Circuit reversed a trial court’s exclusion of an expert’s testimony on damages because the exclusion was based on concerns about the data from which the expert extrapolated his conclusion, not the reliability of the expert’s methodology. *Id.* at 807-810. The Seventh Circuit held that “[r]eliability * * * is primarily a question of the validity of the methodology employed by an expert, not the quality of the data used in applying the methodology or the conclusions produced.” *Id.* at 806.

Eighth Circuit. In *Johnson v. Mead Johnson & Co.*, 754 F.3d 557 (8th Cir. 2014), the Eighth Circuit reversed a trial court’s exclusion of expert testimony offered to prove that contaminated infant formula caused a child’s brain damage because although the experts did not rule out other possible sources of the contamination, the Eighth Circuit construed *Daubert* to “call for the liberal

admission of expert testimony”¹⁰ and held that “such considerations [regarding the expert’s application of a methodology] go to the weight to be given the testimony by the factfinder, not its admissibility.” *Id.* at 560-562, 564.¹¹

The result of these inconsistent, and fundamentally irreconcilable, judicial approaches is that a case that pivots on expert evidence becomes “a sporting game [] or a lottery” (Lee Loevinger, *Science as Evidence*, 35 JURIMETRICS J. 153, 176 (1995)) in which winning becomes a matter of venue, not logic or reason.

The Ninth Circuit’s decision represents a significant retreat from the effort to bring the judicial process into harmony with the scientific process that began with *Daubert*. Review by this Court is necessary to ensure compliance by all federal courts with Rule 702 and this Court’s *Daubert* trilogy.

¹⁰ Compare with the Ninth Circuit’s invocation of “*Daubert*’s liberal standard,” Pet. App. 19a, quoting from *United States v. Chischilly*, 30 F.3d 1144, 1155-56 (9th Cir. 1994).

¹¹ For other cases illustrating the circuit split see David Bernstein, *The Misbegotten Judicial Resistance to the Daubert Revolution*, 89 NOTRE DAME L. REV. 27 (2013).

CONCLUSION

For the foregoing reasons, *amici curiae* urge the Court to grant the petition for a writ of certiorari.

October 14, 2014

Respectfully submitted,

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