**No.-**

# In the Supreme Court of the United States

DIRK GREINEDER, PETITIONER

*v.*

SEAN MEDEIROS, SUPERINTENDENT OF MCI-NORFOLK,
RESPONDENT

ON PETITION FOR WRIT OF CERTIORARI
TO THE UNITED STATES COURT OF APPEALS FOR THE FIRST CIRCUIT

## PETITION FOR WRIT OF CERTIORARI OF DIRK GREINEDER TO THE UNITED STATES COURT OF APPEALS FOR THE FIRST CIRCUIT

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## QUESTION PRESENTED

Does the Confrontation Clause prohibit an expert prosecution witness from testifying at a jury trial to the results of DNA tests comparing the petitioner's DNA profile to DNA obtained from key pieces of evidence where: (1) the laboratory work, allelic calls, and statistical calculations were carried out by a non-testifying laboratory analyst and conveyed to the testifying expert in the form of reports that were repeated almost verbatim to the jury; (2) the testifying expert did not participate in the lab testing in any way and did not review any of the raw data upon which the reports were based; (3) the determination of test results required the application of independent expertise and judgment by the analyst; and (4) the DNA testing of the evidence was performed after the testing laboratory had already determined the DNA profile of the petitioner, who was the target of the criminal investigation?

## LIST OF PARTIES

All parties appear in the caption of the case on the cover page.

## RELATED CASES

*Commonwealth v. Greineder*, 458 Mass. 207 (2010). Judgment entered November 4, 2010.

*Greineder v. Massachusetts*, 567 U.S. 948, 133 S.Ct. 55 (2012). Petition for writ of certiorari granted, judgment vacated, case remanded.

*Commonwealth v. Greineder*, 464 Mass. 580 (2013). Judgment entered March 14, 2013.

*Greineder v. Massachusetts*, 571 U.S. 865, 134 S.Ct. 166 (2013). Petition for writ of certiorari denied.

*Greineder v. Medeiros*, U.S. District Court No. 15-12978-RGS. Judgment entered May 6, 2019.

*Greineder v. Medeiros*, U.S. Court of Appeals for the First Circuit, No. 19-1581. Judgment entered December 9, 2019.

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# In the Supreme Court of the United States

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DIRK GREINEDER, PETITIONER

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Petitioner Dirk Greineder ["Greineder"] hereby petitions for a writ of certiorari to the United States Court of Appeals for the First Circuit to review a final judgment in a *habeas corpus* case.

## OPINION BELOW

On December 9, 2019, the United States Court of Appeals for the First Circuit entered judgment denying a Certificate of Appealability as to the United States District Court's order denying Greineder's petition for a writ of *habeas corpus* under 28 U.S.C. § 2254. *App.* 1.[1/]

## BASIS OF JURISDICTION

The judgment of the United States Court of Appeals for the First Circuit was entered on December 9, 2019. This petition is filed within 90 days after the judgment. This Court has jurisdiction to review final judgments of the courts of appeals pursuant to 28 U.S.C. § 1254(1).

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[1/] The Appendix to this petition, appended hereto, is cited as "*App.* (page)." References herein will be abbreviated as follows: Quoted portions of the trial transcript, submitted below are cited as *Tr.*(vol./pg.); Respondent's Further Supplemental Answer (*F.S.A.* __).

Denial of a Certificate of Appealability is reviewable by this Court. *Ayestas v. Davis*, 138 S.Ct. 1080, 1088, n. 1 (2018) ("We may review the denial of a COA by the lower courts. *See, e.g., Miller-El v. Cockrell*, 537 U.S. 322, 326-327, 123 S.Ct. 1029, 154 L.Ed.2d 931 (2003). When the lower courts deny a COA and we conclude that their reason for doing so was flawed, we may reverse and remand so that the correct legal standard may be applied. *See Slack v. McDaniel*, 529 U.S. 473, 485-486, 489-490, 120 S.Ct. 1595, 146 L.Ed.2d 542 (2000).").

## CONSTITUTIONAL PROVISIONS INVOLVED

The Sixth Amendment to the United States Constitution reads as follows:

> In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining witnesses in his favor, and to have the Assistance of Counsel for his defence.

## STATEMENT OF THE CASE

Petitioner Dirk Greineder ("Greineder") is presently serving a life sentence for a conviction of first degree murder in the Norfolk County (Massachusetts) Superior Court on June 29, 2001. Following the denial of his first motion for new trial on October 31, 2007, Greineder's conviction was affirmed by the Massachusetts Supreme Judicial Court ("SJC") in *Commonwealth v. Greineder*, 458 Mass. 207 (2010) (*App.* 168-195), on November 4, 2010. That decision was vacated and remanded by the US Supreme Court, *Greineder v. Massachusetts*, 567 U.S. 948, 133 S.Ct. 55 (2012) (*App.* 167) for further consideration in light of *Williams v. Illinois*, 567 U.S. 50, 132 S.Ct. 2221 (2012). Greineder's conviction was subsequently re-affirmed by the SJC in *Commonwealth v. Greineder*, 464 Mass. 580 (2013) (*App.* 153-166), *cert. denied*, *Greineder v. Massachusetts*, 571 U.S. 865, 134 S.Ct. 166 (2013) (*App.* 152). A further motion for new trial (on an unrelated legal

issue) was denied by the trial court on July 24, 2014, and application for leave to appeal that ruling was denied by a Single Justice of the SJC on December 30, 2014.

Greineder timely filed a Petition for Writ of *Habeas Corpus* in the United States District Court for the District of Massachusetts on July 17, 2015. On September 7, 2018, a Magistrate Judge issued a *Report and Recommendation* [hereinafter "R&R"], recommending denial of the petition (*App*. 5-151). On May 6, 2019, the U.S. District Court issued an *Order on Report and Recommendation*, explicitly "adopting" the analysis of the R&R, denying the petition for writ of *habeas corpus*, and denying a Certificate of Appealability. (*App*. 2-5) Petitioner sought a Certificate of Appealability ("COA") in the U.S. Court of Appeals for the First Circuit. On December 9, 2019, the First Circuit entered Judgment denying a COA and terminating Greineder's appeal. (*App*. 1)

## STATEMENT OF RELEVANT FACTS

### I. TRIAL PROCEEDINGS IN THE STATE COURT.

Dr. Dirk Greineder ["Greineder"] was charged and convicted of the murder of his wife, Mabel Greineder, by deliberate premeditation. Ms. Greineder's body was found by her husband near a dirt path in a public park. At trial, Greineder asserted his innocence and testified in his own defense. The evidence against him was entirely circumstantial, including highly-contested DNA test results that linked Greineder to a knife and gloves discovered near the body, which was introduced, not through the laboratory analyst who performed and interpreted the tests, but through the laboratory director, who had not been involved in the testing and had not reviewed any of the underlying raw data. Greineder argued that admission of that critical testimony was reversible, constitutional error.

#### A. Overview of the DNA Evidence at Trial.

DNA samples obtained from a knife and pair of brown work gloves discovered near Ms. Greineder's body and presumably used by her assailant, along with reference DNA samples from

Dirk and Mabel Greineder, were analyzed by Cellmark Diagnostics. The Commonwealth presented the results of Cellmark's testing through the testimony of Dr. Robin Cotton ["Cotton"], Cellmark's laboratory director. Cotton had no role in the testing of the evidence and did not review the raw data herself. All of Cellmark's testing in this case was conducted by Wendy Magee and reviewed by Jennifer Reynolds or Lewis Maddox, none of whom testified at trial.

Cotton testified that the majority of samples taken from the work gloves and knife produced no readable DNA, but tiny fragments of DNA found on all three items partially matched Greineder's DNA profile. She presented statistics demonstrating that it would be extremely unlikely for a random individual's DNA profile to match the DNA found on the gloves and knife at as many points as Greineder's. These test results were critical to the prosecution's case. Charts detailing the specific allelic comparisons were marked as chalks, displayed during Cotton's testimony, and distributed to jurors during her testimony and again during deliberations. On cross-examination of Cotton, defense counsel challenged the reliability of Cellmark's testing process and the accuracy of its test results.

**B. Dr. Cotton's testimony.**

**1. Forensic DNA testing in general.**

Cotton, an experienced forensic scientist, described the overall process of DNA testing to the jury. As she explained, STR-testing involves identifying specific alleles at 13 designated loci on the DNA molecule found in cellular material. The laboratory receives evidentiary samples, extracts the DNA, quantitates it, amplifies it, and subjects it to automated analysis, resulting in the production of computer-generated electropherograms containing identifiable peaks at each locus. Filters applied by the analyst determine which peaks will actually appear on the printed electropherograms. Unfiltered or raw electronic data, on the other hand, would show all peaks detected by the machine. The analyst conducting the testing instructs the computer which peaks to label as alleles and which

to ignore as artifacts of the testing process, based on the analyst's interpretation of the data. Once alleles are identified at some or all of the 13 loci tested, a statistical calculation is done, quantifying how frequently the combination of alleles identified by the analyst appears in the general population.

**2. Testing conducted by Cellmark in this case.**

Cotton testified that Cellmark received evidence samples in this case and tested them on six different dates. During the initial round of testing, Cellmark identified Greineder's DNA profile from his fingernail clippings. All of the testing in the case was conducted by Magee. Cotton did not perform any of the testing, nor did she serve as a technical reviewer. She did not personally review the underlying electronic evidence with the filters applied by Magee removed. She reviewed the documentary casefile, including the filtered electropherograms printed by Magee, prior to testifying.

Cotton testified (over objection) in great detail about the test results reported by Cellmark on the three key pieces of evidence (knife and two work gloves), as well as other items. Her allele-by-allele and locus-by-locus comparison of those results with Greineder's DNA profile was illustrated with blown-up charts marked as chalks, which were distributed to the jurors during her testimony. After detailing the results on each, she presented the likelihood in statistical terms (as calculated by Cellmark and set forth *verbatim* in Magee's reports) that the particular combination of alleles in those items partially matching Greineder's DNA profile would be found in someone randomly selected from the general population. Nowhere in the process did Cotton make any distinction between facts or data and "opinion." Further, she never gave any indication that she had personally performed or checked any of the statistical calculations herself.

**3. Cross-examination of Dr. Cotton.**

In cross-examining Cotton, defense counsel reviewed the DNA testing process employed by Cellmark, including the role of the analyst in interpreting the data. Cotton acknowledged that

Cellmark had no protocol in place delineating the peak shape of a true allele, as opposed to an artifact. Electropherograms reflecting the test results did not include all of the electronic data, as some had been filtered out at the analyst's direction. Defense counsel challenged Cotton on Cellmark's validation studies, its reliance upon an RFU threshold for allelic calls substantially below that recommended by the manufacturer of the testing kits (150) or employed by the FBI (200), and its mid-case shift in RFU threshold. Cotton acknowledged that had the evidence been analyzed at an RFU level of 200, none of the allele calls linking Greineder's DNA profile to the knife and left work glove would appear. She acknowledged that Cellmark knew Greineder's DNA profile when it tested the samples. ("In this case we knew who the knowns were.") *Tr*. 6/7/01 at 194.

## II. PROCEEDINGS IN THE MASSACHUSETTS SUPREME JUDICIAL COURT.

### A. Issue Raised on Appeal.

On direct appeal to the Massachusetts SJC, Greineder argued that Cotton's testimony reporting the inculpatory DNA test results produced by Wendy Magee was blatant, testimonial hearsay. Thus, the admission of that evidence, over objection, violated Greineder's right to confrontation under the Sixth Amendment to the United States Constitution. While Cotton did review the case file prior to testifying, she admitted that she did not examine the raw, unfiltered, empirical data. Rather, she only saw what remained after Magee instructed the computer which data to filter out, which peaks to label as actual DNA alleles, and which to treat as artifacts of the amplification process. Cotton was simply parroting the results of another scientist's exercise of judgment and discretion. Given the importance of the inculpatory DNA evidence to the Commonwealth's overall case, Greineder argued, this preserved constitutional error was clearly not harmless beyond a reasonable doubt and required reversal.

### B. Supreme Judicial Court's Resolution of the Issue Prior to Remand.

In its initial decision, the SJC rejected Greineder's claim. *Commonwealth v. Greineder*, 458 Mass. 207, 239 (2010). (*App.* 168-195) Although its decision was subsequently vacated by this Court, it is worth discussing since, on remand, the SJC largely endorsed its earlier decision and relied on it directly in certain respects. The SJC addressed the confrontation issue by separating it into two distinct parts. First, it addressed what it characterized as Greineder's challenge to the admission of Cotton's "opinion" testimony detailing statistical likelihoods based on the DNA testing. It found no error, holding that this was admissible expert opinion testimony:

> Opinion testimony may, as here, be based on hearsay and not offend the Sixth Amendment. If the particular hearsay is independently admissible (the defendant does not argue that Magee could not have testified as to details contained in her reports and on which Dr. Cotton relied) and if it is the kind of evidence on which experts customarily rely as a basis for opinion testimony (which it is ...), then an expert may give opinion testimony based on such material.... Such testimony does not violate the Sixth Amendment because the expert witness is subject to cross-examination about her opinion, as well as "the risk of evidence being mishandled or mislabeled, or of data being fabricated or manipulated, and as to whether the expert's opinion is vulnerable to these risks."... The defendant had an adequate opportunity to conduct such cross-examination, and he availed himself of that opportunity, with vigor, for the better part of two days.

458 Mass. at 236 (*citations omitted*).

Having found no error in the admission of the inculpatory "opinion" testimony, the SJC separately addressed the admission of Cotton's testimony enumerating the specific allele calls made by Magee, finding the admission of this evidence was error. It wrote:

> The defendant next challenges Dr. Cotton's testimony as to the details and results of DNA tests conducted by Magee. His objection at trial to such testimony was precise: "I would like to register my objection to Doctor Cotton's testifying about the data in this case given the fact that she hasn't done any of the work on it." This evidence, while providing basis for Dr. Cotton's opinion, was hearsay. As such, it was error to permit her to testify on direct examination to the details of the test results obtained by Magee.... Inquiry into the hearsay basis for expert opinion is the decision of the cross-examiner.

*Id.* at 236-237. The SJC held that this error was not prejudicial, reasoning that the evidence would likely have been admitted anyway, either to support a defense of third-party involvement or to

"reduce some of the sting of Dr. Cotton's opinion" by attacking her credibility. *Id.* at 239.

### C. Arguments Presented to SJC on Remand.

This Court in *Greineder v. Massachusetts*, 567 U.S. 948, 133 S.Ct. 55 (2012) (*App.* 167) vacated the judgment and remanded to the SJC for further consideration in light of *Williams v. Illinois*, 567 U.S. 50, 132 S.Ct. 2221 (2012). On remand, Greineder presented similar constitutional arguments, refined by this Court's decisions in *Bullcoming v. New Mexico*, 131 S.Ct. 2705 (2011), and *Williams*. He argued that Cotton's testimony essentially parroted the reports from Magee since Cotton told the jury, locus-by-locus and allele-by-allele, exactly what portions of Greineder's DNA profile Magee had identified in the Low Copy Number DNA mixtures on the knife and brown work gloves Magee had extracted, quantitated, amplified, tested, and interpreted.

Greineder also argued that characterizing Cotton's testimony about the random match probabilities of the portion of Greineder's DNA profile identified by Magee on each of those three key pieces of evidence as an "independent" "opinion" was specious. In fact, those same statistics were all set forth in Magee's reports and repeated word-for-word and number-by-number by Cotton in her direct testimony. Further, the random match probabilities reported by Cotton were not presented to the jury as "opinion," let alone as *her* opinion. Rather, as Cotton acknowledged, they reflected merely rote mechanical computations carried out by computer. "You could do it by hand," she testified, "but it's kind of tedious." *Tr.* 6/7/01 at 236-237. Indeed, if any portion of Cotton's testimony reflected "opinion," it was Magee's interpretive calls, duly reported by Cotton, about which peaks detected in the raw electronic data on the key pieces of evidence represented true alleles and which did not. Consequently, he argued, the SJC's bifurcated analysis, which separately addressed the test results and an "opinion" based entirely on those results, was an invalid means of circumventing the requirements of the Confrontation Clause.

For these reasons, Greineder argued, based on the majority opinion in *Bullcoming* and a combination of opinions expressing the views of a majority in *Williams*, Cotton's direct testimony recounting the substance of Magee's written reports regarding the key pieces of evidence was testimonial hearsay, admitted in violation of the Confrontation Clause of the Sixth Amendment. She told the jurors what evidence Magee tested, what alleles Magee identified on those items, which of those alleles matched Greineder's DNA profile (as determined by Magee), and what Magee determined to be the random likelihood of these partial matches. That was constitutional error.

**D. SJC's Decision on Remand.**

On remand, the SJC again rejected Greineder's arguments, largely endorsing its earlier decision and relying on it in certain respects. *Commonwealth v. Greineder*, 464 Mass. 580 (2013). (*App.* 153-166) It began by examining its longstanding precedent dealing with expert testimony, stressing the distinction drawn between underlying facts and resulting opinions:

> In Massachusetts, we draw a distinction between an expert's opinion on the one hand and the hearsay information that formed the basis of the opinion on the other, holding the former admissible and the latter inadmissible....The admission of expert opinion but exclusion of its hearsay basis protects a criminal defendant's Federal and State constitutional right to confront witnesses.... Expert opinion testimony, even if based on facts and data not in evidence, does not violate the right of confrontation because the witness is subject to cross-examination concerning his or her expert opinion and the reliability of the underlying facts and data.

464 Mass. at 584. The SJC discussed the "import" of *Williams*:

> Of great significance for our present purposes is that *Williams* focused on the admissibility of evidence of the basis of the expert's independent opinion, and not the admissibility of the expert opinion itself.... Five members of the Supreme Court concluded, albeit for different reasons, that such basis evidence is admissible without violating a defendant's confrontation right.... As we explained earlier, under Massachusetts jurisprudence, a forensic expert's opinion that relies on the data or conclusions of a nontestifying analysis is bifurcated from its basis. We allow an expert to testify to his or her independent opinion even if based on data not in evidence; we do not allow expert witnesses to testify to the specifics of hearsay information underlying the opinion on direct examination.

*Id.* at 592. Based on this, it concluded: "Thus, our rules of evidence and the protections they afford

are not inconsistent with *Williams*. *Williams* does not interpret the confrontation clause to exclude an expert's independent opinion testimony, even if based on facts or data not in evidence and prepared by a nontestifying analyst." *Id.* at 592-593. It continued:

> Moreover, where five Justices concluded that admission of underlying facts that formed the basis of an expert's opinion did not offend the confrontation clause, *Williams* allows even more than an expert's independent opinion in evidence.... As is clear by now, our evidentiary rules afford a defendant more protection than the Sixth Amendment.

*Id.* The SJC went on to reiterate its "bifurcation of admissible expert opinion from its inadmissible, hearsay basis," rejecting Greineder's claim that the two were inextricably linked in DNA analysis:

> We disagree. There is a clear distinction between the allelic information that establishes genetic makeup and the statistical significance of the data that establishes how frequently a genetic combination appears in the population at large.....it is the statistical significance of a DNA match that is of greatest use to a jury; information about the prevalence of a particular gene combination gives meaning to the underlying fact of allelic presence.

*Id.* at 599. The SJC also stated that "with DNA analysis, the testing techniques are so reliable and the science so sound that fraud and errors in labeling or handling may be the *only* reasons why an opinion is flawed." *Id.* at 587, *quoting Commonwealth v. Barbosa*, 457 Mass. 773, 790 (2010).

The SJC acknowledged that Justice Kagan's dissent in *Williams* both implicitly rejected the bifurcation of underlying data from the expert "opinion" based on that data and emphasized that the factfinder would necessarily need the underlying data in order to evaluate the expert's conclusion. *Id.* at 599-600. It reasoned, however, that this simply meant that, unless the defendant opened the door on cross-examination, the underlying data would not be presented, and the jury "may properly accord less weight to the expert's opinion." *Id.* at 600. In concluding that *Williams* had not affected its jurisprudence in this area one whit, the SJC noted that it was adhering to its approach as articulated in *Munoz* (a case which this Court also vacated and remanded). *Id.* at 594 n.15; *see Munoz v. Massachusetts*, 133 S.Ct. 102 (2012).

As to the numerous violations of the SJC's own rule in reported case law,[2/] where prosecutors introduced basis evidence during their case-in-chief with impunity, the SJC rejected the suggestion that this was a sign of a "flawed system" warranting remedial action. It concluded that better training for prosecutors would resolve this problem, citing "the scarcity of practical skills training to aid prosecutors in eliciting only opinion and not its hearsay basis from expert witnesses." *Id.* at 601.

The SJC went on to apply its unchanged legal standard to the facts of this case. It recognized that the analyst's report was testimonial, given that "the defendant was targeted as a suspect at the time Cellmark conducted DNA testing, and demonstrates that the DNA testing was conducted for the purpose of obtaining evidence for later use at trial," and that the analyst would reasonably anticipate her conclusions being used against him. *Id.* at 594 n.15. As to the argument that Cotton had merely repeated Magee's opinions, it concluded that she was not just a conduit:

> Nonetheless, and as we determined previously, the record reflects that Dr. Cotton reviewed the nontestifying analyst's work, including six prepared reports, and then conducted an independent evaluation of the data.... She then "expressed her own opinion, and did not merely act as a conduit for the opinions of others."... Moreover, we will not exclude expert opinion just because statistics indicating the significance of the genetic information have been included in the report provided to the expert.... In fact, similar views on the statistical significance of allelic information extrapolated from test samples only lends credence to an expert's independent opinion.

*Id.* at 595. It did so while acknowledging that "the expert had only reviewed the filtered, printed data (as opposed to the raw, electronic data)." *Id.* at 595 n.16. The SJC then reasoned that, because Greineder could cross-examine the lab director about Cellmark's testing procedures, his confrontation rights were fulfilled. Indeed, the SJC claimed, Cotton was actually "in a better position" than Magee to answer certain questions about the testing process! *Id.* at 597-598. *See also*

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[2/] An *amicus* brief filed in 2012 detailed some 21 violations of this principle reflected in reported Massachusetts case law by 2012.

*id.* at 584, 585, 586, 595, 596, 599 (asserting that cross-examining substitute analyst is sufficient).

With respect to the admission of underlying data on Cotton's direct examination, the SJC reiterated its prior conclusion that there was no prejudice since the defense made use of some of the data to support a theory that there was a third party perpetrator and to attack Cotton's credibility. *Id.* at 602-603. The SJC thus refused on remand to alter either its legal standard for determining the admissibility of substitute expert testimony or its decision affirming Greineder's conviction.

## III. *HABEAS* PROCEEDINGS IN THE UNITED STATES DISTRICT COURT.

On July 17, 2015, Greineder filed a *Petition for Writ of Habeas Corpus* pursuant to 28 U.S.C. §2254, asserting, *inter alia,* that *habeas* relief is warranted because admission of inculpatory DNA test results, over objection, through testimony of an expert witness who neither conducted the testing nor reviewed the raw data produced by a non-testifying analyst, violated Greineder's constitutional right to confrontation under the Sixth Amendment, and the error was not harmless.

On September 7, 2018, a Magistrate Judge issued a 147-page *Report and Recommendation on Petition for Writ of Habeas Corpus* [hereinafter " *R&R"*] recommending denial of Greineder's *habeas* petition. (*App*. 5-151) On May 6, 2019, the District Court (Stearns, J.) issued a 3-page *Order on Report and Recommendation of the Magistrate Judge*, explicitly "adopting" the analysis of a 147-page *Report and Recommendation,* denying the petition for writ of *habeas corpus*, and denying a Certificate of Appealability as to petitioner's claims. (*App.* 2-5).

In recommending denial of habeas relief as to this claim, the Magistrate Judge's *R&R* (adopted by the District Court) made three principal recommended findings. First, the R&R recommended finding that the SJC's factual determination that Cotton was testifying to her "independent opinion," rather than serving as a mere conduit for Magee's findings and conclusions, was "amply supported by the record." (App. 58-61, 78). Second, the R&R recommended finding

that the SJC decision affirming admission of portions of Cotton's testimony as her own independent "opinion" was not contrary to nor an unreasonable application of clearly established federal law because the federal law is "unclear (and thus not clearly established)." (App. 58, 77-79). Third, the R&R recommended denying habeas relief based on the SJC's conclusion that admission of Cotton's "factual" testimony regarding the presence of particular alleles was harmless. (App. 58, 80-83).

**V. DENIAL OF CERTIFICATE OF APPEALABILITY BY THE FIRST CIRCUIT.**

On December 9, 2019, the United States Court of Appeals for the First Circuit summarily denied Greineder's application for a certificate of appealability and terminated his appeal, stating: "After careful review of petitioner's submissions and relevant portions of the record below, we conclude that petitioner has failed to demonstrate that reasonable jurists would find the district court's assessment of his claims debatable or wrong, and petitioner, therefore, has failed to make 'a substantial showing of the denial of a constitutional right.' 28 U.S.C. § 2253(c)(2); *Slack v. McDaniel*, 529 U.S. 473, 484 (2000)(certificate of appealability standard)." (*App.* 1).

## REASONS FOR GRANTING THE PETITION

### I. THIS COURT SHOULD GRANT THE PETITION BECAUSE THE FIRST CIRCUIT'S DENIAL OF A CERTIFICATE OF APPEALABILITY HAS ERRONEOUSLY SANCTIONED THE MASSACHUSETTS SJC'S MISUSE OF THIS COURT'S DECISION IN *WILLIAMS* TO SUPPORT ITS UNCONSTITUTIONAL APPROACH TO ADMITTING SCIENTIFIC EVIDENCE BY SUBSTITUTE ANALYSTS.

#### A. Summary of Applicable Law.

##### 1. Standard for Certificate of Appealability.

A Certificate of Appealability requires only "a substantial showing of the denial of a constitutional right." 28 U.S.C. § 2253(c)(2). "A petitioner satisfies this standard by demonstrating that jurists of reason could disagree with the district court's resolution of his constitutional claims or that jurists could conclude the issues presented are adequate to deserve encouragement to proceed

further." *Miller-El v. Cockrell*, 537 U.S. 322, 327 (2003).

**2. Summary of Supreme Court decisions as to the Confrontation Clause.**

**a. *Melendez-Diaz*.**

In *Melendez-Diaz v. Massachusetts*, 557 U.S. 305 (2009), this Court held that the Confrontation Clause, as interpreted in *Crawford v. Washington*, 541 U.S. 36 (2004), barred introduction of drug certificates in the absence of live testimony by a laboratory analyst:

> In short, under our decision in *Crawford* the analysts' affidavits were testimonial statements, and the analysts were "witnesses" for purposes of the Sixth Amendment. Absent a showing that the analysts were unavailable to testify at trial and that petitioner had a prior opportunity to cross-examine them, petitioner was entitled to "'be confronted with'" the analysts at trial.

557 U.S. at 311. The Court emphasized the importance of confrontation:

> Confrontation is designed to weed out not only the fraudulent analyst, but the incompetent one as well. Serious deficiencies have been found in the forensic evidence used in criminal trials. One commentator asserts that "[t]he legal community now concedes, with varying degrees of urgeny, that our system produces erroneous convictions based on discredited forensics."

*Id.* at 319. Surveying recent studies and cases, the Court rejected the suggestion that "[f]orensic evidence is [] uniquely immune from the risk of manipulation," *Id.* at 318.

**b. *Bullcoming*.**

Just two years later, the Court again addressed the interaction of the Sixth Amendment and scientific evidence. In *Bullcoming v. New Mexico*, 131 S.Ct. 2705 (2011), the defendant was charged with DWI. At trial, the principal piece of evidence against him was a forensic laboratory certificate specifying his blood-alcohol level. The analyst who did the testing and signed the certificate was not called as a witness. Instead, another analyst, who was familiar with the testing procedures but not involved in the analysis of Bullcoming's sample, testified for the prosecution about the testing results as set forth in the report, which was admitted into evidence as a business record.

The Court found this to be violative of the Sixth Amendment, again rejecting the argument

that the inherent reliability of the evidence made it admissible. It summarized its decision:

> The question presented is whether the Confrontation Clause permits the prosecution to introduce a forensic laboratory report containing a testimonial certification—made for the purpose of proving a particular fact—through the in-court testimony of a scientist who did not sign the certification or perform or observe the test reported in the certification. We hold that surrogate testimony of that order does not meet the constitutional requirement. The accused's right is to be confronted with the analyst who made the certification, unless that analyst is unavailable at trial, and the accused had an opportunity, pretrial, to cross-examine that particular scientist.

*I*d. at 2710. It noted that its evaluation was not dependent on the quality of the underlying analysis:

> [T]he analysts who write reports that the prosecution introduces must be made available for confrontation even if they possess "the scientific acumen of Mme. Curie and the veracity of Mother Teresa."

131 S. Ct. at 2715, *quoting Melendez-Diaz*, 557 U.S. at 319, n.6. As to the suggestion that the presence of the surrogate was adequate, it wrote:

> But surrogate testimony of the kind Razatos [the witness] was equipped to give could not convey what Caylor [the analyst] knew or observed about the events his certification concerned, *i.e.*, the particular test and testing process he employed. Nor could such surrogate testimony expose any lapses or lies on the certifying analyst's part.

*Id*. The Court further rejected the underlying premise of the surrogate theory:

> [T]he Clause does not tolerate dispensing with confrontation simply because the court believes that questioning one witness about another's testimonial statements provides a fair enough opportunity for cross-examination.

*Id.* at 2716. It therefore concluded: "In short, when the State elected to introduce Caylor's certification, Caylor became a witness Bullcoming had the right to confront. Our precedent cannot sensibly be read any other way." *Id.*

**c. *Williams*.**

Less than one year later, on June 18, 2012, this Court decided *Williams v. Illinois*, 567 U.S. 50, 132 S.Ct. 2221 (2012). The defendant in *Williams* was charged with rape. At his bench trial, the prosecutor called an expert from the state police lab who testified that a male DNA profile obtained

by Cellmark from the victim's vaginal swab matched the profile produced by the state police lab from a sample of the defendant's blood. The defendant moved to exclude the expert's testimony "with regards to testing done by [Cellmark]" under the Confrontation Clause. 132 S.Ct. at 2229. The trial judge refused to exclude the expert's testimony.

Cellmark had conducted its testing before any suspect had been identified, and it had no access to the defendant's DNA profile. After Cellmark reported the DNA profile found in the vaginal swab, it was compared to the state DNA database, resulting in a "cold hit" on the defendant's profile. The victim subsequently picked the defendant out of a lineup. The DNA evidence was introduced under Illinois Rule 703, which admits expert opinion testimony based on information not in evidence, as well as underlying facts supporting that opinion testimony, though not for their truth.

**(1) The plurality opinion ("targeted accusation" requirement).**

Justice Alito authored an opinion on behalf of himself, Chief Justice Roberts, and Justices Kennedy and Breyer,[3/] affirming the conviction. The plurality concluded that the expert's testimony about the source of the DNA tested by Cellmark was not admitted for its truth and, in any event, that Cellmark's report was non-testimonial because it had been prepared before any suspect had been identified, so it was not intended to produce evidence against a targeted individual. 132 S.Ct. at 2228, 2243-2244. That contrasted with the circumstances present in *Melendez-Diaz* and *Bullcoming,* where the lab reports were prepared "for the purpose of proving the guilt of a particular criminal defendant at trial." *Id.* at 2243-2244. Moreover, there was "no suggestion that anyone at Cellmark had a sample of [Williams'] DNA to swap in by malice or mistake." *Id.* Under the circumstances,

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[3/] Justice Breyer also wrote a separate concurring opinion lamenting the Court's failure to delineate a "generally applicable" rule respecting the admissibility of forensic evidence and reiterated his position that reports documenting laboratory testing, which "takes place behind a veil of ignorance," should be deemed reliable and admissible for all purposes. 132 S.Ct. at 2244-2254.

"there was no 'prospect of fabrication' and no incentive to produce anything other than a scientifically sound and reliable profile." *Id.* The plurality also noted that the trial witness didn't quote from or read from the Cellmark report, nor did she identify it as the source of any of her opinions. *Id.* at 2230. The plurality noted also the importance of the fact that the trial was in front of a judge instead of a jury. *Id.* at 2236-2237. Justice Alito acknowledged that the argument that the witness's testimony about the actual source of the material tested by Cellmark (a vaginal swab from the victim) was necessarily offered and considered for its truth since it served no other purpose, "would have force if petitioner had elected to have a jury trial," but since it was a bench trial, he would assume that the trial judge followed the applicable law and did not substantively misuse the expert's testimony "as providing critical chain-of-custody evidence." *Id.* at 2236-2237.

**(2) Justice Thomas's concurrence ("formality" requirement).**

In a separate concurrence, Justice Thomas rejected the plurality's conclusion that the statements from Cellmark's report were not introduced for their truth. He stated:

> There is no meaningful distinction between disclosing an out-of-court statement so that the factfinder may evaluate the expert's opinion and disclosing that statement for its truth.

*Id.* at 2257. He noted "[t]he validity of [the testifying expert's] opinion ultimately turned on the truth of Cellmark's statements," *Id.* at 2258, and the potential dangers of the plurality's approach:

> It is no answer to say that "safeguards" in the rules of evidence will prevent the abuse of basis testimony.... To begin with, courts may be willing to conclude that an expert is not acting as a "mere condui[t]" for hearsay ... as long as he simply provides some opinion based on that hearsay.

*Id.* at 2259. "I share the dissent's view of the plurality's flawed analysis," he added. *Id.* at 2255.

Despite his general agreement with the four dissenting Justices and his disagreement with the plurality opinion, Justice Thomas concluded that, in his view, the signed, yet unsworn, Cellmark report underlying the expert's trial testimony lacked sufficient indicia of formality to qualify as

"testimonial" under the Confrontation Clause. On that specific ground, adopted by no other member of the Court, he concurred that the admission of the testimony at issue did not violate the Constitution and joined the plurality in voting to affirm the defendant's conviction. *Id.* at 2259-2264.

**(3) The dissenting opinion (basic "evidentiary purpose" test).**

Four Justices (Kagan, Scalia, Ginsburg, and Sotomayor) dissented in an opinion written by Justice Kagan. They noted at the outset:

> In two decisions issued in the last 3 years [*Melendez-Diaz* and *Bullcoming*], this Court held that if a prosecutor wants to introduce the results of forensic testing into evidence, he must afford the defendant an opportunity to cross-examine an analyst responsible for the test.

132 S.Ct. at 2264. "Under our Confrontation Clause precedent," they declared, "this is an open and shut case." *Id.* Justice Kagan explained why the defendant had the right to cross-examine the analyst who conducted Cellmark's testing and why a substitute expert would not pass constitutional muster:

> "[W]hen the State elected to introduce" the substance of Cellmark's report into evidence, the analyst who generated that report "became a witness" whom Williams "had the right to confront." *Bullcoming*, 564 U.S., at ––––, 131 S.Ct., at 2716. As we stated just last year, "Our precedent[s] cannot sensibly be read any other way." *Ibid*. ....Williams's attorney could not ask questions about that analyst's "proficiency, the care he took in performing his work, and his veracity."... He could not probe whether the analyst had tested the wrong vial, inverted the labels on the samples, committed some more technical error, or simply made up the results...."Nor could such surrogate testimony expose any lapses or lies" on the testing analyst's part.

132 S.Ct. at 2267-2268. Justice Kagan rejected the argument that the substance of the analyst's report could be admitted as support for the testifying expert's opinion, noting that to evaluate the validity of the opinion, the factfinder would necessarily have to assess the truth of the statements in the report. Justice Kagan noted that "[i]n all except its disposition," the plurality opinion authored by Justice Alito "is a dissent" since "[f]ive Justices specifically reject every aspect of its reasoning and every paragraph of its explication." 132 S.Ct. at 2265.

**B. Contrary to the First Circuit's Decision, Habeas Relief is Warranted.**

### 1. The introduction of Cotton's testimony violated Greineder's Sixth Amendment rights as set forth in *Bullcoming*.

This is a straightforward case under federal precedent. The SJC's evasion of that precedent was deeply flawed, both in its factual predicates, its logic, and its legal applications. The facts supporting this argument are clear. As even the SJC acknowledged on remand: (1) the non-testifying laboratory analyst prepared reports which, based on their anticipated use against an already-identified defendant, were "testimonial"; (2) information regarding the alleles as well as the statistics about the likelihood of the match were contained in the reports generated by the laboratory analyst; (3) the testifying expert witness repeated the information contained in the reports, both details and results, including allele calls as well as their statistical significance, to the jury; and (4) the testifying expert witness had never reviewed the unfiltered electronic data, and had reviewed only the data as limited and filtered by the analyst through the use of the analyst's independent judgment.[4/] Under *Bullcoming*, these facts -- that testimonial statements were introduced for their truth without an opportunity to cross-examine the person who made them -- establish a clear violation of the Confrontation Clause. *See* 131 S.Ct. at 2716. The only difference from *Bullcoming* -- that the content of the reports was repeated orally by a witness rather than simply introduced into evidence as a business record -- is without constitutional significance. *See Young v. United States*, 63 A.3d 1033, 1044 (D.C. 2013) ("[L]awyers may not circumvent the Confrontation Clause by introducing the same substantive testimony in a different form"). Indeed, Justice Sotomayor's concurring opinion

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[4/] See 464 Mass. at 594 n.15 ("we...conclude that Dr. Cotton's testimony regarding the DNA analyst's test results was admitted in error for the additional reason that the nontestifying analyst's report was testimonial"); *id.* at 595 ("The multiple reports submitted by Cellmark included statistical calculations on the frequency that the genetic makeup recovered from evidence collected from the crime scene appears in the population, as well as conclusions regarding whether the defendant could be excluded as a source of DNA obtained from these samples"); *id.* at 602 ("in this case, Dr. Cotton did testify, to the details and results of the nontestifying analyst's DNA test results"); *id.* at 595 n.16 ("the expert had only reviewed the filtered, printed data (as opposed to the raw, electronic data)").

in *Bullcoming*, offered to limit the scope of that decision, makes it abundantly clear that the present case falls squarely within its ambit: the report here was generated with the purpose of incriminating Greineder; Cotton had no personal involvement in the testing; Cotton was not asked for an independent opinion about unadmitted underlying information; and it did not involve only machine-generated results. *See* 131 S.Ct. at 2721-2722 (Sotomayor, J., concurring).

This application of the holding of *Bullcoming* is not changed by *Williams*. Indeed, *Williams* reinforces this conclusion, based upon the reasoning expressed by a majority of the members of the Court. Based upon the views of Justice Kagan and her three colleagues who joined her opinion, this, too, should be "an open and shut case." 132 S.Ct. at 2264. For all of the reasons expressed in that opinion, Greineder had the right to challenge the DNA test results introduced at trial by confronting the analyst who produced those results, not someone else. Further, the plurality opinion of four other Justices authored by Justice Alito also supports Greineder here. The plurality deemed Cellmark's report in *Williams* non-testimonial because it was produced before a suspect had been identified, it was not intended for use against the defendant at trial, and the lab neither knew the defendant's DNA profile nor possessed a sample of his DNA when it tested the crime scene sample. 132 S.Ct. at 2228, 2243-2244. Here, by contrast, Greineder had already been targeted as the suspect, the testing was performed to buttress the Commonwealth's case against him at trial, and Cellmark had a sample of his DNA which it used to determine his DNA profile *before* Magee tested the key pieces of evidence and made her allele calls. That makes the substance of Magee's reports, as recounted by Cotton, testimonial under the plurality's "primary purpose" test.[5/] In sum, under

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[5/] Justice Alito's opinion made much of the fact that *Williams* was tried by a judge, not a jury, so the information would presumably not have been (improperly) considered for its truth. Greineder was tried by a jury, and the prosecution presented blown-up color charts to the jurors during Cotton's testimony and deliberations to ensure that the jury would rely substantively on Magee's test results.

*Williams*, seven[6/] members of the Court would presumably characterize Cotton's direct testimony as testimonial hearsay admitted in violation of the Confrontation Clause. One court has characterized the result of *Williams* as follows: "While Justice Alito's rationale and Justice Thomas's rationale may not be includible *within each other*, the different tests they utilize to determine whether a statement is testimonial are subsumed within and narrower than *the dissenters'* test." *Young*, A.3d at 1043. When these various positions are considered together, a meaningful rule can be deduced:

> It therefore is logically coherent and faithful to the Justices' expressed views to understand *Williams* as establishing – at a minimum – a sufficient, if not a necessary, criterion: a statement is testimonial at least when it passes the basic evidentiary purpose test plus *either* the plurality's targeted accusation requirement or Justice Thomas's formality criterion. Otherwise put, if *Williams* does have precedential value as the government contends, an out-of-court statement is testimonial under that precedent if its primary purpose is evidentiary and it is either a targeted accusation or sufficiently formal in character.

*Id.*[7/] Under *Williams*, regardless of which test is applied, Magee's reports must be considered testimonial because they were made with anticipation of likely use at trial of a known suspect.

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[6/] Based on his separate concurrence, Justice Breyer might have no problem with Cotton's testimony. *But see* 132 S.Ct. at 2250 (emphasizing "veil of ignorance," non-existent here). Justice Thomas might adhere to his uniquely-held position that the absence of a formal sworn certification from Magee's signed reports somehow insulated their contents from being deemed "testimonial" when repeated by someone else -- even though the SJC concluded that the reports were testimonial.

[7/] *See, e.g., State v. Kennedy*, 735 S.E.2d 905, 917 (W.Va. 2012) (unnecessary to determine "narrowest grounds" of *Williams* where autopsy report qualified as testimonial under both a "primary purpose" test and a "targeted individual" test); *Martin v. State*, 60 A.3d 1100 (Del. 2013) (relying on *Williams* and *Bullcoming* to require testimony of testing analyst, not just substitute analyst, where statements would qualify as testimonial both under dissent's test and plurality's primary purpose test); *State v. Norton*, 117 A.3d 1055 (Md. 2015) (finding forensic DNA case report to be testimonial both under test derived from opinions in *Williams* and *Bullcoming*); *United States v. Dollar*, 69 M.J. 411 (C.A.A.F. 2011) (*per curiam*) (admission of drug testing reports during testimony of government expert witness was error, where author of drug testing reports did not testify and expert acted as "surrogate" witness for the author of the reports); *United States v. Cavitt*, 69 M.J. 413 (C.A.A.F. 2011) (*per curiam*) (admission of testimony of expert who relied on and relayed information contained within urinalysis report was error because author of report did not testify); *United States v. Trotman*, 406 Fed. Appx. 799 (4th Cir. 2011)(unpublished) (reversal of conviction where testifying chemist had not actually tested substances or observed the testing).

The SJC erred in refusing to accept this straightforward logic. Its approach was based on a twisted evaluation of the trial transcript and on a logical progression that, frankly, makes little sense. The SJC acknowledged some of the federal precedent before essentially ignoring it in favor of its own jurisprudence. The errors of the SJC can be approached through a variety of lenses, corresponding to the different theories of *habeas* relief under AEDPA, each of which were wrongly denied by the District Court and left undisturbed by the First Circuit's denial of a COA.

**2. The SJC decision was based on an unreasonable determination of the facts.**

First, the SJC's decision is based on factual determinations which are not defensible on the record in this case. The SJC explicitly based its reasoning on several related factual statements as to Cotton's testimony. It stated that "Dr. Cotton reviewed the nontestifying analyst's work...and then conducted an independent evaluation of the data."464 Mass. at 595. It stated that she "expressed her own opinion," and was not "a conduit for the opinions of others." *Id.* It also stated that Cotton had reached "similar views on the statistical significance of allelic information" as Magee. *Id.* These statements, which form the predicate for the SJC's analysis, are not supported by the record.

Cotton was a conduit for Magee's work. Contrary to the SJC, Cotton was not presented to the jury as having produced her own independent opinions. When she testified on direct examination as to the DNA results, Cotton did not even claim to have reached independent opinions. Rather, she repeated, based on the reports, the information and conclusions generated by Magee. In explaining her role, she was questioned as follows (*Tr.* 6/6/01 at 206-208):

Q: Now, Doctor Cotton, did Cellmark Diagnostics receive samples in this case, the case of the Commonwealth versus Dirk Greineder, the Commonwealth of Massachusetts, for testing?
A: Yes, we did.....
Q: And at some point each of those were tested and responded to by Cellmark in the form of a report; is that correct?.....
A: Yes, that's correct.
Q: And have you had an opportunity to review those reports?

A: Yes, I have.
Q: And did you actually conduct the individual testing?
A: No, I did not.
Q: And do you know who, in fact, did conduct the individual testing?
A: Yes, I do.
Q: And who was that?
A: Wendy Magee.
Q: And what else did you have an opportunity to review, other than the reports with respect to all of the items that were submitted on this case?
A: The information that I have reviewed – there are a lot of items in this case, so the black binder that I'm holding onto right here and the white binder that's at my feet contain the entirety of the data that was produced in this case. Wendy did the work. It was initially reviewed by two other Ph.D. scientists in our lab. They are unavailable for court, and I have reviewed the information in preparation for coming to court.

From this, and the rest of her testimony, it was clear to the jury that she was conveying results obtained by someone else. Cotton told the jury that items had been sent to Cellmark, that employees at Cellmark had generated electropherograms, that based on those the employees had generated tables of alleles, and then they had produced statistical calculations, by computer, of random match probabilities. She never claimed to have done any of these things personally. Her role was to present, and attempt to defend, Cellmark's (*i.e.*, Magee's) work. She was there to explain Cellmark's reports, and her testimony was based on reports she specifically referenced. Cotton was very careful in couching her testimony, as to each step of the work, either in the passive voice (i.e., these steps were done) or in the plural (i.e., "we" [meaning Cellmark] did this). She never asserted that she had done anything prior to testifying, other than to review Magee's reports and Magee's filtered data. To conclude that Cotton's testimony was presented to the jury as an independent evaluation or that she expressed her own expert opinion is to disregard the record. Similarly, it makes no sense to assert that Cotton reached "similar views" regarding the "statistical significance" of the allelic information, when it was clear that she had not herself done *any* statistical evaluations herself and was merely repeating the computer-generated statistics supplied in Magee's reports.

There were not two sets of statistical analyses that happened to come to the same result. There was only one, done by Magee, and read into evidence by Cotton.

In sum, the SJC's conclusion that Cotton had offered "her own opinion" or conducted "an independent evaluation" is simply not borne out by the testimony given at trial. The SJC's analysis depends on a fantasy that Cotton somehow was presented to the jury as having herself repeated all of Magee's analytical thought-processes and having reached the exact same conclusions. This is not what the jury was told. The jury was not asked to accept her opinions. It was asked to accept Cellmark's opinions as developed by Magee. The SJC's determination on these critical points was unreasonable under AEDPA. Yet without those factual predicates, the SJC's analysis collapses.

Contrary to the First Circuit's denial of COA, jurists of reason could disagree with the District Court's rejection of Greineder's argument that the SJC's decision bifurcating DNA "facts" (allele calls) from "opinions" (statistics) was based on an unreasonable determination of the facts. The Magistrate Judge's R&R claimed the record supported the SJC's conclusion that Cotton, in response to questioning on direct examination, provided different calculations based on different assumptions. However, the R&R acknowledged that Cotton did not in fact review or make her own calculations based on the unfiltered data, nor did Cotton make her own calculations based on the filtered data. (App. 56-59 ). Each of the calculations and assumptions Cotton testified to correspond exactly to those generated in Magee's reports based on different requests made by police investigators. The transcript references to which the R&R cites do not bear out the claim that Cotton "made her own comparisons" or "rel[ied] on her own evaluation of the data." (App. 60-61). Rather, a close review of the citations reinforces the opposite conclusion, i.e., that in reviewing Magee's work in preparation for court, Cotton acted solely as a conduit for Magee's work.

The SJC's description of Cotton's testimony citing Magee's statistical analysis typifies

precisely the fear voiced by the dissenters in *Williams* and the majority in *Bullcoming* that by presenting one analyst's conclusions as another analyst's "expert opinion," prosecutors would be able to slip testimonial hearsay in through the back door. Greineder was unable to cross-examine Magee about the specific circumstances of each of these tests or allele calls, and could not cross-examine Cotton about these circumstances because she was not present during the tests. Nevertheless, Magee's specific conclusions from these tests were presented to the jury as fact and recounted at times verbatim in Cotton's testimony, only to be disguised later as her independent expert opinion. And yet, the R&R recommended concluding that Cotton conducted sufficient "independent evaluation" to produce an "independent opinion" regarding whether the DNA profiles generated matched Dirk and May Greineder and the statistical likelihood that these DNA profiles would match another random person. In sum, the analysis of the Magistrate Judge's R&R (adopted by the District Court and left undisturbed by the First Circuit) is flawed because of its determination that, in this case, Cotton actually gave an opinion independent of Magee's work.

**3. The SJC decision was contrary to or an unreasonable application of clearly established Federal law.**

The Magistrate Judge's R&R recommended denial of Greineder's claim because, in her view, the SJC's decision affirming the admissibility of Cotton's so-called "opinion" testimony (divorced from her so-called "fact" testimony) was "not contrary to well-settled federal law" (App. 58, 77-79), specifically citing this Court's decisions in *Bullcoming*, 564 U.S. at 652, and *Williams,* 567 U.S. 50. However, the majority of justices in both cases disapproved of such an approach, where a substitute expert's independent opinion testimony is expressly grounded on the testimonial forensic report of a non-testifying analyst and the contents of that report are disclosed to the factfinder. The Confrontation Clause "does not tolerate dispensing with confrontation simply because the court believes that questioning one witness about another's testimonial statements provides a fair enough

opportunity for cross-examination." *Bullcoming*, 564 U.S. at 662. Cotton's testimony parroting Magee's testimonial statements, introduced for their truth, and without an opportunity to cross-examine the person who made them (Magee), for the purpose of incriminating Greineder, was a clear violation of the Confrontation Clause. *See Bullcoming*, 564 U.S. at 660 ("Could an officer other than the one who saw the number on the house or gun present the information in court - - so long as that officer was equipped to testify about any technology the observing officer deployed and the police department's standard operating procedures? As our precedent makes plain, the answer is emphatically 'No'." (*Citing Davis v. Washington*, 547 U.S. 813, 826 (2006)).

This Court's holding in *Bullcoming,* 564 U.S. at 652, bars the prosecution from funneling Magee's uncross-examined testimonial report into evidence through another witness who did not directly supervise the report. Further, *Bullcoming* expressly disapproves of the admission of a substitute analyst's testimony, even where the analyst is affiliated with the organization that performed the test and can testify regarding the organization's general procedures and practices. Cross-examining someone with knowledge of a lab's general procedures will not enable a defendant to use cross-examination to weed out the incompetent or fraudulent analyst. Even a knowledgeable surrogate like Cotton cannot testify to whether Magee followed the lab's procedures, chain-of-custody protocols, or made biased allele calls to generate inculpatory evidence.

The *R&R* acknowledged that the "factual" component of Cotton's testimony, both the chalks and her oral testimony recounting the allele and loci information generated by Magee, were admitted in violation of the Confrontation Clause as testimonial hearsay. However, the *R&R* did not apply that rule to the statistical analysis from Magee's report that was admitted as part of Cotton's testimony on direct examination, even though Greineder was unable to cross-examine Magee regarding the circumstances of the tests producing the results underlying these conclusions. Instead, the SJC and

the *R&R* approved of the admission of the purported "opinion" portions of Cotton's testimony because they concluded that these portions could be divorced from their extensive factual predicate. While an expert is arguably allowed to provide truly independent opinion premised on testimonial facts not provided to the fact finder, she cannot do so while disclosing those facts to the jury. Such a practice amounts to the surrogate testimony barred in *Bullcoming*.

To distinguish Greineder's case from *Bullcoming*, the *R&R* cites the two scenarios posed in Justice Sotomayor's concurrence to support the conclusion that *Bullcoming* does not govern Greineder's case, namely that *Bullcoming* did not address a situation where someone with a personal but limited connection to the test at issue testified or where the expert was asked to provide an independent expert opinion based on testimonial reports not themselves admitted into evidence. However, neither circumstance was present in Greineder's case. Cotton stood at a far greater distance relative to Magee's tests than did the supervisors in *Barbosa*, 812 F.3d at 63, and *Williams*, 567 U.S. at 56-57, and is far more analogous to the testifying analyst in *Bullcoming*. Cotton does not fit Justice Sotomayor's clarifying example of a supervisor who observed an analyst conducting a test and testified about its results.[8/] Nor could she be cross-examined about whether chain-of-custody was

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[8/] The case of *Barbosa v. Mitchell*, 812 F.3d 62 (1st Cir. 2016), upon which the R&R relied, is distinguished from *Bullcoming* because the testifying analyst was the non-testifying analyst's direct supervisor and signed the report at issue, thus a defendant could meaningfully cross-examine the testifying supervisors about the circumstances of the specific tests. While Cotton, as forensic laboratory director of Cellmark, had "overall responsibility for the work that is done in the laboratory," (F.S.A. 01551, 01545) she had no direct connection to Magee's tests or reports. Although Cotton sometimes technically reviewed cases, Greineder's case was not one of those cases. Rather, Magee's work in this case was technically reviewed by Jennifer E. Reynolds, Ph.D. (F.S.A. 02134, 02138, 02140, 02142, 02147) and Lewis O. Maddox, Ph.D. (F.S.A. 02152, 02156, 02162, 02167, 02172), neither of whom were called to testify. Cotton made clear that Magee's work "was initially reviewed by two other Ph.D. scientists in our lab. They are unavailable for court, and I have reviewed the information in preparation for coming to court." *Tr.* 6/6/01, 206-208 (F.S.A. 01588) Cotton's review consisted only of looking over Magee's completed reports, long after they were prepared, in preparation for trial. *Tr.* 6/6/01, 206-208.

maintained, or whether results were subject to bias or manipulation. *See Jenkins v. United States*, 75 A3d 174 (D.C. 2013)(testimony by head of FBI's DNA analysis laboratory, whose job was to "manage" the laboratory but not to perform tests himself, violated Confrontation Clause by testifying to the contents of non-testifying technician's report).

This was not a circumstance where "an expert witness was asked for his independent opinion about underlying testimonial reports that were not themselves admitted into evidence." *Bullcoming*, 564 U.S. at 673 (Sotomayor, J., concurring). As the *R&R* stated, all of Cotton's testimony was delivered as "straightforward facts." (App. 57) The prosecutor did not ask her to separate her testimony into an opinion and predicate portion, or for her explicitly independent opinion such that a jury could discern a difference and weigh the evidence accordingly. No limiting instruction was given regarding how the jury should interpret Cotton's testimony or that it should disregard the "factual" portion. Although Magee's reports were not themselves admitted separately into evidence, Cotton repeated the contents and conclusions of the reports at length and their contents were given to the jury as chalks in acknowledged violations of Greineder's right to confront. *See U.S. v. Ramos-Gonzalez*, 664 F.3d 1 (1st Cir. 2011)(drug testimony of substitute analyst who "recit[ed]" testing analyst's report wrongly admitted per *Bullcoming*).

In sum, *Bullcoming* clearly establishes that the prosecution cannot use that independent expert as a substitute witness to introduce the contents of a non-testifying analyst's forensic report to a jury. That is precisely what the prosecution did in Greineder's case, including both Magee's allele calls and the statistical and comparison information. Cotton was the only vehicle for this DNA evidence to make it to the jury. She was not called to give an independent opinion based on materials which were introduced some other way, or which were not introduced at all. Rather, she was the mechanism by which the DNA evidence, Magee's testimonial report, and its significance was

presented to the jury. Thus, all of her testimony during direct examination violated *Bullcoming*.

The *R&R* relied on the uncertainty produced by the fractured decision in *Williams v. Illinois*, 567 U.S. 50 (2012) and the denial of habeas petitions in three other cases presenting similar issues (*i.e. Barbosa v. Mitchell*, 812 F.3d 61 (1st Cir. 2016); *Mattei v. Medeiros*, 2018294402, at *4, n.2 (D. Mass. 2018); and *Jackson v. Palmer*, 2017 WL 4225446, at *6 (E.D. Mich. 2017)), to conclude that there is no clear federal law contrary to the proposition that an expert witness can provide her own independent opinion based on testimonial hearsay. While it is apparent that the Court's holding in *Williams* has muddied the waters of the Court's Confrontation Clause jurisprudence, *Williams* cannot be relied on to permit the admission of Cotton's testimony for two reasons. First, whatever the holding of *Williams* is, it only applies where the materials at issue are non-testimonial, as that is the only point of agreement between the plurality opinion and Justice Thomas' concurrence, and thus the narrowest grounds of the opinion. Second, when the forensic report at issue is testimonial, as the SJC and the *R&R* concluded Magee's was, five members of the *Williams* court expressly described as hearsay the use of its contents as basis evidence for an expert's opinion.

The only point upon which the five justices who found no Confrontation Clause violation in *Williams* agreed was on the basis that the Cellmark report in that instance was non-testimonial. The plurality viewed the report as non-testimonial because it was not a targeted accusation. Justice Thomas viewed the report as non-testimonial because it was not sufficiently formalized. Thus, the narrowest ground for the majority's decision that an expert witness is permitted under the Confrontation Clause to testify regarding a forensic report not in evidence should be limited to cases like *Williams* where the forensic report is non-testimonial. However, the SJC and the R&R both found in this case that Magee's report was testimonial and that Cotton's testimony extensively relaying its contents clearly violated his constitutional rights.

Moreover, five Justices in *Williams* concluded that, where a forensic DNA report is testimonial in nature, the admission of its contents as "basis evidence" for another expert's opinion amounts to hearsay. These five justices, the same five who formed the majorities in *Melendez-Diaz* and *Bullcoming*, would have ruled that, had the Cellmark report in *Williams* been testimonial, that relying on and referencing its contents as part of an expert's opinion testimony violated the Confrontation Clause. While the *R&R* did not assert that Magee's report served as basis evidence, it did conclude that *Williams* either expressly permits or did not clearly establish a Confrontation Clause violation when an expert witness presents opinion testimony premised on testimonial materials. That view contradicts the express conclusions of five justices in *Williams*.

Relying on the plurality's decision in *Williams* to conclude that an expert's independent opinion testimony premised on a testimonial report is not hearsay is also erroneous because, unlike in *Williams*, Greineder did not receive a bench trial and the DNA data in his case was submitted to a jury who received no instruction regarding how to weigh this information.[9/] Moreover, unlike in *Williams*, where the alleged violation was a single clause within a prosecutor's question, Cotton provided days' worth of testimony directly premised on testimonial materials. It is hard to see how a jury would not have relied on this material or viewed it as factually sound.[10/]

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[9/] One of the key rationales cited by the *Williams* plurality for its conclusion that opinion testimony referencing testimonial factual information is not hearsay was that the *Williams* defendant received a bench trial. It noted that in a jury trial, the judge would likely have been forced to issue an instruction to the jury that it should not consider the factual predicate as true. In Greineder's case, all of Cotton's testimony, including her DNA comparisons and statistical conclusions, were explicitly premised on Magee's allele calls. However, the jury was not instructed about how it should evaluate this factual predicate, that was to disregard the truth of the factual information, or to understand that Cotton's opinion was only as good as the information it was premised on.

[10/] Further, in support of its conclusion that allowing expert witness testimony predicated on testimonial hearsay does not offend the Confrontation Clause, the *R&R* relied exclusively on references to *Williams* in *Barbosa*, 812 F.3d 61; *Mattei*, 320 F.Supp.3d at 238, n.2; and *Jackson*, (continued...)

Under *Williams*, a statement can be considered "testimonial" when it passes the basic "evidentiary purpose" test of the *Williams* dissent (Kagan/Scalia/Ginsburg/Sotomayor) plus either the "targeted accusation" requirement of the *Williams* plurality (Alito/Roberts/Kennedy/ Breyer) or the "formality" criterion of Justice Thomas's concurrence. *See Young*, 63 A.3d at 1044 (deducing meaningful rule of *Williams* based on combined opinions). Based upon a combination of opinions in *Williams*, the substance of Magee's report, as recounted by Cotton, constituted a "targeted accusation" against Greineder under the *Williams* plurality test and had an "evidentiary purpose" under the *Williams* dissent test. *See Stuart v. Alabama*,139 S.Ct. 36, 37 (2018) (Gorsuch, dissenting from denial of certiorari)(view that forensic report regarding blood alcohol was not "testimonial" seen as "mistaken" in the view of eight justices, since it qualified as a targeted accusation under plurality's view and had an evidentiary purpose under dissent's view). Accordingly, Greineder had a constitutional right to confront Magee. Presenting a substitute expert was insufficient because she could not be asked about the analyst's proficiency, carefulness, veracity, or any testing errors, mix-ups, made up results, lapses, or the like. *Williams* reinforced *Bullcoming*, and the logic of eight

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[10/](...continued)
2017 WL 4225446, at *6. *Barbosa* concerned a state conviction finalized by the Massachusetts SJC in 2010 before *Bullcoming* (2011), and relied solely on *Melendez-Diaz* (2009). Thus, while the First Circuit referenced *Williams* in its decision in *Barbosa,* the SJC there did not have the same benefit of the Court's clear holding in *Bullcoming* disapproving of the use of surrogate in-court testimony that Greineder's case had. In *Barbosa*, the petitioner had to show that *Melendez-Diaz* applied without extension to his case. Greineder is not so constrained. *Mattei*, 320 F.Supp.3d at 238, n.2, is a district court decision grounded exclusively on the First Circuit's decision in *Barbosa*. Finally, although the district court in *Jackson*, cited *Williams* as evidence that no clearly established federal law bars an expert witness from testifying as to her independent expert opinion formed from testimonial hearsay, the Sixth Circuit grounded its denial of a certificate of apealability solely on its conclusion that the violations were harmless due to other evidence of the defendant's guilt, including the defendant's own admissions. *Jackson*, 2018 WL 2972435, at *2 (6th Cir. 2018). In sum, in relying on these cases and indeed on *Williams* itself, the *R&R* erred in concluding that the Confrontation Clause is not violated where an expert references testimonial materials when providing her own opinion testimony, as five justices in *Williams* concluded that such references constituted hearsay.

Justices in *Williams* supports finding a constitutional violation here, where both the evidentiary purpose and targeted accusation tests were met. The SJC's 2013 remand decision is thus directly contrary to clearly established Supreme Court precedent as set forth in *Bullcoming* (2011) and reinforced by the combination of opinions in *Williams* (2012).

Alternatively, some courts confronting the fractured decision in *Williams* have decided that because there is no common denominator in the Court's reasoning, *Williams* does not establish a governing standard for future cases, such that *Williams* is "confined to the particular set of facts in that case," thus concluding *"*that we must rely on Supreme Court precedent before *Williams* to the effect that a statement trigger the protections of the Confrontation Clause when it is made with the primary purpose of creating a record for use at a later criminal trial." *United States v. James*, 712 F.3d 79, 95 (2nd Cir. 2013). *See, e.g., Jenkins*, 75 A3d 174 (finding *Williams* confined to its particular facts, and relying on pre-*Williams* precedent to address substitute testimony by "manager" of FBI DNA analysis laboratory as to the contents of non-testifying technician's report).

The SJC also unreasonably applied *Williams* by making a phony distinction between data and opinion. A valid distinction under *Williams* could be: "I have looked at DNA profile X and DNA profile Y. I do not know where these profiles derive or anything about the testing that produced them. Based on these profiles alone, they correspond to a degree that would occur in 1 in 10,000 random selected profiles." However, the SJC's approach (endorsed by the *R&R*, adopted by the District Court ) is like this: "I have compared DNA profile X, an *accurate* profile generated from the defendant's blood, and DNA profile Y, an *accurate* profile generated from the glove found at the scene, and they correspond to a degree that would occur in 1 in 10,000 random selected profiles." As Justice Kagan explained in *Williams*, 132 S.Ct. at 2270 n.2: "But the statement 'if X is true, then Y follows' differs materially – and constitutionally – from the statement ' Y is true because X is true

(according to Z).' The former is a logical proposition, whose validity defendant can question, the latter contains a factual allegation (that X is true) which the defendant can only challenge by confronting the person who made it (Z)." The *Williams* dissent, cited in *Greineder*, 464 Mass. at 593, approved only opinion testimony that did not implicitly convey as true a portion of the factual predicate (which is exactly what the "opinion" as defined by the SJC does). Both the SJC and the *R&R* unreasonably interpreted *Williams* to mean the exact opposite of what it said!

**4. Even if its legal analysis were accepted, the SJC's harmlessness evaluation was unreasonable.**

Finally, and largely independent from the arguments made above, the SJC erred in concluding that the admission of the details of the DNA test results was harmless. In evaluating this question, the issue is whether the harmlessness decision under *Chapman* was unreasonable. *Davis v. Ayala*, 135 S.Ct. 2187, 2199 (2015). The SJC's decision was indeed unreasonable. The admission of the DNA data (even apart from the statistical information) had an enormous impact on the case.

Under the SJC's analysis, the only part of Cotton's testimony that was admissible was the statistical opinion. Therefore, under the SJC's analysis, Cotton was permitted to say that she had concluded that Greineder's DNA corresponded to the sample from the left-hand work glove at a level expected of 1 in 170,000,000 randomly selected Caucasians. She was not permitted, however, to testify that the sample had a 17 at locus D3, a 26 at locus FGA, a 15 at locus D18, *etc.*, which corresponded with Greineder's DNA profile. The Commonwealth clearly understood the importance of the inculpatory DNA test results. It presented those results through Cotton in great detail, allele-by-allele, using blown-up charts to display the partial matches to the jury while Cotton was reporting them. The Commonwealth even distributed color copies of those charts to the individual jurors to help them follow along. The Commonwealth's presentation of this evidence was designed to maximize its impact upon the jury. During their deliberations, the jurors twice specifically requested

(and received) those same DNA results charts to assist them in reaching a verdict. Is it likely that the Commonwealth would have gone the expense of preparing extensive chalks, and then spent the jury's time (hours of testimony) painstakingly walking through all the DNA data, if that was going to be irrelevant to the jury's evaluation of the case? Of course not. The Commonwealth went to those lengths precisely because they were important. The Commonwealth introduced the detailed, step-by-step data in order to have the jury view the Cellmark analysis and Cotton's statistical "opinion" as rigorously scientific.[11/] The SJC claimed that the Magee data would have come into evidence anyway, given its use at trial by the defense in attacking Cellmark's credibility and in presenting the stranger-allele argument.464 Mass. at 602-603. But this is an unwarranted assumption. If the prosecution had merely presented an unsupported statistic from Cotton, the defense might well have chosen not to elicit the related data in cross-examination. In short, the entire trial might have proceeded quite differently, and much more favorably for the defense, had the DNA data (which even the SJC recognized was wrongly admitted) not been presented to the jury. The SJC's determination to the contrary was unreasonable.

The First Circuit's denial of COA left undisturbed the district court's finding that admission of Cotton's testimony did not did not have a "substantial and injurious effect or influence in determining the jury's verdict" required for *habeas* relief under *Brecht v. Abrahamson*, 507 U.S. 619, 637 (1993), since Cotton was subject to cross-examination about Cellmark's DNA testing procedures and about some aberrant test results that did not inculpate Greineder. The *R&R* stated:

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[11/] To look at it another way, if all Cotton had testified to was her statistical "opinion," unsupported by any recitation of the data consistent with that opinion, then jury would likely have given it far less weight. As even Justice Alito wrote in *Williams*, disclosure of underlying data serves to "help the factfinder understand the expert's thought process and determine what weight to give to the expert's opinion." 132 S.Ct. at 2240. Absent any factual support or explanation of how the statistical "opinion" was reached, the jury would surely have regarded Cotton's "opinion" with a significant measure of skepticism.

"While substituting a witness may not satisfy the Confrontation Clause's strictures, it may prevent a defendant from suffering 'actual prejudice' required to warrant habeas relief." *Id.* (App. 81). This was not a case like *Barbosa*, 812 F.3d at 68, where the habeas court upheld the state's harmlessness determination because there was a mountain of other evidence of guilt. To the contrary, the *R&R* stated that "it cannot be disputed that the DNA evidence was of importance in this trial." (App. 81) In finding an absence of actual prejudice, the *R&R* cited Cotton's ability to testify about DNA testing in general and the protocols at Cellmark, and trial defense counsel's ability to cross-examine Cotton about the consequences of creating an improper DNA profile and how the data would have changed had different settings been used. However, this reasoning does not address the major source of prejudice noted in *Bullcoming*, namely that Cotton could not testify to whether these protocols were followed in this instance, the reasons why Magee made particular allele calls or filtered out particular electropherogram peaks, since Cotton did not observe the testing and never reviewed the raw data.

The missing cross-examination was truly critical in the circumstances of this case. The potential for error and unguided discretion was particularly acute here where Low Copy Number (LCN) mixtures were interpreted at unusually low Relative Fluorescence Unit (RFU) thresholds.[12/] Cotton could not testify about Magee's application of protocols. Nor could she testify as to whether Magee's prior knowledge of Greineder's DNA profile influenced her decisions. Only Magee could speak to those issues. And yet, the jury relied on Magee's information, requesting it during

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[12/] Dr. Arthur Eisenberg (former chair of U.S. DNA Advisory Board to the Director of the FBI) averred that minute quantities of DNA from more than one source, known as Low Copy Number (LCN) mixtures are "fraught with peril." Much of the DNA analyzed in this case was LCN. Dr. Esienberg averred that Cellmark's validation studies were seriously flawed; its lack of guidelines left to the undirected discretion of the analyst to decide whether to treat a peak as an allele or an artifact. Further, Magee knew the DNA profiles of Dirk and Mabel Greineder before making allele calls, and made inconsistent calls biased against the accused. Upon analyzing the underlying electronic data, Dr. Eisenberg found that the test results should have been reported as "inconclusive" and that no statistical likelihood of association should have been calculated. (F.S.A. 1-360)

deliberations, without hearing from Magee about how she generated it. In contrast to *Williams*, there can be no assumption here that the jury understood it was not to consider Magee's underlying DNA evidence for its truth. Thus, the jury was likely to have considered Magee's erroneously admitted allele calls for their truth, namely that it was Greineder's DNA on those items, without affording Greineder the constitutionally mandated means of testing those statements' reliability.

The inculpatory DNA test results obtained by Magee and reported by Cotton were the linchpin of the prosecution's case against Greineder at trial. The Commonwealth went to great lengths at trial to introduce Magee's results, step-by-step, in excruciating detail. Copies of this prejudicial hearsay were presented as chalks, which the SJC found to be error. During their deliberations, the jurors twice specifically requested – and received– those same DNA charts to assist them in reaching their verdict. Cotton's testimony increased the credibility of Magee's results by adding a fictional imprimatur of DNA "infallibility." This evidence was critical to Greineder's conviction, and the prosecution's case would have been far weaker without it. In sum, the improper admission of Cotton's testimony in violation of Greineder's constitutional right of confrontation had a substantial and injurious effect on the jury's verdict. Habeas relief is warranted.

### C. The Massachusetts SJC's Insupportable Analysis and Repeated Misuse of *Williams* To Support its Unconstitutional Approach of Admitting Scientific Evidence by Substitute Analysts Should Not Be Permitted to Continue.

It should be understood that the right of confrontation is not, and was not in this case, merely a technicality without significant practical importance. The ability to cross-examine the forensic analyst who provides inculpatory conclusions can be critical. As this Court has stated, "A forensic analyst responding to a request from a law enforcement official may feel pressure-or have an incentive-to alter the evidence in a manner favorable to the prosecution." *Melendez-Diaz*, 129 S.Ct. at 2536. As forensic evidence plays an ever-growing role in criminal prosecutions, courts have

become increasingly attuned to both the power of such evidence in producing convictions and the potential for mistakes which may lead to grave miscarriages of justice. As recently as 2005, the SJC erroneously characterized reports memorializing the results of drug testing as "neither discretionary nor based on opinion; rather, they merely state the results of a well-recognized scientific test determining the composition and quantity of the substance." *Commonwealth v. Verde*, 444 Mass. 279, 283 (2005). Since then, this Court has repeatedly emphasized the myriad errors which can occur at various stages of the forensic testing process. *See, e.g., Melendez-Diaz,* 557 U.S. at 319; *Bullcoming*, 564 U.S. at 2711,n.1. *See also* National Research Council, Strengthening Forensic Science in the United States: A Path Forward 150–155 (2009) (chronicling deficiencies). We now know that the end product of forensic testing (the results) can be rendered utterly invalid by deliberate malfeasance or negligent mistakes occurring anywhere during the testing process.[13/]

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[13/] A dramatic and recent illustration of this very real phenomenon is the unraveling of numerous drug convictions which relied upon tainted testing carried out by Annie Dookhan at the William A. Hinton State Laboratory in Boston, Massachusetts. *See Bridgeman v. District Att'y for Suffolk Dist*., 471 Mass. 465 (2015), *Commonwealth v. Scott*, 467 Mass. 336 (2014). Ms. Dookhan admitted to "dry-labbing," altering, and faking test results, compromising tens of thousands of cases, and was convicted and sentenced after pleading guilty to falsifying drug tests. A similar scandal involved whether former Massachusetts state crime lab chemist Sonja Farak, who pleaded guilty in 2014 to charges of stealing cocaine from the Amherst lab in Massachusetts, tampered with thousands of samples going back in time. In *Committee for Public Counsel Services v. Attorney General*, 480 Mass. 700 (2018), the SJC provided an unprecedented remedy for the victims of the Amherst lab scandal, thousands of people who were wrongfully convicted based on evidence tainted by former state chemist Sonja Farak. Similarly, the FBI recently admitted, as to forensic hair analysis, that "nearly every examiner in an elite FBI forensic unit gave flawed testimony in almost all trials in which they offered evidence against criminal defendants over more than a two-decade period before 2000." Spencer S. Hsu, FBI admits flaws in hair analysis over decades, The Washington Post (April 18, 2015), https://www.washingtonpost.com/ local/crime/fbi-overstated-forensic-hair-matches-in-nearly-all-criminal-trials-for-decades/2015/04/18/39c8d8c6-e515-11e4-b510-962fcfabc310_story .html. Numerous problems relating to forensic DNA laboratories have come to light. *See* W. Thompson, Tarnish on the "Gold Standard": Understanding Recent Problems in Forensic DNA Testing, 30 Champion 10, 11–12 (January–February 2006) (collecting cases). For example, the Houston Police Department (HPD) shut down the DNA and serology section of its crime laboratory in early 2003 after a television expose revealed serious deficiencies in the lab's procedures, (continued...)

In the field of forensic DNA analysis of LCN mixtures, the risk of error is at its lowest at the end of the testing process -- when someone simply plugs the allele calls made on the evidentiary sample along with the suspect's reference DNA profile into a software program which automatically computes the random match probability statistics. Indeed, that part of the process is "neither discretionary nor based on opinion." But there are numerous steps before that final mechanical one where critical mistakes may be made -- in cutting the sample, extracting the DNA, quantitating it, amplifying it, running it through the testing apparatus, and interpreting the results by deciding which peaks to treat as alleles and which to ignore as artifacts. Many of these steps require the proper application of specific testing protocols, and some involve the exercise of discretion and judgment. If any of the steps along the way are infected with error, the test results ultimately translated into statistical terms will be utterly invalid. "Garbage in, garbage out."

Experience has shown that the Massachusetts SJC's "bifurcated common-law confrontation evidentiary rubric" does not actually work to protect a defendant's Confrontation Clause rights in practice. Since 2012, prosecutors have continued to introduce basis evidence during their case-in-

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[13/](...continued)
confirmed by subsequent investigation. *Id.* In Virginia, post-conviction DNA testing in the high profile case of Earl Washington, Jr. (who was falsely convicted and came within hours of execution) contradicted DNA tests on the same samples performed earlier by the State Division of Forensic Sciences. An outside investigation concluded that the state crime lab had failed to follow proper procedures and misinterpreted its test results. *Id.* In 2004, an investigation by the Seattle Post-Intelligencer documented 23 DNA testing errors in serious criminal cases handled by the Washington State Patrol laboratory. *Id.* In North Carolina, the *Winston-Salem Journal* published a series of articles documenting numerous DNA testing errors by the North Carolina Bureau of Investigation. *Id.* The Illinois State Police cancelled a contract with Bode Technology Group, one of the largest independent DNA labs in the country, expressing "outrage" over poor quality work. *Id.* DNA analysts have been fired for scientific misconduct, specifically falsification of test results, by forensic laboratories, including FBI labs. *See* United States Dep't of Justice, Office of the Inspector Gen., The FBI DNA Laboratory: A Review of Protocol and Practice Vulnerabilities 14–38 (May 2004). In all of these cases, the analysts were caught faking the results of control samples designed to detect instances in which cross-contamination of DNA samples occurred.

chief with impunity, and Massachusetts appellate courts have frequently upheld such convictions.[14/] In numerous DNA cases, a substitute expert testifying to the substance of a nontestifying analyst's work has been deemed no error at all, citing *Greineder*.[15/]

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[14/] *See, e.g., Commonwealth v. Smith*, 84 Mass. App. Ct. 1115 (2013)(substitute expert impermissibly referred to non-testifying surveyor's notes; deemed harmless error); *Commonwealth v. Lezynski*, 466 Mass. 113 (2013)(substitute expert recited results of non-testifying analyst's toxicology analysis; deemed harmless error); *Commonwealth v. Bins*, 465 Mass. 348 (2013) (substitute expert recited contents of charts prepared by non-testifying analyst; no substantial risk of miscarriage of justice); *Commonwealth v. Jimenez*, 84 Mass. App. Ct. 1136 (2014)(substitute medical examiner testified regarding facts in autopsy report; no substantial risk of a miscarriage of justice); *Commonwealth v. Grady*, 87 Mass. App. Ct. 1119 (2015)(substitute chemist referred to weight of substance from nontestifying chemist's report; no substantial risk of miscarriage of justice), *aff'd*, *Commonwealth v. Grady*, 474 Mass. 715 (2016); *Commonwealth v. Sanchez*, 88 Mass. App. Ct. 1110 (2015)(substitute expert recited original expert's results on weight of substance; no substantial risk of miscarriage of justice); *Commonwealth v. Smith*, 89 Mass. App. Ct. 1121 (2016) (substitute chemist testified to weight of cocaine from examining analyst's report; deemed harmless error); *Commonwealth v. Andino*, 89 Mass. App. Ct. 1101 (2016)(substitute DNA analyst testified that nontestifying analyst's report showed alleles "at sixteen specific locations"; harmless error); *Commonwealth v. Ortiz*, 89 Mass. App. Ct. 1133 (2016) (substitute chemist testified that another analyst found "item 3 was found to contain cocaine" and "item 4 was found to contain heroin"; no substantial risk of miscarriage of justice); *Commonwealth v. Waller*, 90 Mass. App. Ct. 295 (2016) (testifying expert impermissibly referred to "Colorado State study," deemed non-prejudicial); *Commonwealth v. Dumas*, 91 Mass. App. Ct. 1103 (2017)(substitute analyst testified to results of non-testifying analyst's DNA test results and criminalistics report; no substantial risk of miscarriage of justice); *Commonwealth v. Browne*, 92 Mass. App. Ct. 1131 (2018) (substitute witness testified to test results of non-testifying analyst; no substantial risk of miscarriage of justice); *Commonwealth v. Rodriguez*, 93 Mass. App. Ct. 1104 (2018)( substitute analyst referred to original chemist's certificate was error, deemed harmless error); *Commonwealth v. Seino*, 479 Mass. 463 (2018) (substitute witness testified to statements from non-testifying medical examiner's file, deemed harmless error); *Commonwealth v. Holbrook*, 482 Mass. 596 (2019) (substitute expert testified to contents of different expert's report; deemed harmless error).

[15/] *See, e.g., Commonwealth v. Letkowski*, 83 Mass. App. Ct. 847 (2012) (substitute DNA analyst testified that "the known saliva standard" from defendant and results of "analysis on the [victim's] vaginal swabs" matched; deemed no error); *Commonwealth v. Piver*, 85 Mass. App. Ct. 1102 (2014)(substitute DNA expert explained the creation of the CODIS profile from 1987 sample, and second expert explained matching 1987 and 2004 samples, deemed no error); *Commonwealth v. Chappell*, 473 Mass. 191 (2015) (substitute analyst testified that major profile in the DNA sample matched defendant, and that victim was included as a contributor to the minor profile, deemed no error); *Commonwealth v. Todisco*, 87 Mass. App. Ct. 1117 (2015) (substitute analysts testified that victim's DNA profile was developed from known blood sample and that sperm fraction from victim's (continued...)

In the context of DNA analysis, focusing on the line between fact and opinion is a fool's errand. As one court correctly explained, the two cannot be bifurcated:

> [T]he government suggests we break down the expert testimony, ignoring direct references to the inadmissible hearsay conclusions of the analysts who conducted the testing, and solely consider the independent opinions of the experts. This would require an impossible feat of mental gymnastics. Dr. Cotton's and [another expert's] explicit reliance on and references to the reports prepared by third parties make it impossible to disaggregate their opinion testimony from evidence admitted in violation of the Confrontation Clause.

*Gardner v. United States*, 999 A.2d 55, 62 (D.C. 2010). The First Circuit's denial of a COA in this case inappropriately encourages the Massachusetts SJC's misreading of *Williams* in contradiction to this decisions of this Court. This practice should not be permitted to continue.

## CONCLUSION

For the foregoing reasons, the petition for a writ of certiorari should be granted. Petitioner presented "a substantial showing of the denial of a constitutional right," entitling him to a certificate of Appealability. The First Circuit's denial of COA should be reversed and remanded.

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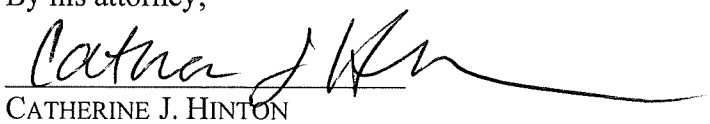
[15/](...continued)
anorectal swab and vagina contained a mixture of DNA, with a major profile matching defendant, deemed no error); *Commonwealth v. Sanchez,* 476 Mass. 725 (2016)(substitute analyst testified that she "reviewed the data that came off of the detection software and was put through the analysis software," deemed no error); *Commonwealth v. Mattei*, 90 Mass. App. Ct. 577 (2016)(substitute analyst reviewed nontestifying analyst's work and testified to DNA match, where earlier analyst had found "no exclusion"; deemed no error); *Commonwealth v. Correia*, 89 Mass. App. Ct. 1107 (2016) (substitute analyst testified to the statistical significance of defendant's "known DNA profile" matching "minor profile in the DNA mixture found on the victim's external genital swab"; deemed no error); *Commonwealth v. Crichlow*, 94 Mass. App. Ct. 1104 (2018)(substitute expert testified to comparison of DNA profile from vaginal swab with DNA profile from buccal swab and that defendant not excluded, deemed no error); *Commonwealth v. Barry*, 481 Mass. 388 (2019)(substitute expert, director and vice-president of the laboratory where testing took place, testified as to procedure to test samples, and that DNA matched victim's DNA profile, deemed no error). *Contrast Commonwealth v. Tassone*, 468 Mass. 391, 399–402 (2014) (opinion testimony inadmissible where substitute expert had no affiliation with laboratory that conducted underlying testing).

Respectfully Submitted,
**DIRK GREINEDER**
By his attorney,



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