(Open court, defendant and jury present)

THE COURT: You may proceed, sir.

MR. OLIVER: If it please the Court?

MICHAL PIERCE,

having been first duly sworn, testified as follows:

CROSS-EXAMINATION

BY MR. OLIVER:

Q. Good morning, Ms. Pierce.

A. Good morning.

Q. Just to refresh the jury's minds, yesterday we were having a discussion about DNA. Right?

A. Yes.

Q. Okay. I'd like to go into more detail into DNA generally to start the morning. Okay?

A. Sure.

MR. OLIVER: Your Honor, may I approach the exhibit?

THE COURT: You may.

Q. (By Mr. Oliver) Can you see that from there (indicating)?

A. Yes.

Q. Yesterday we were talking about DNA, right?

A. Yes.

Q. Now, just to refresh the jury's minds, there's more than one type. Right?

A. You mean between animals, organisms?
Q. Well, there's autosomal DNA, there's mitochondrial DNA, there is Y strand DNA, the things you test for?
A. Yes.
Q. Okay. So, the very beginning of your slide show, what that started off talking about was autosomal DNA, correct?
A. Yes.
Q. That is what you call STR; is that correct?
A. The areas we look for in autosomal DNA are called STRs.
Q. That stands for short tandem repeaters?
A. Short tandem repeats, correct.
Q. Okay. So, when people watch those shows like CSI and you have those moments where they have DNA and it's confirmed and it's that gotcha-moment and it's that this cannot be anybody, like 1 in 895 gazillion people have this profile, that's going to be autosomal DNA, correct?
A. Yes. If they have that number, correct.
Q. And just to get a little bit more into detail. Autosomal DNA is based on some research that identified 13 loci, right?
A. The FBI recognizes 13 loci or locations on

areas of your autosomal DNA that could be used in forensics.

Q. That's what they use in the CODIS database?

A. Yes.

Q. Okay. And so, when you were talking about that .1 percent of variability that can help identify an isolated person, is that a reference loosely to the 13 loci that are in the CODIS database?

A. Yes. The 13 loci are part of that .1 percent that is variable from person to person.

Q. And would you agree when you're doing DNA testing, if you're trying to identify a person or donor of DNA sample, for your purposes, if you can identify autosomal DNA, that is the best statistical match or probability?

A. STRs are individualized.

Q. I like your word better. Individualized, right?

A. Yes. Unless, of course, you have an identical twin.

Q. Now, I'll go into each of the items you tested in detail down the road, but I'm going to ask you generally: You tested each of the items that you received for Mr. Peyronel's autosomal DNA?

A. The items we sent for DNA we did a comparison

to Mr. Peyronel's DNA.

Q. Because you had his buccal swab and you figured out what his DNA profile was from that?

A. Correct.

Q. And then you compared that known sample to each of the items that the investigator sent you?

A. Correct.

Q. Okay. And when you looked for that .1 percent variable individualized autosomal DNA in each of the items tested, you didn't find a single one that was consistent or matched Mr. Peyronel?

A. The STR profiles we obtained were consistent with Ryleigh.

Q. With Ryleigh.

A. Of her DNA.

Q. Okay. So, you tested each of those. I guess a better way to put it, you compared the two known samples at the time, Ryleigh's known sample and Mr. Peyronel's known sample, and each of the items tested were consistent with Ryleigh's known sample?

A. Correct.

Q. So, Mr. Peyronel, he wasn't included as a donor in any of those samples?

A. Right. I did not detect any other DNA other than consistent with Ryleigh's four STRs.

Q. Okay. Now Y strain -- do you call it Y strain for short?

A. We don't call it Y strain, but Y-STR.

Q. Can I call it Y strain?

A. You could, but that sounds like bacteria, so...

Q. Okay. We'll call it Y-STR.

Now, when you're talking about -- just to go back for a second reason -- this autosomal, the reason it can be so individualized is because you have the X and the Y, right? You have both sides -- is it the haplotype?

A. You have the contribution of both the mother and the father. And it's what we call the autosomal chromosomes. So, it's many chromosomes. It's not just one. You have 22 pairs of autosomal chromosomes and each locus or location, we're looking at on a different chromosome. For those, you're looking at many different areas of your geno.

Q. So, you would agree with me that Y-STR is less individualized than autosomal DNA?

A. Yes.

Q. In fact, would you agree with the statement that Y-STR is not individualized?

A. Correct. Y-STR is more of a class or a group characteristic.

Q. And the testimony you gave the State was that this Y-STR is passed down from father to his biological children, correct?

A. Right, his biological sons.

Q. The term for used for that patrilineal, correct?

A. Yes.

Q. Now, that's not where this statistical analysis ends with Y-STR, right?

A. What do you mean?

Q. I'll tell you.

MR. OLIVER: Is the demonstrative part of the exhibits?

MS. COLLINS: Demonstrative?

MR. OLIVER: Yes.

Just one moment, Judge.

(Pause)

Q. (By Mr. Oliver) Do you know where the autosomal in your slide show is?

A. It was probably -- it was about the fourth to the last, about.

Q. Okay. Well, I'm not seeing it, so I'll just ask. Do you remember the statistic with that one, when you looked at it, was 1 in 856 trillion random Caucasian males?

A. It's a large statistic.
Q. What the statistic tells you, nevertheless, is that it's statistically rare that you will find another person who has that profile?
A. Correct.
Q. You would agree with me that the numbers we're talking about with Y-STR are radically different?
A. Yes. It is less rare.
Q. Now, the slide you showed yesterday, do you recall showing this slide to the jury?
A. I actually did not get a chance to show it, but it was part of the presentation.
Q. It was part of the presentation, but the State didn't ask you to get to that one?
A. Right.
Q. What that slide says is for Y-STR, the statistics would be more like 1 in 1,685 random Caucasians, right?
A. Yes, that's an example of a statistic I normally would see for a Y-STR profile.
Q. Okay. Now, another way of saying that is Y-STR is going to be patrilineal, correct?
A. Yes.
Q. But also it might include -- if you were to gather 1,685 random people off the street, one of those

people could have that exact same Y-STR profile?

A. Yes, that's a possibility.

Q. And for that same statistical analysis, if you gathered 1,601 random African-Americans off the street, out of that group one of those people may have the same Y-STR profile?

A. Correct.

Q. And then the same thing for random Hispanics. In this other example, it's 1 out of 285 random Hispanic males might have that same Y-STR profile, right?

A. Correct.

Q. Now, in our case, the State referred to one lab report, correct?

A. I have several versions -- I have several reports, but I believe we talked about one.

Q. And the lab report that the State referenced in its direct was dated August 30th, 2012, correct?

A. Yes.

Q. And you would agree with me there were two items that were tested in this report, and it was the panties, and they were compared to the profile obtained -- and that was compared to the known sample from Mr. Peyronel?

A. That was -- yes, that report from August of 2012, I was showing the results I had previously gotten

from my Y-STR testing of the panties and Mr. Peyronel and there was the additional buccal swab from Mr. Launer submitted that I also did Y-STR testing on.

Q. Correct me if I'm wrong, but was that comparison done on August 12th or the June 22nd, 2011 testing? Okay. I see it. August 30th, those three things.

Okay. Do you have that report in front of you, the August of 2012?

A. Yes.

Q. Okay. I'm going to talk about that.

Now, your testimony on direct was that that August report you identified a Y strand -- Y-STR profile, correct?

A. Yes. I had already identified a Y-STR profile from the panties.

Q. Okay. You identified in August of 2012 -- all right -- you compared the partial profile from the panties to Mr. Peyronel's?

A. Correct.

Q. Okay. And your testimony is that y'all -- that his Y strain or Y-STR was consistent with the Y-STR from the panties?

A. Correct.

Q. And the testimony was that that DNA could have

come from the defendant, my client, right?
A. That's what the conclusion is implying.
Q. Or his biological son?
A. That is also true when you understand Y-STRs.
Q. Okay.
A. But I never received a swab from his son, but that is implied because it's from the same lineage.
Q. If we assume that the patrilineal connection is not mutated?
A. Correct.
Q. Okay. Now, that's not where that statistic ends, right? It could include more people than simply the two that the State asked you about?
A. I'm not sure what you mean by "statistic."
MR. OLIVER: Your Honor, permission to approach the ELMO again?
THE COURT: You may.
Q. (By Mr. Oliver) Now, the example here is 1 in 1,685. In this case, the one we're trying, the statistics were much different, right?
A. The numbers were different, right.
Q. Okay. So, if we were to assume that 1 in 856 trillion is an individualized profile, would you agree that 1 out of 1,685 is less individualized?
A. Yes. It means it's a more common DNA type.

Q. It's more commonly occurring?
A. Yes, in the population.
Q. And so, that Y-STR profile could be found in many places, more possible places?
A. Yes.
Q. Okay. Could you tell the jury what -- actually, I won't read from this. It's not in evidence. Could you tell the jury what the statistic was for random Caucasians in this case on this August DNA case?
A. Yes. For the Y-STR profile I detected on the panties, the frequency of occurrence of that occurring is 1 in 79 Caucasians; 1 in 154 African-Americans; 1 in 100 Hispanics.
Q. Okay. So, another way -- would you agree another way of saying that is if you were to round up 79 random Caucasian males, the statistics would show or expect at least one to have that same Y-STR profile?
A. Yes.
Q. Okay. And for the greater Houston area, are you familiar -- has anyone asked you this question as to statistics? If we presume that there's about 4 million people in Harris County, 4 million males, would you agree with the statistics that approximately 36,000 people in the greater Houston area could have that same

Y-STR profile?

A. You're talking about the population you said of the county?

Q. Greater Houston.

A. Yes, it would be several thousands.

Q. Several thousands, right?

So, it's not necessarily a complete statement to say that the DNA that was tested is consistent only with either Mr. Peyronel or his biological son?

A. Well, I did not say it was only consistent with him or his son.

Q. Okay. But then a more complete statement would be: It could be consistent with him, his son, or 35,000 of his closest friends?

A. Well, I illustrate that with the statistic. That's what the statistic is meaning, that 1 in approximately 79 Caucasians.

Q. But for those of us who don't really -- for those of us who cheated their way through stats like I did and don't understand it, is that a fair way of restating that statistic?

A. Can you repeat what you said and tell me what you want to state?

Q. Would it be fair to state that the Y-STR

profile that you testified to yesterday that was consistent with -- could be consistent with Mr. Peyronel or his biological son, would it be fair to say a more complete way to say that would be that that profile could be consistent with my client, his biological son, or 35 or 36,000 other people?

A. I don't think that's a complete way of saying that, but if you said that to me, that's a fair assumption to say that. If you want to look at the whole population, there are several thousand other males that could be consistent.

Q. And these statistics are generated to kind of tell us what to expect, right?

A. Yes. To give you an idea of how common that profile would be.

Q. So, out of a population -- and it doesn't hold true for everybody. So, if we're guesstimating 36,000 individuals for random Caucasians, then it would be approximately the same numbers of random African-Americans or random Hispanics?

A. Yes, the numbers would be the same for the racial groups.

Q. Those would be cumulative, right?

A. You mean -- you mean in terms of what?

Q. The possibility could be up over 100,000 people

if we're assuming that 36,000 is correct for random Caucasian males?

A. It could be more or less, if that's what you're saying. Yes, it's an approximation.

Q. Right. And to be fair, you and I met prior to this case and we discussed these reports, right?

A. Yes.

Q. And I asked you the question about these statistics, 1 in 79; 1 in 154; 1 in 100, do you consider those estimates to be statistically the same more or less.

A. Right. They are in the same range. It is showing that between those two -- three examples of racial groups I gave, the statistics are the same.

Q. Right.

And so, from your -- from a statistical mind, certainly more than mine, these numbers, 79, 154, and 100, they're really no different from one another?

A. Statistically correct.

Q. And what your statement to me was that within a power of ten, it's basically the same thing?

A. Yes. There could be variation greater or less than by power of ten, but it's just to say that there was really no variability between the race, meaning race doesn't matter in this situation. That's what those

groups mean.

Q. Okay. Now, talking about the August 2012 profile, do you recall when the State put up the graph that shows all the loci that were compared?

A. Yes.

Q. Do you have that available?

A. I do.

Q. May I pull out just the graph and put it on the overhead for the jury to see.

A. Sure, if I get it back.

Q. I promise.

MR. OLIVER: May I approach the witness.

MS. COLLINS: To make it easy, I have a copy right here.

MR. OLIVER: Sure. I really don't mind. That will be fine.

(Discussion off the record between attorneys)

Q. (By Mr. Oliver) I want the -- could you identify for me which of the graphs was from the August 2012 Y-STR testing?

A. Yes. The header will say -- have an S1A1 at the end.

Q. Okay. And that's virtually unrecognizable.

Okay. Ms. Pierce, see the numbers that run

on that graph?

A. Yes.

Q. The testimony yesterday was that this Y-STR profile was consistent, right, consistent with Mr. Peyronel?

A. Yes.

Q. Now, when you're talking about this testing -- okay -- and this graph that shows -- basically, what those numbers represent is the number of repetitions --

A. Correct.

Q. -- of what? Loci or is it --

A. It's repeating units of sequences.

Q. Okay. And that's what we're looking for, right?

A. Yes.

Q. Now, we have a bunch of numbers that go across this graph, right?

A. Yes.

Q. And in some of them, the -- I want to focus your attention on Item 11A1, the top of that section, right?

A. Item 11A1-1, you said?

Q. Yes. That's the panties, right?

A. Yes. That's the scrapings from the panties.

Q. Okay. Now, just to -- before I discuss it in

detail, I want to ask you generally. When you're -- you talked yesterday about your electropherograms?

A. Electropherograms.

Q. Absolutely correct.

Basically, we're talking about -- we're looking at statistical amounts. So, on your machine you have something -- you put it in there and try to identify through the polymerase chain reaction process, you're talking about, you're trying to multiply the DNA so you can identify it, right?

A. Yes.

Q. Now, if there's not a lot of DNA, you're going to have -- on your machine you're going to have what you call noise, right, background noise?

A. Yes. You always have background noise on your machine.

Q. And if there's a very, very small sample, then you will not be able to identify that particular allele because you can't differentiate the noise from the allele?

A. It's possible.

Q. It's possible.

Now, you have something else called the stochastic threshold. It's s-t-o-c-h-a-s-t-i-c. Okay. Are you familiar with that?

A. I am.

Q. Now, when you are doing your testing, what you're looking for is to -- the way you say it is to call an allele, correct?

A. Yes.

Q. And what that means is that when you test this particular sample, the sample tested was above this stochastic threshold?

A. That is incorrect.

Q. Okay. Tell us what's correct.

A. If you -- we have what's called a stochastic threshold, but you first have to talk about a peak detection threshold. There's two thresholds that labs can use. So, if you put a line below the stochastic threshold -- below -- yes -- so, you can call that the peak detection threshold or just peak threshold. And if you -- a peak is above -- if a peak is above the peak detection threshold, then we know that is an allele. That is DNA. That is not noise because you see the noise is under there.

The stochastic threshold is a second threshold we do have. And that does have to do with our analysis, but you need to acknowledge that even if it's under the stochastic threshold, as long as it's above the peak threshold, it is DNA, it is a true

amplification occurrence of DNA.

Q. And so, does this stochastic threshold have something to do with the confidence in calling that allele?

A. It has to do with the -- I wouldn't say confidence of calling the allele, but it has to do with the profile as a whole and what you can use for statistics.

Q. Okay. But, I guess, going from that example just -- just what the alleles -- the alleles that were in this analysis that were above the stochastic threshold that has some meaning statistically, right?

A. Yes.

Q. For purposes of calling the allele?

A. Not of calling, but of using them for statistics.

Q. Okay. So, the testimony in direct is that we have a Y-STR profile that is consistent with -- possibly consistent with my client or his son, right? But, really, what we have is a partial Y-STR profile, right?

A. Yes, we do have a partial Y-STR profile.

Q. And the way we know that is if you look at that line I directed your attention to earlier, all the little carrot tops up there mean something, right?

A. Yes.

Q. And what those carrot tops mean is that for that particular loci, that particular number, the peak was not above this stochastic threshold?

A. Well, you're right about the little carrots. I call them hats, but that doesn't make an allele below stochastic threshold; but that doesn't make the profile partial. What makes it partial is what I said yesterday about the ND on the DSY19 column. That ND means that there was no DNA for that particular location. So, that means that that profile is partial because I did not get all of the locations. There was one I could not, but the carrots or the hats, that really has to do more with the statistics, which I could explain in greater detail if you want, but that doesn't make it partial.

Q. I'll break it up and ask it two different ways. If we didn't have any of those carrot tops, would the individuality of the sample be higher statistically? In other words, it's less likely to be other people?

A. If the carrots were removed, that would not make it more or less individualizing. It might affect the statistics, but the profile is still the same. And whoever is consistent does not change. Those are real alleles, even though there are hats attached to them.

Q. I think we're not communicating on the same level. You're way above me. So, the statistics we

refer to is this, right, 1 in 79, 1 in 54, 1 in 100?

A. Correct.

Q. Okay. If the testing -- you know, if you didn't have situations like this where the allele is below the stochastic threshold, am I correct in saying that these numbers would be higher?

A. Let me be clear that what we're looking at here is depending on what your lab's protocol is. You might use the alleles differently in statistics. If I did detect DNA in DYS19, if that wasn't ND, I could have another element added to my statistics and that would make it higher and that would be -- if you will, make it a little more individualizing; but the locations that I did statistics on for actually this report did not change or would not change without the carrots, for this report.

Q. So, you're just saying that was kind of a superfluous inclusion in this report?

A. What do you mean superfluous?

Q. That it has no impact on this particular case.

A. For Y-STRs currently, if it's what I call a single-source profile, meaning it's not a mixture, there's one male contributing, the stochastic threshold or the hats really do not matter as much. It's really something that matters more for autosomal.

Q. Which we know is not detected or -- there was no match to my client right?
A. Which -- yeah, which the defendant was excluded from the autosomal STRs.
Q. Okay. I'd like to direct your attention to your report dated June 22nd, 2011. Just let me know when you have that report in front of you.
A. Okay.
Q. Okay. So, that one was dated -- is the report date the date the analysis was conducted approximately?
A. It was the date the report was released. The analysis was done a little earlier.
Q. Okay. And would you agree with me that this report reflects the first time that Mr. Peyronel's saliva sample was compared to the DNA profile or DNA extracted from the panties?
A. Yes.
Q. And on this report you also concluded there is a partial Y-STR profile, correct?
A. Yes.
Q. Now, could you tell the jury what were the statistics that you got on this first report?
A. This first report, which I later amended --
Q. Right.
A. -- gave a statistic of -- for the panties

scraping, the Y-STR profile statistic was 1 in 3 Caucasians; 1 in 5 African-Americans; 1 in 4 Hispanics.

Q. Okay. So, for the first test that your lab did, the statistics were 1 in 3, 1 in 5, and 1 in 4, correct?

A. Yes.

Q. And, again, another way of saying that -- you know what? Strike that. I'll give you a hypothetical. Let's assume that our jury was twelve males. Okay? Another way of restating that statistic is that based on your first report, that Y-STR profile could be consistent with Mr. Peyronel or his biological son, correct?

A. I didn't verbalize biological son, but it's implied.

Q. Again, we'll just assume the patrilineal thing is not mutated to be fair.

A. Sure.

Q. Okay. So, you agree with the first part of the hypo?

A. Yes, he could not be excluded.

Q. Or it could be any four of these hypothetical males in the jury box, right?

A. If you are saying twelve males on the jury, approximately 1 in 4, that's true.

Q. That's true.

Okay. Now, what you guys did is some time between June and August you changed your SOP; is that what it was?

A. Correct. Our protocols changed for Y-STR testing analysis.

Q. And the protocols changed and you said: Okay. We're not going to be as cautious about -- whatever the word is you want to use -- we're going to call alleles at a lower level or a lower threshold. Did I understand that part of our discussion correct?

A. Yes. Two things changed, if I can explain, in our protocol.

Q. Please.

A. So, with the first report, our stochastic threshold was higher than what it is now. And we did have a rule that although the alleles were detected, a peak threshold, we would not use alleles that were under the stochastic threshold for statistics. And at that time, there was only one locus -- if you see the 16 under DYS458, that's the fifth column, that 16 was the only allele above threshold stochastically. So, I could only use that for the statistic, which is why you have a 1 in 3. That was one allele, not the whole profile; but that was the statistic.

Later, we had done a revalidation, is what's called. We looked at our thresholds again because they were really high. As you can see, we could only report one as being above, even though we had all of this DNA detected. So, we revalidated and looked at our threshold and lowered both our peak detection threshold and our stochastic threshold significantly so we wouldn't be losing all this data. And then --

Q. Let me stop you there.

A. Sure.

Q. What you said that caught my attention was you changed the number, the thresholds were lower. Would you agree with the statement that the higher initial thresholds were more conservative?

A. Yes, way more conservative. In fact, I don't think any other lab had a high threshold like that.

Q. And when you changed the thresholds, it's now less conservative?

A. Correct.

Q. Okay. So, I want to move on to a slightly different topic. Okay?

A. Sure.

Q. Yesterday do you recall your testimony where the State asked you about what is referred to as touch DNA?

A. Yes.
Q. If I recall the example that was given was if you put your hand on the table, you will transfer, in all likelihood, DNA to that tabletop.
A. Yes, a little bit of DNA will be transferred.
Q. Well, let me ask you this. When you identify DNA in a sample, that doesn't tell you how it got there, does it?
A. No, it does not.
Q. Doesn't tell you when it got there, does it?
A. No.
Q. And so, if you were to do a test of the tabletop and find a -- find DNA in a sample, you couldn't say it was from touch DNA or not?
A. Correct.
Q. So, I suppose only -- you know only a small amount of DNA transfers from touching a tabletop because that's the only way it could be on it, is if somebody touches the tabletop and you identify how much is there, right?
A. I'm sorry. What was the question?
Q. Is that the way you guys, scientists, have figured out when you touch a tabletop only a small amount transfers, that a lot of people touched a tabletop, you tested it, and that's how much you got?

A. Well, in fairness I wouldn't be able to say it's touch DNA. I'm just saying as an example that's one way of transfer. I would not know if it was from touch or maybe somebody sneezed on the table.

Q. And part of the reason is, if I touched this table here, the surface I touched is my entire hand, right?

A. Yes.

Q. Now, generally, when you do your testing, you're not going to scrape all of that, are you? Don't you usually just scrape a portion of an area?

A. It depends what evidence we're talking about, but...

Q. Okay. Now, there is primary transfer, correct?

A. Yes.

Q. Primary transfer is me touching the table, right?

A. Yes. You're coming into contact with an object. That's primary transfer.

Q. And leaving my DNA there?

A. Yes.

Q. Now, there's also this idea of something called secondary transfer?

A. Yes.

Q. So, if you walked over here right after I

touched the table and wiped your hand across it, you might get my DNA on your hand?

A. It's possible.

Q. And that would be called secondary transfer?

A. If you're talking about your DNA on somebody else's via the table, that would be secondary transfer.

Q. And when you get the profile, when you identify a profile and test it, you don't know if you're dealing with primary transfer or secondary transfer, do you?

A. Our testing cannot say if something was primary or secondary transfer, but it is -- a secondary transfer is harder to detect.

Q. And so, the answer to my initial question is no. Right?

A. The question being we don't know which is which? Yes. The testing will not say if this is primary or this is secondary.

Q. Okay. Now, you would agree with me that if I have a couch in my house and me and my son sit on it a whole bunch, our DNA is going to be all over that couch?

A. Probably.

Q. And that would be primary transfer?

A. Yes.

Q. And if you came to the house, sat on the couch, that it is very possible that you could end up with my

DNA on your clothing?

A. That's possible.

Q. And that would be the secondary transfer?

A. Yes.

Q. And here's another hypothetical. If I have three-week-old child and he's in a swaddler and you came over to see the baby, I'm holding the baby, so his -- my DNA will be on him, right?

A. Yes.

Q. And you want to hold the baby, so I hand you the baby. Your DNA could end up on him?

A. Yes.

Q. Now, I want to talk about this case specifically. In your case file, you did get documents, you testified that sometimes you get the offense report, sometimes you get the SANE evaluation, but not in every case, right?

A. Yes.

Q. Well, let's talk about this case. In this case, there was no offense report attached to your report, right?

A. Right.

Q. But you did get a copy of the SANE evaluation?

A. Yes.

Q. And you testified that your copy was not that

great?
A. Right. It was hard to read.
Q. But you would agree that when I was in your office my copy was even worse, right?
A. Yes.
Q. And I had to use your copy to decipher what was actually written in that report?
A. Yes.
Q. But I was able to do that?
A. Some of the lines, yes.
Q. So, we were able to figure out what that report said, correct?
A. A little bit, yes.
Q. Okay. So, were you -- you're aware then from that paperwork that the child was at a home daycare, correct?
A. I knew it was a daycare situation.
Q. And at a daycare you would expect to find lots of?
A. Children.
Q. And children like to play with?
A. Toys.
Q. Toys.
So, mine is only three-weeks-old, but I know from yesterday you have a small child. Is that

correct?

A. Yes.

Q. At some point in your child's life, was it very difficult or not very difficult to keep him or her from putting stuff in his or her mouth?

A. Yes.

Q. And so, what we talked about yesterday, one of the things that you spoke about after touch DNA was: Do you recall the D.A. asking you if blood is preserved, DNA much longer?

A. Yes. I was asked something about preservation.

Q. And we had a discussion about environmental issues, mechanical issues that would lead to degradation, right, of the sample?

A. Yes.

Q. But, generally speaking, if there was DNA contained in blood, and you would expect it to be, that that sample would be preserved longer?

A. Depending on the conditions.

Q. Absolutely.

Would you agree that the same could be said for saliva?

A. Yes. Saliva can dry on objects.

Q. And so, if there is a dried -- you know, saliva is deposited, it dries, and not a whole lot is done

environmentally or mechanically to degrade that sample, that there's a much higher probability you're going to find it?

A. There's a higher probability than what?

Q. Than if it's -- than if you have a bunch of environmental -- I think what you talked about was soap, showering, you know, using any -- like wiping, any of those other things.

A. Oh, you're saying if the environmental conditions were ready, then they would be preserved? It would be, possibly.

Q. Okay. Now, if you have a roomful of toys at a daycare that a whole bunch of children have had in their mouth, would you expect there to be a possibility that DNA could be transferred to those toys?

A. Yes. If somebody had a toy in their mouth, then their DNA could be transferred via the saliva.

Q. Now, I understand it's going to sound like a farfetched idea, but just to -- I'm just going to ask you the possibility. If we agree there could be DNA on any number of these toys and if the child is playing with the toys, puts -- you know, puts their mouth on the same portion that another kid did, has got their hands in their mouth, is it possible that there could occur -- secondary transfer could occur in a situation like that?

A. From one child to the next?
Q. Right.
A. Yes, secondary transfer could. If you're saying, for example, a child puts the toy in his mouth and another child puts that toy in his mouth or touches it, that there would be an exchange of DNA, it's possible.
Q. And you agree kids often have their hands in their mouth?
A. Yes.
Q. And that sometimes they get dirty?
A. Yes.
Q. Because they sometimes aren't the most fastidious young adults among us, right?
A. Correct.
Q. And so, secondary transfer, however not likely, in this situation, it is possible that Ryleigh was playing with toys that had other DNA on it and got DNA on her hands, and if she scratched herself could -- like, did anything around here on her clothes, on her underwear, anywhere, is it possible that DNA transfer happens that way?
A. It's possible.
Q. Okay. And I will readily admit I don't know this for certain, but I would think that you would say

that if it happened it would not be a lot of DNA?

A. Correct. Secondary transfer, you -- you lose DNA each time it's transferred usually.

Q. Now, let's talk about amounts. I'll ask you first: The toys from -- the toys in the daycare, none of that was sent to your lab to be tested for Y-STR, right?

A. Correct. We did not receive toys to test.

Q. None of the other children, male children that ever stayed at the daycare, none of their profiles were sent to you to determine if that was consistent?

A. Correct.

Q. So, you cannot statistically exclude any of that, can you?

A. I cannot make that comparison.

Q. Because you were not able to test it?

A. Right. I cannot compare what I didn't test.

Q. Fair enough.

So, let's talk about DNA relative amounts. Would you agree with the statement that in a normal -- I don't want to be dirty, but, I mean, for lack of a better term -- in sperm or ejaculate there's, you know, millions of cells?

A. In a neat semen deposit, there's a lot of cells and a lot of DNA.

Q. Could it be millions?
A. Yes.
Q. Of individual cells, right?
A. Yes.
Q. So, that's a lot from which to gather and test the DNA to figure out a DNA profile, right?
A. There would be a lot of DNA, yes.
Q. Tell the ladies and gentlemen of the jury how many cells were identified in this case, in this Y-STR profile?
A. How many cells --
Q. Well, let me ask it to you another way.
Now, would you agree that there was only 0.017 NG -- nanograms?
A. Nanograms.
Q. -- per -- I have no idea what UL means. Tell us what UL means.
A. That's not a U. It means micro -- sorry. Microliter. The U is really a mu (phonetic). It's microliter.
Q. Okay. And you would agree that the extraction of your sample had a volume of 40 UL?
A. Correct.
Q. And you would also agree that those two things translate to 680 -- is that picograms of total DNA?

A. Let me find it in my file first.

So, we detected .017 nanograms per microliter for the DNA extract we had from the panty scrapings. And that transfers into -- you could say 17 picograms of DNA, but then times that by 40. So, yes, you're correct.

Q. Okay. And then the final mathematical part of this equation is that the 680 picograms of total DNA corresponds to approximately 113 human cells?

A. Approximately, yes.

Q. You would agree that's not a lot?

A. If you're comparing those two numbers.

Q. Let's do that for the sake of this discussion. 113 cells is not a lot compared to millions?

A. Right.

Q. Okay. So, when you're talking about secondary transfer, you've already said that primary transfer is the top amount and then with secondary transfer there's less?

A. Yes.

Q. And so, in a situation where you have -- would you consider this a tiny amount of DNA?

A. If you're to compare, but you are leaving out a few details with that comparison.

Q. Let me ask you a question. If I had a sugar

packet, Sweet N' Low, that's about a gram of substance, isn't it?

A. I don't know.

Q. If we assume that that's the measure used in the courthouse for all these drug cases, a Sweet 'N Low packet is about 1 gram.

A. Okay.

Q. What percentage of that 1 gram Sweet 'N Low packet is 680 picograms?

A. I can't do the math without a calculator on the stand.

Q. Would it be infinitesimal?

A. No.

Q. Would it be more than one little granule in that packet?

A. It would be significantly -- it would be a smaller percentage, smaller portion of that.

Q. A percentage of the total or a percentage of that one granule?

A. Of the total. But, yes, it's on a different level. We're talking microscopic levels here. We're talking about nanograms or --

Q. Well, if I pour out a thing of Sweet 'N Low, I can see the individual granules, right?

A. Yes.

Q. So, then by your logic, 680 picograms is microscopic and is some percentage of one granule in that packet?

A. Yes.

Q. Now, yesterday you had a discussion with the State about why Y-STR testing is done. Do you recall that?

A. Yes.

Q. And in response to the State's question, what you said is that sometimes the Y-STR testing is done because the female autosomal DNA overwhelms the male sample?

A. That is correct.

Q. And so, wouldn't the same logic apply in a situation where you just simply have a very tiny sample of male DNA?

A. Are you saying without the female portion?

Q. Correct.

A. Sometimes you have a little bit of male DNA and that's why you need Y-STRs.

Q. But, again, yesterday when you said that you were referring to when the samples are mixed; the female DNA and the male DNA, they're mixed, right?

A. Yes.

Q. Okay. And sometimes the female autosomal DNA

overwhelms that whole sample?

A. Yes. Because the samples are from her own body. She's shedding her DNA.

Q. Okay. So, it's fair to say then that the reason one -- well, another reason for the Y-STR testing would be to identify what is otherwise a very, very, very tiny sample of male DNA?

A. Well, in this case and what you're talking about, if there was no female portion, if her DNA wasn't there for some reason, from the quantity I got the .017, I could have developed a male -- I could have developed an STR profile, an autosomal profile, from that. It would be partial again, but I could detect it because that quantity is reasonable for getting an STR profile; but as we just said, because her DNA was much a higher number, there was no way I could detect that small male DNA. So, it's actually because her DNA interfered with the little bit that was there, but still enough for a profile.

Q. And before I forget, there's one thing in my notes I wanted to revisit with you. When we met, we came up -- or really you came up with an analogy for Y-STR DNA. Do you recall that?

A. Yes.

Q. And tell me if I'm right. If you assume that

there was -- we're talking about vehicles, different makes and model of -- different makes of vehicles, correct, like a Toyota, Chevy, Ford?

A. Yes.

Q. Now, if there was a crime reported and the caller said it was a Toyota at the scene -- okay -- your analogy was that what Y-STR testing will tell you is that, well, the person who tested as a Toyota, but we don't know if it's that Toyota. Was that your analogy?

A. That was similar to what I was saying. We did have a car analogy, yes. I don't think I said it exactly like that.

Q. Would you state it any different than what I just said?

A. Well, what we were saying was that because Y-STRs aren't individualizing, they are helpful in an investigation because they can identify a group of people. So, I was saying if there was a crime scene and somebody said: I saw a Toyota leave the scene, then it would be you want to look at everybody that would have a Toyota and then see if that person could have been the perpetrator. So, it's the same for Y-STRs. Because we are saying this item of evidence has a Y-STR profile, so let's see who else has the same Y-STR profile. I'm acknowledging that -- while Mr. Peyronel has this Y-STR,

there are also other males in the population with this Y-STR profile. So, that group of people with that Y-STR profile is of interest. I'm not saying many people contributed. Just one of those.

Q. So, then to carry the analogy to its logical conclusion, the way to rule out people or identify people would be to test?

A. Yes.

MR. OLIVER: Sorry, Judge. I'm skipping through my notes. I'm trying to keep it linear.

Q. (By Mr. Oliver) Now, when you talk about -- when we talked about DNA, we talked about generally the topic of the degradation of the DNA profile. Do you recall that discussion?

A. Yes.

Q. Now, when we met what you told me was that degradation, that process, unless there are interfering mechanical factors, the natural degradation of the sample was likely -- what you'd start looking at is greater than or equal to 72 hours. Is that correct?

A. That is if the foreign DNA is on the body. DNA can be preserved on materials that are not attached to a body, but once you're talking about bodily samples, your body has enzymes and activity that is breaking down substances that are foreign. So, the 72 -- we said that

sometimes with sexual assault, we like to collect a sample between that date that it occurred and no later than four days, but really not three because that's a good window of when your DNA would be degraded just by bodily functions.

Q. Okay. So, then we're talking about two levels. What we discussed then, so that I'm clear, or that I'm saying it correctly, is that the degradation of the sample of -- the samples on the body, that natural process would begin to occur 72 to 96 hours, correct?

A. Well, it would start immediately up to and then it would take a few days.

Q. For it to be gone?

A. Usually. It's an approximation, but, yes.

Q. So, assume for me that a DNA sample contained in a person's saliva is deposited on the body and that area is swabbed for that sample within 12 hours of the allegation. So, if I'm understanding you correctly, then what you're saying is the naturally occurring degradation of that sample would not have eliminated the sample theoretically at that time within the 12-hour window if it was there, assuming it was there?

A. Well, true that's 12 hours is shorter than the three days, but it also depends on what also happened to the body during that time.

Q. Fair enough. We'll discuss that, but just for purposes of this question. DNA deposited in saliva on the body anywhere, on my arm, if I don't do anything to get rid of it and it dries and it's there, then the degradation that was talked about on direct would not occur until 72 or 96 hours passed generally?

A. Generally, if it was not washed or wiped.

Q. Okay. Now, you also referenced DNA samples -- well, you split it up between on the body and something else. So, let's assume that there was, again, a DNA profile that was deposited via saliva into clothing. Okay? Would that degradation process be longer or shorter based on what you were saying? I didn't understand. There was a difference at first.

A. Yes. If saliva was deposited directly on clothing and it was allowed to dry and it was kept cool, you know, not exposed to heat, then that could stay for a long time if nobody tampered with it, if it was separately stored.

Q. And, again, based on your discussion with the prosecutor yesterday, it could be ad infinitum?

A. Pardon?

Q. Forever.

A. Yes. For years, yes.

Q. So, again, given these two principals that

we've just discussed, a forensic analysis, dream come true, is an allegation that is investigated fully within these windows; if it's done within 12 hours that's great news, right?

A. Yes, it's helpful if it's that day.

Q. A lot more helpful than if it was outside the 72-hour window, right?

A. Correct.

Q. Okay. Let's talk about what you got. Now, the lab report dated January 26th, 2010, if you could locate that report for me.

A. Okay.

Q. Okay. That report indicates that you received 13 items, correct?

A. Yes.

Q. Now, items number -- I'll put these up. Item No. 2 was labia majora swabs?

A. Yes.

Q. And labia majora, for those of us who did not take anatomy and physiology, is the outside of the vagina, right?

A. It's the outer fold.

Q. Outer. I don't know another way to ask it. How much outer?

A. You probably have to ask the nurse what they

would consider, but it's not the inner fold. Does that help?

Q. So, Item No. 3 and 4, those were swabs -- I'm sorry. No. 3 was swabs from the labia minora?

A. Yes.

Q. That's the inside, right?

A. Yes. The inner fold. I think when they're saying labia, they're not going inside the vagina, per se, they're going on the folds, but, again, that's a question for the nurse. That's not my area.

Q. And then you have Item No. 7 and 8, which respectfully were an anal swab and an anal smear?

A. Correct.

Q. And then 11 is the panties, right?

A. Yes.

Q. And 12 is the shirt?

A. Yes.

Q. And 13 was pants?

A. Yes.

Q. So, as a starter, if you could look to the diagram that you have of this shirt, the condition of that shirt.

A. The diagram of the purple shirt?

Q. Correct.

A. Yes.

Q. Does this reflect the condition that the shirt was in when you received it?
A. That's just a drawing of the general shirt.
Q. Now, each of those little circles on the shirt represents stains or soil spots, right?
A. They represent areas that showed some kind of staining possibly, yes.
Q. Okay. And you actually indicated on this diagram above it that the shirt -- your description was that it was used and dirty?
A. Yes. This was what the serologist, a different analyst, said about it.
Q. Okay. Now, turning your attention to the pants. Let me know when you've got that.
A. I have it.
Q. The pants -- does this reflect what's in your report about the condition of those pants?
A. Yes.
Q. And the description of the pants is: Used, worn, and dirty?
A. Correct.
Q. Now, when we're talking about the items that were tested -- excuse me. Everything has an initial screening process, was screened for blood or semen by a serologist, correct?

A. Everything that we could, yes. There were certain items we did not test.

Q. Would that be the swabs?

A. The smears.

Q. Okay. And every item that was tested was negative for blood or semen?

A. Correct.

Q. Okay. Now, let's talk about these things we initially put up here. The labia majora swabs. Okay? Yesterday, when asked by the prosecutor whether or not you were surprised that the profiles on those swabs was consistent with the child, you said: No, it's not surprising.

A. Correct.

Q. Correct?

But the reason those swabs are part of the kit is because they are often used to identify what? The perpetrator, right?

A. Correct.

Q. So, they don't do those swabs for nothing?

A. Right.

Q. And so, very often those swabs would indicate who the donor of the material was, right?

A. Yes, if there was the material present.

Q. Okay. So, we're going to talk about the first

swab here, the labia majora. And we had a discussion about this. I apologize in advance if this is at all uncomfortable, but based on the evidence I have to ask.

As part of your training at some point in your life you've taken anatomy, correct?

A. Yes.

Q. You understand that the charge in this case, what Mr. Peyronel is accused of doing, is licking the vagina of this girl?

A. Yes.

Q. Which we all commonly would understand as cunnilingus, right?

A. Yes.

Q. Okay. Now, the vagina has got different named parts, right?

A. Yes.

Q. So, when you urinate, urine is coming out of your urethra; is that correct?

A. Yes.

Q. There's a different part of the vagina which is the clitoris?

A. Yes.

Q. And if we're talking about a skyscraper, the urethra is somewhere down on the first ten floors and the clitoris is somewhere higher, near the penthouse?

A. Okay.
Q. Would you agree with that, that it's higher than the urethra?
A. Yes.
Q. Okay. So, generally, when cunnilingus is performed, someone is trying to stimulate the clitoris, correct?
A. If that was --
MS. COLLINS: Object to speculation, Judge.
THE COURT: Sustained.
MR. OLIVER: I'm sorry?
THE COURT: Sustained.
MR. OLIVER: I thought you were saying something else. I apologize. I'm sorry.
THE COURT: Go ahead.
MR. OLIVER: Thank you.
Q. (By Mr. Oliver) So, if we assume the urethra -- well, we know the urethra is lower, the clitoris is higher. If a person goes to the bathroom, a woman goes to the restroom and urinates, I mean, is it possible that what they would wipe, if they used toilet paper, is the area where the urine came out?
A. That would be one of the areas.
Q. Okay. And, I mean, would you expect somebody to always basically get everything, start from the top,

go all the way up?

A. Depends on the person. You're talking about a child. Their wiping probably is not as great as an adult.

Q. So, it could be incomplete and then it could be lower or it could be incomplete or sloppy and be a wipe all over, right?

A. Correct.

Q. When you're talking about the degradation of a DNA profile -- I'm sorry. Let me back up.

When you're talking about an allegation of a person licking the vagina, which we have commonly agreed is cunnilingus, wouldn't you agree that whether or not any DNA is deposited, if it was deposited, and then we're going to assume that there was some sort of mechanical degradation from the wiping, it would depend entirely, or at least in part, on what area the child wiped?

A. It depends on whether or not the child wiped, but it also depends on where the DNA was deposited.

Q. And so, that's why we have the swabs on the outside, correct, and then the swabs on the inside, correct?

A. Probably, yes.

Q. Okay. So, if we assume that the child makes

this outcry and is tested within -- you know, examined by a SANE nurse within 12 hours, has not taken a bath, has not showered, and has not been in a hot environment or exposed to any other chemicals that you were talking about yesterday, would you agree with me that a dried saliva sample could very well have persisted in that area?

A. It could have, but it's also touching clothing like underwear.

Q. And that could be where transfer occurs, from the skin to the underwear, right?

A. Correct.

Q. So, that's a bonus for the forensic examiner, right?

A. Sometimes.

Q. You know, DNA is deposited one place and ends up in two?

A. It could happen.

Q. Right?

And so, if the swabs are done correctly on the outside and the inside, and, you know, this lick is higher, wouldn't you agree that it would be more likely that the swab would pick up a DNA sample in that swab than if the lick were lower?

A. I mean, this is really hypothetical, so it's

just -- it just depends on where this -- even if somebody licked somewhere, if you want to suggest higher, that's not to say the saliva didn't end up lower, or that he even was going for that area.

Q. Right.

A. It just depends on where it was deposited and where the wiping or rubbing of the clothing occurred. All of this matters.

Q. And so, if you took on the role of trying to figure out the probabilities here, you would have a bunch of questions to ask, right?

A. Yes.

Q. I'm not going through the same example as exhaustively, but if the allegation -- and we know based on the paperwork that you got, the paperwork says that he licked and then points to the buttocks, correct?

A. I'd have to read it again.

Q. It's the second to last page of your report at the bottom on the right.

A. Yes.

Q. Okay. And that doesn't state that she pointed into the anus, right?

A. Right. Just says pointed -- point to buttocks.

Q. And so, if we assume that the nurse swabbed where the child pointed and we know that all she did was

urinate and change clothes, isn't it very likely that the anal swab of that area, it very well could have had some of that DNA on it?

MS. COLLINS: Objection to speculation. The nurse was here and able to testify about that exactly.

MR. OLIVER: Judge, I'm asking her hypothetically.

THE COURT: Well, I know, but you're speculating. Sustained.

Q. (By Mr. Oliver) Okay. Now I'll move on to the clothing. Now, when you did test for the Y-STR, the only item that you tested was the panties, correct?

A. Yes.

Q. And so, obviously, what that means is that you guys did not do a test on the pants or the shirt for Y-STR DNA?

A. Correct.

Q. Now, would you agree that you don't know and you can't say that Mr. Peyronel's DNA did not transfer from the pants or the shirt to the panties?

A. Yeah. I did not test the pants or the shirt for Y-STR, so I don't know what was on there or what was not.

Q. So, the answer to my question is: No, you

can't say?

A. I can't say either way, right.

Q. Now, I'm going to give you another hypothetical. In my hypothetical, what I'm asking is if a child changed clothes, changed clothes, took off what we have here, the pants, shirts, panties. Let's just assume for the hypothetical those three articles. So, someone takes off the pants, takes off the panties, takes off the shirt, puts the clothes together in a pile, and then at some point later that pile is scooped up and dropped in the laundry room together in a pile. You would agree with me that it is entirely possible that DNA could have transferred from the pants or the shirt to the panties?

A. It's possible.

Q. And the only way to know for sure is if you tested the pants or the shirt?

A. Yes.

Q. Because if you did and you found Y-STR DNA on the pants or the shirt, well, then -- and you knew this sequence of facts had happened, the presence of Y-STR on the panties might seem less impactful from a forensic standpoint, right, from an identification standpoint?

A. What you're saying is possible, but to be clear, it's highly unlikely that kind of transfer would

be detected in my testing. You're transferring DNA, but secondary. Again, it's very low level, lower than usually what we're talking about here when we test and find results for.

Q. Lower than this infinitesimal amount of DNA that you guys found?

A. The .017 is -- and, again, I'm not saying we're talking about primary or secondary, but .017 nanograms per microliter sounds really small, but we can detect that and there is a lower levels that even if they're present they're not detectable because our instrumentation and technique, even those have levels of detection. So, you can go lower and have the quantum lower, but you just wouldn't detect it. So, just to be clear, when you have secondary transfer in laundry, or, you know, things like that, it might even be lower than what I'm testing. You might not detect it, is what I'm saying.

Q. You use the word might, right?

A. Correct.

Q. And so, the other side of might is that it might actually be detected?

A. True.

Q. And the sample size tells you nothing about whether it might or might not have been the case?

A. Sample size?
Q. The sample size that you find. We've already established that doesn't tell you if it's a secondary transfer, right?
A. Correct.
Q. Doesn't tell you if it's a primary?
A. Correct.
Q. So, again, this amount whether -- however it rates to other testing or other studies, you don't know that, right? You don't know if it was secondary or not?
A. Correct.
Q. And you can't say that there was or was not Y-STR on the pants or shirt because it was not tested, correct?
A. Correct.
Q. And you cannot say that there was no Y-STR transfer from those pants or that shirt to the panties, and that's, in this situation, because that was not looked at?
A. Correct.
Q. Now, I want to refer you back now to another portion of your testimony from yesterday. On direct, do you recall being asked about serology in general?
A. Yes.
Q. Now, the State asked you what presumptive --

let me back up.

You then discussed the difference between presumptive and confirmatory testing, correct?

A. Yes.

Q. And we already know that when you get stuff in you do a series of presumptive tests, right?

A. Yes.

Q. From a serological standpoint, you do an initial screening for blood and semen, correct?

A. If we can, yes.

Q. Okay. On your slide show, the examples included saliva, right?

A. Saliva is there as an example of a bodily fluid.

Q. Right. Because that's one of the sources you get DNA?

A. Yes.

Q. Now, when you were questioned by the State, she asked you about saliva testing specifically. Do you recall that?

A. Yes.

Q. And your response was that you use -- or your testing that was available at the time did not include presumptive testing for saliva, right?

A. At the time of this report, correct.

Q. Now, when you say not available, that doesn't mean it didn't exist, right?

A. Yes. I don't think I said not available. I just meant we didn't do it at the time.

Q. Okay. And the reason you didn't do it at the time is because sometime before you got to work at the lab, the lab decided, well, we're not going to use this particular test anymore, right?

A. Correct.

Q. Okay. And that test was an iodine test, right?

A. It's a starch iodine test. It's a test for amylase, which is a component usually found in saliva.

Q. Okay. Are there other presumptive tests for saliva that are available in the country?

A. To be clear, there's actually no presumptive test for saliva because saliva -- saliva is not like blood where you have the cells that identify. Blood has white blood cells, red blood cells. Saliva is really just water, enzymes, and mucus, and salts.

Q. Let me -- I'll stop you there.

A. I just want to explain because it could be misleading.

Q. It's not a test for saliva. It's a test for an enzyme commonly found in saliva?

A. Correct.

Q. And that enzyme is amylase?
A. Yes.
Q. Now, your testimony yesterday was that you guys at the lab -- or I guess not you guys since it was before your time, but the lab stopped using it because it often -- you would often see a false-positive for fecal matter, urine, breast milk. Do you recall that testimony?
A. Yes. I mentioned that those are some of the items that contain amylase.
Q. So, we can -- that's not an exhaustive list?
A. No. Our test that we used also was -- sometimes even blood and semen it was reacting positively for amylase test.
Q. We'll include those just to be fair. Okay. But those are the examples we've been given thus far?
A. Yes.
Q. Now, in this particular instance, you're aware that this is an allegation that a person's vagina was licked?
A. Correct.
Q. Okay. So, if you did the amylase test, you wouldn't -- you're not going to expect to see -- have any problems with fecal matter being there, right?
A. Well, in the case of underwear or a vaginal

area, urine and fecal matter on a child, that would not be uncommon to find because they don't always wipe as well. So, for children, actually, those amylase tests were hardly ever used in our lab even when we had it.

Q. Let me ask you this way. If you were to do an amylase test in a situation -- in a situation where the allegation is vaginal licking and that presumptive test was positive and then from the area tested you found Y-STR profile and then attached or connected that to some donor, then you would be able to make the reasonable conclusion that the DNA that you found there got there by way of saliva?

A. That's actually not correct.

Q. Would it be more likely then if you have no presumptive test at all?

A. Correct in that it will help indicate where it did come from, but even if I identified a bodily fluid, that's not to say that that is exactly where those DNA cells that I detected are from. That's two separate tests.

Q. Let me stop you there.

THE COURT: Aren't you calling -- I'm sorry. Aren't you calling for speculation?

MR. OLIVER: Well, Judge, I'm just examining the possibilities here.

THE COURT: You're examining a lot of possibilities and speculating as to what would occur if this were to happen. Let's go to what did happen instead of what -- what you are speculating.

MR. OLIVER: Okay.

Q. (By Mr. Oliver) So, if someone were to ask a question, as it has been done, is there a reasonable explanation for saliva in these panties that would not be a correct statement based on you testing in this case?

A. I'm sorry. Repeat the question.

Q. You did not identify any saliva in these panties, did you?

A. I did not test for any component of saliva, so I cannot tell you if there was saliva present or not.

Q. So, if the statement were made: There was saliva in the panties, based on your testing that is not correct?

A. I would say I don't know.

Q. The only way to know would be to test?

A. Yes.

MR. OLIVER: I'll pass the witness, Judge.

MS. COLLINS: I'll be real brief, Judge, I promise.

REDIRECT EXAMINATION

BY MS. COLLINS:

Q. When we're talking about being surprised, not surprised about these swabs, at the end of the day, Ms. Pierce, the fact that we found only Ryleigh Launer's DNA on those vaginal-anal swabs, does that mean that foreign DNA was never in those places?

A. Right. If there's no foreign DNA detected, it can mean two things from my perspective. Either foreign DNA was not deposited or it was deposited, but there was not enough for me to detect.

Q. Okay. So, when we go back to this concept of not finding anything, can you tell us one way or the other with autosomal DNA whether or not Bobby Peyronel or anybody else licked Ryleigh Launer's vagina based on this?

A. I cannot say anything about that. I did not detect any foreign DNA on those swabs.

Q. Fair.

Okay. Now, when we go to this concept of 1 in 79 people, you're certainly not here to tell this jury that 79 people had access to Ryleigh Launer, are you?

MR. OLIVER: Objection. Speculation, Your Honor.

THE COURT: Overruled.

Q. (By Ms. Collins) Is that what you're here to tell these folks?

A. That's not what that means, right.

Q. To be fair, do you have any idea how many male people actually had contact with Ryleigh Launer?

A. I do not.

Q. You didn't do any investigative work; is that fair to say?

A. Right.

Q. Okay. Now, when we go to this concept of 1 in 3 to 1 in 79 in this change, you mentioned that these thresholds were changed. From the first report to the second report, what you were able to visualize as far as these alleles or peaks, did that change?

A. No. The peaks that were detected, those were always present and those did not change.

Q. The only thing that changed was whether or not you could use them in the statistics?

A. That is correct.

Q. Okay. Now, there's been a lot of conversation about primary transfer versus secondary transfer. I noticed this look on your face when you were being asked questions about that. In your experience, as well as your education, from the literature that you have read, is it common to see secondary transfer visible in

testing?

A. Well, it's just something that there's been a lot of studies on and you always have to acknowledge it's possible. We know secondary transfer happens. Your DNA is being transferred. And that's what I was trying to explain. It is transferred secondarily, like what he was saying. My DNA is on my husband's laundry, but in terms of detection with our instruments and techniques, I don't -- I know that from what I've studied, it is really not relevant in forensic investigations usually because it is so low that you're not even detecting that. But, again, it's always a possibility. It's just something that -- too, something that we have to remember with secondary transfer, when you are transferring -- if I transfer my DNA to this object and other people touched it and then somebody else came and touched it, you have something that has a lot of DNA on it. You have a mixture of DNA. So, you would also -- if I tried to then swab this, I'm detecting everybody else that handled this. So, when he was talking about toys, which I'm going to call a factor of transfer, community objects, although they do transfer secondarily, you do have a mixture of DNA. So, if I had tested something and I got a mixture of a lot of different people, that would also tell me maybe this

was a community object, there's too many people on it. It wouldn't really be one person. It would show all the people maybe that touched it possibly. So, secondary transfer is often a nightmare if you did detect because it's partial profiles of everybody that touched it.

Q. Okay. Let me ask you this. When you tested the panties and got this Y-STR profile, was that a combination of one person or more than one person?

A. The partialized profile from the panties was what I call a single-source profile. It's one contributor, so one person. It looks like one person donated that profile.

MS. COLLINS: Nothing further, Your Honor.

THE COURT: All right.

MR. OLIVER: I have no further questions, Judge.

THE COURT: All right. You may step down.

We're going to take a little break. I have to do some more court business and visit the indoor plumbing.

(Open court, defendant present, no jury)

THE COURT: I'm sorry. I broke my own rules.

MR. OLIVER: Which rule is that?

THE COURT: Never interfere when you guys