

EXHIBIT L

2018 WL 11179829 (D.Del.) (Expert Trial Transcript)
United States District Court, D. Delaware.

BIO-RAD LABORATORIES, INC. and The University of Chicago, Plaintiffs,

v.

10X GENOMICS, INC., Defendant.

No. 15-152-RGA.

November 8, 2018.

Testimony of Defendant's Expert Witness, Ryan Michael Sullivan, Ph.D.

Name of Expert: Ryan M. Sullivan, Ph.D.

Area of Expertise: Accounting & Economics >> Finance

Area of Expertise: Accounting & Economics >> Economic Damages

Area of Expertise: Accounting & Economics >> Statistics

Representing: Defendant

Jurisdiction: D.Del.

For the Plaintiffs: Farnan LLP by: Brian E. Farnan, Esquire.

Weil Gotshal & Manges, LLP by: Edward Reines, Esquire, Derek C. Walter, Esquire and Christopher S. Lavin, Esquire.

For the Defendant: Richards Layton & Finger, P.A. by: Frederick L. Cottrell, III, Esquire, Alexandra Ewing, Esquire and Jason Rawnsley, Esquire.

Tensegrity Law Group LLP by: Matthew D. Powers, Esquire, Robert L. Gerrity, Esquire and Azra Hadzimehmedovic, Esquire.

Irell & Manella LLP by: David Gindler, Esquire and Lauren Drake, Esquire.

Before: Hon. Richard G. Andrews, U.S.D.C.J.

calling Dr. Ryan Sullivan. He's going to be 10X's damages expert.

THE CLERK: Please state and spell your full name for the record.

THE WITNESS: Ryan Michael Sullivan. R-Y-A-N M-I-C-H-A-E-L S-U-L-L-I-V-A-N.

THE CLERK: Please raise your right hand.

RYAN M. SULLIVAN, the deponent herein, after having been duly sworn under oath, was examined and testified as follows:

THE CLERK: Thank you.

DIRECT EXAMINATION

BY MS. HADZIMEHMEDOVIC:

Q. Good afternoon, Dr. Sullivan. Could you please introduce yourself to the jury?

A. Hi. I am Ryan Sullivan. I served as the chief executive officer of Intensity Corporation, and I work as an economist.

Q. Can you please tell us a little bit about the company that you work for?

A. So Intensity is a company involved in economics, finance and statistics. Our work generally falls into two different categories.

The first is business analytics. This is where we work with companies to improve their profits, so to improve revenue, reduce costs. One example of this would be work that we've done for Wine.com. So that's an online retailer of wine, and we have built the pricing algorithms such that anytime a competitor, whether it be online or in brick and mortar store, when they change the price of a bottle of wine, we have the optimal response that Wine.com should have to that price change.

The second category of work that we do is in litigation and disputes such as this.

Q. Dr. Sullivan, I think you said your company's name is Intensity. Where does that name come from?

A. That reflects how we operate rather than what it is that we do. We like to think of Intensity as the positive engagement with each and everything that we do.

Q. Have you prepared a presentation to assist with your testimony today?

A. Yes.

MS. HADZIMEHMEDOVIC: Your Honor, permission to publish Dr. Sullivan's presentation?

THE COURT: Sure.

BY MS. HADZIMEHMEDOVIC:

Q. Dr. Sullivan, please tell us your educational background.

A. I have a bachelor's degree, a master's degree, and a Ph.D. They are all in economics and all from the University of California in San Diego.

Q. San Diego, other than it being a nice place to live, was there another reason that drew you to this particular university other than --

A. Yes. So UC San Diego is typically ranked in the top one, two, or three schools in the country for mathematical, economics. And going there afforded me an opportunity to work directly hand in hand with two of the Nobel Prize Laureates in economics.

Q. Have you published any work in economics?

A. Yes. I have a number of publications including work in the Journal of Finance, the Journal of Econometrics, and the International Journal of Forecasting.

Q. Have you worked with companies in licensing intellectual property?

experts, including Professor Huck, Professor Quackenbush, Dr. Chang. So I did a very thorough review of the materials and the information.

Q. Dr. Sullivan, do you agree with Mr. Malackowski's reasonable royalty assessment?

A. No, I do not. My research reveals that there are serious flaws with the work that he did and what I will go through here, as we progress is the reasons and rationale for my beliefs.

Q. What did you determine to be the appropriate rate in the reasonable royalty analysis for this case?

A. Yeah. So let me take this in two steps. So first off is determining an appropriate royalty rate here that I have separately for the different types of products that are sold by 10X. So for the instruments I've determined that the appropriate rate is 0.375%. So that's three-eighths of one percent. Because the products are different, that 10X sells, the rates that are applicable or appropriate to those products are different as well. The rates for kits and chips and reagents, that's at a higher rate of 0.75% or three-quarters of one percent. Now, to be clear, this is only part of the answer, because a royalty and a reasonable royalty ultimately is an amount of money. It's not just a rate. It's a determination of the rates and the base collectively and those need to be -- to match one another.

Q. So in your opinion, Dr. Sullivan, assuming that the patents are valid and infringed, what are the royalties that result from applying the rates that you determined?

A. So I applied the instrument rate of 0.375% to the sales base of instruments and I applied the rate of 0.75% to the sales base of kits and chips. Now, I'm not able to state those numbers here on the record for confidentiality reasons, yet you can see them up on the screen. When I performed the calculations here, you'll see at the bottom right that the total reasonable royalty is \$578,237. So ultimately that is the takeaway from the work that I did.

Q. Now, let's speak in more detail about the underlying work that resulted in these numbers. Did you apply the hypothetical negotiation concept in your analysis?

A. Yes, I did.

Q. And can you please set the stage for that hypothetical negotiation in this case?

A. Yes. So this hypothetical negotiation between the parties would have occurred back in the second quarter of

2015. And at the table at this negotiation on one side would be the University of Chicago as the patent owner, as well as RainDance as one of the university's exclusive licensees. On the other side of the table would be 10X Genomics. And the idea or the construct here is that the University of Chicago and RainDance would be providing 10X with rights to be able to use the patented technology and in return 10X would be supplying a royalty for those rights.

Q. Dr. Sullivan, did you, in that analysis, apply the framework that's called Georgia Pacific framework?

A. Yes. So Georgia Pacific is a case that sets forth 15 different factors to be considered in evaluating a reasonable royalty. I considered all 15 of those factors and the substance of those you'll see as I progress through a description of the work that I did.

Q. Now, looking at your slide #9 on top you have the second quarter of 2015. What is the meaning of that, that date?

A. So that is the time that the hypothetical negotiation would occur and that's the time period where the parties would be sitting down to come to an agreement.

Q. Why do you consider in particular RainDance and Chicago to be the negotiators on one side of the table, both of them?

A. Well, for a couple of reasons. One, the University of Chicago is there as the owner of the patents. The university has issued licenses to two other entities, to RainDance for a particular field of use, as well as to Emerald for another field of use. Now, when those agreements got renegotiated, the University of Chicago stepped in to renegotiate those agreements, one with RainDance and again with Emerald, to adjust the field of use and other aspects of those agreements. So here when there's a third negotiation with 10X, we would expect the University of Chicago again to step in. And that also makes sense because the university as well as RainDance would have a financial interest in the outcome of the hypothetical negotiation.

Q. Dr. Sullivan, one party that you did not mention as a party to the hypothetical negotiations Bio-Rad. Why is that?

A. Bio-Rad did not acquire RainDance until 2017, a couple of years later, thus Bio-Rad is not relevant to the hypothetical negotiation and is not relevant for the determination of a reasonable royalty.

Q. And is that because the hypothetical occurs in the second quarter of 2015?

A. Correct.

Q. Now, Mr. Malackowski has characterized 10X Genomics and RainDance as generally competitors at the time of the hypothetical negotiation. Do you agree with that?

A. No, I do not agree. And what I'm going to explain to you as we go forward is that in this field and with patent licensing, there's a very specific meaning of competition. And in particular, it's when the sales of one company's products, in this case 10X, has a direct and negative effect on the sales of RainDance's products. And there is no negative effect on RainDance from the sales of the 10X products. And for that reason there is not a competitive effect between those two entities. And in contrast, both the University of Chicago and RainDance would be aligned in their incentives to license the technology to 10X to be able to gain access to a marketplace, gain access to sales and to gain royalties on sales that they otherwise would not have access to.

Q. Has RainDance ever sold a product that competed with 10X?

A. No, they have not. In fact, on the next slide you'll see that I've listed out here first off the two products that 10X was bringing to market at the time of the hypothetical negotiation, the Genome product and the Exome product. And then subsequently 10X released the additional products of the De novo assembly, the single cell V(D)J, which is also referred to as the immune profiling product as well as the Single Cell 3 Prime product. Those are different 10X products whereas RainDance does not and has not ever sold similar products to those.

Q. What effect did your determination that RainDance and 10X are not competitors, what effect did that have on your analysis?

A. Well, it demonstrates that both the University of Chicago and RainDance would be incentivized to enter into a licensing arrangement, that again, would give them access to the 10X marketplace that was perceived to be growing so that they could gain some royalties from that. So there would be that incentive for them to engage in that negotiation.

Q. Turning to the analysis of licenses in the case, Mr. Malackowski has considered a good number of licenses. Have you considered the same licenses in forming your opinions?

A. Yes. We considered the same collection of license agreements.

Q. What do you have summarized here on slide 11?

A. Well, they all are surrounding certain technology that was foundational to the industry. So this was involving the PCR technology that was created and invented by Dr. Kary Mullis, and as I have learned, and he obtained the Nobel Prize in 1993 for the inventions he made a decade prior.

Q. Now, with respect to your understanding that all of these agreements, as well as the two bottom entries, the consent judgements are part of one global event, what is the basis for that understanding?

A. Well, there's a timeline of events that occurred. And if we can take a look -- thank you -- at the next slide. There was multiple litigations. And what happened in one of those litigations is that the Court found that there was infringement and they ordered an injunction. What this means is that Bio-Rad was ordered to not sell any of their products, they were prevented from selling those products.

A couple of months later there was information that came out, an allegation that Bio-Rad was not --

MR. VLASIS: Objection, Your Honor.

THE COURT: I think we discussed this. It's overruled.

THE WITNESS: There was evidence that the Court received that Bio-Rad may be in violation of that injunction and may have been continuing to sell product. So the Court ruled that -- and you can see this, so it's December 6th of 2005, that the Court would allow discovery of an investigation to determine whether or not Bio-Rad was in violation of that injunction or not. The following day, on December 7th, the parties collectively asked the Court to stay the case so that they could settle their disagreements. And that took them a couple of months and they came together with all the different agreements to settle that litigation. So this demonstrates that that collection of agreements that settled all the litigation really happened as a result of some exceptional circumstances.

BY MS. HADZIMEHMEDOVIC:

Q. Dr. Sullivan, let's turn to the rate that applied to the realtime PCR instrument license. Can you please tell us about the rate that Bio-Rad paid under that agreement?

A. Yeah. The rate that was paid was between 7 and 8%. So you'll see I've got two excerpts here of different patents. The top patents were payable under the thermal cycler supplier agreement and this '934 Higuchi patent in that second panel, that was specified at 15%. But all of the royalties that are payable under the thermal cycler supplier agreement, which are 7 to 8%, those are deductible against the payments for the '934 Higuchi patent. And as a result, the royalties that are payable under the realtime instrument license are 7 to 8%.

Q. Dr. Sullivan, how did the determination of the effective rate effect your overall analysis of the differences between the Applera realtime instrument license and the hypothetical negotiation?

A. Well, there's another way to look at this, to be able to evaluate the economic contribution of the patents under that agreement, which is applying that 7 to 8% rate to the price of the products that were sold pursuant to that agreement. That results in royalties of about 1,400 to \$2,400 per unit. In contrast, the prices of the 10X instruments are much higher, between 60,000 and \$125,000. And accordingly, if you apply the math that Mr. Malackowski has, you end up with a per unit royalty between 9,000 and \$18,750. What this demonstrates is that the technology from an economic perspective is not comparable, because the two products are very different and thus, shouldn't be applied. And even further, is that the rate of 15% has no bearing and no applicability to reagents or kits or chips. It was only intended for instruments.

Q. Dr. Sullivan, have you also considered the comparison between the Applera licensing program and the Ismagilov licensing?

A. I have. And the two are very different. The Applera licensing program under these patents has generated over \$2 billion in royalties. In contrast, the Ismagilov patents have generated less than \$2 million in royalties. So from an economic perspective, that is another objective way to see that the relative value of these technologies is very different.

Q. Dr. Sullivan, if you could just briefly summarize the reasons you consider the Applera license different from the license that would come out of the hypothetical negotiation?

A. Yes. It's a very different agreement. It arose from extraordinary circumstances. The patents and the technology is very different. The parties are different, the products are different. The royalty base is different and it was at a different point in time in the marketplace in the industry. And for all of these reasons in my view this agreement is not informative.

Q. Can you please turn to the second agreement that Mr. Malackowski considered comparable? Do you agree with Mr. Malackowski that the Applied Biosystems/QuantaLife license is comparable for the purposes of determining the rate in this case?

A. No, I do not.

Q. What are the reasons for your disagreement?

A. There's a number of reasons. Here again I've put forth a timeline to help illustrate some of the basic differences. One is that there's a difference in time, a gap in time between 2010 and 2015. We also have completely different parties between the hypothetical negotiation and the Applied Biosystems/QuantaLife agreement. And the products are very different. So the Applied Biosystems agreement was payable on reagents and reagents only. It was not payable on chips, it was not payable on instruments. And the technology underlying it was very different.

Q. Tell us a little bit about why you believe that the technologies between the QuantaLife/Applied Biosystems license and the Ismagilov license are different?

A. Yeah. So I investigated this issue and I talked with Professor Quackenbush and my understanding is this -- the underlying technology in that agreement involves Taq polymerase. And I learned that this was not only dubbed the molecule of the year, but it really did pave the way for the modern biotech industry, because it automated the PCR process with this heat stable enzyme, and thus, it had a very significant effect on the industry.

Q. What are the stated rates in the Applied Biosystems license?

A. The percentage rates that are stated are 10%, 12% and 15%. And the determination of which one applies is different depending upon which patents are used, which products are used and which time period it applies to.

Q. Now, Dr. Sullivan, do you recall reviewing Dr. Shinoff's deposition testimony, Bio-Rad's witness?

A. Yes, I do.

Q. And in particular, his testimony regarding an effective rate that may have applied to the Applied Biosystems/QuantaLife license?

A. Yes.

Q. Please tell us how did that effect your opinion?

A. Well, I have not seen any data nor were any data produced to be able to calculate what the effective rate would be. Dr. Shinoff was not able to identify which products were actually paid on underneath that agreement, thus the effective rate that was stated is indeterminant.

Q. Could you please, as you did with the Applera licence, summarize for the jury the key reasons you determined that the Applied Biosystems/QuantaLife license is not comparable for the purposes of the hypothetical negotiation?

A. So, again, the patents and patented technology is fundamentally different, the parties are different, the products for which the agreement applies to are completely different. And the marketplace was evolving and changing especially in comparison to these different types of products that were the basis for the Applied Biosystems agreement on the one hand versus the hypothetical negotiation on the other.

Q. And just focusing on the royalty base, which you say is reagents only, could you give us an economic sort of quantifying measure of how that base differs from the base that would apply in this case?

A. Yeah. So very different. So as we learned, what was payable on the reagents per test was running about \$2. And So if one applies a 12% rate to that, it's about 24 cents. So we're looking at 24 cents per unit, which is very different from the \$9,000 to the \$18,750 per unit that is being asserted by Mr. Malackowski. So this gap between 24 cents and \$9,000 or more demonstrates that the technology is not comparable from an economic perspective.

Q. Let's turn now to the third license that Mr. Malackowski considered comparable. Did you agree with Mr. Malackowski that the Caliper/RainDance license is comparable for the purposes of the reasonable royalty here?

A. No. This agreement is not comparable and as I'll explain, Mr. Malackowski has misinterpreted the application of this agreement.

Q. Please explain what you mean by that.

A. Well, there are two different types of rates that are specified in the Caliper agreement. There are rates for non -- what they call non-screening applications and screening applications. For the non-screening, you can see I've highlighted that in green. That's 2% of revenue, whereas the screening applications are 15% of revenue. Now, here's where it gets interesting, because if you look at the next piece for the definition of screening applications, this section 1.15, it explains for us what competition means. It says that this 15% rate applies for products that compete directly to directly and demonstrably impact sales of Caliper's products. And that is not something that we have at the hypothetical negotiation. There is no 10X product that direct -- for which its sales directly and demonstrably impact the sales of RainDance products or for the University of Chicago. So that creates a big difference. The other piece to recognize here is that the screening applications in that 15% rate, that does not apply to instruments. That is only to chips, reagents and other non-instrument products. So let me see if I can get that here, applies to chips, reagents and other non-instrument products. So even if there was a belief that 10X's products directly and demonstrably impact sales of RainDance, it would not relate to instruments. And so there's a big gap there.

Q. Just to be clear, have you seen any, any evidence of RainDance's products competing with 10X's products, ever?

A. No. There is no such evidence.

Q. And this is a RainDance license with Caliper. What rate did RainDance pay under this license?

A. RainDance paid a rate between 1 and 2% under this agreement. They never paid at a 15% rate.

Q. What additional economic factors did you analyze in determining the comparability or lack thereof between the Caliper/RainDance and the hypothetical negotiation?

A. Well, there's a couple of items. One is there is a royalty stacking provision in this agreement and that reduces the effective rate from 2% down to 1%. Or even conversely, the 15% would be reduced down to 7 1/2%, so it does have that provision. It's also not only for a few patents, but for over 550 issued patents and over 175 patent applications. So for paying that 1 to 2% rate, that gave RainDance access and rights to not only a handful of patents, but also to that entire portfolio, gave them freedom to operate with respect to all of those patents. And then in 2014 the parties to that agreement agreed to pay out the agreement for an amount of \$1.95 million for the rest of all time. So the total royalties from 2014 onward were under \$2 million under that agreement.

Q. Now, Dr. Sullivan, I would just like to pause on the 550 patents plus in the license. I'm holding it in my hand, DTX 518. Do you recall by any chance how many pages of patent names are in this particular license, just if you recall, roughly?

A. It looks like it is over 60 pages listings of patents.

Q. Have you seen any evidence in this case that Bio-Rad has studied every single patent in those 70 pages of patents and studied them with respect to how they apply to RainDance products?

A. I have seen no such evidence.

Q. Have you relied on -- just to put it back into the hypothetical negotiation, how many patents are in the hypothetical negotiation between RainDance and 10X?

A. So there's only four patents. And that's assuming that all four patents are valid and infringed under that assumption. If there's fewer patents, then there would be even less.

Q. Have you spoken with 10X experts about their technological opinion about whether the -- any of the 550 plus patents in the Caliper license technologically compare to the four Ismagilov patents?

A. Yeah, so I interviewed Professor Huck in this regard and he indicated to me that the ones that he had reviewed that had been put forth by Dr. Sia and others, that those technologies are different and not comparable to the technology claimed in the Ismagilov patents.

THE COURT: Will this be a good time to finish for the day?

MS. HADZIMEHMEDOVIC: This is a perfect spot. Thank you, Your Honor.

THE COURT: Okay. So members of the jury we're going to finish for the day. So the first thing is schedule

(A recess was taken.)

THE CLERK: All rise.

THE COURT: All right. We're ready.

MR. REINES: Thank you.

THE COURT: No problem. Let's get the jury.

A. Well, you can see here up in the top panel that the agreement lists one percent of sales of instruments as a royalty, and three percent for kits or chips. But there's also a provision that provides for a royalty offset.

And this is the provision that is sometimes referred to as a royalty stacking provision. And you can see that if there's payments made to a third party for royalty payments, that the active, or applicable, or operative royalty rates are three-quarters of a percent for instruments, and one-and-a-half percent for chips and kits. And those are the rates that were actually paid to the University of Chicago under this agreement by RainDance, and then subsequently by Bio-Rad.

Q. How much has Bio-Rad paid to University of Chicago under this license?

A. Total of approximately \$316,000. That amount is payable on instruments, and they have also paid that on some of the reagents. But it's unclear whether they've actually paid that on chips or other products.

Q. And just to be clear, you have seen evidence that they have paid on chips; correct?

A. Yes.

Q. But you haven't seen clear evidence that they're paying on reagents; correct?

A. That's right.

Q. Now, have you seen this stacking practice in other licenses in this field?

A. Yeah. So six other of the license agreements in this case also have royalty stacking provisions. Some of these agreements you've already heard about, we've talked about. There's the Caliper-RainDance agreement and the Caliper-Bio-Rad agreement. Both of those have royalty stacking provisions along with the Curie agreement, Harvard-RainDance, Medical Resource Council-RainDance and Harvard-10X Genomics. They all have a similar royalty stacking provision.

Q. Have you also found any of these six licenses particularly important to your analysis?

A. I have. So both the Harvard/RainDance and the Medical Research Council/RainDance, for those agreements Professor Huck informed me that the technology in those agreements are comparable to the Ismagilov technology. And as a result, even though those agreements are not as informative as the 2013 Chicago agreement, because it's not the exact same technology, but it is similar. And so these two inform my opinion in terms of what would be appropriate for the hypothetical negotiation.

Q. Now, have you seen evidence that suggests that this stacking, the rate reduction, should apply to 10X in the hypothetical?

A. Yes. For multiple reasons. First off, there are a number of technological contributions that 10X is making to its products. And you can see that here for some of the reasons for their success, including the gel beads, the barcodes, the surfactants, and the software that they're using for data analysis, among other items.

Q. And what does -- first of all, what is the basis for your understanding that these are the factors that contributed to 10X's success?

A. This is based upon extensive interviews that I've had with 10X personnel, with Dr. Hindson and Dr. Saxonov in particular.

Q. How does this list of factors that have contributed to 10X's success informed your analysis?

A. Well, it indicates that the royalty stacking provision should be recognized to account for these separate contributions. Yet, it goes beyond that point, because 10X also has license agreements with Harvard, Stanford and Matrix. And for example, under the Harvard agreement, 10X has paid royalties so far that are in excess of \$3.65 million.

Q. Do you recall generally what the Harvard patents relate to?

A. Yeah. So this relates to the technology on gel beads and surfactants.

Q. Now, Dr. Sullivan, I think you've seen in the Bio-Rad expert reports suggests that Bio-Rad believes that the Ismagilov patents relate to biological reactions in droplets. You've seen that, correct?

A. Yes, I have.

Q. Have you analyzed the relative contribution of the having biological reactions in droplets, assuming the patents are infringed and valid and the relative contribution of 10X's contribution to its products?

A. I have. And so as an economist I evaluate the data. What I'm showing here are sales data for the 10X single cell products as compared to Bio-Rad's single cell product, the ddSEQ product. These are the revenues on a quarterly basis. The blue is for 10X and the red, down below, is for Bio-Rad. And if we are to assume that both sets of products practice the Ismagilov technology as alleged by plaintiffs, then the difference in performance between these two products cannot be attributable to that technology, because both products, under assumption, have the Ismagilov technology. So that means that the difference between the blue and the red, that's due to something else. That's due to 10X's contributions and the other items that we've been discussing.

Q. Without stating the revenues on the record, what is the relative comparison between those revenues?

A. Across this time, 10X's revenues have been 42x greater than Bio-Rad's revenues.

Q. Now, let's turn to -- what is 10X's gross profit margin?

A. The gross profit margin is 83.5%.

Q. So that must mean they're making a lot of money?

A. No. Actually not. The gross profit margin only accounts for the cost of the devices and the products themselves. Just the manufacturing costs are deducted to get to a gross profit number, but there's other costs that are required to bring these products in the market and to get them in the hands of the customers. There's the operating expenses, there's research and development, sales expenses, marketing expenses, the scientific research expenses. Overall those expenses have caused 10X to actually take a loss. So over that period of time 10X has lost over \$110 million in terms of their operating profit. In the most recent quarter they were still operating at a loss and had yet to turn a profit on a quarter basis.

Q. This is not unusual with innovative companies in the first few years, correct?

A. That's right.

Q. What are you showing on this slide 41?

A. So these are the operative royalty rates from the Chicago/RainDance agreement in 2013, after accounting for the royalty adjustment, the stacking provision that's in that agreement.

Q. Are these the rates you determined are applicable here as a final number?

A. Almost, but not quite. To be more precise, there is still another difference between the agreement and the hypothetical negotiation that should be accounted for. And that's the issue of exclusivity. The Chicago/RainDance agreement provided RainDance with exclusive rights within a particular field. However, at the hypothetical negotiation, 10X does not get that right. They don't get that benefit or the benefit to exclude others. All they get at the hypothetical negotiation is just a bare patent right. They don't get know-how, they don't get commercialization. They have to go do their own development and commercialization. So what that means is there should be an adjustment, because exclusivity provides value. The economic literature tells us that there's a 50% factor on exclusivity. Here in this case there's an agreement between Stanford and 10X. That's the one agreement that actually provides different rates for exclusivity versus non-exclusivity. So it provides us with guidance. And this agreement says that the rate is 2% during the exclusive term when there's exclusivity and 1% when there's not exclusivity. So this confirms what we would expect that there should be a 50% factor.

Q. So what rate did you calculate based on this adjustment?

A. So this results in the final royalty rates that I have determined are appropriate, which is 0.375% for instruments and 0.75% for kits and chips.

Q. Have you then applied those rates to the royalty base for the instrument and the chips and the reagents?

A. Yes. So we've seen this slide before. I showed this to you at the beginning. So I've applied the 0.375% rate to the sales base of instruments, which is \$31,015,300. And for those products, that gives a royalty of \$116,307. For kits and chips I applied the rate of 0.75% to a sales base of \$61,590,697 for a royalty of \$461,930. And the total royalty is \$578,237. And this is for the sales base for all sales that are made to customers in the United States. And this would be applicable if all four patents are found to be valid and infringed.

Q. If the Court were to decide that the worldwide sales base is the appropriate base, what is that number?

A. Then the number would be \$971,245.

Q. Dr. Sullivan, what are you showing on slide 45?

A. I have been asked to consider other scenarios that might occur. So, for example, in this second row is where only the '083 Patent is found to be valid and infringed and only up to the point where there was the new design in which the case the sales base for instruments would be \$16,010,141. For kits and chips in that scenario the sales base would be \$18,173,570. The last scenario here is if only the '193 and '148 patents are found to be valid and infringed. These are for the long-read Exome Genome products only. The sales base would be \$17,218,190 and for kits and chips the sales base would be \$4,059,669. And when we applied the rates to those bases in the scenario for the '083 Patent, the royalties would be \$196,340. And for the scenario of the '193 and '148 Patent, the royalties would be \$95,016.

Q. Now, Dr. Sullivan, the jury has heard Mr. Malackowski at 15% rate and the jury heard your rate being under 1%. Why do you believe that the rates that you determined that are under 1% are reasonable?

A. The three agreements that Mr. Malackowski has utilized are not comparable. And they're very distinguishable. The Applera agreement, aside from only being applied to lower priced instruments, also was a result of a litigation war that then went to a potential violation of an injunction order. And upon the Court allowing discovery to see if there was a violation by Bio-Rad of actually starting to sell products when they shouldn't, the parties settled this global settlement. For Applied Bio, we saw that those royalties are payable on smaller \$2 items, very different than what's being sold here. And that was for Taq polymerase, which really paved the way for modern biotechnology. The Caliper agreement that has rates of 1 to 2% or 15%. But that 15%

A. The two Caliper agreements.

Q. Okay. And Dr. Sullivan, if you could refer to your demonstrative slide 35 and we can put that on the screen. These are the agreements that -- these are the only agreements that you found had a technology offset out of all of the agreements in the case, correct?

A. These six plus the Chicago agreements, those 7 out of 17.

Q. Well, in fact, you considered more than 17 agreements, didn't you, Dr. Sullivan?

A. If you include other amendments and the like, yes.

Q. Okay. Now, you can keep your hard copy slide 35 if you need to refer to it, but I'm going to put a different slide on the screen. These are the license agreements that you considered, correct?

A. In summary. And for example, the Caliper/RainDance agreement listed twice to show the two different types of rates that apply.

Q. And what I want to do is demonstrate for the jury which ones of these do and do not have a royalty stacking deduction. So the first one is the Brandeis agreement that does not have a royalty stacking adjustment, correct?

A. That is a right.

Q. And the second one is the Lawrence Livermore/Bio-Rad agreement, that does not have a royalty stacking deduction, correct?

A. That's right.

Q. And the fourth agreement is the Japan Science agreement. That does not have a royalty stacking deduction?

A. That's correct.

Q. And the Stanford/IOX agreement does not have a royalty stacking deduction?

A. That's right.

Q. And the University Pierre agreement does not have a royalty stacking deduction, correct?

A. That's right.

Q. And neither of the Lawrence Livermore agreements have a royalty stacking deduction, correct?

A. That's right.

Q. And the LifeTech/Bio-Rad agreement does not have a royalty stacking deduction, correct?

A. That's right.

Q. Now, after you reduced or used lower rates for the royalty stacking, you then made another adjustment for exclusivity, correct?

A. To be honest to the hypothetical negotiation, that's right.

Q. And you lowered the rates again by dividing them in half, correct?

A. That's right.

Q. Okay. And out of the 20 agreements or so that you considered, only one of those had an exclusivity discount, correct?

A. Only one of them has separate exclusivity rates or has an exclusive and a non-exclusive to be able to gauge the effect.

Q. And that was the Stanford/10X agreement, correct?

A. That's right.

Q. So the Brandeis agreement does not have an exclusivity discount, the Lawrence Livermore, the Caliper, the Japan Science, the UPMC, the Curie, the Lawrence Livermore, the Caliper, the Chicago, Harvard, MRC, none of these of exclusivity discounts, correct?

A. That's right. And exclusivity adjustment is not required in an agreement in order for it to be comparable.

Q. And you were present in trial this week for Dr. Ginsberg's testimony?

A. Yes, I was.

Q. And you heard Dr. Ginsberg testify that the exclusivity adjustment or provision in the RainDance agreement didn't have any effect on the royalty rate, correct?

A. I heard that testimony.

Q. And after all of the adjustments that you made, you recognized that RainDance would receive even less compensation from 10X than the University of Chicago received from RainDance, correct?

A. Yes. And that makes sense. The different --

Q. That's fine. Your counsel can ask you follow-up questions on redirect. Now, under the Chicago-RainDance agreement, 10X would be a sublicensee; correct?

A. Not necessarily.

Q. Well, the agreement allows for RainDance to sublicense the technology; correct?

A. There's specific sublicensing provisions that would, as I read it, require RainDance to sublicense the entire portfolio which then would, in effect, be causing 10X to have to buy rights to all 20, the technologies that are in that agreement versus just the four. And as a result, both myself and Mr. Malackowski have determined that in order to have there be apportionment that that agreement is not binding on the hypothetical negotiation.

Q. And the Chicago license requires that sublicensee revenue be paid to Chicago; correct?

A. There is a provision on sublicense revenue. That's right.

Q. And your expert report calculated a higher set of royalties to take that into consideration; correct?

Q. But RainDance committed to commercialize products that use Dr. Ismagilov's patents which are the same patents that you're supposed to assume 10X is infringing in this case; correct?

A. That's right. That is part of the obligations under that agreement.

Q. And you recognized that unlike the University of Chicago, for example, RainDance did develop actual products and actually competed; correct?

A. Well, they developed actual products. I can't speak to the fact of whether or not they used this Ismagilov technology or not. That's not in my field of expertise. And they were out there in the marketplace selling products that's competing with others that are out there that is not competing with 10X.

Q. But they are still making products, correct, and selling them?

A. They were. And then we know that after the acquisition by Bio-Rad, the products were effectively killed.

Q. Now, I want to ask you some questions about the three comparable agreements that Mr. Malackowski opined on. And the first one is the Applera-Bio-Rad agreement. And you've stated that the Applera agreement is economically uninformative because of the various litigations between MJ and Bio-Rad. Do you recall that?

A. Those are part of the reasons. Yes.

Q. But you heard Ms. Tumolo's testimony that the 15-percent rate in that agreement was the industry standard rate. Do you recall that?

A. I heard the testimony.

Q. And Ms. Tumolo is the president of Bio-Rad; correct?

A. That is my understanding.

Q. And as Bio-Rad's representative in the trial, Ms. Tumolo's view is that the settlement context of the litigations had no impact on the rate; correct?

A. I heard that.

Q. And you also talked about the value of the '934 Higuchi patent that was licensed under that agreement. Do you recall that?

A. Generally, yes.

Q. But you didn't attempt to quantify the value of the features of that patent and what those features contributed to the licensed products; correct?

A. Actually I looked at the contributions between the '934 and the other patents. As he explained, there was an offset in that agreement to take the rate from 15 percent down to about seven or eight percent. And that reflects the relative contributions.

Q. I'd like to play a portion of Dr. Sullivan's deposition. It is 308:25 to 309:1. And this is clip RS 26.

MS. HADZIMEHMEDOVIC: Mr. Vlasits, could we please have a page and a line?

MR. VLASIS: 305:24 to 306:5. I'm sorry. That's not correct. 308:25 to 309:1.

MR. VLASIS: Okay.

(Video playing.)

Q. Did you quantify the value of the features that the Applera-Bio-Rad agreement contributed to the products licensed thereunder?

A. No, that would not be feasible or appropriate. There's too many issues with the realtime instrument agreement as it relates to other issues and agreements entered into at that time such that that is not possible.

(Conclusion of video.)

BY MR. VLASIS:

Q. Now, I also heard you make a reference to Dr. Kary Mullis in your testimony. Do you recall that?

A. I do.

Q. And Dr. Mullis is not an inventor of the '934 patent that was licensed under the Applera agreement; correct?

A. He is not an inventor of the '934 patent.

Q. And you don't know, one way or the other, whether Bio-Rad actually has an agreement with any patents of Kary Mullis; correct?

A. The settlement that was associated with it included payments for settling out claims of the -- one of the Mullis patents.

Q. But you don't know, one way or the other, whether or not Bio-Rad has a license to those patents; correct?

A. That's right.

Q. That's fair?

A. Okay. Fair enough.

Q. Now, you acknowledged in your direct testimony that the Applera agreement contains a stated rate of 15 percent; correct?

A. That's right.

Q. And that's the only rate that's stated in the agreement; correct?

A. The stated rate, yes.

Q. And you also testified that Bio-Rad was paying only seven or eight percent, but that was under a separate agreement; correct?

A. No. The effective rate under the Applera agreement, the realtime instrument agreement is seven to eight percent. That's what Dr. Shinoff testified to because there's an offset in that agreement that allows the offset of that seven to eight percent. So that's what Bio-Rad reportedly actually paid.

Q. And the reason for the offset is because for customers who had already purchased an instrument at percent, if they wanted to purchase the add-on, it wouldn't be fair for them to pay another seven or eight percent for the add-on; right?

A. Well, it's a single product; and thus, there was an offset which is akin to a royalty stacking provision.

Q. Your testimony is that it's a single product that is at issue with this agreement; is that correct?

A. There's multiple products.

Q. And customers can purchase multiple products from Bio-Rad; correct?

A. Yes.

Q. And if they purchase a product that is subject to a percent royalty, and they later want to add on to that product, and they have to pay another seven percent, that would be a 22-percent royalty; correct?

A. Well, it all depends upon what the add-on is or the sales, but certainly Bio-Rad is wanting to make as many sales as they possibly can.

Q. And the purpose of the setoff provision is to set off that additional seven percent against the 22 percent so that they're still paying 15 percent; correct?

A. No. It's a setoff on the 15 percent so that they still keep paying 15 percent based upon the totality of the two.

Q. And you haven't actually identified this other mystery agreement that has this additional license rate; correct?

A. I disagree.

Q. Let's take a look at your Slide DDX 5.17. And the only agreement that you have provided support for is the one Applera-Bio-Rad agreement at 15 percent; correct?

A. No. There's the other agreement that I discussed which is the amended and restated thermocycler supplier agreement.

Q. And you haven't identified that agreement by exhibit number; correct? You only have the Applera instrument license at 15 percent on this slide; isn't that correct?

A. I don't recall the exhibit number, so I couldn't say about on this slide. But the slide that has the puzzle pieces, that's where I was referring to the amended and restated thermocycler supplier agreement.

Q. Now, let's move on to the Caliper-RainDance agreement. You testified that the Caliper-RainDance license was for 500 or so patents. Do you recall that?

A. That's right.

Q. And you recall Ms. Hadzimehmedovic holding up the stack and fanning the stack of patents?

A. I do.

Q. And the royalty under that agreement was the exact same, regardless of whether the licensee used all 550 of those patent in that stack or just one patent in the stack; isn't that correct?

A. That's right. They have rights to all 550.

Q. Thank you. Now, let's talk about the Applied Bio-QuantaLife agreement. And let's put up Slide DDX 3.29. And here you have placed the royalty rates for this agreement?

A. This is the Caliper-RainDance agreement, not Applied Bio.

Q. For some reason, my slide numbers don't match your slide numbers. We'll work together and figure it out. So let's take this down.

Under the Applied Bio-QuantaLife agreement, you heard Ms. Tumolo's testimony that the effective royalty that was actually paid under that agreement was somewhere around percent; correct?

A. I heard that.

Q. And once again, Ms. Tumolo, the president of Bio-Rad and the company representative under oath, testified that the rates stated in the agreement were not the rates actually paid?

A. I heard that.

Q. Now, I want to ask you some questions about your damages calculation and the royalty base that you used. And the base is the total number of sales; correct?

A. Depending upon the scenario of the finding of infringement or validity, if any.

Q. And in your slide presentation, you only presented the damages numbers for sales in the United States; correct?

A. The slides are U.S. sales, and I provided a number as well, the royalty for worldwide.

Q. In your slide presentation?

A. In my testimony.

Q. And --

A. I can provide that again, if that's helpful.

Q. So you did calculate global sales and royalties in global sales as part of your assignment in this case; correct?

A. That's right. I calculated both for U.S. only and for worldwide.

Q. And the U.S. sales represents about 58 percent of the global sales?

A. I believe that's about right.

Q. And you have acknowledged that all of the 10X accused products are made in the United States; correct? Assembled or made?

A. I believe there are some that are made overseas.

Q. Let's look at your expert report, the September 29th report at Paragraph 177. Are we able to put that on the screen? Let me know when you're there, Dr. Sullivan.

Are you there?

A. Yes.

Q. And you see the second sentence that says, "10X manufactures and/or assembles its products in the United States," correct?

A. Yes.

Q. And you cite a footnote there, Footnote 471. Do you see that?

A. I do.

Q. And that is the testimony of Jaimie Osborn?

A. That's right.

Q. And --

A. And it's the and/or, so it may be manufactured overseas and assembled here or vice versa.

Q. So all of the accused products are either made or assembled in the United States; correct?

A. I have not made a separate determination on that issue. As a damages expert, my role is to assume infringement and validity, and so that would be beyond the scope of my work.

Q. There's nothing else in your expert report on this topic other than Paragraph 177 which states, "10X manufactures and/or assembles its products in the United States," correct?

That's the only statement about where they're made or assembled?

A. The following sentence says the consequence of that.

Q. Just answer the question, Dr. Sullivan. Is this the only statement you provide in your report about where the products are made or assembled?

A. I could not say for certain. It's a lengthy report.

Q. Okay.

A. I don't recall -- I don't recall offhand another place where that would be, but I can't rule it out.

Q. Now, if you could refer to your original report, Dr. Sullivan, Attachment D-6. And let me know when you have that.

And if we could put that on the screen. It's attachment D-6 to Dr. Sullivan's 2017 rebuttal expert report.

Do you have that, Dr. Sullivan?

A. I do.

Q. And in Attachment D-6 to your report, you're presenting the international units sold of the 10X accused products; correct?

A. These are all the 10X Genomics sales on a unit basis on for the international sales.

Q. And these are the instruments that Ms. Osborn testified are manufactured in the United States; correct?

A. That's not clear to me.

Q. You heard Ms. Osborn's testimony, Dr. Sullivan?

A. I did.

Q. And Attachment --

A. But there's.

Q. Attachment D-6, in addition to instruments, lists all of the various other components of the accused products that are sent abroad to customers around the world; correct?

A. Well, this is listing --

Q. Dr. Sullivan, it's just a yes or no question. Does Attachment D-6 represent the components of the accused products that are shipped to customers around the world?

A. That cannot be answered accurately yes or no. I suppose the more closer to accurate would be no because you're assuming or predicated that on a shipment. And I can clarify more if you would like.

Q. That's fine.

MR. VLASIS: I would like to move into evidence Attachment D-6 to Dr. Sullivan's report.

MS. HADZIMEHMEDOVIC: No objection, Your Honor.

THE COURT: All right. Attachment D-6 will be given a number and admitted into evidence.

BY MR. VLASIS:

Q. And Dr. Sullivan, you have not seen any evidence in this case that suggests that Ms. Osborn's testimony is incorrect; is that correct?

A. Well, I haven't seen any evidence personally that links what she was talking about for products to these sets of products. And that's the big disconnect, as I see it, is which products that she was referring to.

Q. Did you omit accused products from your expert report?

A. No. So --

Q. That's fine. That's fine.

A. Again, I'm a damages expert. I assume infringement.

Q. And you have presented in your report an alternative calculation of royalties that addresses global sales. I believe you testified to that?

A. Yes, that's right.

Q. And in your expert report, you stated that the alternative calculation applied only to the patents with the method claims; correct?

A. I have performed different calculations and different alternatives.

Q. And it's correct that your global calculation, you have a global calculation and a U.S. calculation, correct, among others?

A. Among others, yes.

Q. And the U.S. calculations you provided applied to the patents for the method claims; right?

A. For all of the patents, yes.

Q. And the '083 patent does not have method claims, correct, Dr. Sullivan?

A. That is my understanding.

Q. And with the '083 patent, you have provided an alternative calculation based on a design around; correct?

A. There was a new design that was implemented and I evaluated that scenario.

Q. What percentage of the product at issue -- let me rephrase the question. What percentage of the total damages represents the damages for the '083 Patent?

A. Oh, maybe around 18% or so. No, I take that back. It would be closer to -- maybe 36% give or take. I haven't performed the exact calculations. I provided the numbers.

Q. Why don't you refer to your demonstrative slides that you prepared. You have the '083 Patent damages number calculated, correct?

A. Yes. That is about 196,000.

Q. And what percentage of that -- what is the percentage of that number of the total US royalties you calculated?

A. So it's roughly 36%, 38%.

Q. Okay. Now, as part of your analysis in this case, you relied on various data points to support that your reasonable royalty calculation was reasonable, correct?

A. Well, based upon a lot of information and data.

Q. And one of the data points you considered was the Grant Thornton report, correct?

A. I have considered the Grant Thornton report.

Q. And in fact, you stated that the Grant Thornton report corroborates your calculation. Do you recall that?

A. Certainly much more consistent with my analysis than what was put forth by Mr. Malackowski.

Q. And you heard Ms. Tumolo's testimony on Monday that the Grant Thornton report was merely an accounting exercise, correct?

A. I heard that.

Q. And that it was performed after the acquisition. Do you recall that?

A. I do.

Q. And in fact, you concede that the Grant Thornton, that Grant Thornton reports are not based upon the actual value that gives rise on the economics, correct?

A. That's fair.

MR. VLASIS: Thank you, Your Honor.

THE COURT: All right. Any redirect?

MS. HADZIMEHMEDOVIC: No, Your Honor.

THE COURT: Okay. Dr. Sullivan, thank you very much. You are free to step down. Watch your step.

End of Document

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