

**IN THE COURT OF ARBITRATION FOR SPORT**

**FLOYD LANDIS**

Appellant,

V.

**UNITED STATES ANTI-DOPING AGENCY**

Respondent.

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**CAS 2007/A/1394**

**SUMMARY OF PRIOR TESTIMONY FOR WILHELM SCHÄNZER**

Dr. Schänzer is not available to testify during the upcoming hearing. However, USADA designates his prior testimony during the AAA Hearing for purposes of this hearing. A copy of the excerpt of the Hearing Transcript containing the entirety of Dr. Schänzer's testimony is attached.

Dr. Schänzer gave testimony on the following topics, and was subject to cross examination based on his testimony. The summary below is provided for the Panel's convenience.

1. Dr. Schänzer has significant experience with the use of isotope ratio mass spectrometry (IRMS) in the detection of steroids, and the technique is "well developed," "highly reliable," and "a very well-accepted technique." Tr. at 1124:12-1125:10.
2. The laboratory documentation package from LNDD for Appellant's Sample "clearly shows an adverse analytical finding for the misuse of testosterone or kind of other prohormones of testosterone." Tr. at 1127:18-1128:6; 1149:18-1150:3.
3. Dr. Schänzer was satisfied with all the data from the controls, including peak forms, peak shapes, and the internal reference compound. Dr. Schänzer testified that the data indicate to him that "the technique, the instrument, runs in good, excellent condition, very well performance of the instrument, and the data are clearly presented." Tr. at 1128:20-1129:5.
4. The delta values reported for the Internal Standard in LNDD's documentation package were acceptable in Dr. Schänzer's opinion. Tr. at 1130:3-1131:21; 1184:24-1185:8.
5. If the sample had been analyzed at the Cologne laboratory, Dr. Schänzer testified that it would have been declared positive. Tr. at 1133:24-1135:5.

6. Based on a study conducted by Dr. Schänzer, the metabolite 5-alpha is more influenced by administration of testosterone gel than is the metabolite 5-beta. Tr. at 1143:19-1145:14; 1146:14-21.
7. Dr. Schänzer testified that administration of testosterone does not necessarily result in the T/E ratio going above 4:1. Tr. at 1164:4-25; 1165:17-1166:14; 1186:6-1187:23. He further testified that for two individuals in his study the administration of testosterone had no effect at all on the T/E ratio. Tr. at 1165:17-1166:14.
8. Dr. Schänzer testified that the chromatography for the analytes of interest were, from his experience and expertise, "good forms." Tr. at 1174:14-1178:20.

<p style="text-align: right;">Page 1122</p> <p>1 MR. YOUNG: Are you there, Dr. 2 Schänzer? 3 MR. LANG: Okay, sir. There you go. 4 THE WITNESS: Okay. 5 MR. YOUNG: Dr. Schänzer, can you 6 hear us okay? Hello, Dr. Schänzer? 7 THE WITNESS: Yes. I can hear you, 8 but very low. 9 MR. YOUNG: Is this better? 10 THE WITNESS: A little bit, but not 11 as good. 12 MR. YOUNG: How about now? 13 THE WITNESS: A little bit better, 14 but not as clear as I would like to have it. 15 MR. BRUNET: Hello, Dr. Schänzer, 16 can you hear me? 17 THE WITNESS: Yes, I can hear you. 18 MR. BRUNET: This is Patrice Brunet. 19 I'm the chair of the Panel. 20 THE WITNESS: Yes, I can hear you. 21 MR. BRUNET: We will proceed now 22 with the swearing-in. 23 24 25</p>	<p style="text-align: right;">Page 1124</p> <p>1 Q. Are you ready to begin? 2 A. Yes, I am ready to begin. 3 Q. Okay. I'm going to ask you some 4 questions about IRMS analysis to detect the use 5 of testosterone. 6 And could you briefly give the Panel 7 your experience with IRMS in that area? 8 A. Yes. I'm Wilhelm Schänzer. I'm 9 head of the Cologne Laboratory since 1995, and I 10 am working in this seat of anti-doping science 11 since 1989. 12 My experience in isotope ratio mass 13 spectrometry measurement of steroids started in 14 1997, so about ten years ago, when we obtained 15 the first machine, and used this technique over 16 ten years. And in the last, I think, three 17 years, we analyzed about 1,500 urine samples 18 from controls, doping control samples, by 19 isotope ratio mass spectrometry. 20 In general, these samples were 21 follow-up studies, which were applied when T/E 22 ratio was greater than 4 or when other 23 suspicious parameters in the steroid profile 24 occurred. 25 Based on this, samples in the last</p>
<p style="text-align: right;">Page 1123</p> <p>1 WHEREUPON, 2 WILHELM SCHÄNZER, Ph.D., 3 the witness herein, having been first duly sworn 4 telephonically to state the whole truth, 5 testified on his oath as follows: 6 7 EXAMINATION 8 BY MR. YOUNG: 9 Q. I'm switching microphones now, 10 Mr. Schänzer. Can you hear me better? 11 A. Yes, I can hear you. 12 Q. All right. This is Richard Young. 13 A. Yes, Mr. Young. 14 Q. You're live in a courtroom. 15 A. Yes. 16 Q. And the Panel is Mr. Brunet, 17 Mr. Campbell and Mr. McLaren, and then Dr. Botré 18 is here as the Panel's expert; and then you have 19 lawyers on Mr. Landis' side and lawyers on 20 USADA's side. 21 If at any time you have a hard time 22 understanding any of us, just let us know, 23 and -- and whoever is asking the question will 24 take their time and go back over it. 25 A. Okay.</p>	<p style="text-align: right;">Page 1125</p> <p>1 two or three years that involved 50 to 60 2 samples, which we reported positive for -- or by 3 the isotope ratio mass spectrometry, adverse 4 analytical findings for testosterone or the kind 5 of other prohormones which influenced the data 6 values of the normal steroids. 7 The technique is very, very well 8 developed and highly reliable and, at this state 9 of art, a very well-accepted technique from my 10 point of view. 11 Q. And were any of those 50 or 60 12 positive results subsequently overturned by a 13 hearing panel? 14 A. In this laboratory, two or three 15 years, we had no hearing panel because our 16 results were -- 17 THE REPORTER: I can't hear. 18 A. -- accepted by the athletes and the 19 federations and especially in those cases where 20 we applied the techniques of other 21 laboratories which have not (inaudible) isotope 22 measurement -- 23 THE REPORTER: I can't hear. 24 A. We also have no problems that this 25 regards had to go to any kind of further</p>

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1 investigations at the court. So no problem in  
2 all cases.  
3 Q. Thank you, Dr. Schänzer.  
4 And for the benefit of the court  
5 reporter, who we have taking this down, if you  
6 could just speak a little more slowly --  
7 A. Yes.  
8 Q. -- that would be easier on her.  
9 A. Okay. No problem for me.  
10 Q. Are you looking for an answer?  
11 THE REPORTER: The last answer, I  
12 missed some of what he said, because I was  
13 saying "I didn't hear him." He said "in his  
14 laboratory two or three years, I've been..."  
15 And I didn't hear.  
16 A. Are you waiting for an answer?  
17 Q. No, no. The court reporter is  
18 saying she didn't get down your last answer, so  
19 let's -- let me ask you again.  
20 A. Okay.  
21 Q. And you can give her an answer  
22 slightly more slowly.  
23 A. I think that's correct.  
24 Q. The question that I'd asked was, of  
25 the 50 or 60 samples that you've reported

1 the laboratory since several years. And the  
2 data I have seen is, from my expertise,  
3 excellent, and it clearly shows an adverse  
4 analytical finding for the misuse of  
5 testosterone or kind of other prohormones of  
6 testosterone.  
7 THE REPORTER: Or kind of what?  
8 DR. BOTRÉ: Prohormones.  
9 MR. BRUNET: Dr. Botré, what was  
10 that word?  
11 DR. BOTRÉ: Prohormones.  
12 MR. BRUNET: Prohormones.  
13 THE WITNESS: Prohormones.  
14 MR. YOUNG: Prohormones. Did I get  
15 that right?  
16 DR. BOTRÉ: Yeah.  
17 Q. Have you looked at the controls that  
18 were run in connection with the athlete's --  
19 A. Yes.  
20 Q. -- Stage 17 sample, and are you  
21 satisfied with those controls?  
22 A. Yes. I've seen the controls, and I  
23 am satisfied with all the data. I have seen the  
24 peak forms, the peak shapes, and also the  
25 internal reference compound, and I think all of

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1 positive using IRMS in the last three years,  
2 have any of those been overturned in any court  
3 or arbitration proceeding?  
4 A. As far as I know, there was no  
5 further going over to the court. In those  
6 cases, where we applied the techniques for other  
7 laboratories who were mainly involved in the  
8 case, I have no exact data. And in all the  
9 cases I get no feedback from them -- from them  
10 that there had been any problems with the data  
11 and the results, so that was analytical  
12 findings.  
13 Q. And would it be typical that if  
14 there was a case where there was a challenge to  
15 your IRMS results that you would be called in  
16 and advised and asked to defend it?  
17 A. In general, this would be the case.  
18 Q. Okay. Have you reviewed the  
19 documentation packages prepared by the Paris  
20 laboratory?  
21 A. Yes, I have looked over the files  
22 and the data and, from my opinion, the isotope  
23 ratio mass spectrometry technique from the Paris  
24 laboratory was well applied. The technique is  
25 presented in excellent, excellent field. I know

1 this data gives me a clear indication that the  
2 technique, the instrument, runs in good,  
3 excellent condition, very well performance of  
4 the instrument, and the data are clearly  
5 presented.  
6 Q. In the interest of time, and because  
7 we've already heard from other witnesses on  
8 this, I'm not going to take you through all of  
9 the different controls. But I will ask you to  
10 look at one of the questions that Mr. Landis'  
11 lawyer keeps raising, and that has to do with  
12 the internal standard.  
13 And if you'd take a look at the  
14 documentation package, I think they're Exhibits  
15 24 and 25; it's Pages 185 and 351 of the  
16 documentation packages.  
17 A. Yes, I have --  
18 Q. Give everybody just a second to find  
19 it.  
20 When you've found it, let us know,  
21 and then I will ask you a question.  
22 MR. BRUNET: Can you give us those  
23 page numbers again, please?  
24 A. One moment -- one moment, please.  
25 Q. 185 and 351.

<p style="text-align: right;">Page 1130</p> <p>1 A. I have already the data file, and I 2 have -- okay. 3 Q. So let's look at Page 185 first, and 4 there are -- the testimony yesterday from the 5 witnesses from the Paris lab was that they used 6 the internal standard -- 7 A. Yes. 8 Q. -- which is 5-alpha androstenediol? 9 A. No, androstenol. It's an 10 androstenol; it's not a diol. 11 Q. I'm sorry, the androstenol -- as a 12 measure of retention time -- 13 A. Yes. 14 Q. -- and they don't pay attention to 15 the quantification. 16 A. Yes, that's correct. 17 Q. But in your view, if you did pay 18 attention to the quantification on Page 185, 19 would the differences in the values reported 20 there trouble you? 21 A. I have looked to the data of the 22 blanks and suspicious samples, and I've come to 23 a calculation that the standard variation of .65 24 per mil, from which is, from our point of view, 25 very well acceptable. We have similar variation</p>	<p style="text-align: right;">Page 1132</p> <p>1 basis the main metabolites from testosterone 2 which is androsterone and etiocholanolone, and 3 we use as endogenous reference steroids, 11 4 hydroxy androsterone or pregnanediol -- 5 THE REPORTER: Excuse me? 6 A. This is -- 7 Q. Let's stop, because the reporter 8 needs the scientific terms again. 9 A. We use androsterone and 10 etiocholanolone. 11 Q. Etiocholanolone? 12 A. Etiocholanolone, as analytes, and as 13 reference steroids -- 14 THE REPORTER: Excuse me? 15 Q. And as an exogenous reference 16 compound? 17 A. And it shows the normal values in 18 the body, pregnanediol and 11 hydroxy 19 androsterone. 20 Q. Okay. 21 A. We use this as a definitive 22 conclusion that the sample is positive, higher 23 than difference -- it's the difference between 24 androsterone and etiocholanolone is higher than 25 3 per mil.</p>
<p style="text-align: right;">Page 1131</p> <p>1 in this internal reference component in our 2 laboratory. This variation is a little bit 3 bigger than the other steroids because this is 4 always eluted very early in the chromatogram and 5 normally also more influenced by the biological 6 background. 7 So this is our experience over the 8 last years that this is more -- a little bit 9 more variation, but the variation in this sample 10 is, from our point of view, very well 11 acceptable, so in our laboratory we obtain 12 similar variations. 13 Q. And would that apply to the B sample 14 as well? 15 A. The B sample as well, how I 16 calculated a standard deviation of the sample 17 for the return of .59 per mil. So this is also 18 a very well acceptable value, would show that 19 the instrument is running under perfect 20 conditions and the data providing are highly 21 reliable. 22 Q. What metabolites does the Cologne 23 laboratory look for today in analyzing samples 24 using IRMS? 25 A. Actually, we are using on a routine</p>	<p style="text-align: right;">Page 1133</p> <p>1 We additionally analyze the 2 suspicious sample, 5-alpha diol, and 3 testosterone itself, and 5-beta diol to provide 4 additional information. 5 Q. If you could take a look at Page 352 6 of Exhibit 25, please. 7 A. 352? One moment. This is 352, 8 which -- 9 Q. It's of the B documentation package. 10 A. It's the B documentation package, 11 correct. This picture presented the values of 12 the -- of the sample analyte with the 13 differences calculated, and this gives results 14 which the laboratory reported results higher 15 than 3 per mil, so the androsterone, 11-keto, 16 from our opinion, is the difference here in this 17 case is 3 per mil and 5-alpha diol minus 5-beta 18 diol. From their conclusion, they consider an 19 uncertainty of .8 per mil. They conclude that 20 the 5-alpha diol difference to the 5-beta diol 21 exogenous reference compound is 6.39 per mil, is 22 clear evidence for an adverse analytical 23 finding. 24 Q. And my question to you is, if you 25 were to have analyzed these samples and obtained</p>

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1 this data, would you have called the sample  
2 positive?

3 A. Actually, we use the differences  
4 between androsterone and pregnanediol, and also  
5 for etiocholanolone for reporting an adverse  
6 analytical finding and, in this case, I would  
7 have the sample reported positive for the  
8 difference between androsterone and pregnanediol  
9 higher than 3 per mil.

10 Q. And of that higher than 3 per mil,  
11 would you then add on top of that any  
12 uncertainty figure?

13 A. This uncertainty the laboratory in  
14 Paris' used is in our reference population and  
15 in our criteria included in the 3 per mil  
16 difference.

17 So our 3 per mil criteria was  
18 clearly established by a reference group of 50  
19 to 60 persons with calculating upper -- upper  
20 end limits, and this value included all the  
21 particular variance, the analytical variance,  
22 the method variation, and isotope variation for  
23 the uncertainty, which is similar, in general,  
24 to the -- to the measurement alone to the other  
25 labs. But this is included in the 3 per mil

1 beginning of March, to the International Cologne  
2 Workshop of Doping Analysis. So this data has  
3 been presented to all the scientists  
4 internationally, and the data have been supplied  
5 for publication in the proceedings, and they are  
6 well accepted.

7 Q. And has the data been accepted for  
8 publication?

9 A. The data has been accepted, and  
10 publication is in progress.

11 MR. CAMPBELL: Mr. Young, I've got a  
12 question.

13 When I denied their motion, I denied  
14 their motion on the basis of some documents  
15 regarding three ions. I don't know if they're  
16 confused, and I don't want this -- to be any  
17 confusion on this issue.

18 Is this the study that we've been  
19 talking about, the Cologne study, and are -- do  
20 you want to renew your objection to this study?  
21 That's -- that's my question.

22 MR. WEISS: Correct. We would argue  
23 that this study has not been peer reviewed and  
24 is incomplete.

25 MR. CAMPBELL: Okay.

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1 criteria.

2 So, in any case, if we have a  
3 difference higher than 3 per mil, the sample  
4 will be declared positive as it was in this  
5 analytical finding.

6 Q. Let me direct your attention to  
7 Exhibit 33.

8 A. One moment please. 33. I have --  
9 this is the textbook study?

10 Q. Yes, it is.

11 A. In my -- in my document, it's 34.

12 Q. I'm sorry.

13 A. I have 34 and 34 A.

14 Q. All right. I'm sorry. I'm going to  
15 ask you about 34.

16 A. Yes. In my file, it is 34.

17 MR. CAMPBELL: Richard, it's 34 in  
18 ours as well.

19 Q. Okay. I'm sorry, sir. It's 34 and  
20 34 A.

21 Has the data in this document been  
22 presented in any public forum?

23 A. This data is -- reports, yes, from  
24 the WADA project -- and the data has been  
25 presented the beginning of this year in March,

1 Q. And Dr. Schänzer, is the data from  
2 this study --

3 A. Yes.

4 Q. -- that has been accepted for  
5 publication, is that incomplete?

6 A. Incomplete? No. For this -- this  
7 data, at this test is, the first part of the  
8 WADA-supported project which includes all the  
9 GC/MS measurements of all of this data, of this  
10 study, and it also includes this data of 1,000  
11 with clearly analyzing all the isotope values  
12 during the application for this data within this  
13 study which will be published soon.

14 MR. CAMPBELL: Dr. Schänzer, has  
15 this been peer reviewed?

16 A. The data is -- that this data has  
17 been accepted by the reviewers, but I -- I'm not  
18 sure at the moment what is the status, if this  
19 is already going through our review processes,  
20 but, in general, this data has been accepted.

21 Q. And was this data reviewed in the  
22 course of the Cologne workshop by the scientists  
23 who were there? Was there any comment as to  
24 problems with this data?

25 A. No. It was very, very, very -- the

<p style="text-align: right;">Page 1138</p> <p>1 stu- -- the study was very interesting, and it  2 was also very well accepted during the  3 discussion. It shows, from our point of view,  4 that --  5 MR. YOUNG: One second. We have  6 the -- we have one of the Panel who wants to say  7 something.  8 MR. CAMPBELL: Yeah. I just want to  9 converse with the Panel before we go further.  10 (Panel conferring.)  11 MR. CAMPBELL: Dr. Schänzer, I think  12 we need some clarification on one of your  13 answers.  14 THE WITNESS: Yes.  15 MR. CAMPBELL: Do you know whether  16 this document has been peer reviewed?  17 THE WITNESS: What question again? I  18 didn't understand the question.  19 MR. CAMPBELL: Has this document  20 been peer reviewed?  21 A. The document is in a position that  22 it has been accepted at the moment, so this  23 proceedings, yes, and it is now in the hands of  24 two independent reviewers. And I have not the  25 status, actually, what is the final -- final</p>	<p style="text-align: right;">Page 1140</p> <p>1 think you should be able to cross him through  2 this.  3 MR. YOUNG: No -- I'm not getting  4 answers -- Mr. McLaren asked me a question.  5 MR. MC LAREN: He's not crossing.  6 He's trying to summarize whether it's peer  7 reviewed and then have Dr. Schänzer confirm or  8 not.  9 Q. (By Mr. Young) And then Dr.  10 Schänzer, what I've done, I think they asked me  11 the question, not you, and -- but all I'd ask  12 you to do is, if I get it wrong, I want to make  13 sure that the Panel gets it right, so --  14 A. Correct.  15 Q. -- so if I say something wrong,  16 please, correct me.  17 MR. YOUNG: So where I was --  18 Mr. McLaren, in answering your question was --  19 it's presented in front of a group of eminent  20 scientists in the field --  21 THE WITNESS: Yes.  22 MR. YOUNG: -- and they have an  23 opportunity to criticize it or comment on it at  24 that time.  25 THE WITNESS: That's correct.</p>
<p style="text-align: right;">Page 1139</p> <p>1 outcome. So there may be some slight  2 modification from the reviewers, but this, I  3 don't have that actually in my mind. But the  4 start of this at the presentation was accepted,  5 but the final status actually is not published.  6 MR. MC LAREN: We recognize it's not  7 published. Mr. Young, can you help us? Is it  8 peer reviewed in the sense that you -- you and  9 the Panel would understand it, or is it not?  10 MR. YOUNG: And Dr. Schänzer, let me  11 state the facts, as I understand them, and then  12 would you please -- I don't want to tell the  13 Panel anything wrong. So, if I do --  14 A. Yes.  15 Q. -- I'll give you a chance to set the  16 record straight.  17 A. Yes, correct.  18 Q. To the extent that it is presented  19 in front of a bunch of scientists --  20 A. Yes.  21 Q. -- who've an opportunity to comment  22 on it?  23 A. Yes.  24 Q. -- that's -- that is --  25 MR. SUH: I object. Because I don't</p>	<p style="text-align: right;">Page 1141</p> <p>1 MR. YOUNG: Wait until I'm done, Dr.  2 Schänzer, and then you can -- then you can  3 correct anything that you -- that you think is  4 wrong.  5 So that is a type of peer review.  6 THE WITNESS: That's correct.  7 MR. YOUNG: Then, before the document  8 is accepted for publication --  9 THE WITNESS: Yes.  10 MR. YOUNG: -- that is another level  11 of review.  12 THE WITNESS: That's correct.  13 MR. YOUNG: And then there is a final  14 level of review that occurs before the document  15 is actually published. And that is what Dr.  16 Schänzer is saying is in process now, and he  17 doesn't know whether they're done with that or  18 not.  19 Is that fair enough, Dr. Schänzer?  20 THE WITNESS: Yeah, that's the start  21 of it. The final acceptance is still pending.  22 But the first -- the first acceptance is the  23 acceptance during the presentation at the  24 workshop where no objections to the data were  25 presented by all the qualified scientists.</p>

<p style="text-align: right;">Page 1142</p> <p>1 MR. CAMPBELL: Mr. Suh, do you have 2 a comment? 3 MR. SUH: Just that there is a 4 difference between presenting a paper to a 5 symposium panel and actually having it peer 6 reviewed. Our understanding is peer review is 7 peer review, and that hasn't been done yet. But 8 beyond that, we submit to the Panel. 9 MR. YOUNG: And again -- and this is 10 not for you, Dr. Schänzer, this is discussion 11 between the lawyers to the Panel. 12 Members of the Panel, there are 13 different levels of reliability of scientific 14 evidence, and it would be hard to believe that 15 one could only rely on peer-reviewed scientific 16 evidence if the evidence is otherwise reliable, 17 just like we rely on opinion testimony by 18 experts, which is based on their research or 19 their experience or whatever. I understand 20 there may be circumstances where you'd only want 21 to rely on peer review, because you have no 22 other way of evaluating reliability. But I 23 would be surprised if that were the case on 24 every scientific document. 25 MR. MC LAREN: Just give us a</p>	<p style="text-align: right;">Page 1144</p> <p>1 MR. MC LAREN: Dr. Schänzer, could I 2 just stop you for a moment? It's Richard 3 McLaren. I'm one of the arbitrators. Mr. Young 4 and Mr. Suh, we were just passed a note from our 5 Panel expert that he was the chair of these 6 meetings. 7 Do either of you have any comment on 8 that before we continue here? 9 You're shaking your head, Mr. Young. 10 I can't see Mr. Suh. 11 MR. YOUNG: No. I have -- I have no 12 comment and no problem. 13 MR. SUH: No, no problem. Thank 14 you. 15 MC LAREN: Okay. I'm sorry. Go 16 ahead. 17 You better repeat your question. 18 DR. BOTRÉ: I didn't want to hide 19 this. Sorry. 20 Q. (By Mr. Young) So go ahead, Dr. 21 Schänzer. 22 A. Yes. The data show that the 5-alpha 23 androstane diol compared to the 5-beta diol is 24 much more influenced. It's more, we say, 25 depleted, of the testosterone, the application,</p>
<p style="text-align: right;">Page 1143</p> <p>1 moment. 2 THE WITNESS: That's correct. 3 MR. YOUNG: So -- so at the moment, 4 Dr. Schänzer, since you can't watch what's going 5 on, the Panel are all talking to each other, and 6 we will hear back from them shortly, so just, 7 please, be patient and hang on the line. 8 THE WITNESS: Yes. 9 MR. MC LAREN: The ruling is that 10 we're going to treat this as being sufficiently 11 complete to allow it. We recognize that the 12 final review process of publication is still in 13 progress, but given that it was reviewed at the 14 workshop and subsequently reviewed for 15 publication, we're going to treat that as 16 sufficient in this case. 17 So go ahead with your examination. 18 MR. YOUNG: Thank you. 19 Q. (By Mr. Young) Dr. Schänzer, in your 20 paper, what does it tell us about the 21 relationships between the 5-alpha and the 5-beta 22 diol in terms of what happens when you use 23 testosterone gel? 24 A. From the data, we observe that the 25 5-alpha --</p>	<p style="text-align: right;">Page 1145</p> <p>1 as the 5-beta diol and this made the antidote, 2 as it is applied where the cream is being on the 3 skin, yes? And in the skin, normally, this cell 4 is reported to be a high 5 alpha reductase 5 activities. So this is the -- N 5, which 6 converted the testosterone mainly to the 5-alpha 7 isomers. 8 So this can be one explanation that 9 the 5-alpha androstenediol seems to be the best 10 parameter, and it's the most of the best 11 steroids, which is mostly influenced in the 12 isotope values, because the testosterone has a dif- -- clear different isotope value than the 13 other steroids normally produced in the body. 14 Q. Could -- could you look at figure 15 20 -- 16 A. Yes. 17 Q. -- of your study, please? It's on 18 Page 15 of the study. 19 A. Yes, Figure 20 on Page 15. 20 This figure? 21 Q. Is it what I've put up as Figure 20. 22 A. Yes. 23 Q. Can you see that? 24 A. Yes. Figure -- Figure 20 gives two</p>



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1 charts. The other one is the difference of  
2 testosterone to our internal standards, and the  
3 other sample from the other figure is a  
4 difference of 5-alpha androstenediol to the  
5 exogenous reference compound.

6 MR. YOUNG: And James, I'd like 20  
7 and 21 up at the same time, if you can do that.

8 A. This -- can you repeat your  
9 question? Yes. Because 20 and 21 are the bars  
10 corrected of the sample at the same time. So  
11 this means the delta in column 1, in Figure 20  
12 and 21, are the data corresponding at the same  
13 time and so the other chart have bars too.

14 Q. (By Mr. Young) And so am I reading  
15 that correctly that, after the administration of  
16 testosterone gel --

17 A. Yes.

18 Q. -- the 5-alpha was affected twice as  
19 much as the 5-beta?

20 A. In this case, it was much more  
21 inference than the 5-beta; that's correct.

22 Q. And then, was that also true after  
23 the athlete had taken time off from application  
24 of testosterone gel, and then it started again?

25 A. Yes, that's correct. So this means

1 MR. BRUNET: Thank you.

2 THE WITNESS: Okay. Is this better  
3 now?

4 MR. BRUNET: Did you want to repeat  
5 it?

6 THE WITNESS: Okay. Should I  
7 repeat?

8 MR. BRUNET: Yes, if you can repeat  
9 your answer that would be appreciated by the  
10 court reporter.

11 Q. (By Mr. Young) Do you remember my  
12 question? My question was -- well, let me take  
13 you through -- the green bars at the beginning  
14 of these charts represent what?

15 A. The green bars represent the time  
16 when no Testogel was applied. The rest of the  
17 samples taken during the time period when the  
18 Testogel was applied.

19 In this case, the study was that  
20 they started without Testogel at the beginning.  
21 Then we take one -- the person gets one week  
22 Testogel, and then one week without Testogel,  
23 the next week with Testogel, and then it was  
24 stopped. So this means -- the red bar indicates  
25 the changes on the isotope values during the

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1 that it's -- the response is seeded already for  
2 one-week application of Testogel given --

3 THE REPORTER: I didn't hear.

4 A. -- and in Columns 5 and 6, it was  
5 stopped Testogel application and then in Column  
6 7 and 8, it was a time and a test application  
7 was continued. And then, now, also at this  
8 time, the data -- the isotope value had clearly  
9 changed higher than 3 per mil. Not much under  
10 the first peak, but this is one.

11 MR. BRUNET: Dr. Schänzer, this is  
12 Patrice Brunet. I'm the chair of the Panel.

13 THE WITNESS: Yes.

14 MR. BRUNET: If you could speak,  
15 maybe, at a one-inch distance or, rather, a  
16 three-centimeter distance, on the telephone --

17 THE WITNESS: Okay.

18 MR. BRUNET: -- because we're getting  
19 a -- it's -- sometimes it's difficult to hear  
20 you.

21 THE WITNESS: Okay.

22 MR. BRUNET: And just make sure that  
23 you speak slowly, especially when you get into  
24 the terminology.

25 THE WITNESS: Yes.

1 Testogel application.

2 MR. BRUNET: Dr. Schänzer, this is  
3 Patrice Brunet again. Just, in language, I just  
4 want to clarify that when you say Testogel, you  
5 mean it's the testosterone gel?

6 A. Yes.

7 MR. BRUNET: All right. Thank you.

8 A. That's an abbreviation which we use,  
9 testosterone gel, we will say -- we always use  
10 the term Testogel.

11 MR. CAMPBELL: Mr. Young, at some  
12 point, I'm going to want to ask him a question  
13 about this, but I don't want to interrupt your  
14 testimony or your question.

15 Q. I'm going to ask him one more  
16 question, and then you can ask him questions  
17 about that. That would probably make sense.

18 My -- my final question to you, Dr.  
19 Schänzer, would be, looking at the IRMS data in  
20 the this case, do you have any doubt at all that  
21 this was an athlete that was administering  
22 exogenous testosterone or its precursors?

23 A. I think that the data clearly shows,  
24 or gives evidence, that testosterone, or a  
25 precursor of testosterone, was used; and the

<p style="text-align: right;">Page 1150</p> <p>1 data is high in agreement with the kind of test 2 application or the kind of very low application 3 of testosterone. 4 MR. YOUNG: I have no further 5 questions of this witness. 6 Mr. Campbell, would you like to ask 7 him questions about Figures 20 and 21 now? 8 MR. CAMPBELL: Yes. Unless, Mr. 9 Suh, you would rather start your cross first. 10 MR. SUH: No, Mr. Campbell. We'd 11 like to hear your questions. 12 MR. CAMPBELL: Okay. 13 MR. YOUNG: And then, Dr. Schänzer, 14 the first person who's going to ask you 15 questions, and then they can introduce 16 themselves, is a member of the Panel, 17 Mr. Christopher Campbell, and then when we 18 switch over to Mr. Landis' lawyer, Mr. Suh, 19 he'll be introduced separately. Okay. 20 21 EXAMINATION 22 BY MR. CAMPBELL: 23 Q. Dr. Schänzer-- 24 A. Yes. 25 Q. -- during this period that you</p>	<p style="text-align: right;">Page 1152</p> <p>1 of steroids that an individual had. 2 A. Yeah. We saw -- on this studies, we 3 had an 18-person test which was doing this, and 4 only in half of the persons of the test took an 5 application, the T/E ratio was higher, was 6 increased higher than -- than 4. And in some 7 individuals, an increase of the test -- of the 8 epitestosterone was not higher than four, and 9 this is still a problem for doping control. 10 MR. CAMPBELL: Yeah. And I'm not 11 talking about the T/E ratio. I'm talking about 12 the suppression of the natural endogenous 13 steroids that you -- that we all produce 14 normally. 15 A. Yes. 16 MR. CAMPBELL: And perhaps, I just 17 don't know what I'm asking, but -- 18 A. Okay. 19 MR. CAMPBELL: But I see Dr. Bowers 20 smiling over there. Could you help me out, Dr. 21 Bowers? 22 DR. BOWERS: You're asking about 23 steroid profile. 24 MR. CAMPBELL: I'm asking about the 25 steroid profile.</p>
<p style="text-align: right;">Page 1151</p> <p>1 performed this study -- 2 A. Yes. 3 Q. -- did you also monitor the 4 endogenous production of the individual 5 steroids -- 6 A. Yes. 7 Q. -- steroids to see if there was any 8 suppression? 9 A. Yes. 10 Q. And what did you find? 11 A. In general, the epitestosterone was 12 suppressed. The 5-alpha steroids was mainly 13 increased and also the testosterone compared to 14 normal -- normal values. So, in general, if you 15 use the ratios of testosterone to 16 epitestosterone, if you use the ratio of the 17 5-alpha diol to the epitestosterone, this ratio 18 shows, during this study, a clear technical 19 change in their ratio. 20 MR. CAMPBELL: And -- and I'm not a 21 scientist, so I may be a little bit unclear, but 22 I think you said the epitestosterone was 23 suppressed. But I'm thinking more about sort of 24 a steroid screen that you would do? Over the 25 sort of the natural reductions of the other sort</p>	<p style="text-align: right;">Page 1153</p> <p>1 A. Yes, that's -- that's correct. 2 Q. And were there -- did you notice 3 suppression in the steroid profile? Is that the 4 right way to ask it, Dr. Bowers? 5 MR. BOWERS: Yes. 6 MR. CAMPBELL: Yes. 7 Q. Do you understand, Dr. Schänzer? 8 A. Your question was whether we 9 obtained changes in the steroid profile? 10 Q. Yes. 11 A. And I have to say yes, and -- well, 12 actually, in this case, we also obtained changes 13 in the steroid profile, which could be seen in 14 the testosterone concentration in the ratio from 15 testosterone to epitestosterone and also from 16 some other parameters. 17 MR. CAMPBELL: Thank you. 18 MR. BRUNET: Thank you. 19 Mr. Suh? 20 Thank you, Dr. Schänzer. We will 21 now have Mr. Suh ask you some questions on 22 cross-examination. 23 MR. SUH: Thank you. Actually, 24 Mr. Jacobs will begin. 25 MR. BRUNET: I'm sorry. That would</p>

<p style="text-align: right;">Page 1154</p> <p>1 be Mr. Jacobs then.  2 MR. SUH: Thank you.  3 MR. BRUNET: Dr. Schänzer, I know that  4 you've been on stand by for quite a while to  5 testify. Would you rather take a 15-minute  6 recess at this point in time?  7 A. Do you need the interruption?  8 MR. BRUNET: No, we don't need an  9 interruption. At this point I'm asking if you  10 would rather have an interruption at this point  11 because you've been on standby for quite a  12 while.  13 A. I take a glass of water now.  14 MR. BRUNET: And we'll continue  15 then.  16 A. Yes.  17  18 EXAMINATION  19 BY MR. JACOBS:  20 Q. Dr. Schänzer, this is Howard Jacobs.  21 Can you hear me?  22 A. Yes, I can hear you.  23 Q. I want to ask you some other  24 questions from the study that we were talking  25 about.</p>	<p style="text-align: right;">Page 1156</p> <p>1 Q. I'm looking at Figure 18 of your  2 study on Page 14.  3 A. Oh. One moment. I got 18. Then  4 I'm on the wrong side. Okay.  5 You are looking to the left side of  6 the box, yes?  7 Q. I'm looking at Figure 18 at the  8 graph for T/E ratio.  9 A. Okay. That is the ratio, and the  10 graph shows, if you see the dotted line, yes?  11 The dotted line, this means that the -- the T/E  12 ratio of 5 -- of 4, I think. So, the  13 interruption is, I think 5, 10, 15, 20, 25, on  14 this way.  15 Q. Okay. So the dotted line is a T/E  16 ratio of 5 --  17 A. Or 4.  18 Q. -- to 1.  19 A. 4 to 1.  20 Q. 4 to 1?  21 A. It's an interrupted line, yes.  22 Q. So what this shows for this  23 volunteer, if I understand it correctly, is,  24 every time this volunteer was administered  25 testosterone gel, his T/E ratio went above 4,</p>
<p style="text-align: right;">Page 1155</p> <p>1 If you can look at Exhibit 34 on  2 Page 14 at Figure 18. Page 14.  3 A. Figure 18.  4 Q. Figure 18, yes.  5 This is a chart showing values  6 received for one of the volunteers, and again,  7 the green bars are when there's no testosterone  8 gel administration, correct?  9 A. In this case, yes.  10 Q. And the red bars show the values  11 when testosterone gel is applied, correct?  12 A. Yes, that is correct.  13 Q. The first chart on Figure 18 is T/E  14 ratio, and there's a blue dotted line that  15 goes --  16 A. Yes.  17 Q. -- across?  18 A. Yes.  19 Q. What is the value at that blue  20 dotted line?  21 A. The value is the T/E ratio.  22 Q. I know. But we can't read the value  23 that is corresponding to the dotted line. Can  24 you tell us what that is?  25 A. We are talking to the next one, yes?</p>	<p style="text-align: right;">Page 1157</p> <p>1 correct?  2 A. This is what, T/E epi -- yes. You  3 see, in this -- during this state of  4 application, the T/E values are increased,  5 higher than 4, correct.  6 Q. Let's take a look at Figure 19 on  7 the same page.  8 A. Yes.  9 Q. And the top graph for T/E ratio, and  10 I want to make sure I understand this is a  11 volunteer who was intermittently given  12 testosterone gel, so he would go some period of  13 time without testosterone gel, and then some  14 period of time with, and then some period of  15 time without. Correct?  16 A. That's correct.  17 Q. And again, the green bars represent  18 instances where the testosterone gel was not  19 applied, and the red bars correspond with the  20 times that testosterone gel was applied,  21 correct?  22 A. That's correct, yes.  23 Q. And what this shows for this  24 individual is that every time the testosterone  25 gel was applied, the T/E ratio was at or above</p>

<p style="text-align: right;">Page 1158</p> <p>1 4-to-1, correct?</p> <p>2 A. Yes, in this case, for this sample,</p> <p>3 the T/E ratio is higher than 4.</p> <p>4 Q. Now, let's turn to Exhibit 34 A.</p> <p>5 A. 34 A, yes.</p> <p>6 Q. This is a continuation of the same</p> <p>7 study; did I understand that correctly?</p> <p>8 A. Yes, with another -- with another</p> <p>9 person.</p> <p>10 Q. Okay. And again, we have on the</p> <p>11 T/E, the red bars represent when testosterone</p> <p>12 gel is applied, and the green bars represent</p> <p>13 when testosterone gel is not applied, correct?</p> <p>14 A. That is correct, yes.</p> <p>15 Q. And what this shows for this</p> <p>16 individual is that every time testosterone gel</p> <p>17 was applied, the T/E ratio was well in excess of</p> <p>18 10-to-1, correct?</p> <p>19 A. That is correct, yes.</p> <p>20 MR. JACOBS: I'm going to pass to</p> <p>21 Mr. Suh for the remaining questions.</p> <p>22 A. What did you want?</p> <p>23 MR. BRUNET: The other counsel for</p> <p>24 Mr. Landis will be continuing the</p> <p>25 cross-examination.</p>	<p style="text-align: right;">Page 1160</p> <p>1 particular exhibit by fax. It's --</p> <p>2 MR. YOUNG: He actually has this</p> <p>3 exhibit.</p> <p>4 MR. SUH: It is --</p> <p>5 MR. BRUNET: Is this a new exhibit?</p> <p>6 MR. YOUNG: The old exhibit's 107.</p> <p>7 MR. SUH: It's not this exhibit.</p> <p>8 MR. BRUNET: Just one moment, Dr.</p> <p>9 Schänzer.</p> <p>10 MR. SUH: Mr. Chair, there is a</p> <p>11 table that looks like this. Let me put it up</p> <p>12 just so that the Panel can see it.</p> <p>13 What it is, is a summary of the</p> <p>14 results of the adverse analytical findings from</p> <p>15 the other stages, the alleged adverse, and then</p> <p>16 there are the -- let's see, the T/E. There it</p> <p>17 is -- right there on the third column right</p> <p>18 there, the T/E results.</p> <p>19 Now, in their -- in USADA's brief,</p> <p>20 there is a version of this table, but it does</p> <p>21 not have the T/E results in the table.</p> <p>22 MR. BRUNET: Okay.</p> <p>23 MR. SUH: So I think it would be</p> <p>24 worthwhile to just take a moment and fax this.</p> <p>25 MR. BRUNET: So that's a document</p>
<p style="text-align: right;">Page 1159</p> <p>1 A. Aha, yes, okay.</p> <p>2</p> <p>3 EXAMINATION</p> <p>4 BY MR. SUH:</p> <p>5 Q. Good morning, Dr. Schänzer.</p> <p>6 A. Yes.</p> <p>7 Q. Yes. Just to -- before we leave the</p> <p>8 subject of your study -- when you looked through</p> <p>9 the documents for Mr. Landis' test results, did</p> <p>10 you see that, in the retesting analysis --</p> <p>11 excuse me -- the testing of the other stages --</p> <p>12 other stages from the Tour, that the IRMS values</p> <p>13 and adverse analytical findings were allegedly</p> <p>14 positive, but that the T/E results --</p> <p>15 A. Yes.</p> <p>16 Q. -- were negative?</p> <p>17 A. Yes. One moment. I would like to</p> <p>18 look for this table, yes? So, one moment.</p> <p>19 MR. SUH: Does Dr. Schänzer have</p> <p>20 access to a fax machine right now?</p> <p>21 MR. BRUNET: Dr. Schänzer --</p> <p>22 A. I have access to a fax machine, yes.</p> <p>23 MR. BRUNET: He heard you.</p> <p>24 MR. SUH: Well, of course. I think</p> <p>25 it might be helpful if we sent to him this</p>	<p style="text-align: right;">Page 1161</p> <p>1 that you've -- you have produced yourself?</p> <p>2 MR. SUH: Yes.</p> <p>3 MR. BRUNET: And that can be</p> <p>4 arranged to fax it to Dr. Schänzer immediately.</p> <p>5 MR. SUH: Yes. We didn't think we'd</p> <p>6 need it for Dr. Schänzer so ...</p> <p>7 MR. CAMPBELL: Do you have a fax</p> <p>8 machine, or should we get Bryan to --</p> <p>9 MR. SUH: Maybe we could have your</p> <p>10 assistant fax it.</p> <p>11 Dr. Schänzer, if you could hold on</p> <p>12 one second.</p> <p>13 MR. CAMPBELL: He needs the number,</p> <p>14 right?</p> <p>15 MR. SUH: Dr. Schänzer, could you</p> <p>16 tell us what your fax number is, please?</p> <p>17 THE WITNESS: One moment, please.</p> <p>18 MR. BRUNET: Dr. Schänzer, this will</p> <p>19 take a few minutes, so we'll call a recess for</p> <p>20 15 minutes. We'll reconvene at exactly 11:45.</p> <p>21 Dr. Schänzer, don't hang up the</p> <p>22 call, please.</p> <p>23 THE WITNESS: I didn't understand</p> <p>24 what you said.</p> <p>25 MR. BRUNET: Okay. We are taking a</p>

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1 15-minute break.  
 2 THE WITNESS: Can I give you my fax  
 3 number now?  
 4 MR. BRUNET: Yes, you can give the  
 5 fax number now.  
 6 MR. YOUNG: Not on an open line.  
 7 THE WITNESS: This is Germany.  
 8 MR. YOUNG: Whoa, whoa, whoa.  
 9 MR. BRUNET: Dr. Schänzer. Dr.  
 10 Schänzer. Just a minute. You should not put  
 11 that fax number over the air. We'll contact you  
 12 with the fax number.  
 13 (Recessed from 11:26 - 11:50 am.)  
 14 MR. BRUNET: Dr. Schänzer, this is  
 15 Patrice Brunet with -- the Panel chairman. Can  
 16 you hear me?  
 17 THE WITNESS: Yes. I can hear you.  
 18 MR. BRUNET: Welcome back.  
 19 I understand you were faxed a  
 20 document moments ago?  
 21 THE WITNESS: Yes.  
 22 MR. BRUNET: And that document bears  
 23 the notation GDC 01363, does it not?  
 24 THE WITNESS: That is correct.  
 25 MR. BRUNET: Thank you. I'll turn

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1 this over to Mr. Suh.  
 2  
 3 EXAMINATION (cont'd.)  
 4 BY MR. SUH:  
 5 Q. Dr. Schänzer?  
 6 A. Yes.  
 7 Q. Perhaps we could go back to the same  
 8 bar graphs that we were looking at before.  
 9 A. Yes.  
 10 Q. And in essence what your study shows  
 11 that with the administration of testosterone  
 12 gel, that the T/E test -- that the T/E test  
 13 registers a value of over 4.1; is that right?  
 14 In other words, the administration --  
 15 A. The data you have seen in this  
 16 delta, the T/E ratio increased -- was increased  
 17 higher than 4, that's correct. This was the  
 18 data you have seen in this figures for this  
 19 person's P3, and I think it was P9 or 10, for  
 20 this two persons. It was higher than 4, that's  
 21 correct.  
 22 Q. Yesterday we had a former bike  
 23 racer, named Joe Papp, who USADA called as their  
 24 witness to testify that he had taken  
 25 testosterone gel, and that when he had taken

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1 testosterone gel, he had routinely not been  
 2 detected by the T/E test. That is disproved by  
 3 the result of your study; isn't that right?  
 4 A. This is not a dispute. If you look  
 5 to the Annex 1 in this WADA report, you will  
 6 find all T/E changes for the 8 persons -- 18  
 7 persons we have investigated, and you will see,  
 8 in certain persons, they will not exceed the T/E  
 9 ratio, higher than 4. For example, if you look  
 10 in the annex to the different persons, so  
 11 following Page 18 of the report, Annex 1, for  
 12 example, you see directly this is a person where  
 13 the T/E ratio exceeds a maximum value of 3, not  
 14 more.  
 15 So this means you have individual  
 16 persons who will not exceed it, and also  
 17 depending on the application, how -- what's the  
 18 amount, how much of the gel really was -- if he  
 19 takes the gel -- was absorbed by the skin. You  
 20 will see also differences and sometimes, and  
 21 also they will come back, which is not exceeding  
 22 the ratio of 4. So this is not a correct  
 23 conclusion to say that after testosterone gel  
 24 application the T/E ratio has to -- will  
 25 increase and be higher than 4.

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1 MR. BRUNET: Dr. Schänzer, this is  
 2 Patrice Brunet again. Just for reference, for  
 3 confirmation, that you were referring to Exhibit  
 4 34, which is the project report --  
 5 THE WITNESS: Yes.  
 6 MR. BRUNET: -- and you were looking  
 7 at Page 18, and the following page is Annex 1,  
 8 which is not -- there's no number on the page,  
 9 is that --  
 10 THE WITNESS: That's correct.  
 11 MR. BRUNET: -- is that what you are  
 12 referring to?  
 13 THE WITNESS: It's Annex 1, but the  
 14 pages are numbered with the persons: person 1,  
 15 person 2, person 3, person 4, and so on.  
 16 MR. BRUNET: Thank you.  
 17 Q. Wouldn't you agree with me, Dr.  
 18 Schänzer, that -- however, that in Annex 1, all  
 19 of those subjects had their T/E values rise  
 20 above the acceptable reference range shown  
 21 within their longitudinal study?  
 22 A. Not all. I think there were -- I  
 23 think, two persons were -- even their normal  
 24 values were not altered significantly, if I  
 25 remember from this data.

<p style="text-align: right;">Page 1166</p> <p>1 Q. Could you point us to the specific 2 subjects? 3 A. Yes. If you go to Subject 18 on 4 that last page, and Subject 16, these two 5 subjects were no clear changes in the T/E ratio 6 could be significantly followed. 7 Q. Dr. Schänzer, give us one moment 8 while we look at that particular person that you 9 pointed our attention to. 10 A. Yes. 11 Q. And who is the other person? You 12 said there were two. 13 A. It is Person 16, and the other 14 person was Person 18. 15 Q. Have you looked at the longitudinal 16 data for -- longitudinal T/E data for 17 Mr. Landis -- 18 A. This is the table -- 19 Q. -- apart -- I'm sorry -- apart from 20 the table? 21 A. Yes, I have also seen -- seen this 22 data, I have. 23 Q. And have you been able to have the 24 opportunity to calculate that the mean, standard 25 deviation and coefficient of variation of the</p>	<p style="text-align: right;">Page 1168</p> <p>1 MR. MC LAREN: I'm looking at it. 2 Prehearing brief of the United States 3 Anti-Doping Agency is the name. 4 THE WITNESS: One moment. 5 Yes, the hearing brief of the United 6 States Anti-Doping Agency, Page 70. So this is 7 a picture -- yes, I have it now. 8 Okay. 9 Q. (By Mr. Suh) Okay. Now, turning 10 back to the chart that we had just faxed you -- 11 A. Yes. 12 Q. -- I would like to highlight the 13 alleged adverse analytical findings on -- 14 they're on line 3, line 5, line 6 is the one 15 which is Stage 17, line 7 and line 8. 16 Do you see that? 17 A. Yes. 18 Q. Do you see that the T/E value for -- 19 what I will circle here. And I will simply tell 20 you, because you can't see this overhead, of 21 line 1, 2, 3, 4, 5, although it reports an 22 adverse analytical finding from IRMS, that it is 23 below the reference range in the longitudinal 24 study, the 1.8 T/E. 25 A. Yes. What is your question?</p>
<p style="text-align: right;">Page 1167</p> <p>1 longitudinal data for Mr. Landis are 1.5, 0.46, 2 and 30.76 percent, respectively? 3 And for the benefit of the Panel, 4 I'll put this up on the overhead. 5 It's actually taken from -- this is 6 actually taken from USADA's brief, Page 70. 7 A. One moment. 8 Q. Okay. 9 A. I am not at the exact table at the 10 moment. What is it? What page is it? 11 MR. BRUNET: It's Page 70 in the 12 brief, the USADA brief. 13 MR. MC LAREN: Mr. Young, was he 14 supplied with the briefs? 15 MR. YOUNG: Yes, in a lot of boxes. 16 THE WITNESS: What is the box -- what 17 is the document name exactly? It's not within 18 the A and B sample report. 19 MR. SUH: It's the USADA brief Page 20 -- Page 70 and 71. 21 THE WITNESS: And what is the 22 document? 23 MR. SUH: It's USADA's prehearing 24 brief. I think the first one is prehearing, and 25 the second one is pretrial. So it's --</p>	<p style="text-align: right;">Page 1169</p> <p>1 Q. Do you see that that's below -- 2 would you agree that that's below the applicable 3 reference range? 4 A. What is -- what is your question? 5 Q. Would you agree that it is below 6 Mr. Landis' applicable reference range? 7 MR. YOUNG: Could we have a 8 clarification of what "it" is? 9 A. Of this? This calculation, yes -- 10 Q. Yes. 11 A. -- is based on screening data, and I 12 think within this is one confirmation data. And 13 I think if I'm to view -- review this thing, I 14 think it would be -- you have to be very careful 15 to calculate here this thing, but I look to the 16 T/E ratios, which are presented here. 17 Q. Let me -- let me ask the question 18 again -- 19 A. Yes. 20 Q. -- just so it's clear. 21 A. I need -- I need a clear question. 22 Q. Would you agree that this T/E ratio, 23 on line 1, 2, 3, 4, 5, for July 18th, is within 24 the reference range as shown in the longitudinal 25 study?</p>

<p style="text-align: right;">Page 1170</p> <p>1 A. Yes, not a problem. Normally, you 2 can make the specific calculation; you can say 3 these are within these calculation ranges. That 4 is, I would also agree by this calculation. 5 Q. Yes. And then going down 1, 2, 3, 6 4, 5, 6, 7, 8 -- 7 A. Yes. 8 Q. -- on July 23 -- 9 A. Yes. 10 Q. -- that value of 1 T/E ratio is 11 within the applicable reference range as shown 12 in the longitudinal study? 13 A. Yes. I think from this calculation, 14 it is within the range. 15 Q. Earlier you were talking about the 16 fact that no one has -- and correct me if I am 17 wrong about this -- but no one has overturned 18 any of the positive IRMS results done by your 19 lab, correct? 20 A. Once again, can you repeat your 21 question? 22 Q. Yes. When you were testifying 23 earlier -- 24 A. Yes. 25 Q. -- I believe you said that no one</p>	<p style="text-align: right;">Page 1172</p> <p>1 Q. Yes, personally. 2 A. I had, two years ago, sometimes 3 connection during workshops and some other 4 scientific meetings. 5 Q. And with which person? 6 A. I directly had no contact with -- or 7 maybe with the lab director, the lab director 8 from the Paris laboratory I have contact 9 personally. I have contact with some scientists 10 from the lab -- but I directly have no contact 11 to the technicians of the laboratory. 12 Q. And you had direct contact with, it 13 would be Dr. de Ceaurriz at LNDD, correct? 14 A. Sometimes during the workshop, we 15 had contact, and we discussed some things; 16 that's correct. 17 Q. And what kinds of things did you 18 discuss with Dr. de Ceaurriz? 19 A. During the workshop, I think, two -- 20 one or two years ago, I discussed some 21 scientific facts with him. 22 Q. And what was the subject of that 23 workshop? 24 A. There was so many subjects. In 25 general, I tried to discuss about the EPO and</p>
<p style="text-align: right;">Page 1171</p> <p>1 had -- that at no time had your -- an adverse 2 analytical finding, as shown by your IRMS method 3 been overturned? 4 A. In the last -- in the last two or 5 three years. 6 Q. And -- during the last two or three 7 years? 8 A. Yes. 9 Q. And were any overturned prior to the 10 last two or three years? 11 A. Was over? 12 Q. Overturned. 13 A. What does it mean, overturned? 14 Q. Found to have been invalid during 15 the course of some arbitration or court 16 proceeding. 17 A. No, that -- no objection. 18 Q. How many times have your IRMS 19 results been challenged? 20 A. How many times? The last two or 21 three years, we have no -- no challenge in this 22 cases. 23 Q. Do you know any personnel associated 24 with the LNDD laboratory? 25 A. Personally?</p>	<p style="text-align: right;">Page 1173</p> <p>1 the hematocrit things. I've never discussed in, 2 I think, concerning isotope measurements. 3 Q. Your testimony is that you have 4 reviewed all of the -- the document package and 5 all of the related documents in this case, 6 correct? 7 A. I hope -- I hope that I've reviewed 8 all of them. I cannot guarantee that I have 9 done it 100 percent. 10 Q. You testified that all of the peak 11 shapes and forms were all good. 12 A. From my experience, from my point of 13 view, I find the -- them acceptable. 14 Q. Do you, in your mind, see a 15 difference between "acceptable" and "good," or 16 are they both the same? 17 A. "Acceptable" is "good" for me. 18 Q. And when we say -- when you say that 19 the peak shapes were all good, I'm going to ask 20 you a series of questions. And I'm going to ask 21 you if you see these issues in the -- in the 22 peaks. 23 And I'm going to refer to the peaks 24 as a chromatogram, as the chromatogram is the -- 25 the graphical depiction of the peaks.</p>

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1 A. Yes.  
 2 Q. And I'm going to ask if you have  
 3 seen any of the following issues.  
 4 A. Yes.  
 5 Q. Okay?  
 6 A. Yes.  
 7 Q. Have you seen any issue related to  
 8 high or sloping baselines?  
 9 A. You must research a special  
 10 chromatogram.  
 11 Q. No. I'm just asking -- because you  
 12 said earlier that all of the peak shapes were  
 13 good -- I'm asking if --  
 14 A. For an analyte, on the analytes,  
 15 which are androsterone, etiocholanolone, 5-alpha  
 16 diol, 5-beta diol, and the 11-keto, I have seen  
 17 in the chromatograms were from my -- from my  
 18 experience and my expertise, I would confirm  
 19 them as good -- good forms.  
 20 Q. Well, I'm asking about a specific  
 21 component of good.  
 22 A. Okay.  
 23 Q. And that is whether or not you see,  
 24 in any of the chromatograms associated with  
 25 these adverse analytical findings, a sloping

1 that the sloping peak makes a problem -- gives a  
 2 problem.  
 3 Q. Okay. Do you see any problem in the  
 4 chromatograms with co-eluting peaks, any of the  
 5 chromatograms associated --  
 6 A. Yes, I have --  
 7 Q. I'm sorry. If you could let me  
 8 finish my question.  
 9 A. Yes, correct.  
 10 Q. -- any of the chromatograms  
 11 associated with the adverse analytic findings in  
 12 this case?  
 13 A. I have also seen, for this case, the  
 14 GC/MS data file from all chromatograms with  
 15 clear mass spectra, and from this point of view,  
 16 I saw no interferences to the signals, and this  
 17 is fully acceptable.  
 18 Q. So that's for GC/MS.  
 19 Have you -- do you have the same  
 20 conclusion for the IRMS?  
 21 A. Because this is done with the same  
 22 column, so I see no interference which can --  
 23 which cause problems for the data.  
 24 Q. Do you see any problem in the  
 25 chromatogram, in any chromatogram, associated

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1 baseline problem.  
 2 A. Sloping baseline? I have to see the  
 3 chromatogram. I think sloping baseline, we have  
 4 especially -- if you have clear standards,  
 5 sometimes sloping baseline has to be rated, from  
 6 my point of view, in direction with your lab  
 7 standards --  
 8 THE REPORTER: Excuse me?  
 9 A. -- so I need to -- I can only answer  
 10 the question to clear data, I have to see what  
 11 the impression of this, for me to see the data,  
 12 and then I can say this is, from my point of  
 13 view, acceptable or not.  
 14 Q. Well, earlier you had said that all  
 15 the peak shapes were good and that you had  
 16 reviewed the data --  
 17 A. Yes.  
 18 Q. -- and so I'm asking you, based on  
 19 the review that you have already done --  
 20 A. Yes.  
 21 Q. -- whether or not you see a sloping  
 22 baseline problem. Do you see one in any of the  
 23 chromatograms associated with any adverse  
 24 analytic findings in this case?  
 25 A. Okay. Okay. Yes. I've not seen

1 with any adverse analytic finding in this case  
 2 as it relates to peak separation, good peak  
 3 separation?  
 4 MR. YOUNG: Now, this witness has  
 5 been talking -- clarification --  
 6 THE WITNESS: Yes.  
 7 MR. YOUNG: -- and this is for the  
 8 Panel -- are we talking about IRMS only, which  
 9 is what this witness has talked about or has the  
 10 question expanded into the T/E ratio  
 11 chromatograms?  
 12 MR. SUH: I -- the question was  
 13 clear. Please stop coaching the witness. The  
 14 question was clear.  
 15 MR. CAMPBELL: Mr. Suh, are you  
 16 referring to any --  
 17 MR. SUH: Any chromatogram.  
 18 MR. CAMPBELL: Okay.  
 19 A. So the analytes which are of  
 20 interest in this case, I have looked to the peak  
 21 shapes, and I would fully accept the peak  
 22 shapes; and for me, from my experience -- from  
 23 my expertise, I would say they are good,  
 24 sufficient --  
 25 THE REPORTER: Good what?



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1 MR. CAMPBELL: Mr. Suh, did that  
2 answer your question?

3 MR. SUH: I wasn't -- the question  
4 was going just to peak shape, I was talking  
5 about peak separation. So peak separation.

6 A. So the analytes, I have seen in the  
7 documents are fully sufficient, that the peak  
8 shape is sufficient for this kind of analysis.  
9 So I see there are no problem with interference  
10 which also is presented by the GC/MS systems,  
11 that no co-elution is problematic.

12 Q. Do you -- and that's for every  
13 chromatogram associated with the adverse  
14 analytic findings in this case?

15 A. Yes. To go through each of the  
16 chromatograms, I hope that I have seen all the  
17 chromatograms. And I was looking to take all  
18 the chromatograms for the different sections  
19 which were connected for the isotope ratio  
20 measurements.

21 Q. Dr. Schänzer, in your laboratory, do  
22 you ever, when performing an IRMS analysis,  
23 overwrite and thereby delete data generated in a  
24 sequence?

25 A. Now, this can happen if a sequence

1 that file when it's part of an analysis of a  
2 sample?

3 A. I -- I never -- I never make the  
4 measurements myself, and so I have to ask my  
5 scientist. Normally, it should -- it should be  
6 not overwritten -- it should -- it should not be  
7 overwritten -- that is quite, that is a thing  
8 normally which should not -- be happen, I think.  
9 But I have observed this several times that this  
10 can occur; that you have to start the sequence  
11 new, and you enter the number of the first  
12 sample; that this sample is overwritten by -- by  
13 the software automatically.

14 Q. Do you -- you said that in your  
15 laboratory, the 5-alpha androstenol acetate, the  
16 internal standard, which I'm going to call the  
17 5-alpha AC, is used as part of your quality  
18 control, correct?

19 A. This is the androstenol. This is  
20 correct. We use it as part of the control of  
21 the etiocholanolone.

22 Q. And you said that, in your lab,  
23 sometimes the measurement of the 5-alpha AC  
24 falls outside of the measurement of error,  
25 correct?

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1 is stopped by an injection, a needle broke or  
2 whatever it is, but it sometimes happens that  
3 the analyst starts a new run again and  
4 overwrites the broken -- the broken file, the  
5 file which was not completed. It can happen.

6 Q. And what would cause the technician  
7 to stop and overwrite the file?

8 A. In general, it can happen that the  
9 injection failed, yes, that the needle was  
10 broken. It can also happen that some other  
11 things failed, that the analyst started before  
12 the temperature was really at a set point and  
13 then the sequence is stopped.

14 It is also -- it happens often in  
15 our laboratory that a sequence is stopped based  
16 on such a, normal technical problem. And then  
17 the next start, the next sample is run.  
18 Sometimes it can happen that this broken file is  
19 overwritten, but this can happen. That can  
20 happen.

21 Q. Well, what about when the file is  
22 actually completed, not when there's a problem  
23 in the middle, like a technical problem, but  
24 what about when the file is completed and data  
25 is generated and saved? Would you ever delete

1 A. This -- this happens when the  
2 oxidation -- the quality of the oxidation  
3 chamber goes to the end, and then this can be  
4 offset by the internal quality substance and  
5 also by the reference, by that mix, which is  
6 routinely run.

7 Q. And when that happens, what is the  
8 procedure in your lab?

9 Let's say you were running a  
10 sequence, and you saw the 5-alpha AC out of  
11 measurement of error. What happens after  
12 that?

13 A. Oh, there can -- there can be  
14 different -- different behaviors.

15 The technician has to find out what  
16 can cause this.

17 What I can say is sometimes it  
18 happens that the injection -- the injection  
19 system is not working perfect, that the  
20 oxidation chamber makes problems, that the  
21 needle or the injection makes problems itself,  
22 maybe was not excellent because the sample has  
23 run dry -- there are several reasons.

24 The technician has to find out what  
25 is the reason for such an event.

<p style="text-align: right;">Page 1182</p> <p>1 Q. And then when those reasons are 2 discovered, what do you do with respect to that 3 particular test? 4 A. In general, the test is on the file, 5 yes? And the data will not be considered 6 further for any conclusion. 7 Q. The data will not be considered 8 further for any conclusion? 9 That's what I thought I heard you 10 say, correct? 11 A. That's correct. 12 Q. In other words, you -- when you find 13 your 5-alpha acetate out of your measurement of 14 error, you try to discover the problem that led 15 to that being out of the measurement of error, 16 and then you don't consider that data, correct? 17 The data that's part of that sequence. Is that 18 right? 19 A. Hello? 20 21 MR. BRUNET: Dr. Schänzer, are you 22 still there? 23 THE WITNESS: There was a little 24 disturbance, yes, in the line. 25 MR. BRUNET: Could you repeat your</p>	<p style="text-align: right;">Page 1184</p> <p>1 EXAMINATION 2 BY MR. YOUNG: 3 Q. Dr. Schänzer, could you open up your 4 Exhibit 24, and -- 24 to Page 351? 5 A. Exhibit 24. One moment, please. 6 MR. MC LAREN: Sorry, the page 7 number again? 8 Q. Page 351, and Exhibit -- 9 A. 24, I have no Exhibit 24. 10 Q. This is the documentation package. 11 It's Page 185. 12 A. 185. 13 Q. Correct. 14 A. One moment. 15 This is A sample, yes? 16 Q. That's correct. 17 A. Yes, that's correct. 18 Q. And Page 351. 19 A. Yes, I also have Page 351. It is 20 the B sample summary for the isotope 21 measurement. 22 Q. Would -- tell me when you've got it. 23 A. Yes. 24 Q. Okay. Would any of the SI, internal 25 standard measurements reflected on these two</p>
<p style="text-align: right;">Page 1183</p> <p>1 question, Mr. Suh? 2 MR. SUH: Could the reporter read it 3 back. 4 Yeah, could we have it read back? 5 (Reporter complies.) 6 A. In this case, I considered the 7 sample yes -- only the sample, yes; only the 8 sample, not the sequence. 9 MR. MC LAREN: Just a moment. 10 The court reporter has to sit down 11 and record what you have to say. 12 Could you answer again, please? 13 A. In this case, the sample would not 14 be considered, it is clearly outside of the -- 15 what we would accept, and if we have clearly 16 located the mistake, the measurement and the 17 sequence before, they are still valid. 18 MR. SUH: Okay. No further 19 questions. 20 MR. BRUNET: Thank you, Mr. Suh. 21 Dr. Schänzer, Mr. Young will ask you 22 a few additional questions. 23 24 25</p>	<p style="text-align: right;">Page 1185</p> <p>1 pages, be so out of the range that you would 2 disregard them? 3 A. No. 4 Q. And would any of the internal 5 standards measurements on these two pages cause 6 you to disregard any of the other data on these 7 two pages? 8 A. No. 9 Q. To clarify something that came up 10 earlier, you were talking about the GC/MS 11 system. Were you talking about GC/MS in the 12 context of the GC/MS being coupled to the IRMS 13 instrument? 14 A. I think that is, in general, a GC/MS 15 system running with the same columns, the same 16 injection columns, and the same files, and the 17 sample is analyzed with what is parallel; 18 analyzed, yes, to see them for each peak, which 19 are produced in the isotope measurements with 20 the carbon dioxide combustion chamber, to see if 21 this peak is really testosterone, or this 22 analyte, like 5-alpha androstenediol, and to see 23 if the peak is clear, and if there's any 24 interferences. 25 Q. And that's part of the IRMS process.</p>

<p style="text-align: right;">Page 1186</p> <p>1 A. This is part of the IRMS process.</p> <p>2 Q. You were asked questions earlier</p> <p>3 about T/E ratio and diol measurements.</p> <p>4 Is an athlete's T/E ratio -- let me</p> <p>5 take a step back.</p> <p>6 Is it the case that sometimes an</p> <p>7 athlete's T/E ratio is raised above 4 if he uses</p> <p>8 testosterone gel, and sometimes it's not?</p> <p>9 A. Yes, that's correct. That's the</p> <p>10 problem. In some cases, that's the application.</p> <p>11 You never know how much of the</p> <p>12 testosterone in the gel can be absorbed. There</p> <p>13 may be some differences between persons, but</p> <p>14 also in a person how he applied this, and then</p> <p>15 you never see if the absorption is completed.</p> <p>16 And also there are persons which will not reach</p> <p>17 the T- -- which will not reach the T/E ratio</p> <p>18 higher than 4. So there's a big variation, and</p> <p>19 therefore, so our actual methods, this T/E ratio</p> <p>20 of 4-to-1 is not sufficient to detect any such</p> <p>21 kinds of manipulation.</p> <p>22 Q. And would the effect on T/E ratio be</p> <p>23 influenced by how much of the gel a person took</p> <p>24 on a particular day?</p> <p>25 A. Yes. It can be influenced by the</p>	<p style="text-align: right;">Page 1188</p> <p>1 control.</p> <p>2 Q. If an athlete were to take other</p> <p>3 prohormones of testosterone at the same time he</p> <p>4 was using a testosterone gel, would that affect</p> <p>5 the T/E ratio and the IRMS measurements?</p> <p>6 A. It can also affect, yes. No data</p> <p>7 would show what happens if a perfect</p> <p>8 manipulation happens. In Testogel, maybe you</p> <p>9 got all testosterone and a kind of prohormone,</p> <p>10 so you can alter your mixtures and then --</p> <p>11 THE REPORTER: I didn't get -- I'm</p> <p>12 sorry. I didn't get that.</p> <p>13 Q. Could you back up a sentence and be</p> <p>14 a little slower for the court reporter, please.</p> <p>15 A. Okay. Sorry.</p> <p>16 I think that isotope values and also</p> <p>17 T/E ratio may be affected or affected by the</p> <p>18 kind of application and by the testosterone gel</p> <p>19 application, by another kind of testosterone</p> <p>20 application. There are injection preparations,</p> <p>21 but also all are testosterone applications.</p> <p>22 There are prohormones which can be used, and it</p> <p>23 can also happen that the perfect manipulation is</p> <p>24 trying to use all of these testosterones at the</p> <p>25 same time to try to circumvent the detection by</p>
<p style="text-align: right;">Page 1187</p> <p>1 amount you applied; it can also be influenced by</p> <p>2 the individual metabolism; and it can also be</p> <p>3 influenced at what time you take the sample</p> <p>4 after the gel was applied. So you, as we said,</p> <p>5 not a constant change to a constant T/E ratio,</p> <p>6 but there are variations. And often, in many</p> <p>7 cases, the T/E will not be obviously changed in</p> <p>8 such a way that we can see directly by our</p> <p>9 routine as screening procedures.</p> <p>10 Q. And are the delta/delta measurements</p> <p>11 of 5-alpha pdiol also affected by individual</p> <p>12 metabolism, dose, and time measured after</p> <p>13 administration?</p> <p>14 A. In general, all of this is</p> <p>15 influenced, all the isotope measurements, by the</p> <p>16 time the sample is collected, and there will be</p> <p>17 some variation. And I think sometimes I have</p> <p>18 the feeling that -- that when we get an athlete</p> <p>19 with a positive finding, we have the luck to --</p> <p>20 that the collection was on the right time -- at</p> <p>21 the right day and the right time. So, in</p> <p>22 general, there's a high fluctuation between the</p> <p>23 parameters. And, in general, my opinion is that</p> <p>24 all samples should be screened by isotope</p> <p>25 measurements to have a more effective doping</p>	<p style="text-align: right;">Page 1189</p> <p>1 the T/E ratio methods.</p> <p>2 MR. YOUNG: Thank you. I have no</p> <p>3 further questions.</p> <p>4 THE WITNESS: Okay.</p> <p>5 MR. YOUNG: And then -- then await</p> <p>6 direction from the Panel to tell you whether</p> <p>7 you're done or not.</p> <p>8 Thank you, sir.</p> <p>9 MR. BRUNET: Thank you, Mr. Young.</p> <p>10 Mr. Suh?</p> <p>11 MR. SUH: No further questions.</p> <p>12 MR. BRUNET: Well, thank you very</p> <p>13 much, Dr. Schänzer. We wish you a nice evening,</p> <p>14 and that will be the end of your testimony</p> <p>15 today.</p> <p>16 THE WITNESS: Okay. Thank you.</p> <p>17 MR. BRUNET: Thank you. You have a</p> <p>18 good night.</p> <p>19 THE WITNESS: Bye-bye.</p> <p>20 MR. BRUNET: And we're going to</p> <p>21 lunch.</p> <p>22 One hour, please.</p> <p>23 (Recess taken from 12:30 to 1:50</p> <p>24 p.m. for the noon hour.)</p> <p>25 MR. BRUNET: I apologize for being</p>