UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY
CIVIL ACTION NO. 03-4837 (DMC)

UNITED STATES OF AMERICA EX REL., DR. HELENE Z. HILL, Plaintiff, v. UNIVERSITY OF MEDICINE & DENTISTRY OF NEW JERSEY, DR. ROGER W. HOWELL and DR. ANUPAM BISHAYEE, Defendants.	DEPOSITION OF DR. MICHAEL ROBBINS

T R A N S C R I P T of Deposition Proceedings in the above-entitled matter, as taken by and before MARIA F. PIOTROWSKI, Certified Court Reporter and Notary Public of the State of New Jersey, at the offices of BUCCERI & PINCUS, 1200 U.S. HIGHWAY 46, CLIFTON, NEW JERSEY, on THURSDAY, JANUARY 7th, 2010 commencing at 9:30 a.m.

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I N D E X T O W I T N E S S E S

I N D E X T O E X H I B I T S

R E Q U E S T S F O R D O C U M E N T A T I O N

DR. MICHAEL ROBBINS, currently doing business at DEPARTMENT OF RADIATION ONCOLOGY, WAKE FOREST UNIVERSITY SCHOOL OF MEDICINE, WINSTON-SALEM, NORTH CAROLINA, 27157, was duly sworn to tell the truth and testified as follows:

DIRECT EXAMINATION BY MR. LEONARD:

Q. Good morning, Dr. Robbins. My name is John Leonard and to my left is my colleague Scott Flynn and together we represent the Defendants, UMDNJ, a Dr. Bishayee and a Dr. Howell in a case brought by Dr. Hill against that entity and those individuals pending in the United States District Court for the District of New Jersey.

We're here today to take your deposition because you've been identified by Dr. Hill as an expert who will testify in support of her claims.

Do you understand that?

A. I do.

Q. Have you ever testified at a deposition before?

A. I have not.

Q. Okay. I promise you it will be a relatively painless process.

A. I hope so.

Q. Have you ever testified under oath in any sort of proceeding before?

A. I have not.

Q. Okay. Have you ever qualified or provided testimony as an expert before?

A. I have not.

Q. Okay. We'll go through a couple of quick instructions that I hope will make this an efficient process and get us out of here relatively quickly.

A. Okay.

Q. What we're going to be doing today is I'll be asking you a number of questions. The court reporter to my right, your left, is taking down everything we say to each other verbatim. So that means a couple of things. It means that I can't cut you off or shouldn't cut you off when you're trying to answer and you should allow me to finish a question before you begin to answer because if we're both talking at the same time, besides rolling her eyes and wanting to strangle us, she will not be able to take down what we're saying.

Secondly, is the more natural response, which you just did, you just nodded.

A. I did.

Q. And I knew exactly what you meant, but she

cannot record that. So if you can keep your responses verbal, that would be very helpful as well.

A. Sure.

Q. You're here today as the court reporter indicated you've been placed under oath. You understand that the oath you're under today is the same oath as if you were testifying in a court of law?

A. I do.

Q. If I ask you a question and you do not understand the question, okay, please let me know. The object here is to just get an understanding of the basis for your position in your report. It's not to confuse you or trick you. So if I say something in a way that either you don't understand or maybe doesn't make sense scientifically, you're the expert, I'm the layperson, say that.

A. Okay.

Q. Because if you answer a question, people reading the transcript will assume you understood the question.

A. I understand.

Q. Okay. There may come a time when Mr. Pincus objects to a question. If he objects to any of my questions, please suspend your answer immediately. Let Mr. Pincus and I discuss it and then take direction from him as to how you should proceed.

A. Okay.

Q. Breaks. It's not a marathon. I'm hoping to get you out of here quick, but if you need, obviously, to get a drink, go to the men's room or anything in between, just let me know and we can accommodate you.

A. Okay. Thank you.

Q. Do you have any questions about what I just told you?

A. No, that's clear.

Q. Do you have any questions for me before we begin?

A. I do not.

Q. Could you please state are full name and address for the record, please.

A. My full name is Michael Edmond Charles Robbins. Do you want a home address or a work address?

Q. Work address.

A. Work address is Department of Radiation Oncology, Wake Forest University School of Medicine, Winston-Salem, North Carolina and the zip is 27157.

Q. You've been retained to act as an expert in this proceeding, correct?

A. I have.

Q. And you've been retained by Dr. Hill?

A. I have.

Q. Prior to that retention did you know Dr. Hill?

A. I did not.

Q. How did it come about that you and Dr. Hill were put together, for lack of a better term?

A. We were put together because I am on the Book of Organization, I think it's Roundtable, that essentially deals with providing consultants for individuals or companies and a colleague, who actually is the head of radiation physics in the Department of Radiation Oncology, suggested that I might want to join that organization. He found it interesting and useful. So I joined the organization and they emailed me to essentially see if I was interested in being an expert in this case.

Q. When you say they emailed you --

A. I think -- I believe the Roundtable contacted me, but I don't recall the exact details of that.

Q. Okay. Do you remember what they initially told you about the case?

A. I believe they said they wanted somebody with radiation biology expertise.

Q. And you consider yourself an individual with that expertise?

A. I do.

Q. Do you recall responding to that email?

A. I don't recall the details, but I obviously responded with an interest.

Q. Okay. And once that initial period was over, the exchange of emails, what was the next step in terms of your becoming retained for the purposes of this case?

A. You know, I can't recall that, the details. I remember receiving correspondence from Shelly and I can't recall if we had a conversation prior to receiving the packet of information or an email correspondence. So I don't recall the details, I'm afraid.

Q. Okay. Do you recall whether you had any conversation with anyone prior to receiving materials relating to the case?

A. No, I did not.

Q. Okay. So it was simply done by email?

A. (Witness nods.)

Q. You expressed an interest --

A. Sorry. I nodded my head. Yes, it was.

Q. And you know what, I went along with it, so it's even worse.

So somebody reached out to you via email to see if you'd be interested, you responded that you would be interested and then were you then retained through email?

I'm trying to see how it was taken to the next step where you would start receiving materials.

A. You know, I don't recall.
Q. Okay. Did you have any conversations with Dr. Hill during this email time, initial email time?
A. No, I did not.
Q. Did you know that it was on Dr. Hill's behalf that these emails were being sent to you?
A. I do not -- I apologize. I can't recall when the identity of the individual was made to me and I apologize that that doesn't sound very good but. I didn't -- stretch my memory. I remember there was a conversation that I had with Dr. Hill because Dr. Hill essentially -- because I believe Dr. Hill needed to make sure that she felt I was an appropriate expert for her.
Q. Okay. A little while ago you mentioned an organization, Roundtable. Do you know the full name of that organization?
A. I can't recall that, no.
Q. Do you know where they're located?
A. I don't. I can find out for you because I'm on their books, but I don't -- I can't recall the address.
Q. As far as you know it's a directory of experts, essentially?
A. Yes.
Q. And is it a published publication that is sent to attorneys and other professionals?

A. I don't know.

Q. Have you ever seen your name in a publication?

A. I have not.

Q. So you do recall speaking to Dr. Hill initially?

A. I do.

Q. Do you know whether that was before or after you spoke to Mr. Pincus?

A. I can't recall.

Q. Do you recall what you and Dr. Hill talked about during that first conversation?

A. I can't recall the details, but I believe we essentially discussed my expertise, my activity in radiation biology.

Q. Okay. And did she -- and what are those expertise, if you don't mind?

A. My particular expertise is studying the effects of radiation on normal tissues.

Q. Okay.

A. The basis of that being that, you know, we use radiation to treat cancer. If we could give enough dose we would have cured cancer with radiation a hundred years ago, but we can't because we also radiate some of the normal parts of the body. And what I try and others to do is to

understand how does radiation damage those things and are there ways that we can prevent that.

So that's my funded research primarily from the government.

Q. Okay.

A. But in terms of radiation biology expertise I've been teaching radiation biology for 17 years now because as a member of the Department of Radiation Oncology one of any responsibilities is I provide the radiation biology expertise to residents in radiation oncology. So these are individuals, they're MDs, they come to the Department, they have a four-year residency program which is mandated by the American Board of Radiology, details of that. Part of that is they are tested, both verbally and by written exam, in clinical radiation oncology, radiation physics and radiation biology. So the radiation biology course is a broad overview of the entire topic.

Q. Okay.

A. And I've been responsible for teaching that to residents for 17 years now. Plus I also, as a member of the Radiological Society of North America, which is the radiology board, I've been involved in educational subcommittees for several years. I've had an education grant from them to teach radiation biology to individuals. I've got a current -- I've got a grant from the Nuclear

Regulatory Commission also to develop teaching modules in radiation biology. Plus -- just I've been doing this for 30 years, you know.

Q. Sure.

A. Every day I learn something new about radiation biology. So I believe I'm an expert.

Q. Okay. Is one of the ways that you study to try to avoid, and excuse the lay person's terms, over-radiating, would be this bystander effect that everyone talks about?

A. I do not study bystander effect directly and the reason for that is, to be competitive in terms of receiving a nice funding you have to be focused in one area.

Q. Okay.

A. So I'm very good in the area that I get my funding. That's what I do. That's what drives my success and my ability to get monies in.

That research is based on giving doses of radiation that are going to kill cells. It's not based on the bystander effect, which up until recently is only looking at low dose effect.

However, I teach the radiation biology of bystander effect in the course work that I give. So I'm aware of the topic and I keep up-to-date with the current ideas of these biological basis.

Q. Okay. So although you keep up on the ideas, is it fair to say that you have never performed any experiments during the course of your career involving bystander effect?

A. That is correct.

Q. When you first became involved in this case I assume you were provided documents upon which to review and rely to form the basis for your opinion?

A. I was.

Q. Can you tell me what documents you were provided?

A. I was provided with a huge amount of documentation.

Q. Okay.

A. I was -- so I can't give you an exhaustive list of that information.

Q. Okay.

A. Because it's just too much for me to recall.

Q. And who -- excuse me. Go ahead and finish.

A. No, that was fine.

Q. Who provided you that information?

A. Shelly.

Q. And was there a cover letter?

A. There was a cover letter.

Q. Did it enumerate what was being provided in

that cover letter?

A. It did.

MR. LEONARD: Shelly, I would ask for a copy of that letter, please.

MR. PINCUS: I have no problem with giving you a copy of that letter. Just follow it up. I don't have it at my fingertips, but I can easily dig it out.

BY MR. LEONARD:

Q. Generally, can you tell me the types of information you were provided?

A. There were details of experiments, details of experimental results, details of the concerns that Dr. Hill expressed in terms of reproducibility of Dr. Bishayee's results, a number of documents that gave the timeline of, for better words, her case up to that date.

Q. Okay. And before beginning to draft or before forming your opinion, let alone beginning to draft a written opinion, did you look at materials other than those that were presented to you by Dr. Hill?

A. The only other materials I looked at were, I would look at some of the publications.

Q. What publications did you look at on your own that were not provided to you by Dr. Hill?

A. I can't recall.

Q. Do you recall how many?

A. Several.

Q. Do your recall the topic of the publications that you were looking at?

MR. PINCUS: Objection to the form of the question.

John, are you asking whether he looked at things other than what he may have already enumerated in his report? I just want to be clear.

MR. LEONARD: Yes. There's two bodies of information. One he's saying he got a large quantity of information from Dr. Hill and there's a letter, I guess, laying out what that is.

What I'm saying is, besides that, what else did you look at?

MR. PINCUS: Well, but I'm asking specifically when he talks about literature are you talking about anything other than what he -- he made a very detailed list in his report.

MR. LEONARD: Yes.

MR. PINCUS: So I just want to be clear your question goes separate and apart from what he may have enumerated in his report.

MR. LEONARD: Yes.

MR. PINCUS: Do you understand that, Dr. Robbins?

THE WITNESS: No.

BY MR. LEONARD:

Q. Okay. So the only materials that you looked at were the documents from Dr. Hill and the ones noted in your report?

A. That's correct.

Q. Okay. As part of the materials that were provided to you, were you provided any details regarding the protocols of any prior experiments that were completed?

A. I did.

Q. Do you recall with regard to what experiments there were?

A. Those experiments were the ones described as a hundred percent experiments and 50 percent experiments and the details of which are in my report.

Q. Okay. And of the large amount of documents you received from Dr, Hill and all the papers that you looked at on your own that were listed in your report, did you review and rely on all of those documents?

A. Can you repeat that question?

Q. Sure. You received a number of documents from Dr. Hill and then you looked at documents on your own that you identified in your report. And my question really is, did you review and rely on all of that information to prepare your report?

A. I did not look at every single file that I was sent.

Q. Okay. Do you recall the types of files that you did not look at?

A. PDF files of some experiments based on looking at repeat after repeat after repeat, I believe that the opinion that I came up with was the valid opinion.

Q. I just want to make sure I understand your answer.

So you were given PDF files of experiments that were previously conducted?

A. I was.

Q. And approximately how many PDF files?

A. I can't recall; hundreds, maybe thousands.

Q. Okay. And how many did you actually look at?

A. Hundreds.

Q. So you may have looked at them all?

A. No, I did not look at all of them.

Q. Okay.

A. But I can recall what percentage I did not look at.

Q. Okay.

A. I looked at hundreds.

Q. Was there a significant number that you did not look at?

A. I don't think so.
Q. Okay. So you think you looked at the majority of them?
A. I believe so.
Q. Okay. Are there other types of documents that you didn't look at for any reason?
A. I don't believe so.
Q. Okay. So everything besides those PDF files of prior experiments, you looked at everything else that was provided?
A. I did.
Q. Do you know whose experiments were in the PDF files that you did not look at?
A. I do not.
Q. Do you know whose experiments were in the PDF files that you did look at?
A. I looked at experiments from Dr. Bishayee, from Dr. Merrick -- Dr. -- sorry, I'm having a hard time --
Q. Lenarczyk.
A. Lenarczyk, Dr. Hill's experiments. I believe those three individuals were the experiments that I looked at.
Q. Okay. And you don't know whose experiments were in the group that you didn't look at?
A. I don't, no.

Q. Is there any reason that you didn't look at all of them or?

A. Again, I think there was such a -- the information that I did look at, in my opinion, allowed me to adequately address the questions and to form the opinion that I was being asked to form.

Q. And what opinion were you being asked to form?

A. I was being asked to give a consideration that the data generated by Dr. Bishayee had been fabricated.

Q. And which data is that?

A. That's the data published in two radiation research journals. It's been presented, I believe, in an NIH grant from Dr. Hill and it concerns some of the hundred percent and some of the 50 percent experiments.

Q. Do you know exactly what data, though, is alleged to have been fabricated by Dr. Bishayee?

A. The data I referred to is in my report. I can't now give the exact experimental -- all these Bates numbers.

Q. No, no, no, not the Bates numbers but collectively the type of data, do you know what type of data?

A. I do.

Q. What type of data?

A. Cell survival curves of experiments carried out to look at the effect of tritiated thymidine in radiation.

Q. Do you know if there was any device used by Dr. Bishayee that's at issue in this case?

MR. PINCUS: Objection to the form of the question. You may answer.

A. I didn't understand the question.

Q. Sure. Do you know what a coulter counter is?

A. I do.

Q. Do you have any understanding of whether or not there is any allegations with respect to the counts that Dr. Bishayee achieved with a coulter counter in or around this time?

A. I do.

Q. What do you understand that allegation to be?

A. I understand that the data generated from the coulter counter is the claim was it had been fabricated.

Q. And is that the data you referred to previously when talking about Dr. Bishayee fabricating information?

A. Not directly. I didn't look at -- my concern was the shape of the survival curves that were generated by Dr. Bishayee were very different --

Q. You can call him she. I'm not sure I'm

saying it right either.

A. The survival curves that were generated by Dr. Bishayee were very different than ones that were subsequently generated by Dr. Hill, Merrick and others.

Q. Okay.

A. So I did not look at the individual counts. What I looked at was are those numbers -- have those that have been used been plotted appropriately and of the shapes of those curves what would be expected from radiobiological principles.

Q. And just bear with me. As I say, I'm a lay person.

So the coulter counts how would they be utilized in the graphs to which you refer?

A. I believe that they're used to, in part, look at uptake of radioactivity by cells.

Q. You say you believe.

A. I believe.

Q. Do you know for a fact?

A. I don't know for a fact, no, because, if I may, I need to add something.

Q. Yes.

A. So ultimately the graphs are based on cell count which are not counted by the coulter counter, they're counted -- at that stage they were counted visually.

Q. So do you have any understanding as to what real role the coulter counts played in any of the experiments?

A. Not very clear, no, I have to admit.

Q. Okay. Is there any material that you believe is out there that in hindsight you wish you had reviewed in order to prepare an opinion in this case?

A. No.

Q. Have you ever talked to Dr. Lenarczyk?

A. I have met him, yes.

Q. In connection with this case?

A. No.

Q. Okay. Where did you meet Dr. Lenarczyk?

A. I met him at the Medical School of Wisconsin in Milwaukee because I actually was interviewed for a position in their radiation biology group. So I actually visited last February. I chose the coldest day they'd had in 13 years to go there.

Q. Have you ever talked to Dr. Bishayee about this case?

A. No, I have not.

MR. LEONARD: Okay. Why don't we mark your report and we'll call this Robbins-1. Does that make sense?

MR. PINCUS: Sure.

MR. LEONARD: I think that's what we've been

doing.

(ROBBINS-1 received and marked for identification.)

BY MR. LEONARD:

Q. Dr. Robbins, before I hand you what has just been marked as Robbins-1, can you tell me again as succinctly as you can, what it is you were asked to look at? What were you writing a report on, I guess is my question?

A. I was writing a report on the validity of data generated by Dr. Bishayee.

Q. And which data are you referring to?

A. Well, I'm referring to the data that is published in the two articles in Radiation Research and it was in the grant proposal and data that purports to show an expediential decline in cell survival curves following addition of tritiated thymidine.

Q. Before we get into the nuts and bolts of your report, could you tell me exactly what you did to investigate that data?

A. I read the material that I was given and I read literature that discusses the effect of tritiated thymidine on cell survival curves.

Q. Have you ever worked with tritiated thymidine?

A. No, I have not.

Q. In your entire 30-year career you've never worked with tritiated thymidine?

A. I have not.

Q. Okay. So did you do anything personally; for instance, did you try to replicate any of these experiments?

A. No, I did not.

Q. Okay. Did you visit the laboratory where these experiments took place?

A. I did not.

Q. Did you interview anybody that had any connection with these experiments?

A. I didn't interview anybody, no.

Q. You refer in your report to observations made by Dr. Lenarczyk. Did you check with Dr. Lenarczyk to see if, in fact, he made those observations?

A. I did not.

Q. Have you ever worked with thymidine?

A. I have not directly, no.

Q. So in your 30-year career you've never worked with thymidine?

A. That's a no.

Q. Okay.

A. My area of personal research is different from that.

Q. Okay.

A. However -- no. Okay.
Q. I'll show you what's been marked Robbins-1. Okay?
A. Uh-huh. Yes.
Q. And just so we're clear, we've now been through you've never conducted any experiments regarding the bystander effect, correct?
A. Correct.
Q. You've never worked with thymidine, correct?
A. Correct.
Q. You've never worked with tritiated thymidine, correct?
A. Correct.
Q. Prior to preparing this report you've never visited the lab, correct?
A. Correct.
Q. You've never attempted to replicate any of these experiments yourself, correct?
A. Not directly, no. I have done experiments in which I've looked at effects of radiation to cell survival of mammalian cells and I've published in that area.
Q. But, again, not involving thymidine and tritiated thymidine bystander effect?
A. That's correct.
Q. In the first number of paragraphs you refer

to observations by Dr. Lenarczyk but we've established you've never spoken to Dr. Lenarczyk to confirm that; is that correct?

A. Can you tell me where specifically you're looking at this?

Q. Sure. It's the first page, first numbered paragraph one, in the last sentence. "2001 observed by Dr. Hill and Dr. Lenarczyk."

A. And can you repeat your question?

Q. Sure. I just want to confirm what we said earlier is that you never contacted Dr. Lenarczyk to confirm that he actually observed what it is you're stating he observed in your report?

A. That is correct.

Q. In number four you refer to "results presented in the same publications and used as primary evidence in the funded grant application are scientifically impossible based on the conditions prevailing in Dr. Bishayee's experiments."

You believe that that's absolutely, scientifically impossible?

A. I do.

Q. What do you base that on?

A. I base that on the information that I put in this report.

Q. And that information relates entirely to thymidine, tritiated thymidine and bystander effect, correct?

A. No, that's incorrect.

Q. Okay. Explain to me, then, what's the basis for your statement.

A. The basis is the biological response that would be predicted under these experimental conditions.

Q. Okay. But have you ever conducted such experiments?

A. I personally, no, but all the individuals in the publications that I cite have done.

Q. Okay. Let's turn to the next page of your report.

Before we do, let's go back to Page One, Number 3, you talk about "The coulter counter appears statistically impossible."

Did you review the coulter counter numbers?

A. I personally did not.

Q. You did not. Did you do any statistical analysis on those coulter counter numbers?

A. I personally did not.

Q. With all due respect, could I ask why you would make that statement, then, if you have no personal knowledge of that being the case?

A. Because analysis of Dr. Pitt.

Q. Okay. So you're relying on Dr. Pitt's report for that statement?

A. That's correct.

Q. Does any portion of your report rely on that statement about statistical impossibility?

A. No.

Q. So that's just a standalone statement that you put in the report based on someone else's report that you have no firsthand knowledge of?

A. That is correct.

Q. Okay.

A. To me that was the icing on the cake.

Q. Okay. But you don't know if that's the case, do you; you never reviewed any of that information?

A. I read -- I have read Dr. Pitt's report.

Q. But have you ever done a statistical analysis on that information yourself?

A. No, I have not. I'm not a statistician.

Q. Okay. But if you weren't going to rely on it, I guess I was just wondering why it was there if you had no first hand knowledge of it.

Okay. Let's go to experimental results. Again, I'm a lay person so you're going to have to hold my hand through a little bit of this.

At the end of the first paragraph it says "These results" and it refers to the information in the grant application by Dr. Howell to the NIH as well as the two published papers.

"These results are impossible to generate due to the following three reasons." Correct?

A. Correct.

Q. So Number 1, I believe, says "Tritiated thymidine blocks the movement of cells through the various phases of the cell cycle."

A. It's tritiated thymidine.

Q. I was hoping you'd help me with that one. I'm dying.

"Tritiated thymidine blocks the movement of cells through the various phases of the cell cycle."

Am I correct, the way I read this, that appears to be your one truism and then if you don't have Numbers 2 or 3 to counteract that, that's sort of the end of the story; is that what you're saying there?

A. Could you repeat the question?

Q. Sure. It seems -- when I read this, the truism seems to be Number 1, "Tritiated thymidine blocks the movement of cells through the various phases of the cell cycle." Period, that's the case.

Now, the way I read 2 and 3 is the only way

to get around the effect of one is to include 2 or 3 and those weren't present, therefore, the reason that this doesn't work is because the tritiated thymidine blocks the movement of cells through the various phases of the cell cycle.

MR. PINCUS: Objection to the form of the question. You may answer.

A. I don't believe that 2 and 3 are dependent on 1.

Q. Shelly made a good objection because that's not what I'm trying to say.

I mean, the way I read this is that 1 really is the reason that if 1 was there by itself you should not get the results because the tritiated thymidine stops the movement of cells through the various phases of the cell cycle.

Now, if you were to have what's identified in 2 or 3, and again in layman's terms, you could try to counteract the result of the tritiated thymidine, but without 2 and 3 the analysis would end at 1; is that a fair statement?

MR. PINCUS: Same objection, form of question. You may answer.

A. I don't have to answer.

Q. You do.

MR. PINCUS: You may answer.

A. The response to tritiated thymidine is a major factor here.

Q. Okay. But is that sentence true, "Tritiated thymidine blocks the movement of cells through the various phases of the cell cycle?"

A. It is true.

Q. Okay. All cells?

A. I'm not sure what you mean by "all cells".

Q. Is it absolute; does tritiated thymidine absolutely block the movement of cells through the various phases of the cell cycle?

A. The datea -- the literature that I quote would suggest that that is the case with the concentrations of tritiated thymidine that were used by Dr. Bishayee.

Q. I don't want you to tell me what they quote. You're the expert. This is your opinion.

Is it your opinion that tritiated thymidine absolutely blocks the movement of the cells through the various phases of the cell cycle?

A. It is my opinion that under the conditions that were used in the experiments that have been discussed here that that is the case.

Q. Okay. And what conditions do you refer?

A. The concentrations of tritiated thymidine

that Dr. Bishayee used have been used by other investigators, as I put in the report, and they show the cell cycle is perturbed.

Q. And now, what I was saying about 2 and 3 earlier, the way I read 2 and 3,and I'm not trying to mislead you, is that one way of sort of counteracting what the effect, the perturbed effect that tritiated thymidine would have on a pool is to either synchronize the cells or add, I won't pretend to say it, but it's deox --

A. Deoxycytidine.

Q. -- is that a fair statement?

A. If deoxycytidine is present it will counteract the effects of tritiated thymidine, that is correct.

Q. And the same thing with Number 3, would that counteract --

A. If the cells were synchronized, then you would expect to see more cell killed than if the cells were not synchronized.

Q. Okay. So primarily is it fair to say that your finding of fraud is primarily based on the fact that tritiated thymidine and the amount used blocks the movement of cells through the various phases of cell cycle?

A. No.

Q. Then, what would be -- I mean, it says these

are the three basis.

A. Okay. To me these are three separate pieces of information that allow me to draw a conclusion.

Q. Okay.

A. It's not one and these other two things are there.

Q. Well, it's the opposite, right, it's one and the other two are not there?

A. Right.

Q. Is that a fair statement?

A. To me all three components.

Q. Okay. So I guess what I'm saying is you drew the conclusion it was fraud because there was tritiated thymidine and there was not what's identified in 2 and 3?

A. I made the conclusion based on the fact that tritiated thymidine concentrations that were present would block, would perturb the cell cycle. There was no deoxycytidine present to prevent that effect and there was no attempt made to synchronize the cells.

Q. Okay. I understand.

Do you think -- do you believe as a scientist the inability to replicate an experiment means that there's been fraudulent activity?

A. Can you say that one again?

Q. Sure. As a scientist do you believe the

inability to replicate an experiment means that there has been fraud?

A. No, I don't, not directly.

Q. Okay. In fact, isn't it commonplace in science not to be able to replicate experiments?

A. It's not common to be unable -- let me start again.

Biology is -- you know, the attraction of biology is that, you know, we're doing things that are new. Biology is a dynamic process. We design experiments based on we adopt a set of conditions, we expect to see a result. If I do an experiment and every time I do that I get a different result, tells me there's something wrong and I can't draw any conclusions. For me as a scientist, I think we're all the same, for us to draw final conclusions we get a result and we do it again and we do it again and we do it again and we do it again. Then we use statistical analysis based on discussions with a statistical expert to verify that that is not happening by chance.

Q. Take your scenario. You do something and you get the thing and you do it again and you do it again and you don't get the exact same results as you did initially. Are you suggesting that would constitute that fraud was involved in the first experiment?

A. No, I am not. The interpretation is

everything.

Q. Okay.

A. So if there's a change in the response, then the question is how did that change come about.

Q. And isn't the only way to know how that change would come about would be to investigate all the possible things that could have affected the outcome of the subsequent experiments?

A. If the experiment -- we attempt to design experiments such that we vary very few variables.

Q. When you say we, again --

A. I think that's the scientific community.

Q. But you don't do experiments using tritiated thymidine, thymidine or related to the bystander effect.

A. That's irrelevant. The scientific principles of how you do an experiment are across the board.

Q. Just answer my question, though.

It's irrelevant, but the answer is no, you don't, right?

A. Can you repeat your question?

Q. Do you do any experiments involving thymidine, tritiated thymidine or the bystander effect?

A. I personally do not directly, no.

Q. So how does one go from -- your example, you do something and you try and you try and you try and there's

subsequent attempts and they all don't replicate. Okay? At what point, if there's not an investigation to say why is that, let's take the time and energy and put everything else on the shelf and look at all and rule out one at a time all the potential variables, how does scientifically one jump to a conclusion of fraud before any of those are actually run down or investigated, any of those variables?

MR. PINCUS: Objection to the form of the question. You may answer.

A. Can you rephrase that question?

Q. Sure. The experiment that you just described to me, you do something, you do it, you try it, you try it, you don't replicate it, I said does that prove the first time that's fraud, you said no. Same scenario, okay, only now I'm saying somebody says there would be 10, 12, 15 variables out there that could affect this and nobody is going to go and investigate those variables to say yes or no with surety that they either had an effect or did not have an effect. Do you think without that a scientist could say, well, then let me go back then, I'm going to say the first one was fraud?

A. If the experiment is designed properly there are not 12, 14, 15 variables. The experimental conditions --

Q. Answer my question, please.

MR. PINCUS: Let him finish. I think he's trying to.

MR. LEONARD: Okay.

MR. PINCUS: Go ahead. Continue.

A. So I design the experiments or my students design the experiments. For start we don't know if they're going to work or not. We have a hypothesis and we test that hypothesis. If the data being generated is just doesn't work, work, doesn't work, doesn't work, that tells us there's something wrong in what we're doing. So we have to revise the hypothesis and design different experiments.

Q. What if it works once and you can't replicate it, does that mean the first time you committed fraud?

A. It doesn't mean I committed fraud.

Q. How would you figure out whether there was fraud involved or one of those variables?

A. Can you define what you mean by fraud here?

Q. Yeah. You gave a report that says here is a summary of the basis of allegations of fraud. You basically gave an opinion that says I've looked at documents and based on those documents two scientists I am going to point to, and probably ruin their careers, and say they committed fraud.

A. Okay.

Q. And that's based on they got a result and it

couldn't be replicated. And what I'm saying is, without investigating all those variables, firsthand, finding out did they or did they not, not everybody saying could have, would have, maybe, if, without going in there and finding out, how does somebody look at those people that did the initial experiment and say you're a fraud?

A. Sir, with respect, I think what you're asking me is not the scenario that I was referring to when I was referring to I do an experiment.

The scenario here on fraud is these data were published, they were put to the scientific community as this is what happens.

Q. Okay.

A. When I do that, I have a responsibility. I have to ensure that when I publish something I believe that this is true, it is reproducible because the rest of the scientific community is going to read this and say, yes, this is published, it's been through peer review, therefore, it's most likely correct.

Q. And you follow this type of information, I think you testified earlier, about bystander effect, correct?

A. That's true.

Q. So you know other people have since had success with bystander effect, correct?

A. I don't understand what you mean by success in bystander effect.

Q. They've shown they can affect the bystander effect; Dr. Hall at Columbia and others have published on that?

A. There's a large amount of information on bystander effect, yes, but I'm not sure what relevance that has to this situation now.

Q. Well, besides Dr. Hill, have you ever heard anybody say that what happened here is fraud; have you ever heard anybody in the scientific community, if you read papers on the bystander effect, have you seen an article critical of the Howell -- actually Howell and Hill paper?

A. I have not.

Q. Okay. So with all these people, and we've established you do not work in this field, with all these people constantly doing experiments in that field in all the years that have passed since this paper, your testimony is you've never seen anybody take issue with the findings published which include the protocol; is that correct?

A. Those people have not seen the information that I saw in terms of the attempts to duplicate these results. What these people see is the published article which only gives the data presented from Dr. Bishayee's status.

Q. Back up a minute. My question to you is, with all of the protocol posted and a lot of people in the field doing work on bystander effect have you ever seen a paper or anyone taking issue with what was established by Dr. Hill and Dr. Howell in their paper?

A. I'm not aware of that.

Q. Okay. You talked about applications and falsifying information on applications a moment ago, right?

A. (Witness nods.)

Q. And I guess you're talking about the NIH application?

A. I'm talking about publication at well.

Q. But certainly the application?

A. (Witness nods.)

Q. Okay. Isn't it true that you were with NIH at the time the application for this was submitted?

A. I don't know what you mean by "with NIH".

Q. Weren't you, what do they call them, a study member?

A. I was a member of the radiation study section.

Q. One of 20, right?

A. I believe so.

Q. So wouldn't you have had to have reviewed this application and actually voted on it?

A. I would have voted on that. In the review process there are experts assigned to the particular grants.

Q. But you would have had to vote on the Howell grant?

A. Excuse me, I didn't finish.

Q. Sorry.

A. The process is -- so the grants come in to the NIH, they go to the particular study sections, then the study section members are assigned the grants.

Q. But all the study members have to vote on the grants?

A. They vote on that. They vote on the basis of what is presented, what is presented by the reviewers.

Q. So the reviewers proposed and you voted for this grant?

A. I don't recall. I don't recall seeing that grant.

Q. But you would have had to have voted on it, correct, because all 20 members vote?

A. If it was the case that that grant was reviewed when I was a member of the study section and physically present, that would have been the case, but I don't recall.

Q. Okay. I will submit to you that it was submitted in 1999 and you were a study member in 1999.

A. But I did not attend every single study section.

Q. Okay. What did they do with the absentee people if they have 20 of you? Do they need a quorum to vote?

A. No. The reason I was not absent -- would not be absent would be because my wife had health problems so I would notify and there would have been somebody else in.

Q. So there's always 20, it just could be like a rotating, temporary --

A. There's not -- it's not always 20, but there are enough, there's always enough reviewers brought in with the expertise to review the grants that are presented.

What I would point out, again what you're voting on is what you are presented with in the grant so you're not -- they would not be presented with the information that I have seen in terms of the inability to duplicate those results.

Q. See, this is where I'm getting confused with your report. Is your issue the inability to duplicate the results or is it the level of tritiated thymidine and the lack of the other two factors that we talk about? That's where I get confused because it seems like what you're saying is I knew by just looking at the levels and that they weren't going to use these two other things that that

couldn't be.

MR. PINCUS: Objection to the form of the question because it's phrased in the disjunctive and it could be both, but you may answer.

A. I apologize for not explaining myself.

The data cannot be generated based on radiobiological principals, presence of tritiated thymidine does cause an issue. The fact there's no deoxycytidine does mean, once again, you can't get those data.

Q. You can't get those data as part of the application process?

A. No, you cannot generate those data biologically. You can generate the data by thinking this is the result I want to get and, therefore, I'll generate the numbers. But biologically you cannot generate those data.

Q. So it is those three factors and not -- it's those three factors that you're saying you're basing your conclusion that there was fraud?

A. Yes.

Q. Okay.

(A recess occurred.)

BY MR. LEONARD:

Q. Dr. Robbins, we're back on the record now and I will just remind you that all of the instructions that we went through earlier are still in place this morning and you

still remain under oath.

I'd like to go back to looking at your report, if we might. And Page 8 it's like a list of variables that could be at issue and it refers to a letter by Dr. Howell that he said -- well, I'll quote you, "which he proposed a number of possible factors that might explain the differences in the data generated. However, as discussed below, those failed to provide any evidence that might explain the marked differences in the experimental data generated by Bishayee and that of Lenarczyk."

MR. PINCUS: "And Howell."

Q. "And Howell." And then we go through some bullet points and the common theme, I don't want this to jump out you, you know, there's a lot of talk about in all of these, like the first one says "It seems highly unlikely," but that's not to say it's impossible, correct?

A. It's not impossible, it's highly unlikely.

Q. Okay. The third one down says "Without any evidence to indicate this either occurred or would have had any significant impact on the data, this provides no explanation," but we never investigated that to see whether there was any evidence; isn't that correct? Do you know if anybody investigated to find any such evidence?

A. I don't believe they did.

Q. Okay. And if there had --

A. But in my opinion these are very, very minor points given the weight of evidence in terms of the tritiated thymidine, the deoxycytidine and the lack of synchrony.

Q. Okay.

A. None of these points, in my opinion, would really impact those.

Q. So you don't even have to take out the disclaimers then, where it says, "It is not clear or without any evidence," you don't need any evidence. What you're saying is blanketly none of these things could have an effect.

A. No, I'm not saying that.

Q. Okay.

A. I'm saying that in terms of weighing the evidence, to my mind, these are minor compared with the principals that were put in the earlier part.

Q. But my question to you is, if some of these, and we're not -- nobody's even saying that this is the entire universe of what could possibly be out there, correct? I mean, you're not listing all the possible issues that could have happened, you're taking this from a letter from Dr. Howell who's saying maybe it's one of these variables.

So my question to you is, are there variables

in here that alone or in combination could have caused the problem in replication?

A. There's no evidence to suggest they did.

Q. That's not my question. Could they?

MR. PINCUS: Objection to the form of the question. You know, anything is possible. The question is is there any probability that it occurred, John.

MR. LEONARD: No, No, No. Don't answer for him.

MR. PINCUS: I'm not. I'm objecting to the form of the question.

MR. LEONARD: Nobody looked and tried to find evidence.

MR. PINCUS: You're right, Dr. Howell didn't look or find any evidence. We agreed with that.

MR. LEONARD: You're testifying.

BY MR. LEONARD:

Q. Is it your testimony that one or more of these, if they were there, if there was evidence that they were there, could have affected the outcome and prevented the replication?

A. In my experience I don't believe that any single one of these would have had the effect that was presented in terms of the data.

Q. So my previous question, we could just cross

all these off because none of these, alone or in combination, could have caused that effect; we can just take this page out of the report?

MR. PINCUS: Objection to the form of the question. You may answer.

A. To my mind it adds --

Q. Dr. Robbins, I'm not trying to give you a hard time. I just need to know yes or no.

There's no point in discounting each one, going down a laundry list by saying, you know, I haven't seen any evidence. The point is if one or more of these things were there, could they have caused the issue regarding inability to replicate?

A. I think that's highly unlikely.

Q. So you don't know or you --

MR. PINCUS: Objection. Asked and answered.

A. Biology is not a definite.

Q. Okay.

A. If I tell you two and two equals four, the whole world universe knows that two plus two equals four. Math is definite. Biology is not. So I cannot hand on heart say that there's no chance. But statistically it's so unlikely that in my opinion this does not provide a rationale.

Q. Let me ask you this, and I understand what

you're saying about biology not being an exact science, but if you can't say that there's no chance, how would you ever point a finger at a fellow scientist and say they committed fraud? If you're unable to say there's no chance those things didn't result in the inability to replicate, how would you ever take that to the next step and say, but I don't think it's likely and, therefore, he committed fraud?

A. You can replicate data. The data that I published and other people published should be, should be reproducible.

The situation here is you have data that were generated that was not reproducible. It was not reproducible by -- including Dr. Howell himself who attempted to reproduce those.

Q. There's no doubt about that.

MR. PINCUS: Let him finish, please, John.

A. I haven't finished.

Q. You're saying you can't say -- go ahead.

A. Could you remind me what I said, is that possible?

(The court reporter read the pertinent part of the record.)

A. And there was no attempt to tell the community that those data could not be reproduced.

Q. So that's why you think it's fraud? I'm

trying to figure out how you get from you can't reproduce it and I can't rule out all these variables as the cause, yet I'm going to say a fellow scientist committed fraud and should be banished from the scientific community. I'm trying to get that connection.

A. I'm not stating that anybody should be banished from a community.

Q. Well, you're alleging somebody committed fraud, a pretty well-known scientist committed fraud.

A. Yes.

Q. So you don't make no mistake about it, you're the conduit that that's attempted to be done through.

A. Okay. That's not my responsibility for that person's banishment.

Q. It's your responsibility if you're looking at this --

A. It's my responsibility -- excuse me --

Q. Let me finish my question.

A. Okay.

Q. It's your responsibility if you look at those factors and tell me I can't say that these factors weren't the cause. How do you then connect the dot to say, but I will say that I think there's fraud involved? I don't understand that.

MR. PINCUS: Are you done so he can answer?

I just want to make sure because I don't want you guys talking over one another. Is there anything else, John? You can answer now, Doctor.

A. The question -- the reproducibility is the fundamental consequence or fundamental concept of what we do. Biology, I say, by its nature is variable. Therefore, I do not expect to see exactly the same thing exactly the same every single time. That's not the issue. But the issue is I need -- when I generate information, if I'm going to publish that or present it in a -- in some proposal and I'm going to build up a case for saying I need more money to pursue this, I have to believe that that really is correct, that it's true.

If I'm presented with a whole lot of evidence that those data are very questionable, it's my responsibility to respond to that.

Q. Okay.

A. Not to apparently ignore it.

Q. How would you respond to it?

A. I would try -- I would try and replicate that.

Q. Okay.

A. If I couldn't replicate it, I would then say, okay, we have to do something about this.

In my own circumstance I have had a situation

where I got an NIH grant, one of the aims was to do one thing, it didn't work, but I reported that to the NIH. Every year you write a noncompetitive renewal in which you state progress and future direction. If things aren't working out correct, I notify people. I say, you know, we can't do this, we're going to do something different. I'm not misleading people. If I publish something and it's in the literature, it's for real.

Q. And what makes you think Dr. Howell doesn't believe this is for real?

A. The data that is presented in my report clearly shows that those data are impossible to generate --

Q. As you know -- go ahead.

A. -- unless they're fabricated.

Q. So we can discount all of these items because the only way to do it is to fabricate it?

A. Yes.

Q. So now you're, because this is important, because before you weren't willing to say this, now you're saying we can take a pen and draw through all these variables because they don't count, that in your scientific opinion any one or more of these in combination couldn't have resulted in the inability to replicate, that's your scientific opinion? So we can take that page and throw it out; is that what you're saying?

A. I'm saying that these factors --
Q. Please answer yes or no. I just want to know if that's what you're saying. We've been through it four, five times.
MR. PINCUS: He's attempting to answer your question. If it can't be answered yes or no, he'll explain.
Q. If you're telling me that these cannot be responsible -- could one or more of these factors be responsible for the inability to replicate; yes or no?
A. You're asking me to say something definite.
Q. You're an expert. What do you think I'm going to be asking you. Yes, I'm asking you to tell me in your expert opinion if one or more of these things could be responsible for the inability to replicate the experiment; yes or no?
A. Dr. Bishayee's data, I would say no.
Q. What data are you referring to?
A. The data that is published in the two Radiation Research articles --
Q. Listen to my question, Doctor, please. We're not trying to play word games.
A. I'm confused then.
Q. All I'm asking you is could one or more of these factors be the cause for the inability to replicate the original experiment results; yes or no?

A. No.
Q. So all this in your report we can take out?
A. To my mind it's part of the report.
Q. Why?
A. If you want to take it out, that's...
Q. You just told me it has no consequence.
MR. PINCUS: We're not conceding that it's coming out from the report.
MR. LEONARD: You're not conceding anything. You're not testifying.
MR. PINCUS: I'm just saying if you're suggesting --
MR. LEONARD: Objection to form. Objection to form. Fine.
MR. PINCUS: But we're not in any way suggesting that that comes out of the report, but you can continue.
Q. What are you suggesting? What are you suggesting? Because I don't know. If I ask you if it matters you tell me it matters. If I say doesn't it matter you say, okay, it doesn't matter. You just have to tell me what your opinion is.
MR. PINCUS: Objection. Argumentative. Asked and answered.
Q. I'm not being argumentative. You just need

to tell me your opinion.

Could one or more of those things be responsible for the failure to replicate? I know you don't want it to be, I'm asking you if it could be.

A. I don't think so.

Q. Okay.

(A recess occurred.)

BY MR. LEONARD:

Q. Dr. Robbins, we're back on the record now and I remind you all the prior instructions are still in place.

A. I understand.

Q. And you remain under oath.

We've talked about the Bishayee fabricated data. Okay? Do you know what role that played in the bigger picture of Dr. Howell's grant?

A. I'm not sure. Could you maybe rephrase the question?

Q. Yeah. What relevance did it have to the overall project? What role the alleged fabricated data played in the bigger picture of the stated goals of Dr. Howell's grant?

A. I think it supported the overall hypothesis, but I don't recall the details of the grant.

Q. Okay. So it would be fair to say that you really don't know?

A. I don't know the details, no.
Q. Okay. I assume as part of your preparation here today you reviewed the expert retained by UMDNJ, Dr. Ludwig Feinendegen?
A. I did, yes.
MR. LEONARD: Could I have that marked, please, as Robbins-2.
(ROBBINS-2 received and marked for identification.)
BY MR. LEONARD:
Q. Having read Dr. Feinendegen's report did that give you pause or any concern about some of the conclusions reached in your own report?
A. No, it did not.
Q. Do you agree with any portions of his report?
A. That's a very open question.
MR. PINCUS: You want him to go line by line?
Q. Do you agree with the conclusions reached in his report?
A. Can you specify which conclusions?
Q. Sure. Do you know Dr. Feinendegen?
A. No, I don't.
Q. Do you know of him?
A. No, I don't.
Q. When you were preparing for your own

deposition, or at any time, did you read Dr. Feinendegen's report in detail?

A. I have, yes.

Q. And we will go through different portions of it, but obviously you see where he takes issue with a lot of your findings and the methodology by which you purport to use to get to those findings?

A. I do.

Q. His is a rebuttal report, you write a report, his report really is in response to yours and I guess the first thing I would do is offer you an opportunity to respond to his report.

Do you have any overall remarks regarding his findings?

A. Only that it doesn't impact -- my expert opinion remains unchanged.

Q. Okay. As you know, Dr. Feinendegen, please don't take this personally, takes issue with your areas of expertise and says that you failed to comprehend the biochemistry thymidine incorporation into the cell. That's in the middle of the paragraph.

I assume you disagree with his assessment of your abilities?

A. I do.

Q. On Page 2, he goes through your Robbins

reason one. Could you read the two paragraphs that he has after that and tell me your response to that.

MR. PINCUS: You want him to read it to himself?

MR. LEONARD: Yeah.

MR. PINCUS: So we're talking about the one that starts "this claim totally fails"?

MR. LEONARD: Yeah.

MR. PINCUS: And "the Bishayee et al"?

BY MR. LEONARD:

Q. Why don't you read it out loud. I don't mean to do that to you, but if you don't mind.

A. "This claim totally fails considered the fact that the amount of thymidine molecules and not tritiated thymidine as such may cause blocking the movement of the cells to the various phases of the cell cycle. In other words, Dr. Robbins' statement fails to consider the difference between high and low specific activities of tritiated thymidine, that is the relative large and small number of tritium atoms per unit number of thymidine molecules in the experiments by Bishayee et al.

Bishayee et al. have used high specific activity tritiated thymidine as demonstrated below in more detail (pages 6-8). Stated another way, high specific activity means that a given number of tritium atoms are

bound to a small amount of thymidine molecules. On the other hand, low specific activity means that the same number of tritium atoms is bound to a relatively large amount of thymidine molecules.

Q. With respect to those two paragraphs do you agree or disagree with Dr. Feinendegen?

A. I disagree with the opinion that the amount of tritiated thymidine would not have perturbed the cell cycle.

Q. Okay.

A. Based on the papers that I refer to in my report.

Q. Okay.

A. And actually and others that I'm now aware of as well. I think there's a paper by Hu, et al, which I did not refer to in my report that again substantiates.

Q. Where did you see that paper?

A. I found it on PubMed.

Q. Okay. It says reason one and it repeats your reason, "Tritiated thymidine as such blocks the movement of cells."

Are you saying in general or in this case? Do you see what I'm saying?

A. Tritiated thymidine does -- can -- does block movement of cell through the cell cycle particularly in the

concentrations used in the Bishayee experiments.

Q. What concentrations were those?

A. They're in the report later on, that's on Page 7, I believe, where --

Q. Of your report?

A. No, this is Feinendegen's report.

Talks about the high specific activity.

Q. Right.

A. And also it talks about, on the next page, talks about a concentration of .12 micromole. There are publications that have used the same specific activity and same concentration and have shown perturbation of the cell cycle. Actually there are studies using much lower concentrations, a hundred to a thousand for the lower concentrations, as reported here, still perturb the cell cycle.

Q. And he's taking issue with the fact that you are talking about human cells or?

A. That's irrelevant. That's mammalian cells.

Q. So you're saying the type of cells is irrelevant to the analysis?

A. I'm saying that the type of cells that the tritiated thymidine concentrations perturbs a broad variety of cells. It's not a cell-specific response.

Q. Okay. In Feinendegen's report, when he goes

through the various experiments, he finds that there was no -- Paragraph 2 on Page 3, he says, "Hence there was no perturbation of the pool by thymidine in experiments by Bishayee and thus also with certainty no thymidine-related blocking of movement of cells through the various phases of the cell cycle." Do you see that?

A. I do see that.

Q. I assume you disagree with that?

A. I disagree.

Q. Okay.

A. Published data refutes that statement.

Q. All published data?

A. No. Published data by the papers from I think it's Hu et al, Korbitova (sp), the publications that I put in my report and additional ones where people have used the same concentrations, lower concentrations, and have clearly shown perturbation of the cell cycle.

Q. What about the papers that Dr. Feinendegen cites, did you read any of those?

A. I did. They're different. Those experiments are actually designed to use the thymidine to inhibit cell cycle. It's comparing apples and oranges. It's a completely different experimental design.

So what he states is correct and a lot of those papers actually were in my report. So I agree with

those statements. That is true. That's not the experimental design that Dr. Bishayee used.

Q. Okay. Walk me, because the apples and oranges, walk me through what you mean by that.

A. The experiments that he and I refer to --

MR. PINCUS: You're on Page 8 of Dr. Feinendegen's report, so we have a clear record here.

A. -- are referring to experiments designed to show the effect of thymidine on blocking the cell cycle. The thymidine is put there to block the cell cycle, that's why that agent was used.

In the experiments that Dr. Bishayee used, the tritiated thymidine is not there ideally to block the cell cycle. The idea is to actually to irradiate the cells and cause cell kill.

Q. Describe for me the difference between tritiated thymidine and the thymidine.

A. Thymidine is -- the tritiated thymidine is radioactive labeled, so it has a radioactive label on it. The thymidine is the compound that's taken up by the cells when they're synthesizing DNA, goes into the DNA.

If you have a radial label, the tritium on there, now you've put that radial label into the DNA and you can now now actually -- it will now irradiate that DNA and can cause, can cause some damage.

MR. LEONARD: Would you mark that, please.

(ROBBINS-3 received and marked for identification.)

BY MR. LEONARD:

Q. Dr. Robbins, I'm handing you a document that has been marked Robbins-3. I take it it's your curriculum vitae. Let me know if that's the updated, most current one you have.

A. It's not.

Q. Oh, it's not. Okay. Could you get me --

A. Sure.

Q. -- whatever it is --

A. Sure. I make changes pretty frequently so I can send you one.

MR. PINCUS: You'll send it to me and I'll pass it on.

THE WITNESS: Okay.

Q. With respect to this whole process surrounding this case are you aware of the fact that this has been looked at three times by different review boards including ORI?

MR. PINCUS: Objection to the form of the question. No foundation. You may answer.

A. I'm aware that there were two, I believe two internal committees of the university that looked at this

and that the ORI looked at this.

Q. Okay. So you are aware that it's been looked at three times?

A. Yes.

Q. And you are aware that there was a finding of no scientific misconduct in all three instances?

A. I am.

Q. And you're aware that this is a qui tam action; is that correct?

A. Yes.

Q. Do you understand what a qui tam action is?

A. No, I don't.

Q. Okay. I can explain it to you.

A qui tam action is where an individual called a relater goes in and files a lawsuit purportedly on the behalf of the United States. It's under seal so the folks against whom it is filed don't even know that it's been filed. And then the United States government has a period of time, it's usually six months, but they can get extensions, and they come back and say after our investigation we're either going to pursue it because we think it has merit or we're not going to pursue it.

In this particular case that investigation went on for better part of five years and the United States government came back and said, no, we don't think -- we're

not pursuing it. We don't think there's enough merit to pursue it.

Were you made aware of that?

A. I don't recall.

Q. Okay. Have you read the ORI report?

A. I have.

Q. Was that part of the documents that Dr. Hill and Mr. Pincus provided to you?

A. It was.

Q. Do you have any understanding regarding how many proposed experts were interviewed by the Plaintiff in this case?

A. No, I don't.

Q. Just give me a couple minutes. Maybe we can wrap up. Why don't we take ten minutes.

(A recess occurred.)

BY MR. LEONARD:

Q. Dr. Robbins, we're back on the record and you know, of course, all the instructions still remain and you remain under oath.

A. I understand.

Q. In your report you refer to the successful grant application submitted by Dr. Howell as well as two published papers. Have you actually read those papers in the grant?

A. The two Radiation Research manuscripts?
Q. The two published papers?
A. Yes, I have.
Q. How about the grant?
A. I didn't read the whole grant. I read the preliminary data section in which the disputed data is presented.
Q. And you're aware of the fact that the grant's been renewed?
A. I am.
Q. Did you read the renewal application?
A. I did not.
Q. Okay. Is there anything else you wish to say about your report or anything we discussed today?
A. I think I'd just like to add, you know, my -- the reason for my opinion and my support is essentially for concern over, to my mind, being faced with a situation in which, if I have something that is purported to be reality, has been published, and I'm presented with over 20 experiments that failed to reproduce that, that even I am doing and I can't reproduce that, that to me is a big red flag. I have to do something about that. I have to report that, report that to the scientific community, report that to the funding body. And it is something that, you know, to report to the funding body, to my mind, is no big deal. If

you tell NIH up front there's a problem, you know, I think they will help you deal with it.

Part of the process for them and for us is really to help the PIs to achieve success. Nobody's out to nail anybody. But the failure to do that, the failure to recognize what strongly I believe is fraud, really concerns me.

Q. Okay.

A. That's why I'm here.

Q. Thank you for your time.

A. Thank you.

CROSS-EXAMINATION BY MR. PINCUS:

Q. Okay. Dr. Robbins, I have a few questions in light of the questions that Mr. Leonard asked you here this morning.

You were asked your experience in terms of dealing with experimentation involving thymidine or the tritiated thymidine or the bystander effect.

Do you recall that testimony?

A. I do.

Q. Not withstanding your responses, do you believe that your training and expertise in radiation biology equipped you to render an opinion in this case?

A. I do, very strongly.

Q. And you base that on what?

A. I base that on 30 years of scientific research, of 30 years of critiquing my own experiments, I've reviewed other people's manuscripts, I've reviewed grants for the NIH, RSNA, numerous scientific bodies. I've served on the Radiation Research study section.

The reason that you get on those committees is recognizability to be objective and to be able to understand, not only your -- the specifics of your own area of interest, but have a broad expertise and I think it's important to realize that, and I think this is the case of all the PIs, it's not that we know this little thing that we do in detail, we have a broad detail. I teach radiation biology so, therefore, I need to know all aspects of radiation biology.

Q. In the course of your preparing your report and preparing even for this deposition I believe you identified the fact that you read Dr. Feinendegen's report which was marked as Exhibit Robbins-2; is that correct?

A. That's correct.

Q. Did you also have the opportunity to read the deposition that I took of Dr. Feinendegen?

A. I did.

Q. Did you also have the opportunity to read the other -- any of the other depositions in this case, particularly Dr. Howell's; do you recall?

A. I've read all the depositions.

Q. And Merrick Lenarczyk's, you've read that too?

A. Yes.

Q. Did you rely upon those as part of the documentation to form your opinions in this case?

A. They helped me -- they reinforced my opinion, is the best way of putting it.

Q. Now, with regard to questions that Mr. Leonard asked you when we were referring to, I believe, Page 8 of your report that's marked as Exhibit Robbins-1, see where I'm referring to where we were talking about those list of variables?

A. I do, yes.

Q. Do you recall reviewing the testimony of Dr. Howell in regards to his list of possible hypotheses to explain the difference in the data?

A. I do.

Q. Were you able to determine that he had engaged in any type of investigation of these variables?

A. It would appear that he did not.

Q. Did you find him to provide any data to substantiate whether any of these variables might be a cause of the inability to replicate the experiments that Dr. Bishayee had engaged in?

A. No, I did not.

Q. You were questioned in regards to Dr. Feinendegen's report, specifically the issue, as I understood it, relating to the thymidine pool; do you recall that?

A. I do.

Q. To your knowledge, were you able to determine whether Dr. Feinendegen could ever specify the pool size in V79 cells?

A. He could not.

Q. Are you aware of anything in the literature that specifies what the pool size is in the V79 cell?

A. There's nothing in literature that specifies the thymidine pool for V79 cells. There's a table in an article from Cleaver, I believe Cleaver and Holford, in which they actually give a range of concentration of thymidine for mammalian cells and suggest a value of 10 to minus 4 to 10 to minus 5 molar is an approximate range.

Q. And I believe that Cleaver Holford article was a resource that you cited in your paper?

A. It is, yes.

Q. And you're familiar with that?

A. Yeah.

Q. And I believe you also had mentioned two other authors a Hu, H-U, and Korbitova; do you recall that?

A. Yes.

Q. I'm going to show you -- just so we're clear, I want to make certain, I'm going to show you certain exhibits that were marked during the course of Dr. Feinendegen's deposition.

A. Okay.

Q. I'm going to first show you Exhibit Feinendegen-5. Is that the Cleaver Holford article or publication article that you're referring to?

A. It is.

Q. And you mentioned a couple of moments ago that to your recollection there is a table that talks about ten to, I think it was, minus four or five molar; is that correct? Can you identify what page that is, to the best of your recollection?

A. Actually I believe that table is from a book that was published by Cleaver.

Q. Okay.

A. And it's not actually in this publication.

Q. Why don't you look at Page 665 of that article, maybe that will assist you, so I don't have to have you thumbing through the pages.

A. Okay.

Q. There's a reference, I'm looking at my copy of it, there's a reference again to the minus four, about

halfway down the page. Is that what you were referring to?

MR. LEONARD: Objection to form.

Q. I'm on Page 665. If I'm incorrect, let me know.

A. That is not. That is not what I was referring to.

Q. You're referring to what then?

A. I'm referring to a table from a book, either book chapter or book that Cleaver has published which actually has a table in which he lists the concentrations.

This paper is interesting because it actually shows, looking at the effect of adding tritiated thymidine, it shows the concentrations that were on the order of a hundredfold lower than those used by Bishayee did actually perturb the cell cycle. So I think it refutes the arguments of Dr. Feinendegen.

Q. Just so we're clear, when you made reference to the Hu publication, let me show you what was marked as Feinendegen Exhibit 10, is that the publication you were referring to?

A. Yes, it is.

Q. And you made mention to an article by someone by the name Korbitova. I'm going to show you what was marked for identification as Feinendegen-22; is that the article?

A. Yes, it is.

Q. When you reviewed the deposition of Dr. Feinendegen did you also have available to you all of the various exhibits?

A. I did.

Q. Do you recall looking at something that was marked as Exhibit Feinendegen-11?

A. I do.

Q. What does this tell you, what was your understanding of what this document related to?

A. This shows concentrations of thymidine from the publications that I believe most, if not all of these, are actually in my report, that shows that thymidine can block the cell cycle.

Q. Did this document to your knowledge -- does this document in any way cite or reflect what the size of the thymidine pool in the V79 cell line is?

A. No, it does not.

Q. Do you agree with Dr. Feinendegen's opinion that the amount of tritiated thymidine that was added in the Bishayee experiments was too small to affect the pool and, therefore, to interfere with the cell cycle?

A. No, I do not.

Q. Can you tell me why you disagree?

A. Again, as the paper by Cleaver and Holford

clearly demonstrate, the concentration of tritiated thymidine that I believe are a hundredfold lower than those referred to in Dr. Feinendegen did impact the cell cycle and there are a number of other studies, other publications that also point out the same thing.

Q. In the course of reading Dr. Feinendegen's report did you see that he relied upon an experiment that had been cited to him by Dr. Howell by someone by the name of Harapanhalli?

MR. LEONARD: Objection to form.

A. I did.

Q. H-A-R-A-P-A-N-H-A-L-L-I.

Q. And did you have occasion to review the data which Dr. Feinendegen indicated that he reviewed for purposes of commenting on this experiment, specifically I show you what has been provided as documents Bates stamped UMDNJ Hill 0047554847? Just take a moment to look at that.

MR. LEONARD: Do you have a copy for us, Shelly?

MR. PINCUS: I don't have an extra copy but I'll share mine with you when we're done.

MR. LEONARD: What is he looking at?

MR. PINCUS: This was what Dr. Bishayee identified in the course of his deposition as the Harapanhalli experiment. It was the documents that I just

gave you the Bates stamp numbers --

A. Feinendegen.

MR. PINCUS: I'm sorry Dr. Feinendegen. I apologize.

A. Yeah, I did see these.

BY MR. PINCUS:

Q. Were you able to interpret the graphs that were located within this documentation?

A. Not all -- some of them I could. There's a real mix of data there.

Q. Okay. When you say there's a whole mix of data there, what are you referring to?

A. In terms of when you're looking at the effect of radiation of the cell cycle there are some studies which they've looked at reduction of survival in the orders of two logs, three logs, four logs. So it's hard to compare some of those. So what I actually did was take the most, sort of, comprehensive sets of data and plotted those out.

Q. And when you plotted them out what did you determine?

A. If you plot the data out you see a biphasic response which again is indicating that the Bishayee data appears to be fabricated. Not only that, they have a series of experiments in which they look at cell survival with or without deoxycytidine and in those cells in which

deoxycytidine was present you actually got, I believe, in the order of 15-fold greater amount of cell kill, which again supports the importance of deoxycytidine in being able to get that level of cell kill. Deoxycytidine was not present in the experiments by Bishayee, therefore, the data appears to fabricated.

Q. And your understanding was that Dr. Feinendegen was citing this Harapanhalli experiment as an experiment that had been performed which demonstrated an expediential decline as a result; is that correct?

A. Can I look at the document of what he says?

Q. Sure.

MR. LEONARD: What are you looking at, Dr. Robbins?

THE WITNESS: This is Page 13, the second paragraph that starts "Reason three again."

MR. LEONARD: Okay.

A. What he's really referring to -- actually what he's referring to is synchronization.

BY MR. PINCUS:

Q. And he is positing what in regard to synchronization?

A. Well, he's arguing that you don't have to have synchronization to get the amount of cell kill in these experiments. Really he's addressing the fact that one of

the arguments that I make is that because these cells weren't synchronized into the same phase of cell cycle it would be impossible to get the level of cell kill that Bishayee has reported.

Q. And as a result of your review of the documentation associated with this experiment, so I'm clear, you concluded what?

A. I conclude that that is not the case.

Q. That is not the case why?

A. Because as we will -- let me take that -- you initially referred to the -- what we're talking about is deoxycytidine being present there or not. The deoxycytidine being present in the Harapanhalli experiments showed that if he had the deoxycytidine present you'd have increased cell kill. That is because the deoxycytidine prevents the tritiated thymidine mediated cell block, which in some respects is one of the foundations of the idea that Bishayee could not generate those data from his experimental design because the deoxycytidine was not present and the tritiated thymidine would cause a cell cycle block.

Q. Insofar as cell synchronization, however, do you agree or diagree with Dr. Feinendegen?

A. I disagree that these cells were synchronous. There's no evidence from the experimental protocol that Dr. Bishayee used that suggests that there'd be any level of

cell synchronization in that population.

MR. PINCUS: Just give me a minute, John.

BY MR. PINCUS:

Q. I just want to be clear. I wanted to be clear insofar as you gave a response to one of Mr. Leonard's questions and I know he questioned you a little further when you used the term you were comparing apples and oranges.

Do you recall testifying to that effect?

A. Yes.

Q. Can you explain to me again, you know, why it is you used that analogy?

MR. LEONARD: Objection. Asked and answered.

Q. You may answer.

A. Okay. I was referring to essentially the experimental design. The way we -- interpretation is really based on what is the question you are asking. The experiments that Dr. Feinendegen refers to and the same as I refer to were designed to show blockage of cell cycle by thymidine. Those experiments were designed to show if we give these concentrations of thymidine do we see cell block. That is what was hypothesized, that is what was seen and that is what was presented.

The experiments that Dr. Bishayee did using tritiated thymidine is not looking at cell cycle effect, it's looking at the effect of tritiated thymidine in terms

of your radiating cells to see what consequence that does have on cell survival. So, therefore, really you have a completely different readout, completely different experimental design, completely different approach. Therefore, you cannot compare the two responses.

Q. I understand now. Thank you. That's all I have.

Oh, one second. Also when you were questioned in regards to your review of the internal committees of UMDNJ and the ORI and you read the report, do you recall in reviewing those materials and the investigatory report of the committees, that they identified the data that they were relying upon?

A. Can you re-ask that one again?

Q. Sure. Was it your understanding that the internal -- the university internal committees and ORI had available all of the experiments that were undertaken, the 20 or 22 experiments that you've identified and which you have, you know, reviewed and analyzed, at the time they rendered those determinations?

MR. LEONARD: Objection, foundation. Objection to form.

Q. You may answer.

A. It's my understanding they did not.

Q. That's all I have.

MR. PINCUS: John, do you have anything else?

MR. LEONARD: I do, very quickly.

REDIRECT EXAMINATION BY MR. LEONARD:

Q. Dr. Robbins, you mentioned reading a number of depositions in preparation for today's testimony. Did you read the deposition of Dr. Azzam?

A. I did.

Q. And did Dr. Azzam's deposition influence or form the basis of any opinion or conclusions that you rendered here today or in your report?

A. It didn't change the opinion that I have in my report.

Q. Okay. Did you agree with generally his testimony regarding the facts at issue?

A. I think his opinion to me failed to address the concerns that were raised and were addressed in my report.

Q. And what concerns were those, if you can?

A. I'd have to read -- I apologize. I'd have to read his deposition again because I read that a long time ago if you want to ask me specifics on it.

Q. Okay. You mentioned a Cleaver book article and I don't see the name Cleaver, unless I'm missing it, in your references.

A. No, that was not -- that was not -- I was not

aware of that prior to the deposition because, you know, as you'll see in my deposition, I don't actually directly address the question of thymidine pool. That was really generated by Dr. Feinendegen. So it was after seeing his report and obviously realizing that that was a major platform that I then looked in more detail on that topic.

Q. Did you not recognize that to be a significant factor until it was raised by Dr. Feinendegen?

A. I didn't think -- it's irrelevant because of the data that I already looked at showed concentrations lower than had been used by Dr. Bishayee still perturbed the cell cycle. So to my mind the information that I'd read reinforced my opinion that there would be a perturbation.

Q. Okay, but you felt a need, after reading Dr. Feinendegen's report, to go research the issues?

A. He is an expert in that area. I wanted to make sure that I was correct.

Q. What areas do you believe he is an expert?

A. He's an expert in biochemistry and looking at nuclear-type -- the use of tritiated thymidine in radiating biology expert and experiments.

Q. That's what we're talking about in this case?

A. So I do not, you know -- I clearly recognize that he is an expert in that area, but also, to my mind, he has failed to address the concerns. The issues he raisess,

I believe, are incorrect. And I repeat again, clearly the data and literature suggests that tritiated thymidine does perturb the cell cycle. If you don't have the deoxycytidine in there, you're still going to perturb the cell cycle. There was no attempt to synchronize the cells. Nobody -- I think 22 experimental attempts to reproduce Bishayee's data all failed. You can't reproduce those data.

And then we have Dr. Pitt's report and deposition which suggests, you know, that we can do very careful with cisco analysis, some of which are carried out by the same NIH do, those data clearly appear to be fabricated.

Q. Did you review a lot of additional reference material after reading Dr. Feinendegen's deposition and report?

A. I guess what do you mean by a lot?

Q. Well, how much did you review? I'm a lawyer so...

A. I think I looked at maybe, you know, half a dozen papers, including the book from -- I looked at Cleaver's work.

Q. Okay.

A. Really I focused just on that question of the thymidine or the thymidine pool.

Q. Do you know the names of the articles that

you looked at besides the Cleaver article and book.

A. I don't recall them, no.

Q. Okay.

MR. LEONARD: Shelly, I assume Dr. Robbins is going to want to testify on those subjects.

MR. PINCUS: Yeah. If you want us to give you that list, just put it in a letter, Scott. I'll get you those citations. Again, I believe it's in the body of the materials that we have, but we'll specifically identify it for you. I have no problem with that.

MR. LEONARD: Okay.

BY MR. LEONARD:

Q. That's all I have. Thank you very much for your time. I hope you enjoy your flight back.

A. Thank you very much.

MR. FLYNN: Thank you, Dr. Robbins.

THE WITNESS: Thank you.

(Witness excused.)

(Deposition concluded at approximately 11:36 a.m.)

C E R T I F I C A T E

I, MARIA F. PIOTROWSKI, a Certified Court Reporter and Notary Public of the State of New Jersey, certify that the foregoing is a true and accurate transcript of the testimony of DR. MICHAEL ROBBINS, the aforesaid first duly sworn to by and before me.

I further certify that I am neither attorney nor counsel for, nor related to or employed by any of the parties to the action in which this deposition was taken; and further, that I am not a relative or employee of any attorney or counsel employed in this case, nor am I financially interested in this action.

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Maria F. Piotrowski
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